

Science and Information

in support of

Ontario's Forest Management Guides

and

Landscape Management

Science Package - Series B

Results: Madawaska Highlands

Electronic Document – Version 2012

This science and information package should be cited as;

Elkie, P., M. Gluck, J. Boos, J. Bowman, C. Daniel, J. Elliott, D. Heaman, G. Hooper, R. Kushneriuk, G. Lucking, S. Mills, B. Naylor, F. Pinto, B. Pond, R. Rempel, K. Ride, A. Smiegielski, G. Watt and M. Woods. 2012. **Science and Information in support of Ontario's Forest Management Guides and Landscapes Management: Science Package - Series B: Results: Madawaska Highlands.** Ontario Ministry of Natural Resources, Forest Policy Section.

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1 Overview

Ontario's Crown Forest Sustainability Act (CFSA, 1994) directs forest managers to manage Ontario's forests using, in part, two principles. The first principle mandates that large, healthy, diverse and productive Crown forests and their associated ecological processes and biological diversity should be conserved. The second principle directs that conservation should be achieved through the emulation of natural disturbances and landscape patterns while minimizing adverse effects on forest values. The results in this science package provide landscape managers in the Madawaska Highlands with estimates of forest structure, composition and pattern in a natural (pre-European settlement) landscape and the current (2012) landscape including estimates of natural levels of habitat for 19 wildlife species. These estimates provide a set of targets consistent with the CFSA principles.

This package is part of a series of science packages developed by Forest Policy Section's Guide Unit to assist in the management of landscapes. For detailed information and explanations of techniques used to create this science package refer to "**Science and Information in support of Ontario's Forest Management Guides for Landscapes: Science Package – Series A: Simulations, Rationale and Inputs. Version 2012**" (Elkie *et al.*, 2012).

2 Simulation Results

Simulation results are organized by landscape guide regions (Figure 1).

The results in this report have been extracted from the GLSL-South Landscape Guide region (Figure 2). The estimates of the natural forest are compared to the current landscape. The current landscape is based on portions of the 2011 forest management planning inventories from the Ottawa Valley and Mazinaw-Lanark forests.

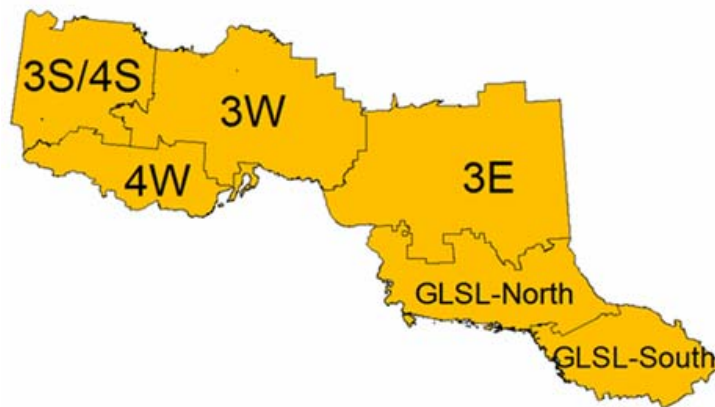


Figure 1 Landscape guide regions. Landscape guide regions approximate ecoregions but are snapped to 2006 forest management unit boundaries. GLSL-South includes eco-region 4E and GLSL-South includes eco-region 5E.

Madawaska Highlands
Area simulated – 200,465 ha



Figure 2 Location of Madawaska Highlands in Landscape Guide Region GLSL-South

2.1.1 Example animation simulation

The attached is a TELSA simulation example from ecodistrict **5E9**. Many simulations were used in estimating the simulated range(s) of natural variation (SRNV) and this example is for illustrative purposes.

2.1.2 Disturbance return interval surfaces

We created surfaces depicting the mean stand replacing disturbance return interval. The main disturbance type that caused stand replacement is crown fire. In the GLSL forest including the Madawaska Highlands, surface fire, wind and spruce budworm mortality also caused occasional stand replacement (see Elkie *et al.*, 2012 for a full explanation of disturbance types simulated). These surfaces represent the mean time between stand replacing disturbances.

GLSL South

Ecodistricts:

5E8 **5E9** **5E10** **5E11**

2.2 Prescriptive Indicators

We estimated area based simulation ranges of natural variation (SRNV) for each prescriptive indicator and pattern based SRNV for several prescriptive indicators.

Forest unit by development stage and landscape classes

Old growth & mature and old

Young forest

White and red pine

2.3 Evaluative Indicators

We estimated SRNV for each evaluative indicator:

Indicator results

Model description

Barred Owl

Barred owl description

Bear

Bear description

Beaver

Beaver description

Fisher

Fisher description

Lynx

Lynx description

Marten

Marten description

Moose

Moose Description

Northern flying squirrel

Northern flying squirrel description

Northern goshawk

Northern goshawk description

Pileated woodpecker

Pileated woodpecker description

Pine warbler

Pine warbler description

Red shouldered hawk

Red shouldered hawk description

Red squirrel

Red squirrel description

Ruffed grouse

Ruffed grouse description

Snowshoe hare

Snowshoe hare description

Southern flying squirrel

Southern flying squirrel description

Spruce grouse

Spruce grouse description

Indicator results

Model description

Summer deer

Summer deer description

Wood duck

Wood duck description

3 Literature cited

Elkie, P., M. Gluck, J. Boos, J. Bowman, C. Daniel, J. Elliott, D. Etheridge, D. Heaman, G. Hooper, R. Kushneriuk, G. Lucking, S. Mills, B. Naylor, F. Pinto, B. Pond, R. Rempel, K. Ride, A. Smiegielski, G. Watt, M. Woods. 2012. **Science and Information in support of Ontario's Forest Management Guides for Landscapes: Science Package – Series A: Simulations, Rationale and Inputs. Version 2012.** Ontario Ministry of Natural Resources. Forest Policy Section.