Natural Resources Canada
Ressources naturelles Canada

Research Connections: Cumulative Effects

Cumulative ecological and socioeconomic effects of forest management, natural disturbance, and climate change in Ontario managed forests

Note 5

Lead Researcher: Lisa Venier and Erik Emilson (GLFC) **Project Type:** Cumulative Effects **Project Status:** Active (2021–2022)

Need/Drivers

There is ongoing forestry development in Ontario's Area of the Undertaking (AOU). Broad-scale strategic planning in the context of cumulative effects can help inform the approach for this development; however, data is not currently available. The Area of Undertaking can be defined as an area of Ontario consisting of 38.5 million hectares of Crown land, south of the 51 degrees north latitude where the Ontario Ministry of Natural Resources and Forestry has approvals under the Environmental Assessment Act to conduct forest management on Crown lands. This project is designed to measure and ultimately project the cumulative effects of multiple anthropogenic and natural disturbances on a suite of ecological and socioeconomic components of concern. The project's overarching goal is to support strategic planning for future land use and to provide options for industrial land use and conservation.

Approach

This project will use existing databases for priority areas, and will conduct analyses to identify the impact of climate change and multiple land use activities on a suite of environmental and social indicators. The indicators of concern to be considered in the project are elements of biodiversity, including caribou, birds and mercury in fish. These indicators were selected with consideration of socio-economic consequences, including potential effects on Indigenous communities and timber supply. Because both biodiversity and cumulative effects can be scale dependent, we will evaluate disturbances at multiple buffer sizes that surround point or plot-based biodiversity observations. This project is part of a larger cumulative effects project that will develop a comprehensive framework for measuring and projecting cumulative effects using ensemble modelling to address uncertainties. The proposed project is scalable such that additional research can be added once the underlying data, infrastructure and tools are compiled and developed.

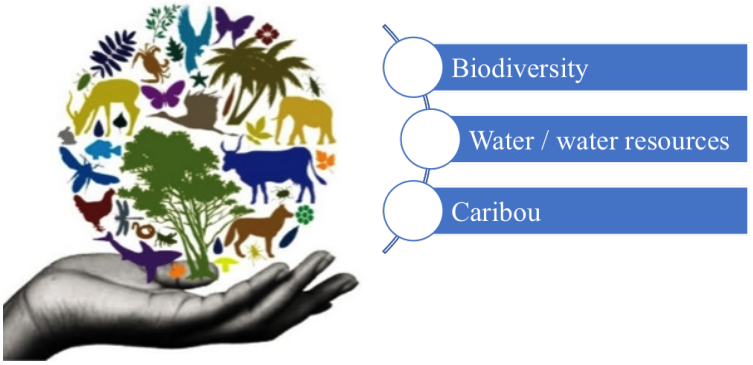
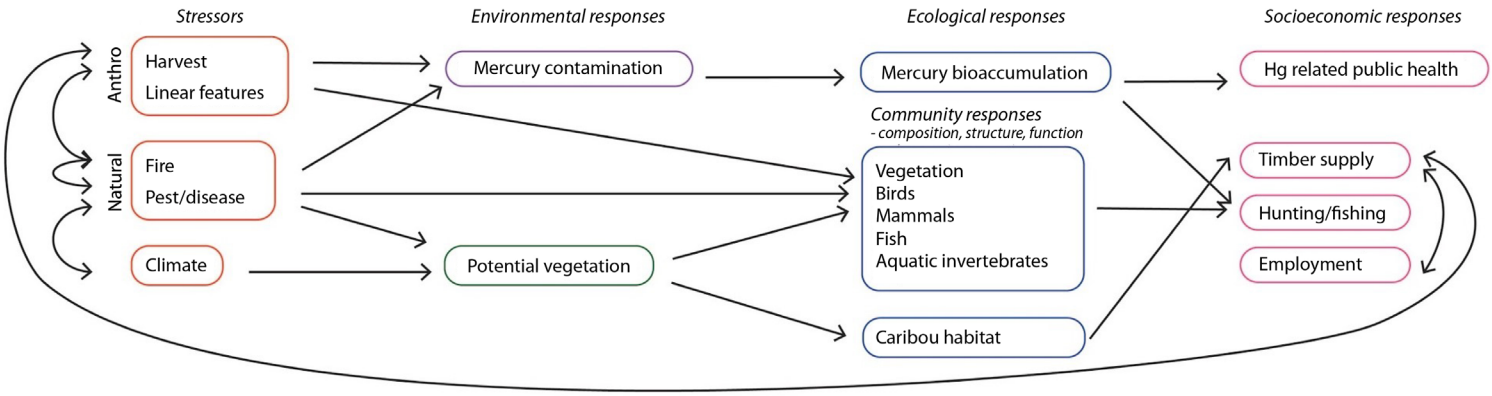


Figure 1: Schematic of project



Anticipated Impacts

This project will provide understanding and knowledge of the cumulative effects of multiple disturbances on a suite of indicators, including caribou and other elements of biodiversity. This project will include scenario analysis and other tools that will support strategic land use planning and will provide necessary information for decision-making.

Project Location

Ontario Area of the Undertaking

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