

Quetico Provincial Parks' Fire Management plan and Prescribed Natural Fire Program are examples of putting ecosystem integrity research to work and "operationalizing" the concept of ecosystem management.

Managers will learn about the research behind the current management action, the type of action being taken to re-introduce fire to the ecosystem of Quetico and get an appreciation of the challenges facing parks Ontario regarding the role of fire in protected areas.

The presentation provides a brief history of fires in Quetico and the development of the fire management plan and provides an update of where we are at with the program; sharing our experiences with Ontario's first prescribed Natural Fire. It finishes with some insights on where we still need to go to continue to be successful in re-introducing fire to wilderness Parks.

There is also an opportunity to combine this talk with a presentation on the massive blowdown affecting the Boundary Waters Canoe Area Wilderness, Quetico Park and surrounding area. Managers will learn how Ontario parks, the fire management program and District staff are dealing with this significant natural event that has flattened over 250,000 hectares of standing forest. Given extremes in weather resulting from global warming and an aging forest in Ontario it is widely believed these blowdown events are on the increase.

Visual displays depicting the blowdown response strategy and the Quetico parks' Emerald Lake Hazard reduction/ecosystem renewal Prescribed Burn are also available.

Preserving Biodiversity in a Burned Park Forest

Roger Suffling¹, Beth Parks² and Nanao Kachi³

¹ School of Planning, University of Waterloo

² Dept. of Environment & Resource Studies, University of Waterloo

³ Canadian Heritage

In 1995 Fire 141 disturbed 25,000 ha of Quetico Provincial Park in N.W. Ontario, allowing us to investigate how biodiversity is preserved after intense fire. Unburned fragments inside the fire perimeter ranged from a few square meters to many hectares. Such fragments survive longer than expected, frequently escape multiple burns, and have high plant diversity. Most fragment plant species were never found in the neighbouring burn, suggesting that fragments are a "fire shelter" for mature forest species. Thus logging unburned fragments during salvage logging may reduce biodiversity in the regenerating forest. Subsequent study of burn

ecotones of various ages showed plant species spreading into burned areas at an average rate of 0.5-0.8 m per year. With an 80-year rotation, the maximum distance between upland unburned fragments that will replenish biodiversity throughout the forest 80 to 130 m. Management implications for burned protected areas subject to salvage logging will be discussed.

Relationships Between Forest Fires, Habitat Change and Ecological Integrity in Terra Nova National Park, NF

Robin Bloom¹, Azim U. Mallik¹, Keith P. Lewis² and Randy Power³

¹Department of Biology, Lakehead University

²Departments of Biology and Psychology, Memorial University

³Terra Nova National Park

Parks Canada has adopted a definition of ecological integrity that incorporates the status of native species diversity, ecosystem function (such as nutrient cycling) and stresses on species and their habitats. Managing for “ecological integrity” in protected areas implies that optimal combinations of these factors exist and can be maintained within political boundaries.

In this project we documented how forests respond to different levels of stress in the form of wildfire. The establishment success of black spruce in severely burned areas had strong positive effects on regeneration of other plants, nutrient cycling and wildlife habitat value. In contrast, many areas did not burn deeply and became dominated by expansive heathlands with low plant diversity and negative feedbacks on habitat quality. The relationship between optimal states for the ecosystem and types of disturbances are discussed in relation to park management options.

The Role of Biosphere Reserves in Working towards Ecological Integrity: Case Example of Frontenac Axis Biosphere Reserve

Munju Ravindra

St. Lawrence Islands National Park

There are currently ten places in Canada recognized by UNESCO (United Nations Education, Scientific, and Cultural Organization) as ‘biosphere reserves’, and a number of other areas in the process of developing biosphere reserve proposals. Four of the designated reserves and several of the proposals include national parks as biosphere reserve ‘core areas’. One such proposal is the 1000 Islands - Frontenac