adaptive management approach to managing for ecological integrity at St. Lawrence Islands National Park.

Multiple Scale Effects of Overgrazing by White-tailed Deer (*Odocoileus virginianus*) in Eastern Deciduous (Carolinian) Forests

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Large herbivores such as white-tailed deer can have a significant impact on vegetation across multiple biological scales. We examined the relationship between plant community dynamics in several overgrazed southern Ontario forest sites and ecosystem responses such as productivity, nitrogen dynamics, species diversity and ecosystem structure. Between 1992 and 1998, sites with a history of high deer densities (>50/km^2) were compared with deer exclosures and long-term ungrazed sites. Ordination analyses showed older exclosures were similar to ungrazed sites, with higher woody stem densities and dominated by plant functional types relatively high in nitrogen. Both differed from grazed sites, with lower stem densities and dominated by functional types lower in nitrogen. Reductions in deer did not result in the recovery of overgrazed sites because deer mediated changes at the ecosystem level and depletions of desirable native species from seedbanks were the major determinants of successional trajectories. These results present implications for plant species conservation and re-establishment.

Operationalizing Ecological Integrity within Ecosystem Management of Quetico Provincial Park Using Prescribed Forest Fires

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The role of fire in the ecosystem (both in protected areas and the production forest) is a subject of increasing interest to scientists and managers alike. The call to "Emulate Natural Disturbances" in the production forest and to "allow the forces of nature to function freely" in Wilderness Class Parks has lead to research and management action on both fronts.

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

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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