

Protected Areas and the Conservation of the Boreal Forest: Contributions of Research in the Past, Present and Future

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Abstract

This paper examines the role of research in establishing and managing parks and protected areas in the past, the present and the future in the boreal zone of northern Ontario through a series of case studies. Scientific research has co-existed in an uneasy relationship with politics as bases for making decisions concerning parks and protected areas for some time. What has changed recently is the wider use of research by both public parks agencies and NGOs. Aboriginal people, specifically First Nations, have begun to assert themselves in northern Ontario and are using research to build cases in establishing parks and protected areas in their traditional territories. Future research efforts will shift from establishing parks and protected areas to a focus on how effective they are in meeting their set goals and objectives. The concern with assessing the effectiveness of parks and protected areas will be complicated by the fact that different actors will demand different things from the establishment and management of parks and protected areas.

Introduction

Although the boreal forest is receiving attention today as a significant ecosystem worthy of protection, both the Canadian federal and the Ontario governments have been involved in establishing parks and protected areas in this landscape for many years. Pukaskwa National Park was established in 1983 to protect a section of boreal forest toward the eastern end of Lake Superior. Wilderness-class provincial parks such as Woodland Caribou and Wabakimi were established in northwestern Ontario in 1983 as part of a large-scale land-use

planning initiative. The *Ontario's Living Legacy* initiative identified additional parks and protected areas in the boreal forest, arguably putting Ontario in the forefront of protection initiatives across the Canadian boreal zone.

In this paper, the past and present role of research in building this system of parks and protected areas is examined. Suggestions are made concerning the future research focus that will be required if the boreal forest is to receive the level of protection that it warrants (Canadian Boreal Initiative, 2004).

Underlying the discussion here is the assumption that research in the natural, physical and social sciences will provide the basis for good decisions in establishing and managing parks and protected areas in the boreal zone. Decisions based upon sound research should be transparent and understandable. However, research that supports the establishment and management of parks and protected areas has existed in competition with politics in northern Ontario. While it can be shown that research certainly played a role in establishing and managing parks and protected areas in northern Ontario, it is also clear that politics has orchestrated a good deal of the protection initiatives. By 'politics' here, I refer to the interests of particular parties involved. In the past, representatives of the forest industry in northern Ontario have played a disproportionate role in decisions concerning park establishment. Similarly, some would argue that a coalition of environmental organizations influenced the outcome of the *Lands for Life* process (that led to *Ontario's Living Legacy*), resulting in far more protected areas than might otherwise have been the case. Politics, then, affects the perceived or real 'fairness' of the decision. For every actor perceived to have a stronger influence, there is another who feels that its concerns have been disregarded. In northern Ontario, local residents and aboriginal people have often felt that their particular interests have not been well served by decisions taken by senior governments. Political considerations will never be absent from the sort of decision making examined here, but scientific research will provide a reliable window on the process through which those decisions are taken.

In the material that follows, I examine the roles of research and politics in establishing and managing parks and protected areas in northern Ontario, and, especially, in the boreal zone. Case studies are employed to conduct this examination in the past, in the present and projected into the future.

The Role of Research in the Past

Expanding Wabakimi Provincial Park

Wabakimi Provincial Park was created in 1983, as part of Ontario's land-use planning initiative in northern Ontario. At its inception, Wabakimi encompassed 155 000 ha of boreal forest northwest of Lake Nipigon (Figure 1). The boundaries of the new wilderness class provincial park did little to ensure that its ecological integrity would be maintained. In fact, one would be hard pressed to conceive of boundaries less likely to protect natural conditions in the park. Many life and earth science features identified by the Ontario Ministry of Natural Resources' (OMNR) planners had not been included when Wabakimi was originally established. Moreover, at 155 000 ha, Wabakimi was relatively small. Forest fires of greater than 300 000 ha have been recorded in this part of northern Ontario: Wabakimi might have been burned over twice in such a fire.

It seemed that politics had been largely responsible for the shape and size of Wabakimi in 1983. Forest industry interests were reluctant to give up commercial timber areas within the proposed boundaries and were able to achieve boundaries that respected their demands.

Nine years later, the OMNR convened a regional committee of stakeholders to re-examine the Wabakimi boundaries. The committee was charged with the task of expanding Wabakimi's boundaries in response to the various criticisms since its establishment. Stakeholders included the forest industry, anglers and hunters, remote tourism operators, environmentalists, prospectors and local people from Armstrong, a neighbouring community. Representatives from local First Nations



Figure 1. Wabakimi, old and new
(Source: Ontario Parks).

were invited but declined to participate, arguing that their interests went well beyond the description ‘stakeholder’.

The OMNR sought to include valuable life and earth science features in new boundaries for Wabakimi. Committee members, some of whom possessed both experience in the area and advanced levels of formal education, wanted to see the size of the park increased substantially. They proposed that prospective additional areas be rated on the basis of remoteness, watershed integrity and community (i.e., Armstrong) impact. Using these means, in 1994 the committee proposed an expanded Wabakimi Provincial Park that totalled nearly 1 million ha and connected Wabakimi to waterway class parks in the south (Kopka River and Brightsands River) and in the north (Albany River).

Science played an important role in this expansion, a more important role than it had in the park’s origins in 1983. While committee members made contributions, most of the science supporting the initiative came from the Ministry of Natural Resources. The eventual expansion of the provincial park was based upon consensus among all participants – something that is usually difficult to achieve.

Understanding Wildlife Interactions in Pukaskwa National Park

In the early 1990s, Pukaskwa National Park undertook a study on relationships among wolves (*Canis lupus*), moose (*Alces alces*) and woodland caribou (*Rangifer tarandus caribou*) (Figure 2). The research, which came to be known as the *Pukaskwa Predator-Prey Process Project* (5Ps), was a response to changing conditions outside the national park’s boundaries, especially on the north and southeast where timber removal activities, mineral exploration and the associated road-building were fragmenting the forest. The relationship between forestry activities and moose populations had long been understood, as had that between moose and wolves. However, little was known about the interactions of wolf, moose and caribou in the greater park ecosystem.

Woodland caribou are an indicator species in the boreal forest (Schaefer, 2003). They do not react well to disturbance from humans or their activities. While once they occupied much of the territory that is now Pukaskwa National Park, woodland caribou numbers have declined as timber and mining activities have increased around the park. The 5P study sought to determine what proportion



Figure 2. Pukaskwa National Park Region (Source: Partnership for Public Lands).

of the decline in caribou numbers might be attributed to predation by wolves. By collaring and tracking moose, wolves and caribou, researchers were able to determine that caribou travelled up to 70 km beyond the park's boundaries, thus putting them in contact not only with cut-over areas but also with wolves that prey upon moose in such areas.

Researchers in the national park worked with MNR foresters and representatives of forest companies in executing this research, identifying to them the chief agents of ecological change in the areas beyond Pukaskwa's boundaries. The research led directly to a better appreciation for the regional context of the national park and to a shift in practice on the part of park managers to attempt to influence activities occurring outside park boundaries with ecological effects within the national park.

Political realities cannot be ignored in this apparent co-operation among agencies and industry. Despite developing a better understanding of prey-predator relationships in and around the national park, road-building and timber-cutting persist close to Pukaskwa's boundaries. Suggestions of a buffer area around

Pukaskwa National Park have been ignored by OMNR and the timber companies.

These examples illustrate that research has contributed significantly to the establishment and management of parks and protected areas in northern Ontario in the past. Much of this research was initiated by government agencies. Both examples also illustrate the continuing influence of differing valuations of nature (i.e., politics) in the boreal zone.

The Role of Research in the Present

Ontario's Living Legacy

Ontario's most recent large-scale land use planning exercise, *Lands for Life*, resulted in *Ontario's Living Legacy*. Among other things, *Ontario's Living Legacy* is intended to be a blueprint for parks and protected areas in northern Ontario south of the 51° parallel. From a parks and protected areas perspective, *Ontario's Living Legacy* has been highly successful, increasing the number of provincial parks from 216 to 332 and adding 200 'conservation reserves' (OMNR, 1999).

Scientific research played a major role in the *Lands for Life* process, but, as in any large-scale planning initiative, politics was never far below the surface of discussions. While research played, and continues to play, an important role in these new parks and protected areas, it does so in a novel way. The *Lands for Life* process saw the active participation of the 'Partnership for Public Lands', a coalition of Ontario environmental organizations including World Wildlife Fund (Canada), the Federation of Ontario Naturalists and the Wildlands League, the Ontario chapter of the Canadian Parks and Wilderness Society. Not only was the Partnership's participation integral to the outcome, but the group also utilized science as never before by Ontario environmental organizations in a land use planning process.

The Partnership employed science in several ways. Firstly, science played a role in identifying prospective new parks and additions to existing parks. The Partnership was then able to advocate the designation of the new parks or the revision of boundaries of existing parks where additions were proposed. The Partnership also focused on wildlife corridors, especially the corridor along

the Nipigon River joining Lake Superior to Wabakimi Provincial Park, as mechanisms to afford protection to woodland caribou that range over large distances on the landscape.

Secondly, the Partnership made extensive use of GIS-based mapping, thus rivalling the capabilities of the MNR in this respect. During the *Lands for Life* process, this capability meant that the Partnership was able to convene its own meetings to consider proposed protected areas. At public meetings organized by the MNR, the Partnership was able to display its park proposals to the public in a highly effective manner.

The Partnership continues to be involved in discussions concerning the new parks and protected areas identified in the *Lands for Life* process. The results of its GIS-based mapping is available online, for educators, students, environmental organizations and the public (Partnership for Public Lands, 2004).

The *White Feather* Initiative

The *White Feather* initiative draws together four First Nations (including two from Manitoba), the Partnership for Public Lands, an NGO and Ontario Parks in an aboriginal-led coalition to promote forestry, parks and cultural history in an area of Ontario north of the 51° parallel (Figure 3). The roles of the participants are quite specific. The First Nations signed an accord concerning protected areas within their territories. One of the four, the Pikangikum First Nation, signed an agreement with the Partnership for Public Lands about protection and economic development of the Pikangikum traditional area as part of the *Northern Boreal Initiative*. Ontario Parks is seeking to identify a wilderness-class provincial park candidate in site region 3S.

One of the aspects of this initiative that makes it noteworthy is the fact that it has come from the First Nations. Both the Partnership for Public Lands and Ontario Parks became involved in response to the aboriginal initiative. Another aspect worthy of note is the importance of community-based land-use planning as the basis for action concerning both forestry and protected areas.

The initiative is instructive from a political point of view as it represents one of the few examples of First Nations engaging either NGOs or the Ontario government in discussions concerning large-scale land-use decisions. It is also important from a scientific point of view because the initiative will bring to-



Figure 3. *The White Feather area (Source: The White Feather initiative).*

gether aboriginal customary and traditional knowledge with scientific knowledge utilized in both forest and park management.

Science, traditional and non-traditional, will play an important role in establishing and managing this protected area. The challenge will be to utilize both forms of knowledge in ways that are acceptable to the parties and useful to the protection of the Boreal landscape.

The Role of Research in the Future

The Effectiveness of Parks and Protected Areas

The effectiveness of management efforts in parks and protected areas needs attention, according to parks agencies at the 2002 *World Parks Congress* in

South Africa. Hockings, an Australian academic who has written extensively on the issue, maintains that management effectiveness in parks and protected areas is composed of three aspects: the design of individual parks and of park systems; the appropriateness of management actions in response to park issues; and the attainment of park and protected area goals and objectives by parks agencies (Hockings *et al.*, 2000: 4) (Figure 4).

It is evident that much effort has been expended on establishing parks and protected areas in the boreal zone of northern Ontario. The large-scale land-use planning processes of 1983 and 2000 created a large number of new parks and protected areas at the provincial level. Much less work has been done to determine how effective these new parks are in protecting the boreal landscape. While the examples of the Wabakimi expansion and the 5P initiative at Pukaskwa National Park are indicative of some effectiveness work, they are unfortunately not the rule.

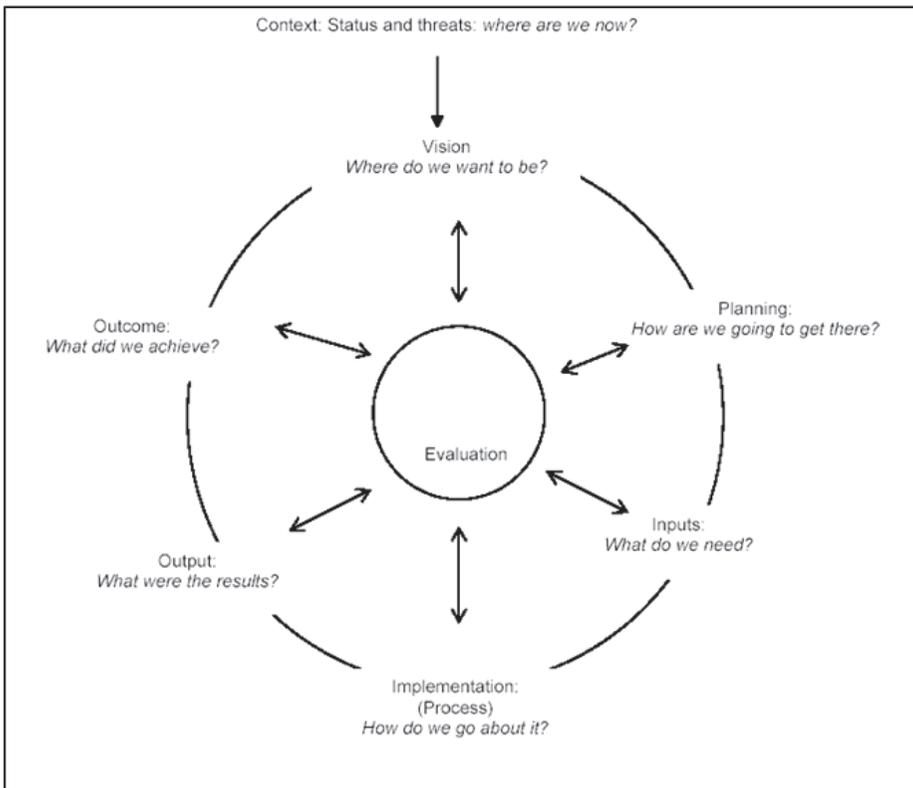


Figure 4. Evaluating management effectiveness (Source: Hockings *et al.*, 2000).

Ontario's Provincial Auditor examined the performance of the Ontario Provincial Parks program in 2002 and found it wanting in several significant ways. Only 117 of the 277 parks had management plans and 68 of these plans had not been revised in more than ten years. Many parks, both operating and non-operating, had yet to complete a biophysical inventory. Species at risk were poorly managed. Performance measures for parks in the system did not measure performance on ecological sustainability (Ontario Provincial Auditor, 2002: 210-211). In the future, park agencies operating in northern Ontario will need to do more to protect boreal species and landscapes, and they will need to conduct more research to determine the effectiveness of their actions.

The role of scientific research as a tool for managers is understood in Canadian national parks. If Ontario revises the legislation governing provincial parks, the requirement to conduct and utilize scientific research in establishing and management those parks may become a more entrenched part of management practice.

Different Perspectives on the Effectiveness of Parks and Protected Areas

It is highly likely that in the future it will be insufficient to conduct research on management effectiveness alone. When NGOs and First Nations are collaborating with public parks agencies, there are several dimensions to the question of effectiveness. Questions such as "are parks and protected areas effective in maintaining wildlife populations for aboriginal subsistence hunting?" or "do parks and protected areas provide employment for aboriginal and local people?" might not be priority questions for public parks agencies, but they might well be important for First Nations and non-native communities.

Just as the *White Feather* initiative provides an example of First Nations working with NGOs and public parks agencies, it also points to new roles of research in assessing the effectiveness of parks and protected areas from several, quite different, points of view. This kind of multi-faceted research suggests that the role of the researcher will change as well. Rather than being contracted solely by government, researchers may work for NGOs, local communities and First Nations, responding to research questions framed by these non-traditional research agents.

Conclusion

The nature, extent and role of research in parks and protected areas in the boreal zone of northern Ontario has changed dramatically in the last 30 years. From a situation where research capability was centred in parks agencies, it has gradually expanded to become part of the tool kit that NGOs bring to bear on park and protected area issues. The nature of research has changed to embracing not only park establishment issues, but increasingly, park and protected area management issues. With this latter change has come a more important role for research in gauging the effectiveness of park and protected area efforts in the boreal zone of northern Ontario.

A crucial development over the last 30 years has been the rising importance of First Nations. First Nations have moved beyond political manoeuvrings to become involved, at their initiative, in park and protected area establishment. As this movement gathers momentum, it will alter the nature of research for parks and protected areas in the boreal zone. The research agenda will come to better reflect First Nations' issues. In addition, determining the effectiveness of parks and protected areas will become a more multi-faceted endeavour.

In terms of parks and protected areas, research has begun to rival politics as a means of deciding establishment and management issues.

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