

LESSONS LEARNED DURING INTERAGENCY NEGOTIATION REGARDING WOLF CONSERVATION AND FORESTRY

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SUMMARY

Interagency cooperation is described as one of the major components of effective ecosystem-based management. However, conflicts frequently arise between agencies with different mandates. In this paper, I discuss lessons learned regarding interagency interactions during an issue resolution process in the greater park ecosystem of Pukaskwa National Park. This case example involves the proposed development of a primary forestry road within 5 kilometres of the park boundary through a currently roadless wilderness, the potential impacts to the wolf population, and a description of the issue resolution process. Several lessons were learned regarding the management of interagency conflicts, including 1) pre-establish interagency agreements on “zones of cooperation”, 2) have formal dispute-resolution mechanisms in place, 3) facilitate the definition of issues through anticipatory science, 4) involve democracy in dispute resolution, 5) use management issues as a means of educational outreach, and 6) increase awareness of the role of protected areas to regional decisions-makers. These lessons may provide a framework for other protected areas managers involved in interagency negotiations or conflicts.

1. INTRODUCTION

It is well understood that protected areas cannot function ecologically as discrete islands of wilderness because of the inevitable flow across landscapes of species, energy and materials (1). Because protected areas need to be integrated within functioning ecosystems, ecologists have suggested that biodiversity might best be conserved through an ecosystem-based management approach (2, 3). Landscape design around protected areas should contain multiple-use buffer zones and connectivity to other sites through ecological corridors (4, 5).

Such integration of protected areas into the broader landscape requires substantial cooperation and coordination between land management agencies. Interagency cooperation is one of several essential elements of ecosystem-based management (6, 7), recommended in the conclusions of many ecological studies (for example 8, 9, 10). Many institutions across North America have stated that they are adopting approaches that encourage interagency cooperation (11, 12, 13).

However, interagency cooperation can be difficult to implement effectively (14). Communication and collaboration by stakeholders are not a formula to end all conflict (15). Potentially, as communication increases between agencies, there may be topics and situations where differences in management philosophies intensify. Undoubtedly, adopting a collaborative management approach across agencies with divergent mandates can be challenging.

In this paper, I discuss lessons learned regarding interagency interactions using, as a case example, an issue resolution process in the greater park ecosystem of Pukaskwa National Park. The case example involves the proposed development of a primary forestry road within 5 kilometres of the park boundary through a currently roadless wilderness, the potential impacts to the wolf population, a description of the issue resolution process, and lessons learned during the interagency conflict.

2. CASE EXAMPLE: FOREST MANAGEMENT NEAR PUKASKWA NATIONAL PARK

2.1 Description of the Pukaskwa Greater Ecosystem

Pukaskwa National Park is located in Ontario, on the northern shore of Lake Superior. The park is 1878 km² at the southern edge of the boreal forest region and is dominated by coniferous and mixed-wood stands.

Although in a seemingly pristine environment, Pukaskwa National Park is impacted by a myriad of human activities that occur in the region (16, 17). Much of the boundary of PNP is surrounded by provincial crown land, and is subjected to forestry, mining, outdoor recreation and transportation (18). Forestry has replaced fire as the dominant agent of broad landscape change. Road density surrounding Pukaskwa National Park has increased since 1978 after the opening of a sawmill in White River (19). Between 1984 and 1994, road construction nearly tripled within 16 kilometres of the park boundary (19). Length of road continues to increase adjacent to the park, and is projected to increase substantially within the next 20 years without environmental mitigation. The managers of PNP frequently interact with many of the regional land-management agencies to encourage ecological planning that adopts precautionary approaches (e.g., 20). For PNP, the stability of wildlife populations with trans-boundary movements is of special concern, due to the intensity of human activities near the boundary.

Land-use planning in northern Ontario has undergone significant review and public debate. In 1999, Ontario concluded the Lands For Life process whereby protected areas were identified in the province, partly in an attempt to ensure both environmental sustainability and economic development on the landscape (21). However, the process of delineating protected areas did not include a buffer approach, whereby human activities could be managed to decrease incrementally as proximity to protected areas increased.

Much of the boundary of Pukaskwa National Park is adjacent to the White River Forest, Ontario crown land that is leased to Domtar Inc. to conduct forestry under the terms of the White River Forest Management Plan (FMP). The FMP, which describes anticipated forestry activities within a 20 year planning framework, is written every 5 years. The planning process includes public consultation. Final approval is established by the Ontario Ministry of Natural Resources (OMNR) (22). Due to the potential impact of forestry operations upon the ecology adjacent to the park, staff of PNP have participated in the public consultation process.

2.2 Forestry Issue

Recently, forestry planning for 2003-2008 was conducted by Domtar Inc. Approval of the new FMP will likely occur during spring 2003. Proposed in the draft FMP is a primary road, approximately 27 kilometres in length, extending 20 kilometres along the northern side of Pukaskwa National Park, at a distance of 5 kilometres or less from the park boundary. This road (referred to as Proposed-Road 770) will extend from the existing network of forestry roads at the northeast corner of the park, and will significantly contribute to fragmentation along the entire 25 kilometre length of the northern boundary. The primary road will be used for forestry operations not just during the life of the 2003-2008 Forest Management Plan, but for an additional 15 years as forest stands in the area mature and become harvestable. Domtar has indicated that within the 20 year life of the primary road, secondary and tertiary roads will be built south of the proposed road to the north boundary of the park to facilitate the harvest of stands along the boundary (C. Grant, Domtar Inc., pers. comm.).

Currently, the area north of the park is roadless and contains the White River provincial wilderness canoe route. The impact of the proposed primary road will have long-term, cumulative effects due to the proliferation of secondary and tertiary roads. There is no plan to decommission roads after logging has finished. Foreseeable, then, is permanently increased human activity, both industrial and recreational, adjacent to the park.

Many studies suggest that increased density of roads and human presence can negatively affect ecosystems (23, 1). Pukaskwa managers are concerned about illegal access to the park in isolated areas, increased poaching, encroachment of invasive species, eventual loss of connectivity to other protected areas, and the impact upon harvesting on wildlife populations with transboundary movements. Concerning the last, the long term persistence of the gray wolf (*Canis lupus*) population is of particular interest at Pukaskwa. In this paper, because sufficient data are available, I use a single species approach to highlight the potential impact of the proposed road on the wolf population.

2.3 Demography, Mortality, and Transboundary Movements of Wolves

Research conducted in the Pukaskwa region between 1994 and 1998 followed the movements of 25 radio-collared wolves. Over that period, the wolf population appeared to decline slightly (the mean annual finite rate of increase was 0.96) (24). The estimated annual rate of mortality was 32%. Between 1994 and 1998, 17 of 26 wolves died. Not included in this paper were the deaths of 33 additional wolves from packs in the Pukaskwa region that were killed due to habituation to dumpsites or on the Trans Canada Highway. Consequently, mortality estimates in this paper are highly conservative.

Annual mortality rates in excess of 28-35% may result in population declines (25, 26). Wolves in Algonquin Provincial Park declined when the annual mortality rate was 33% (27). For precise interpretations of mortality rates, data on yearling recruitment must be considered; however those data were not available.

Forty-seven percent of wolf mortality in the Pukaskwa region was due to human causes (shot, snared, or hit by train). Four of the seven packs in the study (24) will become more susceptible to human-caused mortality because their territories will be bisected by the proposed primary road, as well as the subsequent network of secondary roads.

2.3.1 Wolf Population Persistence and Road Density

Several studies have shown that the well-being of wolf populations is inversely related to public access to roads. Road density, as an index of human activity, access, and exploitation has been negatively correlated with the persistence of wolf populations, even where wolves are fully protected (28, 29, 30). In areas where wolves are protected, a road density of less than 0.6 km/km² is necessary for wolf persistence, particularly in the U.S. Great Lakes region (28, 30, 31, 32, 33). Based on research in Ontario (34) and Alaska (35), areas where wolves are not protected should have a road-density index lower than 0.6 km/km². Outside of PNP, wolves are not protected by season or bag limits. In Ontario, as across North America, human-caused wolf mortality is the result of deliberate or opportunistic hunting, trapping, and vehicle-wolf collisions (36).

The effect of road density on wolf persistence appears to override variability in prey abundance. While prey biomass may increase following logging and lead to increases in wolf biomass (26, 25), human access and exploitation can sever that relationship, as demonstrated recently at Ontario's Algonquin Provincial Park (37) and Banff National Park (38), and historically in the upper Great Lakes region, where wolves with available prey were extirpated by humans.

Because the long term persistence of wolves in PNP depends upon a viable regional population, PNP managers feel it is important that road density and human access are carefully managed to ensure that human activities do not artificially elevate wolf mortality beyond unsustainable thresholds, such as those suggested above.

2.3.2 Taxonomic Significance of Wolves in the Pukaskwa Regional Ecosystem

Recent research revealed that wolves of the Pukaskwa region are a genetically-isolated enclave of gray wolves in a broader region containing hybrids of red wolf (*Canis rufus*) and gray wolf (39, 40). If increased fragmentation of the landscape, along with increased human use, results in increased mortality in gray wolves in the PNP region, then the chance of immigration of gray wolves from other areas is unlikely due to the hybrid population surrounding the park.

If wolves in the Pukaskwa region cannot maintain a sustainable population, then the region may be left with either 1) a hybrid wolf that would not have been found naturally in the region or 2) a wolf-diminished or wolf-free environment in which ecosystem functions and human recreational experiences are altered. While the details of wolf taxonomy in the region are still under debate (41), Pukaskwa National Park managers have argued for use of the precautionary principle to ensure that the “pure” gray wolf population is able to persist.

2.4 Issue Resolution Process

Forest management planning in Ontario involves a public consultation process. Concerned parties (i.e., an agency, First Nation community, remote tourism business) can describe their concerns regarding the proposed forestry activities to the author of the Forest Management Plan, who is an employee of the forestry company, and the Forest Planning Team, comprising representatives from OMNR and a citizen’s committee. If agreement cannot be established between the concerned party and the Forest Planning Team, then the parties enter into Issue Resolution with the Planning Team and OMNR (22). During Issue Resolution, meetings are conducted between the concerned party and the Planning Team with representation from the District and Regional managers of OMNR to clarify issues and seek their resolution. Decisions regarding outstanding issues are decided by the OMNR manager. If the concerned party is not satisfied with the decision made by the District OMNR manager, then a meeting is held with the Regional manager. If a satisfactory response is not received from the Regional manager, then the concerned party may request environmental assessment from the Ontario Ministry of Environment.

PNP managers voiced concern about the effects of fragmentation and connectivity, invasive species, and illegal human activities arising from the proposed forestry activities, and consequently held several discussions with Domtar during the public consultation process. Of special concern was the long-term persistence of wolves in the area. PNP Managers argued for mitigation of the long-term impact of increased road density and human-use on the wolf population by restricting motorized access along the entire length of Proposed-Road 770 during and after forestry operations in the area.

To minimize the likelihood that new and detrimental patterns of human use would be established, a suite of mitigation measures was proposed by PNP managers, including that 1) harvesting occur quickly to emulate natural disturbance events, 2) during periods of no-operations the road be gated and closed to public travel, and 3) motorized access by the public be restricted at the beginning and end of the road once harvesting operations have terminated. Because many of the concerns expressed by PNP managers were not immediately accepted, in October 2002 Pukaskwa managers entered the Issue Resolution process.

Several positive and negative results were derived from Issue Resolution meetings held with the District and Regional OMNR managers. At the time of writing this paper (May 2003), after completing the Issue Resolution process, OMNR has not acknowledged that wolf conservation or ecological integrity may be at risk in PNP due to increased road density or unrestricted motorized human-access in the long term along the proposed road. Despite the data presented by PNP, OMNR managers decided to establish a committee to investigate wolf mortality trends and genetics in the area. The deadline for this investigation is March 2005; the results will influence a road-use strategy for the area. Currently, there is no acceptance of the methods proposed by PNP

managers to restrict motorized human access on the proposed road. Nevertheless, PNP managers will request further consideration of wolf conservation and other issues related to the maintenance of ecological integrity through additional meetings and environmental assessment.

More positively, several mitigation measures were accepted by the Planning Team. Of note is a Zone of Cooperation that extends five kilometres from the park boundary into the White River Forest in which future forestry operations, such as design of cut and silvicultural treatments, will be jointly determined. Also, a Prescribed Burning Working Group has been established to explore the possibility of PNP and Domtar jointly conducting prescribed burns near the park boundary in future years.

3. LESSONS LEARNED IN INTERAGENCY NEGOTIATION

The practice of ecosystem-based management, and particularly interagency collaboration, is complicated due to different management philosophies and different mandates. The case example of proposed roads and forestry adjacent to PNP is not unique compared to other protected areas across North America. Several lessons have been learned through the PNP experience regarding interagency conflict. These lessons, listed below, can be applied to ecosystem management issues to varying degrees during interagency conflicts that range from minor to intense.

1. Pre-establish Interagency Agreements on "Zones of Cooperation."

Relationships with other agencies with different mandates are ideally formed before controversial issues arise or before negotiations begin. Managers and scientists in protected areas need to develop an understanding of the ways participants in decision-making processes receive and utilize information (42). Despite differences in management objectives, common goals and issues can be identified. Potentially projects that are jointly managed can be established, such as within the Zone of Cooperation existing between Pukaskwa and the White River Forest, and the prescribed burn sub-group.

2. Have formal dispute-resolution mechanisms in place.

Engaging in formal processes, such as issue resolution or environmental assessment, not only clarifies the issues and aids decision-making, but also provides an opportunity to identify acceptable compromise. In this way, non-park agencies with a development or exploitation focus may become more aware of the specific issues and impacts that affect evolutionary ecological processes. As well, knowledge that such dispute mechanisms are time consuming, and therefore costly, may generate a heightened effort to resolve issues with greater good will, thereby avoiding the lengthy dispute process. Issues of policy on public lands are resolved with the greatest sensitivity to public perception if an independent third party arbitrator or facilitator is used.

3. Facilitate the definition of issues through anticipatory science.

The field of conservation biology has reinforced the concept that ecological solutions are not solely based on science, but on knowledge from a set of disciplines (43). Because science, values, and politics interact to form public policies (44), the resolution of issues should also involve other disciplines such as social science, economics, and law. Nonetheless, the role of science cannot be dismissed. Science can aid the definition of issues (45), and provide confidence about ecosystem conditions and the potential impacts of human activities. It is important that managers of protected areas anticipate ecological issues (46), through monitoring of activities on adjacent lands. In this case example, wolf research in PNP was conducted in anticipation of land use changes to establish baseline information, thereby providing an opportunity for more thorough discussion of potential impacts with the development proponent. Often, the time after a problem is identified is insufficient to conduct adequate research and draw conclusions from it.

4. Involve democracy in the dispute resolution process.

Other agencies, stakeholders, and the public should be informed, and invited to comment upon, issues that impact protected areas, particularly issues that enter a dispute resolution process.

Keeping these groups informed assures that policies on public lands are kept in tune with public perceptions and attitudes. Furthermore, some of these groups may have ideas that will aid issue resolution (47, 48). For example, during the PNP issue resolution process several environmental non-government organizations tracked the resolution process, and sent at least 75 letters to the provincial government identifying their concerns regarding increasing road density adjacent to PNP's boundary. These letters were reviewed by the OMNR decision-makers, and potentially will play a role in the final outcome.

5. Use management issues as a means of educational outreach.

Changing societal attitudes is an ultimate challenge for environmental managers, while the proximate challenge is offering sufficient protection to biodiversity and processes until human attitudes change (49). These two challenges must be addressed simultaneously. Increasing public awareness can occur at several scales and through various delivery mechanisms (50). Those mechanisms can range from minor and interpretive to intense and conflict-laden. Once again, the public needs to be informed that specific issues are being contested. The interagency conflict itself provides a mechanism to explore ecological issues and enhance awareness both with the agencies in conflict, and the public.

6. Increase awareness of the role of protected areas to regional decision-makers.

Protected areas are frequently viewed as benchmarks by which to compare the relative health of more intensively used landscapes. Consequently, managers of protected areas have a responsibility to inform regional decision-makers regarding the anticipated outcome of land-use practices, particularly where there is research to identify significant ecological changes.

These six points summarize lessons that emerged during interagency negotiations during the past decade in Pukaskwa National Park. Interagency conflict is commonly described as a barrier to effective ecosystem-based management (14), but methods to address such conflict are rarely discussed between protected areas managers. The application of these lessons learned at Pukaskwa may provide a framework for other managers of protected areas experiencing interagency conflicts.

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