

Managing for Ecological Integrity in Protected Wildlands: Key Management Challenges and Research Priorities in British Columbia

Pamela A. Wright

Abstract—Protected areas have long served two masters: providing recreation, tourism and economic opportunities while conserving resources. As wild lands have become more scarce, there has been increasing realization that recreational use of protected areas is not benign. Consequently, there has been growing discussion and debate about how to reconcile human use with conservation. British Columbia is still within an active park creation phase with an increase from approximately 5.6 percent of the land-base protected in parks as of 1992 to approximately 13 percent today with new areas being added daily. This paper presents the results of a series of interviews and surveys that identify key management challenges and research priorities for managing for ecological integrity in British Columbia. Although significant barriers and challenges remain, Parks Canada has moved beyond the issue of organizational culture towards more resource specific management challenges. The agency has changed capacity and organizational structure to develop and implement a strong research agenda. In contrast, while BC Parks staff identified some key research challenges, they are by and large, not a research-oriented organization and are lacking capacity to conceive, organize, manage and implement research to aid management. Most agency resources are focused currently on maintaining current operations in the face of significant organizational barriers.

Introduction

Protected areas systems (for example, national and provincial parks agencies) have long served two masters: providing recreation, tourism and economic opportunities while conserving resources (Foster 1978; Searle 2000). Over time, however, as the land surrounding protected areas has been more intensively modified, wild lands have become more scarce and public values for conservation of protected areas have increased (Globescan 2000). At the same time, there has been increasing realization that recreational and tourism use of protected areas is not benign (see for example Banff-Bow-Valley Study 1996; Parks Canada Agency 2000a,b; Wilkinson 2002). Consequently, there has been growing discussion and debate about how to reconcile human use with conservation (Wilkinson 2002).

Pamela A. Wright, Associate Professor, Natural Resource and Environmental Management/Outdoor Recreation and Tourism Management Program, University of Northern British Columbia, Canada.

In: Watson, Alan; Sproull, Janet; Dean, Liese, comps. 2007. Science and stewardship to protect and sustain wilderness values: eighth World Wilderness Congress symposium: September 30–October 6, 2005; Anchorage, AK. Proceedings RMRS-P-49. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

In addition to a growing number of studies on the impacts of human use on protected areas (Cole 2004) there has increasingly been a focus on clarifying, in policy and legislation, the purpose and objectives of protected areas management and on the adoption of new management approaches. Paralleling the emergence of ecosystem-based management in the broader resource management literature (Grumbine 1994) has been the emergence of the concept and management framework of maintenance or restoration of ecological integrity (Woodley and others 1993) within protected areas, among other jurisdictions. Parks Canada has been a leading adopter in the idea of managing for ecological integrity, first setting the policy in place in 1979 and later strengthening the accompanying legislative and policy guidance in 2000 (Wright and Rollins 2002). Subsequently, other jurisdictions (for example, BC and Ontario Provincial Parks) have been exploring management, policy and/or legislative options for managing for ecological integrity. The adoption and diffusion of the management goal and the subsequent management challenges is of great currency given that other jurisdictions are currently considering the merits of revising their goals.

In northern and western Canada, notably in British Columbia and the territories, wildland and protected areas management is a critical issue and growing concern. Federally, the majority of new national parks and over 95 percent of new park lands have been designated in the territorial north. Over the past 20 years the overwhelming majority of new federal park lands have been created with the support, and at times at the behest of Aboriginal peoples (Dearden and Rollins 2002). In British Columbia, we are still within an active park creation phase with an increase from approximately 5.6 percent of the land-base protected in parks as of 1992, to approximately 13 percent today with new areas being added daily (fig. 1). And like the federal counterparts in the north, the active treaty process in British Columbia means that new park establishment in BC has come with the active participation of First Nations. The role of Aboriginal peoples in new park creation and subsequently, in management, while not exclusive to the north is a dominant feature of northern protected areas management. Aboriginal involvement and co-management brings with it an additional set of challenges to ecological management.

In addition to the growing role of aboriginal peoples in new park creation and management, other unique aspects of protected areas management include the accelerated growth of wildland designations concurrent with a rapid decrease in staffing and financial resources for management; rapidly accelerating resource development outside of protected areas;

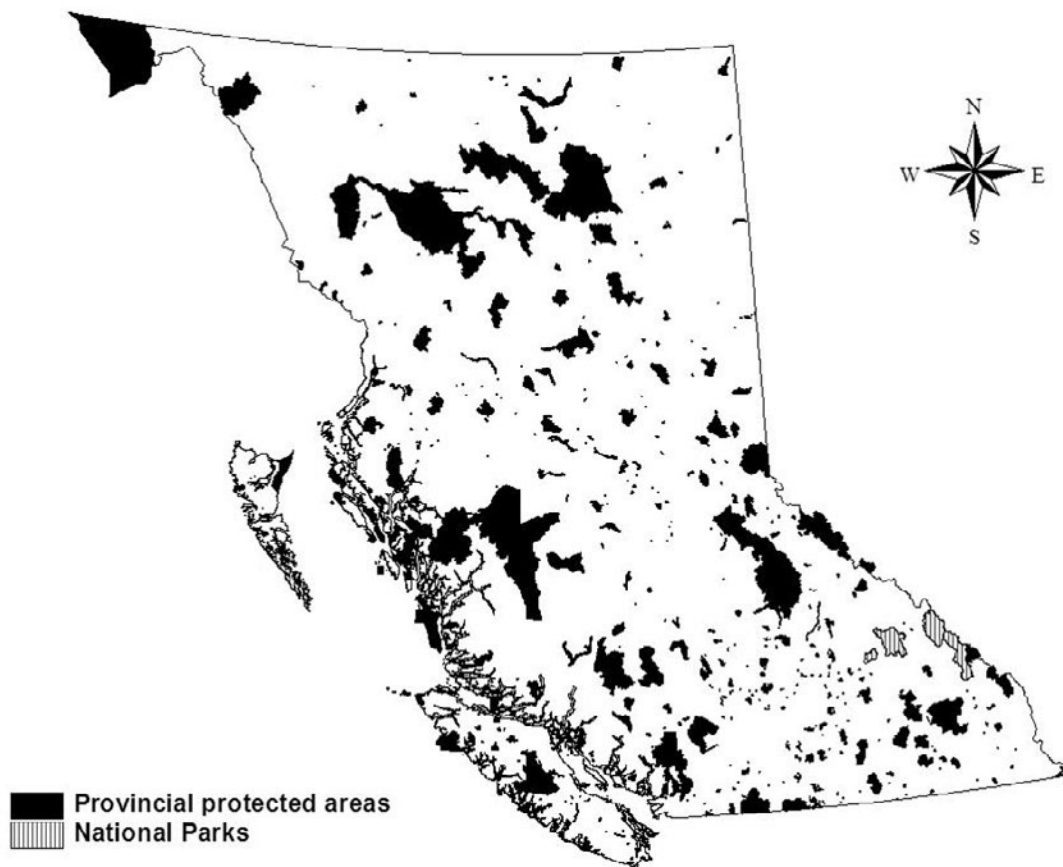


Figure 1—Protected areas in British Columbia as of 2006 consisting of National Parks and Provincial protected areas.

changing meanings of wilderness; increasingly polarized public perspectives on use and management of protected areas; and growing interest in the economic rewards from nature-based tourism inside and outside of protected areas.

Purpose

Few projects have examined protected area management barriers and challenges (for example, Carr and Eagles 2003; Wiersma and Campbell 2002) and most discussion is informal or anecdotal (for example, Rasker and Lee 2003). Although targeted research has focused on barriers to management and research within Parks Canada (Banff-Bow Valley Study 1996; Parks Canada Agency 2000a,b; Searle 2000; Wright 2002), follow-up and expansion to other agencies is needed. The primary purpose of this project is to identify key management challenges and research priorities for managing for ecological integrity within British Columbia.

Methods

In phase one of this project a series of 27 in-depth interviews were conducted within BC/Yukon provincial and federal agencies in the summer of 2005. Respondents included BC Parks personnel, regional park planners, conservation specialists, and recreation officers and federal parks designated research

contacts (for example, manager of resource conservation/ecological and commemorative integrity). Additional material in the form of park research permits and lists of research priorities were also collected and incorporated into the results. Further phases of the project will involve interviews with other agency personnel and with researchers involved in wildland and protected areas research.

Results

Challenges and Barriers to Protected Areas Management

Previous studies of Parks Canada identified a series of key challenges and barriers to managing protected areas for ecological integrity (see for example Parks Canada Agency 2000a,b; Wright 2002). The question was expanded to include a broader range of management challenges and to allow us to examine differences between federal and provincial parks in the BC/Yukon area. We felt that identifying management barriers would help identify research priorities. Highlights of these findings are noted below.

Organizational Culture, Policy, and Legislative Barriers Improved in Parks Canada. Five years ago, the key barriers to management for ecological integrity in national parks were focused foremost on organizational culture with

cascading effects in policy and legislation, the role of science, competing management objectives, staffing and other areas. In this study, key barriers that were identified for Parks Canada included:

- Staffing levels and amalgamation of management units
- Inadequate funding and timing of funding
- Social science expertise and information
- Knowledge of how/who to consult
- Coordination challenges between initiatives/acts, etc.

Our preliminary examination suggests that the barriers Parks Canada is facing in BC/Yukon are more typical logistical management challenges. Although policy and legislative barriers appear to have been largely removed, political influence and decision-making remains a challenge.

Conflicting Policies, Objectives, Culture and Intent, Significant Barriers for BC Parks. BC Parks has undergone significant cultural shifts in the last decade from a gradually increasing focus and capacity (including training) on ecosystem-based approaches, to management, to more recent political shifts in the role of the organization. Along with drastic staffing reductions (more than 50 percent in the last five years) the major barriers are centered around organizational culture. Staff are conflicted and in turmoil, such that interviews were at times quite emotional. Primary barriers identified were those related to organizational culture including:

- Not enough staff to do jobs
- Requests to suppress information to public
- Lack of focus on what Parks' purpose is
- Lack of common vision
- Start-stop decision-making
- Shifting power within agency
- Shifting organizational mandate from conservation to providing economic revenue-generating recreational opportunities
- Political interference
- Funding given to things not considered a priority internally
- Park deletions occurring to enable development

Unique Northern Challenges for Protected Areas.

We asked all participants whether they were able to identify any unique challenges in management facing northern protected areas. A number of key problems or challenges were identified from logistical to cultural including:

- Pine beetle
- Oil and gas exploration—directional drilling under park
- Wind power in alpine areas in exploration
- Highest economic development in province
- Introduced species on remote archipelago
- Frontier philosophy
- Cumulative effects not understood
- Caught between north/south ideals
- Money for contractors/cooperators and infrastructure is limited
- Some cultural differences
- Transportation of toxics
- Global warming effects more dramatic in north

- Northern issues more a matter of geographic size than complexity
- Acceptance and use of traditional knowledge
- Northern issues more focused on aboriginal issues
- Communication problems between north and south
- Parks more a 'state of mind' as opposed to a place in north (cultural construction/geography)
- International attention for cooperative management

From Management Challenges to Research

The identification of challenges to managing for ecological integrity is the first step in identifying possible responses (Rice and others 2003). We were interested in exploring the role of research, possible research priorities and challenges for using research to address these challenges. In particular, we wanted to address questions including:

- Who is doing research in parks?
- How is research communicated to management?
- Is science used in decision-making?
- What were emerging research needs?

Who Is Conducting Park Research? We asked survey respondents to identify who was conducting research in parks and whether it was initiated by the agency or by an external researcher. Significant difference was noted between Parks Canada and BC Parks in this regard. Parks Canada staff were most likely to indicate that research was initiated internally while BC Parks staff indicated that research was initiated by external organizations, predominantly universities (fig. 2).

To expand upon this question, we conducted a review of the BC Parks research permit records (2005) to identify those who currently held research permits. Universities and private individuals were the primary research permit holders, confirming the estimates provided by survey respondents (fig. 3).

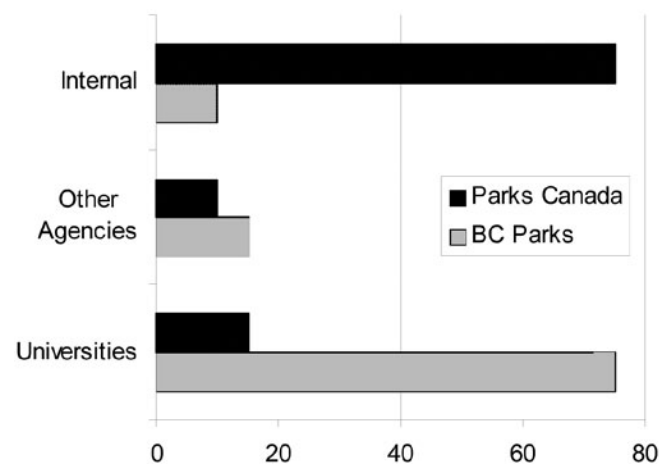


Figure 2—Responses to the query of who initiated research projects: internal initiation (within the agency); other agencies; or universities and other researchers.

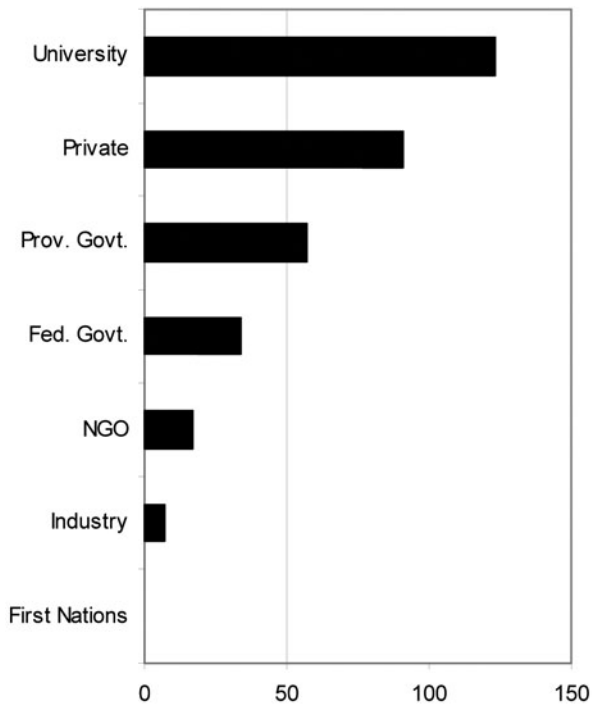


Figure 3—Number of BC Parks research permits held or applied for within the 2005 year by applicant type.

How Is Research Translated for Management? Communicating research findings to managers is a critical step in an adaptive research/management process. By and large, BC Parks staff indicated that there was no real mechanism for this to happen and that much of the time they did not even receive the results of research or if they did, they were likely to be filed by the staff member receiving them and not shared. Increasingly, BC Park staff are looking to develop catalogues of research projects and exploring the idea of searchable databases, however, to date these efforts are not widespread. Parks Canada has more of a heritage of formalizing links from research to management but this it probably strongly related to the fact that they initiate much of the research. Key mechanisms identified to communicate research to management range from informal to formal including:

- Joint project review of plans (for example, Department of Fisheries and Oceans, and Parks Canada)
- Conservation training
- Access to electronic journals
- Use of scientific subcommittees and science advisory panels
- External reviews of applications/projects
- Preparation of background documents for planning that summarize information
- Non-formal peer review with universities
- Personal connections to university professors

Is Science Used in Decision-Making? When asked whether research results were used in park decision-making, we received a qualified yes in our answers that we have summarized as a 'Yes, but....' response. Qualifiers ranged

from challenges with the research itself to challenges with the decision-making process, including:

- Yes, but less than 50 percent of the time
- Sometimes it is too detailed for park decision-making
- Some research has direct applicability
- When we get research results it is definitely useful
- Some is useful, for example, identification of species habitat, archaeological work
- Getting better
- Depends on site superintendent
- Applying specific studies regionally difficult
- No - structure of decision making is politically, not scientifically based
- Could be better- need more capability in parks office to handle findings
- Increasingly yes (past no)
- Yes, if it was appropriate research in the first place
- Some research projects range in validity
- Some research may make situations muddier
- Yes, although sometimes we face political influence in the use of results

What are Emerging Research Needs? The capacity to identify research questions varied significantly between organizations. While Parks Canada had in most cases published or has readily accessible lists of research priorities and projects, most BC Parks personnel were not able to identify researchable questions and challenges. However, the following research needs were identified:

- Identifying thresholds for activities to preserve park values
- Introduced species impacts and control methods
- Effective indicators for human use
- Causes of caribou herd decline
- Role of parks in larger landscapes
- Visitor/activity use trends (geo-caching)
- Understanding natural disturbances
- Forest health management

Conclusions

From Management Challenges to Research

Although significant barriers and challenges remain, Parks Canada has moved beyond the issue of organizational culture towards more resource-specific management challenges. The agency has growing capacity and organizational structure to develop and implement a strong research agenda. Some weaknesses, particularly in the areas of social science research are noted, however, improvements in these areas are being targeted.

In contrast, while BC Parks staff identified some key research challenges, they are, by and large, not a research-oriented organization and are lacking capacity to conceive, organize, manage and implement research to aid management. Most agency resources are focused currently on maintaining current operations in the face of significant organizational barriers. Approaches, such as the BC Protected Areas Research Forum (www.unbc.ca/bcparf) may help move

the research agenda forward but without structural changes to the agency there will continue to be major challenges.

References

- Banff-Bow Valley Study. 1996. Banff-Bow Valley: at the crossroads. Summary report of the Banff-Bow Valley task force. Ottawa: Auditor General of Canada. 432 p.
- Carr, D. E.; Eagles, P. F. 2003. The commitment gap: lessons learned about employee commitment in the Parks Canada Agency. In: Munro, Neil; Dearden, Phil; Herman, Tom B.; Beazley, Karen; Bondrup-Nielson, Sorun, eds. *Making Ecosystem-based management work. Proceedings of the Fifth International Conference on Science and Management of Protected Areas*; 2003 May 11–16; Victoria, BC. Wolfville, Nova Scotia, Canada: SAMPAA. ISBN 0-9699338-6-x. No page numbers.
- Cole, D. N. 2004. Environmental impacts of outdoor recreation in wildlands. In: Manfredo, Michael J.; Vaske, Jerry J.; Bruyere, Brett L.; Field, Donald R.; Brown, Perry J., eds. *Society and Natural Resources: a summary of knowledge*. Jefferson, MO: Modern Litho: 107–116.
- Dearden, P.; Rollins, R. 2002. The times they are still a-changin.' In: Dearden, P.; Rollins, R., eds. *Parks and protected areas in Canada: planning and management*. 2nd ed. Don Mills, ON: Oxford University Press. 416 p.
- Foster, J. 1978. Working for wildlife: the beginning of preservation in Canada. Toronto: University of Toronto Press. 271 p.
- Globescan. 2000. Canadian public opinion on nature and biodiversity. Environics International Technical Report. Toronto, ON: Globescan. 29 p.
- Grumbine, R. E. 1994. What is ecosystem management? *Conservation Biology*. 2(1): 27–38.
- Parks Canada Agency. 2000a. Unimpaired for future generations? Protecting ecological integrity with Canada's National Parks. Volume I. A call to action. Report of the Panel on the Ecological Integrity. Ministry of Public Works and Government Services. Ottawa, ON. 21 p.
- Parks Canada Agency. 2000b. Unimpaired for future generations? Protecting ecological integrity with Canada's National Parks. Volume II. Setting a new direction for Canada's National Parks. Report of the Panel on the Ecological Integrity. Ministry of Public Works and Government Services. Ottawa, ON. 204 p.
- Rasker, R.; Lee, T. 2003. Working together to achieve long-term ecological integrity: the governance dimension. In: Munro, Neil; Dearden, Phil; Herman, Tom B.; Beazley, Karen; Bondrup-Nielson, Sorun, eds. *Making Ecosystem-based management work. Proceedings of the Fifth International Conference on Science and Management of Protected Areas*; 2003 May 11–16; Victoria, BC. Wolfville, Nova Scotia, Canada: SAMPAA. ISBN 0-9699338-6-x. No page numbers.
- Rice, J.; Thompson, D.; Lien, J.; Lophoukine, N.; Klutnor, P. 2003. Developing a research agenda. In: Munro, Neil; Dearden, Phil; Herman, Tom B.; Beazley, Karen; Bondrup-Nielson, Sorun, eds. *Making Ecosystem-based management work. Proceedings of the Fifth International Conference on Science and Management of Protected Areas*; 2003 May 11–16; Victoria, BC. Wolfville, Nova Scotia, Canada: SAMPAA. ISBN 0-9699338-6-x. No page numbers.
- Searle, D. R. 2000. Phantom parks: the struggle to save Canada's National Parks. Henderson Book Series No. 20. Toronto, ON: Key Porter Books Ltd. 262 p.
- Wiersma, Y.; Campbell, M. 2002. A monitoring framework for Canada's National parks: Assessing integrity across a systems. In: Bondrup-Nielsen, S.; Munro, N.; Nelson, G.; Willison, J. H. M.; Herman, T. B.; Eagles, P., eds. *Managing Protected Areas in a Changing World. Proceedings of the Fourth International Conference on Science and Management of Protected Areas*; 2000 May 14–19; Waterloo, ON. University of Waterloo: 196–212.
- Wilkinson, P. F. 2002. Protecting for ecological integrity in Canada's National Parks: Allowable and appropriate visitor use. In: Bondrup-Nielsen, S.; Munro, N.; Nelson, G.; Willison, J. H. M.; Herman, T. B.; Eagles, P., eds. *Managing Protected Areas in a Changing World. Proceedings of the Fourth International Conference on Science and Management of Protected Areas*; 2000 May 14–19; Waterloo, ON. University of Waterloo: 184–195.
- Woodley, S.; Kay, J.; Francis, G. 1993. Ecological integrity and the management of ecosystems. Boca Raton, FL: St. Lucie Press. 220 p.
- Wright, P.; Rollins, R. 2002. Managing the national parks. In: Dearden, P.; Rollins, R., eds. *Parks and protected areas in Canada: planning and management*. 2nd ed. Don Mills, ON: Oxford University Press: 207–239.
- Wright, P. 2002. Unimpaired for future generations? Key responses to the threats to protected areas in Canada. In: Bondrup-Nielsen, S.; Munro, N.; Nelson, G.; Willison, J. H. M.; Herman, T. B.; Eagles, P., eds. *Managing Protected Areas in a Changing World. Proceedings of the Fourth International Conference on Science and Management of Protected Areas*; 2000 May 14–19; Waterloo, ON. University of Waterloo: 176–183.