

An Approach for Monitoring in Ontario's Provincial Parks and Protected Areas Executive Summary

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Introduction

This report documents the findings of the first steps toward implementing a comprehensive, long term monitoring program for Ontario Parks. The report is provided in three volumes: Volume 1 provides a brief summary of the background to the project, including the main findings of the targeted consultations, presentation of a framework for setting up a monitoring program and the recommendations. Volume 2 provides detail on the context for monitoring in Ontario Parks and underlying concepts, a detailed summary of the consultations, and implementation considerations (site selection, a process for indicator selection, internal organizational structure for monitoring, etc.). Volume 3 provides the original documentation of the consultations.

The monitoring initiative has three initial aims:

- Establish a set of long-term baseline “reference” sites, to act as benchmarks against which changes in non-protected areas can be measured;
- Increase our understanding of the health of parks including: the effects of human use, external influences, and various management initiatives in order to enable adaptive management; and
- Report to the people of Ontario on commitments made to manage the resources of the Province.

Consultations

A key component of the study was to undertake consultations with a wide range of Ministry of Natural Resources (MNR), other government, non-government organizations (NGO) and private sector stakeholders. A total of 48 interviews were undertaken, 32 of which were with MNR staff. MNR stakeholders included parks staff (e.g. park biologists, superintendents, zone managers) as well as staff from Science and Information Resources Division (SIRD), District Offices, ADM's Office (Assistant Deputy Minister), forestry and wildlife researchers, Natural Heritage Information Centre (NHIC), and others. The aim of the consultations was to obtain an understanding of: how a monitoring program would be useful for

various MNR staff; existing monitoring programs; impediments to implementing a monitoring program; track record of previous monitoring; existing and potential partners; implementation methods within Ontario Parks; and the role of NGO's and the private sector.

The consultations identified 19 themes and issues. Generally, there was agreement that MNR has substantial technical capability in resource management and data management. This expertise resides in many different division, branches and departments within the Ministry. The principal internal impediments related to: having all MNR staff work toward the single vision within MNR with respect to how the landscape should be managed; the cultural gap that exists between Ontario Parks and other MNR branches; and lack of capacity (funding and staff) within Ontario Parks to implement a comprehensive monitoring program. The constantly changing administrative structure and potential conflicts with the revenue generation mandate of Ontario Parks were also noted as important concerns.

Many excellent suggestions came out of the consultation process including: providing a better balance between protection and resource use within parks; making monitoring a part of core park operations that are every bit as important as maintaining visitor facilities; tying monitoring tasks to annual workplans and performance targets; strengthening policy and legislation so that it reflects the role of monitoring in park management; and integrating monitoring information into natural heritage education programs. The important role of data management was noted and there were several issues related to: the value of web-enabled database systems; perceived problems with the existing Natural Resource Values Information System (NRVIS) program; and the need to analyze and report findings, not just collect data. Incorporating monitoring into Park Management Plans was noted as a likely mechanism for implementing monitoring in Parks as these documents guide park management and provides a means of auditing monitoring obligations.

MNR Context for Monitoring

The monitoring framework relates to the corporate direction provided in MNR policy documents. The current Mission of MNR states (OMNR, 2002):

“The Ministry’s mission is to manage our natural resources in an ecologically sustainable way to ensure they are available for the enjoyment and use of future generations.”

Nine “desired outcomes” are identified, which include maintaining long term ecosystem health, and protecting natural heritage features and landscape values. Since monitoring is essential to demonstrate the condition of natural heritage resources, Ontario Parks, by implementing the monitoring program, has the potential to contribute an essential component to MNR’s mission of ecological sustainability.

Underlying Concepts

Several underlying concepts are discussed in the report: ecological sustainability; adaptive management; and systems frameworks. Ecological Sustainability relates directly to the MNR Mission statement. It is a new paradigm for managing resources and can be explained simplistically as living off the interest of natural capital and protecting the capital itself. Adaptive management recognizes the limitations in our knowledge of how natural systems function and proposes an approach that facilitates learning through monitoring. As data are collected and analyzed, new information is reported and used to refine management prescriptions. Ongoing monitoring thus improves our knowledge of the resource and allows ongoing improvement in resource management. It requires a commitment to analyzing, reporting findings and acting on new information. The systems frameworks recognizes that information should be gathered and analyzed in the context of larger systems. Thus information at the species level needs to be looked at and evaluated in the context of genetics, ecosystems and the landscape in which species survive. A systems framework also recognizes a relationship among ecological, social and economic components of the environment.

Monitoring Framework

Principles, goals and objectives

The monitoring framework is outlined and described more fully in figures and overhead slides found in the appendix of this paper. It is guided by principles, a goal and objectives. The principles are seen as providing the overarching guidance for the project. They reflect broad values that could be applied to a wide range of projects and are not specific to monitoring. The goal statement is a “working goal”. Substantial time was spent reviewing potential goal statements and this aspect of the framework will need to be revisited as the initiative progresses. The objectives are refined from the “desired outcomes” identified in MNR policy. They are grouped into ecosystem, social and economic categories, which are the systems that must be addressed to achieve ecological sustainability. Accountability was added to account for the principles relating to adaptive management and recognition of the public trust, which includes reporting to the public on the state of the parks.

Monitoring Questions

It is important in any monitoring initiative to be clear on the questions which it seeks to answer. Monitoring questions need to be asked at various levels in the hierarchy of the monitoring framework. At the top level, the question should be fairly broad and relate to the critical areas of concern that need to be reported on (e.g. biodiversity conservation, provision of recreation opportunities, contributing to local economies, etc. – see appendix of this paper). These questions can guide reporting on the state of the parks and should contribute to a structure that promotes consistency in monitoring across the province. At the component level, questions may need to be developed for each of the generic indicators (i.e. disturbance, species diversity, exotic species, recreational opportunities) that frame the kind of

information needed in greater detail. Within individual parks, monitoring questions need to be highly specific and clearly articulate the information that monitoring should provide to all for in-park management. For example, a generic question is proposed that relates to the ecological health of parks. This should generate a question(s) at the generic indicator level relating to the need to track the invasion of exotic plant species, and at the park level the question should indicate which species should be covered, whether the measure is abundance and/or spatial distribution, and so forth. Data collected from numerous parks to answer the park-specific questions will facilitate saying something about exotics in general in the province and contribute to a statement on the ecological health of parks at the uppermost level for provincial reporting. Thus a hierarchical set of questions can satisfy specific needs at the site level and provides consistency for reporting at the provincial level.

Monitoring Components

The three monitoring components are Ecosystem Monitoring, Stress Monitoring and Compliance Monitoring. The Ecosystem Monitoring component provides for a long term suite of ecological indicators that incorporates ecological, social and economic systems. Within each system, generic indicators are proposed that identify the type of information that is needed to provide a complete suite of ecological indicators. It is proposed that specific indicators be selected at specific sites. A process for selecting indicators will be provided in the final report. It is acknowledged that it is unlikely that indicators for every category will be selected owing to the huge commitment of time and resource needed to monitor a full suite of indicators. However, the framework provided will allow each indicator to be evaluated in the context of the larger systems and identify what aspects of ecological, social, and economic systems are not being monitored at any given site. The framework thus acts as a structure in which indicators can be selected and evaluated.

Indicators selected for the ecosystem Monitoring component will provide the baseline or "benchmark" information that will characterize Ontario landscapes and facilitate comparison with out-of-park areas. It should also provide the basic information for state-of-the-parks reporting and contribute to the information park managers need to implement an adaptive management strategy. It is proposed that parks which represent the range of biophysical landscapes, and types of parks (recreation, natural environment, nature reserve etc.) in Ontario be selected to establish plots and undertake monitoring.

The Stress Monitoring component is provided as a way of addressing readily identifiable and known park stresses. For each park, it is proposed that small groups of knowledgeable people, including the superintendent and key park staff, work together on responding to a stress questionnaire designed to cover off known ecosystem stresses. The questionnaire is closely based on those used by Parks Canada and BC Parks. In each park where stresses are identified, they are characterized with respect to source, significance, and degree of threat. Thus the process pro-

vides a rapid and inexpensive means of documenting known park stresses and provides a starting point for initiating management action and/or monitoring. There may be much overlap with the Ecosystem Monitoring component in that some stresses, such as exotic species, will be covered in both. In such cases, the indicators in one component will inform the other.

Compliance Monitoring seeks to explicitly monitor the fulfillment of existing obligations of Ontario Parks as documented in law, regulations, policies, and park planning documents. In many cases this will take the form of an auditing process to determine the extent to which Ontario Parks is fulfilling its responsibilities.

Recommendations

Twenty-seven recommendations are provided as summarized below.

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| 1. Implement stress monitoring test case | 17. Develop better communication skills |
| 2. Evaluate existing programs | 18. Integrate monitoring data into Natural Heritage Education Programs |
| 3. Select test monitoring sites | 19. Review of responsibility for park management |
| 4. Select specific indicators | 20. Examine adequacy of funding |
| 5. Strengthen linkage to IMAR (??) | 21. Make park monitoring a part of core funding |
| 6. Locate plots in parks | 22. Increase capacity of zone offices |
| 7. Establish implementation committees | 23. Increase capacity of main office |
| 8. Integrate monitoring with Class EA Process | 24. Increase capacity for adaptive management |
| 9. Modify NHIC database | 25. Undertake training and increase qualifications of park staff |
| 10. Incorporate monitoring into the park management plan process | 26. Support creation of links to ministry-wide meta-databases |
| 11. Refine park policies | 27. Promote consistent use of metadata |
| 12. Evaluate potential role of First Nations | |
| 13. Establish implementation team | |
| 14. Analyze impacts of revenue generation | |
| 15. Review user survey information | |
| 16. Develop communication strategy | |

References

- North-South Environmental Inc. 2001. *An approach for monitoring in Ontario's Provincial Parks and Protected Areas. 3 Volumes.* Report to the Ontario Ministry of Natural Resources.
- Ontario Ministry of Natural Resources (OMNR). 2000. *Beyond 2000 - Strategic Directions.* Queen's Printer for Ontario. 20 pp.

Appendix

The following information was initially accompanied by slides of three dimensional diagrams portraying the framework in some detail. It has, however, not been possible to reproduce this diagram and associated text in a legible format for this publication. We are therefore publishing the summary of the framework that was provided as a parallel part of the three-dimensional diagram. A copy of the full diagram can be obtained either from Ontario Parks or the consultants.

Overall Structure Consisted of:

- Guiding Principles
- Goal and Objectives
- Monitoring Questions
- Monitoring Components
 1. Ecosystem Monitoring
 2. Stress Monitoring
 3. Compliance Monitoring
- Data Management and Analysis
- Monitoring Outputs

Guiding Principles

- Accountability
- Public Trust
- Primacy of ecological integrity
- Adaptive management
- Knowledge based management
- One mission
- Ecosystem based management
- Partnerships
- Freedom of information

Goal and Objectives

- Goal: To evaluate the contribution of Provincial Parks and Protected Areas to the health of Ontario's ecosystems for present and future generations.
- Objectives: Healthy Ecosystems, Social Well Being, Economic Health, and Accountability

Monitoring Questions

- Create the link between the goal and objectives and the "on the ground monitoring" that will take place
- Frame the thinking of "what we want to get out of the monitoring program and therefore what we need to measure
- They are broad questions when considering the overall framework or specific questions when considering indicators

Ecosystem Monitoring Component

- Ecological System
 - Landscape/Community/
Population/Genetic
- Social System
 - Partnerships/Recreation/
Values/Park Management
- Economic System
 - Stocks/Goods & Services/
Economic Contribution/
Efficiencies

Stress Monitoring Component

- Rapid Assessment
 - ~ timely assessment of issues
- Expert knowledge
 - ~ listening to the concerns
- Low Cost
 - ~ implemented in all parks
- Rapid Response
 - ~ acting on significant needs

Compliance Monitoring Component

- Statutory Obligations
- Park Policies
- Park Management Plans
- Interim Management Statements