

EVALUATING MANAGEMENT EFFECTIVENESS OF PARKS AND PARK SYSTEMS: A PROPOSED METHODOLOGY

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ABSTRACT

Park management must consider the ecological, cultural, and heritage integrity of parks, as well as the satisfaction of the park visitors. Reductions in government financial support for parks, increasing visitor numbers, increasing area to manage, and decreasing staff numbers have impacted the management capabilities of most parks and park agencies in Canada. It is important to evaluate how management is dealing with these changes and whether park agencies are effectively managing parks. This study reviews indicators of management effectiveness and factors that influence parks agencies' ability to manage parks effectively. It proposes that five indicators of management effectiveness be considered: 1) presence of a management plan, 2) level of ecological integrity, 3) level of historical and cultural integrity, 4) visitor use level and satisfaction measurement, and 5) financial self-sufficiency. Measurement of management effectiveness is needed both at the individual park level and for the park system as a whole. This paper reports on research involving an evaluation of the management effectiveness in a sample of individual parks of the Ontario Provincial Park system, as well the management effectiveness of some aspects of the entire park system. The initial research proved to be promising and therefore the researchers developed a questionnaire designed to measure Canadian parks management effectiveness in a broader, national study to be

conducted at some future time.

1.0 INTRODUCTION

Several governments in Canada have accepted the call by the endangered spaces campaign of the World Wildlife Fund of Canada for 12% of their area to be placed into some form of park or protected area. For example, the National Parks of Canada, as well as BC and Ontario Provincial Parks have used this area coverage goal in their planning. However, the attainment of an area coverage goal provides no indication of the effectiveness of the park designation in attaining conservation, education or tourism goals set for the parks. It is therefore very important to develop indicators and measurement methodologies that can provide information of the effectiveness of park management.

The study of management effectiveness in parks and protected areas is a new and important field. The reality for parks is that “with the increase in human populations and the growing thrust on infrastructure development, the pressures on protected areas have grown tremendously” (1). A need to assess the management of parks has accompanied these pressures because they mean that the establishment of a protected area does not necessarily guarantee protection for the biodiversity, environmental or cultural features that it contains (2). Hockings and Phillips maintain that “protected areas can only deliver their environmental, social and economic benefits if they are effectively managed” (3). In other words, if parks are to be adequately protected, it is important to understand the effectiveness of their management since the ability of a natural or cultural area to survive is highly related to the management of the area. As Singh suggests, “if the old management systems are to be changed and updated, we first need to understand current limitations and identify areas for improvements” (1).

This paper attempts to better understand factors influencing park management and to develop

indicators of effective management. One result is a series of criteria and data that attempt to shed light on the issue of management effectiveness. A second result is an evaluative tool, namely a survey, for assessing management effectiveness in Canadian parks in a more comprehensive fashion. "Evaluation consists of reviewing the results of actions taken and assessing whether these actions have produced the desired results" (3). Therefore, the survey is a tool to determine what is hindering as well as what is helping parks achieve management effectiveness in Canada, in order to link actions to consequences.

This paper presents two related components of management effectiveness. It is important to assess management of each park in order to determine the different needs and challenges of the parks within an agency. Therefore, one component of the paper is an example of park level assessment in the form of a case study of a select regional grouping of 10 Ontario Provincial Parks. The second component builds on the site level understanding to develop a system-wide survey instrument to collect data that can be used to measure management effectiveness at the park agency level. It is hoped that this research instrument can be used in the future to monitor management effectiveness in Canadian parks.

2.0 METHODOLOGY

2.1 Site Level: Ontario Provincial Parks' Case Study

Site specific data on a select population of 10 Ontario Provincial parks was collected using several methods. Operational budgets for each park came from the Ontario Parks Head Office in Peterborough. These provided financial data for each park, as well as a general breakdown of expenditures at each park. Staff and visitor numbers were acquired by correspondence with park staff in the parks chosen for the study. The management plans for each park were accessed through government publications. The Ontario Ministry of Natural Resources provided the basic, system-

wide policy framework and other pertinent acts and regulations on the management of provincial parks. Ontario Parks provided access to several statistical databases on the system.

2.2 System Level: Management Effectiveness Survey

Secondary-data analysis was the primary method of study used for system effectiveness survey development. Current publications and data sets on the state of Canadian national and provincial parks were used to evaluate trends in park finance, area managed, visitor numbers, staff numbers, and park legislation. These data were used as the basis on which to calculate indicators of management effectiveness in parks.

A draft survey designed to measure and evaluate management effectiveness in Canadian Park agencies was created, based on the above-mentioned trends and indicators. This survey was sent to twelve people for comments, and seven responded. The evaluators ranged from university students to world leaders in the field of management effectiveness in parks and protected areas. The feedback received on the draft survey was used to revise the survey in order to develop a useful evaluative tool for Canadian parks.

3.0 MANAGEMENT EFFECTIVENESS

There are no standard approaches to the measurement of management effectiveness in parks and protected areas. One reason is that parks are very complex. They have different purposes, use levels, visitor numbers, funding, and are different sizes, to name a few variations. Differences amongst parks make it difficult to develop a standard management evaluation system. However, attaining goals and administering worthwhile programs can universally be considered effective management. Therefore, by evaluating the ability of parks to meet various goals, a link between action and outcome is observed. As Hockings and Phillips suggest, this link is sometimes not obvious, and Afaced with the daily demands of their jobs, many protected area managers are not able

to systematically review the results of their efforts@ (3). Nevertheless, pressure is on managers to conduct such reviews and evaluations because without them Amoney and other resources are being wasted on programmes that do not achieve their objectives@ (3).

When considering management effectiveness, a factor which automatically comes to mind is accountability. It is a logical step to assume that if managers are accountable for their actions then they will act in a more effective manner. However, Dudley, Hockings, and Stolton make an important point stating Aaccountability viewed in this light [management effectiveness] is not so much about >checking up= on managers to see where they are failing but about developing a professional approach to management@ (4). Evaluation of park management should be used positively to advance management and as a method to learn from past successes and failures, not as a means for punishment (3).

We propose that five factors provide information on management effectiveness and can be used as evaluation tools. These include; 1) the presence of a management plan, 2) the level of ecological integrity, 3) the level of historic and cultural integrity, 4) the measurement of visitor use level and satisfaction, and 5) the level of financial self-sufficiency.

4.0 INDICATORS OF MANAGEMENT EFFECTIVENESS

A major constraint in fully assessing the management effectiveness of parks and protected areas is the availability of data. The factors chosen as indicators of management effectiveness are quantifiable and can be evaluated both at an individual park and at a park agency basis.

4.1 Management Plan

The possession of a management plan is an indication of an effectively managed park because it demonstrates that the park has a future orientation and a means to attain its goals. Consequently, the first question in the management effectiveness survey (Appendix A) deals with

management plans. However, it is not enough to only have a management plan. If the link between action and consequence outlined by Hockings and Phillips (3) is to be attained, a park needs to have more than just a plan. A process to evaluate the degree of implementation and success of the plan is an essential element in management effectiveness. Park agencies and managers need to realize that evaluation means a check to see whether stated objectives are being realized.

Only 39% of the parks in the Ontario Provincial Park system have management plans. Significantly 61% do not have management plans (5). An analysis of management plan data (Appendix B) according to the Ontario Provincial Park Class System, shows that Wilderness Parks have 43% management plan completion, Historical has 50%, Nature Reserve has only 10%, Natural Environment has 56%, Waterway has 17%, and Recreational has 56% (5). These data enable a comparison of the management effectiveness according to the management plan criterion for different parks within the same park classification and the whole Ontario provincial park system. These data suggest that those parks with the highest level of tourism use, natural environment and recreation parks are much more likely to have approved park management plans. Clearly, the Ontario Provincial Park system has a long way to go until each park has a management plan.

4.2 Ecological Integrity

According to Parks Canada, Ecological integrity is the condition of an ecosystem where the structure and function of the ecosystem are unimpaired by stresses induced by human activity, and the ecosystem's biological diversity and supporting processes are likely to persist (6). In the *State of the Parks Report*, Parks Canada states that Maintaining ecological integrity is the priority of national parks (6) and according to the National Parks Act, ecological integrity will be the first priority when considering park zoning and visitor use in management plans (6).

The importance of ecological integrity in Canadian national parks management is greatly

emphasized by the report of the Panel on the Ecological Integrity of Canada's National Parks. The goal of the panel was to "maintain ecological integrity in national parks", to examine the management agencies' approach to maintaining ecological integrity and to make recommendations for improvement. According to the Panel, "one reason for the apparent lack of a strong culture of conservation within Parks Canada may be that the organization has for too long been focusing on business-type management practices" (7). This statement is misdirected since it is difficult to understand how ideas such as accountability, accurate record keeping, monitoring practices, and rewards for good management can lead to the decay of conservation in Canadian parks. In fact, it is probable that business-type management practices could actually add to the protection of parks since they involve the idea of the use of effective management indicators. It is our contention that ecological integrity management effectiveness be one criterion, and that financial effectiveness be another. We do see less of a conflict between these two criteria, and more of a synergistic relationship.

Our research found no policy, methods or data on the determination of ecological integrity levels within Ontario Provincial Parks. To the authors' knowledge this situation is general across Canada with provincial parks. Provincial park agencies generally do not have consistent methods of evaluating ecological integrity in their parks. This lack of structure is unfortunate since it results in a lack of clear ecological goals to management, low levels of ecological monitoring, incomplete ecological information on which to base park management, and incomplete consideration by managers of the potential ecological effects of management practices.

Question 2a of the management effectiveness survey (Appendix A) is designed to determine if parks have ecological integrity goals and a method of evaluating these goals.

4.3 Historical and Cultural Heritage Integrity

The protection of culture and heritage is an important purpose of many parks. According to *The State of the Parks Report*, “Canadians care about history and heritage” (6). In fact, 92.8% of Canadians feel it is important to preserve Canada’s heritage, 90.5% of Canadians feel Canadian history is interesting, and 53.9% of Canadians feel other Canadians are not knowledgeable about Canadian history (6). This last finding was derived from a survey conducted by the Angus Reid Group that showed that Canadians aged 18 to 24, on average, failed the Canada Day History Survey (6). Clearly, there is an important role for provincial and national historic sites to play in enhancing awareness of Canadian history.

The ability to monitor and report on historic sites is a challenge. Parks Canada has developed “a comprehensive but simple concept to describe, plan and monitor...national historic sites” (6). The concept is called commemorative integrity and “refers to the health and wholeness of a site” (6). If Canadians do not understand the reasons why a site possesses national significance, then the site does not possess commemorative integrity. However, management agencies may also play an important role by achieving a level of integrity simply through the protection of cultural and historic artifacts and sites.

Our research found no policy, methods or data on the determination of historic or cultural integrity levels within Ontario Provincial Parks. It appears that this situation is general across Canada and that provincial park agencies generally do not have consistent methods of evaluating historic and cultural integrity in their parks.

Question 2b of the survey is meant to determine if the park agency has goals designed to maintain the integrity of its cultural and heritage sites (see Appendix A). Also of interest in this question is whether or not the agency is attempting to link the intent of their goals to the actual achievement of them.

4.4 Visitor Use Levels and Visitor Satisfaction Data

The collection of visitor use data and visitor satisfaction data is an indicator of management effectiveness because it demonstrates that the park and park agency are evaluating at least a minimum level of performance in visitor management. A basic statistic is the level of visitor use. Only with these data can reasonable measures of ecological, economic and cultural impact be evaluated. However, many parks have incomplete and inefficient park-use measurement programs.

Knowledge about who the visitors are, their activities in the park, and their level of satisfaction with the services and facilities serves two roles. First, it allows for a better understanding of who the park visitors are, which is essential for the design of any visitor use management strategy. Second, it allows the park to evaluate if visitors are satisfied with the park and therefore determine if the park and park agency are successful in the provision of programs and services.

Ontario Provincial Parks has an ongoing program to monitor visitor use levels within all the 107 operating parks; the parks that have field staff. During the 1999 season, these 107 parks reported 9,415,175 days of visitor activity (5). However, there are 165 parks considered to be non-operating; the parks that do not have field staff consistently on the ground in the park and no visitor-use level measurement taking place. Ontario provincial parks have an ongoing program to monitor visitor opinions on a wide variety of service and program attributes. This program has sufficient funds to allow visitor surveys to be conducted in each operating park once every 6 years. Given the lack of standards in regards to visitor use level and satisfaction measurement, it is up to the reader to decide if basic tabulation of visitor use numbers in 39% of the parks is sufficient, and whether measurement of client satisfaction is adequate when it is measured once every 6 years.

All senior park agencies in Canada collect and publish visitor use levels, for at least some of

their parks. The Federal Provincial Parks Council information exchange found that only British Columbia, Alberta, Ontario, Northwest Territories, Nunavut, and Parks Canada conducted park visitor surveys during the 1998/99 fiscal year, while Saskatchewan, Manitoba, Quebec, Newfoundland, New Brunswick, Nova Scotia, Prince Edward Island, and the Yukon did not (8). Clearly, a substantial number of provincial park agencies in Canada do not collect consistent, yearly data on visitor characteristics and satisfaction.

4.5 Financial Self-Sufficiency

Reliance on government grants is a problem for many parks and park agencies. Van Sickle and Eagles found a severe problem with budget reductions in Canadian parks in the early mid 1990s (9). Reductions in park funding and budget allocations made it important for park agencies and individual park managers to develop methods to increase their revenue using alternative means. For those agencies without the ability to earn income from tourism sources, the only alternative was the cessation of direct management for some parks.

Kirik measured financial self-sufficiency by comparing the tourism-based revenue and expenditures of five Natural Environment and five Recreational parks in the Ontario Provincial Parks system (5). The findings show that only one of the Natural Environment parks (Kakabeka Falls) and three of the Recreational parks (Rushing River, Pancake Bay, and Mikisew) had tourism-based revenues that exceeded their budgets (Appendix C and D), and were therefore financially self-sufficient. These parks could function without tax-based grants from government. All others had to tailor their operations to the size of the government grants.

Comparing expenditures to visitor levels, revenue to visitor levels, and subtracting the expenditures per visitor from the revenue per visitor showed that in the Natural Environment park class Kakabeka Falls is the only park studied to make a profit per visitor (Appendix C). Although

this profit is small, at 7 cents per visitor day, its significance is unmistakable when considering that other parks in the study, such as Sandbar Lake, lose \$2.91 per visitor day. Using the same method for Recreational parks; three of the five parks studied make a profit per visitor (Appendix D). Pancake Bay, Mikisew, and Rushing River have profits of \$1.59, \$1.23, and \$0.75 respectively, while Finlayson Point loses \$3.59 per visitor day (5).

What causes a park to have a profit or loss per visitor is not entirely clear. There appears to be a relationship between the number of visitors and the income per visitor. For example, Kakabeka Falls had the highest visitation rate with 303,639 visitors and was the only Natural Environment park included in the study to have a profit per visitor (Appendix C). On the opposite end of the spectrum, Sandbar Lake was the Natural Environment park with the lowest visitation rate (11,904 visitors) and had the biggest loss per visitor day (\$2.91). This trend was also evident for Recreational parks (Appendix D). While Pancake Bay has a visitation rate of 78,956 visitors and a profit of \$1.59 per visitor, Finlayson Point has the lowest visitation rate (26,802 visitors) and a loss of \$3.59 per visitor (Kirik, 2000). Increased length of camper visit did not seem to compensate for visitor numbers. For example, Finlayson Point had the second longest length of stay for Recreational parks, 3.5 nights per visitor while at 2.7 nights Samuel de Champlain had the longest length of stay for Natural Environment parks, yet both had a loss per visitor day of use.

It is important to note that with the reduction in government grants to Ontario provincial parks, that without tourism-based income many of the operating parks would become non-operating. Therefore, in these 10 parks, the tourism income assists the agency in keeping the park operating and staffed. It is our supposition that an operating park with full-time staff has a much higher opportunity to have effective management, than a park without staff. It is important to note that these case studies analyses of financial management effectiveness could only be done with the availability of

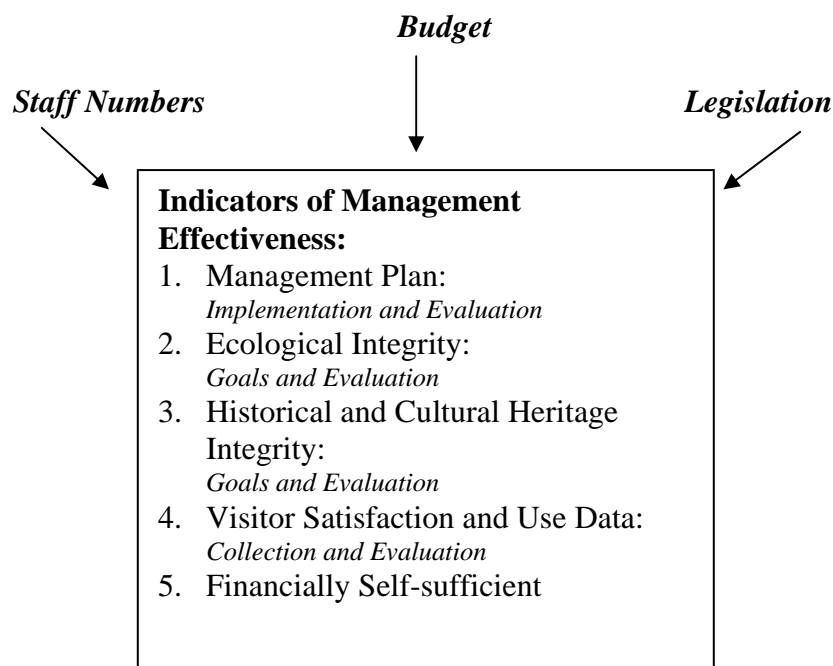
adequate financial and visitor use data maintained by the park staff.

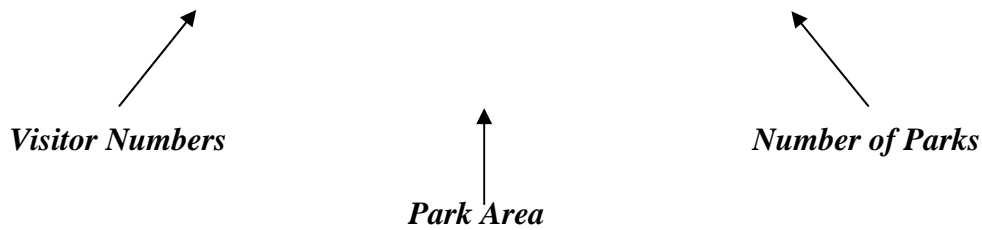
The purpose of questions 3 and 4 of the survey (Appendix A) is to determine park finance level, the source of the income, and where it is spent.

5.0 FACTORS INFLUENCING MANAGEMENT EFFECTIVENESS

Park managers and park agencies want to be effective. They would like to have adaptable and useful resourceful management plans. They would like to conserve the environment and not allow damage to occur. They would like to protect the culture and heritage of Canada. They would like to have worthwhile and helpful visitor data. These are ideals. The reality is that there are many factors that influence the capability of park managers and park agencies to effectively manage. Some of these factors are 1) visitor numbers, 2) park area, 3) number of parks, 4) size of budgets, 5) number of staff, and 6) legislation. Each of these will be discussed in turn, within the context of a model that describes the influences of six major factors on management effectiveness. Figure 1 shows the relationship between indicators of management effectiveness and factors that influence management effectiveness.

Figure 1: Indicators of and Factors that Influence Management Effectiveness





Questions 3, 4, and 5 of the survey deal with the factors that influence management effectiveness (Appendix A). Questions 3 and 4 refer to the park agency=s budgets. Specifically, the amount of their budget, where they get their budget from, and where they spend their budget. Question 5 is an importance-performance question. The park agencies are asked to rate the importance of a factor and then to rate their performance at dealing with the factor.

5.1 Visitors

ABC Parks recorded 26.3 million visitors to provincial parks in 1998. This is the highest use ever recorded in the history of attendance collection and reporting@ (8) and demonstrates a 10.4% increase from the year before. Ontario Parks experienced a 9.6% increase and had 9,121,393 visitor days in the same period, the highest visitation total Ontario Parks ever recorded (8). This increased again in 1999. Parks Canada reported a 4% increase in visitor numbers in the one-year period of 1998 (8). In terms of camper nights, Nova Scotia and the Yukon reported increases of 23% and 47% respectively (8). Table 1 shows that there is a trend towards a substantial increase in number of visitors to Canadian Parks.

The management effectiveness survey is designed to determine how park agencies feel about these increases, and if they are hindering the management capabilities and effectiveness of the parks. It is important to understand how park agencies deal with increases in visitor numbers and the related social, economic, cultural and environmental impacts.

Table 1: Visitor Numbers and Change for Canadian Parks Systems

Province/Territory	Visitor Numbers	% change from previous year
British Columbia	26,294,663	+10.4%
Alberta	NA*	NA
Saskatchewan	2,629,266	+8.8
Manitoba	167,699	-10.9%
Ontario	9,121,393	+9.6%
Quebec	4,206,624	+14.8%
Newfoundland	NA	NA
New Brunswick	902,420	NA
Nova Scotia	2,100,000	+5%
Prince Edward Island	106,800	+6%
Yukon	NA	NA
Northwest Territory	31,838	-42.1%
Nunavut	NA	NA
Canada (National Parks Only)	15,042,543	+4%

* Not Available

Source: Federal Provincial Parks Council (1999)

When comparing the size of a park to the number of visitors, the numbers of visitors per km² can be derived. The Panel on Ecological Integrity of Canada=s National Parks recently declared four of Canada=s national parks under severe stress and seventeen others under major stress. The parks under severe stress are Pacific Rim, St. Lawrence Islands, Point Pelee, and Prince Edward Island. As Appendix E exhibits, these four parks have the highest number of visitors per kilometres square at 3,359, 8,117, 24,335, and 41,028 respectively. Evidently, some people feel there is a link between visitor numbers and environmental stress.

The number of visitors reported in the 10 case study Ontario provincial parks is increasing (Table 2). What are the implications of these impacts? Are there impacts on ecological integrity, cultural integrity and financial solvency? There are no data on these parks to evaluate the ecological and historic/cultural integrity, but the research data suggest that financial solvency is assisted by increases in numbers. It is important that such analyses be undertaken so that changes in basic factors, such as visitation levels, can be properly evaluated and management actions taken accordingly.

Table 2: Visitor Numbers and Increases for a Sample of Ontario Parks

Park	Visitor Numbers	% Change from Previous Year
<i>Recreational Parks:</i>		
Rushing River	68,256	+16.1%
Rainbow Falls	37,258	+18.4%
Pancake Bay	78,956	+37.9%
Mikisew	32,826	+13.1%
Finlayson Point	26,802	+4.8%
<i>Natural Environment Parks:</i>		
Kakabeka Falls	303,639	-0.06%
Sandbar Lake	11,904	+2.1%
Sleeping Giant	49,860	-0.75%
Lake Superior	223,253	-2.4%
Samuel de Champlain	53,809	+13.1%

Source: Ontario Provincial Parks Statistics 1997/1998

5.2 Park Area and Number of Parks

AGlobally, the area of land covered by the world=s parks and protected areas increased considerably from 1990 to 1996" (10). In 1996, the world=s network of parks covered an area of 13,245,527 km² and represented 8.84% of the total land area of the planet (10). Canada has followed this worldwide trend. The area covered by Canadian national parks has increased from around 125,000 km² in 1980 to 250,000 km² in 1996 (9).

When comparing the cumulative growth in the number of parks and the extent of protected areas, it can be seen that the number of parks worldwide is growing at a faster rate than the area being protected (10). In Canada, the national park system is different from the above trend since the area being protected by parks is increasing at a faster rate than the number of parks being created (9).

The Ontario case study analysis of 10 parks did not address increases in area because the parks chosen for study did not change in area during the study period. However, the current Ontario Government is making a substantial increase in park numbers and area in the province. This government is creating 378 new parks and conservation reserves covering 2,400,000 hectares. It

appears that this increase will occur with no permanent increase in agency resources. Such an action will clearly cause severe management effectiveness reduction in an agency already stressed by managing 272 existing parks. It is our opinion that the placement of emphasis on the single criterion of park establishment, and the associated element of percentage of the landscape covered, allows government to create paper parks with no real ability to undertake competent levels of management. In the case of Ontario the province will soon have as many as 543 provincial park parks, that is non-operating parks, paper parks, with virtually no consistent staff presence on the ground. The Ontario situation shows clearly how systematic measurement of management effectiveness of several different indicators are necessary, beyond the simple measure of the area of parkland.

Increases in the number of parks and the area covered by parks results in more work for park agencies. Question 5 of the management effectiveness survey is interested in determining how park agencies feel they are dealing with these increases and whether or not they feel the management effectiveness of the parks is being impacted.

5.3 Finance

While the size of park area and the number of visitors to parks have increased dramatically over recent decades, the economic impact of the tourism associated with parks has been poorly documented (11). Therefore, the government and much of the public view parks as expenditure units within governments rather than economic generators. This has led to governments decreasing their budget support of parks and has left parks to generate a higher proportion of their budgets from their own tourism sources. According to James (12), the average protected areas= budget in developing countries is \$157 per km² and is \$2,058 per km² in developed countries. James concluded that Aon average the developing countries' budgets are less than 1/3 adequate to meet their stated conservation objectives@ (12).

Van Sickle and Eagles (9) found in Ontario that “between 1980 and 1993, the Ontario Provincial Park System lost a minimum of 30% of its purchasing power while the number of parks doubled” (9). As Van Sickle and Eagles (9) suggest, these budget reductions have had many impacts on parks including: staff loss, hiring freeze, smaller program, less maintenance, and closed facilities. Budget reductions have also led to decreases in management plan production (9). This is unfavourable because, as previously discussed, management plans are an indicator of an effectively managed park.

Nature-based tourism is an important industry in Canada and is largely focused on parks and protected areas. However, due to the impacts from budget reductions, there is concern that the industry will be impaired and could lead to environmental damage due to ineffective site management” (9). It is critical that sufficient finances be available to ensure that nature-based tourism is properly managed to ensure acceptable levels of social, economic, cultural and environmental impact are attained. Our analysis shows that more Ontario Provincial Parks are becoming financially self-sufficient through increases in tourism income. We presume that a better-funded park is more capable of undertaking adequate management.

Questions 3 and 4 of the management effectiveness survey (Appendix A) determine where the park agencies get their money and where it is spent. Question 5 asked how the park agencies feel budget levels affects their ability to manage.

5.4 Staff

According to the Federal Provincial Parks Council, in 1998, BC Parks provided 353 person years of employment, of which 282 were permanent (8). They also had a 47% increase in volunteers from 1997 to 2,200 people, and the work provided by these volunteers was valued at close to \$1 million to BC Parks” (8). Ontario Parks reported 4,750 person years of employment, but only 215

permanent employees (8). According to the Federal Provincial Parks Council, in Ontario the number of volunteers is close to the number of person-years of employment but the value of their work was not reported (8). Parks Canada has 1,617 permanent person years of employment and 483 non-permanent person years of employment (8). As a way to deal with dwindling resources, Parks Canada actively sought the participation of volunteers and volunteer organizations to assist in park operations (9) and they currently report having 5,225 volunteers (8). Clearly, the number of permanent employees in these major park systems in BC, Ontario and Parks Canada is low. In the provincial park agencies, there is less than one permanent park staff per park. The agencies must rely more on volunteers, probably due to a deficiency in staff numbers. As a result of these very low staff numbers, many parks have no permanent staff on the ground, certainly resulting in weak levels of resource and visitor management.

An important issue to consider when contemplating staff numbers is that quality matters, as does quantity. There are large responsibilities and difficult tasks placed upon the staff of parks and park agencies. Therefore, they need to be highly trained, informed, and motivated people. The education and training of park staff has improved dramatically over the past 15-20 years, and the majority of park staff are committed and motivated (13). However, Carter, Hockings, and Baxter also comment that: "An eventual consequence of low staff numbers is a reduction in morale" (13).

The case study analysis of the 10 Ontario Provincial Parks shows modest levels of staffing. It shows a high degree of reliance on seasonal and part-time staff (Appendix C and D). It is our opinion that the management effectiveness in parks is enhanced with full-time staff, more than with part-time and seasonal staff.

Question 5 of the management effectiveness survey (Appendix A) determines if the park agencies feel that changes in staff numbers have resulted in a change of management effectiveness

or whether it has not had a significant impact.

5.5 Legislation

The legislation for national parks in Canada is provided by the National Parks Act. An important issue to be aware of when discussing legislation is the difference between legislation and policy. “Legislation is approved by a legislature, must be followed by the government and the citizenry, and is enforced by an independent court system” (14). A policy is simply a statement of intent and, therefore, not legally binding (14). However, the importance of policy should not be dismissed simply because it is not enforced by law. It helps to give the park a focus, explains the current park protection and development direction, and provides goals for the future.

Generally, “in recent years, it has become increasingly difficult to continue to protect...wildlife areas using laws and procedures laid down decades earlier” (1). In other words, if the legislation is out of date and not effective in achieving the desired outcome, then it hinders the management of parks. It is also important for the legislation to coincide with the current purpose of the park and park agency. Even though our study did not address the legislative context in depth, it is clear that the legislated goals for parks are very important determinants in the criteria used to calculate management effectiveness.

6.0 CONCLUSION

Assessing management effectiveness in protected areas is a relatively new field, but is quickly growing as a result of the recent efforts of the Management Effectiveness Task Force of the World Commission on Protected Areas. The evaluation of park management effectiveness is vital for all those concerned to better understand the state of Canadian parks. An important purpose of this paper is to outline the significance of careful definition and measurement of management effectiveness. It is important to emphasise the role of measurement at both the park level as well as at the system

level. Each park within a system, such as Ontario Parks, contributes to the overall health of that system. Therefore, if the individual parks are not meeting goals or being managed effectively then the whole system suffers.

We conclude that measurement of management effectiveness in five categories is a reasonable goal: 1) presence of a management plan, 2) level of ecological integrity, 3) level of cultural and historical integrity, 4) measurement of visitor use level and visitor satisfaction, and 5) financial self-sufficiency. Such measurement should be contemplated for all parks at a consistent time period, say yearly. Once the measurement data are available, policy makers can consider ranking the data according to the policy objectives for each park. For example, the importance placed on each category could vary between a national park and a national historic site.

The collection of standard, consistent, and reliable data on a range of important variables is critical if any calculation of management effectiveness is to be undertaken. This paper is an initial and incomplete analysis of the data that is now available. The paper provides a survey instrument that could be used across Canada to develop a national database on park management effectiveness. We suggest that a national measurement of management effectiveness, using the criteria and research instrument described herein, be carried out for all Canadian parks, preferably on an annual basis.

The authors suggest that continued work be undertaken in the development of indicators and measurement devices for management efficiency in Canadian Parks.

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Appendix A

Park Management Effectiveness Survey

1.
 - a) How many parks are in your park agency's responsibility?

 - b) How many of these parks have an approved management plan?

 - c) Do you have a park management planning process? (Yes/No)

If yes, is the plan for 1, 2, 5, or 10 years (etc.)?

 - d) Do you have a process to review the degree of implementation of each management plan? (Yes/No)

 - e) How many parks managed by your agency have a review process for their management plan? (In this case "review" means how well objectives are being realised.)

 - f) Have all goals outlined in the management plans been costed?

2.
 - a) Does your agency have an **ecological integrity** goal for your park system?
(Yes/No)

If yes, do you have a process to review your achievement of this goal? (Yes/No)

Please explain this review process:

 - b) Does your agency have a **historical and cultural heritage integrity** goal for your park system?
(Yes/No)

If yes, do you have a process to review your achievement of this goal? (Yes/No)

Please explain this review process:

- c) Does your agency have a **visitor satisfaction** goal for your park system?
(Yes/No) _____
If yes, do you have a process to review your achievement of this goal? (Yes/No)

Please explain this review process:

3. a) What are your park agency's gross capital and operational budgets?

Capital _____ Operational _____

- b) What is the approximate distribution of these budgets?

Capital:

Infrastructure _____
(roads, buildings, furniture, construction, vehicles, etc.)

Other _____
(please specify)

Other _____
(please specify)

Other _____
(please specify)

Operational:

Salaries: full-time staff _____ Staff Benefits _____
 seasonal staff _____
 consultants _____ Science/Research _____

Public Utilities _____ Maintenance _____
(phone, postal, electricity, water) (repairs/renovations)

Interpretation/Education _____ Park Planning _____

Monitoring _____ Travel and Transportation _____

Operational Continued...

Printing and Publications _____ Administration _____

Monitoring _____ Conservation Work/ Resource Management

Other _____ Other _____
(please specify) (please specify)

4. What percentage of your gross operational and capital budget for the past fiscal year came from the following?

Government allocations _____
 Tourism income (fees, licences, permits, etc.) _____
 Donations _____
 Concessions _____
 Other (please specify) _____

5. Please rate the **importance** of the following factors in terms of their affect on your agency managing a park effectively. How would you rate your park agency's **performance** in the management of each of the following factors?

For Importance - Please circle the appropriate number (1=Extremely important, 2=Important, 3= Neutral, 4=Not important, 5=Not at all important; N/A=Does not apply).

For Performance - Please circle the appropriate number (1=Excellent, 2=Above average, 3= Average, 4=Below Average, 5=Very poor; N/A=Does not apply).

Example: Budget level Importance=2 and Performance=3. Therefore, according to your agency, budget level is important in terms of its affect on your agency managing a park effectively, and your agency has dealt with budget level on an average level.

Factor	Importance						Performance					
	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Preparation of Management Plans												
Implementation of Management Plans												

Evaluation of Management Plans	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Evaluation of Ecological Integrity Goals	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Decreasing Park Area	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Increasing Park Area	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Decreasing Number of Parks	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Increasing Number of Parks	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Decreasing Staff Numbers	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Increasing Staff Numbers	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Motivated Staff	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Rewarding Staff for Good Performance	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Decreasing Visitor Numbers	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Increasing Visitor Numbers	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Having Current Visitor Data	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Having Current Visitor Satisfaction Data	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Conflict Between Visitor Groups (i.e., hikers vs. hunters, etc.)	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Budget Level	1	2	3	4	5	N/A	1	2	3	4	5	N/A
Current Park Legislation	1	2	3	4	5	N/A	1	2	3	4	5	N/A

Please comment on any of the above responses:

Appendix B

Assessment of Ontario Provincial Parks by Class

The following tables represent figures gathered for all Ontario Provincial Parks from the Ontario Parks Database of 1998. The number of parks in the Ontario Provincial Park system is 272 as of 1998. Ontario has a six-class system, with each class having a unique management policy framework. One park is not classified.

	<i>Number</i>	<i>Percent</i>
<i>Operational</i>	106	38.97
<i>Non-operational</i>	166	61.03

<i>Class</i>	<i>Wilderness</i>	<i>Historical</i>	<i>Nature Reserve</i>	<i>Natural Environment</i>	<i>Waterway</i>	<i>Recreational</i>	<i>All</i>
<i># of parks</i>	7	4	94	66	29	71	271
<i>Operating</i>	3	1	4	39	1	58	106
<i>Percent Operating</i>	43%	25%	4%	59%	3%	82%	39%
<i>Management Plans</i>	3	2	9	37	5	40	96
<i>% Management Plans</i>	43%	50%	10%	56%	17%	56%	35%
<i>Size (ha)</i>	3,930,859	2,107	93,369	1,193,761	885,815	40,014	6,145,926
<i>Mean Size</i>	561,551.34	526.78	993.29	18,087.86	30,545.34	563.58	22,678.69
<i>Visitors</i>	246,786	24,617	35,080	4,285,845	9,157	4,627,546	9,229,031
<i>Mean Visitors</i>	35,255	6,154	373	64,937	316	65,177	34,055
<i>Visitors Per Ha</i>	0.06	11.68	0.38	3.59	0.01	115.65	1.50

Appendix C

Ontario Natural Environment Class Provincial Parks: Case Study Data

<i>Park Name</i>	<i>Kakabeka Falls</i>	<i>Sandbar Lake</i>	<i>Sleeping Giant</i>	<i>Lake Superior</i>	<i>Samuel de Champlain</i>
<i>Location</i>	Thunder Bay	Dryden	Thunder Bay	Wawa	Mattawa
<i>Class</i>	Nat. Env.	Nat. Env.	Nat. Env.	Nat. Env.	Nat. Env.
<i>Zone</i>	NW	NW	NW	NE	NE
<i>Size in hectares</i>	500	5,083	24,400	155,647	2,550
<i>Management Plan</i>	1978	1989	1980	1979	1990
<i>Visitors</i>	303,639	11,904	49,860	223,253	53,809
<i>Daily Use</i>	268,884	774	12,947	150,773	17,158
<i>Daily Vehicle</i>	5,807	188	3,111	7,984	834
<i>Seasonal</i>	96	7	52	130	48
<i>Campers</i>	20,444	5,565	14,197	36,240	13,574
<i>Camper Nights</i>	34,755	11,130	36,913	72,480	36,651
<i>Average Camper Stay (nights)</i>	1.7	2.0	2.6	2.0	2.7
<i>Staff</i>	26	9.25	24	50	25
<i>Staff Days</i>	2,117	560	2,440	N/A	N/A
<i>REVENUE</i>	\$364,800	\$56,100	\$278,400	\$417,800	\$280,100
<i>EXPENDITURES</i>	\$344,900	\$90,700	\$336,500	\$587,200	\$311,000
<i>REV. - EXP.</i>	\$19,900	(\$34,600)	(\$58,100)	(\$169,400)	(\$30,900)
<i>Expenditures/visitor</i>	\$1.14	\$7.62	\$6.75	\$2.63	\$5.78
<i>Revenue/visitor</i>	\$1.20	\$4.71	\$5.58	\$1.87	\$5.21
<i>Rev./Vist. - Exp./Vist.</i>	\$0.07	-\$2.91	-\$1.17	-\$0.76	-\$0.57

Source: Ontario Provincial Parks Statistics 1997/1998, Ontario Provincial Park Database

Appendix D

Ontario Recreational Class Provincial Parks: Case Study Data

<i>Park Name</i>	<i>Rushing River</i>	<i>Rainbow Falls</i>	<i>Pancake Bay</i>	<i>Mikisew</i>	<i>Finlayson Point</i>
<i>Location</i>	Kenora	Marathon	Sault Ste. Marie	South River	Temagami
<i>Class</i>	Recreation	Recreation	Recreation	Recreation	Recreation
<i>Zone</i>	NW	NW	NE	Central	NE
<i>Size in hectares</i>	340	576	490	131	37
<i>Management Plan</i>	1991	1989	1987	No	1985
<i>Visitors</i>	68,256	37,258	78,956	32,826	26,802
<i>Daily Use</i>	14,564	8,268	5,668	2,067	566
<i>Daily Vehicle</i>	2,226	1,337	1,356	330	105
<i>Seasonal</i>	13	51	41	5	9
<i>Campers</i>	17,897	19,371	31,864	8,313	7,496
<i>Camper Nights</i>	53,692	29,056	73,288	30,759	26,236
<i>Average Camper Stay (nights)</i>	3.0	1.5	2.3	3.7	3.5
<i>Staff</i>	12	26.5	23	14	13
<i>Staff Days</i>	720	1,403.5	N/A	708.5	N/A
<i>REVENUE</i>	\$291,300	\$141,400	\$409,500	\$164,800	\$132,800
<i>EXPENDITURES</i>	\$240,200	\$167,500	\$284,200	\$124,500	\$228,900
<i>REV. - EXP.</i>	\$51,100	(\$26,100)	\$125,300	\$40,300	(\$96,100)
<i>Expenditures/Visitor</i>	\$3.52	\$4.50	\$3.60	\$3.79	\$8.54
<i>Revenue/Visitor</i>	\$4.27	\$3.80	\$5.19	\$5.02	\$4.95
<i>Rev./Vist. - Exp./Vist.</i>	\$0.75	-\$0.70	\$1.59	\$1.23	-\$3.59

Source: Ontario Provincial Parks Statistics 1997/1998, Ontario Provincial Park Database

Appendix E

Canada's National Parks and National Parks Reserves: Visitation and Stress Rating

#	Park	Area (Km ²)	Visitor Numbers *	Visitors per Km ²	Stress Rating
	<i>British Columbia</i>				
1	Gwaii Haanas	1,495.0	1,562.0	1.0	
2	Glacier and Mount Revelstoke	1,609.0	558,343.0	347.0	<i>major</i>
3	Yoho	1,313.1	727,050.0	553.7	<i>major</i>
4	Kootenay	1,406.4	1,199,586.0	852.9	<i>major</i>
5	Pacific Rim	285.8	960,039.0	3,359.1	SEVERE
	sub total	6,109.3	3,446,580.0		
	<i>Alberta</i>				
6	Jasper	10,878.0	1,860,426.0	171.0	<i>major</i>
7	Banff	6,641.0	4,257,218.0	641.1	<i>major</i>
8	Waterton Lakes	505.0	425,436.0	842.4	<i>major</i>
9	Elk Island	194.0	206,572.0	1,064.8	<i>major</i>
	sub total	18,218.0	6,749,652.0		
	<i>Saskatchewan</i>				
10	Grasslands	906.4	5,947.0	6.6	<i>major</i>
11	Prince Albert	3,874.3	220,986.0	57.0	
	sub total	4,780.7	226,933.0		
	<i>Yukon</i>				
12	Kluane	22,013.3	62,737.0	2.8	
13	Ivvavik	9,750.0	210.0	0.0	
	sub total	31,763.3	62,947.0		
	<i>Northwest Territories</i>				
14	Vuntut	4,345.0			
15	Aulavik	12,200.0	40.0	0.0	
16	Wood Buffalo	44,802.0	4,066.0	0.1	
17	Nahanni	4,765.2	1,092.0	0.2	
18	Tuktut Nogait	16,340.0	13,593,899.0	831.9	
	sub total	82,452.2	13,599,097.0		

#	Park	Area (Km ²)	Visitor Numbers *	Visitors per Km ²	Stress Rating
	<i>Nunavut</i>				
19	Quttinirpaaq (Ellesmere Island)	37,775.00	508.00	0.0	
20	Auyuittuq	19,707.40	2,430.00	0.1	
	sub total	57,482.40	2,938.00		
	<i>Manitoba</i>				
21	Wapusk	11,475.0			
22	Riding Mountain	2,973.1	314,061.0	105.6	<i>major</i>
	sub total	14,448.1	314,061.0		
	<i>Ontario</i>				
23	Pukaskwa	1,877.8	9,547.0	5.1	<i>major</i>
24	Bruce Peninsula	154.0	226,918.0	1,473.5	<i>major</i>
25	Georgian Bay Islands	25.6	47,347.0	1,849.5	<i>major</i>
26	St. Lawrence Islands	8.7	70,619.0	8,117.1	SEVERE
27	Point Pelee	15.0	365,028.0	24,335.2	SEVERE
	sub total	2,081.1	719,459.0		
	<i>Quebec</i>				
28	Mingan Archipelago	150.7	35,137.0	233.2	
29	La Maurice	536.1	213,880.0	399.0	<i>major</i>
30	Forillon	240.4	182,659.0	759.8	
	sub total	927.2	431,676.0		
	<i>New Brunswick</i>				
31	Kouchibouguac	239.2	237,162.0	991.5	<i>major</i>
32	Fundy	205.9	270,480.0	1,313.6	<i>major</i>
	sub total	445.1	507,642.0		
	<i>Nova Scotia</i>				
33	Kejimikujik	403.7	53,996.0	133.8	<i>major</i>
34	Cape Breton Highlands	948.0	394,139.0	415.8	
	sub total	1,351.7	448,135.0		
	<i>Prince Edward Island</i>				
35	Prince Edward Island	21.5	882,110.0	41,028.4	SEVERE
	sub total	21.5	882,110.0		

#	Park	Area (Km²)	Visitor Numbers *	Visitors per Km²	Stress Rating
	<i>Newfoundland</i>				
36	Gros Morne	1,805.0	119,156.0	66.0	
37	Terra Nova	399.9	235,755.0	589.5	<i>major</i>
	sub total	2,204.9	354,911.0		
	TOTAL	222,285.5	27,746,141.0	124.9	

* Person Visits: each time a person enters a reporting unit for the purpose of heritage appreciation or recreation (local and commercial traffic has been excluded). Same-day re-entries by visitors staying overnight in the reporting unit do not constitute new person-visits. Source: Data from Parks Canada website (<http://parkscanada.pcn.gc.ca>)