

**The Economic Value of Canoeing in Nopiming Park
in relation to Forest and Park Management.**

I. A Report of the 1993 Field Season.

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File Report

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TABLE OF CONTENTS

Acknowledgements	i
TABLE OF FIGURES	v
TABLE OF TABLES	vi
VOLUME I: A Report of the 1993 Field Season	
CHAPTER 1: Introduction	1
1.1 Nopiming Park - The Resource Use Conflict	1
1.2 Description of the Park	2
1.3 A Brief History of Nopiming Park	3
1.4 Historical Analysis - 1991 and 1992	5
1.5 Field Season Preparation in Edmonton	6
1.6 Winnipeg Focus Group	8
CHAPTER 2: 1993 Data Collection System	11
2.1 Canoe Routes	11
2.2 Survey Box and Display	12
2.3 Survey forms	13
CHAPTER 3: Monitoring of use	38
3.1 General	38
3.2 Parking Lot Coverage	38
3.3 Other Participation Enhancement	39
3.4 Survey Collection	40
3.5 Observations on Various 1993 Park Conditions from the Field Notes of D. Watson	40
CHAPTER 4: Establishment and Description of Databases	54
4.1 Routes Database	54
4.2 Campsites Database	59
4.3 Portages Database	69
4.4 Backcountry Water Use Database	71
4.5 GIS & Mapping Databases	76
CHAPTER 5: Summary Statistics Based on 1993 Fieldwork	78
5.1 Introduction	78
5.2 Physical Attribute Statistics: Routes, Portages, Campsites	78
5.3 User Statistics from Survey	79
Chapter 6 Future work	93
6.1 General	93
6.2 Future Work	93
6.3 Recommendations	94

BIBLIOGRAPHY	99
APPENDIX: A List of Project Supporters	102
APPENDIX B: Boundary Waters Canoe Area and Congestion Literature Review	103
APPENDIX C: Trip Diaries of River Routes Canoeed in Nopiming Park	113
Appendix D: Nopiming Provincial Park Focus Group Summary Analysis	137

VOLUME II: Appendices of Data Tables

APPENDIX E: Establishment and Description of Databases	1
E.1 Routes Database	1
E.2 Campsites Database	21
E.3 Portages Database	52
E.4 Backcountry Water Use Database	58
APPENDIX F: Forest Cover Along River Routes	155

TABLE OF FIGURES

Volume I

Figure 1.1 Location of Nopiming Park within Manitoba	9
Figure 2.1a 1992 Canoe Route Map (front face)	17
Figure 2.1b 1992 Canoe Route Map (back face)	18
Figure 2.2a 1993 Canoe Route Map (front face)	19
Figure 2.2b 1993 Canoe Route Map (back face)	20
Figure 2.3 Map of park with original routes	21
Figure 2.4 Map of park with additional routes	22
Figure 2.5 1992 Kiosk Design	24
Figure 2.6 Photo of 1992 Kiosk	25
Figure 2.7 Design of Survey Box for 1993	26
Figure 2.8 Photo of 1993 Kiosk	27
Figure 2.9 1992 Survey Form	28
Figure 2.10a 1993 Initial Survey Form (Front)	29
Figure 2.10b 1993 Initial Survey Form (Back)	30
Figure 2.11 United States Forest Service Survey Form	31
Figure 2.12a 1993 Final Nopiming Survey Form (Front)	32
Figure 2.12b 1993 Final Nopiming Survey Form (Zone A Back)	33
Figure 2.12c 1993 Final Nopiming Survey Form (Zone B Back)	34
Figure 2.12d 1993 Final Nopiming Survey Form (Zone C Back)	35
Figure 2.13a 1993 Atikaki Survey Form (Front)	36
Figure 2.13b 1993 Atikaki Survey Form (Back)	37
Figure 3.1 Windshield notice form	44
Figure 3.2 Cottager Assistance Request Form	52
Figure 4.1 GIS Generated Route Map	77
Figure 5.1 Hometown of Nopiming Park Users	91
Figure 5.2 Home Location of Atikaki Park Users	92

TABLE OF TABLES

Volume I

Table 1.1	Canoe Routes and Use: 1991-1992	10
Table 2.1	Canoe Routes for 1993	16
Table 2.2	Locations of Survey Points	23
Table 3.1	A Summary of the Effort Expended in Monitoring Staging Areas	45
Table 3.2	Vehicle Counts by Staging Area	46
Table 3.3	Survey Completion Rates	53
Table 4.1	Description of Variables and Codes for Attributes in the Routes Database	56
Table 4.2	Campsite Attribute Checklist	60
Table 4.3	Description of Variables and Codes for Attributes in the Campsite Database	64
Table 4.4	List of Plant Species Used in Databases	68
Table 4.5	Description of Variables and Codes for Attributes in the Portages Database	69
Table 4.6	Description of Variables and Codes for the Survey Database	72
Table 5.1	Some Important Route Attributes	82
Table 5.2	Portage Statistics	83
Table 5.3	Campsites Per Route	84
Table 5.4	Campsite Capacity Per Route	85
Table 5.5	Distribution of Watercraft Type by Park	86
Table 5.6	Distribution of Routes Used by Motorized Boats	86
Table 5.7	Levels of Backcountry Use by Route: Canoeists	87
Table 5.8	Distribution of Group Type by Park	88
Table 5.9	Past use of the Parks	89
Table 5.10	Duration of Canoe Trips and Days of Use	90
Table 5.11	Distribution of Trips During the Summer Season	90
Table B.1	Congestion and Boundary Water Canoe Area Bibliography	98

Volume II

Table E.1	Description of Variables and Codes for Attributes in the Routes Database	3
Table E.2	Route Attributes Database	6
Table E.3	Campsite Attribute Checklist	22
Table E.4	Description of Variables and Codes for Attributes in the Campsite Database	26
Table E.5	List of Plant Species Used in Databases	30
Table E.6	Campsite Attributes Database	31
Table E.7	Description of Variables and Codes for Attributes in the Portages Database	52
Table E.8	Portages Attribute Database	54
Table E.9	Description of Variables and Codes for the Surveys Database	59
Table E.10	Backcountry User Survey Database	63
Table F.1	Forest Cover Along Water Canoe Routes	155

CHAPTER 1: Introduction

1.1 Nopiming Park - The Resource Use Conflict

The apparent conflict between forest operations and recreation in Nopiming provide justifiable reasons for understanding more fully the features and specific areas of the park that are important to both user groups. Little is known about the levels and patterns of use and the values of forest recreation in Nopiming and indeed most of the rest of the eastern shield belt of Manitoba. The importance of the forest industry in the region, however, is well known with the town of Pine Falls being the single most forest industry dependent town in the prairie provinces (Fletcher et al. 1993). The situation represents a classic resource use conflict with recreation apparently being irreconcilable with forestry. The forest industry contends that reduced wood supply in the region requires limited harvesting of trees from the park. Without this supply, the mill in Pine Falls is said to be in danger of closing, along with the demise of a full community with considerable historical standing. Some recreationists contend that logging is incompatible with the designation of the park as a protected area, and some claim outright that logging interferes directly with recreational use of the park. With these reasons in mind, the investigators suggested a study of recreation use in Nopiming Park with a view to understanding recreation there more fully, and with the goal of attempting to come to grips with harmonizing the conflicting values of the park.

In September, 1992, Boxall, Englin, along with G. Williamson and J. Dyke from the Manitoba District Office of the Canadian Forest Service, toured the park to try to understand the current use and data collection systems in the park. They noted that there was a current system of collection of data involving back country use of the park. It became apparent that canoeing and other water based recreation were the most probable activities occurring in the park that could directly conflict with forestry operations. The other frequent uses of the park are camping at the three developed designated government campgrounds, and cottages. These areas were located well away from logging, and there were likely to be many restrictions involving non-recreational activities near the campgrounds, and cottage sub-divisions. The researchers toured the park and the surrounding communities and collected maps, brochures and other information that would help to design a comprehensive study of recreational activities in the context of resource use conflict.

It was decided that the existing backcountry registration system could be re-oriented to

provide a more complete census of use. This data could be used to construct travel cost models that assess the economic value of sites and/or characteristics of sites. The intention was to use these models to value all of the water routes travelled by recreationists in order to understand spatial patterns of recreation values. In addition, the values of various forest, environmental and management level features of routes could be ascertained. This could provide guidance to parks staff in allocating management efforts, or to forest staff in developing cutting plans that could reduce impact on recreational values.

More information on the development, use and results of preliminary travel cost analyses will appear in a second report mentioned below, and in the future, other reports and articles following the organization of a complete Nopiming Park database. The purpose of the present document is to report progress on the establishment and organization of the recreation use and physical features databases for the park.

1.2 Description of the Park

Nopiming Provincial Park is a 1,440 square kilometre tract of land located between Whiteshell Provincial Park to the south, and Bissett (and Atikaki Park) to the north. Figure 1 shows the location of the park in relation to other centres in Manitoba. It lies approximately 145 kilometres northeast of Winnipeg. The Park extends along the Manitoba-Ontario border and is seldom more than 40 kilometres wide. Access is provided by secondary highways 304 from the north, and 315 from the south. Highway 314 transects the park. The park is located within a Precambrian Shield area of numerous rock outcrops and flat, hummocky bogs. Rock outcrops, prevalent in the park, rise 6 to 36 meters above the surrounding countryside. Much of the park is poorly drained with sedge meadows, bogs, rivers and many lakes of different sizes covering a large percentage of the surface area. Most of the main river systems, which include the Manigotogan, Moose, Black, Oiseau and Winnipeg rivers, contain many small rapids and waterfalls. The smaller rivers have low water flow in the late season of a normal year.

The geology of the park is primarily a product of tectonic and glacier erosion and depositional forces acting since the Precambrian era (Mazur 1975). Granite and granite-like rocks formed from the molten state form the main body of the present bedrock. Included with the granite are relatively narrow belts of altered sediments and lavas which are the remnants of rocks which, in ancient times, covered the surface. These ancient rocks were folded into hills and were

intruded or largely replaced by the granite. These hills, worn down to their bases through erosion, are now exposed as belts of lava and sediments contained within the granite.

The soils are primarily shallow podzols with brown podzolic profiles usually found from 0-3 cm in depth, (Weir 1960). These soils were developed on acid parent materials derived from coarse-grained crystalline rocks and formed under a cover of coniferous forest. They are generally strongly leached. Description of the vegetative zones present in the Nopiming Provincial Park area may be found in Scoggan (1957). Although the Park is situated at the southern limits of the Boreal Coniferous Forest Region, it lies within the Lower English River and Northern coniferous Forest Sections as described by Rowe (1972). The predominately granite outcrops are primarily covered with jack pine (*Pinus banksiana* Lamb.) in varying size classes. Many of the bogs present contain mixed black spruce (*Picea mariana* (Mill.) BSP.) and tamarack (*Larix laricina* (Du Roi) K. Koch) stands. Due to a recent history of widespread fires, jack pine has gained prevalence. This is believed to be the most abundant species of tree in the Park. On the poorer soils of the rock outcrops, jack pine are often short with lightly foliated branches, a condition common to the species (Hosie 1973).

Although trembling aspen (*Populus tremuloides* Michx.) is common throughout the Park, it is generally associated with other tree species such as jack pine, the widespread white spruce (*Picea glauca* (Moench) Voss), and in more moist locations, balsam poplar (*Populus balsamifera* L.). Paper birch (*Betula papyrifera* Marsh.) is well represented while other species such as bur oak (*Quercus macrocarpa* Michx.), mountain ash (*Sorbus decora* (Sarg.) Schn.), and black ash (*Fraxinus nigra* Marsh.) are less prevalent. Mature mixed aspen-spruce is characteristic of the Manigotogan River-Stormy lake region. For most of the park, however, fire and recent logging activities account for large areas of regeneration. Rarely does a community cover more than a 20 hectare area. Plant insect and disease problems, such as spruce budworm, and dwarf mistletoe occur in the region.

1.3 A Brief History of Nopiming Park

Nopiming Provincial Park was created in 1973. Prior to this, the area now included in the park had a rich history of use, both by European and aboriginal cultures. Indeed, one of the park's current attractions is a sense of reliving history by following the historic water routes through the park.

Resource extraction was carried out in the park since the earliest arrival of European culture in the region, and to a lesser extent, by the aboriginal cultures beforehand. Trapping of fur-bearing animals was carried out by aboriginal people at the behest of Europeans, before the arrival of the latter in the area. Wild rice harvesting occurred for subsistence use and was later carried out commercially to provide food for voyageurs. Both of these activities are still practised today and do not conflict with most recreational uses of the park.

Gold mining started near Quesnell Lake at the turn of the century. The gold was not found on the surface or in sedimentary deposits, but was imbedded in bedrock, requiring underground mining techniques. Several gold mines were operating in the park area until the mid 1970's. Mining for other minerals also occurred, for example, lithium near Cat Lake. Evidence of past mining activity can be seen in tailings, for example, near Beresford Lake, Cat Lake, and Slate Lake. The gold mining operations at Bisset may be re-opened in the future, and active exploration is occurring outside the park boundary in this area.

The presence of mines in the region provided a major incentive to improve transportation routes to link the area with larger urban centres. Transportation into the area started with boat traffic across Lake Winnipeg, and up the Manigotagan or Wanipigow Rivers to Quesnell Lake. Dams were built on Quesnell Lake to ease use by barges. These dams are still in place. The first roads were also to the Bisset area. A southern entry started as mining and logging roads, from Lac du Bonnet as far north as Cat Lake. A very rough one-lane trail (known as the Nopiming Trail) existed through the park area by 1970. This trail did not encourage recreational users to come to the area. A formal road was built in 1978 and expanded to its present state in 1988.

Cottages were originally built as housing for employees of mining operations and would have been erected along with the mine formation. In 1945, cottages were built on Bird Lake, Davidson Lake, Beresford Lake and Long Lake. A provincial lottery for the allocation of recreational cottage sites on these same lakes was started in the 1970's, as well as for cottages at Booster and Flanders lakes.

Today the most significant conflict between resource extraction and recreation in the park, and probably in the province of Manitoba, involves forestry. Logging operations in the park area started in the 1940's and they continue today at somewhat lower levels. The main commercial tree species is spruce, which is valued for pulp. The wood harvested from the park is hauled to

Abitibi Price's pulp mill located at Pine Falls on the eastern shore of Lake Winnipeg. Several environmental groups have spoken out in opposition to the company being allowed to log in a provincial park. A specific interest group called the Defenders of Nopiming was formed to lobby against the practice of logging in the park. The government responded by introducing Bill 41, a proposed Parks Act, which allows the minister to divide parks into specific land use categories, including areas for economic extraction of resources.¹ The conflict is continuing; the Bill has not been proclaimed and lobbying continues from both sides including residents of the town of Pine Falls.

1.4 Historical Analysis - 1991 and 1992

The first step taken by the researchers in addressing the broad study objectives was to gather and assess the extent of past information on recreational use in the park. In February, 1993 Boxall contacted Manitoba Parks Branch staff in Winnipeg to obtain the 1991 and 1992 backcountry registration permits for the park. These were forwarded and two copies of the permits were made. Englin obtained one of the copies, and in conjunction with K. Chakraborty, a graduate student at the University of Nevada at Reno, started a preliminary travel cost analysis of this historical use data. This analysis will be reported fully in a separate report², and only a brief summary of the past use database appears in this document.

The first stage of analysis of these permits consisted of constructing a computer database. The key information from the permit included the name, address, and postal code of the party leader and the launching point for the trip. Eight different launching points were identified in the permit data. These are shown in Table 1.1. While these sites are distributed throughout the Park, the Tulabi route is clearly the most popular. Three other sites: Rabbit River, Seagrim Lake and Beresford Lake were also commonly used. The remainder were used by only a small percentage of the canoeists in 1991 and 1992.

Distances between the party leader's reported residence and the launching site or staging area were estimated and added to the database. This involved measuring the distance from the

¹ See Winnipeg Free Press: June 1 1993 (p A-1) and July 22, 1993 (p B-3).

² Chakraborty, K. 1994. *Valuing the Non-Market Impact of Forest Fire: An Analysis of Canoeing in Nopiming Park, Manitoba, Canada*. Unpublished M.S. Thesis in Agricultural Economics, Department of Agricultural Economics, University of Nevada, Reno.

home address, if possible, to the launching site. If the precise address could not be located then the geometric center of the postal code area was used. Over half of the distances in the database were measured from the leader's house address to launch site. Distances are one-way and are measured in kilometres.

Demographic variables associated with the reported address on the permit card were added to the database based on the appropriate census tract from the Census of Canada (1991). The age, income, percent with post-secondary education and percent of aboriginal descent was added to the computer file. This information was matched to each permit on a postal code basis except for canoeists from Winnipeg. Winnipeg was treated separately because of the way the census was organized. All residents from Winnipeg were assumed to be from one postal code (R9R9R9). Thus, the current demographic data for Winnipeg is approximate due to this aggregation bias. If a more precise breakdown of the demographic responses from the census can be obtained, these should be mapped into the permits. The researchers are currently examining possible opportunities for enhancing the demographic component of the data.

The data had to be merged and re-organized into a database format that is amenable to analysis for different clients and for different purposes. The database was organized for analysis on IBM PC based platforms and PARADOX 1.0 for WINDOWS was chosen as the software package. The reasons for these choices involved cost, portability, as well as the fact that Manitoba Provincial Government staff utilize IBM PC hardware.

The challenge faced in utilizing travel cost models in the analysis of this past use information will be twofold. First, over 50% of the canoeists in 1991 and 1992 went to one route, Tulabi (Table 1.1). This makes any statistical model highly susceptible to variables that are correlated to the Tulabi route. Second, most of the canoe route users came from the city of Winnipeg. As a result, the statistical relationship between the distance travelled and the canoe route chosen may not be as robust as in other similar travel cost studies (e.g. Peterson et al. 1982). For these reasons the 1993 data collection effort focused on gathering more complete residence data and a more accurate picture of routes chosen by the recreationists.

1.5 Field Season Preparation in Edmonton

Mr. Watson was hired on May 10, and left for Manitoba on May 18 1993. During the one week in Edmonton, he spent his time reviewing whatever information was available to him

to prepare for the field study season. Of particular interest were any literature relating to congestion in wilderness canoe areas, and relating directly to Nopiming Park.

The main goal of the literature review was to study the type of work that had been done in other areas relating to recreational canoeing, and the problems associated with congestion in recreational activities. The literature review concentrated on the Boundary Waters Canoe Area, because it was known to be well studied, and has many canoeing attributes similar to those found in Nopiming. The BWCA has been used as the base for many studies relating to congestion, people's attitudes and reactions to congestion, as well as managing wilderness areas in the face of congestion. The literature review allowed for a better focus on the type of attributes needed to be collected for canoe routes in Nopiming park.

The search was conducted on the Silver Platter CD ROM database at the University of Alberta, and from there further references were examined. The summary of the BWCA and congestion literatures searches are contained in Appendix B.

Background documents relating to Nopiming Park were received from the park manager, K. Leavesley, by Boxall in early 1993. These documents were reviewed by Watson for usefulness. In general, the documents provided contained some valuable material, but those directly relating to canoeing were somewhat dated, or did not apply directly to Nopiming Park. There were several anthropology reports, and old surveys. Most seemed to have been prepared prior to, and with an eye to, the opening of the park. The most recent were two of the park visitor surveys, (Manitoba Natural Resources 1989, 1992), but these applied to all of the parks in the province, and did not have details specific for all of Nopiming Park.

Cultural documents included Welch (1979), and Manitoba Natural Resources (1975a). While good documents, they have no usefulness for this study. Natural history documents include the two by Cuthbert (1978a & 1978b) which cover birds in particular, as well as a general inventory. They provided a reasonably good inventory for plants, giving an idea of what to look for.

The reports directly related to canoeing include Manitoba Natural Resources (1975b), Anderson et al (1975), Land Planning (1976), Wall (1978), Manitoba Natural Resources (1980), and Otto (1989). The two Manitoba Natural Resources documents and Anderson relate directly to route information, and were planning documents for canoe routes near the time the park was opened. Much of the information, especially in Anderson, is still accurate today, and proved

useful during the trips taken in the summer of 1993. The documents by Manitoba Natural Resources (1980), Wall (1978) and Otto (1989) are surveys, and trend reports. They gave some indication of what to expect in the park, but dealt with large areas of the province and could not be used in any direct way for Nopiming park.

1.6 Winnipeg Focus Group

A focus group of recent users of Nopiming Park was proposed jointly by Forestry Canada, and Manitoba Natural Resources. The focus group study was conducted and summarized by the Parks and Natural Areas Marketing Unit. The focus group participants were randomly selected from lists generated from the Nopiming backcountry registry (1992). Participants were past and present users of the various water routes in Nopiming. The level of canoeing skills varied from novice to wilderness expert.

The focus group allowed a better appreciation of the attitudes of actual users of Nopiming park. Again, this allowed for a better focus on the types of attributes to be collected for the canoe routes in Nopiming.

The summary of results prepared from the focus group is contained in Appendix D.

Figure 1.1 Location of Nopiming Park within Manitoba

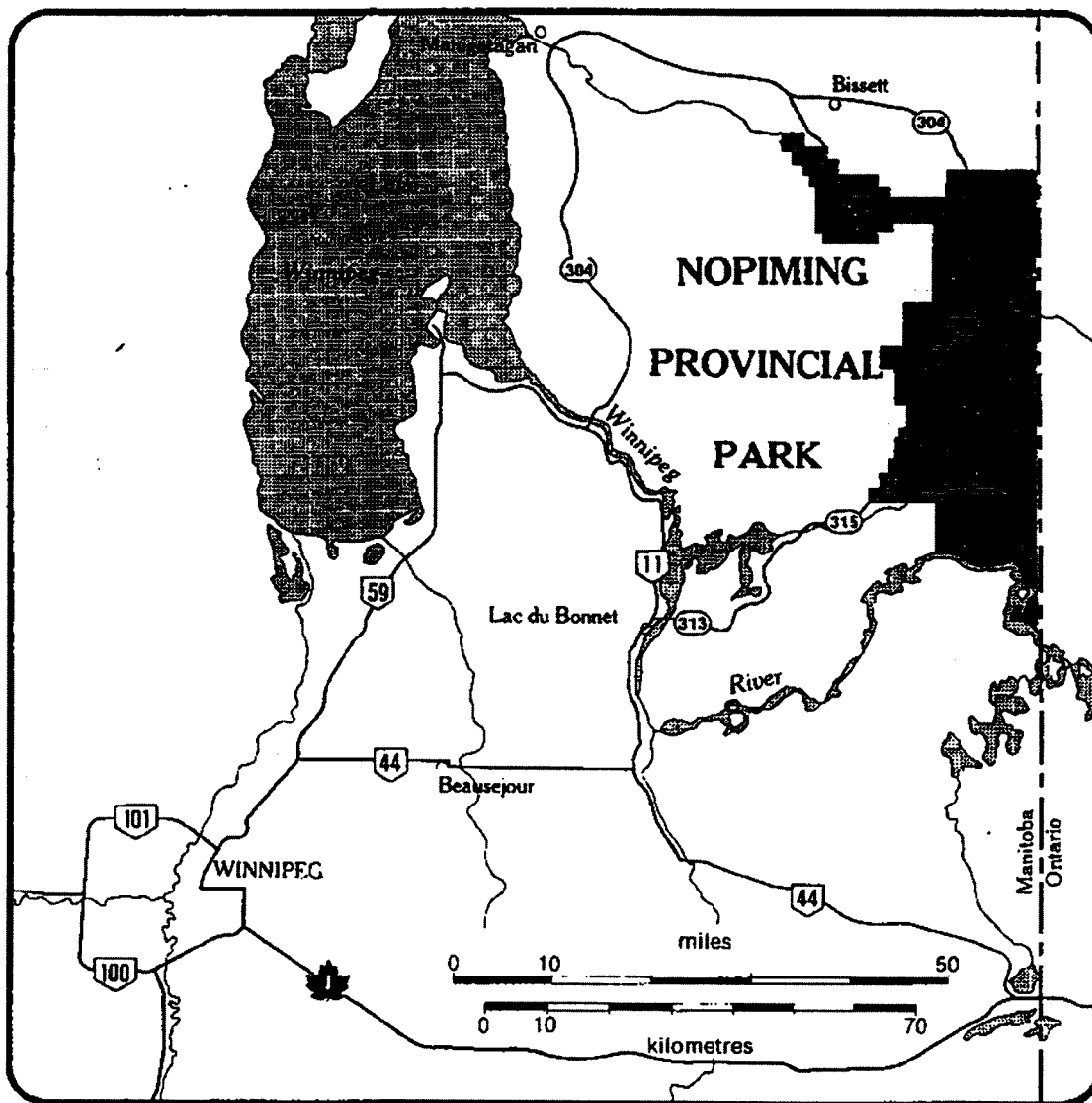


Table 1.1 Canoe Routes and Use: 1991-1992		
Route Number	Launching Point	Number of Users (1991-1992)
1	Flintstone Lake	2
2	Rabbit River	95
3	Black Lake	6
4	Seagrim Lake	78
5	Tulabi Lake	261
6	Beresford Lake	44
7	Davidson Lake	5
8	Long Lake	9

CHAPTER 2: 1993 Data Collection System

In order to develop a system to understand use of the waterways in the park by canoeists and other water-based recreationists, a number of changes to the 1991-1992 back-country registration process were necessary. It was apparent, for example, that people were using areas in the park that were not described in the maps and other material available from the Manitoba Parks Branch. The authors developed a system to describe routes being used by recreationists and then assessed the existing data collection system at staging areas. This assessment resulted in the establishment of more registration points and a new survey form. It also resulted in collection of data from 28 routes during 1993, as opposed to eight in 1991 and 1992. This chapter describes the expanded canoe route list, the survey registration points, and the 1993 survey form distributed from the new and existing staging areas.

2.1 Canoe Routes

Working from the data collected on the 1991 and 1992 forms, as well as information provided by the Manitoba Natural Resources personnel, there were expected to be at least eight canoe routes in Nopiming Park (Table 1.1). These routes were assumed to be accessed from the six staging areas mentioned below, with the exception of Flintstone Lake, which had no specified access point. The six routes associated with staging areas are described in the canoe route map issued by the province. Flintstone, however, is not associated with a staging area and is not described in the park map. Canoeing in Flintstone Lake is not encouraged because there are concerns of possible conflicts with a resident woodland caribou herd in the area. The Black River is not designated on the park maps. The six routes from the staging areas were the only areas in the park with designated campsites, and camping or making fires elsewhere is against park rules. Figures 2.1 and 2.2 show the locations of the six major canoe routes. Figure 2.1 provides the Manitoba Parks Branch description for 1991 and 1992 and Figure 2.2 shows the map as revised for 1993.

From initial inspections of the park, it became apparent that other areas were also being used by canoeists, though perhaps not in large numbers. Potential difficulties in differentiating day use canoeists from canoeists camping overnight, and canoeists from other types of water recreationists (e.g. power boaters) was also apparent. In order to try to capture as best as

possible a complete census of back country users, more routes were designated.

Difficulty in defining new routes was encountered due to the overlapping nature of some routes and the possibility of paddling routes from different directions, or where possible, as a loop. For the purposes of this study routes were defined according to the following criteria:

1. The main characteristic defining a route is its starting point. This characteristic is necessary because of the requirement that the cost of travel, based on distance from a canoeist's home to the starting point of a route, is a major input into the economic models which will be developed from the database. For example, a route that involves travelling from lake A to lake B is not the same as a route involving travel from lake B to lake A, because each has a different starting point.

2. Once at a starting point and in the canoe, the canoeist is assumed to experience all of the characteristics of the route, even if it is known that all portions were not paddled. For example, assume a route starts at lake A, travels through lakes B, C, and D, to end at lake E, and one can either return to A along the same path, or can end the trip at E. If a canoeist using this route reports that he/she went to lake C only, and returned, that person had the "potential use" of lakes A to E, and is thus assumed to have "experienced" all of the features of lakes A-E in the route.

3. Finally, a starting point may have more than one route associated with it. For example, a canoeist may head east or west from the start point. In these cases there are two potential routes associated with a starting point.

Based on inspections of the park, discussions with canoeists and park staff, and responses to the 1993 surveys examined throughout the summer, a total of 28 routes were defined in Nopiming Park. These are described in Table 2.1.

2.2 Survey Box and Display

At the six existing staging areas a wooden box and display provided information on the routes, the park, and contained Back Country Registration forms. Figure 2.3, describes the design of these boxes that were present during 1991, 1992 and at the beginning of the 1993 season. The box had a display consisting of a large lexan map and notices attached to a panel on the box; however, the maps no longer accurately defined the routes displayed. It was decided that the lexan maps be removed and replaced with a new display that contained the 1993 version

of the canoe route maps and an example copy of the 1993 survey form. This was done on June 30 by D. Watson and D. McLean from Lac du Bonnet.

Additional survey sites were required to ensure total coverage of known and potential canoe routes in the park. The existing survey box design would have been difficult and expensive to build for all of the new sites. In addition, they could not have been used for other purposes in the future if the back country survey was not continued. For this reason, a new survey box was designed by K. Leavesley in Beausejour incorporating suggestions provided by D. Watson. The design of this new box is shown in Figure 2.4. These new boxes were erected on June 30, 1993. The locations of survey boxes available in 1993 are shown in Table 2.2.

2.3 Survey forms

During 1991 and 1992 a survey card was available at the survey boxes located at the six staging areas for registration of backcountry users. The design and wording on this card implied a level of control over backcountry use that was no longer enforceable and thus did not apply to Nopiming Park. An example of this card is shown in Figure 2.4. For the type of study planned in 1993, this card did not contain the necessary information. In consultation with provincial authorities, a new survey was created and replaced the old one in time for the May long weekend. This form is shown in Figure 2.5. Due to time constraints, this form was planned as a temporary version and was simply photocopied onto 8 1/2 by 14 inch paper. The intention was to replace it at a later date with a more appealing survey design.

During the summer, a more permanent and professionally designed survey form was created. The main difference between this version and the earlier one is the print design, the type of paper used, and maps that were printed on the back of the form. The temporary survey had all of Nopiming Park in one map. This was difficult to read, and because respondents were asked to trace their intended routes, more detailed "regional" maps were required. The final survey forms involved dividing the park into 3 main areas. A specific survey form was then created for each of the 3 regions in the park. The front page of all survey forms were common; the backs had maps of only that third of the park which applied to the staging area where individuals could trace routes from. This concept is illustrated in Figures 2.6 through 2.11 where the later style of survey forms are shown. These forms were put in the survey boxes on June 30, and July 1, 1993.

For very little additional effort some idea of the level of use of Atikaki Park, which lies directly north of Nopiming Park, could be gathered. Thus, at the same time a survey was created for Atikaki Park and a survey box was located at Wallace Lake, one of the few entry points to this park recreationists can reach by road. The differences between the Atikaki and Nopiming surveys are the maps, where Atikaki Park was presented, and question 11, where Atikaki routes were substituted.

The questions and wording on the 1993 survey differed from the original backcountry registration card in four ways:

- the inclusion of a question to gather information about historical use of routes;
- the introduction of a map on the permit to allow the user to trace out the route;
- including all watercraft users, not just canoeists; and
- information about the primary purpose of the trip.

These changes fit into the proposed economic analysis framework in the following ways.

By gathering historical use information it becomes possible to develop estimates of the long run demand for sites and canoe routes. One approach to assessing this is to follow the permit system of the US Forest Service and ask how many trips the respondent has made in the last ten years. This allows the estimation of count models of recreation demand (see Creel and Loomis, 1992; Grogger and Carson, 1991; and Hellerstein, 1991). As Englin and Shonkwiler (1993) have shown, quantity demand data is especially useful for evaluating recreation activities where such things as weather introduces high annual variability. Hellerstein and Mendelsohn (1993) demonstrate the underlying theoretical structure of these models.

The maps are useful from a modelling perspective. By providing the recreationist with the opportunity to draw out the proposed route on a map it becomes possible for the researcher to cost-effectively understand how the backcountry is being used. These data should be interpreted with care, because the refusal rate is likely to be high. Nevertheless, the data provide invaluable insight into the routes taken by recreationists. This information should also prove helpful in the choice of key characteristics for models and the development of information about trends.

It is also useful to gather information from *all* launch site users. The cost of establishing the permit to serve all users is very low while the additional information is very valuable, especially over time. The way overall use evolves, and the possible need for changes in

regulations, will be defensible if full user information is gathered.

Finally, a simple check-off box about whether or not recreation was the primary purpose of the trip is very important. The economic models are based, by and large, on single purpose trip information. If the trip is not the primary purpose, then these observations should be deleted from the data used to develop single purpose models. Finally, knowing how many individuals are there, particularly those not from Manitoba, and what they are doing is useful in the development of tourism models.

Table 2.1 Canoe Routes for 1993

Route Number	Route Description
1	Tulabi Falls, Tulabi Lake, Bird River, Elbow Lake, McGregor Lake, to Ontario border
2	Bird Lake and Bird River west out of park
3	Booster lake, and Summerhill Lake
4	Flanders lake
5	Davidson lake to Ontario border
6	Springer area; Springer Lake and creeks
7	Euclid area; Euclid Lake and creeks
8	Mink Lake and Sausage Lake
9	Cat Lake and creek
10	Shoe lake
11	Rabbit River east and south to Cole Lake
12	Rabbit River west to junction Black River, then west out of park
13	Black River from Hwy 314 west out of park
14	Black lake and Black River exiting lake, west out of park Note that all of route 13 is also in this route
15	Seagrim lake area; From Hwy 314 through two unnamed lakes, to Elton and Seagrim Lakes
16	Flintstone Lake by portage from Hwy 314
17	Tooth Lake by portage from Hwy 314
18	Moose River accessed at crossing on Hwy 314 east to Flintstone Lake
19	Moose River crossing Hwy 314, west to Turkey Lake, to Tooth Lake
20	Gem lake by portage from Hwy 314
21	Manigotagan River crossing Hwy 314, east to Gem Lake
22	Manigotagan River crossing Hwy 314 west to Long Lake
23	Beresford Lake, Beresford Creek, Garner Creek, Garner Lake
24	Beresford Lake, Moore Creek, Moore Lake
25	Moore lake by portage from Hwy 314
26	Long lake, west Manigotagan River, Manigotagan Lake, Quesnel Lake, to Caribou landing lodge
27	Manigotagan River east of Quesnel Lake; Manigotagan Lake, Happy Lake, Frenchman Lake
28	Manigotagan River west out of park

Figure 2.1a 1992 Canoe Route Map (front face)

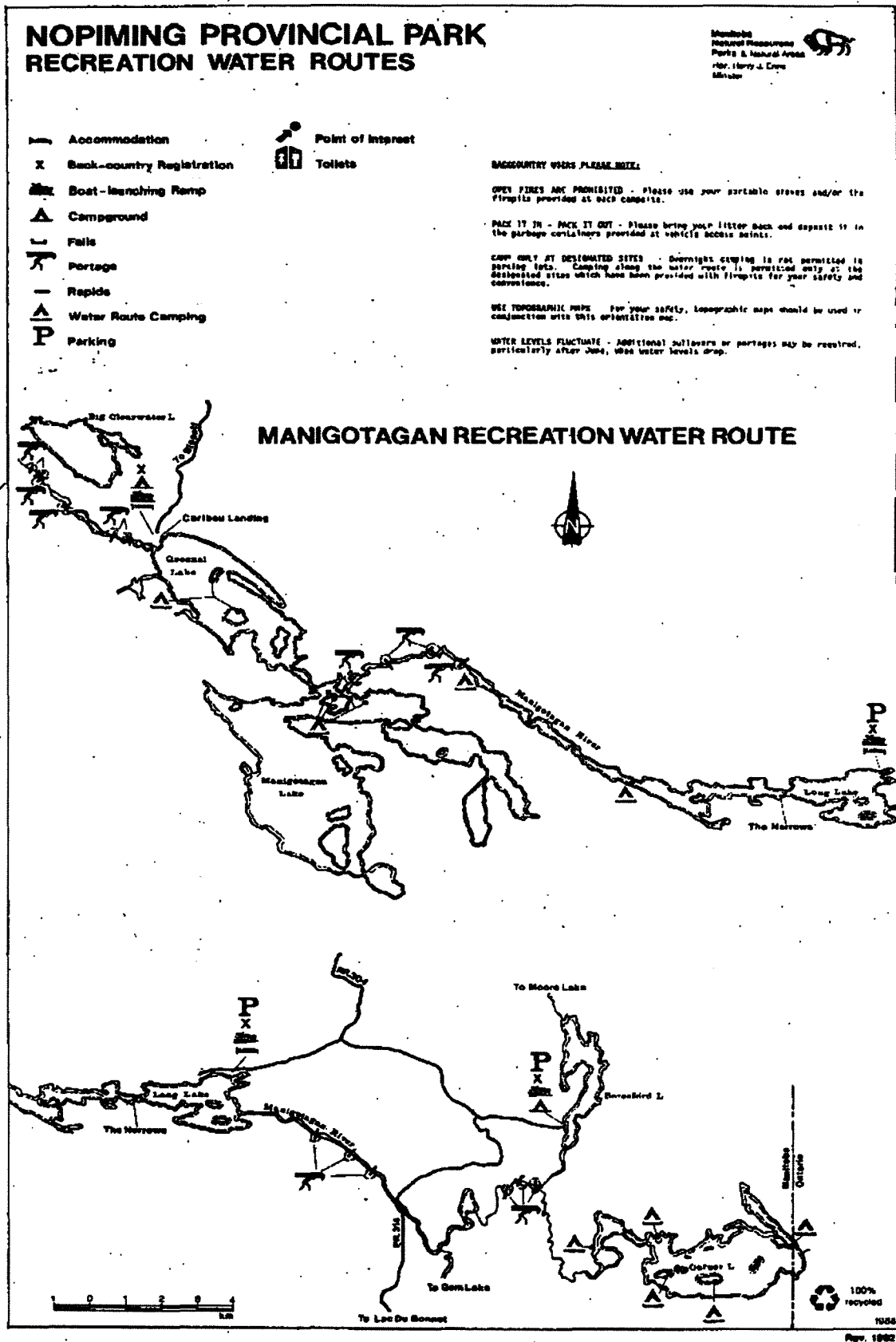


Figure 2.1b 1992 Canoe Route Map (back face)

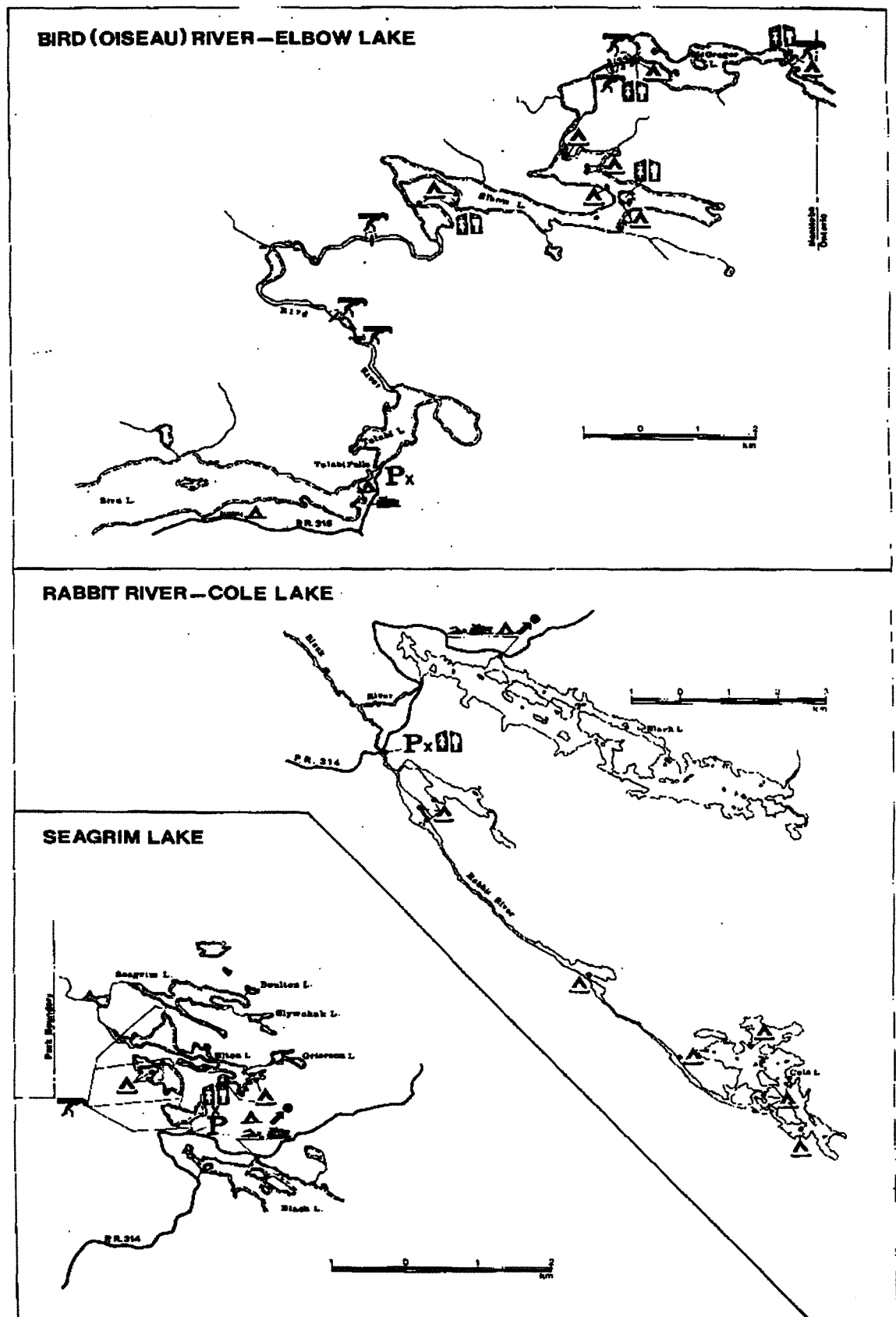


Figure 2.2a 1993 Canoe Route Map (front face)

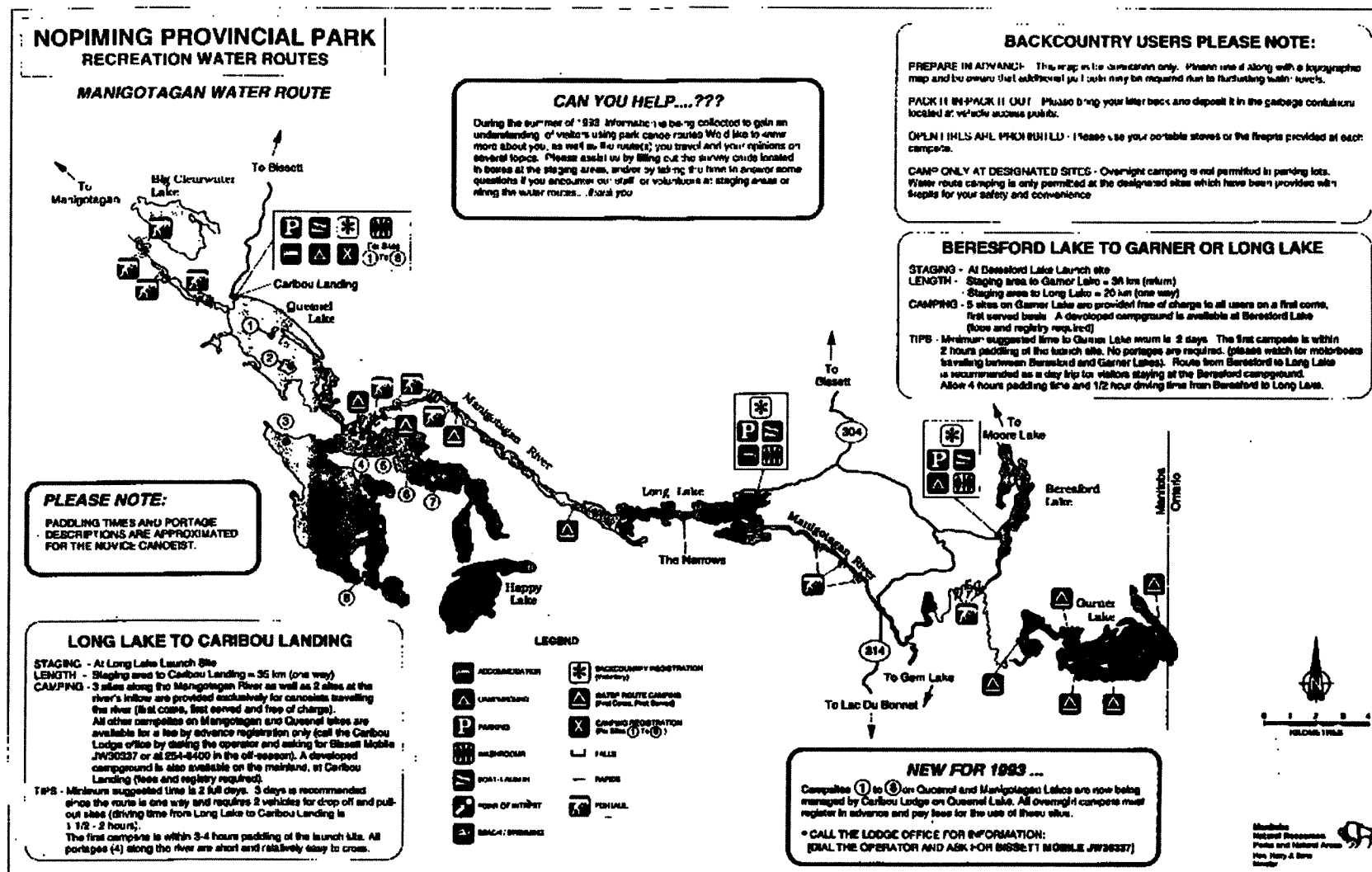


Figure 2.2b 1993 Canoe Route Map (back face)

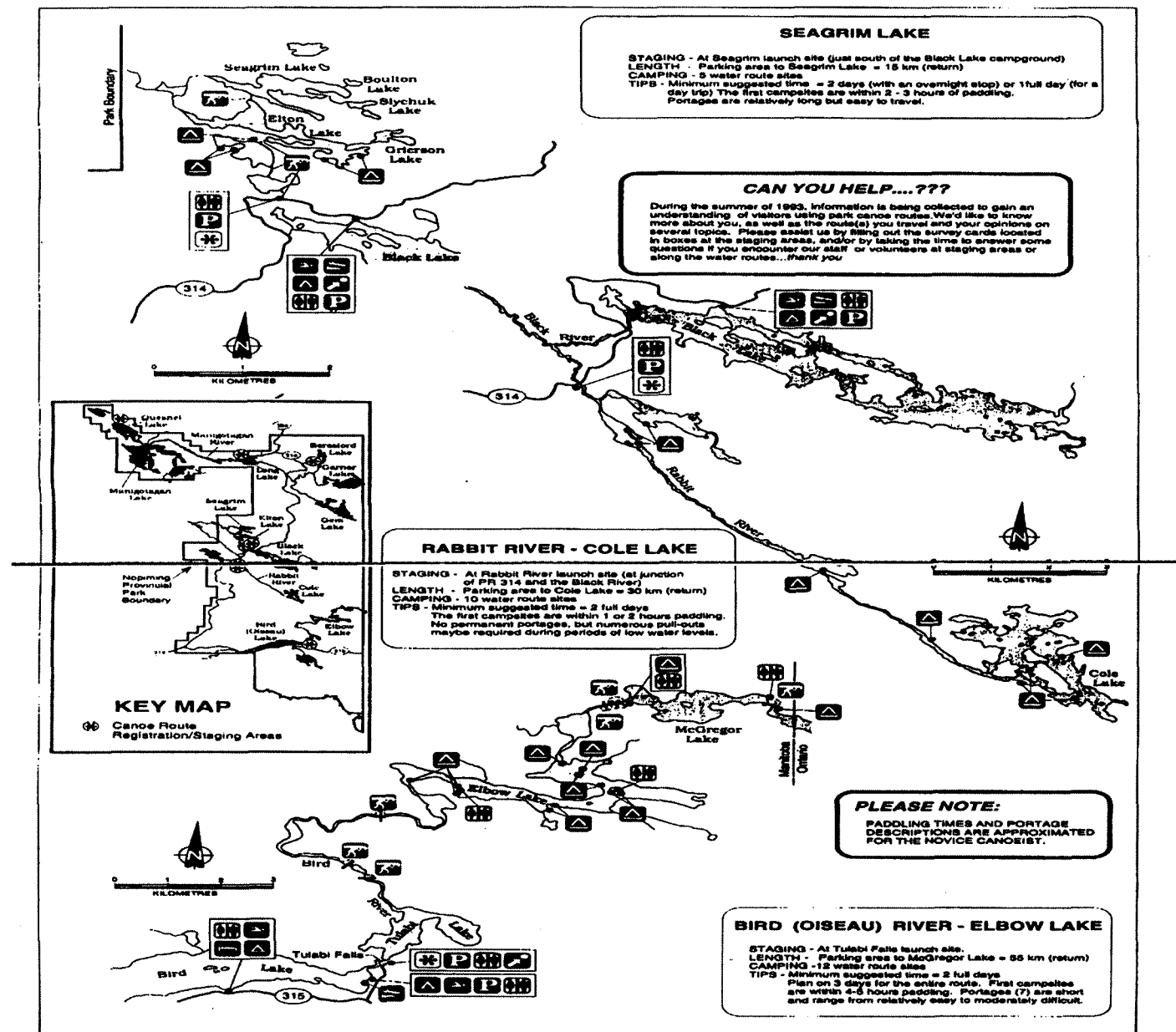


Figure 2.3 Map of park with original routes

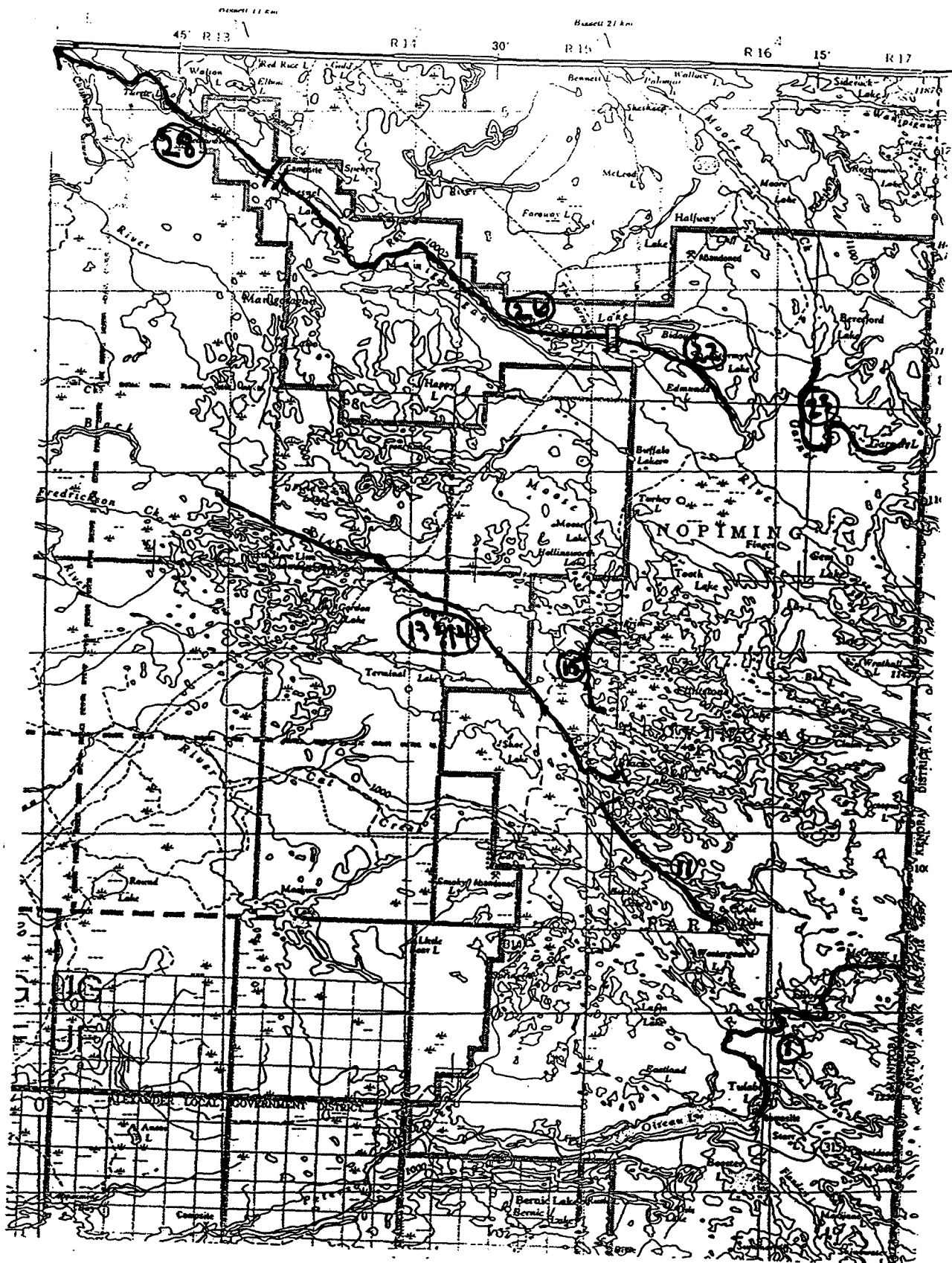


Figure 2.4 Map of park with additional routes

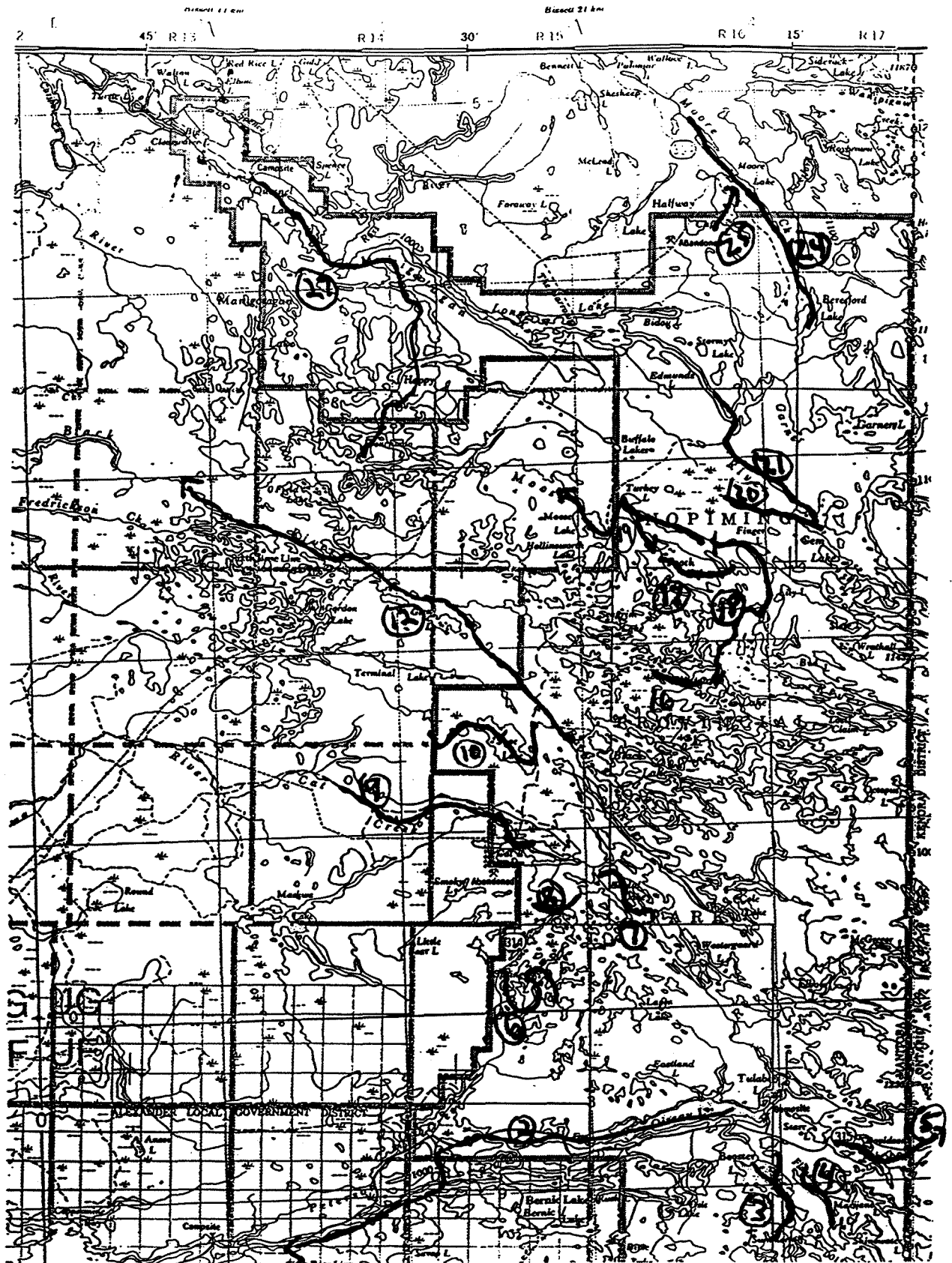


Table 2.2 Locations of Survey Points	
Pre 1993 Registration Points	Added Survey Points for 1993
Tulabi Falls	Bird Lake
Rabbit River	Booster Lake
Seagrim Lake	Flanders Lake
Beresford Lake	Davidson Lake
Long Lake	Shoe Lake
Caribou Landing, Quesnel Lake	Cat Lake
	Black Lake
	Gem Lake
	Tooth Lake ¹
	Manigotagan River at Hwy 314
	Wallace Lake

¹This box was stolen after 1 week, and not replaced.

Figure 2.5 1992 Kiosk Design

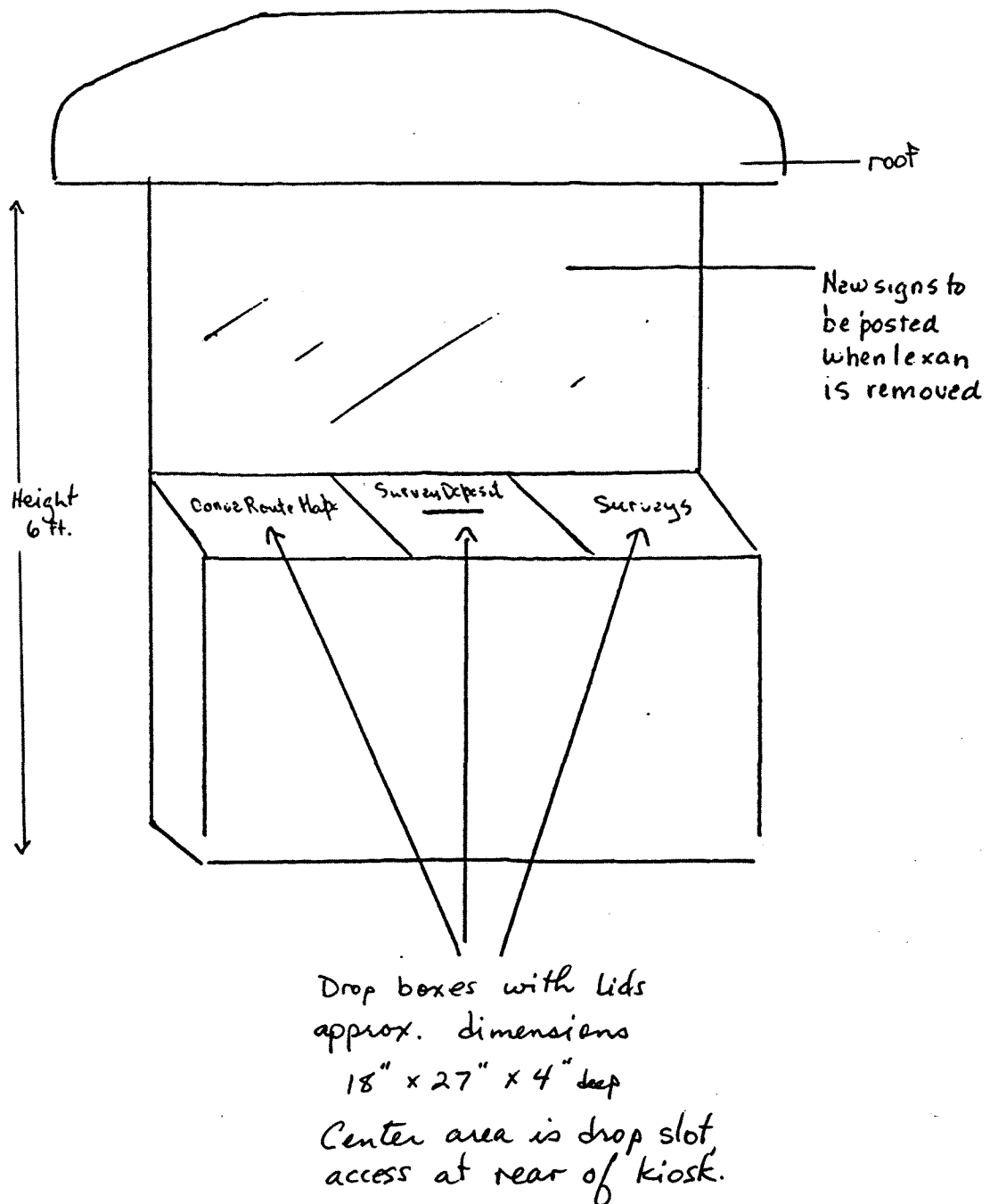


Figure 2.6 Photo of 1992 Kiosk

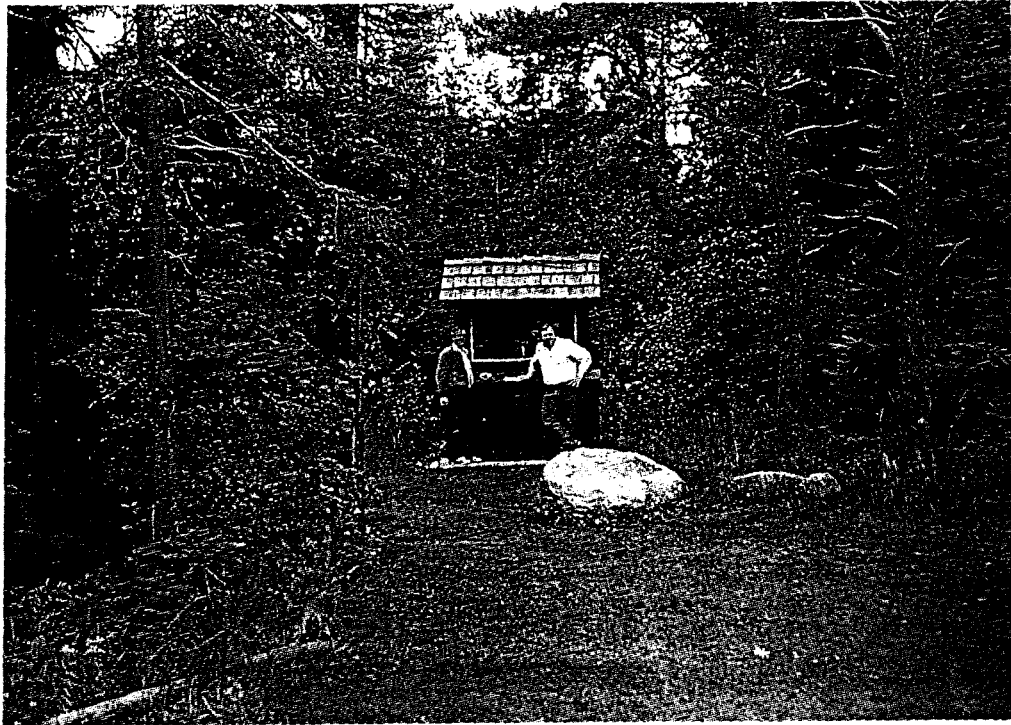


Figure 2.7 Design of Survey Box for 1993

SURVEY BOX / SIGN

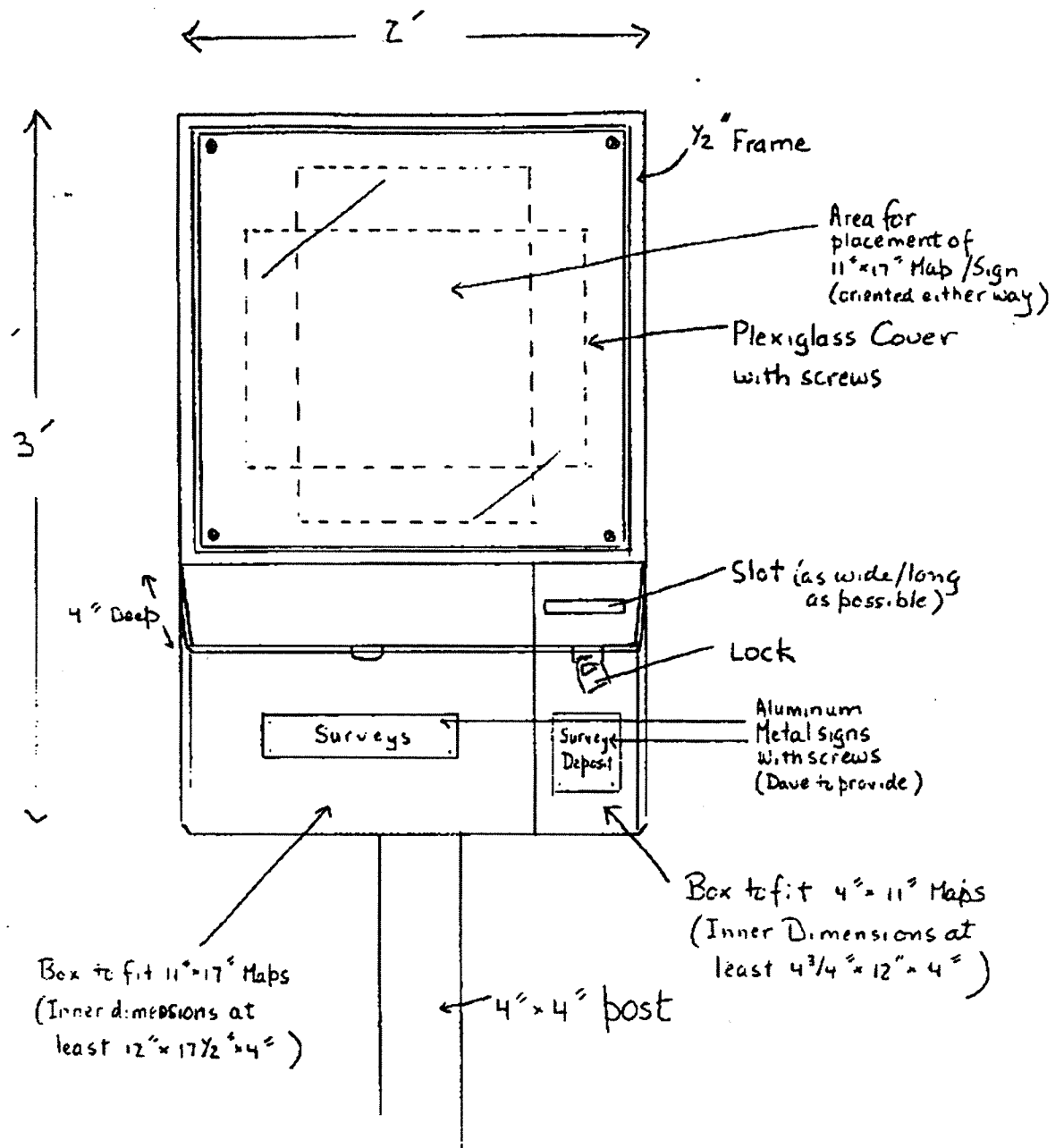


Figure 2.8 Photo of 1993 Kiosk



Figure 2.9 1992 Survey Form

Back-country Campers' Registration

Please complete both sides of this card if you intend to stay overnight in the back-country area.

Campers Names 1 2 3 4		5 6 7 8	
Group Leader		Organization	
Group Leader's Address		Telephone No.	
		Vehicle(s) Licence No(s).	
Telephone No(s).		No. in Group	Please turn over ➤

DEPARTURE

Date	Time <small>a.m./p.m.</small>	Point of Departure
Proposed Route		
Destination		Date and Time of Arrival at Destination <small>a.m./p.m.</small>


RETURN

Proposed Route		
Point of Return	Date of Return	Time of Return <small>a.m./p.m.</small>

COMMENTS

<div style="text-align: right; padding-right: 20px;"> Manitoba Natural Resources Park </div>

Figure 2.10a 1993 Initial Survey Form (Front)

<div style="border: 1px solid black; padding: 2px; display: inline-block;">No</div>		Canoe Route: <div style="border: 1px solid black; display: inline-block; width: 60px; height: 15px;"></div>
---	---	---

NOPIMING PROVINCIAL PARK CANOE ROUTE SURVEY

Thank you for taking the time to complete this form. The information will help the Department of Natural Resources and Forestry Canada understand how you use this area and enable staff to better manage canoe routes.

1. Name:

First
Middle Initial
Last
2. Mailing Address:

Number
Street
City/Town

Province/State and Country
Postal/Zip Code
3. Number of people in the group?
4. How would you describe your group?

☐ Family
 ☐ Friends
 ☐ School/University
 ☐ Youth

 Other(Specify)
5. Type of watercraft?

☐ Canoe
 ☐ Canoe with motor
 ☐ Boat and motor
 ☐ Other
6. Number of watercraft in the group?
7. Today's date:

Day
Month
Year
8. Expected date you will complete your trip on this route:

Day
Month
Year
9. How many times have you visited this route in the last 10 years?

☐ None
 ☐ Once
 ☐ Twice
 ☐ Three
 ☐ Four
 ☐ Five or More
10. Which routes have you used in the Park in the last 10 years?
 (Check - off the letters of the staging areas - see map on reverse side)

☐ A
 ☐ B
 ☐ C
 ☐ D
 ☐ E
 ☐ F
11. Was this canoe trip the primary purpose for your visit to this Park?
 If not, specify:

12. It is very important to learn what specific canoe routes are used in Nopiming. Please refer to the map on the back of this survey and trace your intended route from the staging area. Also, indicate the number of nights you expect to stay on route.

Figure 2.10b 1993 Initial Survey Form (Back)

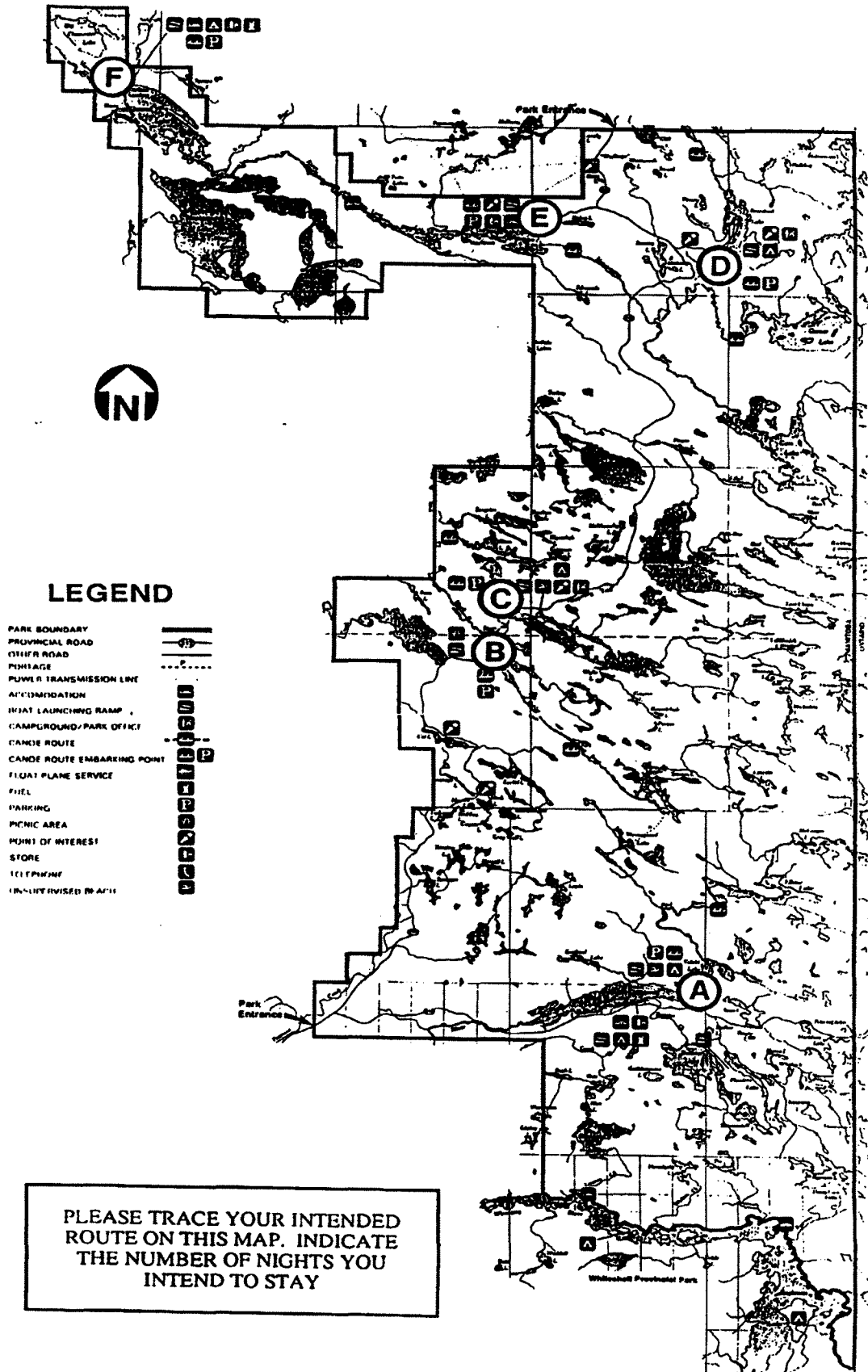


Figure 2.11 United States Forest Service Survey Form

U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE		VISITOR'S PERMIT (Rev. Feb. 23, 1953)		(14) TRAVEL PLAN		TRAVEL ZONES (for campsites)		NIGHTS	
<p>WHEN ISSUED, THIS PERMIT - VISIT PERMIT AUTHORIZES</p> <p>(1) NAME (Print, Number, and Last)</p> <p>(2) MAILING ADDRESS (if known)</p> <p>(3) CITY AND STATE</p> <p>(4) TO VISIT land for forest purposes in accordance with regulations</p> <p>(5) DATES (Give first and last dates of stay and leave dates)</p> <p>From month-day</p> <p>Through month-day</p> <p>(6) LOCATION OF ENTRY POINT</p> <p>(7) LOCATION OF EXIT POINT</p> <p>(8) PURPOSE and METHOD OF TRAVEL</p> <p>(9) NUMBER OF PEOPLE in GROUP</p> <p>(10) NUMBER OF PACK AND SADDLE STOCK</p> <p>(11) NUMBER OF WATERCRAFT OR VEHICLES</p> <p>(12) SIGNATURE OF VISITOR</p> <p>DATE</p>				<p>Let or have all areas to be traversed, in sequence of travel and number of nights to be spent in each zone</p> <p>In areas where special permits are assigned, list and note each one and the number of nights assigned</p>		<p>32 33 34 35</p> <p>36 37 38 39</p> <p>40 41 42 43</p> <p>44 45 46 47</p> <p>48 49 50 51</p> <p>52 53 54 55</p> <p>56 57 58 59</p> <p>60 61 62 63</p> <p>64 65 66 67</p> <p>68 69 70 71</p>		<p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p> <p>26</p> <p>27</p> <p>28</p> <p>29</p> <p>30</p> <p>31</p>	
<p>I agree to abide by all laws, rules and regulations which apply to this area and will be held to the full contents of the permit upon return.</p>				<p>(13) NUMBER OF TIMES YOU VISITED THIS AREA IN LAST 10 YEARS (Give approximate date)</p> <p>1 NONE 2 ONCE 3 TWICE 4 THREE 5 FOUR 6 FIVE OR MORE</p> <p>72</p>		<p>73</p>		<p>74</p>	
<p>(15) REMARKS</p>				<p>75</p>		<p>76</p>		<p>77</p>	
<p>78</p>				<p>79</p>		<p>80</p>		<p>81</p>	

VISITORS MUST HAVE THIS PERMIT IN POSSESSION DURING STAY IN RESERVED PERMIT AREAS

Figure 2.12a 1993 Final Nopiming Survey Form (Front)

No. 	Canoe Route: 1-
--	---

NOPIMING PROVINCIAL PARK BACKCOUNTRY SURVEY

Thank you for taking the time to complete this form. The information will help the Department of Natural Resources and Forestry Canada understand how you use this area and enable staff to better manage canoe routes.

1. Name First Middle Initial Last

2. Mailing Address: Number Street City/Town
Province/State and Country Postal Zip Code

3. Number of people in the group?

4. How would you describe your group?

☐ Family
☐ Friends
☐ School/University
☐ Youth

Other (Specify)

5. Type of watercraft?

☐ Canoe
☐ Canoe with motor
☐ Boat and motor
☐ Other

6. Number of watercraft in the group?

7. Today's date: Day Month Year

8. Expected date you will complete your trip on this route: Day Month Year

9. How many times have you visited this route in the last ten years?

☐ None
☐ Once
☐ Twice
☐ Three
☐ Four
☐ Five or More

10. Which routes have you used in the park in the last ten years?

☐ Manigotagan R. Area

☐ Black L./Rabbit R. Area

☐ Booster L./Flanders L. Area

☐ Beresford L. Area

☐ Shoe L./Cat L. Area

☐ Other (specify):

☐ Garner L. Area

☐ Euclid L./Springer L. Area

☐ Seagrim L. Area


☐ Bird R. Area


11. Was this canoe trip the primary purpose for your visit to the Park? ☐ Yes ☐ No

If not, specify:

12. It is very important to learn what specific canoe routes are used in Nopiming. Please refer to the map on the back of this survey and trace your intended route from the staging area. Also, indicate with an (X) where you intend to camp.

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Figure 2.12b 1993 Final Nopiming Survey Form (Zone A Back)

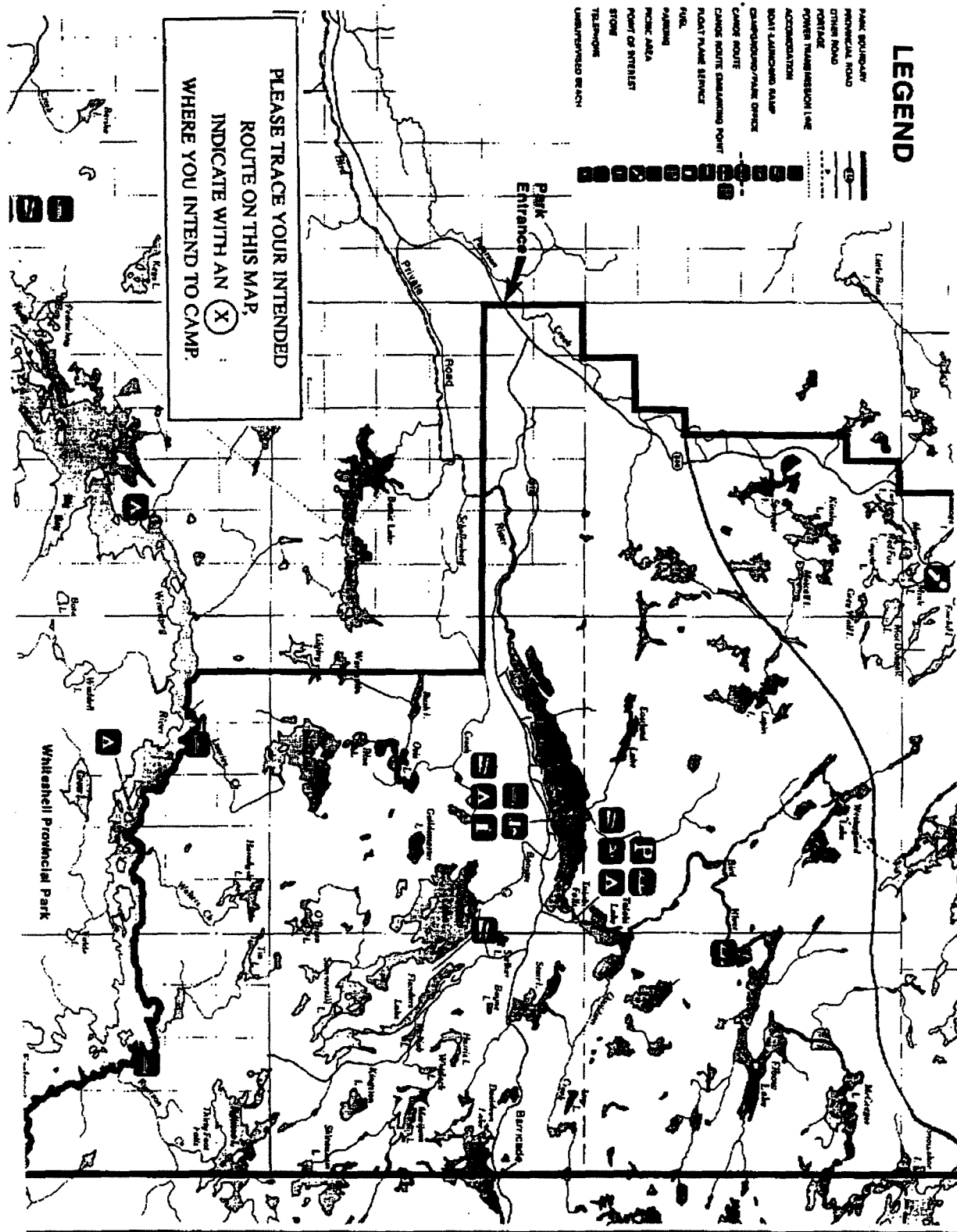


Figure 2.12c 1993 Final Nopiming Survey Form (Zone B Back)

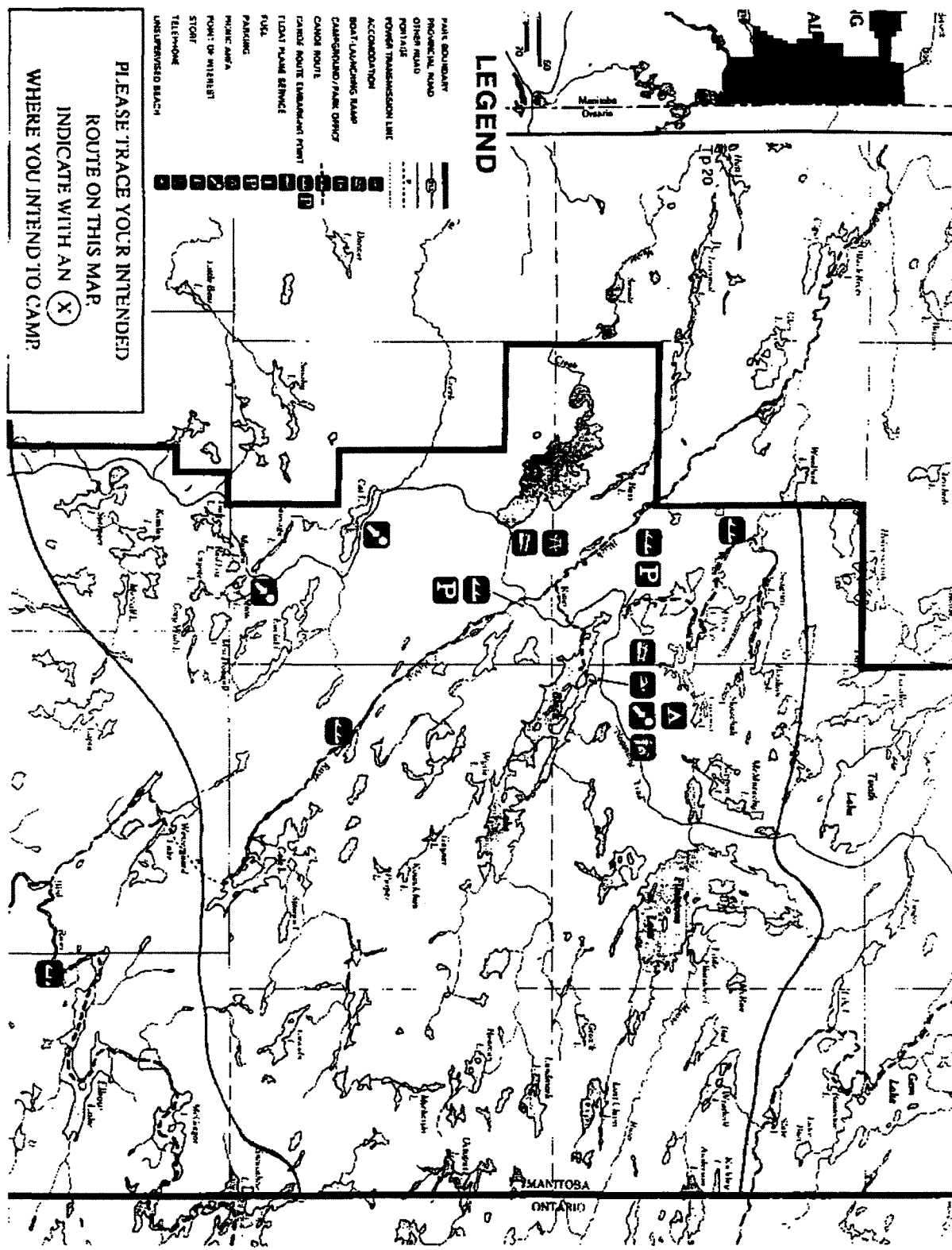


Figure 2.12d 1993 Final Nopiming Survey Form (Zone C Back)

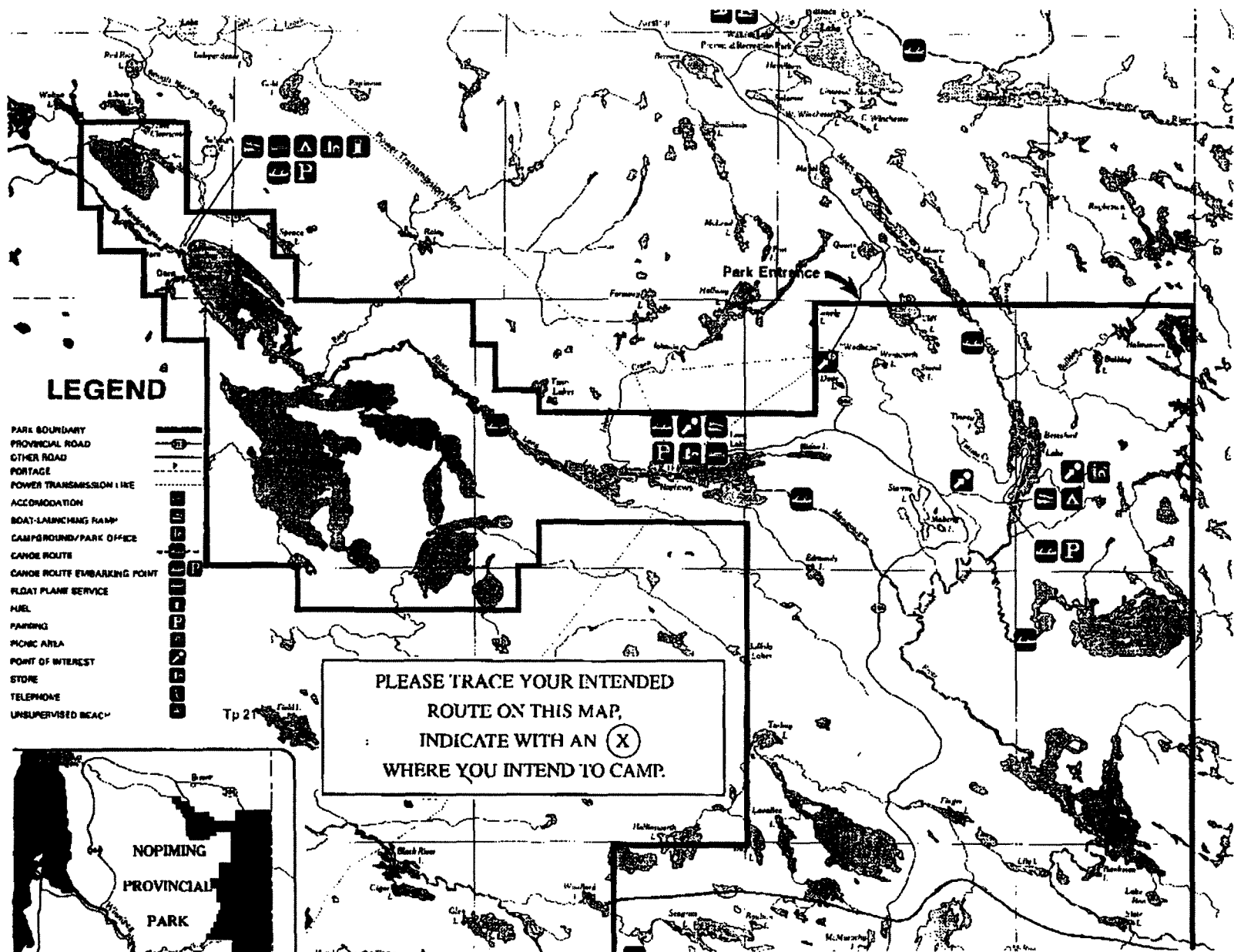


Figure 2.13a 1993 Atikaki Survey Form (Front)

No. 	Canoe Route: 4 -
--	--

ATIKAKI PROVINCIAL PARK BACKCOUNTRY SURVEY

Thank you for taking the time to complete this form. The information will help the Department of Natural Resources and Forestry Canada understand how you use this area and enable staff to better manage canoe routes.

1. Name

First ¹
Middle Initial ²
Last ³
2. Mailing Address:

Number ⁴
Street ⁵
City/Town ⁶

Province/State and Country ⁷
Postal Zip Code ⁸
3. Number of people in the group? ⁹
4. How would you describe your group?

☐ ¹¹ Family
☐ ¹² Friends
☐ ¹³ School/University
☐ ¹⁴ Youth

Other(Specify)..... ¹⁵
5. Type of watercraft?

☐ ¹⁶ Canoe
☐ ¹⁷ Canoe with motor
☐ ¹⁸ Boat and motor
☐ ¹⁹ Other
6. Number of watercraft in the group? ²⁰
7. Today's date:

Day ²¹
Month ²²
Year ²³
8. Expected date you will complete your trip on this route:

Day ²⁴
Month ²⁵
Year ²⁶
9. How many times have you visited this route in the last ten years?

☐ ²⁷ None
☐ ²⁸ Once
☐ ²⁹ Twice
☐ ³⁰ Three
☐ ³¹ Four
☐ ³² Five or More
10. Which routes have you used in the park in the last ten years?

☐ ³³ Pigeon River
☐ ³⁴ Bloodvein River
☐ ³⁵ Other(specify):

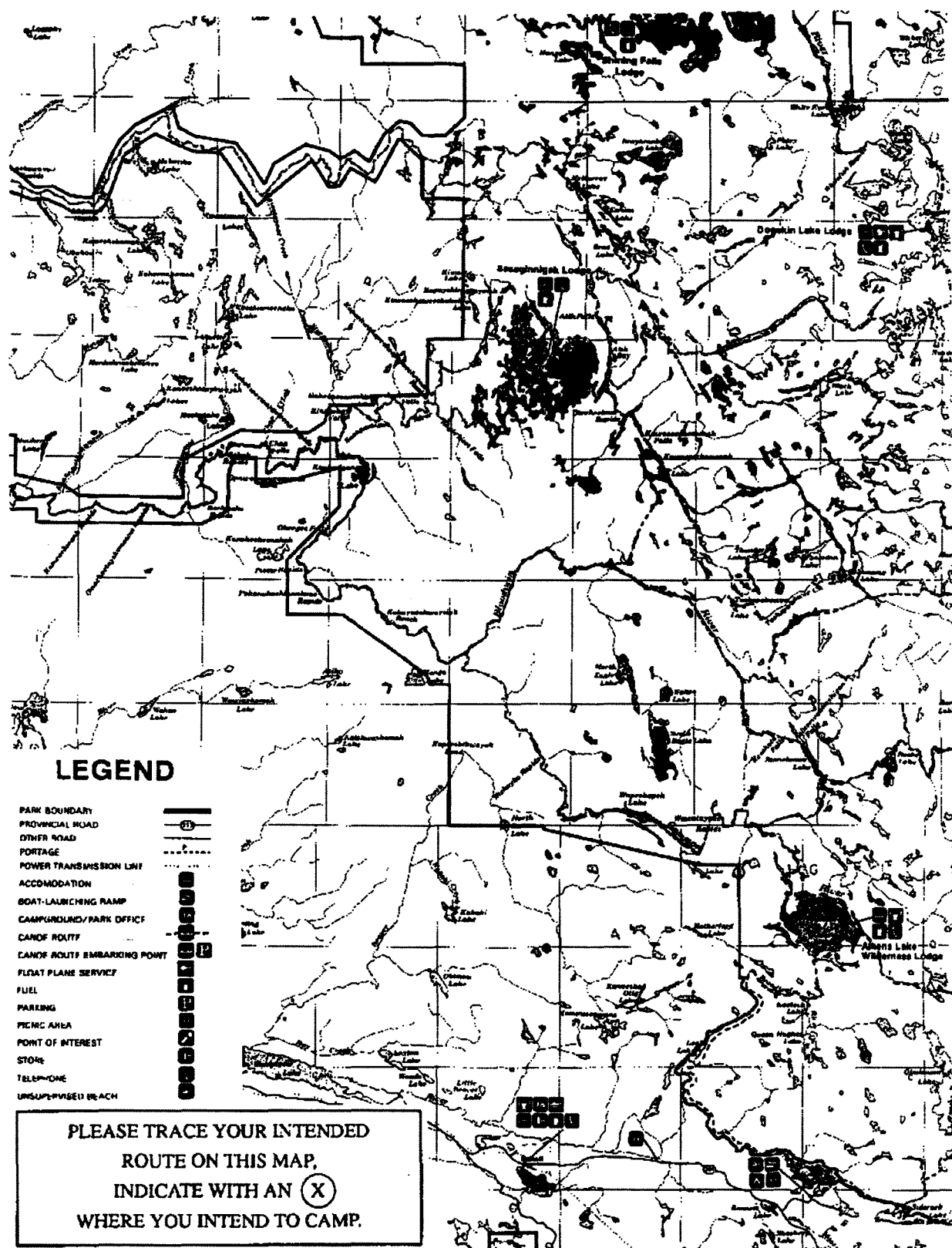
☐ ³⁶ Beyond River
☐ ³⁷ Gammon River
11. Was this canoe trip the primary purpose for your visit to the Park? ☐ ⁴³ Yes ☐ ⁴⁴ No

If not, specify:
12. It is very important to learn what specific canoe routes are used in Atikaki. Please refer to the map on the back of this survey and trace your intended route from the staging area. Also, indicate with an (X) where you intend to camp.

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Parks

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Figure 2.13b 1993 Atikaki Survey Form (Back)



CHAPTER 3: Monitoring of use

3.1 General

In order to judge the validity of using the completed survey forms as a census of users it is essential to know the participation rate of users in completing the form. A strong effort was undertaken to determine and influence the participation rate of canoeists in completing the survey. This included counting vehicles in the staging areas (manually and with machine counters), leaving notices on windshields, counting users encountered while paddling the routes, asking canoeists encountered to fill out the form, and frequent collection of completed forms. The Manitoba Recreational Canoe Association was contacted. The project team attempted as much as possible to inform potential canoeists of the study and the reasons for the survey forms. This chapter provides details on some of these methods and summarizes results of various attempts to determine levels of use.

The summer of 1993 had a record level of rainfall, and inclement weather, which may have affected park use during the canoeing season. The Winnipeg Climate Center of Environment Canada reports that the rainfall was 145% of the normal for the summer. In total, there was 544mm of rainfall between May 1 and September 30, 1993, with single day precipitation exceeding 50mm on three occasions.

3.2 Parking Lot Coverage

Monitoring of the staging area parking lots was carried out to increase participation rates. This monitoring started after it was noticed that some users ignored the survey boxes, but would fill out the form if asked personally. This involved personnel staying at the staging area for extended periods of time to talk to arrivals, traffic counters placed when personnel were not present, and counts of parked vehicles whenever personnel arrived for other purposes, such as refilling the boxes with survey forms and collecting completed forms. This extended monitoring was carried out from the May long weekend until the August long weekend. After 03 August this practice was re-evaluated because the effort was not resulting in increased participation in the survey. This was largely because few people were visiting the staging areas, and of those that were, many were completing the survey. The inclement weather encountered during the 1993 field season was probably the reason for the low visitation rates. Table 3.1 provides a summary of the hours of extended monitoring for the staging areas in the park.

At every opportunity, the vehicles parked in the staging areas had a notice placed on their windshield. This notice asked the vehicle owner to complete a survey. A copy of this notice is provided in Figure 3.1. The occasional counting of vehicles, windshield notices, and talking to canoeists met by chance was continued, however. Table 3.2 summarizes the number of vehicles counted at various times in the staging areas. It is not certain that vehicles parked in the staging areas always belonged to canoeists because some staging areas were used for other purposes.

There were numerous problems with the use of traffic counters. The initial counters provided to the study personnel from the Manitoba Parks Branch did not work at all, despite several returns for repairs. Two replacement models worked for the period the counters were used. One of these had the attached pressure hose that lay across the road dragged away by the chain of a boat trailer on the 5th day of use. This incident broke the counter. The second counter was stolen after one week of operation, despite being chained to a large tree. The lock and chain were also taken.

Overall, it is difficult to correlate the parking lot data with actual use, or with the number of surveys completed. As mentioned above, some of the staging areas were used for other purposes during the year. For example, Tulabi Falls was used by people who spent the afternoon simply visiting the falls. Another example is the parking lot at Long Lake, which was used as overflow parking for cottage owners.

3.3 Other Participation Enhancement

Efforts were made to involve the Manitoba Recreational Canoe Association in assisting in the dissemination of the study. Project personnel offered to attend their meetings and to draft articles for their newsletter; however, the meetings did not coincide well with their newsletter publication dates. An article was prepared and submitted during the summer - we have been informed that it will appear in an issue early in 1994.

It was also hoped to enlist the support of cottagers in staging area monitoring. A form was created (see Figure 3.2) and placed on the notice boards of several cottage sub-divisions. No response was ever received from this notice. In two locations, the notices were removed within a week of posting. Setting up a meeting with cottager associations proved difficult.

The use of air carriers for distribution of surveys to Atikaki canoeists produced mixed

results. Several of the carriers were indifferent to the survey; one was hostile to the idea; and two were quite helpful. Only one produced significant results, however. This was probably due to the timing of distribution, and not to any fault of the carrier. Most companies reported that the main season for charter flights into Atikaki occur during May and interest falls considerably by early June. The forms were not distributed to the carriers until late June, when the surveys were ready and a list of contacts created.

The campground attendants were very helpful in promoting participation in the survey. Their level of public contact and public relations skills convinced many people to complete a form that otherwise may not have been.

3.4 Survey Collection

The survey boxes were cleared frequently and without a regular schedule. Generally, the boxes were checked at least every 3 days, and always when one of the field personnel were near the box. Some of the more remote boxes, such as the one at Caribou landing, were checked once a week. With the parking lot monitoring schedule on weekends, all boxes were checked prior to the weekend rush, usually on the Friday afternoon. In spite of this, there were occasions when the stock of forms in the boxes was depleted, and some participation may have been missed as a result. Table 3.3 provides some idea of the completion rate of surveys available to recreationists and an illustration of the intensity of effort involved in achieving this response. At many sites surveys simply disappeared or were stolen by children.

Tulabi, the most frequently used route in the park, achieved a 50% response rate (Table 3.3). The other major staging areas: Rabbit River, Seagrim Lake, Beresford Lake, and Long Lake, also achieved a similar response. The Nopiming lodge operator, as well as Bisset and Selkirk Air carriers, provided good response rates from their appropriate clients. During the course of the study greater than 1,500 surveys were provided in the various survey boxes. Of these 457 were completed by water-based recreationists.

3.5 Observations on Various 1993 Park Conditions from the Field Notes of D. Watson

Roads

- Travelling from the south, the first obvious rock outcrops show at Sausage L.
- The point of interest at Cat Lake concerns an old lithium mine (with the implication that the mine may open in the future if the price is right).

- Road access for Nopiming park is possible by three entry points, Highway 314 from the south, Highway 304 from the north, and the Trans-Licence road, which starts 10 km north of Pine Falls, and intersects with Highway 314 2 Km north of Cat Lake.
- Hwy 44 is adequate, paved with gravel shoulders most of the way. There is construction in 1993 near Garson, a project to twin the road. However, a bridge over a small creek is causing problems, so that for all summer there is a spot where one has to slow to 40 Kph. The view along Hwy 44 is mostly farmland, broken by occasional woodlots. Hwy 314 near Lac du Bonnet is paved, and woodsy, with some forage crops evident.
- New no-parking signs where Hwy 314 crosses the Rabbit River Aug 18; both sides of the road.
- I usually travel about 70 km in the park on the gravel.
- The Trans-License road meets Hwy 314 just north of Cat Lake. It runs for 44 Km, and joins with Hwy 304 just north of where the Black River crosses.
- Booster lake road has high washboard effect.
- Flanders lake cottage owners have put up a sign saying travel at your own risk, max 10 hp boat motor restriction, and no parking allowed at the launch.
- At Bisset, can still see old mine buildings (quite large); the main grocery store/restaurant is open 7-9.
- Natural Resources office is at the NW end of town, not open to public on weekends.
- the gravel starts on Hwy 314 just as you cross the Bird River outside the park.

Waterways

- There is a problem with boat caching on Gem Lake; they leave them at the depot of garbage cans, etc.
- Also boat caching on Turtle Lake, on the Manigotagan River route.
- Manigotagan River where it crosses Hwy 314 is not very large.
- I was told by a local trapper with cottage on Long Lake that the Manigotagan River is not passable between Hwy 314 and Long Lake; (but I did it anyways).
- There are two small rivers flowing into Black Lake that are said to be big enough for canoeing; NE end of lake.
- Lake areas Springer (82 ha); Euclid (95 ha); Shoe (957 ha); Tooth (510 ha).

Campgrounds

- At Bird Lake the no vacancy sign went up by 3 PM on the May long weekend.
- The Black Lake campground no vacancy sign went up by 6 PM on the May long weekend.
- The Beresford Lake no vacancy sign went up by 8:30 PM on the May long weekend. The attendant Bob always seems to fit stragglers in somewhere.
- Caribou Landing was packed on May 22, though most were not canoeists, they were staying at the lodge or in the campground.
- The operator of Caribou Landing Lodge provides a service where he will drive people back from dropping their cars off at Manigotagan for \$20.

- Lots of signs in the park regarding open fires, even along the Bird River canoe route near the second portage.
- Sign on office of Tulabi Falls campground says firewood available for purchase at Nopiming Lodge. The cost at the lodge is \$3 for about 4 logs.
- There was a fishing derby at Bird Lake on the long weekend in May, and it was jam-packed. The same applies for Black Lake. the following weekend.
- Fish derby Shoe lake, weekend of 5 June
- Note that weekend of Jun 12 was free entrance and use of parks in Manitoba. Campground offices were closed.
- Fees for all campgrounds are \$7.49 (with tax)
- Collection of campground fees ends the sunday of labour day, attendants last work is the weekend after labour day.

Forestry

- There were skidders parked close to 314 near Shoe Lake wayside and in plain view in May. By June they were gone. The cut is also evident. Same at Cat Lake, though the cut there was not evident.
- The operator of Caribou Landing Lodge says that the company put up a Bailey bridge last winter over the Frenchman River which effectively cuts off all traffic, including canoes.
- Signs of heavy forestry activity 2 km north of Gem lake, starting on the week after the August long weekend. Mostly clearing out old "overmature" stuff, from road looks awful, but from road can only see it as an old burn area.
- Logging is presently quite close to Long Lake and Beresford Lake. The buffers limits (by regulation) are 100m, and 25m for creeks.
- Forestry activity picking up near Shoe Lake Aug 18, could hear activity while paddling the lake.
- Activity started beside (south of) the Rabbit river route the day after labour day in September, could hear it while paddling.

Staging Areas

- The field at the Long lake boat launch (canoe staging area) is used as overflow parking for the cottagers. They also use it as long term storage area for boat trailers.
- Marsh marigold is plentiful in the park. Many ladyslippers showing at Seagrim staging area.
- There is both a boat launch and a canoe launch at Tulabi Falls; boat launch is below the falls, canoe staging area is above the falls.

Cottages

- List of the "cottage lakes"; Bird, Long, Beresford

Comments

- A camper/canoeist met at Long L commented on how "appalling" it was that there were so many cabins

and commercial development in the park. He also didn't like the idea of paying for backcountry campgrounds.

Things to Find Out

- What do canoeists consider the canoe season to be?
- Could forestry roads be providing new access points?
- Is Nopiming a substitute for Whiteshell? The road to Whiteshell is paved the whole way, Nopiming roads are not.
- Do the "commercial" (customers that pay for backcountry sites) at Caribou Landing have the same perceptions as other canoeists and boaters?

Travel Times and distances

- Beausejour to Lac du Bonnet is 25-30 min; 25 min from Lac du Bonnet to where pavement ends at Bird River crossing, there to park sign 10 min, turnoff to Bird lake from start of gravel is 13 min; turnoff to boat launch is 20 min.
- Caribou landing turnoff to Manigotagan town is about 35 min.
- Caribou landing turnoff to the lake itself is about 45 minutes.

Figure 3.1 Windshield notice form

CAN YOU HELP???

During the summer of 1993, information is being collected to gain an understanding of visitors using park water routes. We'd like to know more about you and the routes that you use.

Please assist us by taking a few minutes and filling out a survey card located in the box at the end of the staging area (marked surveys). If you have already filled out a survey, thank you for your participation.

Manitoba Natural Resources,
Parks and Natural Areas

Table 3.1 A Summary of the Effort Expended in Monitoring Staging Areas			
Staging Area			Hours
Tulabi Falls	June 12th, June 18, June 19, June 25, July 2, July 3, July 30,	9 am to 2 pm 5 pm to 9pm 9 am to 2 pm 4 pm to 8 pm 3 pm to 8 pm 8:30 am to 2 pm 2 pm to 7:30 pm	34
Rabbit River	May 29, June 12, July 2, July 30,	9 am to 2 pm 8 am to 2 pm 3:30 pm to 7:30 pm 2:30 pm to 7 pm	20
Seagrim Lake	June 26, July 2, July 30,	9 am to 2 pm 3:30 pm to 7:30 pm 2:30 pm to 7 pm	14
Beresford Lake	June 11, June 18, July 2, July 30	5 pm to 9 pm 5 pm to 9 pm 4:15 pm to 6:45 pm 3 pm to 8 pm	16
Long Lake	May 22, May 28, June 11, July 2 July 23 July 30	4 pm to 6 pm 3 pm to 8 pm 5 pm to 9 pm 4:30 pm to 6:30 pm 3 pm to 8 pm 3 pm to 8 pm	23
Caribou Landing	May 23 June 19 July 9 July 10 July 23 July 30 July 31	2 pm to 5 pm 8 am to 12 noon 3:30 pm to 12 midnight 00:00 am to 3:30 pm 3 pm to 8 pm 4 pm to 10 pm 8 am to 1 pm	37
Davidson Lake	July 30	2 pm to 7:30 pm	5
Shoe Lake	July 30	2:30 pm to 7 pm	5
Wallace Lake	July 30	2:30 pm to 8:30 pm	6
Total			160

Table 3.2 Vehicle Counts by Staging Area¹

Location	Date	Total vehicles	Manitoba	Other
Beresford Lake	21-May-93	12	12	0
	27-May-93	1	0	1
	09-Jun-93	1	0	1
	02-Jul-93	3	3	0
	03-Jul-93	5	5	0
	10-Jul-93	3	3	0
	01-Aug-93	10	9	1
	03-Sep-93	16	16	0
Bird Lake ²	27-May-93	4	4	0
	03-Jul-93	40	40	0
Black Lake	05-Jun-93	13	13	0
	03-Jul-93	11	11	0
	08-Jul-93	1	1	0
Black River (road crossing)	02-Jul-93	1	1	0
	03-Jul-93	0	0	0
Black lake	23-May-93	20	20	0
Booster Lake	12-Jun-93	11	11	0
	03-Jul-93	12	12	0
Caribou landing	21-Jul-93	5	5	0
Cat Lake (north end)	24-May-93	6	6	0
	01-Jun-93	0	0	0
	05-Jun-93	3	3	0
	02-Jul-93	1	1	0
	03-Jul-93	3	3	0
	10-Jul-93	1	1	0

¹Note that values of zero vehicles were not always recorded.

²There was no more vehicles counts after this date, the number of people just parking could not be separated from the vehicles there for the campground.

	20-Jul-93	0	0	0
	24-Jul-93	3	3	0
	31-Jul-93	3	3	0
	01-Aug-93	5	5	0
	14-Aug-93	4	4	0
	26-Aug-93	0	0	0
	03-Sep-93	2	2	0
Cat Lake (south end)	03-Jul-93	1	1	0
	20-Jul-93	0	0	0
	24-Jul-93	1	1	0
	03-Sep-93	2	2	0
Davidson Lake	03-Jul-93	3	3	0
	30-Jul-93	0	0	0
Flanders Lake	03-Jul-93	0	0	0
	12-Jun-93	1	1	0
Flintstone Lake	23-May-93	3	3	0
	02-Jul-93	1	1	0
	03-Jul-93	1	1	0
	24-Jul-93	1	1	0
	03-Sep-93	0	0	0
Gem Lake	03-Jul-93	10	10	0
	01-Aug-93	2	2	0
	03-Sep-93	8	8	0
Long Lake	22-May-93	7	7	0
	27-May-93	0	0	0
	09-Jun-93	1	1	0
	02-Jul-93	4	4	0
	10-Jul-93	6	6	0
	23-Jul-93	2	2	0
	03-Sep-93	8	8	0
Manigotagan (village)	03-Jul-93	6	6	0

	01-Aug-93	0	0	0
Manigotagan River (road crossing)	23-May-93	2	2	0
	02-Jul-93	7	7	0
	03-Jul-93	7	7	0
	10-Jul-93	0	0	0
	20-Jul-93	0	0	0
	03-Sep-93	1	1	0
Mink Lake	03-Sep-93	1	1	0
Moose River (road crossing)	21-May-93	4	4	0
	23-May-93	3	3	0
	24-May-93	3	3	0
	03-Jul-93	0	0	0
	18-Aug-93	0	0	0
	03-Sep-93	0	0	0
Rabbit River	21-May-93	12	12	0
	23-May-93	35	34	1
	24-May-93	35	34	1
	27-May-93	5	5	0
	01-Jun-93	0	0	0
	05-Jun-93	16	16	0
	09-Jun-93	4	4	0
	11-Jun-93	4	4	0
	02-Jul-93	5	5	0
	03-Jul-93	9	9	0
	10-Jul-93	2	2	0
	20-Jul-93	1	1	0
	23-Jul-93	1	1	0
	24-Jul-93	4	4	0
	01-Aug-93	10	10	0
	12-Aug-93	1	1	0
	14-Aug-93	5	5	0

Sausage Lake	17-Aug-93	1	1	0
	18-Aug-93	1	1	0
	03-Sep-93	6	6	0
	24-May-93	5	5	0
	01-Jun-93	1	1	0
	05-Jun-93	0	0	0
	03-Jul-93	2	2	0
	31-Jul-93	1	1	0
	03-Sep-93	3	3	0
Seagrim Lake	21-May-93	12	12	0
	23-May-93	17	17	0
	24-May-93	21	21	0
	27-May-93	1	1	0
	01-Jun-93	0	0	0
	05-Jun-93	3	3	0
	09-Jun-93	2	2	0
	11-Jun-93	7	7	0
	02-Jul-93	7	7	0
	03-Jul-93	10	10	0
	08-Jul-93	1	1	0
	10-Jul-93	5	5	0
	20-Jul-93	0	0	0
	23-Jul-93	3	3	0
	24-Jul-93	4	4	0
	30-Jul-93	2	1	1
	01-Aug-93	3	3	0
	12-Aug-93	1	1	0
	14-Aug-93	0	0	0
	17-Aug-93	1	1	0
	18-Aug-93	2	2	0
	26-Aug-93	3	3	0

Shoe Lake	03-Sep-93	8	8	0
	01-Jun-93	0	0	0
	05-Jun-93	4	4	0
	03-Jul-93	20	20	0
	10-Jul-93	15	15	0
	20-Jul-93	5	5	0
	23-Jul-93	8	8	0
	24-Jul-93	15	15	0
	01-Aug-93	27	27	0
	14-Aug-93	12	11	1
	17-Aug-93	2	2	0
	26-Aug-93	3	3	0
	03-Sep-93	13	13	0
	02-Jul-93	3	3	0
Tooth Lake	03-Jul-93	4	4	0
	20-Jul-93	0	0	0
	24-Jul-93	1	1	0
	03-Sep-93	0	0	0
	23-May-93	4	4	0
Tulabi Falls	21-May-93	18	18	0
	27-May-93	18	13	5
	05-Jun-93	21	21	0
	09-Jun-93	4	4	0
	11-Jun-93	5	4	1
	12-Jun-93	15	15	0
	02-Jul-93	20	20	0
	03-Jul-93	26	24	2
	08-Jul-93	8	7	1
	10-Jul-93	11	11	0
	23-Jul-93	13	12	1
	30-Jul-93	6	6	0

Wallace Lake	18-Aug-93	3	3	0
	03-Sep-93	17	16	1
	22-May-93	15	15	0
	21-Jun-93	4	3	1
	02-Jul-93	6	6	0
	01-Aug-93	8	8	0
	03-Sep-93	0	0	0

Figure 3.2 Cottager Assistance Request Form

Manitoba



Natural Resources

Parks and Natural Areas

Box 52
1495 St. James Street
Winnipeg MB R3H 0W9
CANADA

ATTENTION COTTAGERS

The Department of Natural Resources and Forestry Canada are conducting a back-country water use survey in Nopiming Provincial Park the summer of 1993.

Volunteers are required to increase participation levels for survey completion. The task would involve monitoring the boat launch areas for several hours and asking boaters to complete the survey form.

For more information or to volunteer, call Dave Watson @ 983-4817 or Trucia Howard @ 945-4368 in Winnipeg.

Table 3.3 Survey Completion Rates				
Location	Surveys Placed	Surveys Completed	Surveys returned incomplete	Percentage Completed or returned
Tulabi Falls	380	173	17	50
Davidson Lake	25	4	0	16
Booster Lake	65	4	2	9
Flanders Lake	41	3	3	15
Bird Lake	44	2	6	18
Cat Lake	24	2	4	25
Shoe Lake	89	13	11	27
Rabbit River	109	64	4	62
Seagrim Lake	127	51	13	50
Black Lake	66	7	2	14
Tooth Lake	20	1 ³	0	5
Gem Lake	10	1	7	80
Manigotogan River	45	9	3	27
Beresford Lake	107	32	14	43
Long Lake	59	21	6	46
Caribou landing	57	7	2	16
Wallace Lake	75	11	8	25
Atikaki backcountry patrol	40	13	27	100
Nopiming park patrol	8	0	8	100
Tulabi campground office	15	0	15	100
Nopiming lodge	34	9	9	53
Black lake campground office	14	1	14	100
Whiteshell Air	20	0	20	100
Eagle Air	15	0	15	100
Bisset Air	15	2	13	100
Selkirk Air	35	21	14	100
Northway Aviation	20	0	20	100
Tall Timbers lodge	20	1	19	100
Northern Expeditions	15	5	10	100
Total	1,579	457	287	47
Total at unmanned sites	1,377	414	111	38

³The one form was completed in the presence of the project staff. This box was stolen shortly after being put up, along with the forms inside.

CHAPTER 4: Establishment and Description of Databases

A significant portion of the field season was spent collecting attributes that could be used in describing a recreational canoeing experience in Nopiming Park. These attributes were gathered by canoeing every actual and most potential route in the park as well as examining maps, aerial photographs, and other information available from Manitoba Parks Branch staff and Abitibi Price woodland operations personnel. These attributes are summarized in Chapter 5 and in various appendices compiled in conjunction with this document. The intent of this chapter is to introduce interested readers to the types of attributes collected, how they were collected, and how they were entered into the various databases associated with the project. This information will essentially form a type of biophysical inventory of features of the park important to recreational canoeing.

The relationship between the canoeing experience and forestry operations is an important objective of this study. For this reason data on forest characteristics and past and future logging operations is important. Considerable effort was expended collecting forest and vegetation data while actually canoeing the routes. In addition, a copy of the provincial forest inventory data for the park was obtained in digital form. This information was organized manually in a spreadsheet format for each route and was also cleaned and organized for GIS analysis. These three databases will eventually allow the various covers found in the provincial forest inventory to be associated with recreational canoeing. Data on past fire history and forestry operations is in the process of being gathered from Abitibi Price and will eventually be integrated into the appropriate databases.

Attributes directly related to canoeing were also collected. For each route, basic information such as the number and condition of campsites and portages was collected. This was collected by visually inspecting the sites while actually canoeing the routes.

4.1 Routes Database

The canoe routes examined are shown in Table 2.1. As mentioned in Chapter 2, there was some difficulty in determining exact routes. For this reason, information was collected on segments of the routes that could later be combined as the exact routes became more fully understood. The routes described in the databases thus include those that either have high

potential for canoeing, or where people have stated that they canoe. Some of the routes are not contained completely within the park boundaries; thus, some were only partially surveyed.

The attributes were entered into a PARADOX 1.0 (WINDOWS version) database. Table 4.1 shows the coding format used for the routes database. The actual attributes that were collected are shown in Table E.2 which can be found in Appendix E. Attributes for the Atikaki Park canoe routes were not collected during the 1993 field season.

These route attributes can be grouped into several categories. These include: route identification, a route's geographic placement, associated canoe and camping features, and special features. The route identification attribute category includes the variables ROUTE# and DESCRIP. These two variables provide a unique identification along with a brief description of the route and/or route segment.

The geographic placement category includes attributes that place the route within the UTM mapping system. These attributes identify the mapsheet(s), or photo mapsheet(s), that cover the route, as well as grid references to points along the route. This category contains the attributes BEG_GR, END_GR, MAP A, MAP B, PHOTOA, PHOTOB, AND PHOTOC.

The canoe and camping features of routes form the largest and most diverse database category. An initial set of variables describes the type of watercourse that comprises the route. These are LENGRIV, AREALAKE, TYPRTE, TYPH2O, and SEASONAL. LENGRIV and AREALAKE identify the area and size of the route; one or the other is applicable to each route. The type of route, and watercourse are then described. SEASONAL helps show the size of the watercourse, and whether or not there is a potential for low water flows at certain times during the canoeing season. The next group, containing CAMPGR, LAUNCH, ROAD, and STORE, describe access to the route and some of the amenities located near the route's access point. Features along the length of the route are contained in the next set of variables. This includes #PORTAGE, DESIG#, PAYCAMP#, UNOFF#, COTTAGE, MOTORS, %BURNT, and LOGGING. This set suggests some idea of the camping experience found along the route as well as features that may detract from the canoeing experience. The last category of special features shows attributes that may be unique to a route and that may in fact create a special attraction such as sandy beaches or canyons.

Table 4.1 Description of Variables and Codes for Attributes in the Routes Database

NAME	DESCRIPTION OF ATTRIBUTE	NUMBER CODES
ROUTE#	Route number; a unique number code created for each route or segment	as required
DESCRIP	Route Description	no codes, text description
BEG_GR	Start point Grid Reference	six figure GR from map sheet 999999 if indeterminate
END_GR	End point Grid reference	six figure GR from map sheet 999999 if indeterminate
MAP A	Topographic map sheet that contains the main portion of the route/segment	Map sheet number
MAP B	Topographic map sheet that contains a smaller portion of the route/segment	Map sheet number
PHOTOA	Photo map that contains the main portion of the route/segment	Photo map number
PHOTOB	Photo map that contains a smaller portion of the route/segment	Photo map number
PHOTOC	Photo map that contains a smaller portion of the route/segment	Photo map number
LENGRIV	Length of reach of river in kilometers	Length value
AREALAKE	Area of lake in square kilometers	Area value
TYP RTE	Type of trip possible on route	1= return route same as entry route 2= one way trip, start not same as finish 3= route can be either 1 or 2, choice of canoeists
TYPH2O	type of Watercourse	1= predominately lake 2= predominately river 3= predominately stream 4= equal parts of 1&2, or 1&3

CAMPGR	Campground present near to launch point	0= no 1= yes 9= unknown
LAUNCH	Boat launch and parking at launch point	0=no 1=yes 9=no
ROAD	Road access possible to launch point	0=no 1=yes 9=unknown
STORE	Store or retail establishment near launch point	0=no 1=yes 9=unknown
#PORTAGE	Number of portages along the route/segment	actual number 99=unknown
DESIG#	number of designated campsites	actual number 99= unknown
PAYCAMP#	Presence of Pay campsites	0= none 1= present
UNOFF#	Number of non-designated campsites	actual number 99= unknown
COTTAGE	Cottages present along the route	0=no 1= yes 9= unknown
MOTORS	Route used by motorboats	0=no 1= yes 9= unknown
%BURNT	Percentage of the area of route that shows signs of previous forest fire	best guess percentage 999= unknown
LOGGING	Signs of Logging noticed along the route	0=no 1= yes 9= unknown
SEASONAL	Use of the route is seasonal (water levels very low at certain periods of summer)	0=no 1= yes 9= unknown

BEACH	Sandy beaches present	0=no 1= yes 9= unknown
MEANDR	Meander rating; rating from 1-5	1=Straight 5=Twisty 9=Unknown
OUTCROP	Rocky outcrops special	0=no 1= yes 9= unknown
CANYON	Canyons present	0=no 1= yes 9= unknown
FISHIN	Fishing rating : rating 1-10, 99 if unknown	1= poor 10=very good 99= unknown
UNIKFLOR	Special forest present	0=no 1= yes 9= unknown
MANMADE	Other manmade features	0=no 1= yes 9= unknown
COMMENT	Comments; includes details of manmade features	

4.2 Campsites Database

While visiting the routes it became apparent that although park regulations restrict camping to particular sites, individuals were camping in many nondesignated campsites. Thus, it was decided to collect attributes of both the designated and as many of the nondesignated sites as could be found while inspecting the routes.

A designated site was defined as a site that was identified on the canoe information map provided to canoeists at most of the staging areas (Figure 2.2). During the route inspections it was important to note the exact location of the designated site and whether it was equipped with a tenting area and concrete fire pit. Designated sites were also classified as either free or in the case of a few, commercial (where a fee was collected by an operator for use). A new arrangement was created in 1993 for certain sites on the Manigotagan and Quesnell lakes for commercial operation; in return for maintenance of the sites, an operator at Caribou Landing Lodge on Quesnell Lake was allowed to establish a reservation system and charge a fee for the use of the sites. It was important to ensure that this feature could be included in the database.

A preliminary trip involving two important routes, Rabbit River and Seagrim Lake, showed that canoeists were using other locations for camping. These were called nondesignated sites. If these nondesignated sites can be shown to have attributes that are statistically different than designated sites, then there will need to be a change in the criteria for placement of designated sites. If however, they have similar attributes, then people are using these sites because of a lack of sufficient designated sites on a particular route.

A field checklist of campsite attributes was constructed. This was taken into the field to facilitate the collection of campsite attributes. These attributes are shown in Table 4.2. For most of the routes the information was collected by the project field staff. Information on the location of sites on the Black River, and the Moose River/Happy Lake route was provided by Natural Resource Officers based in Bisset (D. Langley) and Lac du Bonnet (M. Boiteau and G. Rossett). Sites east of Quesnell Lake on the Manigotagan River, were surveyed by K. Leavesley of the Manitoba Natural Resources office in Beausejour. As well, some sites were located, but not surveyed, by backcountry clean-up staff.

Table 4.2 Campsite Attribute Checklist

1. Location

- a. Is the campsite (For designated campsites) where the canoe route map has it marked? (Y/N) What is the 6 figure grid reference of the campsite (designated and non-designated) from the topographical map. _____
- b. Is the campsite easy to spot from the water (Y/N)
- c. Is the campsite along the natural canoe route (Y/N). If no, give an appraisal of the distance (in metres) from the natural canoe route. _____
Is the campsite on the main shore, a peninsula, or on an island?
(circle one)
- d. What is the height of the main campsite area above the water level, in meters. _____ (Some sites may have a "secondary plateau", make note of these also) _____
- e. Is the metal and concrete firebox on shore, on rocks, in the main camp area (circle one, note if absent). For non-designated sites, location of campfire rock rings. _____
Are there other campsites within 300m of this campsite, (Y/N); and if so, is there a clear line of sight, (Y/N) or path (Y/N) between the two?

2. Exposure

Give an indication of the wind exposure of the following general areas of the campsite, (i.e. wind exposure from how many directions)

Beach/landing area _____
Firebox/cooking area _____
Tent sites _____
General space _____

3. Space

- a. Give a rough indication of the size of the open area created at the campsite (i.e. 10m by 20m etc) _____
- b. Describe the openness of the trees in the immediate area; grass, few trees, tall trees with no undergrowth, heavy undergrowth.
- c. Number of tent sites available, under "normal" and "shared/crowded" conditions

- d. Size of landing area, number of boats/canoes that could be simultaneously landed.

- e. Is there room on shore near landing area for beaching boats out of the water (Y/N)

4. Amenities

- a. Are there toilets provided (Y/N). If yes, are they easily located, and agreeable?

- b. List any structures created by previous users, such as fish cleaning tables, docking anchors, tables, supplementary campfire rings etc.

- c. Describe the view to other areas, (i.e. long view of lake and other shoreline, view less than 100m, no view of sky etc.)

- d. Has there been a fire or forestry cutting in the area in the last 10 years (easily visible) (Y/N)
- e. Is there readily available fallen debris for firewood (Y/N)
- f. List any particular characteristics (rock outcrop to climb, plentiful berries, waterfall nearby etc)

- g. Is the site "generally clean", without obvious signs of "rough toilets", fish parts, or long term litter of tins etc (Y/N)

5. Vegetation

- a. What are the predominant tree species in the immediate area? 1_____, 2_____, 3_____

- b. What are the predominant tree species in the distant view? 1_____, 2_____, 3_____

- c. list any understory, flowers and shrubs noticed as common in the area

- d. Give a rough indication of the spacing and height of the trees in the main area, and the surrounding area _____
- e. Is the surrounding area easily penetrated (Y/N)
- f. Are there numerous fallen trees in the area (Y/N) Are there signs that previous users have been cutting trees (this year; and/or previous years) (Y/N)

These campsite attributes were also entered into a PARADOX database using the coding format shown in Table 4.3. The categories of these attributes are identification, location, shore, terrain features, exposure, special features, and flora. Identification includes a unique number, SITE#, a cross-reference number (ROUTE#) for the canoe route along which the site is found, and the type of site, DESIG or PAY. The location variable GRIDREF places the site geographically. The variable INPLACE identifies if the site is where it should be, and the variable FOUND identifies whether it can actually be found. A straight line route was drawn from start to finish for each route, and this line was called the "natural canoe route". If a site was in a bay, or side channel off this natural route, it was seen to be a special attribute, both because it may require some extra effort to reach and it may have a higher level of privacy. The attributes ONROUTE and OFFROUTE capture these features. The location category also places the site in relation to the proximity of other campsites; SITENEAR, SITESEEN, and SITEPATH portray these features.

The variable TERRAIN suggests the topography in the general area of the site. HITEMAIN and HITE2ND identify the placement of the site in relation to the shore. The placement of important features within the site include FIREBOX and CAMPFIRE. The category also includes attributes, AREASITE and TENTSPOT, which describe the size of the campsite.

Exposure describes the view from and wind exposure of many of the campsite features. Wind exposure can be either positive or negative, depending on what the field staff considered as the canoeist's point of view. This point of view need not be the same for all features. For example, high wind exposure may be considered good in the main area to keep biting flies and mosquitoes away; however, low exposure may be preferred in the tenting area for shelter from the elements while sleeping. The OPENSITE attribute describes these features.

The shore category describes the ease of accessing and landing at the site. The variables CANOLAND and LANDEASY describe these features and CANOBEAC identifies the security of the canoe from the elements on the shore.

The category of special features details any attribute present that may contribute to making one site unique and different from others along a route. Some of these may show human presence, such as MANMADEC, TOILETS, or LOGGING. Others represent natural features, such as FIRESEEN, BERRIES, or RAPIDS.

The flora category describes the dominant and secondary tree species and up to three main

understory species. The type of forest may have some importance to the canoeist and this may be reflected in the value of the camping experience.

The contents of the database of campsite attributes is shown in Appendix E, Table E.6.

Table 4.3 Description of Variables and Codes for Attributes in the Campsite Database

NAME	DESCRIPTION OF ATTRIBUTE	NUMBER CODES
SITE#	Site number	Created unique value for each
ROUTE#	Route number	As per routes database
INPLACE	At the indicated location	0= no 1= yes
GRIDREF	Grid reference	Topographic 6 figure
DESIG	Is it a designated site	0= no 1= yes
PAY	Is payment required to stay at the site.	0= no 1= yes
FOUND	Is the designated site locatable, if no then no data on all other attributes	0= no 1= yes
ONROUTE	Is it along the natural route	0= no 1= yes
OFFROUTE	Distance off the natural route	distance in meters 0= on the route
TERRAIN	Located on what type of feature	1= main shore 2= peninsula 3= island
HITEMAIN	Height above water level of the main campsite area	in meters
HITE2ND	Height above water level of any secondary campsite area	in meters
FIREBOX	Location of firebox within campsite	0= not present 1= on the shore 2= on rocks 3= in main area, clearing 9= no answer

CAMPFIRE	Location of unofficial campfire	0= not present 1= on the shore 2= on rocks 3= in main area, clearing 9= no answer
SITENEAR	Other campsites located nearby	0= no 1= yes
SITeseEN	Other campsites can be seen	0= no 1= yes
SITEPATH	Path exists to other campsites	0= no 1= yes
EXPOSB	Wind exposure (# of directions) canoe beaching	1 to 4
EXPOSF	Wind exposure (# of directions) firebox	1 to 4
EXPOSC	Wind exposure (# of directions) cooking area	1 to 4
EXPOSM	Wind exposure (# of directions) main area of campsite	1 to 4
EXPOST	Wind exposure (# of directions) tent area	1 to 4
AREASITE	Size of the campsite	in square meters
OPENSITE	Openness of the campsite	1= grassy lawn 2= few trees 3= tall trees, min 2m spacing 4= tall trees, <2m spacing 5= dense regrowth, not tall 6= tall trees with heavy undergrowth
TENTSPOT	The number of tents that can be erected at the campsite	# of spots, best guess
CANOLAND	The number of canoes that can be landed at the same time	Best guess

LANDEASY	The relative ease of landing a canoe,	1 to 5 1= easy, flat 5= hard, steep bank
CANOBEAC	Can canoe be beached	0= no 1= yes
TOILETS	Are Toilets present	0= no 1= yes
TOILFIND	Are toilets easy to find	0= no 1= yes 9 if not present
TOILCLEN	Are toilets clean	0= no 1= yes 9 if not present
MANMADEC	Are there man- made structures, such as tables, racks, docking rings etc	0= no 1= yes
GOODVIEW	Is there a good view	0= no 1= yes
FIRESEEN	Is there evidence of past fires	0= no 1= yes
LOGGING	Is there evidence of logging nearby	0= no 1= yes
FIREWOOD	Is there debris for firewood	0= no 1= yes
SANDBEAC	Are sandy beaches present at site	0= no 1= yes
SPECROCK	Twisted or contorted rock present	0= no 1= yes
OUTCROP	Rock outcrop to explore	0= no 1= yes
BERRIES	Berries present in abundance	0= no 1= yes

CHUTES	Waterfall at campsite	0= no 1= yes
RAPIDS	Rapids at campsite	0= no 1= yes
FLORA	Special or unique flora	0= no 1= yes
SITECLEN	Is the site generally clean	0= no 1= yes
TREE1	Dominant tree species at site	see attached list
TREE2	Secondary tree species at site	see attached list
UNDER1	Dominant understory species at site	see attached list
UNDER2	Secondary understory species at site	see attached list
UNDER3	Secondary understory species at site	see attached list
DISTTREE	Tree species that make up view in distance	see attached list
CANOPY	Canopy /tree spacing	1 to 5 1= wide open 5= dense
TREEHITE	Tree height	0= no trees 1= 1m 2= 2m 3= 3m 4= 4m 5= 5m or more
DENSE	Denseness of surroundings	0= impenetrable 1= penetrable
CUTTREE	Evidence of trees cut by campers	0= no 1= yes
COMMENT	Comments	

Table 4.4 List of Plant Species Used in Databases

PLANT LIST A : TREES

1. Conifer general	n/a
2. Deciduous general	n/a
3. Jack pine	<i>Pinus banksiana</i> Lamb.
4. Black spruce	<i>Picea mariana</i> (Mill.) BSP.
5. White spruce	<i>Picea glauca</i> (Moench) Voss
6. Tamarack	<i>Larix laricina</i> (Du Roi) K. Koch
7. Balsam fir	<i>Abies balsamea</i> (L.) Mill.
8. poplar sp	<i>Populus</i> sp
9. birch sp.	<i>Betula</i> sp.
10. Willow sp	<i>Salix</i> sp.
11. Bur oak	<i>Quercus macrocarpa</i> Michx.
12. Manitoba maple	<i>Acer spicatum</i> Lam.
13. Hazelnut	<i>Corylus cornuta</i> Marsh.
14. White elm	<i>Ulmus americana</i> L.
15. Alder	<i>Alnus crispa</i> (Ait.) Pursh

PLANT LIST B: UNDERGROWTH

1. Grass	n/a
2. Moss and lichens	n/a
3. Juniper	<i>Juniperus</i> sp.
4. Blueberries	<i>Vaccinium angustifolium</i> Ait.
5. raspberries	<i>Rubus idaeus</i> L.
6. Rose	<i>Rosa</i> sp.
7. Achillea	<i>Achillea millifolium</i> L.
8. pincherry	<i>Prunus pensylvanica</i> L. f.
9. prickly pear cactus	<i>Opuntia fragilis</i> (Nutt.) Haw.
10. saskatoon	<i>Amelanchier alnifolia</i> Nutt.
11. dogbane	<i>Apocynum androsaemifolium</i> L.
12. dogwood	<i>Cornus stolonifera</i> Michx.
13. bunchberry	<i>Cornus canadensis</i> L.
14. Queen Anne's Lace	<i>Daucus carota</i> L.
15. ferns	n/a
16. plantain	<i>Plantago major</i> L.
17. horsetail	<i>Equisetum</i> sp
18. wildrice	<i>Zizania aquatica</i> L.
19. wild grape	<i>Vitis riparia</i> Michx.
20. harebell	<i>Campanula rotundifolia</i> L.
21. honeysuckle	<i>Lonicera dioica</i> L.
22. strawberry	<i>Fragaria virginiana</i> Duchesne
23. chokecherry	<i>Prunus virginiana</i> L.
24. poison ivy	<i>Rhus radicans</i> L.
25. golden rod	<i>Solidago</i> sp.
26. bearberry	<i>Arctostaphylos uva-ursi</i> (L.) Spreng.

4.3 Portages Database

Portage attributes may be an important consideration in the selection of a route to canoe. In particular the number of portages and their degree of difficulty may be important to individuals. The first variable in the attribute list gives a unique number to each portage and cross references it to the route on which it is located. The next category of attributes determines the physical location of the portage and places it within the general topography. This is followed by factors describing the difficulty of the portage and some idea of various amenities found within it. Table 4.5 shows the coding scheme for this database. Table E.8, in Appendix E provides the contents of this database of attributes.

Table 4.5 Description of Variables and Codes for Attributes in the Portages Database

NAME	DESCRIPTION	NUMBER CODES
IDNUM	Identification number	Unique coding number, indexed to route
ROUTE#	Route number, indexed to route database	Number for route portage is located on
BEGGR	Grid reference of start point	From topographical maps
ENDGR	Grid reference of end point	From topographical maps
SIDE	Side of stream the portage is on	1= north 2= south 3= east 4= west
WIDTH	Width of portage path	1= very narrow 2= canoe width 3= wider than canoe
TOPO	General Topography	1= flat 2= rolling 3= steep points
SURFACE	Path surface type	1= rock 2= grass 3= dirt
TREEP1	Dominant Tree type	see species list

TREEP2	Secondary Tree type	see species list
UNDERP1	Dominant Undergrowth	see species list
UNDERP2	Secondary Undergrowth	see species list
CLEAN	General Cleanliness of portage	1 to 5 where; 1= dirty 5= clean
VIEWH2O	View of water from trail	0=no 1= yes
THRUBURN	Through an old burn	0= no 1= yes
FINDEASY	Trail is easy to find	0=no 1=yes
TRAIL	a path exists	0=no 1= yes
RATING	Subjective rating	1 to 5 where; 1= poor 5= very good
OBSTACS	Obstacles present along trail	0= no 1= yes
COMMENT	Comments	

4.4 Backcountry Water Use Database

Completed surveys were collected from the survey boxes located in staging areas, air carriers who transported canoeists into Atikaki Park, Manitoba Parks personnel, and some directly from canoeists. These were entered into a database called the backcountry water use database. Table 4.6 shows the coding format for the surveys, and Table E.10, Appendix E, provides the contents of this database. Names and addresses of respondents have been deleted for confidentiality.

The attributes listed were taken directly from the survey questions with the exception of some administrative details. These include a unique identification number for each form and a cross-reference to the route the respondent indicated was used. The source of the form (staging area, personal delivery, etc.) is also identified. To include the information requested on the back of the form, the presence or absence of a line-trace of the route is noted, as well as campsites used if indicated. The campsite number is cross-referenced to the campsite database.

Table 4.6 Description of Variables and Codes for the Survey Database

NAME	DESCRIPTION	NUMBER CODES
IDENT#	Unique Identification number for each survey form	From survey forms
STARTPT	Source or location where survey was collected, no number code	no number code, list name
PRENOM	First Name	no number code, list name
INIT	Initial	no number code, list name
LASTNAME	Last name	no number code, list name
HOUSE#	Apartment and/or house number	no number code, list name
STREET	Street	no number code, list name
CITY	City	no number code, list name
PROV	Province	no number code, list name
POSTCODE	Postal code	no number code, list name
COUNTRY	Country of origin	no number code, list name
PARK	Park for survey form	1= Nopiming 2= Atikaki
YEAR	Year missing not allowed	No code, list actual
GRPSIZE	Group size Actual number, if missing then 99	No code, list actual except 99= missing
GRPTYPE	Group type	1= Family 2= Friends 3= school/university 4= Youth 5= Solo (group size = 1) 6= Combination of 1 & 2 7= work group 9= missing response

BOAT TYPE	Type of watercraft	1= canoe 2= canoe with motor 3= motor boat 4= other 5= kayak 6= combination of 1& 2 7= combination of 1 & 3 9= missing value
BOATNUM	Number of watercraft	As report 99= missing response
BEGDATE	Start date	Actual date
ENDDATE	End date	Actual date
OLDVISIT	Number of past visits to this route	0= zero 1= one 2= two 3= three 4= four 5= five or more 9= missing response
	The following list is for any visits to other areas in the park(s)	
AREANOP1	Manigotagan River area	0= never visited 1= have visited 9= missing response
AREANOP2	Beresford Lake area	0= never visited 1= have visited 9= missing response
AREANOP3	Garner Lake area	0= never visited 1= have visited 9= missing response
AREANOP4	Seagrim Lake area	0= never visited 1= have visited 9= missing response
AREANOP5	Black River/Rabbit River area	0= never visited 1= have visited 9= missing response

AREANOP6	Shoe Lake/Cat Lake area	0= never visited 1= have visited 9= missing response
AREANOP7	Euclid Lake/Springer Lake area	0= never visited 1= have visited 9= missing response
AREANOP8	Bird Lake area	0= never visited 1= have visited 9= missing response
AREANOP9	Booster Lake/Flanders Lake area	0= never visited 1= have visited 9= missing response
NOPOTHER	Other Nopiming areas not listed above	0= never visited 1= have visited 9= missing response
AREAATI1	Pigeon River area, for Atikaki surveys	0= never visited 1= have visited 9= missing response
AREAATI2	Leyond River area, for Atikaki surveys	0= never visited 1= have visited 9= missing response
AREAATI3	Bloodvien River area, for Atikaki surveys	0= never visited 1= have visited 9= missing response
AREAATI4	Gammon River area, for Atikaki surveys	0= never visited 1= have visited 9= missing response
ATIOTHER	Other Atikaki areas not listed above	0= never visited 1= have visited 9= missing response
CANOTRIP	Was the main purpose of this trip canoeing?	0= no 1= yes 9= missing response

OTHRTRIP	If not a canoe trip, what is the main reason for this visit to the park(s)	1= fishing 2= work 3= own or visiting cottage 4= camping 9= missing
ROUTE#	Route Identifier	Number from routes database 99= missing response
SEGMENT	Last segment route number	Number from routes database 99= missing response
MAPLINE	Was the route traced on the back of the survey form	0= no map trace 1= map trace done 9= missing response
CAMPS1	First Campsite number	from campsite database
CAMPS2	Second Campsite number	from campsite database
CAMPS3	Third Campsite number	from campsite database

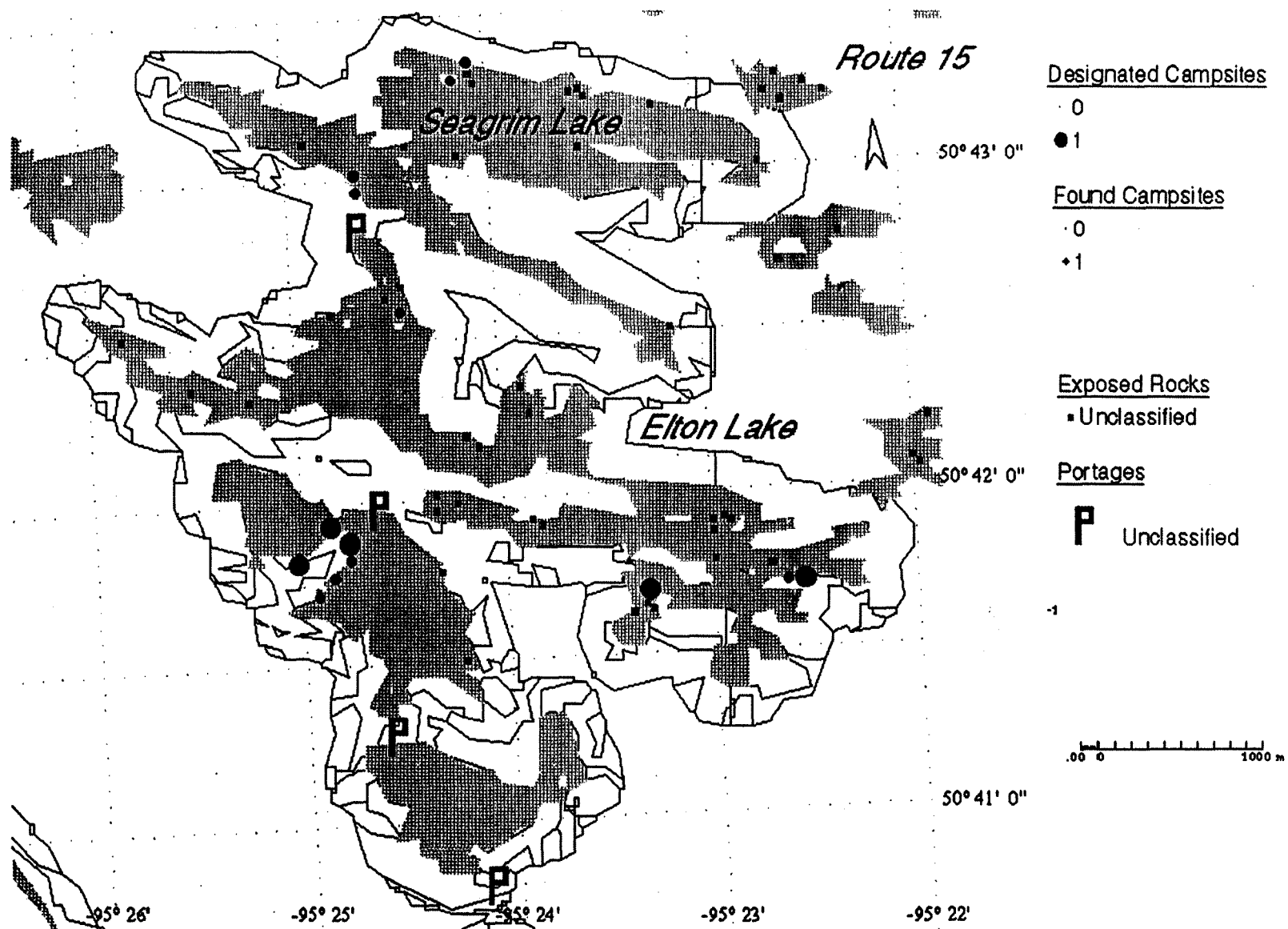
4.5 GIS & Mapping Databases

The provincial government provided forest inventory data for the 28 townships comprising Nopiming Park. This came in two forms, hard copy paper maps, and digital data in ARC INFO format on computer disk. The hard copy maps were examined by L. Peters and a spreadsheet was created showing all forest polygons that touched upon the water routes in Nopiming Park. This important work will allow the examination of the importance of forest cover as a factor in site selection by canoeists. Watercourses were broken down into segments and the cover along each segment was detailed. This work was carried out before final designation of routes, consequently the segments do not exactly match those shown in the routes database. Combining of segments to form routes will be done before use of this data in the construction of economic models.

For rivers and streams, the cover was sequentially identified on both banks. Wherever there was a change in cover along either bank, the distance from the last change was measured with a measuring wheel and recorded. For portages, the cover type through which the trail passed was also recorded. Lakes were first traced with a "natural canoe route", which is the shortest distance from the entry point to the exit point. Then polygons that touched first the left side, then the right side, of the natural route were noted. Cover on islands was reported as they were encountered, either to the left or the right, of the natural route. The database created from this process is shown in Table F.1 in Appendix F.

The forest inventory data on computer disk was used to generate GIS data within 200 metre buffer strips along the water routes. This was conducted by Geowest Environmental Consulting of Edmonton. These buffers identify all forest cover types within 200 meters of the canoe segments throughout the park. Both hard copy maps of the routes and databases of the routes will be derived from this GIS analysis. Amalgamation of the database with the other attribute lists will allow further research on the choice of water routes by canoeists. Full details of the GIS work will be published in a separate report. An example of a GIS generated map that incorporates the buffer zones, and the campsite database is shown in Figure 4.1.

Figure 4.1 GIS Generated Route Map



CHAPTER 5: Summary Statistics Based on 1993 Fieldwork

5.1 Introduction

This chapter presents a summary of the important statistics from the user survey, and the attributes collected on routes, campsites, and portages. Most of the attribute information is not amenable to summarization, so the bulk of the information on these must be attained in the databases contained in Appendix E.

As will be seen in section 5.3, surveys were not received for all of the potential routes listed in Table 2.1. In some cases there may have been use, but the absence of a survey box for the site may have been the cause of non-response. Table 5.6 and Table 5.7 show the routes actually used, along with the numbers of users. These are the only routes that are described by certain of the summary tables for attributes in the following sections.

It will be noticed that the totals listed at the bottom of tables (where appropriate) will not always be the same from one table to the next. This is due to missing responses on some of the portions of the data list.

5.2 Physical Attribute Statistics: Routes, Portages, Campsites

All of the major, and most of the minor routes within Nopiming Park were inventoried during the summer of 1993. The majority of the attributes cannot be summarized, and are only useful in a modelling framework. Table 5.1 shows what should be the major modelling attributes for the routes used by canoeists in 1993. The use of these attributes was determined by initial modelling efforts described in Chapter 1, and the results of the focus group study summarized in Appendix D. They are not the only attributes to be used in future modelling.

The number and size of portages is very important to canoeists, as well as deciding which routes will not be used by motorboats. Table 5.2 shows these details. Another very important attribute that can be shown is the allocation of campsites along the routes. In particular, the number of designated versus non-designated sites will be a strong management consideration. Table 5.3 shows the distribution of campsites along the Nopiming routes. Table 5.4 shows the average and total number of tent sites per route in the park. This figure can be used in determining the use capacity for a route, and when compared with the actual use determined by the survey, it provides an indication of congestion.

5.3 User Statistics from Survey

The total number of surveys collected during the summer of 1993 was 472. This total does not include surveys deleted at the source due to various data deficiencies and foul language. It does include 13 surveys from the end of the season for 1992. The surveys collected were not all 100% complete, but there was enough data for most categories. The initial aim of the survey was not to collect data on Atikaki Park, or motorboat users, and the data on these groups is known to be incomplete, but the collected surveys do allow for some conclusions to be made.

Of the total of 459 respondents for 1993, 403 were from Nopiming park, and 56 were from Atikaki park. This includes canoeists and well as motorboaters, and those without designation of boat type. Table 5.5 shows the type of boat used by respondents in the two parks. The use of motorboats is shown to be minimal in Atikaki Park. However, it should be remembered that tourists flying in to lodges, which have boats available on-site, were not surveyed, and so the use of motorboats in Atikaki Park is underestimated. Table 5.6 shows the distribution of motorized boat users within Nopiming Park. Within Nopiming, motorboats did not appear on all routes. Partly this may be due to the fact that many (as ascertained from interviews on site) thought the survey was only for canoeists. As well, it is because some routes are not amenable for motorboats. There is a strong relation between the number of portages, and the number of motorized boats on the routes. This can be an important management consideration, as the focus group summary in Appendix D shows that canoeists are not fond of sharing water routes with motorboats.

Far and away the majority of the respondents were canoeists, 312 out of 459, with 36 missing values. Motorboats users accounted for 57 surveys in Nopiming Park, and 4 in Atikaki park, motorized canoes were 27, with 1 in Atikaki. Going strictly by the survey checkboxes, the mixed categories should all be included under "other", but if respondents wrote in extra information, this was included. The deletion of motorboat users reduced the number of routes from the potential of 28 listed in Table 2.1, to actual use of 16 routes. This is shown in Table 5.7, the routes used by canoeists.

It could not always be determined from the survey which route was taken. Of the 338 surveys for Nopiming Park, only 202 actually traced their route using the map on the back side of the form. For Atikaki the number was 32 of 51. Since the Atikaki routes have not yet been delimited, all of the numbers for this park have been summed into one row. In some cases for

Nopiming Park, the route could be extrapolated from the collection point, but this did not eliminate all of the missing values. The location of campsites was even poorer, only 86 respondents indicated campsites.

Table 5.6 and 5.7 show a far different geographic distribution of trips. Canoeists are concentrated on the Tulabi Lake, Seagrim Lake, and Rabbit River routes. Motorboat users concentrate on Beresford/Garner lakes, and Shoe Lake.

The type of group could also be a criteria in the selection of a route, or a park. Table 5.8 shows the distribution of group type by park. The majority of groups (75%) fall into the categories of "Family", "Friends", and the combination of family and friends. There is a slightly higher average of the group "Friends" in Atikaki than Nopiming. The distribution of youth or school groups falls within the general pattern. Of the 8 school groups, 4 went to the Tulabi route, the others to Seagrim Lake and Rabbit River. The youth group category shows 6 to the Tulabi Lake route, 2 to Rabbit River and the others to Seagrim Lake.

Another important consideration in the evaluation of backcountry use, and planning for the management of parks, is the knowledge of awareness of users of other sites. Management plans that try to shift users to alternate sites are of no use if the people involved are not aware of other sites as recreation potential. Part of the survey asked the respondents if they had at any time in the last ten years used sites in 9 generic regions of the park. There is evidence that the question was not fully understood by some users, but overall the response was good. Table 5.9 shows the average number of users that had previously used each general region, as well as the average number of previous visits for the site visited where the survey was completed.

Table 5.10 shows the length of the canoe trips taken on each route. In conjunction with Table 5.4, which shows the capacity of routes, this information can be used to calculate the congestion of the various canoe routes. Given that use is not evenly distributed over the summer period, Table 5.11 which shows the use by month, should also be used. The totals in tables 5.10 & 5.11 do not accurately reflect the total trip days of use of Nopiming Park because the calculation is based on the average trip length in days times the groups' size. If the dates were not recorded (only 279 surveys had valid dates) then they were not included. A calculation using the park average trip days and group size for the missing records would increase the total of group days to 351 from 319, and persondays from 1795 to 1974.

The two charts that show the hometown of park users delineate a strong difference

between the two parks. As shown in Figures 5.1 and 5.2, Atikaki Park shows a higher percentage of non-Canadian users than Nopiming Park. Slightly over 50% of the Atikaki users are from outside of the country. This may be due in part to missing some Manitoba resident users early in the season, but for at least the period of July and August, it is accurate.

Another interesting fact from the two figures is that the city of Winnipeg only accounts for 23% of Atikaki users, but for Nopiming Park, Winnipeg residents account for 65% of users. During the survey period, the number of out of province (Canadian and non-Canadian) users of Nopiming Park was very small (6%).

Table 5.1 Some Important Route Attributes						
Route#	CAMPGR	LAUNCH	STORE	COTTAGE	MOTORS	%BURNT
1	1	1	1	0	1	10
2	1	1	1	1	1	5
3	0	1	0	1	1	unknown
4	0	1	0	0	9	unknown
5	0	1	0	1	1	90
10	0	1	0	1	1	0
11	0	1	0	0	1	65
14	1	1	0	0	1	unknown
15	0	1	0	0	1	35
20	0	0	0	0	1	75
21	0	0	0	0	1	55
22	0	0	0	1	1	60
23	1	1	0	1	1	15
26	0	1	0	1	1	0
27	0	0	0	0	1	35
28	0	0	0	0	1	unknown

The coding for the above table is as follows:

CAMPGR = campground at start point

LAUNCH = boat launch at start point

STORE = commercial store at start point

COTTAGE = cottages present along the route

MOTORS = motorized watercraft probable along route

%BURNT = The percent of the shoreline of the route that shows signs of forest fire

1 = present

0 = absent

The major routes are 1 - Tulabi Lake; 11 - Rabbit River; 15 - Seagrim Lake; 23 - Beresford/Garner Lakes; 26 - Long Lake/Manigotagan River; 28 - Manigotagan River west out of the park.

Table 5.2 Portage Statistics				
Route Number	Portages	Average Length	Total Length of Portages	Longest Portage
1	5	243	1,215	820
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5 ¹	0	0	0	0
7	1	unknown	unknown	unknown
10	0	0	0	0
11	6	73	435	150
12 ²	5	unknown	unknown	unknown
13	5	unknown	unknown	unknown
14	7	unknown	unknown	unknown
15	4	220	880	275
16	1	1,000	1,000	1,000
17	1	1,000	1,000	1,000
18	1	50	50	50
19	4	119	475	150
20	1	1,500	1,500	1,500
21	5	180	910	300
22	3	50	150	100
23	0	0	0	0
25	1	400	400	400
26	4	105	420	200
27	2	unknown	unknown	unknown
28	2 plus	unknown	unknown	unknown

¹There are no portages between the start point and the provincial border, where the data collection ended. There are known to be portages in Ontario.

²Routes 12, 13 & 14 are variations of the Black River route. It is estimated that there are at least 3 portages on the portion of the Black River outside of the park, but these were not surveyed in 1993.

Table 5.3 Campsites Per Route				
Route #	Designated	User pay	Unofficial	Total
1	11	0	11	22
2	0	0	n/a ³	0
3	0	0	n/a	0
4	0	0	n/a	0
5	0	0	n/a	0
6	0	0	n/a	0
7	0	0	n/a	0
8	0	0	n/a	0
9	0	0	1	1
10	0	0	7	7
11	7	0	8	15
12	0	0	2	2
13	0	0	2	2
14	0	0	3	3
15	4	0	11	15
16	0	0	0	0
17	0	0	0	0
18	0	0	3	3
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	1	1
23	5	0	5	10
24	0	0	0	0
25	0	0	0	0
26	5	3	1	9
27	2	8	0	10
28	0	0	3 plus	0

³Routes with n/a in this column were not surveyed, they have no designated or user pay sites, but the presence or absence of unofficial sites is unknown.

Table 5.4 Campsite Capacity Per Route: Total Tent Space ⁴				
Route #	Total Tent Space at Designated Sites	Total Tent Space at User pay Sites	Total Tent Space at Unofficial Sites	Total Tent Space Along Route
Tulabi Lake	38 (3.4)	0	27 (2.4)	65
Shoe Lake	0	0	40 (5.7)	40
Rabbit River	23 (3.3)	0	37 (4.6)	60
Black Lake/ Black River	0	0	0	0
Seagrim Lake	17 (4.2)	0	38 (3.4)	55
Flintstone Lake	0	0	8 (2.7)	8
Beresford/ Garner lakes	15 (4.6)	0	21 (4.2)	36
Long Lake/ Manigotagan River	11 (2.2)	9	5 (5)	25
Quesnell/ Happy lakes ⁵	2 (1)	9 (3)	0	11
Manigotagan River west	0 (0)	0	6 (2)	6

⁴ Average number of tent spots per campsite are listed in brackets.

⁵ Not all campsites along this route were surveyed.

Table 5.5 Distribution of Watercraft Type by Park			
Category of boat	Nopiming	Atikaki	Total
Canoe	262	50	312
Canoe with motor	26	1	27
motorboat	57	4	61
Other	6	0	6
Kayak	4	0	4
Canoe and canoe with motor	9	0	9
Canoe and motorboat	4	0	4
Missing values	35	1	36
Total User Groups	403	56	459

Table 5.6 Distribution of Routes Used by Motorized Boats		
Route start point ⁶	Canoe with motor	Motorboat
Beresford Lake	3	14
Black Lake	1	3
Booster Lake	0	2
Cat Lake	0	2
Gem Lake	0	1
Long Lake	3	2
Manigotagan River crossing of Hwy 314	1	1
Rabbit River	6	6
Seagrim Lake	4	4
Shoe Lake	1	8
Tooth Lake	0	1
Tulabi Falls	5	5
Quesnell Lake	0	1
Total	23	50

⁶Routes have not yet been designated for Atikaki Park; surveys for Atikaki Park are not included.

Table 5.7 Levels of Backcountry Use by Route: Canoeists ⁷				
Route number	Number of groups	Total visitors	Average group size	Percent of Total
1. Tulabi Lake	147	598	4.1	50
2. Bird Lake (west)	2	3	1.5	1
3. Booster Lake	2	8	4	1
4. Flanders Lake	1	2	2	< 1
5. Davidson Lake	5	16	3.2	2
10. Shoe Lake	6	44	7.3	2
11. Rabbit River	50	186	3.7	17
14. Black Lake & River	3	7	2.3	1
15. Seagrim Lake	38	146	3.8	13
20. Gem Lake (portage in)	2	6	3	1
21. Gem Lake (from Hwy 314)	3	11	3.7	1
22. Hwy 314 to Long Lake	1	4	4	< 1
23. Beresford/Garner	17	81	4.5	6
26. Long Lake west	13	55	4.2	4
27. Happy Lake	1	4	4.0	<1
28. Manigotagan River	6	29	4.8	2
Total Nopiming	297	1200	4.0	
Atikaki	51	287	5.6	

⁷There may have been use made of other routes, but no surveys were collected. This may be due to the absence of survey boxes at some route entry points.

Table 5.8 Distribution of Group Type by Park				
Category	Nopiming Park		Atikaki Park	
	Number of groups	Percent of Park total	Number of groups	Percent of Park total
1. Family	137	34	9	16
2. Friends	177	44	26	46
3. School/University	8	2	6	11
4. Youth	11	3	11	20
5. Solo (single person)	13	3	2	4
6. Combination: Family and Friends	26	6	1	2
7. Working group	1	< 1	1	2
9. Missing response	30	7	0	0

Table 5.9 Past use of the Parks		
Route number	Average Previous visits to this Route	Average number of other sites known
Tulabi Lake	2	1.2
2	0	1
3	3	2
4	1	1
5	1	1
Shoe Lake	2.3	2.2
Rabbit River	1.4	1.2
Black Lake & River	1.7	0.3
Seagrim Lake	2	2.1
20	2.5	3
21	2.3	3
22	0	0
Beresford/Garner lakes	2.1	0
Long Lake/ Manigotagan River	0.7	3.4
Quesnell Lake/ Happy Lake	0	1
Manigotagan River west	2.3	3
Total Nopiming	1.8	1.5
Atikaki	1.1	2.6

Table 5.10 Duration of Canoe Trips and Days of Use			
Route number	Group Average Trip Duration (in days)	Total Days of Use (by Groups)	Total Days of Use (by Person)
1	2.9	421	1,712
2	1	2	3
3	0 ⁸	0	0
4	0	0	0
5	4.6	23	74
10	1.7	10	73
11	1.8	91	338
14	0	0	0
15	2.3	89	342
20	2.5	5	15
21	4	12	44
22	0	0	0
23	3.2	55	261
26	3.3	43	182
27	7	7	28
28	2.8	17	82
Total Nopiming	2.6	775	3155
Atikaki	6.2	319	1795

Table 5.11 Distribution of Trips During the Summer Season		
Month	Nopiming Park	Atikaki Park
May ⁹	38	1
June	56	5
July	103	27
Aug	67	17
Sept	26	1

⁸A value of zero indicates that trip dates were not recorded.

⁹These numbers underestimate actual use; complete coverage of the parks did not begin until the last week of June.

Figure 5.1 Hometown of Nopiming Park Users

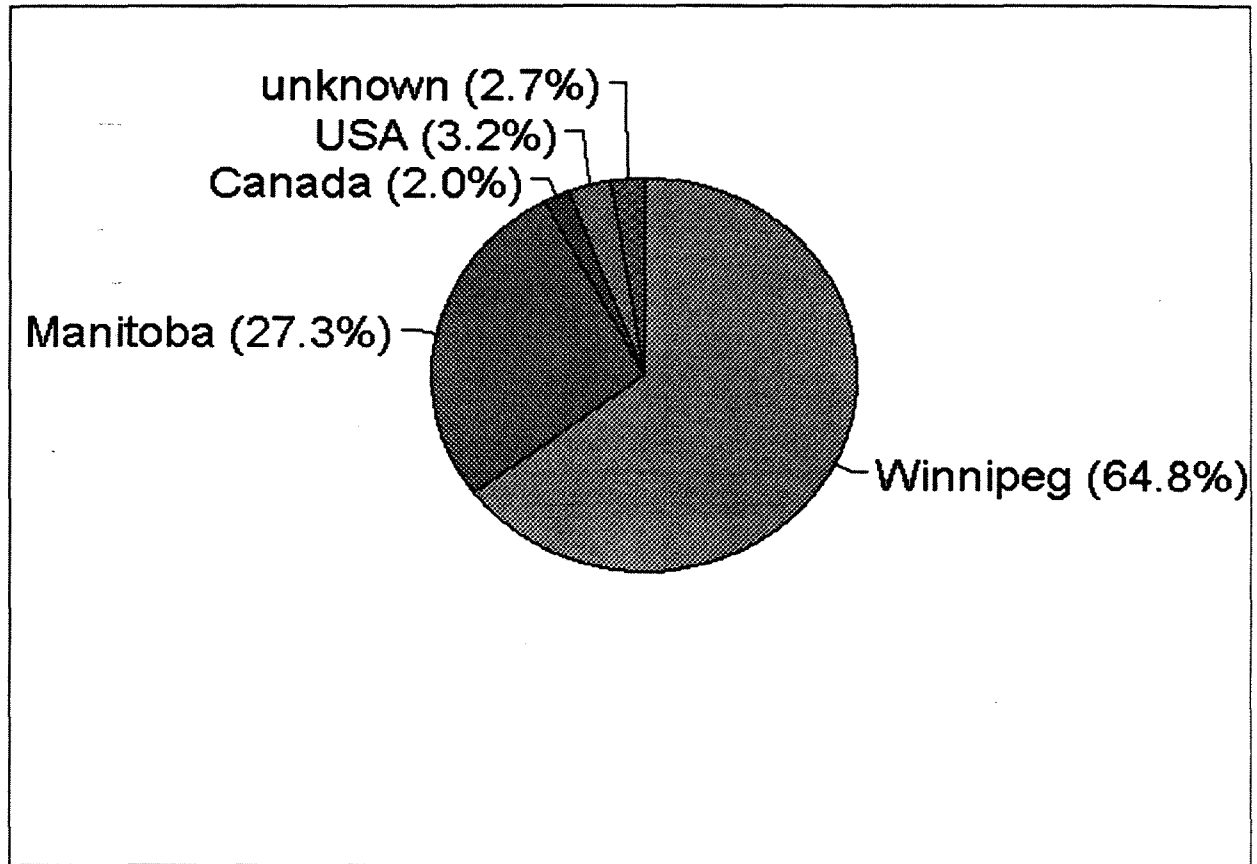
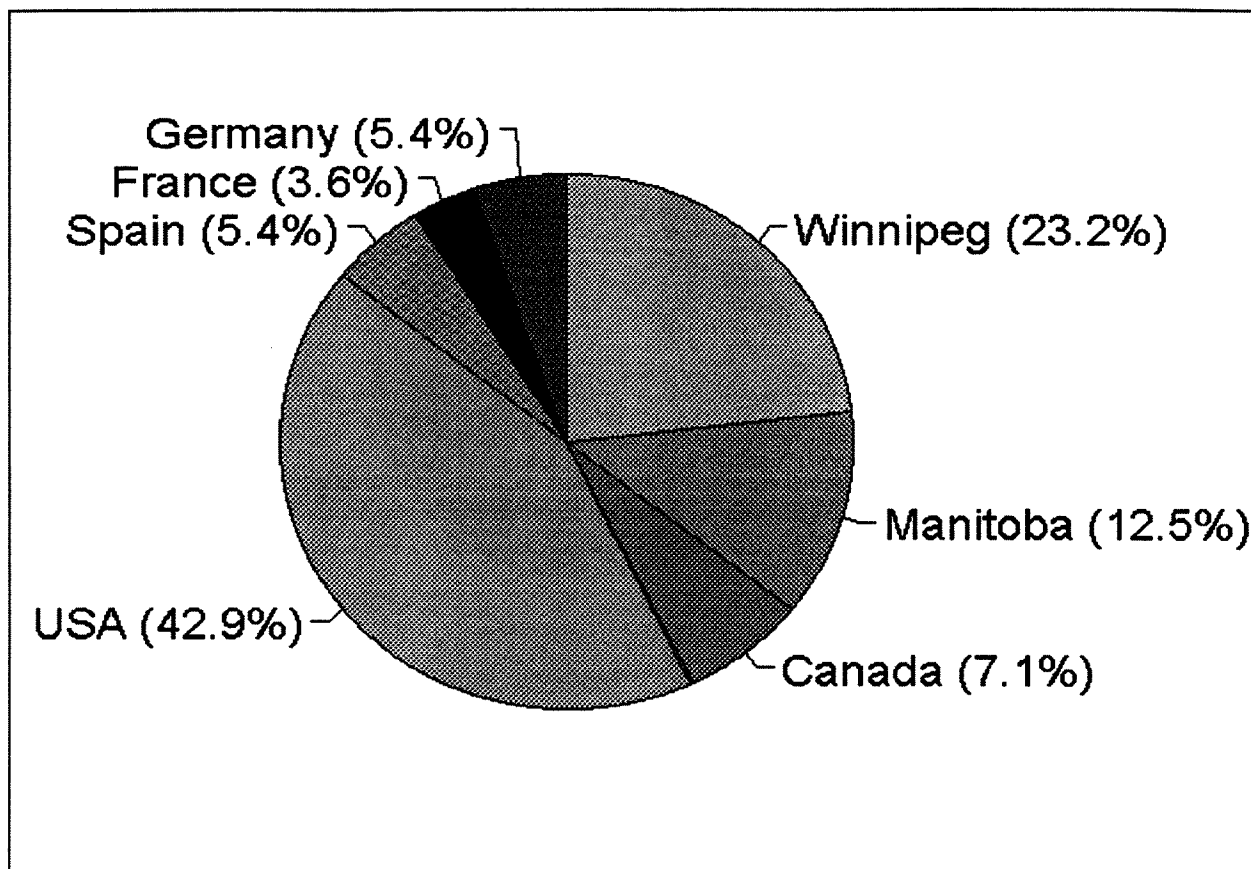


Figure 5.2 Home Location of Atikaki Park Users



Chapter 6 Future work

6.1 General

The efforts taken during the summer season of 1993 have provided valuable information, both for management considerations, and for the economic modelling of canoeing in Nopiming Provincial Park. In particular, it has shown some areas where prior knowledge was deficient, where some improvements can be made, and where further knowledge is required.

It is accepted by the project team that there are still areas where the data could be improved. The distribution of the survey for 1993 did not start early enough, and did not adequately cover all geographic areas, for example, Atikaki Provincial Park.

The recommendations outlined below are being offered as advice from researchers who are not experts in park management. They are given instead as suggestions from one user for adjustments that could improve the recreational experience in the park, and as areas for future study.

6.2 Future Work

The project team will continue to survey the recreational users of parks in east-central Manitoba. For the summer season of 1994, planning is presently underway to ensure that the survey is initiated early enough to obtain as complete a census of users as possible. This will provide better accuracy of the use in a single year, and the modelling of repeat users. The combination of the registration forms for 1991, 1992, with the survey forms of 1993 and 1994 will allow study of how users "graduate" to more difficult routes as their experience increases, and the formation of habits through returning to the same route over several years.

The study team plans to enlarge the scope of the survey for 1994. During the season of 1993, it became obvious that the water routes of Nopiming Park are part of a larger system. The study of Nopiming Park in isolation, while valuable, does not give a complete picture of the choices available to water-based recreationists, particularly canoeists. The system of rivers and lakes extends through Nopiming and Atikaki parks, as well as Woodland Caribou Provincial Park in Ontario. The Tulabi Lake route is a good example, where a boater starting at Tulabi Lake can do a circle route involving Snowshoe Lake in Ontario, and returning by way of Davidson Lake in Nopiming Park. The same start point could allow a canoeist, with some creative portaging,

to take a trip through Gem Lake and the Manigotagan River, or even into Atikaki Park by way of several different rivers. The Manitoba Recreational Canoe Association has trip logs of some of these trip possibilities. The appropriate authorities for all of these parks have been contacted, and are part of the planning for the 1994 survey.

Expanding the scope of the study also allows for a better substitution set of trip destinations, which will permit more accurate economic modelling. For this reason, Whiteshell Provincial Park will also be included in the work for 1994. The park manager of Whiteshell Provincial Park, Mark Clark, is part of planning at this time. The variation in the level of difficulty and challenge of water routes, both between the parks, and between routes within each park, will provide an excellent model of the reason for the choice of a particular route by users of the parks.

The survey instrument that is completed by users on site provides very good information, but supplementary data would also be helpful. The present form is considered to be a suitable length for an onsite questionnaire, any longer and the participation rate would decrease, and a shorter form would not provide adequate information. In order to gain further data, particularly socio-economic data, a questionnaire to be administered by mail is being planned. This will be sent to the respondents who have completed the onsite survey, and elicit additional information on the demographics of users, and their motivations for choosing the route that they used.

6.3 Recommendations

SURVEY FORM

There was several areas where the survey form for 1993 did not appear to be properly understood by respondents. The question that asked the user to fill in the dates of the trip was misleading, in that it asked for "*today's date*" and the "*trip end date*". Numerous respondents had the same date in both spaces. If the trip was actually of one day duration, this is correct; however if the respondent completed the form after completing the trip, then the start date is wrong. This can lead to errors in estimation of the amount of use of the route. The question should be changed to read "*start date*" and "*end date*".

Respondents did not always understand the intent of the nine "other areas" of Nopiming Park question. Many wrote in the name of a lake or river that was intended to be within one of these 9 zones. The map on the back of the form should be amended in such a way that the zones

are obvious.

The survey for 1994 will be directly targeting canoeists and other boaters, and will be amended to reduce the perception that it is directed to canoeists only. In particular, the question which asks "*was this canoe trip the main reason for visiting the park?*" should be changed to ask "*What was your primary reason for visiting the park?*", with a series of check boxes. The check boxes can include canoe trip as an option, as well as possibilities such as fishing trip, camping, boating etc..

Further refinement of the route map on the backside of the survey form will be carried out for 1994. With the GIS database now available, the location of campsites can be pinpointed, hopefully increasing the completion rate of this section.

KIOSKS

The kiosks built for the 1993 season will be modified for 1994. It was found that the size of the main section was overly large, and that the forms tended to roll over within the space. As well, the many forms that disappeared from the boxes cannot be completely accounted for from acts of petty vandalism. The possibility exists that forms were taken for the maps included on the back of the form. Many users were unaware that the offices of the campgrounds had supplies of both canoe route maps, and park maps. The survey box for 1994 will have the main box divided into two sections, one for the survey form, and one section for park maps. The display section will be amended to show a large poster, that contains information about the survey, and the route. Several of the kiosk locations will be shifted on site in an attempt to enhance participation. The original registration kiosks, in place prior to 1993, are very efficient for survey distribution, and dissemination of information. As was the case in 1993, the cost of such a kiosk at all of the additional sites for 1994 is prohibitive. This is especially true when new survey locations are added for Atikaki and Whiteshell provincial parks.

ROUTES

The following are suggestions, bearing in mind budget constraints, to improve the recreation experience of users of routes in Nopiming park. The Natural Resources Department is aware of many of the problems involved, but perhaps not from the perspective of a user. In some cases, other considerations that a user would not be aware of are part of the decision process of the department. For example, Flintstone Lake is not promoted because of potential

conflicts with the woodland caribou herd that resident in the area. For this reason, and considerations of forest fires, education programs for users should be continued with diligence.

In general, the boating potential of east-central Manitoba does not seem to be well known outside of the province. The high number of visitors to Atikaki park are the result of a small group of tour operators, such as the Boys Scouts of America, and Outward Bound, both from Ely Minnesota. It is interesting to note that both of these groups originate in the center of the BWCA (Boundary Waters Canoe Area), one of the premier canoeing regions in the United States. Congestion in the BWCA, and the difficulty of getting reservations for routes, results in the choice of Manitoba as an alternative. The visitors from Europe are the result of two enterprising Europeans who arrange all of these visits. The tourism potential of the Manitoba parks, with the accompanying economic boost to the province, should be aggressively studied in the future.

The canoe route maps issued by the province are in the process of being updated. Inconsistencies noted by the field staff are being incorporated into the maps for 1994. Several of the designated campsites need improvement, or no longer exist where they are supposed to be located. These sites should be refurbished to provide secure locations for camping. In the future, if use increases, further routes may have to be added.

The possibility of separating users that currently might be in conflict should be looked at. It is known from the focus group that canoeists are seeking a wilderness experience that does not include developments such as cottages, and motorboats. Designations of certain routes as restricted to one type of user may geographically separate users. This should be done as part of a regional planning effort, that would include the managers of the adjacent parks.

The Tulabi Lake route is the most heavily used in Nopiming Park, and at peak periods exhibits signs of congestion. Efforts to alleviate this should be entertained. The diversion of users from a return route are among the possibilities. A circle route that ends at Davidson Lake might be improved by upgrading the parking facilities at Davidson Lake. At present, the portage marked on the park map between the Bird River, and Cole Lake is not passable. The cleaning of this portage may encourage users to traverse a circle route that includes the Rabbit River, or relieve pressure on Elbow Lake campsites for return trips. The number of non-designated campsites on this route suggest that more designated sites are necessary. This, in conjunction with education programs, will provide better security against the potential of forest fire occurring from casual campfires.

The Rabbit River route is also heavily used, and could require upgrading. It is suggested that this would be a route appropriate for motorboat restriction. At present, the portages provide an inefficient obstacle for motorboat access, mainly anglers who wish to get to Cole Lake. The designated campsites on this route need to be upgraded, in particular on Cole lake. The regrowth from recent forest fires make many of the sites unattractive to campers, who are creating other sites at various locations. Campers instinctively choose the best locations, and perhaps the location of designated sites should be a function of where people actually camp. This is true for all of the routes in the park.

The Seagrim Lake route needs extra campsites. At present there are no sites on Seagrim lake at all, which is a serious deficiency. The use patterns of this route suggests that users enter the area, and stay in one place for several days. Getting to the site is a matter of several hours. There are many side bays that could hold sites, allowing privacy and a camping experience that does not endanger the forest.

The Beresford/Garner Lake route is readily accessible by motorboats, as noted by the park canoe route map. It is not practical to restrict this route against motorboat use, and the presence of motors should be further highlighted. Users who wish to enter by canoe will be aware of other types of users. The presence of alternatives stemming from the Beresford Lake staging area should be highlighted. In particular, Moore Lake could be another way to travel out of Beresford Lake. While this route is not totally in the park, it is at present under-utilized, and as time passes the signs of past forest fires will disappear. Planning of designated campsites on Moore Lake should be started in the near future.

The Long Lake/Manigotagan River complex does not seem to be as well used as the existing controversy would suggest. Suggestions as to how to increase use are difficult; at present it is sufficiently challenging, campsites are adequate, and the scenery is attractive. Perhaps users who have the time and experience required for the route prefer the greater wilderness attraction of other parks such as Atikaki.

Many minor routes are probably not attractive to canoeists. These include Tooth Lake, Euclid Lake, Shoe Lake and Black Lake, among others. With the possibility of physically separating types of boaters, these all would be good candidates for motorboat users, as indeed they are presently used. Gem Lake could be a very good entry point for the Manigotagan River into Ontario, and the inherent potential of long-range tripping. The Black River, and the Moose

River between Hwy 314 and Happy Lake, if clean-up maintenance was carried out, could relieve pressure on other routes, at least in the early part of the season before water levels drop.

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APPENDIX A: List of Project Supporters

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APPENDIX B: Boundary Waters Canoe Area and Congestion Literature Review

In preparation for the field season in Nopiming Park, a review of literature was undertaken. The main goal of the literature review was to study the type of work that had been done in other areas relating to recreational canoeing, and the problems associated with congestion in recreational activities. The literature review concentrated on the Boundary Waters Canoe Area, because it was known to be well studied.

The search was conducted on the Silver Platter CD ROM database at the University of Alberta, and from there further references were examined.

Table B.1 Congestion and Boundary Water Canoe Area Bibliography

Ahlgren, C. 1984. Lob trees in the wilderness. University of Minnesota Press. Minneapolis, USA

An ecological history of human activity in the Quetico-Superior wilderness area, and especially the Boundary Waters Canoe Area, which covers over one million acres. Topics include flora, effects of forest fires, pre-settlement forests, pine logging and pulpwood logging periods, recreation and conservation. The lob trees of the title were tall pines or spruces selected and lopped as guideposts in wilderness areas of the Minnesota-Ontario border.

Allen, P.G., Stevens, T.H. 1979. The economics of outdoor recreation congestion: a case study of camping. J-Northeast-Agric-Econ-Counc. Amherst, The Council. 8 (1):13-16.

Bias in estimating recreational values may result if congestion is ignored in the demand model specification. Theoretical and empirical considerations pertaining to recreation congestion are summarized. Empirical results for camping in Western Massachusetts are presented which demonstrate the potential degree of bias from demand model misspecification. The results indicate that recreational values may be strongly influenced by congestion effects and that camping areas with relatively low densities may have a higher economic value than high density areas with similar facilities.

Anderson, D.H. 1980. Displacement of visitors within the BWCA wilderness. Unpub PhD dissertation. Colorado State Univ. Fort Collins, Colorado.

Baker, W. 1989. Landscape ecology and nature reserve design in the Boundary Waters Canoe Area, Minnesota. Ecology 70(1):25-35

Fire history data for 1727-1868 are used to reconstruct temporal changes at 5 spatial scales in the patch-mosaic of the 404 000-ha study area. The forests are dominated by pines (*Pinus banksiana*, *P. strobus*, *P. resinosa*), spruces (*Picea mariana*, *P. glauca*), balsam fir (*Abies balsamea*), tamarack (*Larix laricina*), white cedar (*Thuja occidentalis*), quaking aspen (*Populus tremuloides*) and paper birch (*Betula papyrifera*). Before European settlement, fires burned the equivalent of the entire area about every 100 yr. No stability at any scale in the patch-mosaic was observed due to spatial heterogeneity in the fire-regime and/or environment. In the design and

management of nature reserves, temporal fluctuations should be seen as part of landscape structure and process, not just as an influence on species.

Barton, M.A. 1969. "Water pollution in remote recreational areas.", *J. Soil Wat. Conserv.* 24(4):132-4

Briefly discusses dangers arising from visitors' sanitary wastes and litter, oil discharge from outboard motors, etc., in conjunction with other polluting influences, natural and man-made, with special reference to the Boundary Waters Canoe Area in the Superior National Forest, Duluth, Minn., and possible remedies.

Bonsor, N.C., F.J. Anderson. 1974. Congestion & the Valuation of Recreational Resources *Land Econ* 74(1):51-7

Borden, F.Y., Turner, B.J., and C.H. Strauss, "Colorado River campsite inventory USDA-For-Serv-Gen-Tech-Rep-NC-North-Cent-For-Exp-Stn, 1977, 28:226-231.

Brooks, P. 1975. "A Roadless Area Revisited", *Audubon* 77(2):28

The sharp disputes over uses of the famous Quetico-Superior canoe country of Northern Minnesota and southwestern Ontario are analyzed. The U.S. portion is officially known as the Boundary Waters Canoe Area, the largest wilderness East of the Rocky Mountains. The struggle to preserve Quetico-Superior since the days of Theodore Roosevelt is documented. Significant victories by environmentalists are interspersed with inroads made by logging and mineral exploration interests.

Bury, R.L. and C.B. Fish. 1980. Controlling Wilderness Recreation: What Managers Think and Do. *J Soil & Water Conservation*, 35:90-94

Increased recreational use throughout the Nat'l Wilderness Preservation System has produced congestion and related problems that threaten the integrity of the natural ecosystems and the sociopsychological qualities of people's wilderness experience. Many wilderness managers have begun to implement controls on the intensity and character of visitor use. A survey of resource managers within the Nat'l Wilderness Preservation System identified the frequency of controls within the system, reasons for control and selection, the major types of controls preferred, the effectiveness of controls, and public reactions to controls.

Cesario, F. 1980. Congestion and the Valuation of Recreation Benefits. *Land Econ* 56:329-339

The existence of congestion at outdoor recreation sites gives rise to certain problems when analyzing the benefits of expanding the capacities of such sites. Relevant increments in surpluses associated with the demand for existing facilities must be considered. Two policies are developed to analyze such situations: one assumes ubiquitous marginal cost pricing, and the other assumes zero price approaches. Both policies are found to result in serious underestimates of recreational benefits.

Clark, D.E. and J.R. Kahn. 1989. The two-stage hedonic wage approach: a methodology for the valuation of environmental amenities. *J-Environ-Econ-Manage.* 16:106-120.

This paper extends the hedonic wage model to a two-stage model in which willingness to pay may be estimated for specific amenities. In concert with supply relationships, which may be estimated independent of the hedonic model, these willingness to pay functions allow for the

computation of the value of changes in the level of the amenity. The technique has several important advantages over other valuation techniques, including less stringent data requirements and fewer econometric problems such as intractable identification problems and truncation biases. The model is applied to freshwater fishing and benefits associated with changes in fishing quality are estimated, both generically and through specific water quality improvements.

Cordell, H.K., Hammon, G.A., Graham, J., Hafley, W.L., and M.R. Warren. 1975. Utility of water-based recreation systems. III. Methodology and findings". Rep. Water Resour. Res. Inst. Univ. N.C.

Cullen, R. 1985. Rationing Recreation Use of Public Land. *J Env Management*, 21:213-225

Growing recreational use of public land in New Zealand is leading to congestion in some popular areas. Six rationing devices are employed to control and allocate use of public land. The efficiencies of prices effort requirements, lotteries, queues, permits, and zones are analyzed. The equity and usefulness of these devices for land managers are also discussed. For both efficiency and equity, criteria price appears to be the best rationing device, unless public land recreation is judged a merit good or is dominated by lower-income people.

Debettencourt, J., and Peterson, G. 1981. Environmental Threshold Functions for User Oriented Resource Planning and Management. *Water Resources B*. 17:1050-1056

Environmental threshold modeling is a measurement procedure whereby the relative site Quality of outdoor recreational resources can be assessed. Mathematic functions are used to represent individual recreationist criteria. Illustrative calibration results gathered from canoeists in Michigan's pine river are provided.

Debettencourt, J.S., G.L. Peterson, Pai Kang Wang. 1978. Managing Wilderness Travel: a Markov-Based Linear Programming Model. *Env & Planning* 10:71-9

Mathematical methods used in the management of a real recreational travel system are assessed. Overnight travel by watercraft in the boundary waters canoe area, Minn., is described as a discrete parameter Markov chain. The management problem is defined, and the analytical approach is stated briefly. The manner in which the mathematical model was applied to the problem is considered. A simple normative model of the system as a steady state process in terms of constant daily entry rates and expected daily populations in interior zones is constructed. By means of linear programming, and given constraints on entry rates and zone average daily populations, optimal entry quotas for each of the 33 entry points are determined. The quotas thus derived provided the basis for an actual control program implemented in 1976. Information pertaining to the validity of the application is presented, and the use of the model in policy formulation is discussed. (8 refs)

Douglas, A.J. and R.L. Johnson. Congestion and Recreation Site Demand: a Model of Demand-Induced Quality Effects. *J Environ Manag*, Nov 92, v36(3):201-13

A model is presented that considers the benefits of an outdoor recreation site, in view of the costs of congestion. The congestion costs consist of encounters with other recreationists. Data on encounters and crowding effects can be used in programming models for maximizing benefits conferred by specific outdoor recreation sites. The theory of consumer choice to multisite recreation expenditures is described, and a graphical device for analyzing demand for trips to outdoor recreation sites with crowding effects is presented. It is recommended that the applicable

Federal agencies gather data on visitation rates, participation rates, encounter rates, and congestion costs at outdoor recreation facilities to better monitor and assess site specific quality changes.

Field, D.R., Cheek, N.H. Jr 1974. "A basis for assessing differential participation in water-based recreation". *Water-Resour-Bull*, 10:1218-1227.

Griesbach, R.J., Asher, J.H. Jr. 1982. Orchids of the Boundary Waters Canoe Area of northern Minnesota in the temperate and boreal coniferous forest biome. *Orchid-Dig.* 46:213-228.

Hammon, G.A., Cordell, H.K., Graham, J., Moncrief, L.W., Warren, M.R., and R.A. Crysedale. 1974. "Capacity of water-based recreation systems. i. the state of the art--a literature review." *Rep. Water Resour. Res. Inst. Univ. N.C.*

Heberlein, T.A. 1977. Density, crowding, and satisfaction: sociological studies for determining [the recreation] carrying capacities [of wilderness]. *USDA For. Serv. Gen. Tech. Rep. N.C. North Cent. For. Exp. Stn.* 28:67-76.

Heinselman, M.L., 1977. Crisis in the Canoe Country. *Living Wilderness*, 40:12-13

Northeastern Minnesota's million-acre boundary waters canoe area is the only large Lakeland unit of the Nat'l Wilderness Preservation System and the system's second largest unit of any kind. It attracts more recreationists than any other wilderness area in the nation attracts. However, the area is also an important source of timber, and is therefore facing the threat of environmental damage from the timber and mining industries. Legislation dealing with the crisis was initiated in 1976 but was never implemented. If partisans of logging, motorboating, snowmobiling, and mining succeed in initiating legislation removing part of the area from wilderness status, not only will this important wilderness area be diminished, but also a menacing precedent for the entire Nat'l Wilderness Preservation System will be set. (3 maps, 10 photos, 1 tables)

Heinselman, M.L., 1970. "Restoring fire to the ecosystems of the Boundary Waters Canoe Area, Minnesota, and to similar wilderness areas.", *Proc. Tall Timbers Fire Ecol. Conf.* 10:9-23.

The remaining virgin forests of this area owe their composition and structure to periodic fires over the past 400 years, and the whole ecosystem is adapted to fire. The problem of retaining the ecosystem depends on the reintroduction of fire as a key environmental factor, and methods of achieving this, and its implications for management policy, are discussed.

Hellerstein, D.M. 1991. Using count data models in travel cost analysis with aggregate data. *Am-J-Agric-Econ.* 73(3):860-866.

In order to control for censoring and the integer nature of trip demand, the use of count data models in travel cost analysis is attractive. Two such models, the Poisson and negative binomial, are discussed. Robust estimation techniques that loosen potentially stringent distributional assumptions are also reviewed. For illustrative purposes, several count data models are used to estimate a county-level travel cost model using permit data from the Boundary Waters Canoe Area. \\\ XAU: Resources and Technology Division, Economic Research Service, U.S. Department of Agriculture.

Herrick, T.A., and C.D. McDonald. 1991. Factors affecting overall satisfaction with a river recreation experience. *Environ-Manage.* 16:243-247.

Higgins, J.F. 1977. A visitor distribution program for the Boundary Waters Canoe Area. *Naturalist.* 28:22-29. Natural History Society of Minnesota.

Hof, J. 1983. Long-Term Outdoor Recreation Participation Projections for Public Land Management Agencies. *J Leisure Research*, 1983 ? : 1-14

A theoretical structure for developing long-term outdoor recreation projections for public land agencies is detailed, using data from USDI's 1977 Nat'l Outdoor Recreation Survey. Substantial increases in outdoor recreation participation are anticipated, implying that recreation planning cannot simply aim at a target level of participation without considering supply demand interactions. Activities surveyed include camping, hiking horseback riding, driving off-road vehicles, picnicking, sightseeing canoeing, and kayaking, sailing, swimming outdoors, downhill skiing, and snowmobiling.

Hulbert, J. 1977. BWCA visitor distribution scheme. *Journal-of-Forestry.* 75:338-340;

A system for limiting and distributing visitors to the Boundary Waters Canoe Area was introduced in this wilderness area in the Superior National Forest (NE Minnesota) in 1976. The method involved issuing a limited number of reservable wilderness permits for each entry point; quotas were derived using travel simulator models, and were based on numbers of campsites in each area and predicted travel behaviour from past records. Only 25% of the permits were reservable for more than 48 h. Obstacles to the system included the many commercial interests in the area (means used to overcome this are described), and the concurrent jurisdiction of both Minnesota State and the Federal Government over the waterways. The system worked well except for a few minor problems, for which solutions are discussed.

King, J.G., and A. C. Mace. Effects of Recreation on Water Quality. *WPCF J.* 46:2453(7)

Water Quality parameters are measured near campsites in the boundary waters canoe area. The use of campsites leads to highly significant increases in coliform bacteria populations and smaller increases in available phosphate concentrations in nearby waters. Drainage from the pit toilets located at each site may be the cause.

Leitch, J.A., Nelson, W.C., 1976. "Environmental trade-offs in the lower Sheyenne Valley". *Agric. Econ. Rep. N.D. Agric. Exp. Stn. Dep. Agric. Econ.*

The priority evaluator technique (PET) was used to estimate preferences of residents of the Lower Sheyenne Valley in North Dakota toward: (1) scenic view, (2) water recreation, (3) floods, (4) wildlife habitat, and (5) land recreation. three levels of each of the five environmental categories were involved along with prices of each level, a limited budget, and a requirement to purchase one level of each of the five categories. respondents purchased a set of environmental attributes which included a higher level of flood protection and water recreation than currently exists in the valley. they decreased the level of scenic view and land recreation while maintaining wildlife habitat at a level approximately equal to existing level.

Lime, D.W. 1969. Wilderness-like recreation opportunities adjacent to the Boundary Waters Canoe Area. *Naturalist* 20:36-41.

Lime, D.W. 1977. When the wilderness gets crowded? Boundary Waters Canoe Area, recreational use. *Naturalist*. 28:2-7..

Lime, D.W. and R.G. Buchman. 1974. Putting Wilderness Permit Information to Work. *J Forestry*, 72:622-625

In 1973 visitors to 43 wilderness and primitive areas were required to obtain a permit before entering the regions. In time USFS expects to use permits on all wilderness areas. The use of visitor information obtained from the permits by wilderness managers and by the public is discussed. The use of online computerized systems for park management and for analysis of day-to-day use patterns is also discussed. Permit data for the boundary waters canoe area are described.

Longstaff, F. 1980. The River Everyone Wants. *Seasons* 20:30-36

The Spanish river of Ontario is highly prized by environmentalists for its recreational and scenic resources, primarily canoeing and camping. However, the provincial government issued a directive in 1978 that the Spanish river would be developed as a multi-use resource. The construction of hydroelectric dams along the waterway are proposed. Such developments are opposed by environmentalists, as fragile ecosystems will be degraded and the pristine wilderness will be invaded.

Marion, J.L., L.C. Merriam. 1985. "Recreational impacts on well-established campsites in the Boundary Waters Canoe Area Wilderness." *Station Bulletin Minnesota, Agricultural Experiment Station*.

Marion, J.L. and T. Sober. 1987. Environmental impact management in the Boundary Waters Canoe Area Wilderness. *North J. Appl. For.* 4:7-10.

McConnell, K. 1977. Congestion and Willingness to Pay: a Study of Beach Use. *Land Econ.* 53:185-196

A model for estimating the demand for congested recreation sites in densely populated areas is developed and applied. The model is used to estimate benefit functions for a set of Rhode Island beaches. Management strategies for short-run decision-making are demonstrated by comparing optimal beach use implied by benefit functions to the standards of beach use established by the U.S. bureau of outdoor recreation and by state comprehensive outdoor recreation plans of several states.

McCool, S.F., Merriam, L.C. and C.T. Cushwa. 1969. The condition of wilderness campsites in the Boundary Waters Canoe Area. *Minn. Forest Res. Notes* 202.

McCool, S.F. and L.C. Merriam. 1970. Travel method preferences of Boundary Waters Canoe Area campers. *Minn. Forest Res. Notes* 219.

Merriam, L.C., Goeckermann, K., Bloemendal, J.A. and T.M. Costello. 1971. A progress report on the condition of newly established campsites in the Boundary Waters Canoe Area. *Minn. Forest Res. Notes* 232.

Merriam, L. and R.F. Peterson. 1983. Impact of 15 years of use on some campsites in the Boundary Waters Canoe Area. Minnesota Forestry Research Notes 282.

Merriam, L.C., Jr. and C.K. Smith. 1975. "Newly established campsites in the Boundary Waters Canoe Area. Restudy of selected sites Minnesota Forestry Research Notes 254.

A study in 1974 of five camp sites in the Boundary Water Canoe Area in Minnesota showed that damage was not increasing except on one Aspen/Birch site near a main road where soil compaction, area of bare soil, and area of camp site had increased. Damage had decreased on one Spruce/Fir site where shrubs appeared to have prevented expansion of the site and heavyorganic matter had prevented soil compaction.

Merriam, L.C., Jr., and C.K. Smith. 1974. Visitor impact on newly developed campsites in the Boundary Waters Canoe Area. *Journal-of-Forestry*. 72:627-630.

Describes a 5-year study of the effects of visitors at new camp sites in each of six forest types [cf. FA 33, 7226]. Aspen/Birch sites were most susceptible to damage, followed by Spruce/Balsam Fir, Jack pine, Red Pine/White Pine, White Cedar and open sites. The amount of damage increased during the first two years and then remained constant. Recommendations are made for minimizing and containing the amount of damage in forested recreational areas.

Morgan, J., and F.R. Kuss. 1986. A First Alternative for Estimating the Physical Carrying Capacities of Natural Areas for Recreation. *Env Management* 10:255(8)

A method for approximating the physical carrying capacity of natural areas for outdoor recreation utilizes an adaptation of the Universal Soil Loss Equation. Classification of forested Woodland and field environments is based on the conversion of ground cover coefficients to the percentage of ground cover required to maintain soil productivity over time. Four canopy types, three canopy densities, and two general types of ground cover are recognized in the equation, as are soil characteristics. The approach requires that the areal distribution of soils occurring within natural areas be mapped.

Peterson, G.L., 1974. "A Comparison of the Sentiments and Perceptions of Wilderness Managers and Canoeists in the Boundary Waters Canoe Area". *J Leisure Research*, 6:194(13)

Wilderness managers and summer canoeists were studied in the boundary waters canoe area to determine whether the two groups differ in their wilderness motivations, attitudes, preferences, and perceptions Psychological inventories were used, and environmental disposition was studied using mckechnie's environmental response inventory. There were strong tendencies toward agreement, especially for environmental disposition. However, regarding details of the human response to the bwca, there are important differences in degree. The managers are more disposed toward many things that the canoeists find undesirable. The managers seem to have more varied motivations and apparently are more knowledgeable about the area. The canoeists have an inflated image of the area's wilderness character, but apparently are more demanding in their expectations and use of different criteria to evaluate recreational performance. The managers tend to rate performance higher than the canoeists do.

Peterson, G.L., Anderson, D.H. and D.W. Lime. 1982. Multiple-use site demand analysis: an application to the boundary waters canoe area wilderness. *J. Leisure Res.* 14:27-36.

Pfister, R.E. 1977. "Campsite choice behavior in the river setting: a pilot study on the Rogue River, Oregon. USDA-For-Serv-Gen-Tech-Rep-NC-North-Cent-For-Exp-Stn, 28:351-358.

Prince, R., and E. Ahmed. 1989. Estimating individual recreation benefits under congestion and uncertainty. *J. Leisure Res.* 21:61-76.

Ravenscraft, D.J. and J.F. Dwyer. Estimating the influence of congestion on the willingness of users to pay for recreation areas. *For-Res-Rep-Agric-Exp-Stn-Univ-Ill.* 78-5,

Harrington, W. 1987. Measuring Recreation Supply. *Resources for the Future Report*, 1987(85)

An assessment of recreation supply and recreation resource scarcity in the U.S. is outlined. It is argued that recreation resource scarcity can be approached in a manner analogous to that used for market commodities, by converting the costs incurred by both recreation participants and the operators of recreation areas into a common metric that will serve as a scarcity measure. A relationship is determined between the social cost of producing a recreation experience and the number of participants served. A price of a recreation experience is defined that corresponds to the price of final products. One of the most important elements of this price, the cost of congestion, is examined.

Roggenbuck, J.W., and R.M. Schreyer. 1977. "Relations between river trip motives and perception of crowding, management preference, and experience satisfaction. USDA For Serv Gen Tech Rep NC North Cent For Exp Stn, 28:359-364.

Shaw, S.P. 1977. "Compatibility of intensive timber culture with recreation, water and wildlife management". USDA-For-Serv-Gen-Tech-Rep-NE-U-S-Northeast-For-Exp-Stn, 29:279-289.

Shelby, B. 1980. Crowding models for backcountry recreation. *Land-Econ.* 56: 43-55.

Smith, V.K. 1974. A Simulation Model for the Management of Low Density Recreational Areas *J Env Econ & Mgmt* 1:187-202

To account for the congestion externalities associated with intensified use during a given period at a low density recreational area, the effects of alternative use levels on the expected Quality of each individual's experience must be determined. A simulation model for wilderness recreation is applied to the Spanish peaks areas in Montana.

Stankey, G.H., Robert C., Lucas, D.W. Lime. 1975. Crowding in Parks and Wilderness. *Design & Env.* 7:38(4)

Wilderness use of national forests grew an average of 10%/yr between the end of world war II and 1975. Suggested solutions for this problem include: spreading people more evenly and providing areas managed specifically for primitive recreation. Generalized statistics are presented for use patterns and use density related to crowding.

Stewart, W. 1991. Compliance with Fixed-Itinerary Systems in Water-Based Parks *Env Management* 15:235(6)

In many parks and wilderness areas, permits are required when traveling overnight in the backcountry. The permit operation is a fixed-itinerary system when it designates a campsite location for each night of a user's trip. Some studies at land-based parks indicate that trip

information from itineraries does not always coincide with actual user behavior. To assess the effectiveness of the fixed-itinerary system at a water-based park, discrepancies between the itineraries recorded on permits and those reported by overnight users, following visits to Everglades Natl Park, FL, were studied. Motorboaters were most likely to comply with their permit conditions than canoeists. Having to share campsites with noncomplying campers reduced the enjoyment of the wilderness for 11% of respondents.

Stynes, D.J., Peterson, G.L. and D.H. Rosenthal. 1986. Log Transformation Bias in Estimating Travel Cost Models. *Land Economics* 62:94(10)

Semi- and double-log models used as travel cost methods for estimating the demand for and value of recreation sites are addressed. With the expected value of the conditional mean function as the desired estimate the bias resulting from estimation of semi- and double-log models by linear regression is reviewed. Relevant adjustment procedures are proposed and illustrated with an example of canoeing in the boundary waters canoe area wilderness.

Titre, J., and A.S. Mills. 1982. Effect of encounters on perceived crowding and satisfaction. *Misc Publ Univ Minn Agric Exp Stn. St. Paul: The Station.* 18:146-153. Presented in the Forest and Rivers Content Area of the Symposium on Leisure Research, October, 1981, Minneapolis.

Vaux, H.J. 1977. The Costs of Congestion and Wilderness Recreation. *Env Management* 1:495(9)

Existing research on the effects of congestion in wilderness areas suffers from problems associated with asking the public directly what it would be willing to pay to avoid congestion under hypothetical circumstances. Two inferential methodologies are used to examine visitors' willingness to pay for the use of three California wilderness areas during peak and off-peak use periods. Inferential methodologies do not provide unambiguous measures of consumer surpluses. They do, however yield the conclusion that, with the exception of a relatively few individuals, solitude is not of overriding importance. Convenience of timing and the attributes of different wilderness areas appear to be more important than congestion.

Walsh, R.G., and L.O. Gilliam. 1982. Benefits of wilderness expansion with excess demand for Indian Peaks. *West J Agric Econ.* 7:1-12.

The contingent valuation approach was applied to the problem of estimating the recreation benefits from alleviating congestion at Indian Peaks wilderness area, Colorado. A random sample of 126 individuals were interviewed while hiking and backpacking at the study site in 1979. The results provide an empirical test and confirmation of the Cesario and Freeman proposals that under conditions of excess recreational demand for existing sites, enhanced opportunities to substitute newly designated sites by reducing congestion results in external benefits to the remaining peak day users who do not substitute, and should be added to the recreational use benefits of new sites.

West, P.C. 1982. Effects of user behavior on the perception of crowding in backcountry forest recreation. *For-Sci.* 28:95-105.

Wetzel, J.N. 1981. Congestion and economic valuation: a reconsideration Recreation areas; beach, forest, parks. *J. Environ Econ Manage.* 8:191-195.

Wikle, T.A. 1991. "Evaluating the acceptability of recreation rationing policies used on rivers.", *Environ-Manage.* 15:389-394.

Wolf, R.E. 1978. Planning--the Minnesota Boundary Waters Canoe Area--U.S. view Superior National Forest, timber sales, land use policy. *Proc-Soc-Am-For.* pp 384-388.

Wright, H.E. 1974. "The Boundary Waters: Wilderness at Stake". *Living Wilderness* 38:21(13)

No remnant of the U.S. past presents a better case for wilderness preservation than the lake-dotted million-acre expanse in northeastern Minnesota known as the boundary waters canoe area. Half is virgin forest the largest that remains in the U.S. East of the Rocky Mountains; yet proper protection for this national asset is unassured because USFS charged with maintaining the region's primitive character, has pursued an equivocal course in the area's management. Significant changes in forest use in boundary waters are documented. Alarming management strategies, which permit administrative cutting in the forest, are examined.

APPENDIX C: Trip Diaries of River Routes Canoeed in Nopiming Park

The known and potential canoe routes in Nopiming Park were paddled during the summer of 1993. The primary purpose of these trips was to collect attributes of the routes, campsites, and portages. Vegetation species were inventoried at various points as ground-truthing for eventual comparison with GIS Forest Inventory work. A secondary purpose of the trips was to view users' actual use of the canoe routes.

An effort was made to disturb other users as little as possible. For this reason, along with the weather, more than one trip was made on several of the routes. If a campsite was in use, it seemed better to return at another time to survey the attributes of the site. If the other users encountered on portages or while canoeing seemed sociable, they were talked to on the route.

The following trip diaries contain a chronological sequence of the trips taken during the summer period. They contain the trip date, people involved, general impressions, and information that could not be placed elsewhere in the report. The diaries are written in the first person by D. Watson, who was present on all trips except one on the Tulabi route. Specific details on the attributes are not included, since they are better presented in the databases in Appendix E.

ROUTE 15 SEAGRIM LAKE, TRIP ONE

The first trip of the season was taken with P. Boxall of Edmonton on June 1st and 2nd. We started out in the early afternoon, and finished by noon of the next day. This trip was primarily a test case, to help define the attributes to be collected, and the method of collection. It was not intended to collect the attributes of the whole route on this journey. It was also used to allow one of the authors based in Edmonton a chance to see some of the backcountry of the park. The trip proved the worth of mini-cassette recorders for keeping track of details. They are easy to carry and use, and much more efficient than pen and paper.

On this trip, Peter and I just poked around the first two lakes, (unnamed), and visited the designated campsites. The canoe route maps provided by the province were quite accurate on locations of these sites, and the portages. They may not have shown all of the islands, more of an outline, but there was enough to get around. The recommendation of taking topographic maps as well is good advice.

The trip starts with a portage from the staging area to the first unnamed lake. The trail

is muddy at one point, but overall well maintained, wide and straight. The first lake does not have a lot of significant attributes, and no official campsites, though it is very pleasant scenery. It can be traversed in about 15 minutes.

The portage to lake 2 is 275m long, again a pleasant hike over a well maintained trail. As opposed to the first lake, here we began to see signs of fire. It was on this lake that the first designated campsites were found, as well as the first non-designated ones. In fact the first site found was non-designated. It had several manmade features, besides the obvious campfire ring. In particular, a bench/chair made of birch logs, and padded with moss. Someone went to a lot of effort to build it.

After paddling around to all the designated sites on the lake, we set up our camp at number 15.04. The area is a bit soggy and damp, but in a forest area of mature, well spaced jackpine. Behind it is a large hill, providing a view of the back bay, and across to Elton Lake. The site itself provides a view of the whole lake, meaning it can also be seen from everywhere. However, we were the only ones camped on the lake this night.

The next day we again paddled around this second lake a bit, and walked across the portage to Elton Lake. Though we did not plan to go further, it was interesting to walk across and see the next lake. It did not take long to paddle and portage back to the car, and then return to Winnipeg.

ROUTE 11 RABBIT RIVER TO COLE LAKE, TRIP ONE

There were two trips taken on this route during the summer season, the first on the weekend of June 5-6, with Duncan McKinnon of Beausejour, Manitoba. This trip, like the first trip on route 11, was primarily a test case, to help define the attributes to be collected, and the method of collection. It was not intended to collect the attributes of the whole route on this journey.

The trip was started from the launch area at 3 pm. The launch area is a parking lot beside Hwy 314 where it crosses the Rabbit River. The river during the first 10 minutes of paddling (0.5 km) was very twisty, with tight meander bends, and shallow, (0.7 to 1 m deep). There were also 3 beaver dams blocking the river within the first 500 metres. A fourth extensive beaver dam complex blocks both the Rabbit River, and the outlet from the unnamed lake to the north-east (route segment 11.2). These beaver dams were easy to cross, with Duncan stepping out of the

canoe as we nosed up to the dam. He then held the boat while I got out, and we pulled the boat over the dam, and re-entered it on the upstream side. Shortly after the junction, the river widens, becoming a long deep lake with rocky shores. This lake is about 1.5 km long, and 500 to 800 meters wide. There are some potential camping sites, other than those designated. Several show signs of past use, and one was in use during this trip. This portion of the route shows no signs of past forest fires, or logging activities. Users would be aware that there is logging nearby in the area, as evidence can be seen from the road near the staging area. A group with one canoe was camping near where the first designated campsites are marked on the canoe route (peninsula campsite).

At the end of this river widening, there is a portage, measured by pacing to be 35-40m long, on the north shore. The portage skirts a bouldery rapids, that could not be canoed going upstream. After the portage, the river narrows, with tight meanders as previously seen on the early section. However, the valley here is wider, with littoral vegetation of sedge, kahlia, and willows. The meandering river-type continues until a second lake (river widening) is encountered. It was during this second twisting section that Duncan remarked that this would be a good family river, where he would be comfortable bringing his young children. The second lake is long and narrow. It took us 2 1/4 hours to paddle to this point from the launch site.

A second portage lies at the end of this lake, on the north shore, 75 m long, again skirting a short rapids. After the second portage there is a small lake, then a section of straight but rocky river for about 600m. This ends in a third portage, on the north shore, which is 125m long. Above the third portage, there is a lake, about 150 m wide, and 1 km long. A group of two young men were camped at the end of this lake, at designated number 11.07. When we met them, they were in the bay, fishing from their small motor boat. They hadn't caught anything. Across from them, on the north shore, a large group was camped at a non-designated site. They had three canoes beached. The lake ends in a portage, followed by a small lake, and a fifth portage. The fourth and fifth portages are both less than 50 m long, and on the north side of the river. We did not carry our canoe across the last portage, but walked it and looked downstream. After this fifth portage, the river seemed to be through a canyon, with good tree growth.

The time at this point was 6:30 pm, and we decided to camp. We stayed at a non-designated site on the small lake between the portages. It showed signs of heavy previous use, and all designated sites nearby were occupied. While we were cooking our supper on the gas

stove, we heard a helicopter flying over nearby, in the direction we had come.

We left our campsite at 8:40 am, went back across portage four, and looked at campsite 11.07, where the boys had been the night before. A feature that we would find regularly during the summer was noted; that while there was a firepit present there was also signs that campfires were made outside of the firepits.

On the return trip, we met the backcountry patrol, who were there in a motor equipped canoe. The helicopter we had heard was a fire fighting unit. The island on the first lake where we had seen campers had a small forest fire. The campers had already left when the firefighters arrived, and the backcountry patrol was trying to find out who had been there.

The return trip was uneventful and we met no further people. From the upstream end the beaver dams were easy to paddle across without getting out of the canoe. No doubt this was easier after the heavy motor canoes had passed and created a channel. We arrived back at the staging area at about 1 pm.

ROUTE 23, BERESFORD LAKE TO GARNER LAKE TRIP

The trip from Beresford Lake to Garner Lake was taken on Wednesday, June 9th, with L. Peters. We started out from the Beresford Lake boat launch, near the campground, at 9:15 am. The area around the campground has not been burnt, but we quickly entered an area that had. By 9:30 am we exited the lake by going under an old logging bridge. The trip down Beresford creek was uneventful, we passed an large motorboat of anglers coming out, heavily laden with camping gear. The trip along Beresford Creek to Garner Creek took about an hour, through an area of low hills. The valley is wide, and the creek has a wide floodplain.

The canoe route map shows a portage is necessary at the junction of Beresford and Garner creeks, but the portage is only needed for those continuing to the west. There is no need to portage to go up Garner Creek to Garner Lake. By 12 noon we were nearing Garner lake; Garner creek was wide, shallow, meandering, with swampy flats. The burn area ended shortly after entering the creek. There is a reasonably good diversity of vegetation along Garner creek. We saw one non-designated campsite about one half km before the lake. It wasn't much of a campsite but is a nice grassy, open spot. We stopped because of the interesting black basaltic rock.

We stopped for lunch on a very small island in the first large bay of the lake, it was

vegetated with shrubs, but the northeast end was flat rock, good for a lunch. After lunch we continued along into the lake, to look for the designated campsites. The first one, # 23.02, we could not find. The campground attendant at Beresford, Bob, later said that not many people find that one. It was the only one on this route that was not very obvious. This was the first time where we noticed the ingenuity of campers in "improving" the campsites. Nearly every site had some sort of addition built in. Most had rough tables for the cleaning of fish, others had holding pens for fish, one even had a stump cemented into the shore to tie the boats up. Another had a complete park picnic table brought in. We found no real evidence of non-designated sites on the lake, the dense undergrowth suggests that they would be both hard to create, and easy to see if they were there. The route seems to have more islands than the canoe route map suggests, which gives the lake a smaller feel than it looks on the map.

The real surprise was found at the east shore of the lake. Along the part of the lake that is in Ontario, there is a stretch of sandy beach about one km long. This has a series of non-designated campsites built into the woods behind. We joked that it was a promotion of Ontario, and that they had brought the sand in for tourists.

Near the sandy beach, at the entrance to the large bay that points north, there is a cabin. We met the owners, who said they were from the USA. As a group, some teachers bought the lease of the cabin, with the only provision being that they have to maintain it. They come in by turns during the summer to use the cabin.

During the trip back to where we entered the lake, we discovered that it did have one characteristic of a large lake, dangerous waves. We were paddling the north shore, and the wind from the south picked up very quickly. Soon we were battling to keep moving, running parallel to the waves. The shore here was not appealing, with no place to camp if we stopped. And to get to one of the island campsites, we would have to go into the waves across open water. After nearly one hour of this, we came to where we entered the lake, and a good campsite. We quickly set up our tents, and hid from the rain. By 7:00 pm, the storm had ended. While in principle we could have gotten back to Beresford Lake that night, after the work of paddling through the storm, we decided it would be best to stay the night.

The next morning, an easy two hour paddle brought us back to the staging area, and the end of the trip. It would be possible to do the trip in one day, certainly many do it in motor boats, but for a canoeist the best would be at least an overnight trip.

ROUTE 1, TULABI LAKE TO MCGREGOR LAKE, TRIP ONE

This route was surveyed on the weekend of June 15-16 with D. Kuhnke of Forestry Canada in Edmonton. We started about 10:30 am from the staging area near the Tulabi Lake campground. We had wanted to start day before, but the wind was too high. It takes about 10-15 minutes to cross Tulabi lake. The area shows the signs of a mature forest, with mixed tree growth, predominately conifer. In addition to the portages outlined in Appendix E, a portage has been built from before the first portage to after the third portage. It was put in place by the builders of the youth group (see below) on Elbow lake, located where campsites 1.09 and 1.10 should be. The first two portages both have steep hills, with wide dirt tracks. If rainy, the hills would be very slippery.

Between the second and third portages, near 1pm, we heard what sounded like a chain saw. Though we could see nothing from the shore, we got out and looked around. We found a cut block, of at least 100 acres. We didn't find the source of the noise, but there was no one actively cutting. It was probably a trail bike. From then on we started to look more closely for signs of forestry.

We found several non-designated sites along this section of the route, in particular near the portages. While the first two portages were absolutely necessary, the third was really just one ledge, and could be run going downstream by the daring.

We left the third portage at 3:10pm, after a cold lunch. Entering Elbow Lake, we easily found all but three of the designated campsites. The lake shows a good variety, and adequate number of campsites. The first one not found had had its firebox moved to another location, which we did find. Designated campsites 1.09 and 1.10 were not found, and no longer exist. The peninsula where they should have been was occupied by a half completed youth camp. There were several big buildings, a nice rocky beach, and docks on both sides. Some machinery had been left on site, and vandals had been active in places. There was no sign that the area had been used by campers.

After exploring the lake, and surveying the pertinent attributes, we set up for the night at the last campsite on Elbow Lake before the river continues to McGregor Lake. By now it was early evening, and the maps suggested a longish trip to McGregor Lake. We dined on my infamous macaroni and cheese. We walked around the area a bit, but as usual, there wasn't much of interest away from the shore. After supper, we saw some fish jumping, so Dieter tried

some fishing. He wasn't succesful though not for lack of trying. At one point when he was nearly ready to quit, he shouted that there were no fish; just then a large one jumped right beside his canoe.

The next moring we continued on to McGregor Lake. It wasn't as far as the map made us believe. We got there in about one half hour, after paddling through a section of river with canyon features. The water was rocky as we approached the portage at the west end of Mcgregor Lake. This portage is a beautiful spot, with two waterfalls. There are two short portages, both on the north side. We stopped at the end of the first, and from there we could see the designated campsite, and McGregor Lake.

Given the time, and worsening weather, we decided to turn back, and investigate McGregor Lake at a later date. On the way back we met up with several groups. A party of two was travelling in as we approached Elbow Lake. As well, exiting Elbow Lake a lone paddler was met. By this time it was raining heavily, he didn't seem disturbed by it though we were. At the second portage we had to wait offshore because of other groups. There was a group of four heading up towards Snowshoe Lake. Ahead of us was a party of two boys that we had seen the night before looking for a campsite on Elbow Lake. After the mini traffic jam, we encountered no problems on the rest of the route. We arrived at about 2:30 pm, which meant a paddle of around 5 hours from McGregor, without working very hard.

ROUTE 22, MANIGOTAGAN RIVER FROM HWY 314 TO LONG LAKE

The route was surveyed on July 22, with L. Peters. We parked our vehicle at the pull out beside the east side of the highway, and carried the canoe across to the west side, and started out down the river at 8:40 am. The trip is not overly interesting, basically just a short river run, good for a half day of being outdoors. The three portages are quite close together, and arrived at early on the trip, about one half an hour after starting out. The first two are in flat country, and skirt short rapids. The first we lined the canoe through, the second was a bit steeper, 2 short shelves. The third is more extensive, around a small canyon, with a sloppy, very narrow and rough path. It was marked with flagging tape. We finished the portages just after 9:30 am.

The river showed signs of an old burn for the first part, but after the third portage, it was a canyon type paddle for a short distance where the burn did not reach. We arrived at Long lake at 10:18, then took about 15 min to go across the lake to the boat launch. No special features

at all along the route, except maybe the canyon area (10 M high walls) near the 3rd portage. A cottage owner on Long Lake said that before the highway went in, it was one long portage on the north side of the stream. We again encountered some high waves crossing Long Lake.

ROUTE 21, HWY 314 TO GEM LAKE AND RETURN BY MOOSE RIVER

The trip was undertaken Jul 27-28 with L. Peters. We left one vehicle on the roadside where Hwy 314 crosses the Moose River, and continued on to where the road crosses the Manigotagan River. Here there is a turn-out, with a small parking area. We left the Manigotagan River crossing at 1:25pm. The late start was because we were both coming from Winnipeg, and stopped along the way to check the survey boxes. After a short paddle along a burnt but pleasant stretch of river, we reached the turnoff, the junction with Garner creek, at 1:40pm. The Manigotagan river to this point is about 20-30m wide, with swampy edges. The Manigotagan River from here towards Gem Lake is at most 10m wide, with swampy reedy edges. There is no canoe route map for this route, so we had little prior knowledge of the river, or portages. We reached the first portage at 2:35pm. It was rather long (300m), and seemed more so since the trail is narrow and sloppy; less than 1 m wide, too narrow for the canoe in some places. At least it was easy to find, on the west side of the stream. Here there were no signs of fire.

It was less than 100m of paddling to portage 2. The river here is very narrow, less than 3 m wide, with many rocky outcrops. There is heavy underbrush, with definite signs of an old burn. The portage is only about 150m long, on the west side of the river. We found flagging on the upstream end of the portage.

The next stop, portage 3 is again 150m long, on the east side, with a very rough trail. We managed to lose the trail twice on this short haul. Somewhat surprised to find hazelnuts. These portages are all close together, it was only 200m from the second portage.

The stream remained narrow, but a pleasant paddle the 500m to the fourth portage. Lily started to recognize the signs of approaching rapids, the faster water, and slight foam. The fourth portage was on the east side, and not obvious from the water as we approached on the downstream end. The trail was very rough, did not seem to have been used much, though when we reached the end we found a campfire ring on the upstream end. It did not seem likely anyone was camping there. From here to the fifth portage it was 800m.

We finished the fifth portage at 4:30 pm, and both strongly hoped it would be the last. The trails are not maintained (this is not an official route), nor are they well used. The fifth at least was short, 75m on the west side. Again we found flagging on the upstream end, not all that useful for someone going upstream. However, for the most part the trails are not hard to find. The understory on portage 5 is not as thick as the others, and also had some sort of wild grape, not seen elsewhere.

The first 300-400m since portage five has been burned, then the forest looks good. The river is basically straight lines, a wide quiet river. It shows a narrow channel between weeds on shore, the valley a total of about 25m wide, the river occupies one third. Near 5:15pm we stopped at a rock outcrop. At one time there was lots of use here, with a fallen down cabin, and two derelict boats. The point is very close to Gem lake, and may be still be a stopping point for boaters coming downstream from the lake.

The last bit of river into Gem Lake shows signs of old fire, and diseased trees. We arrived at Gem lake at 5:50 pm, and around the bay to the "boat launch" at 6:10pm. Just at the entrance to the lake we met two boys in a motor boat fishing. Their boat was normally cached, and they brought the motor in on a trail bike (quad). We had been warned that many people had boats cached on the lake, that are brought in over the portage in the winter. We did not expect as many as we found. I counted 48 boats in the open and obvious, including several "fleets", for example, 4 neatly stacked stenciled Baptist Youth Camp. Several boats have been abandoned forever, both in and out of the water. A final count of obvious, abandoned, and well hidden boats was 77. The area itself has lots of garbage, in particular minnow containers.

We left boat launch at 18:30hrs, and reached the biggest island on the lake at 19:15. The island has a cabin, and other buildings, as well as recreational extras (diving board). We guessed that it might be the Baptist Youth Camp. We did not explore all of the bays of the lake, as it was getting late, and the weather was threatening. What we did see did not seem like great camping. The north and east shores were heavily wooded, the southwest shows signs of an old burn; a rough guess would be that 70% of the southern shoreline was burnt, 20% on the north shore. So we camped on the island. We had to hide in our tents for awhile as the expected rain arrived. During the break we quickly set up the stove, and heated supper, then back into the tents for the night.

The morning showed slightly better weather, overcast but not raining. We left the island

at 9:15 am. It was easy to find the portage out of the lake. It skirts a very nice little waterfall. Two men were fishing at the bottom, without evident success. It took about 30 min to portage, over a bad trail, that was also badly marked. It didn't seem that anyone had used the trail in several years. We finished it at 10:15 am.

After the portage, the area has definitely burned, in places it was eerily beautiful, with all the dead trees still standing. The river is about 20m wide, with a reedy, marshy shoreline, broad and flat. Banksian Lake was nice though the exit was hard to find, the lake was in a burn area, with no standing deadfall. The shoreline was about 95% burnt. After Banksian Lake, the route to Lily Lake showed heavy burn, everything seen was standing deadfall. Between the two lake the only obstacle was a small beaver dam that we crashed across.

We arrived at Lily Lake at 11:10 am. The area has been 100% burnt, with some regrowth on the south shore. The river skirts the east edge of the lake, before heading southeast towards Slate Lake. Nothing of interest seen on this bit of the trip. We arrived at Slate Lake at 11:45 am, the last reach was swampy and reedy, through a burn. Slate Lake showed some burn; the south shore 10% burnt, the north 90% burnt. We could see where the river entered Slate Lake from Ontario, and the smallish creek to Wrathall Lake, but decided at this point to return to Lily Lake, and finish the journey.

We got back to Lily Lake at 12:30 pm, and had crossed it in 10 minutes. It is a shallow, flat lake, and the regrowth seemed diseased, and turning red.

And here, though we didn't know it yet, the ordeal would begin. The park map, and the topographic maps show a stream to a small unnamed lake to the west. We hoped to go up the stream, and then take a short portage out of the unnamed lake to the Moose River and get home early. We should have checked the photomaps which are more recent! The end of the lake is marshy and overgrown, the stream evidently has gone underground several years ago. The "portage" was nearly one kilometer, and took us roughly four hours. There was no trail, it was heavy bushwacking through 2m tall black spruce, carrying the packsacks and dragging the canoe behind. Luckily the rain kept the bugs to a minimum. It didn't help that I missed the lake slightly, and we went an extra 200m. We finished the portage at 4:30 pm. The small lake took 5 minutes to cross, and we were faced with a cliff, with very heavy jack pine regrowth. Somehow we managed not to say nasty words, to each other or about life in general. By 5:15 pm we finished the portage into Finger lake, after hauling the canoe and gear up a steep hill, and

down another on the other side. Somehow we noticed that Finger Lake was 95% burnt. We looked over where the Moose River where it enters Finger Lake, as we would be doing that route in the near future. It looked like most of the other rivers by then, though the entrance was heavily grown in with wild rice. The lake in general had abundant wild rice. There was a small rapids at the exit of Finger Lake, but by then we were tired enough of portaging to simply crash through it. Not the best for the canoe, but we didn't tip, so it was okay. We got to the roadside, and the vehicle at 7 pm. I decided we would take the next day off. This route is not to be recommended, even to people you dislike.

ROUTE 15, SEAGRIM LAKE ROUTE, TRIP TWO

This second trip on the Seagrim Lake route was taken on Jul 31, with P. Boxall of Edmonton. As we were starting out we met a large family group just finishing their trip, they had been camping on Elton Lake for nearly a week. Interesting for us, part of the group had come from Minnesota to use Nopiming Park. They said that they thought the Boundary Waters Canoe Wilderness Area was "too developed, with portages like highways".

We decided not to camp, but instead to go straight to the farther areas and survey Elton and Seagrim Lakes. We arrived at Elton Lake at 2:15 pm, about one hour after starting out. We paddled straight to the far end, noticing a non-designated site near the exit portage.

The portage to Seagrim Lake was probably the most pleasant on the route, going through a mature forest, with plenty of blueberries. Once on Seagrim Lake, we immediately found two non-designated sites along the south west shore. This section of the lake has not been burnt, and is very pleasant camping.

The highlight of the trip was seeing a woodland caribou in the bush in the west arm of Seagrim Lake. It was a young male, about 20m away from the shore. Unfortunately, by the time we got the canoe turned to face, and the camera out, he was moving away, and the pictures taken were not exceptional.

There were two people on the lake, camped on an island at the north end, (#15.12). They let us come up and look over the site to survey the attributes. They said they had been there for several days, and planned to stay one more. The group of two was using kayaks to move around and fish.

Seagrim Lake showed variable signs of old fire, the southeast finger was all burnt. The

north shore showed about 50% burn, as did some small islands. However, the west finger, and south shore near the portage was untouched.

After investigating Seagrim Lake, we went back across the portage, and down Elton Lake. There were campsites in the southwest arm to survey. Of the two, the east was occupied by a large group, western one was empty. We did not want to bother the large group, so looked only at the western one (giving me a reason to come back to the route that I liked the best). The western site, number 15.07 was not very good, with poor camping, steep forest floor, and thick undergrowth. The firebox was right on the shore, with very little room for sitting or moving about. It might be more amenable with lower water levels.

ROUTE 1, TULABI LAKE TO SNOWSHOE LAKE VIA MCGREGOR LAKE, TRIP TWO

This route was paddled on 31 July to 2 August by Dieter Kuhnke and Tom Beckley. This trip is the second one on this route, with the chief objective of surveying the campsites and portages of Snowshoe Lake that were not reached on the first trip due to inclement weather.

We left the Tulabi Lake launch area shortly before noon under sunny and warm conditions. Heavy traffic was encountered at the first portage; we had to maintain station on the water until space became available around the landing area to beach our canoe. It reminded Dieter of an airport holding pattern. This was in contrast to the first trip where few people were encountered either at the portages or enroute.

This portage and the next one (reached after a short paddle across an unnamed lake) were difficult to negotiate because of slippery knee-deep mud due to recent heavy rains. The steep slopes at the shore were particularly challenging. Several groups travelling in both directions were encountered. Both portages ought to have corduroy placed to ease travel and prevent further deterioration from erosion and heavy rutting.

We paddled steadily towards McGregor Lake; that was the furthest point reached on the first trip. Since campsites up to this point had been surveyed on the first trip, there was no need to stop other than for a lunch break at the third portage (the one where the rapids could be "shot") and a brief stop for nostalgic reasons and survey calibration at the campsite on Elbow Lake where Messrs. Watson and Kuhnke camped on the first trip. We did notice enroute that most campsites were occupied.

With daylight waning, we opted to survey campsites on McGregor Lake on our return

from Snowshoe Lake and continued east on McGregor until an unofficial campsite was selected in a bay roughly halfway down the lake. An unmarked hut was spotted enroute to this campsite. Around this time we noticed that our rented craft had sprung a leak; water was building up alarmingly. A dip in the lake *au naturel* was refreshing and a fitting end to a long day.

The weather turned nasty overnight, with rain the next morning. Breakfast was a rushed affair. We left our tent and other overnight gear at our campsite to lessen the weight in our canoe. The pretty campsite alongside impressive waterfalls emptying into the east end of McGregor Lake from Snowshoe Lake made this the best campsite of the trip so far. It was occupied. The portage to Snowshoe (about 300 m long) was tricky in spots due to slippery rocks that had to be climbed. Emptying the canoe at portages was becoming a necessity.

After surveying the occupied campsite at the Snowshoe Lake outflow on the east end of the portage, we proceeded along the lake surveying several campsites, some of which are in Ontario. None of these campsites were occupied. Weather conditions were worsening, with strong winds creating dangerously high waves. The possibility of capsizing weighed heavily on our minds as we opted to abort further eastward travel and head back to McGregor. We realized leaving most of our gear at our campsite was a mistake.

Upon reaching our campsite after some harrowing paddling, we opted to stay put for a while to wait out the storm. Winds had become so strong that 15-20 cm dbh jack pine trees close to our tent were being snapped in two like toothpicks. We managed to doze in the tent for a while anyway before opting to try paddling west in the early evening after the winds and rain had lessened a little. Before shoving off however, we tried plugging the leak in our canoe by whittling a piece of jack pine to fit the hole where a rivet had popped out and securing it with plenty of pine pitch.

We surveyed several campsites on McGregor and another one on one of the two short portages that connect to the short stretch of canyon-bottom river that leads back to Elbow Lake. This was one of the few campsites (other than the ones on Snowshoe Lake) that was not occupied. The friendly duck we encountered on the way east was not around; we reckoned that it must have done time in an urban park because it waddled right up to our feet expecting food.

We stopped at several campsites on Elbow Lake (some of which were occupied) before deciding to stay at a campsite that was not surveyed on the first trip. Most campsites along this route are suitable for only one party. This campsite, with two widely spaced fireboxes separated

by trees and undergrowth, was an exception. We had supper in the dark.

More rain greeted us the next morning; we greatly hoped that our compatriots had met with great misfortune on their wimpy route. The return trip was uneventful except for Tom's interviewing several groups on the return portages using our Nopiming recreation survey forms. Traffic on these portages was again heavy. We were surprised at the number of people heading out as the long weekend was almost over. The repairs to the canoe worked; only a small amount of water was building up in the craft.

We stopped briefly at Davidson Lake and snapped pictures to prove that we had at least seen what was supposed to be the start of our second trip this weekend. The conditions at McGregor Lake obliged us to stay a day longer than expected on the Tulabi route. We headed for Pine Falls after dropping off the canoe.

ROUTE 25, MOORE LAKE TO BERESFORD LAKE

This trip was done solo, on the 10th of August. I started to portage from the road at 10:15, and soon found it wasn't quite the portage I thought it was. I had wanted to go directly overland to Moore Lake, and knew there were two paths in; I picked the better of the two, actually a sort of road, a truck could drive it but not the station wagon I had. The trail I picked was a route through Overhang Lake¹. So after a portage of 200m, you paddle 200m across the lake, and then another portage of 300m. I spent some time checking exactly where I was, and only arrived at Moore lake at 12:15 pm. It could have been done in far less time.

Moore Lake has been heavily burnt, and the scenery is not the greatest. In time, it could be pleasant, there is a nice rise on both sides of lake, about 10 m. By 1:10 pm I was heading down Moore Lake, looking for the second portage in a bay at GR 385450. I didn't find it from the water, but have seen a trail from the road.

Along Moore Lake I saw no reasonable places to put a campsite, the shore is generally steeply sloping, 4-6m, with dense regrowth, deadfall and standing deadfall. The major part of the lake is a heavy burn area. The very south end of Moore Lake was unburnt, with tall white spruce, and poplar.

I started down Moore Creek at 2:10 pm. Initially it is nicely wooded, spruce, 10m tall.

¹The topographical maps do not have a name for this small lake, but the photomaps call it Overhang.

The creek is at maximum 10m wide, meandering very slowly in a 100m floodplain, with lots of lily pads. A major drawback is that one can hear road traffic along the whole route. About half way along the creek, the floodplain had become overgrown with tall willows. The willows, combined with the twists and turns, allowed a view of less than 5m in most stretches.

The entrance to Beresford Lake is on the west side of what was once an island. Now there is enough reeds grown in, that the east side of the island has no water running through it. Even on the west, the path is narrow through the weeds, and involves some struggle.

Any sense of isolation, and wilderness, that may have been picked up on Moore Creek, is immediately lost upon entering Beresford Lake. The first view I had was of 8 motorboats with people fishing. These were flitting back and forth, trying to find a good spot. About 15 minutes farther south, cottages came into view; these would comprise the scenery for the rest of the trip. Beresford Lake would not be recommended for canoeing, unless it is an afternoon paddle for someone with a cottage. For those seeking wilderness, and privacy, Beresford Lake would be a large disappointment.

ROUTE 10, SHOE LAKE

The Shoe Lake route was surveyed on Aug 11, with L. Peters. This trip started out as a pleasant paddle, but the winds picked up as we reached the far end. Reporting on some of the campsite features was sparse, as it was too dangerous to approach certain areas. This is not a good lake for canoeing on a windy day, and the winds can pick up on short notice.

We started the trip at 1:50 pm. From the boat launch the lake view is very nice, with no sign of fire in the mature forest. While the lake is large and wide, there are also numerous bays and islands for diversity of view. There is a cabin noticeable across from the boat launch; I was later told that this belongs to the provincial department of Natural Resources, and is used for training purposes. As we paddled north along the west shore, we could hear chain-saws and heavy equipment being operated, but the buffer was wide enough that the operations could not be seen.

There are no designated campsites on this lake, but there are numerous sites that have been used for camping. The lake has many locations on the shore with large flat rock shelves, with open woods behind. In general, the campfire rings found here are bigger than on the other routes surveyed. Several of the islands also had signs of camping.

The end bay, which is the exit for Moose Creek, had plentiful signs of wild rice. A sign was posted giving a lease number.

The east shore was not well surveyed, by this time the water was getting dangerous with high winds. However, the shoreline showed less sign of rock shelves than the west shore, and so less attractive for camping. We got back to the boat launch at 3:45 pm. The lake might be pleasant for an afternoon paddle on a sunny, calm day, but would not be a great location for canoe camping.

ROUTE 9, CAT LAKE

The route was surveyed on Aug 11, with L. Peters. This lake should probably not be considered a canoe route, though it may be a good practice location for novices. The lake is too small for canoe tripping, and the outlet, Cat creek, is too small and narrow to be a pleasant paddle.

We started our traverse of the lake at 4:35pm, at the north or Cat Creek end. The trip ended at 515 pm, on the south end of the lake. The south-west shore has a mature mixed conifer forest, with signs of extensive disease. The east (road side) is poplar, mixed deciduous. There is an island part way along, with an old campsite of sorts. It didn't seem like a nice spot, but there was a campfire ring, and some lines tied between trees. Nearby, on the east shore near the south end of the island is a stashed boat, and a small pier. These would be about the spot where a truck was frequently seen parked on the road, just 200m north of the Point of Interest display on the highway.

ROUTE 16, FLINTSTONE LAKE

The route was paddled on Aug 11, with L. Peters. It should be noted here that the features mentioned will also be in route 18; both routes cover the same area, but from opposite directions.

We started by portaging in from the road, leaving one vehicle there, and another where the highway crosses the Moose River. It might be possible to portage in from where there is a sign for the lake on the highway, but it would be a much wetter portage, the creek there is not deep enough to float a canoe. The route that we and most others use has a very good, and dry, portage trail. We left the road to start the portage at 8:50 am, and arrived at the lake at 9:10 am.

The portage was 1000m long, with plenty of regrowth; it's a zigzag route to accommodate vehicles. There was a campfire ring beside the lake at the end of the portage, and some garbage. Once on the water, we noticed an island in the cove was marked, no doubt to allow people to find the portage to exit. There are lots of islands in view on the lake with trees. The lake itself is heavily burnt, the cove of entry is 70% burnt, the west shore 100% burnt. The lake itself has long open stretches, wind could make it non-canoeable.

There are no designated campsites on this route, and little sign that people have camped there. We did find three sites with campfire rings, two of which could have been used for camping.

The bay where the Moose River comes into Flintstone Lake from Little Flintstone Lake is standard for the region; a wide floodplain, and a shallow meandering stream. A sign nailed to a tree identified the operator of the wild rice lease on Little Flintstone Lake.

At 10:15 am we reached the end of Flintstone Lake. The topographic map shows rapids here, but not the photomaps. We did not see any rapids.

There is one portage on the Moose River, a big rocky outcrop in the middle of the river, we arrived there at 10:40 am. There is about 120m of rapids on the east side, and a short steep drop with just a trickle of water of the west. We also picked up traces of an old mining trail that the map shows crossing the river at about this spot.

Looking to the north from the outcrop, it is hard to pick out the channel. The first several hundred meters past the portage were zigzagging through narrow little channels, but then the river widened out, and became a pleasant paddle. In several places the rock is canyon-like, and though much of the area has been burnt, the view is nice. The last part of the river was heavily riced, as is the west end of Finger lake, and parts of the river between Finger Lake and the road.

We reached Finger Lake at 11:25 am, and the road at 11:55 am.

ROUTE 14, BLACK LAKE

The route was surveyed on the morning of Aug 12, with L. Peters. This lake is a camping restricted zone, and there are no designated sites. The purpose of this trip was twofold, to gain a general appreciation of the lake for canoeing, and to investigate the outlet of the Black River as a start point of a trip out of the park. There has been some picnicing on the islands, but cooking is normally done with half-barrels. No evidence of campfire rings was found on the

islands.

Black lake does not seem like a large body of water while canoeing. The numerous, and quite large, islands, reduces it to a series of wide channels. This also could give a sense of privacy, as the islands block long range views. The channel reaches are long enough, and oriented such that wind could render many sections dangerous for canoes on a bad day.

There were signs of a small fire at the outlet of the Black river. This was likely a picnic spot, as tent spots are not apparent. Just in case, it was listed as a campsite in the attribute list of Appendix E. There is an obligatory portage at this point, to avoid a waterfall/rapids complex which is impassable. The portage does not have a well defined trail, but would be quite easy, approximately 30m long, on the north shore (right of the falls going downstream). The river after the falls would not be pleasant to paddle between this portage and Highway 314, being jumbled boulders, and fallen trees.

There could be advantage in taking this route to start the trip, as it is safer to park cars in the campground parking lot, rather than on the shoulder of the road. However, the aggravation of the portage is a negative factor, and traversing the lake on a windy day could be difficult. Another option would be to park at the Rabbit River parking lot, and start the trip on a short section of the Rabbit River. The two rivers are similar as they cross the highway.

ROUTE 11, RABBIT RIVER TO COLE LAKE, TRIP TWO

The second trip along the Rabbit River route was during the weekend of August 14-15 with David Benoit of Winnipeg. The trip started at 1:30pm, Aug 14, in pouring rain. Unfortunately, by this time of the year, we had little choice but to continue the trip in the rain and hope for the best. There had been plenty of rain during the summer, and the time to finish all the routes was getting short. We reached the first portage at 2:10pm. There were two separate groups camped on the island (campsites 11.03 to 11.06); the first ones marked on the canoe route map. The water was very high, a result of the heavy rainfalls in July and August. We reached the designated campsite 15.07 at 4:00 pm, and had tea. The rain had mostly stopped, to a light drizzle. Paddling through the heavy rain had been very tiring, and we were bailing often.

A short time later, we passed the point where I had stopped with Duncan on the first trip. For the next several kilometers past this point, the river flows through a small canyon, with tall

old conifers, very attractive to paddle through. Where the canyon ends, evidence of a past fire begins. This fire was evident for the whole rest of the trip, including most of the shoreline of Cole lake. Another designated campsite (number 11.10) was found along the last stretch of river before Cole Lake. We did not find this site attractive, and it did not appear as if it had been used recently. We tried fishing, and caught a small northern pike, which we released. The river on this section is mainly straight, with wide meanders when present, and through a wide valley.

We arrived on Cole lake shortly after 6 pm., after crossing an exit portage. The portage is about 75m long, and bypasses a short rapids, with a beaver dam on the upper end. The normal route is on the north, (as we discovered on our return), but we took a path on the south shore, which was not very good. The normal portage path was completely flooded, and in fact we paddled down the path to exit the lake the next day. Over 75% of the shoreline and islands of Cole lake were burnt, with just some isolated patches on the east shore, and some islands escaping unburnt. The area shows heavy regrowth, mostly jackpine about 2m tall.

We started by following the south shore to the east, and found the first designated campsite quite easily. At this point, we were both collecting attributes, and looking for a nice spot to spend the night. We climbed a rocky ridge behind the campsite to the southwest, that allows a good view of the lake. From here we could see that there would not be any attractive sites on the lake to camp, due to the old fire. We could also see that another group was camped on a small island near the north end of the lake, at a non-designated site, number 11.16.

We continued along the south shore, but could not find the second designated campsite. Near where it should be, we found a cabin on the tip of the big island. Our guess was that it was an outcamp or rice camp. It was not elaborate, and the door was open. After looking at non-designated site 11.14, we made our camp on the island where the designated site (number 11.13) should have been, it was the only one with trees. We used the gas stove to cook our supper as darkness fell, and went to sleep well tired out from the day.

We left the campsite at 8:30, and within half an hour of paddling the south and east shores found the next designated site, number 11.15. We noted here that with the exceptional water levels, our guesses of the position of the fireboxes in relation to the shore might not be accurate in normal years. The site did not look used this year.

We continued on to the campers we had seen the night before, on a non-designated site

on a kidney shaped island. They were still present, but agreed to let us look the site over. They were especially accommodating when we told them there was a notice at the staging area about a found wallet; one of them had lost it, and was glad to hear it was at the police station in Lac du Bonnet. This group of four had one motor boat, and one motorized canoe.

After leaving the group we continued around the north part of lake, and had no trouble finding the remaining designated sites on Cole Lake. None of them was as nice as the island being used by the campers we met, though they will be in a few years when the trees grow larger.

The way back was nicer than the journey in, it helps when there is no rain falling! We "leapfrogged" the way along, passing and being passed by the motor boat group. They had the advantage in the open water, but we were faster at the portages, and in the meanders. We shot all the portages going downstream without difficulty. We also took the time to look at the sites not yet surveyed. We found an error in the canoe route map where the first campsites are marked (numbers 11.05 and 11.06). Two groups had been in the area the night before, but now were gone. The map shows a peninsula, but it is actually an island. And rather than two sites, there is one firebox in the middle of the island. It didn't look used, a tree was growing directly beside the box. Instead, campers have created a site at each end of the island.

We decided it might be easier to find the site on the offshoot lake by going overland from the shore near site 11.04. Indeed it was, there was a marked trail between the two lakes, with flagging on trees to show the way. We found the site easily, and also found the layout for several cabins. I later found out that the trail leads to an area that is to be leased to Faith Baptist church of Winnipeg. A member of the church who I met later in the parking lot at Rabbit River, said that the church will be allowed to build a youth camp in exchange for clean up duties on the route. A path along the river from the boat launch goes to their lease, as does another trail overland from the other end of the staging area.

A return trip of the whole route can be comfortably completed in two days with normal water levels. Anecdotal evidence suggests that in a normal year, the water levels are very low by August, though this was not the case in 1993. Record rainfalls in July and early August left the water levels higher in August and September than during the spring runoff period.

ROUTE 19, MOOSE RIVER-MOOSE LAKE-TOOTH LAKE

The trip started from where Hwy 314 crosses the Moose river at 9:20 am, Aug 18th, with L. Peters. Again we used two vehicles, parking one at the start point, and another at the roadside where the portage into Tooth Lake starts. The river initially flows through a burned area, with little regrowth. By 9:40 am we reached the first portage, 50-70m long, took on the north shore. The portage skirted a rapids that started with a beaver dam, then became a series of drops with sweepers. The portage was through an area of regrowth, with fallen timbers, and no real path. Due to heavy rainfall, a small runoff stream was coming in across our portage, and we got wet crossing it. The river here is 20m wide at best, in a wide shallow flood plain;

At 10:15 am we reached the second portage, through a burn area, though there were patches of unburnt. This portage was around a definite narrowing of valley, and a Cshaped curve. We found no real path, so we cut across the end of the C, and with creative zigzagging ended up only carrying for about 100m. The river after this portage is 10m wide, and flows through a flood plain that is 100-150m wide. Any rock outcrops that are accessible from the stream are steep sided, with no campsites available. Along the rest of the way to our junction for Tooth and Turkey Lakes that were numerous places where the reed grass was so high that we could see nothing in the distance.

We reached the junction that leads to Tooth Lake at 11:15 am. From here we took a side trip through Turkey Lake to Moose Lake. On Aug 8 I had talked to Kelly Ritchie at the MNR in Bisset. Apparently his park patrol went down the Moose River in 1992 and it was impassable after Moose Lake. It seemed best to survey Moose Lake on this trip, and not do the route between Moose Lake and Happy Lake at all. A report of the backcountry patrol trip in 1992 was provided.

We reached Turkey lake, at 11:30 am. It is highly eutrophic, with some wild rice, and lots of weeds. It is surrounded by low hills that have signs of forest fire. There is no potential for camping here. There is a white colored ridge at the east end that stands out, and served as a guide for us, we always had a good idea of the distance back to the lake when it was in sight. The exit from Turkey Lake was difficult to find. A huge floating island of weeds completely blocked the exit stream. It was only by climbing up onto a muskrat house that we found out that the stream continued on past it. This floating mat must have just recently moved into place, as

the stream between Turkey and Moose Lakes shows high use.

There are two portages between Turkey Lake and Moose Lake. They are all well-travelled, with wide straight paths. Both are around large rapids. We finished the 2nd portage at 12:20 pm. There was a campfire ring at the upstream end of the first.

The staff at Lac du Bonnet had asked us to look over a cabin on the Moose River just past Moose Lake. This request and past experience led us to expect one or two on the lake. It still came as a shock to see 6 cabins on Moose lake, all highly visible, and most very large. We found the cabin on the Moose River, about 2 Km past the lake at 1:15 pm. It wasn't anything special, a fish or rice shack. It seemed like a good place to turn around, and head for Tooth Lake.

After once again passing through Turkey Lake, we reached Tooth Lake in worsening weather (no surprise there). The lake is in an area of heavy burn, and the potential for camping is limited. As well, the shape of the lake could cause dangerous waves for canoeists. We paddled across some. There are two cabins on the large island at the east end of the lake, but nothing of real interest. It is said to be a very good lake for fishing, but we hadn't brought our rods. We reached the end of the lake, and the portage to the road, at 3:40 pm.

ROUTE 15, SEAGRIM LAKE ROUTE, TRIP THREE

This trip was mostly mop up, collecting the few bits of characteristics that had not been surveyed on the previous trips. Also, it is a pleasant area that I wanted to see one more time. The trip was taken with L. Peters on Aug 19. We started by reexamining the sites on the second lake that hadn't been completely surveyed on the first trip. The only remarkable thing was a new building, located where campsite 15.05 should have been. It was hidden back in the woods, and painted in a way to camouflage it from view. It looked like an anglers shack of some sort, with a sleeping platform, and a small table with a coleman stove. When I later told the parks staff in Lac du Bonnet about it they said it would be removed over the winter.

The main goal was to see Elton Lake's last site, campsite 15.08. It was a nice site, easy to see why it had been occupied the last visit. The whole trip to the end of the southern arm of Elton Lake took about one half day return. And for once we had good weather, though surprisingly we didn't meet anyone else on the route.

ROUTE 26, LONG LAKE TO CARIBOU LANDING

The trip was taken with G. Williamson of Winnipeg on Aug 24-26. The first day of this trip was used to drive from Winnipeg to the park. We drove into Caribou Landing on Quesnell Lake to drop off one vehicle, with a parking fee of \$7.00. We then went on to Long Lake, where the MNR had allowed us the use of a cabin for the summer. We also checked the survey boxes along the way, as well as the charter airlines who had forms in Bisset.

We left the cabin on Long Lake at 10:00 am the next morning. Long lake itself is not burnt, and is pleasing to the eye. Some of the forest shows evidence of disease. However, the distractions of a lodge, and numerous cottages detracts from the experience for canoeists. We found a couple of non-designated sites on islands, near the east end of the lake, one which was probably a picnic site, the other with evidence of camping. The end of the lake is obvious with a power line crossing the lake. From here the "wilderness experience begins.

The first designated campsite, # 26.02, is actually on island, 1/3 of the length from the east end. It is 45 minutes paddling time from the last island on Long Lake. We saw no evidence of non-designated campsites along the length of the Manigotagan River.

The next designated campsite is on the first portage. The portage is on the south shore, 200m long, with a good trail that deteriorates at the east end. It skirts one long rapids of 100m, then a bay, then a short waterfalls. The rapids can be run, but through the falls you swamp, either empty or loaded. We tried. After setting up camp on the portage, we ran the empty canoe through the whitewater. There was no problem in the rapids, but the alignment of the rocks over the waterfall created backwashes that swamped us. It felt great, this was the first hot, sunny day in a long time, and we needed a swim anyway. Just as we were hanging up the wet clothes, a party of four in two canoes walked by, scouting the rapids. We told how we fared, and they decided to try it as well, with loaded canoes. They both swamped, but did come closer to succeeding than us. I took some pictures as they went through, and traded a promise of copies for a promise of a completed survey form at Caribou Landing.

In the evening we tried fishing at both ends of the portage, and managed to catch a few small pike, that we released. During this time, another chap came through, paddling solo. He said he was going all the way to Lake Winnipeg.

We started out early the next morning, and reached the 2nd portage within fifteen minutes. It is on the north shore, 200-300m from first, avoiding a 5-8m falls, which is not

runnable. The other two portages along the river are similar, not always easy, but obvious to find and follow, and not too much work. One was marked with flagging tape at both ends.

Immediately following the fourth portage, we arrived in Manigotagan Lake, and ran into a motorboat with a group fishing and drinking beer. So long wilderness. We went to work surveying the lake and campsites towards the east, in the direction taken to get to Happy Lake. This section is actually part of what this project has called route 27, (Manigotagn Lake west-Happy Lake). All of these sites are now operated on a commercial basis by the owner of the Caribou Landing Lodge, on Quesnell Lake. They do not appear drastically different from the other sites seen. None were in use. The farthest away, # 27.03, is by far the nicest, on a narrow peninsula, with an open birch forest. We also were surprised to find cactus growing at site number 27.02.

This part of the lake is mature forest, some of it giving way to disease. There were several cabins on the lake. There is one designated campsite on a large island opposite the portage, that is not commercial. There are supposed to be two, but there was only one sign found. The sign said: "canoe campsite only". This is probably necessary, as we saw many motorboats on both Manigotagan and Quesnell Lakes.

Quesnell Lake shows some signs of fire, in particular the island that contains site # 26.06. Disease was again obvious in the standing forest. We arrived at Caribou Landing, and the end of the trip during the late afternoon, picked up our vehicle and headed home.

APPENDIX D: Nopiming Provincial Park Focus Group Summary Analysis

BACKGROUND

The Nopiming Canoeist Focus Group Study was conducted in June, 1993 as a component of a joint Forestry Canada/Manitoba Natural Resources research project, examining the non-market value of forest areas. The overall project will provide information on the numbers and demographics of canoeists, their expectations and needs, as well as information on the economic value of canoeing in Nopiming. The focus group study was conducted and summarized by the Parks and Natural Areas Marketing Unit. The results of the study will help in the development of a more detailed mail-out survey and provide qualitative information about the many canoe attributes associated with the Nopiming routes.

PARTICIPANT PROFILE

The focus group participants were randomly selected from lists generated from the Nopiming backcountry registry (1992). Participants were past and present users of the various water routes in Nopiming. The level of canoeing skills varied from novice to wilderness expert. Occupations included; child care worker, justice department employee, business owner, computer scientist, teacher, grad student, hair stylist, retiree, student, parent, body work employee. The majority of the participants were married.

DEMOGRAPHICS

Participants were asked if there were any personal demographic questions that they did not feel comfortable answering when completing surveys (e.g. how many children, level of education, etc.). The group agreed that the only demographic questions (normally seen in surveys) they felt uncomfortable related to income.

IMAGES OF NOPIMING

When asked what images came to mind when participants thought about Nopiming, the responses included; rugged/wilderness area, place to explore, burned out areas, peace and quiet, small navigable rivers, wildlife photography, fishing, canoeing. Several individuals mentioned logging.

EXPERIENCES SOUGHT

Most participants associated their experiences with being "close to nature". Specific experiences sought included; peace and quiet/isolation, get away from people, spiritual and physical rejuvenation, solitude, sounds of nature, excitement of rapids, the exhilaration of showing someone new to the area what Nopiming has to offer, being able to draw upon memories of canoeing in Nopiming when back in every-day life, a return to one's roots in the backcountry away from crowded cities.

GENERAL ATTRIBUTES

Participants were asked to rate the importance of 11 attributes related to canoeing in Nopiming. The attributes are listed in order of importance and accompanied with a mean score out of 5 (1 being the least important and 5 being most important). Equally important to the analysis of these attributes were the qualifiers that participants provided.

1. Landscape/Scenery: 4.55 - Participants tend to appreciate all natural scenery along the routes, including burns. many strongly indicated that they would not canoe anywhere there's evidence of commercial resource extraction, especially logging.
2. Maintained Portages: 4.36 - It was generally agreed upon that portages should be maintained to keep human impact in one area (but not wide enough for a motor boat). However, there should be a range of maintenance levels with less maintenance as you move farther into the backcountry.
3. Degree of Difficulty: 4.18 - The range of canoe routes in Nopiming is appreciated. There seems to be something for everybody's level of experience. Degree of difficulty should be made known to those that have never canoed in the area (part of pre-trip planning).
4. Diversity of Water: 4.00 - Participants felt it was important to have a diversity of water to choose from (open lake to fast flowing river channels). "Take what you get and portage around difficult water if you have to".
5. Wildlife viewing: 3.82 - The following quotes seem to capture the groups feelings; "something is wrong with the area if you can't see wildlife", "love to see wildlife but I don't plan my trips around it".
6. Route information: 3.80 - Everyone agreed that accurate maps of the routes were essential. The group differed in terms of on-site signing. Some felt information should be provided only at the staging area while others would like to see route information (map) at each major campsite.
7. Access to routes: 3.46 - Access was not all that important, as many felt that "you can get anywhere if you really want to". Most felt that a careful balance was needed, but saw it as a bit of a dilemma ("too much access and you get too much use and garbage", poor access and you limit who can use a route especially when access is physically demanding or vacation time is limited).
8. Campsites: 3.27 - Participants had some difficulty with this as they felt designated sites would limit impact, but at the same time canoeists should be able to camp where they want in the backcountry. They felt well used portions of routes should have maintained sites (firepits and pit privies) but remote areas should have little or no facilities.
9. Fishing/Hunting: 2.36 - Responses to this attribute were quite polarized, either they felt it was very important or did not take part in those activities and did not see them as important.

10. Facilities: 1.82 - Facilities (firepits, pit privies, picnic tables, etc.) were not considered very important to participants. The group was again split as to whether firepits and pit privies should be provided along the routes. A balance is required to control impact in heavily used areas and to keep more remote areas natural looking (free of facilities).

Note: Safety was included on the list of attributes, but participants had a difficult time rating the importance of it. Safety seemed to mean something different to each individual, although it was agreed that everyone wanted to be "safe" (it is important to know your limitations before selecting a route).

VEGETATION/LANDSCAPE

Participants were asked to rate 9 photo images of vegetation/landscape types found in Nopiming as to how appealing they were. The images are listed in order of preference with a mean score out of 5 (1 being least appealing and 5 being most appealing).

1. Jackpine/Rock outcrop: 4.82
2. Mixed Coniferous/Deciduous: 4.55
3. Wild Berries/Bushes: 4.18
- 4.
5. Black Spruce Stand: 4.09
6. White Spruce Stand: 3.73
7. Mixed Balsam/Spruce: 3.55
8. Burn Area: 2.73
9. Cut Area: 2.30

CULTURAL HISTORY THEMES

Participants were asked to rate the importance of 6 cultural history themes associated with Nopiming. The themes are listed in order of importance with a mean score out of 5 (1 being least important and 5 being most important).

1. Prehistoric Art: 4.36
2. Historic Exploration/Fur Trade: 3.73
3. Historic Lifeways: 3.64
4. Historic Mining: 2.55
5. Historic Forestry: 2.27
6. Historic Trapping: 2.00

Most participants felt it was important to have information available on the cultural history themes ("we need to know where we've been to assess where we might go in the future"). Material should "not be too heavy", "we are reading for interest not a lesson". Most would pay for literature if it was well written and covered the entire history of the park. One individual felt that it may not be cost effective to produce given the limited market interested in Nopiming history.

RESOURCE USES

Participants were asked to list any resource use activities that they were aware of in Nopiming. The group was then asked if any of these activities had a direct affect on how they use canoe routes in the park (i.e. have you experienced any of these firsthand and has any activity caused you to change your use patterns?). The list and associated comments are as follows:

Logging: Two participants indicated that they had come across evidence of timber cutting to the rivers edge on a section of the route between Tulabi Falls and Davidson Lake in the early 1980's. They indicated that they never travelled on that route again. The rest of the group indicated that they had not come across any physical signs of logging in recent years and therefore had not ceased using a route because of logging activities.

Fishing: Fish guts left behind by sport fishermen is bothersome in heavily fished areas. Participants try to avoid these areas when possible (e.g. island on McGregor Lake.)

Cottaging: Most indicated that cottages and the associated activities around them detracted from their canoeing experience. many try to paddle through these areas as fast as possible. One individual indicated he now uses Nopiming only to get to rivers in northwest Ontario to get away from the development.

Power boating: Many indicated that they had been driven to Nopiming to get away from power boats. Most felt strongly that power boats were an intrusion and paddled further into remote areas to get away from them.

Hunting: Most indicated that they now avoided any area where hunters are present.

Camping: No comments

Trapping: no comments

Tourism: no comments

USE PATTERNS

Participants were asked if the following situations or activities would change their use patterns (e.g. would you cease using a particular route or take a detour?).

Bridges: Most would avoid a route especially if bridges were permanent.

Burn area: Burns are not seen as a detraction. They add to the diversity of the trip and are good areas to see and photograph wildlife. If an entire route was burned over, it may cause concern and a change in use patterns.

Garbage: Garbage seems to affect the choice of campsite more than choice of route. Many indicated that they often pack out other people's garbage (the Bird River route seems to be the worst).

Aircraft flying over or landing: Not much of a concern and in fact can be a plus (sense of safety, if something goes wrong in remote areas you could get help from the pilot).

Logging (in view and sounds): The group was quite adamant that they would change their route if logging activities were visible. For many, just the knowledge that logging occurs in the park bothered them. Most indicated a strong opposition to cutting in parks.

Hydro lines: Participants agreed that power lines were an eye sore but were also considered a "necessary evil". They indicated that lines were only in view for a short period and in some cases made good portages, but poor camping areas.

People congestion: Most indicated they would paddle farther into remote areas to get away from other people and that they didn't like to "battle" for a campsite. Some had quit using Bird River because of congestion and one individual had outright stopped using the park (now canoes in northwest Ontario).

Hunting: Most were generally indifferent to hunting, except for big game rifle hunting which was viewed as being dangerous. Generally, they stay away if hunting season is underway (rifle hunting). Two participants were avid bow hunters.

Trapping: Most have never seen signs of trapping and even if they did, would not change their route. Some indicated a fascination with trapping and old trappers' cabins.

Wild rice harvesting: Participants had little problem with small scale rice harvesting operations (ie non-mechanized), but would change routes if large scale mechanized harvesting was occurring.

Mining: Most had not seen much evidence of mines along routes, but expressed a concern about potential leaching of toxins into water. Many felt they would avoid routes if operational mines existed, but some were interested in historic mine sites.

CONGESTION

Staging areas: Bird River seems to be a concern for many with one individual indicating he had to wait in line to launch his canoe. Also identified by some to be a problem was the Rabbit River/Cole Lake route.

On route: It was generally accepted that Nopiming had designated canoe routes, so you have to expect to see other people on them. There was some concern about power boats, especially on narrow stretches of water.

Portages: Areas of concern included the Bird River (Tulabi to McGregor Lake) and Snowshoe Lake.

Campsites: Securing a campsite was concern on busier routes such as the Bird River, but "you move on until finding a suitable site". It was felt river capacity could be set by regulating the number of campsites and having canoeists register ahead of time.

TRAVEL TO ROUTES

Travel time is dependent on time spent canoeing. Most participants are willing to travel 2 to 2.5 hours to canoe for a weekend, but it not be uncommon to travel a day or more for trips of a week or longer.

When travelling to Nopiming from home the only complaint is dry, dusty and rough roads. This was also seen as a positive as it keeps the park remote and limits the use (less people encountered when canoeing).

OTHER CANOE ROUTES

Other areas canoed in by participants included Atikaki Provincial Park, Woodland Caribou Provincial Park, Lake of the Woods, Quetico Provincial Park, Lake Superior and the Berens River.