The Road Less Travelled?

A report on the effectiveness of controlling motorized access in remote areas of Ontario

A Case Study in Temagami

A Field Report Prepared By:

Wildlands League

A chapter of the Canadian Parks and Wilderness Society

and

Sierra Legal Defence Fund

February 2003

A Global Forest Watch and Global Forest Watch Canada Report

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A Global Forest Watch and Global Forest Watch Canada Report

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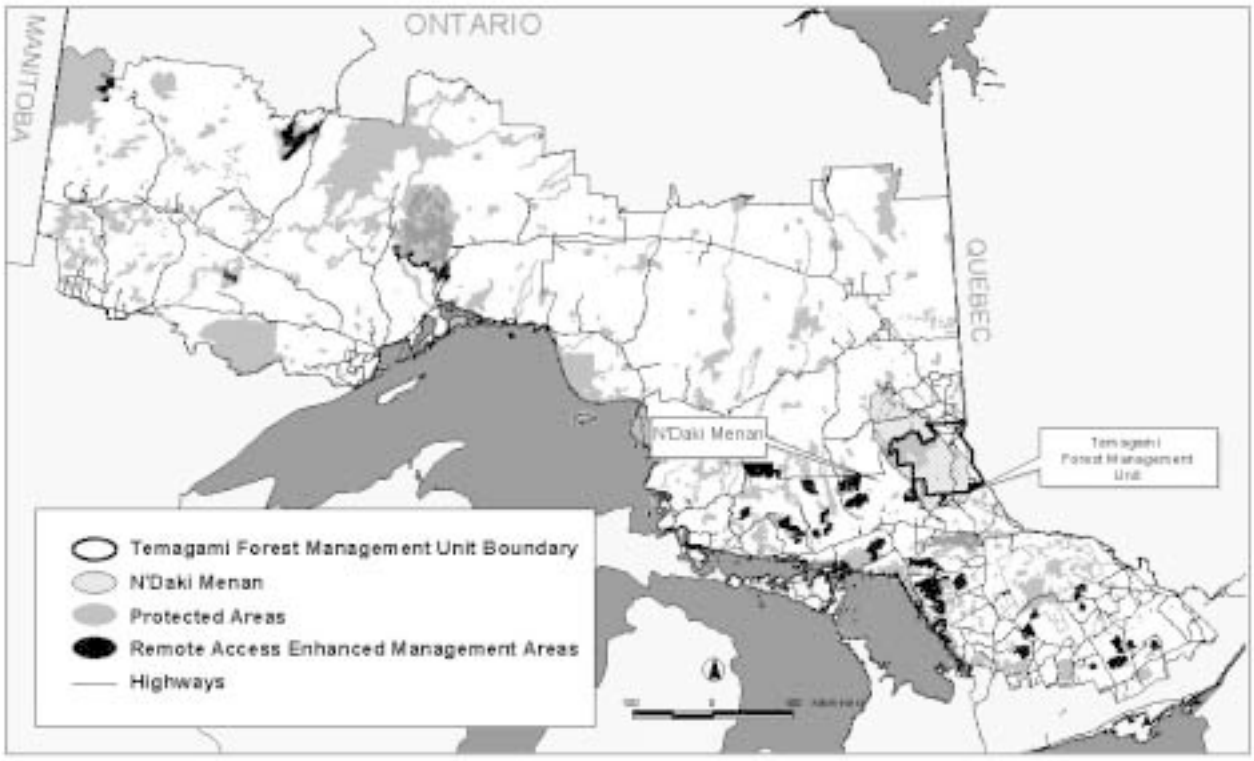


1. Executive Summary

Purpose

The purpose of this study is to report on the effectiveness of managing access roads to retain remoteness during forest management. The study focuses on the effectiveness of motorized access controls in the Temagami forest, and applies these findings to recommendations regarding road planning in Ontario's forests.

Summary Of Findings

This report summarizes the findings of our investigation into the effectiveness of restricting motorized public access to maintain remote forest values. The ability to maintain remote forests is increasingly critical across Ontario as the network of logging roads in our public forests continues to expand and leaves ever fewer areas free from the significant and varied impacts of road construction and use.

The Temagami forest management unit (see Map 1) was used as the case study for this investigation owing to its large number of access controls and its 1997 land use plan, which designated a number of Special Management Areas where forest resource planning and extraction will still occur, but remoteness will be retained.

Field visits conducted by CPAWS-Wildlands League and Sierra Legal Defence Fund and inspection records housed at the North Bay district office of the Ministry of Natural Resources (MNR) showed high levels of access control violation.

Frequency of Access Control Violations

Inspector	Percentage of sites with at least one violation (only for sites with data)	Percentage of all inspections that revealed violations
CPAWS-Wildlands League / Sierra Legal	62 % of 13 sites – 1 year of observations	55 % of 21 inspections
MNR	94 % of 17 sites – 14 years of observations	45 %* of 262 inspections

** Our estimate of the frequency of violations found by the MNR is conservative. We only included an incident as a violation in our calculations if the MNR investigator explicitly recorded an observation as a violation. MNR investigators did not consistently record observations as violations that we would have classified as violations. Both the Red Squirrel Road and Liskeard Lumber Road provide examples of this. It appears that the construction of the gate on the Red Squirrel Road allowed the passage of ATVs underneath. This means that the gate was ineffective and potentially being violated even when it was intact. On the Liskeard Lumber road, the path around the gate (still present today) was observed in the first year of MNR inspections in 1989. Although the path was not consistently recorded by MNR investigators, this implies that the gate has been ineffective throughout almost its entire life.*

The evident challenge of implementing effective access controls argues for a strong emphasis on keeping areas roadless, and where roads are built, for the minimization of road density, the avoidance of sensitive areas and careful planning of access controls. The location of roads and access controls, and the type of access control used appear to be the most important factors in influencing the effectiveness of remote strategies.

2. Introduction

Roads In Our Forests: What Is The Situation?

Remoteness is an essential characteristic of wilderness. Characterized by the absence of motorized vehicles like cars, trucks, ATVs and snowmobiles, remoteness is a state that allows fish, wildlife and people to enjoy forest living in a more natural state. Areas where roads have never been built are remote, but so are forests where motorized road access is effectively prevented and where roads are being rehabilitated.

Looking at a provincial road map (see Map 2), one may get the mistaken idea that Ontario's north is mainly wilderness, with relatively few roads. This is far from true. In between the highways marked on the map is a dense network of logging roads penetrating our public forests (see Map 3). Roadless and remote areas where wilderness is free from the impacts of industry and motorized vehicles are becoming increasingly rare in Ontario.

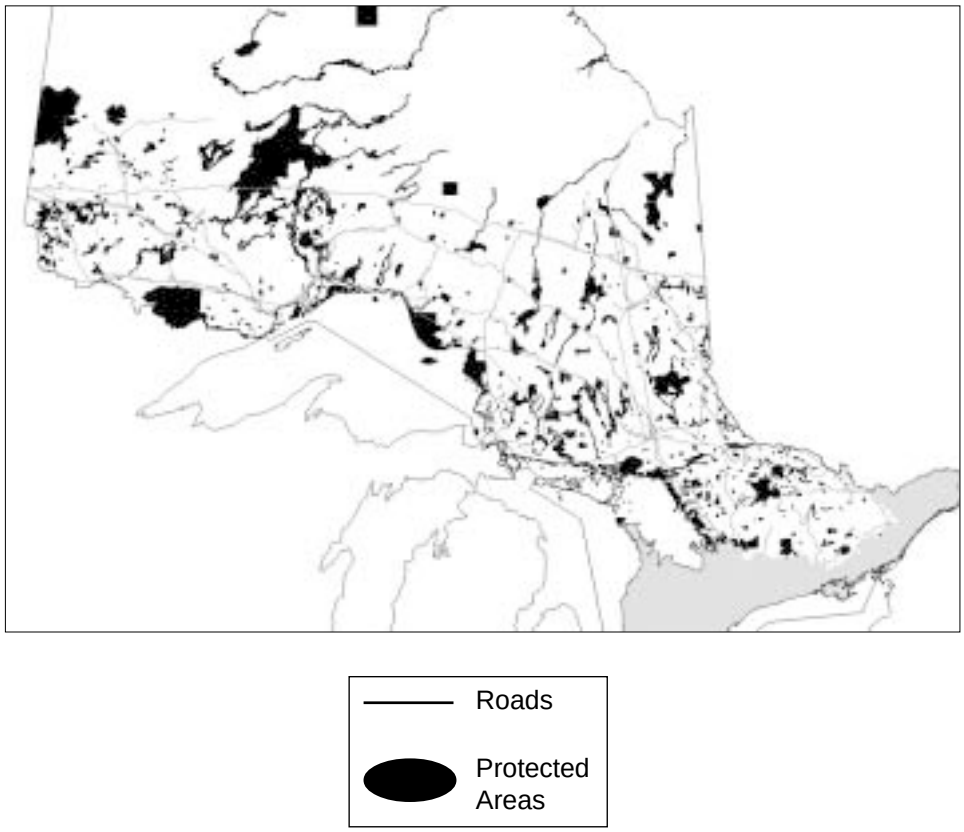
Thousands of gravel pits dot Ontario's forests.

In fact, as of 1987 there were 33,000 km of logging roads dissecting Ontario's publicly owned forests, with an average of 1,700 km of new road being built each year.[1] However in the last operating year, for which information is available (1999/2000), this figure decreased to 528 km of new road being built. [2] (MNR does not report annually on the total length of roads in the forest.) As of 1998 there were only 40 roadless areas larger than 200 km^2 remaining in the half of Ontario that allows forest management.[3] Only four areas over 1,000 km^2 (100,000 ha) still existed in Ontario's managed forest outside of parks.[3] Ontario is rapidly running out of forest that is free from the significant impacts of roads.

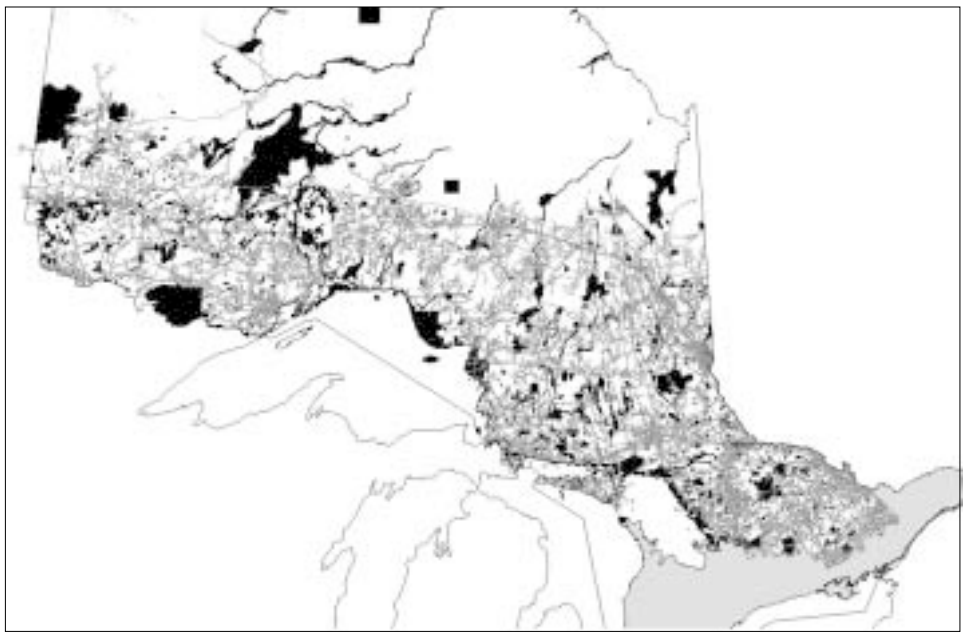
In northern Ontario, there are about 15,000 people employed by remote hunting and fishing lodges.[4] One hundred and fifty-three thousand tourists visiting remote tourism establishments in northern Ontario in 1996 directly spent $183.4 million, contributing $206 million to the Gross Domestic Product in direct and indirect spending.[5] Visitors drawn to the remote areas of Temagami enjoyed 60,000 days of canoeing from May to September 1994, averaging 500 people per day.[6]

Although some logging roads are built only for winter use, making use of frozen ground and snow for the roadbed, most forest access roads in the province are built with a permanent road bed of excavated gravel for the year-round use of heavy logging trucks.

Map 2: The Roads You Know About – Ontario's Major Highways



Map 3: The Real Extent of Roads – Logging Roads Blanket Much Of Ontario



What Are Logging Roads?

Logging roads are usually built into areas that were not previously accessible by motor vehicle. Primary and secondary logging roads are usually gravelled with permanent road beds. They are used by heavy trucks to transport timber out of the forest. Tertiary roads are smaller, usually ungravelled, and are used by harvesting machinery to move and gather trees within areas that are being cut. When any type of logging road is built, bridges and metal culverts are installed to cross streams and rivers. Logging roads also provide access to the forest for regeneration activities like tree planting.

In some areas of the province winter roads are frequently used. These roads don't require a permanent road bed because frozen ground and wet areas provide the hard surface required.

Strategies For Controlling Access

Access Control: The closure of a road to public travel or the restricted access to a road for certain specified uses for given periods of time.[2]

Natural Abandonment: The natural regeneration of a road when it is not maintained. Road maintenance has ceased, but no steps are taken to prevent the use of the road by vehicular traffic through physical disablement.[2]

Physical Abandonment: A deliberate act to render a road unusable by vehicular traffic. For example: gating, ditching, bridge or culvert removal, etc.[2] Physical abandonment can also include digging up the road bed, planting seedlings in the road bed and the use of obstacles such as boulders.

These roads are built for logging but once built, roads also provide access to the forest for other uses. Although some of these uses like camping and canoeing generally have a modest environmental impact, others like mineral exploration, extraction and motorized hunting and fishing have the potential to create significant negative impacts on ecosystems. Many people desire ever increasing access, however, and approximately 80% of the logging road network is open to public use in Ontario.[2]

What Are The Impacts Of Roads In Our Forests?

Each phase of a road's life can cause significant negative environmental impacts. Construction of the road results in the long-term removal of forest habitat from the entire length of the road corridor. Often gravel is mined from the surrounding lands to form a permanent road bed that compacts the soil,[7] alters local hydrology,[8] and adds sediments to water bodies.[9] The bridges and culverts used for crossing streams and lakes can disrupt fish breeding and movement if constructed poorly.[10]

Once built, roads bring logging to the forest. This is certainly their biggest impact on forest ecosystems. In Ontario, the ecological legacy of industrial logging includes a loss of old forests, simplification of forest diversity, and the absence of important habitat characteristics in the secondary forest that returns after harvest*.

** For a discussion of how industrial forestry can be changed to maintain the ecologically critical characteristics of the boreal forest, see the Good Boreal Forestry fact sheet, which can be downloaded at www.wildlandsleague.org/proactive.html.*

The impacts of logging roads, however, extend well beyond the facilitation of logging. Roads fragment the landscape, creating permanent access corridors which encourage mining and motorized forms of recreation and pose serious and pervasive threats to the integrity and diversity of forest ecosystems. Prominent conservation biologist Reed Noss has identified road density as the most important indicator of ecological integrity of wildlands.[11]

Roadkill can have significant impacts on wildlife populations. In Alaska's remote Kenai National Wildlife Refuge vehicles are the leading killers of moose.[12]

Even in the absence of motorized use, roads continue to disrupt wildlife movement.[13,14, 15, 16, 17] Species whose presence is indicative of ecosystem integrity, such as caribou and wolves, avoid densely roaded areas.[18, 19, 20] Invasive plant species, however, often migrate along these roads (often carried by vehicles or animals) and can colonize neighbouring forest.[21, 22, 23]

All-terrain vehicles (ATVs) are increasingly popular.

Significant negative population effects have been observed in fish and wildlife populations living in areas accessed by roads. This is a result of the increased reach and success of hunters and anglers that use roads to access previously remote forests and lakes. A dramatic increase in moose hunter success rates in Ontario over the past decade has forced a reduction in the number of hunting permits being issued.[24] The dramatic increase in success rates is partly due to the extensive road network.[25] One study near Sudbury has confirmed that creating motorized access has dramatic negative impacts on lake trout populations due to increased angling activity.[26] This increased activity was the result of easier winter access for snowmobiles and all-terrain vehicles. The proliferation of roads may therefore threaten the long-term health of wildlife populations and, in turn, high-quality hunting and fishing opportunities in Ontario.

The progressive loss of remote areas is also a significant threat to opportunities for remote-based recreation and tourism, such as camping and canoeing, fly-in remote tourism, and remote living. The present enjoyment and future development of these economic and experiential benefits are dependent upon retaining roadless and remote areas.

What Are The Rules Governing Roads In Our Forests?

Building logging roads is permitted on most public land in Ontario. It is even permitted in some parks. For example, Algonquin Park contains both Highway 60, a major transportation route, and a network of logging

roads. Forest companies also have the opportunity to build roads across many of the new waterway parks, established in the 1999 Ontario's Living Legacy plan, that run along Ontario rivers.

Four percent of the managed public forest was designated as Enhanced Management Areas in Ontario's Living Legacy Land Use Strategy[27] in 1999. These areas were created with an intention of maintaining several types of non-timber values including remoteness.[27] However, to date, clear direction for forest managers is lacking on how this important value must be protected in these special areas. In many cases, it appears that business-as-usual road development is occurring in these areas, undermining the values they were designated to protect. For example, the Pipestone Bay – McIntosh EMA (21,978 ha) near Woodland Caribou Park and the Manitoba border has had a new permanent logging road with full public access constructed within its boundaries. The remoteness of the Black Bay Peninsula EMA (48,914 ha) hangs in the balance as the MNR considers building a new permanent road here as well.

A significant gap in Ontario's forest management is an adequate provincial policy regarding the maintenance of roadless wilderness areas and the protection of remoteness on the intervening landscapes and waterscapes outside parks and protected areas where forest management occurs. This policy is still lacking, even though its development was mandated in 1994 by the Class Environmental Assessment on Timber Management (see discussion in Table 1).

In Ontario, public motorized access is restricted under Section 28(1)(a) (unauthorized occupation of posted public lands) of the *Public Lands Act*.[28] In 1999/2000, 15,645 km of roads were actively maintained across Ontario. In this year, only 302 km of road was abandoned, mostly through natural abandonment. Access controls were in place for only 3,081 km of roads (19.6% of the total): 1,235 km through gates; 582 km by signage, and 1,264 km by "other" means.[2] The MNR has not published any summary data on the effectiveness of these restrictions. As well, although a small proportion of roads are classified as being 'abandoned' each year by the MNR,[2] this usually means that the road is simply no longer maintained (see Strategies for Controlling Access box, page 9). The permanent nature of the roadbed often means that such roads will continue to be passable to motorized travel for many years.

Roadless = An area of wilderness that has never been accessed by permanent roads.

Remoteness = An area of forest where access by motorized terrestrial vehicles like trucks, all-terrain vehicles (ATVs) or snowmobiles is prohibited. Remote areas may be roadless or may contain roads that restrict public motorized access because they are winter roads, or through access controls or physical abandonment. Remote areas are vitally important for the wilderness values they provide for both wildlife and back country recreation.

Public Motorized Access = The ability of members of the general public to travel into and/or through an area by the use of automobile, truck, ATV or snowmobile. Usually this access is along roads or trails, although this is not always the case.

The rules that do exist in Ontario for logging roads are focussed on managing the impacts of individual roads rather than planning to manage the overall impact of road networks. For example, approved engineering standards for logging road construction have been in place since 1990.[29] Similarly, while the *Forest Management Planning Manual*[30] provides some direction on how to determine the location of individual roads, there is no requirement for a comprehensive plan for the road networks that develop as more and more roads are built. Table 1 describes the current rules for logging roads in Ontario and identifies the major gaps.

Table 1: Current Rules Governing Logging Roads

Issue	Adequate Rules in Place	Rules
Which areas will remain roadless?	no	There are currently no provincial rules in place for retaining roadless wilderness areas in the managed forest, outside of protected areas. The 1994 decision of the Class Environmental Assessment (Class EA) for Timber Management in Ontario mandated that the MNR develop a policy on maintaining these areas (Condition 106). The MNR produced *Ontario's Approach to Wilderness: A Policy (Version 1.0)* in 1997. This policy fails to meet the requirements of the Class EA because it focuses on using parks to meet roadless wilderness objectives, whereas the requirement was to develop a provincial roadless policy for the managed forest. Although the Ministry of the Environment (MOE) ruled that MNR was in compliance with Condition 106, the Environmental Commissioner pointed out in her 1999-2000 report that this decision contradicts an earlier letter from MOE indicating their dissatisfaction with the policy.[31] Regardless of the differing views on whether the MNR is in legal compliance with Condition 106 of the Class EA, it is clear that a proper roadless policy for areas outside of protected areas is needed.
Which areas will be managed to restrict motorized access and maintain a remote character?	in part	There are no rules within the forest management planning process regarding designation or maintenance of remote areas. In some areas of the province previous land use planning decisions have designated some areas to be retained in this condition. For example, the Living Legacy Land Use Strategy designated Remote Access Enhanced Management Areas (EMAs). Although these areas have been designated, there is no clear guidance to forest planners on how to implement this policy and protect the remoteness of these areas. The Temagami Land Use Plan also designated Special Management Areas where motorized access would be restricted.

continued on next page

Table 1 *continued from previous page*

Issue	Adequate Rules in Place	Rules
How should a road network be planned?	no	There are currently no rules on how to plan a road network. A comprehensive road network plan should include the designation of roadless, remote and accessible areas and a description of road abandonment strategies to meet objectives of the plan. Currently road networks develop in an unplanned manner as each new road is added to the network.
How should the location of individual roads be determined?	in part	The *Forest Management Planning Manual* [30] requires forest managers to consider several alternative locations when proposing a new road. The relative advantages and disadvantages of each from a social, environmental and economic perspective must be considered. Public consultation occurs on the location alternatives, but managers are not bound to act on this input.
How should roads be constructed to mitigate environmental impact?	yes	Extensive standards, guidelines and best management practices for engineering and constructing roads and water crossings are given in the *Environmental Guidelines for Access Roads and Water Crossings.*[29]
When should roads be closed or rehabilitated to protect values?	no	There are no clear rules or conditions under which new or existing roads must be closed or rehabilitated to protect values. This decision is left to the discretion of the forest management planning team with input from the MNR. The *Forest Management Planning Manual* requires the development of a road use strategy for each new road. As part of the road use strategy, the planning team must decide whether the road will be maintained in the future or whether it will be abandoned naturally (left to deteriorate) or physically (actively abandoned through bridge removal, digging up the road, etc.).
When should water-crossings be removed to prevent environmental damage?	no	There are no clear rules or conditions under which water crossings on new or existing roads must be removed to prevent environmental damage. This decision is left to the discretion of the forest management planning team with input from the MNR. An appendix to the *Forest Management Planning Manual* called *Criteria for the Removal of Water Crossings of Abandoned Roads* provides criteria that must be considered in making this decision.
How should motorized access be effectively restricted?	no	There is no clear direction on how to effectively restrict motorized access. Managers and MNR staff rely on their own judgement and experience. Often the methods and enforcement employed are ineffective.

3. Temagami

Temagami is located in the transition forest of northeastern Ontario, where the mixed pine, maple and beech forest of the Great Lakes-St. Lawrence forest region merges into the boreal forest of jack pine, poplar and spruce. Temagami is famous for its forests of old-growth red and white pine and is equally well-known for the controversies that have accompanied their management.

Temagami is the traditional home and land of the Tema Augama Anishnabe (the deep water people). For the Temagami First Nation (TFN) community on Bear Island, this land is also an important source of spirituality, resources and livelihood. The TFN is currently in final negotiations with the provincial government to settle their long-standing land claim to the area.

Temagami is also important to many other people. It is synonymous with wilderness to many environmentalists and back-country travelers. But it is also a home, playground, and source of livelihood for the town of Temagami, cottagers, recreational snowmobilers, ATV users, hunters, anglers, mineral prospectors, forestry companies, workers and tourism operators.

Gary McGuffin

A paddler enjoys the beauty of Owain Lake in Temagami.

These diverse interests often result in conflict. This conflict culminated in the famous blockade of the Red Squirrel Road in 1988-89. The blockade was the result of several factors in Temagami, including concerns over road construction in traditional territories and the logging of the ancient red and white pine forests of the area.

In an attempt to resolve the conflict between various interests in Temagami the Comprehensive Planning Council was established by the Ontario government. Its mandate was to write a land use plan for the Temagami area. The final Temagami Land Use Plan, approved by the provincial government in 1997, zoned Temagami into four land use categories: protected areas, Special Management Areas, integrated management areas and development areas. Some of these lands were designated for the possible resolution of the native land claim. Special Management Areas were designated to allow for resource extraction while protecting existing and potential remote tourism and recreation opportunities through the control of motorized access.[32] Temagami is one of the few areas in Ontario to have such a comprehensive land use plan.

In addition to access being controlled in Special Management Areas, many access controls in Temagami pre-date the land use plan. These restrictions were developed to protect wildlife from over-hunting, prevent motorized lake access, and retain remote wilderness recreational opportunities.

The land use plan states that the remoteness of Special Management Areas in Temagami is to be protected through careful planning and through the use of access controls. Access controls prevent motorized access along roads with the exception of snowmobiles. During the time that the road is actively used for forest management, these restrictions apply to the general public but not to vehicles (like logging trucks) required to carry out forestry operations. After operations are complete, access controls may be applied that prevent all motorized access to an area. The goal of our investigation was to assess the effectiveness of all known access controls in the Temagami area.

The lessons learned from the use of access controls in Temagami's Special Management Areas may assist the MNR and the public to better achieve the goals of the new Enhanced Management Areas, which were established across Ontario in 1999 (see Map 1), and to better manage other areas with sensitive values.

4. Methods

The location of access controls in the field were identified through discussion with local MNR staff. Due to the lack of a comprehensive database, additional access controls continued to be identified as the field study progressed. All access controls known by field investigators as of September 2000 received one or two field visits in the summer and fall of 2000; the remaining access controls were discovered after the field visits had been conducted. Additional follow-up visits to one of the access controls were made in the fall of 2001 and the spring of 2002. The effectiveness of each access control was assessed in the field by recording instances of violations. An access control was considered violated if it was either breached, removed, or bypassed. Examples of evidence indicating violation are given in Table 2. Assessments were also made by field investigators about the appropriateness of design and location.

Types of Access Controls

Sign: A posted sign on the road indicates that the road is closed to vehicular traffic under the *Public Lands Act*. The sign is usually posted at the point of restriction. A sign can be used on its own as an access control, but also generally accompanies other controls.

Cable: A flexible steel cable is stretched across the road, suspended from posts on either side. The cable can be locked to prevent access, but can also be lowered to allow passage to permitted vehicles.

Gate: A steel gate is locked with a chain across the road at the point of restriction. The gate can be unlocked and opened to allow passage to permitted vehicles.

Ditch: A hole is dug across the width of road to prevent motorized travel.

Berm: A mound of earth is lain across the road to prevent motorized travel. Usually the berm is constructed with material excavated from the ditch.

Boulders: Large rocks or boulders are placed across the road to deter travel beyond the access control.

Bridge Removal: A bridge over a stream or river is removed to permanently prevent crossing by motorized vehicles during non-frozen months.

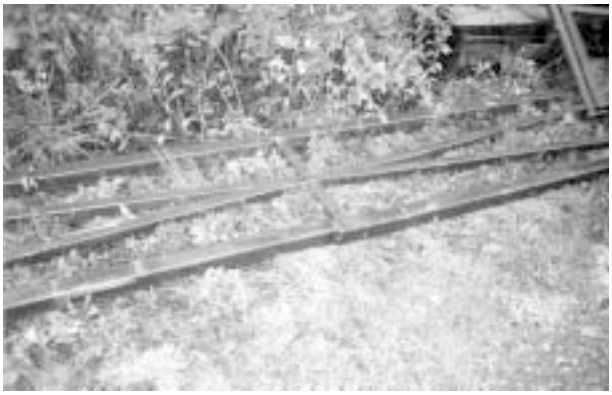
Culvert Removal: A culvert (metal pipe) and the accompanying material (dirt, gravel, rocks) are removed to permanently prevent crossing by motorized vehicles during non-frozen months.

Fourteen years of MNR inspection reports of access controls were also reviewed in the North Bay MNR district office. The number of reports varied among access controls, with sites on major roads having the greatest number of reports. Inspection and reporting protocols for MNR inspections changed over time. Inspection reports ranged from casual observations to written memos, to the current standard inspection form (Appendix A). Violations were identified from the observations contained in MNR inspection reports using the same criteria for field visits as described in Table 2. Violation rates were calculated both as the proportion of visits revealing violations and the proportion of access controls showing evidence of at least one violation.

Ultimately, whether we were assessing access controls first hand in the field, or whether we were interpreting MNR inspection forms, investigators were recording simply whether or not the access control was intact. A lack of intactness indicates two things: that someone had acted directly to violate the access control or that the control was no longer functioning as intended to prevent unauthorized access. The violation frequency is simply the proportion of our observations revealing access controls that had been compromised, rather than an actual measure of unauthorized activity.

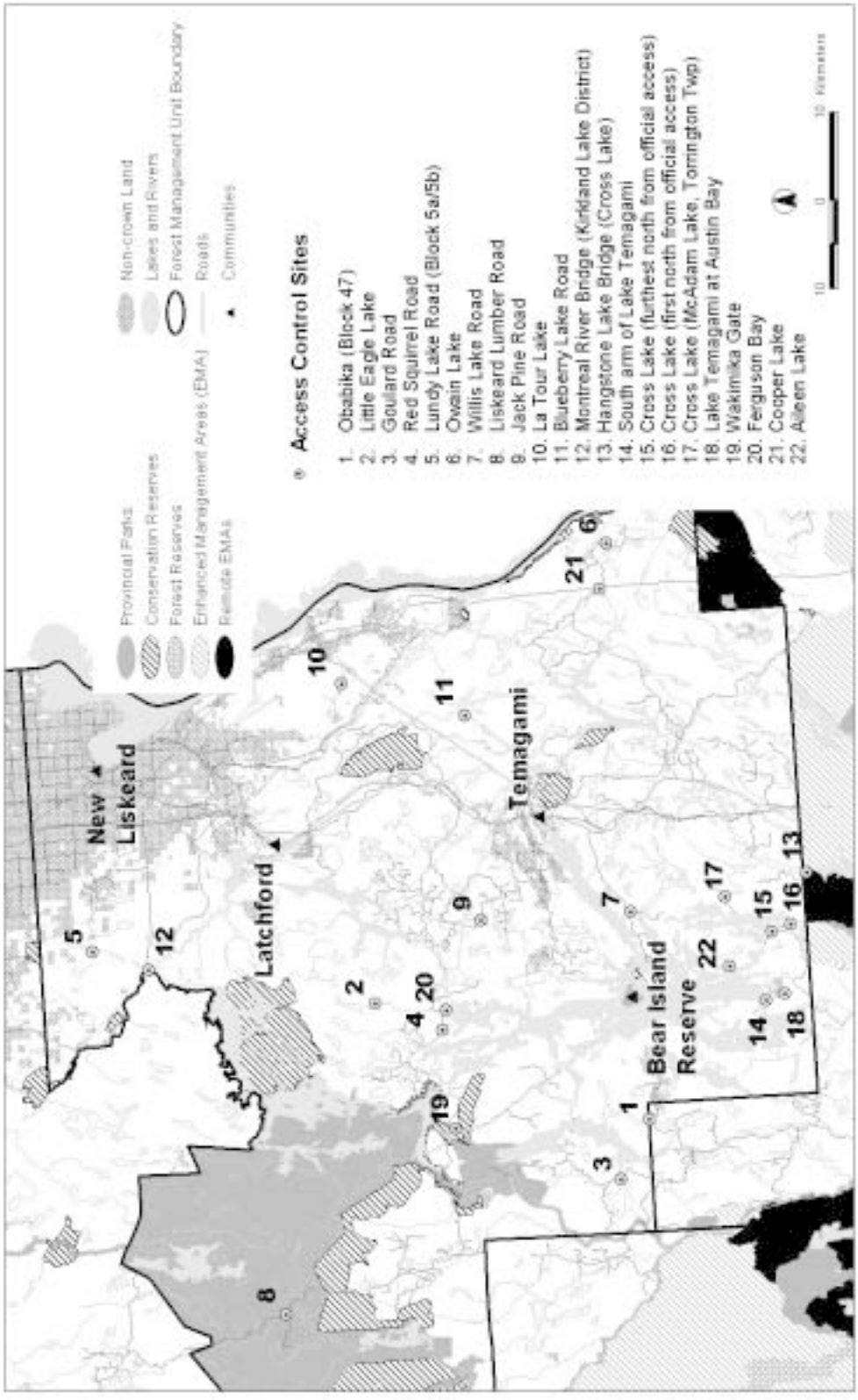
Table 2: Evidence of Violated Access Controls

Violation	Example Evidence
Control was breached	• gate broken off hinges • lock or chain broken • gate or cable unlocked
Control was removed	• ditch filled • bridge rebuilt • boulders removed
Control was bypassed	• path constructed around barrier/obstacle • individuals seen with their motor vehicle beyond control



Left: A gate was taken down by unauthorized individuals. The gate was re-erected by MNR staff in the summer of 2002. Right: ATV drivers can easily bypass this Ontario Northland gate.

5. Results



Map 4: Temagami Forest Management Unit

The Access Controls

Twenty-one known access controls exist in the Temagami Forest Management Unit. One additional access control just on the boundary of the Temagami Management Unit was also investigated for its effectiveness (Montreal River bridge). Most of the access controls in Temagami were established to retain the quality of remote tourism or recreation. A variety of methods were used to restrict public access including signs, cables, gates, bridge removal, and the creation of physical obstacles like ditches and berms.

A complete list of the sites along with the rationale for their closure and the method of access control is given in Appendix B. Rationale for closures is expressed in several land use planning documents that were developed at various times in Temagami's resource management history. These documents include the North Bay District Land Use Guidelines,[33] the Temagami District Land Use Guidelines,[34] the 1997 Temagami Comprehensive Land Use Plan,[32] and the Living Legacy Land Use Strategy.[27] Access controls on the Red Squirrel and Liskeard Lumber roads are the result of the Environmental Assessment decision regarding road building in the Latchford Forest Management Unit.[35]

All of the access closures in the Temagami area provide only seasonal restriction to motorized travel. All roads and gates are open from November until April to provide snowmobile access, thereby only providing seasonal restriction of motorized areas.

Violation Of Access Controls

Many access control violations were revealed by our field study and MNR inspections. The types of violations observed for different kinds of access controls are presented in Table 3.

Table 4 reports the frequency of all violations found during our site visits and by MNR inspections. The percentage of sites that were violated at least once as well as the percentage of all inspections that revealed violations are given. Table 5 shows the type of access control and the percentage frequency of observed violations for each of the 22 sites in the Temagami unit.

MNR staff are aware of 19-25 fines that have been issued since 1977.[36] The average fine is $100.[36]

Table 3: Ways in Which Control Types Were Violated

Control Type	Violations	
Gate	• lock broken • chain broken • gate broken	• gate unlocked • gate driven around
Cable	• lock broken	• cable unlocked
Ditch/Hole	• ditch/hole filled in • bridge built over ditch/hole • ditch/hole driven around	• vehicles driving through ditches/ holes
Berm	• berm flattened • berm driven over	• berm driven around
Sign	• sign removed	• sign ignored
Obstacles (like boulders)	• obstacles driven around	• obstacles removed
Bridge removal	No violations seen	
Culvert removal	No examples of culvert removal were discovered by field work in Temagami	

Table 4: Frequency of Access Control Violations

Inspector	Percentage of sites with at least one violation (only for sites with data)	Percentage of all inspections that revealed violations
CPAWS-Wildlands League / Sierra Legal	62 % of 13 sites – 1 year of observations	55 % of 21 inspections
MNR	94 % of 17 sites – 14 years of observations	45 %* of 262 inspections

** Our estimate of the frequency of violations found by the MNR is conservative. We only included an incident as a violation in our calculations if the MNR investigator explicitly recorded an observation as a violation. MNR investigators did not consistently record observations as violations that we would have classified as violations. Both the Red Squirrel Road and Liskeard Lumber Road provide examples of this. It appears that the construction of the gate on the Red Squirrel Road allowed the passage of ATVs underneath. This means that the gate was ineffective and potentially being violated even when it was intact. On the Liskeard Lumber road, the path around the gate (still present today) was observed in the first year of MNR inspections in 1989. Although the path was not consistently recorded by MNR investigators, this implies that the gate has been ineffective throughout almost its entire life.*

Left: The gate at Blueberry Lake Road is closed shut. Right: This berm at Jack Pine Lake may look effective, however there are ATV tracks around it.

Table 5: Frequency of Observed Violations for Each Access Control Site

Access control site	Type of control	Percentage frequency of violations observed through CPAWS-WL/Sierra Legal inspections	Percentage frequency of violations observed through MNR inspections up until July 2000
1. Obabika Lake	Sign, cable	100 % of 2 inspections	50 % of 6 inspections
2. Little Eagle Lake	Sign, ditch, berm, gate, bridge removal	0 % of 2 inspections	71 % of 7 inspections
3. Goulard Road	Sign, gate	50 % of 2 inspections	81 % of 37 inspections
4. Red Squirrel Road	Sign, gate	0 % of 1 inspection	36 %* of 143 inspections
5. Lundy Lake Road: Block 5a/5b	Sign, obstacle – slash	0 % of 2 inspections	25 % of 4 inspections
6. Owain Lake	Sign, cable on bridge	50 % of 2 inspections	50 % of 2 inspections
7. Willis Lake Road	Sign, ditch, berm, obstacle –boulders	50 % of 2 inspections	100 % of 2 inspections
8. Liskeard Lumber Road	Sign, gate	100 % of 2 inspections	24 %* of 39 inspections
9. Jack Pine Lake	Sign, ditch, berm	100 % of 1 inspection	N/A
10. La Tour Lake	Sign, cable	Unknown◆	N/A
11. Blueberry Lake Road	Sign, gate	0 % of 1 inspection	0 % of 1 inspection
12. Montreal River Bridge (Kirkland Lake District)	Sign, gate	0 % of 1 inspection	N/A
13. Hangstone Lake Bridge (Cross Lake)	Sign, gate on bridge	100 % of 3 inspections	N/A

continued on next page

Table 5 *continued from previous page*

Access control site	Type of control	Percentage – CPAWS-WL/Sierra Legal inspections	Percentage – MNR inspections up until July 2000
14. South arm of Lake Temagami (near camp Metagami)	Sign	N/A	100 % of 1 inspection
15. Cross Lake (furthest north from official access)	Sign, ditch, berm, obstacle - boulders	N/A	100 % of 2 inspections
16. Cross Lake (first north from official access)	Sign, obstacle – boulders	N/A	50 % of 2 inspections
17. Cross Lake (McAdam Lake, Torrington Twp)	Sign, hole, obstacle – boulders	N/A	100 % of 2 inspections
18. Lake Temagami at Austin Bay	Sign, obstacle – boulders	N/A	67 % of 3 inspections
19. Wakimika Gate	Sign, gate	N/A	N/A
20. Ferguson Bay	Sign, gate	N/A	N/A
21. Cooper Lake	Sign	N/A	50 % of 4 inspections
22. Aileen Lake	Sign	N/A	100 % of 1 inspections

** See note in Table 4.*

◆ *It was not possible to determine whether this access control was violated because the sign does nothing to prevent free travel. Tire tracks observed may have belonged to authorized vehicles.*

Left: The cable at Owain Lake is left down. This bridge was later removed by MNR staff in October 2000 after silviculture was completed. Right: Not only is this gate on Liskeard Lumber Road severely damaged, it's also unlocked.

During the course of our field investigations, district MNR staff rebuilt several access controls that had been dismantled by people seeking motorized access. A good example of this is the Willis Lake Road. An old flattened berm was replaced in October 2001 by a large berm, a deep ditch, and several large boulders (see photo). However, a recent visit to the area in June 2002 revealed that this rebuilt access control had been circumvented (see photo below). A path was cut in the woods around the obstacles, and machinery was used to fill in the ditch, once again rendering the road passable to motorized vehicles.

Left: The access control at Willis Lake Road was rebuilt with a substantial ditch, berm and large boulders in the fall of 2001. Right: By June 2002, the rebuilt Willis Lake access control had been circumvented by cutting and excavating a path around the obstacles.

6. Discussion

This investigation revealed a high incidence of access control violations in Temagami. Field inspections carried out by CPAWS-Wildlands League and Sierra Legal Defence Fund revealed a 55% violation rate. Similarly, a conservative estimate of violation frequency from MNR inspections was 45% in the 14-year period from 1977 to 2000. This pattern is particularly troubling because the access controls and the Special Management Areas are meant to balance the needs of various forest users. In violating these access controls, what we perceive to be a minority of people are jeopardizing the ability of the resource manager to meet the interests of various forest users and the ecological needs of the forest.

The lack of restrictions on snowmobile travel is of concern for its impact on the remoteness of Temagami's Special Management Areas. Although snowmobiles inevitably enjoy much greater access to wilderness than other motorized vehicles due to their ability to travel along frozen water bodies, opening all access controls to their travel will further increase motorized access to otherwise remote areas.

Several trends evident in our investigation reveal insights as to how to ensure higher levels of compliance with access controls.

1. **Location of access control is crucial.** The chosen location of an access control will largely determine its effectiveness. An example of an effective location is at a water crossing where the waterbody and its banks present a natural obstacle to travel around the barrier. If the location itself does not present an additional obstacle to travel, circumvention of the barrier is likely to result. This was best demonstrated by the Willis Lake Road access control that was circumvented by a trail less than a year after significant effort was put into constructing a major obstacle to traffic.

2. **Permanent barriers are more effective than moveable barriers.** Moveable barriers like cables and gates are routinely broken and require a high level of maintenance. Although they are the most effective alternatives while a road is in use, physical abandonment through the creation of permanent physical barriers once the road is no longer required for resource management is more effective. Natural permanent barriers like streams or lakes after water crossing removal are more effective than artificial barriers like ditches, berms, or boulders which can be removed or circumvented.

3. **Access controls that combine multiple strategies (gate, ditch, berm, bridge removal) appear to be more effective than single strategy access controls.** Multiple access control strategies make the task of violating an access control more difficult. However, if each of these controls is not effectively located and designed, they may not offer deterrence.

4. **Signs do not make effective access controls.** Given the high degree of violation of all access controls, and the willingness of access proponents to defeat or circumvent physical barriers, it is very unlikely that signs alone are an adequate deterrent.

5. **Enforcement is difficult.** High rates of violation exist despite efforts by MNR staff to monitor and maintain access controls. Effort will likely never be adequate to ensure compliance with moveable barriers that require enforcement. Enforcement is further undermined by both the unlikelihood of catching perpetrators and by the minor deterrence of low fines. Better compliance would likely be achieved by higher fines, more frequent enforcement and public education regarding the rationale and importance of access restrictions.

6. **Multiple routes of entry into a designated remote area defeat the intent of access controls.** We found two cases where access controls (Jack Pine and Hangstone) were apparently successful in blocking travel, but evidence of motorized travel was found behind both controls. In the case of Hangstone, the gated bridge could be circumvented by a short detour and a ford across a narrow stream (see photos below). The access afforded by the detour pre-dates the bridge and is considered traditional access by MNR.

Left: The bridge at Hangstone Lake appears to be an effective access control with intact gates and steep banks. Right: Investigation revealed an alternative route bypassing the Hangstone gate, involving a short drive through shallow water. This bypass is sanctioned by MNR as traditional access that pre-existed the Hangstone bridge.

7. **The incidence of violation appears to be correlated with travel distance and attractiveness of destination.** The degree to which a road is traveled seems to decrease with increasing distance from the main road. Additionally, roads that provide access to fish-bearing water bodies appear more likely to have their access controls violated.

8. **Ditches and berms disintegrate quickly.** Erosion quickly lessens the effectiveness of ditches and berms as they decrease in size. Once traffic begins over the obstacles, they disintegrate even more quickly.

The extent to which the insights we have gained in Temagami are applicable in other parts of the province will depend on a variety of factors. For example, different patterns may exist in forest management units managed by companies rather than by the Crown. Temagami is the only remaining example of a Crown-managed unit. Other areas may also have more or fewer pressures for motorized access. However, we do believe that these general insights regarding the relative effectiveness of approaches to restricting public access are broadly relevant.

It appears that the high levels of violation observed in this investigation are partly due to the inherent difficulties of limiting access, and partly due to inadequate road planning and inadequate access control strategies. A good example of an apparently effective strategy for access control is the removal of water crossings. Although the Temagami Land Use Plan[29] explicitly recognizes the removal of bridges and culverts as the most effective method of access control, only two examples of this type of control were found in Temagami.

7. Recommendations

The many adverse impacts of logging roads are becoming increasingly significant as the road network expands to fill the managed forest. Properly implemented rules are required to protect the forest ecosystem and the people who depend on remote areas. In the absence of clear, strong and strictly enforced rules, our wild forests are under threat of becoming fully roaded and accessible to motorized travel. To properly control the impacts of logging roads, rules are required that take a balanced approach to road planning and management. This approach should recognize and maintain an adequate level of public access for activities that require it, and limit the extent of roads and access to protect those values that are harmed by roads.

Roadless Areas

1. The MNR should complete its provincial policy on roadless wilderness areas, as legally required by the Class Environmental Assessment for Timber Management on Crown Lands in Ontario. This revised policy should focus on the protection of the remaining roadless wilderness areas on the intervening landscapes outside parks and protected areas.

Remote Area And Roads Planning

2. The MNR should articulate clear rules for road planning, construction, decommissioning and access controls in Special Management Areas in Temagami and Enhanced Management Areas and other sensitive areas elsewhere in Ontario in order to protect the remoteness for which these areas were designated.

3. The MNR should require the development and maintenance of comprehensive access management plans for each forest management unit, which outline specific objectives and strategies for retaining roadless areas and remote access areas. The challenges of successfully controlling access should lead to strategic decisions to limit road construction, road density, and access to remote and sensitive areas.

4. To ensure that access controls are fully effective year round, controls must apply to all motorized vehicles including snowmobiles.

5. Forest management planners should rely on avoiding sensitive remote areas (for example, remote lakes with healthy and desirable fisheries) rather than relying on enforcement of use restrictions which may be difficult or ineffective.

Controlling Access

6. Once a decision has been made to protect remoteness and restrict access in an area, the strategy options in Figure 1 should be followed, in decreasing order of preference.

Figure 1: The Most Effective Means of Maintaining Remoteness and Restricting Access, in Decreasing Order of Effectiveness

Avoid road building in the designated area.

Choose appropriate road locations to:
1. Avoid sensitive values like remote lakes, as well as other areas that are likely to attract would-be violators.
2. Create opportunities for effective access controls at natural barriers like water crossings.

Employ only effective access controls at appropriate locations:
1. Physically abandon roads after operations by removing water crossings.
2. Render the road impassable through excavation and/or the use of other obstacles (boulders, berms, etc.) and/or scarifying the road bed and planting seedlings.
3. Close road using gates or cables at water crossings during operations. Road closures and postings should be immediate to prevent the development of access expectations.

Increase enforcement and fines for access violations.

Left: The most effective way to maintain remoteness is to simply not build roads, such as this one at Blueberry Lake at the beginning of its construction. Right: Once the forestry company was finished using its road, the bridge at Owain Lake was effectively removed.

7. The following Do and Don't list of access controls should also be followed:

DO	DON'T
Identify effective points of access control and abandonment during road planning. Water crossings are the most effective location of access control and abandonment.	Decide points of access control and abandonment after the road has already been built. This will limit effective options.
Include physical abandonment of roads as part of any access strategy. Physical abandonment should include multiple strategies including water crossing removal.	Rely on natural abandonment of roads as part of an access strategy, because this technique is generally not effective and may lead to environmental problems due to decay of water crossings over time. Natural abandonment of winter roads are an exception to this rule.
Use well-placed physical obstructions as part of any access control. Artificial obstructions (gates) are best combined with natural obstructions (water bodies) to discourage violation.	Rely only on signs in the absence of physical obstructions to restrict access.
In areas designated to protect remoteness, restrict motorized traffic with road closures as soon as a road is constructed and continue this closure at least until the road is physically abandoned. This will prevent the development of access expectations.	Delay road closure postings until after the road is constructed or in use. This will result in the development of access expectations that will cause greater conflict and possibly result in reduced access control effectiveness.
Post road closure signs as near to the main road as possible to indicate the presence of access controls. This will help avoid frustrating motorists who might otherwise seek motorized access to closed areas.	Post public notification of access controls only at the point of restriction.
Rehabilitate roads by digging up and planting roadbeds as part of abandonment to reduce the ecological impacts of the road.	Allow road surfaces and roadbeds to persist as unvegetated barriers to wildlife movement and sources of sediment.

8. The approach to effective road planning and management needs to be tailored to the situation at hand. For example, in already accessed lands, more emphasis needs to be placed on decommissioning roads and implementing and enforcing access controls. In areas where access is still in the planning stages, more attention should be placed on creating a workable access strategy that includes carefully selecting access points that will allow for more effective restrictions (e.g. creating only one entrance to a newly accessed area, which can be later decommissioned). This will reduce access control problems in the future.

9. The MNR should increase its enforcement capacity and capabilities with respect to violations of road restrictions. Higher enforcement rates, fines and other penalties are needed. The public needs to know that such violations are serious and thus be deterred from committing them. This approach to deterrence should be complemented by an educational campaign that helps the public understand why restrictions are needed to protect the forest ecosystem. The Ministry should undertake a review of its existing laws and policies related to access and propose any legislative and regulatory changes necessary to ensure better compliance with access controls.

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Appendix A: Current MNR Standard Inspection Form In Temagami

TEMAGAMI AREA
ACCESS CONTROL INSPECTION REPORT
SMA #:_____

Date & Time:_____ Inspector's Name:_____

Gate/Sign/Impediment Name & Location:_____

Gate Condition:	Sign Condition:	Other Impediments:
Closed & Locked	Clean & Visible	Berms
Closed & Unlocked	Scratched or Broken	Boulders
Open	Needs Repairs	Other:
Damaged & Repairs Required	Needs to be replaced	
	Missing – Replace A.S.A.P.	

Comments: _____

What is your destination on the road:_____

Any unauthorized vehicles found on site: YES NO

Vehicle description:
½ ton, 4x4, car, van, atv License #:

Make & approx. year: Color:

Driver name or description (if present):_____

Reason/Destination on the road:_____

Summary of conversation with driver (if any):_____

Did you warn the driver that he was in a unauthorized vehicle area: YES NO

Action to be taken by inspector:_____

Results from action taken:_____

Inpsector's Signature:_____ Any pictures taken: YES NO

Appendix B: Access Controls And Their Rationale

Access Control Site	Type of Control	Rationale for Closure
1. Obabika (Block 47)	Sign, cable	*"Protect remote recreation."* Within Special Management Area 43 as designated in the Temagami Land Use Plan (1997).
2. Little Eagle	Sign, ditch, berm, gate, bridge removal	*"Protect remote tourism, recreation."* Within Special Management Area 34 as designated in the Temagami Land Use Plan (1997).
3. Goulard Road	Sign, gate	*"Prevent additional access to trout lakes in the area."* *"Reduce pressure on moose populations and protect an important calving and winter feeding area."* *"Protect back country canoeing."* *"Prevent public access to Fry Lake which includes a commercial outpost camp."* *"Control garbage problems associated with road access."* *"Maintain remote tourism and recreation."* Within Management Area 8, Temagami District Land Use Guidelines. Within Special Management Area 48 as designated in the Temagami Land Use Plan (1997).
4. Red Squirrel Road	Sign, gate	*"Protect backcountry recreation."* Decision of the Environmental Assessment for road building in Latchford Forest Management Unit.
5. Lundy Lake Road: Harvest block 5a/5b	Sign, obstacle – slash	*"Retain backcountry recreational opportunities."* Within Special Management Area 29 as designated in the Temagami Land Use Plan (1997).
6. Owain Lake	Sign, cable on bridge	*"Retain remote backcountry recreation opportunities."* Within Special Management Area 4 as designated in the Temagami Land Use Plan (1997).
7. Willis Lake Rd	Sign, ditch, berm, obstacle – boulders	*"Protect tourism, recreation and fishery Facilitate parking facilities and enforcement."* Within Management Area 5, Temagami District Land Use Guidelines.

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Access Control Site	Type of Control	Rationale for Closure
8. Liskeard Lumber Road	Sign, gate	*"Protect backcountry recreation."* Decision of the Environmental Assessment for road building in Latchford Forest Management Unit
9. Jack Pine Road	Sign, ditch, berm	*"Protect remote tourism and canoeing ."* Within Special Management Area 36 as designated in the Temagami Land Use Plan (1997).
10. La Tour Lake	Sign (cable)	*"Protect non-motorized recreational values."* Within Special Management Area 12 as designated in the Temagami Land Use Plan (1997).
11. Blueberry Lake Road	Sign, gate	*"Mitigate impacts on backcountry recreation and remote tourism."* Within Special Management Area 10 as designated in the Temagami Land Use Plan (1997).
12. Montreal River Bridge (Kirkland Lake District)	Sign, gate	
13. Hangstone Lake Bridge	Sign, gate on bridge	*"Maintain limited access."* *"Maintain semi-remote tourism."* *"Motorized access to the bridge was restricted to prevent enhanced access to the area. Access to the area still exists via a short detour and creek fording."* Stipulation of the North Bay District Land Use Guidelines Within Enhanced Management Area 154r, designated by Ontario's Living Legacy Land Use Strategy.
14. South arm of lake Temagami (near camp Metagami)	Sign	*"Protect tourism, recreation and fishery."* *"Facilitate parking facilities and enforcement."* Within Management Area 8, Temagami District Land Use Guidelines. Within Special Management Area 39 as designated in the Temagami Land Use Plan (1997).
15. Cross Lake (furthest north from official access)	Sign, ditch, berm, obstacle –boulders	*"Protect tourism, recreation and fishery."* *"Facilitate parking facilities and enforcement."* Within Management Area 5, Temagami District Land Use Guidelines.

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Appendix B *continued from previous page*

Access Control Site	Type of Control	Rationale for Closure
16. Cross Lake (first north from official access)	Sign, obstacle – boulders	*"Protect tourism, recreation and fishery."* *"Facilitate parking facilities and enforcement."* Within Management Area 5, Temagami District Land Use Guidelines.
17. Cross Lake (from McAdam Lake, Torrington Twp)	Sign, hole, obstacle – boulders	*"Protect tourism, recreation and fishery."* *"Facilitate parking facilities and enforcement."* Within Management Area 5, Temagami District Land Use Guidelines.
18. Lake Temagami at Austin Bay	Sign	*"Protect tourism, recreation and fishery."* *"Facilitate parking facilities and enforcement."* Within Management Area 5, Temagami District Land Use Guidelines. Within Special Management Area 39 as designated in the Temagami Land Use Plan (1997).
19. Wakimika Gate	Sign, gate	*"Protect backcountry recreation."* Decision of the Environmental Assessment for road building in Latchford Forest Management Unit.
20. Feguson Bay	Posts, gate	*"Protect tourism, recreation and fishery."* *"Facilitate parking facilities and enforcement."* Within Management Area 5, Temagami District Land Use Guidelines. Within Special Management Area 39 as designated in the Temagami Land Use Plan (1997).
21. Cooper Lake	Sign	*"Retain remote backcountry recreation opportunities ."* Within Special Management Area 4 as designated in the Temagami Land Use Plan (1997).
22. Aileen Lake	Sign	*"Protect tourism, recreation and fishery."* *"Facilitate parking facilities and enforcement."* Within Management Area 5, Temagami District Land Use Guidelines. Within Special Management Area 39 as designated in the Temagami Land Use Plan (1997).

Appendix C: Reviewers Comments That Were Not Addressed In Revisions To The Report

Time and resources allowed a review by key people and organizations in government and tourism sectors. Further input and discussion are welcomed from those in other sectors, such as the forest industry, hunters and fishermen.

Anonymous reviewer from Temagami:

- It is misleading to show results as percentages when there are so few observations (Tables 4,5).

We decided to deal with this issue in an earlier draft by stating the total number of observations as well as percentages. The percentages were chosen so that direct comparisons can be made between access controls with differing numbers of observations. We believe that this adequately addresses the concern.

- There is no way to stop skidoo travel – in the winter skidoos can drive right over the top of gates.

This is an important observation, and a cause for concern. We have reflected this comment on page 24 where we talk about the difficulty of restricting snowmobile access. We did not change our recommendation that their access should be restricted as much as possible by access controls.

- It is not desirable to stop skidoo travel. The fishing pressure in the winter is lower than in the summer. Ice-fishing is also important culturally and recreationally. It is in people's blood.

The first statement conflicts with our understanding about fishing impacts in the winter. It is our understanding that the impacts of winter fishing can be higher than summer fishing. It also conflicts with the other peer reviewers' comments about the importance of restricting snowmobile access.

We do not wish to prevent people from ice-fishing. It is our intent to find a balance between those areas that are accessible for this activity, and those that are protected from it.

We have added an affirmation in the recommendations section (page 27) that we wish to support the continuation of road- and snowmobile-based recreation on the landscape. It is balance that we are trying to achieve.

Lori Costello, Ministry of Natural Resources

- Page 25 – Signs may not be an adequate deterrent, but a sign is the only enforcement tool we have. Disobeying a sign is the infraction that a person is charged with when encountered in a Special Management Area with a motorized vehicle. Also, from the Road Use Strategy discussion paper, you may remember that the risk associated with the area is assessed when a closure mechanism is chosen. If there is little risk with the values being compromised, then a sign may be all that is warranted.

Although the sign may be the legal instrument, it is not an adequate deterrent. The observations show that even when signs are accompanied by other obstructions, violations still occur. The author believes that if an access control is warranted, investment in a more effective closure mechanism should be used. No changes were made in response to this comment.

- Page 25 – The discussion on the access at Hangstone bridge is misleading. The bridge was built for forestry and hydro purposes and gated to prevent "enhanced access". The fording of the creek was an existing access and there was never an intent to prevent the existing access to the area. The Hangstone bridge is now removed as per the North Bay DLUG and the Nipissing FMP. Ontario Hydro, however, is considering reinstalling a crossing for ATVs only to access the Cross Lake dam. This access would be restricted.

A note has been added to insight number six to acknowledge the rationale for the gate, and the fact that it has since been removed.

- I think it is important to look at each situation separately. The rationale for restricted access is different for every area in the Temagami Land Use Plan (as it will be in other parts of the province.) The values and/or the risk and consequently the closure method may be different from one area to another.

The author agrees that strategies will vary from place to place. The need to be flexible and responsive to changing conditions does not justify the use of control measures that are clearly not effective. No changes were made in response to this comment.

- I don't agree that snowmobiles should be restricted in these areas. The intent of the TLUP is to protect existing remote recreational opportunities (including hunting), protect wildlife and fisheries and protect earth and life science features in some cases. Snowmobiles have always had access to remote lakes for fishing opportunities (we aerially stock fish in many of these areas for that reason); remote tourism and hunting is not a factor in the winter; and natural heritage values are not compromised by snowmobiles. Disallowing existing uses was never a goal of the Temagami Land Use Plan.

The report acknowledges that snowmobiles have access to remote areas by way of travel on frozen waterways. This does not mean that access should be made even easier by providing open roadways for travel. Traditional access could continue to occur, unaided by road access. No changes were made in response to this comment.

Peter Lee, Global Forest Watch Canada

- Reviewers: Superficially – obvious potential reviewers that were not asked include representatives of forest companies and hunters/fishers. I now understand that this is a government-managed forest and that is why no forest companies were asked and this is fine. Why were not hunters/fishers asked? Or did you feel the tourist operator/outfitter was sufficient?

As mentioned, forest companies were not approached because the Temagami forest management unit is the sole remaining unit that is managed by the MNR. Therefore MNR's comments were solicited.

- Under "Recommendations": Rec #4 has no basis. In other words, there is no referenced literature in the report on which to make this recommendation. I note this due to the substantially different impacts of snowmobile versus summer vehicles.

In fact, reference 26 documenting the severe impacts of road access to fish populations shows that the greatest impact occurred from ice fishing during the winter months. This paper documents that access was through snowmobiles and ATVs. This detail has been added to the report to clarify the relevance of snowmobiles.

Ruth Nogueron, Global Forest Watch

- The reason to select Temagami needs to be strong. Just stating that it is because it has a large number of access controls and the 1997 requirements to designate Special Management Areas seems weak. How can the reader know/compare with other management areas? How many roads and/or access controls are in relation with other management units?

We added language to note that Temagami already has a history of access concerns and plans to deal with them. Enhanced Management Areas elsewhere in Ontario are newly established and will not be ripe for study until they have access plans in place.

- It might also be useful to briefly go over the difference in criteria between MNR and SLDF when determining what is classified as an access violation.

The MNR did not identify violations as we have defined them. The MNR made observations. We have interpreted their results. This has been made clear in the methodology description.

Lars Laestadius, Global Forest Watch

- Develop and clarify the section on method. The observations should be more clearly described. What is the risk of the same violation being counted more than once? It would be good if the reader were told when the observations took place (what season? what interval?). What inspection protocol was used by WL? If different, how were comparisons made? Are all violations of the same importance, or should they be weighted? More pictures of access control devices and violations would add value.

We have added a few lines to the methods section in attempt to clarify that violation frequency was simply a measure of how commonly access controls were compromised and not intact rather than a measure of actual frequency of unauthorized use.

It is explained in the methods section that the WL/Sierra Legal protocol for identifying violations was used for both our own field observations and the observations made by MNR staff.

The timing of WL/Sierra Legal observations in described in the report. This information was not summarized for the MNR data.

We believe that with these changes the Methods section is adequate and does not require further revisions.

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