MORE THAN JUST A 'VALUE': VIEWS OF ABORIGINAL PEOPLE IN NORTHERN ONTARIO ON ABORIGINAL VALUES IN ONTARIO'S FOREST MANAGEMENT PLANNING

by

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ABSTRACT

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Keewords: Aboriginal values, forest management planning mapping, burial site, focus group, land use, mapping media, qualitative research, spiritual sites, trapping, Virtual Reality GIS, community involvement, Ontario.

The last decade has seen an introduction of Aboriginal values into Ontario's forest management planning. Ontario forest management regulations and forest management research, however, are lacking spatial definitions of Aboriginal values and directions about how they should be protected. The protection designation that does occur in forest management is a mixture of local initiatives and guidelines for cultural heritage sites. The objectives of the thesis are fourfold: (1) to obtain views from Aboriginal people in northern Ontario about important aspects in defining and protecting Aboriginal values in forest management, and specifically, to obtain views on how individual Aboriginal values such as trapping, a trapper's cabin, a burial site, and a spiritual site should be defined and protected; (2) to obtain views from Aboriginal people in northern Ontario on the use of different mapping media and Virtual Reality GIS in particular in representing and discussing Aboriginal values; (3) to review and analyze pertinent forest management planning regulations in Ontario for their treatment and impact on Aboriginal values; and (4) to make recommendations to improve the process of Aboriginal values identification and protection in forest management planning in Ontario.

To achieve the thesis objectives, Aboriginal people from six Aboriginal communities in northern Ontario were interviewed and Ontario forest management regulations and policies examined. The chosen research method for the thesis is qualitative, with focus groups and individual interviews as research instruments and subsequent grouping of data into themes and categories as the method of qualitative analysis. Research results show that (1) Aboriginal people take an encompassing and holistic view when discussing Aboriginal values, including concerns about cumulative impacts from natural resource developments, social and cultural ramifications, wildlife resources, and broad landscape protection of potential burial sites; (2) individual Aboriginal values are sometimes spatially defined as more than the physical objects that represent them; (3) Aboriginal values are in effect expressions of Aboriginal land use and might be more appropriately mapped by using methods already existing in Traditional Land Use and Occupancy Studies; (4) typical forestry maps can be seen as confusing by Aboriginal people, and Virtual Reality GIS media can be an effective alternative to traditional mapping media in discussing Aboriginal values; and (5) within the paradigm of ecosystem forest management, there is a need for the presence of definitions, protection provisions and management objectives for Aboriginal values in Ontario's forest management regulations.

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ABBREVIATIONS

AFN	Assembly of First Nations
AOC	Area of Concern
AOU	Area of the Undertaking
C&I	Criteria and Indicators
CBD	The Convention on Biological Diversity
CCFM	Canadian Council of Forest Ministers
CFSA	Crown Forest Sustainability Act
CLAAG	Careful Logging Around Advance Growth
CLFN	Constance Lake First Nation
EA	Environmental Assessment
FMG	Forest Management Guide
FMGNDPE	Forest Management Guide for Natural Disturbance Pattern Emulation
FMP	Forest Management Plan
FMU	Forest Management Unit
FMPM	Forest Management Planning Manual
FRI	Forest Resource Inventory
GIS	Geographic Information System
INAC	Indian and Northern Affairs Canada
LDMLFN	Lac Des Mille Lacs First Nation

MCFN	Moose Cree First Nation
NAFA	National Aboriginal Forestry Association
NFS	National Forest Strategy
OBM	Ontario Base Map
OMNR	Ontario Ministry of Natural Resources
OPRFN	Ojibways of the Pic River First Nation
PPFN	Pays Plat First Nation
RCAP	Royal Commission on Aboriginal Peoples
SFN	Stanjikoming First Nation
T&C	Terms and Conditions
TEK	Tradtional Ecological Knowledge
TLUOS	Traditional Land Use and Occupancy Study
UNCED	United Nations Conference on Environment and Development
VR GIS	Virtual Reality GIS

Mami, tati, bratu, i njoj.

CHAPTER ONE
INTRODUCTION

1.1 DEFINITION OF ABORIGINAL VALUES

For the purpose of this thesis, the term *Aboriginal values* is used according to the description of *Aboriginal values* implied in the Ontario's forest management regulations and practice. The term *Aboriginal values*, therefore, refers to the places and areas on the land used by Aboriginal people and recognized by them as important for protection during forest management. The term *Aboriginal values* in this thesis does not refer to broad cultural, social, or belief values that Aboriginal people have about the land. This distinction is being made as a consequence of the decision to base the thesis topic on the *Aboriginal values* as they are used in forest management in Ontario rather than examining all cultural, social, and spiritual Aboriginal values associated with the land.

1.2 THESIS STATEMENT

Forest management in Canada, and Ontario in particular, has since the early 1990's broadened the scope of its objectives, responsibilities, and involved players. What was before an enclosed enterprise of forestry professionals with the main goal of managing forests to provide sustained wood yields, has become an endeavor in managing forests to provide sustained wood yields while preserving ecosystems, protecting non-timber values, and including the public, especially Aboriginal communities, into forest management planning (Lawson et al. 2001). In Ontario, this change in scope was the result of a more than a decade long process of casting forest management planning and practices within the confines of environmental assessment regulations (Environmental Assessment (EA) Board 1994: 1). The transition has meant

that social questions concerning the impacts of forest management on local communities and the human non-forestry use of forest lands have come to the forefront of forest management and forest science. Specifically, this has been the case with questions concerning Aboriginal people's use of forest lands and their participation in forest management planning. Spurred by international conventions, national and provincial forest policy and legislation changes, and high profile court cases related to Aboriginal land use rights and titles, Aboriginal values, interests, and Aboriginal participation have gained significance in forest management plans. This increased attention has created a need for knowledge about the definition and required protection of Aboriginal values in forest management and exposed the lack of it. Despite the voluminous research in native studies, ethnography, anthropology, and archaeology, about Aboriginal people in Canada and their culture and land use, spatial definition and the required protection of Aboriginal values in the context of forest management in Ontario are still largely unknown to the forestry community. The best way to obtain this information is to ask Aboriginal people about it, since they are the ones who form and define Aboriginal values.

The described three new components in forest management—values, social dimension, and Aboriginal involvement—are the themes of this thesis. An attempt will be made to use available methods and instruments of social research to find out from Aboriginal people in northern Ontario what the important aspects are in defining and protecting Aboriginal values in forest management in Ontario. Specific attention will be paid to four Aboriginal values representing three different characters of land use: trapping and a trapper's cabin representing subsistence land use, a burial site representing cultural land use, and a spiritual site representing spiritual land use.

Because forest management activities and Aboriginal values (as described by the Ontario forest management regulations) are spatial phenomena occurring on the landscapes, their description and inter-relation is communicated through mapping media. Different mapping media can be more or less conducive to communicating spatial landscape information in cross-cultural environments. A search for more effective media for communicating landscape contents and changes has led to the introduction to forest management a new technology called landscape visualization, with Virtual Reality (VR) GIS as one of its prototypes. This leads to the second goal of the thesis: to explore the views and perceptions of Aboriginal people about the use of several different mapping media, and particularly the use of VR GIS, in discussing the definition and protection of Aboriginal values.

Treatment of Aboriginal values in Ontario's forest management occurs daily according to available regulations in forest management planning. Furthermore, Aboriginal values in forest management get defined and protected with respect to that management and not in a theoretical or practical vacuum. It is assumed that forest management follows the directions and instructions set in forest management plans, which in turn are created according to forest management planning regulations. For this reason, relevant current and recent forest management planning regulations in Ontario will be reviewed for their treatment of Aboriginal values and used in the analysis of impacts on and definitions and protections of Aboriginal values.

1.3 THESIS OVERVIEW

Incorporation of Aboriginal values in forest management has become a requirement and reality of forest management planning on the public forests in Ontario.

Yet, despite of almost ten years of practising incorporation of Aboriginal values in forest management, very little research has been carried out that would help in understanding how Aboriginal values are defined and how they should be protected. In this thesis, qualitative research will be used to interview Aboriginal people in northern Ontario about their views on what are important aspects in defining and protecting Aboriginal values and on the use of mapping media, specifically VR GIS, in representing and discussing Aboriginal values. Qualitative research methods include focus groups and semi-structured interviews as instruments of data collection and qualitative analysis as the method of data analysis. Aboriginal people interviewed for the thesis belong to six northern Ontario Aboriginal communities: Constance Lake First Nation, Lac Des Mille Lacs First Nation, Moose Cree First Nation, Ojibways of the Pic River First Nation, Pays Plat (Pawgwasheeng) First Nation, and Stanjikoming First Nation.

Mapping media representations and VR GIS models were created for the study, including the creation of the tree library for VR GIS models. These media were used to examine their effectiveness in representing and discussing Aboriginal values. VR GIS models were used to represent simulation cases of forest management protection of individual Aboriginal values.

Because Aboriginal values get defined and protected in the context of forest management, which is the outcome of forest management planning, pertinent forest management planning regulations were analyzed for their treatment and their impact on Aboriginal values. Since Aboriginal values represent Aboriginal land use, relevant literature was reviewed on the subject of the types and extent of Aboriginal land use in Ontario and Canada, and the historical, political, and socio-economic factors influencing

Aboriginal land use, as well as the ways and methods of documenting Aboriginal land use.

1.4 RESEARCH OBJECTIVES

Research Objective 1: To obtain views from Aboriginal people in northern Ontario about important aspects in defining and protecting Aboriginal values in forest management. Specifically, to obtain views on how individual Aboriginal values such as trapping, a trapper's cabin, a burial site, and a spiritual site should be defined and protected.

Research Objective 2: To obtain views from Aboriginal people in northern Ontario on the use of different mapping media and VR GIS in particular in representing and discussing Aboriginal values.

Research Objective 3: To review and analyze pertinent forest management planning regulations in Ontario for their treatment and impact on Aboriginal values.

Research Objective 4: To make recommendations to improve the process of Aboriginal values identification and protection in forest management planning in Ontario.

CHAPTER TWO
BACKGROUND

2.1 ABORIGINAL VALUES AND ONTARIO FOREST MANAGEMENT PLANNING REGULATIONS

In Ontario, 91% of the forested area is a publicly owned, Crown forest (Natural Resources Canada 2004), managed under the jurisdiction of the province. Within the forested area in Ontario, area under forest management is named the Area of the Undertaking (AOU). The AOU was defined during the Timber Class EA process, between 1987 and 1994, and encompasses a wide strip of land spanning across the province in the east-west direction and roughly between the 51st and 45th parallel (OMNR 2004: Appendix I). The AOU is divided into 68 Forest Management Units (FMUs) (OMNR 2004: Appendix I), for each of which, in order for forest management to occur, a Forest Management Plan (FMP) written in accordance with the Forest Management Planning Manual (FMPM) should be prepared and approved (CFSA 1994: s. 8(1)). The FMPM stipulates components of all elements of a FMP, including its preparation, content, realization period, and monitoring. One of the components of a FMP are Aboriginal values and the process of their identification, definition, and protection.

The term 'Aboriginal values', or 'Native values' as was their original designation, and the principle of incorporating Aboriginal values into forest management in Ontario through their collection and protection, has been introduced with the Timber Class EA of Ontario's forest practices, carried out by the Class EA Board, from 1987 to 1994. Incorporated into forest management regulations, principally the FMPM, the Timber Class EA gave directions and instructions on how to conduct forest management

planning, including how to treat Aboriginal values, outlined in 115 Terms and Conditions (T&C). The Timber Class EA was succeeded in 2003 by the Forest Class EA, titled Declaration Order, based on the directions by the Class EA Board that the approval for Timber Class EA was granted for nine years, upon which the OMNR was to submit a review of the ensuing undertaking to the Ontario Ministry of the Environment (MOE) (EA Board 1994: T&C 114). Forest Class EA is thus a product of the review of forest management in Ontario under the Timber Class EA and includes changes and modifications stemming from the review process. The directions for forest management in the Forest Class EA are outlined in 55 T&C—a consolidation of the previous 115 T&C in the Timber Class EA—and form the basis for the new FMPM. Therefore, to date, the FMPM has undergone one revision, resulting in two distinct versions: the initial FMPM, published in 1996 and based on the Timber Class EA, and hereafter termed FMPM 1996, and the new version of the FMPM, published in 2004 and based on the Forest Class EA, and hereafter termed FMPM 2004. In terms of Aboriginal values, T&C in the Timber Class EA that are relevant to Aboriginal values are T&C 8-11, which describe consultation with Aboriginal communities; T&C 13, which specifies a requirement for a Native values map; T&C 19, which outlines the requirement for the Native Background Information Report; T&C 50, which addresses advantages and disadvantages of access roads to remote Aboriginal communities; T&C 57, which outlines the requirement for the Report on the Protection of Identified Native Values; and T&C 77, which sets out the requirement for the OMNR to negotiate with Aboriginal communities possible economic engagement in forest management (EA Board 1994). In the Forest Class EA, the described areas relative to Aboriginal values are covered in the T&C 6, 7, 10, 12, 19, and 34 (MOE 2003). It should be noted that besides the OMNR,

forestry industry, and environmental organizations, Aboriginal communities were also represented in an intervenor capacity at the hearings before the Class EA Board. Representatives were four intervenor groups: Grand Council Treaty #3; Nishnawbe Aski Nation and Windigo Tribal Council; Ontario Metis and Aboriginal Association; and the North Shore Tribal Council, United Chiefs and Councils of Manitoulin, and Union of Ontario Indians in partnership with the Northwatch Coalition (EA Board 1994: 345). In the Timber Class EA, the OMNR acknowledged that Aboriginal communities can be affected by forest management and Aboriginal people expressed their concern about Aboriginal values, specifically activities of hunting, trapping and fishing, as well as values sites, such as pow-wow sites, spirit rocks, burial grounds, pictograph sites, traditional camping sites, and other archaeological sites, being affected or damaged by forest management practices (EA Board 1994: 365). The OMNR responded by testifying that Aboriginal values sites were at that time being protected from physical disturbance, and that a new guide, named Timber Management Guidelines for the Protection of Cultural Heritage Resources, was released in 1991 and was in the process of implementation at the time of the testimony (EA Board 1994: 365).

The operational treatment of values in Ontario's forest management planning is prescribed through a series of Forest Management Guides (FMGs), among which, the Timber Management Guidelines for the Protection of Cultural Heritage Resources, hereinafter 'Cultural Heritage FMG', is the guide that, although not specific to Aboriginal values, does refer to some of Aboriginal values. The main purpose of this thesis is to examine views and perceptions of Aboriginal people in northern Ontario on how Aboriginal values should be defined and protected. Being the main reference to the questions concerning the extent to which existing regulations have been accommodating

expressed Aboriginal needs in regards to Aboriginal values, FMPM 1996, FMPM 2004, and the Cultural Heritage FMG, will be examined for their treatment of Aboriginal values. Although FMPM 2004 has replaced FMPM 1996 and become the official planning manual, because this study has been carried out during the transition time between FMPM 1996 and FMPM 2004, the treatment of Aboriginal values in FMPM 1996 will also be reviewed. Because the introduction of Aboriginal values into forest management planning in Ontario is but one component of a broader forest policy shift towards greater inclusion of non-timber values—i.e. the forest values beyond wood products, such as endangered birds nests, fish spawning sites, wetlands, animal habitats, tourist camps, trails, and boat caches, among a host of other ecological, economical, and social values—and greater public participation, which in turn are part of the embarkment towards sustainable ecosystem forest management, the examination will make references to these other elements of forest management planning as well.

2.2 FOREST MANAGEMENT PLANNING MANUAL (1996) AND ABORIGINAL VALUES

To understand the context in which Aboriginal values are positioned within the FMPM 1996, especially with respect to other non-timber values and overall goals of sustainability, it is necessary to outline the main forest management planning thrusts of the FMPM 1996. Planning in the FMPM 1996 is divided into long-term, or strategic planning, spanning 20 years, and short-term, or operational planning, spanning over five years. The strategic planning concept of the FMPM 1996 rests on four components: the principle of exploring management alternatives, a sustainability filter, the comparison of the current forest condition with the desired future forest condition, and public

involvement. Forest management alternatives of substantial differences are first developed and modeled by using forest and socioeconomic models (OMNR 1996a: Section A 2.3.4). Next, they are tested for sustainability by using criteria and indicators that measure landscape patterns, forest diversity and disturbance, forest production, harvest utilization rates, and habitat for selected wildlife species. Finally, the preferred alternative, that also passes the sustainability test, is selected based on the current forest conditions, objectives and strategies on the one side, and the desired future condition, tested through modeling, on the other side (OMNR 1996a: Section A 2.3.5). The whole selection process is carried out with public involvement, both, representational through Local Citizen Committees, and the involvement of the interested public at large. Notably, this incorporation of public involvement in forest management planning is supplemented by the Environmental Bill of Rights, 1993, which states that "the people of Ontario have as a common goal the protection, conservation and restoration of the natural environment for the benefit of present and future generations," and stipulates that "while the government has the primary responsibility for achieving this goal, the people should have means to ensure that it is achieved in an effective, timely, open and fair manner" (Environmental Bill of Rights 1993: Preamble).

Non-timber values are identified on the land base through observations and surveys by the MNR staff and by everyday forestry workers (e.g. the values such as endangered birds nests, moose calving areas, archeological sites, etc.) and by value owners and general public identifying to the MNR and the planning team values of their concern (e.g. the values such as tourist outpost camps, boat caches, trails, esthetic views, etc.). Objectives for non-timber values and land uses do not take central stage in the FMPM 1996, but room is made for them to be considered in the planning process. In the

section on objectives for management alternatives, and following the reiteration of the sustainable ecosystem's primary status in forest management planning, the FMPM 1996 states that "the plan must include not only economical objectives, such as continuous and predictable supply of suitable wood, but also other social and environmental objectives for forest cover, such as maintenance of white pine old growth"(OMNR 1996a: Section A 2.3.3.1). A few sections later, when instructing on the development of management alternatives, the manual foresees considering management alternatives that explore management responses to different non-timber objectives (OMNR 1996a: Section A 2.3.3.3) As well, the objectives for non-timber values that might be affected by the location of designated roads and harvest areas are proposed to be addressed in the final alternative selection stages, upon allocating the roads and harvest stands (OMNR 1996a: Section A 2.3.5).

When it comes to the impacts of forest management on non-timber values and land uses, the FMPM 1996 addresses them at the strategic and operational level. Strategic, broader consideration, involves the description of significant natural non-timber resources, such as rare, vulnerable, threatened, or endangered wildlife species, fishery resources, large wetland complexes, and a discussion on how they have been or might be affected by forest management activities. It also involves a recognition of declining habitats and directions on how to reverse the trend (OMNR 1996a: Section A 2.2.2.4). At the operational level, non-timber values and land uses are addressed through the application of Areas of Concern (AOC). These areas are designated within the areas of forest management operations and adjacent to non-timber values, which are represented via the Values Map (OMNR 1996a: Section A 2.4.3.1). AOCs have a function of preventing, minimizing and mitigating the adverse effects of forest

management operations on identified values (OMNR 1996a: Section A 2.4.3.1) by employing either prohibition of operations, or modified operations with specific conditions and restrictions, or regular operations, or a combination of these. Prescriptions for AOCs should be based either on the applicable "MNR's approved implementation manuals" or management alternatives should be developed, discussed and the most appropriate one selected (OMNR 1996a: Section A 2.4.3.1).

FMPM 1996 uses the term 'Native' instead of 'Aboriginal.' Aboriginal (Native) values are addressed as part of the Native Consultation Program, which is constructed as community based. Aboriginal communities in, or adjacent to, the planning forest management unit are to be contacted by the OMNR and the plan author and asked to participate in the program (OMNR 1996a: Section A 1.4.6). If the contacted community agrees to participate, a public participation process composed of several stages is put in place (see Appendix IV). The process starts off with the creation, by the OMNR, the plan author, and the community, of a Native Background Information Report, that contains previous timber and other forest resource uses, such as fishing, trapping, hunting, and gathering; a Native Values Map; forest management concerns that arose during the previous FMP; and a summary of successes and failures in previous negotiations in order to achieve a more equal participation by Aboriginal people in the benefits of forest management (OMNR 1996a: Section A 1.4.6). The Native Values Map is used by the planning team to produce at first a preliminary and at the end of the process, a final Report on the Protection of Identified Native Values (OMNR 1996a: Section A 2.6.3), to demonstrate how the identified values that are affected by forest management operations will be protected with prescribed AOCs. The AOC protection of Aboriginal values is presented to the community and offered for comments and

discussion—AOCs are designed by the planning team and the FMPM 1996 does not specify any involvement by Aboriginal communities in creating AOCs. The whole process of Aboriginal consultation runs parallel to the general public consultation process and follows its stages designed to review and comment on the development of the FMP (OMNR 1996a: Section A 3.3.1). As a whole, the process of Aboriginal consultation in the FMPM 1996 has its agenda and the protection of Aboriginal values set by the planning team, with the involvement of Aboriginal communities limited to mapping Aboriginal values and expressing concerns and comments on their definition and protection.

2.3 FOREST MANAGEMENT PLANNING MANUAL (2004) AND ABORIGINAL VALUES

FMPM 2004 retains the general approaches and goals of FMPM 1996 to sustainable forest management, treatment of non-timber values, participation of Aboriginal communities, and treatment of Aboriginal values, while introducing some modifications to these areas. Modifications were results of the review of the nine-year approval period, from 1994 to 2003, which was one of the directives in the EA Board's T&Cs (see Chapter 3.3) and they also reflect amendments to the Ontario's Crown Forest Sustainability Act (CFSA), 1994, which occurred in the intervening years between introductions of FMPM 1996 and FMPM 2004.

FMPM 2004 instructs that a forest management plan becomes a ten-year plan divided into two five-year operational terms, and that it includes a long term management plan designed in the first five-year term. Long term management plans are

to be projected up to 160 years ahead by using strategic models and used as a direction for operational, five-year management terms.

The management principle prescribed through the FMPM 2004 is the development of a forest management strategy that will enable long-term management of a forest management unit along a trajectory from the described current state towards the desired future state in an ecologically and socio-economically sustainable way. FMPM 2004 adopts the CFSA's definition of forest management sustainability as "long term Crown forest health (which is) the condition of a forest ecosystem that sustains the ecosystem's complexity while providing for the needs of the people of Ontario" (OMNR 2004: Part A 1.2.6). Sustainability is to be ensured by setting a range of ecological, socio-economic, non-timber value, and silvicultural objectives, indicators of their achievement and associated targets (OMNR 2004: Part A, 1.2.6.1). Desirable levels of indicators of objectives' achievements are to be assessed at the specified stages within a ten-year management term based on established targets, which are either equal to the desirable levels of indicators or are used to encourage movement towards desirable levels (OMNR 2004: Part A, 1.2.6.1). Indicators for the achievement of non-timber objectives are of the type such as habitat areas for the featured or rare wildlife species, kilometers of roads and harvest levels for community benefits, compliance in carrying out AOC prescriptions for non-timber values, and opportunities provided for involvement and involvement of Aboriginal communities for social and economic community well-being (OMNR 2004: Part A, 1.2.6.1). Aboriginal values are not mentioned in the provided list of objectives and indicators.

As in the FMPM 1996, FMPM 2004 instructs on a development of AOCs around identified values, natural resource features, and land uses that have been identified on a

values map and might be affected by the forest management operations (OMNR 2004: Part A, 1.3.5.1). Prescriptions on how AOCs should be treated are to be developed according to the relevant forest management guides, other planning exercises—such as a resource stewardship agreements between OMNR and tourist operators—or by a planning team (OMNR 2004: Part A, 1.3.5.1). At the time of publishing the FMPM 2004, there was no forest management guide with directions on how to protect Aboriginal values.

When it comes to Aboriginal values and Aboriginal participation, and compared to FMPM 1996, FMPM 2004 prescribes the same documents to record Aboriginal values, their protection, and Aboriginal involvement, albeit with some modifications, and it instructs expanding the level of Aboriginal participation. FMPM 2004 retains requirements for a production of an Aboriginal Background Information Report containing an Aboriginal values map, and a Report on the Protection of Identified Aboriginal Values for five-year management terms. The required content for the Aboriginal Background Information Report does undergo some changes: instead of being formulated in the past tense, as in the FMPM 1996, the use of natural resources and issues and problems concerning forest management are framed in a present tense and defined beyond just a FMP domain, thus giving them greater immediacy and broader perspective. FMPM 2004 adds two new documents to Aboriginal consultation, Social and Economic Description, and the Summary on Aboriginal Involvement, the latter of which is a section from the FMPM 1996 Native Background Information Report, cut out and extended (OMNR 2004: Part A, 4.6). Aboriginal values are to be collected and identified on an Aboriginal values map. In the Report on the Protection of Identified Aboriginal values, FMPM 2004 introduces as new elements a discussion by

the planning team and the OMNR on how the identified Aboriginal values have been addressed through AOC prescriptions and "how local Aboriginal hunting, fishing, trapping and gathering activities have been addressed in the planning of forest operations" (OMNR 2004: Part A, 4.6.3). FMPM 2004 introduces new elements to the process of Aboriginal consultation as well. It instructs the OMNR to invite Aboriginal communities that have interests and traditional areas in the planned forest management unit to have their representatives on the planning team (OMNR 2004: Part A, 4.2, 4.3). Also, the OMNR is required to offer each Aboriginal community the opportunity to jointly develop a consultation process for the participation of that community in the forest management plan (OMNR 2004: Part A, 4.4). The development of a consultation process also introduces a shift towards greater participation of Aboriginal communities in forest management planning. FMPM 2004 instructs that the consultation process developed between a willing Aboriginal community and the OMNR should address, among other things: (1) the involvement of the Aboriginal community in the preparation, and methods of review and comment of the Aboriginal Background Information Report and the Report on the Protection of Identified Aboriginal values, and (2) the involvement of the Aboriginal community in the planning of operations to protect Aboriginal values (OMNR 2004: Part A, 4.4). Although the very character of the possible involvement is not elaborated in the FMPM 2004, it is conceivable that it might include direct involvement of Aboriginal communities and Aboriginal people in deciding how to protect Aboriginal values. If an Aboriginal community declines to develop a specific consultation process, then the Aboriginal participation follows the general public participation stages of the FMP (see Appendix V), within which the community is asked to advise the OMNR how it wishes to participate in forest

management planning and addressing Aboriginal values, and the community is given for review and comment progressive stages of the Aboriginal Background Information Report and the Report on Identification of the Identified Aboriginal Values and of the FMP as a whole (OMNR 2004: Part A, 4.5.1).

Table 1. Comparison of Aboriginal participation levels between FMPM 1996 and FMPM 2004

Participation Level	FMPM 1996	FMPM 2004
Planning team participation	No	Yes
Local Citizens Committee participation	Yes	Yes
Consultation process	Separate but pre-designed	Separate and optionally co-designed
Direct involvement in Aboriginal Background Information Report	Yes	Yes
Direct involvement in Report on the Protection of Identified Aboriginal Values	No	Yes
Direct involvement in planning AOCs around Aboriginal values	No	*Yes

* Not explicitly declared in the FMPM 2004, but room for involvement is created in the described development of the consultation process (OMNR 2004: Part A, 4.4).

Table 1 provides a comparison of Aboriginal participation between the FMPM 1996 and FMPM 2004. Noticeable is the direction towards greater participation of Aboriginal communities in forest management planning, consultation process design, and planning of Aboriginal values protection.

2.4 CULTURAL HERITAGE FOREST MANAGEMENT GUIDE AND ABORIGINAL VALUES

There is no forest management guide in the forest management planning regulations in Ontario that is specific to Aboriginal values. The Cultural Heritage FMG

deals with cultural heritage values as a whole and includes some Aboriginal values. The Cultural Heritage FMG was created in 1991 with the intention "to provide a technical framework for the protection and conservation of cultural heritage resources on Crown land during timber management planning and subsequent implementation processes" (OMNR 1991: i). The Cultural Heritage FMG was designed as one of the components of a five-element strategy that also includes the cultural resources predictive modeling project, awareness training for the cultural heritage community, training programs for timber management planning teams, and the monitoring program (OMNR 1991; i). In the guide, cultural heritage resources are defined as records of past human activities, endeavors, or events that people in the whole of Ontario or parts of it consider to belong to them in some way (OMNR 1991: 2). On the matters of defining values, the Cultural Heritage FMG makes a point that "individual human-made objects (cultural features) should be viewed and valued within or against the use and physical appearance of the land surrounding it (cultural landscape)." There are four categories of cultural heritage resources: Cultural Landscapes, Structural Remains, Archaeological Remains, and Traditional Use sites (OMNR 1991: 4). Aboriginal values are not noted as such; they can be recognized as features within the four categories, such as pictograph sites in the Cultural Landscapes category, Aboriginal structures in the Structural Remains category, burial sites in the Archaeological Remains category, and spiritual sites and medicinal plants gathering sites in the Traditional Use Sites category (OMNR 1991: 3-4). The Cultural Heritage FMG divides the effects of forest management activities on the values into adverse effects, such as physical damaging and destruction through various harvesting and regeneration activities, and beneficial effects, such as the identification of values during forest management planning (OMNR 1991: 5). To protect the values the

Cultural Heritage FMG proposes a range of strategies within AOCs around the values, the most appropriate of which is to be decided upon by the planning team and the heritage planner. The strategies span from reserves and modified timber management operations, to normal timber management operations (OMNR 1991: 9). Overall, values in the Cultural Heritage FMG are perceived as physical objects belonging to past, whose physical integrity needs to be protected from impacts like falling trees or forestry equipment damages. Although there is a note in the values definition that values should be viewed within or against the use or physical appearance of the surrounding cultural landscapes (see above), the role of the value surroundings is not factored in when considering the impacts on and protection of values. In the end, the values domain is not seen as extending beyond the very physical objects (i.e. a cabin, a grave) that represent the values, leaving their surroundings excluded.

OMNR is currently in the process of writing a new guide for the protection of cultural heritage resources, expected to be released soon (Renée Carrière, OMNR, personal communication). It remains to be seen to what extent and depth will Aboriginal values be treated in the new guide.

CHAPTER THREE
LITERATURE REVIEW

3.1 INTRODUCTION

Two existing definitions of the word 'value', taken from Collins English Dictionary (1991), should be kept in mind when considering values in forest management planning: (1) "the desirability of a thing, often in respect of some property such as usefulness or exchangeability: worth, merit, or importance"; and (2) "(pl.) the moral principles and beliefs or accepted standards of a person or social group." The first definition describes a value as related to a thing or an object and the second one as related to a personal or social expression. Both of these meanings of the word 'value' are used in the literature on forest management and in forestry-related policies and regulations, often interchangeably, even though they carry quite different implications. To understand them better, we need to look at the theory of values and the meaning and role of values in forest management.

In this chapter, an overview of the theory of value relative to natural resources, and the treatment of values and Aboriginal values in the current forest management paradigm in Ontario are considered. Because Aboriginal values are a direct expression of Aboriginal land use, a selective overview of the literature on Aboriginal land use and in particular, a review of the mapping demonstrations of this land use–Traditional Land Use and Occupancy Studies–are provided.

3.2 VALUES THEORIES IN NATURAL RESOURCE MANAGEMENT

Values and values systems have been explored and have been changing throughout human history. Likewise, they also change during the course of an individual's life. The property of personal values as changing but remaining relatively stable was captured by Rokeach in his seminal work on values (Rokeach 1973). He points out that an absolute stability of values would prevent any social change whereas a complete instability would make social existence impossible (Rokeach 1973: 5-6). Thus, Rokeach (1973: 5) defines personal values and values systems as 'enduring' and offers their following definitions:

> A *value* is an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence. A *value system* is an enduring organization of beliefs concerning preferable modes of conduct or end-states of existence along a continuum of relative importance.

Values have a fundamental place in our understanding of the world and our acting in a social environment. They are beliefs we use to act by preference (Allport 1961).

The value concept is one of many concepts human beings employ in their everyday life and should not be confused with other concepts such as attitude, social norm, and need (Rokeach 1973: 3). Values are contextual, meaning that they can be influenced by the surrounding cultural, social, and economic conditions. Therefore, values are complex concepts and as such have been explained through several theories and classification systems.

None of the sciences examining human activities claims ownership over the study of values. Different methods and perspectives in exploring values are used in philosophy, psychology, sociology, anthropology, and economics, among many others,

creating a pool of diverse research approaches that can be drawn upon (Bengston 1994). One discipline that has made theories about values its central preoccupation and some of whose methodologies have been adopted in forest policies, is economics. Specifically, in neo-classical economic theory values are looked at as prices that are set in a competitive market through personal preferences. According to this theory, people's personal beliefs are reflected in the prices they are willing to pay for the goods and services they buy. The greater the value assigned, the higher the price somebody is willing to pay. This model is then extended to the natural resource area where environmental concerns, ethical, and aesthetical values are expected to be incorporated in the prices of generated goods and services. Brown (1984) uses the neo-classical economic theory of values as a base to build his developmental structure of values represented by three realms: conceptual, relational, and object. Values in the conceptual realm are enduring conceptions of the preferable which influences choice and action. At this stage they are called 'held values' (Brown 1984). In the relational realm, values arise from the interaction between a subject and an object in a particular context, based partially on the concepts formed in the conceptual realm. The object realm is the final developmental stage, where the value is assigned by a person to an object, based on the relationship formed in the relational realm. By assigning different values, a preference is made between the objects. Values at this stage Brown (1984) names 'assigned values.' An important emphasis is that in keeping with neo-classical economic theory Brown (1984) from the outset works with preference-related values only, because their prices can be expressed in a competitive market. Non-preference related values are those that exist regardless of human preference (Brown 1984), such as the value of sunlight to plants.

Andrews and Waits (1978) join preference and non-preference values in their classification of values and propose three types of value relationships: preference, obligatory, and functional. Preference values are expressed by individuals, obligatory values are derived from social norms and socially established beliefs, and functional values are non-preference values that exist in functional relations in the nature (i.e. the value of soil nutrients to plant growth).

Brown (1984), although working within the confines of the economic measurements of values, cautions about the appropriateness of these methods to evaluate resource allocations and cites four reasons: (1) valuation is made with a possibly improper constituency in mind, (2) reliance on payment for expression, (3) transactions can be strongly influenced by social settings, and (4) actors in the market might act for reasons different than their own individual welfare.

Adamowicz et al. (1998) analyze the appropriateness of using nonmarket valuation methods–designed to measure the impact of change in the quality and quantity of natural resource goods and services for which market prices do not exist–in an Aboriginal context. They point out that such methods have been developed within non-Aboriginal, Euro-American cultures, and warn that because of that these methods might suffer various problems when applied in an Aboriginal cultural context. The problems might arise because Aboriginal people might treat certain revered values (e.g. sacred lands) as taboos and thus as non-tradable; Aboriginal people may lack the concept of private land ownership; there may be a culture of limits on personal wealth, or accumulation of property in larger groupings of individuals; there may be culturally defined roles of land users in terms of gender and age and an absence of a census of land users; 'referendum models' may be inapplicable because of reliance on elders and

councils; and there may be non-monetary alternatives to measure goods (Adamowicz et al.1998). As one potential approach to solving these problems, Adamowicz et al. (1998) propose using ethnographic and qualitative research. Qualitative research by the means of focus groups and individual interviews is the basis for exploring research questions and reaching research objectives in this thesis.

3.3 VALUES AND EMERGENCE OF SUSTAINABLE ECOSYSTEM FOREST MANAGEMENT IN ONTARIO

Forest management in Ontario has evolved over time, influenced by technological, economical and social changes. In the course of its evolution, the concerns and responsibilities implied with undertaking forest management have been broadened. In the early stages of industrial forestry, the only concern was the efficient extraction of timber, foregoing even responsibilities that are today basic in forest management, such as regeneration. Later, ecological concerns and social responsibilities gained a more prominent role. Reflected in these changes has been the scope and type of forest values. An, at the beginning, only one value–timber–enterprise, has in the later stages of historic development become an endeavor that takes into consideration a broad set of ecological, social and cultural values.

Lawson et al. (2001) divide Ontario forest policy regimes into five historic stages: the political-military regime, 1800-1828; the struggle over revenue, 1828-1848; the stimulation/conservation policy regime, 1848-1941; the sustained yield forest policy regime, 1941-1994; and the forest ecosystem policy regime, 1994 to the present. Widening of the scope of forest use beyond timber extraction was introduced through the policy of creating parks for the use of hunters, recreationists and tourists, during the

conservation policy regime, 1848-1941. Although logging continued for decades in parks upon their establishment, logging activities were spatially separated from non-logging ones by forming zones within parks, meaning that logging practices were mostly not altered in order to accommodate other uses (Lawson et al. 2001: 288). Integration of timber and non-timber values had still not taken place. It took several more decades and a shift to a new forest management paradigm for policy that addresses non-timber uses within forest management areas to enter the stage.

In 1986, the Timber Management Planning Manual for Crown Lands in Ontario by the OMNR, laid out the requirements for identification of Areas of Concern (OMNR 1986: 11-12, 93), marking the first occurrence of prescribed protection of non-timber values in Ontario's forest management regulations (Lawson et al. 2001: 292). When describing the designation of Areas of Concern, the manual calls for "a description of the resource values which require protection in each area" (OMNR 1986: 12). Aboriginal land use or Aboriginal values were not addressed in the 1986 manual. Although non-timber values were brought into the forest management regulation, their integration with the forest management practices was incomplete. The auditor appointed in 1986 by the that time Ontario Minister of Natural Resources to review forest management on Crown land, pointed to the absence of integration of non-timber values with forest management operations, the positioning of non-timber values simply as constraints to the traditional forest management operations and the lack of objectives for treating non-timber values (Baskerville 1986: 12).

The described time was a transition between two paradigms, with the then governing regime of sustained yield, from 1941 to 1994, being replaced with the forest ecosystem policy regime, from 1994 to the present (Lawson et al. 2001: 297). The

turning point was the replacement of the key forest law, the Crown Timber Act, with the CFSA in 1994. The transition started quite earlier hoverer, with the establishment of the EA Board for the OMNR Timber Class EA in 1987. The EA Board had a mandate from the MOE to determine if province-wide forest management practices carried out under the auspices of the OMNR complied with the Environmental Assessment Act, 1975 (EA Board 1994: 4). After four years of gathering information, the Board rendered a positive decision in 1994, in a document titled Reasons for Decision and Decision: Class Environmental Assessment by The Ministry of Natural Resources for Timber Management on Crown Lands in Ontario, hereinafter the Timber Class EA Approval, subject to 115 T&Cs that became law and were incorporated into forest management regulations, chiefly into FMPM 1996. The EA Board granted the approval for nine years, and instructed the OMNR to submit a review of the ensuing undertaking to the MOE by the end of the approval period (EA Board 1994: T&C 113, 114). In 2003, after OMNR's Timber Class EA Review of the Timber Class EA Approval, MOE issued a Declaration Order, allowing the OMNR to continue forest management practices according to the relevant laws and regulations. The Declaration Order was eventually named Forest Class EA and is subject to 55 T&Cs, derived through modifying and consolidating previous 115 T&Cs from the Timber Class EA. Throughout the 1990's and in the beginning of 2000's, a composition of forest and environmental laws, namely the CFSA and Timber Class EA Approval's T&Cs, Environmental Assessment Act, 1990, Environmental Bill of Rights, 1993, and broader policy documents, such as the Policy Framework for Sustainable Forests and the Forest Resource Assessment Policy, laid out the cornerstones for a new forest management paradigm: ecosystem management.

Ecosystem management aims at, broadly speaking, preserving ecosystem processes and diversity through the accommodation of human activities, needs and values. Christensen et al. (1996) describe ecosystem management as including eight components: long-term sustainability, measurable goals, sound ecological models, understanding complexity and interconnectedness, recognition of the dynamic character of ecosystems, acknowledgment of humans as ecosystem components, and commitment to adaptability and accountability. Grumbine (1994) in his classical synthesis of the literature addressing ecosystem management, teases out its ten common themes: hierarchical context, respecting ecological boundaries rather than administrative, preserving ecological integrity that includes biodiversity and ecological processes, improved data collection, monitoring, adaptive management, interagency cooperation, organizational change, humans embedded in nature, and values. OMNR's Forest Resource Assessment Policy bases its definition of ecosystem management on the Canadian Biodiversity Strategy and depicts it as "the management of human activities so that ecosystems, their structure, composition, and function, and the processes that shaped them can continue at appropriate temporal and spatial scales" (OMNR 2003: 35). The CFSA sets out the principles of sustainable Crown forests in Section 3 as conserving ecological processes and biological diversity by using forest practices that minimize "adverse affects on plant life, animal life, water, soil, air and social and economic values, including recreational values and heritage values."

Traditional forest management, with timber production as its central goal, accompanied by commodity type production of other goods and services, reflects a utilitarian approach to natural resource management (Baskerville 1984: 72, Bengston 1994, Grumbine 1994, McQuillan 1993, Wilson 2001). This approach also adopted the

neo-classical economic model as a way of dealing with values. When applied, multiple use meant a spatial separation of forest management practices from other uses, treating them as constraints to forest management operations (Lawson et al. 2001: 292, Behan 1990). When it came to Ontario's forest management, Baskerville (1986), in his assessment of forest management practices prior to the Timber Class EA Approval, pointed to the lack of management objectives for non-timber values and failure to consider the impacts of tree removal on these values in forest management plans (FMPs).

Ecosystem management, on the other hand, is seen as a reconciliation of protecting ecological integrity and providing goods and services for humans (Grumbine 1994). In forest management, this reconciliation involves setting objectives for timber and other land uses simultaneously and considering the mutual impacts. The two FMPMs in Ontario since the Timber Class EA, FMPM 1996 and FMPM 2004, take a turn in that direction and depart from the forest management policies prior to the Timber Class EA in dealing with non-timber values. While not prescribing or referring to specific targets and measures to achieve sustainability of non-timber values, FMPM 1996 and FMPM 2004 instruct planning teams to move in the direction of setting objectives and measuring successes in sustainably managing non-timber values (see Chapter 2, Sections 2.2 and 2.3). Provision of protecting non-timber values from the impacts of forest operations is incorporated through the establishment of AOCs, designed mainly based on the forest management guides (see Chapter 2, Sections 2.2 and 2.3).

Aboriginal values do receive a separate attention and consultation process in the FMPM 1996 and the FMPM 2004, apart from other non-timber values (see Chapter 2,

Sections 2.2 and 2.3), however, their definition and protection are mainly left to discussions and negotiations between Aboriginal communities, the OMNR, and a planning team. Objectives and targets in managing Aboriginal values are not mentioned in the FMPM 1996 and FMPM 2004, and there is no forest management guide that provides instructions on how to design AOC's around Aboriginal values specifically.

In comparison to the treatment of Aboriginal values in Ontario's forest management regulations, and perhaps as an illustration of a possible approach, is the OMNR's forest management guide for tourism values, titled Management Guidelines for Forestry and Resource-Based Tourism (OMNR 2001a). This guide has been developed based on the Tourism and Forestry Industry Memorandum of Understanding, approved by the Government of Ontario in 2001 (OMNR 2001a). The guide outlines the issues and concerns expressed by the tourism industry, such as aesthetics, remoteness, noise, wilderness, fishing and hunting opportunities, and by the forestry industry, such as cost, accessibility and sustainability of the wood supply, protection of other forest values, and forest management in accordance with the existing laws and regulations. Cooperation in dealing with tourism values is based on a Resource Stewardship Agreement signed between the resource based tourism establishment licensee and sustainable forest licensee (OMNR 2001a: 26). Impacts that forest management operations might have on tourism values are recognized and a set of planning and operational tools are recommended to help in removing or lessening such impacts. Such tools can be computer viewscape analysis in the planning stage and/or modified harvest practices in the operational stage to avoid visual impacts, or post-operational removal of water-crossings or roadbeds to prevent access impacts (OMNR 2001a: Section 3.0). In the resource stewardship agreement models, reached agreements have to be implemented in

forest management plans. Contrasted to this is the Aboriginal consultation model where there is no legal binding for the results of discussions to be incorporated in forest management plans.

3.4 RESEARCH ON ABORIGINAL VALUES IN FOREST MANAGEMENT

A precondition to formulating definition and protection of Aboriginal values in forest management policies is research into how these components of Aboriginal values are viewed by Aboriginal people. To date, there has been limited research in Ontario related to this subject, with a rare venture into that area marked by a study by McGregor (2000). McGregor (2000) explored the participation of Aboriginal people in Ontario forest management planning and the treatment of Aboriginal values in this process by interviewing people involved in consultations on Aboriginal participation and Aboriginal values. Interviewees consisted of representatives from the OMNR, the forestry industry, and Aboriginal communities. Aboriginal communities were represented by people who have been involved in consultations, or spokepersons for the communities on this issue (McGregor 2000: 47). Interviews were open-ended and were analyzed using Grounded Theory (McGregor 2000: 34, 35). Aboriginal participants had difficulties with understanding the concept of Aboriginal values because of their holistic view of the world where anything can be a value and where values as belief systems cannot be narrowed down to a specific site (McGregor 2000: 98). Aboriginal values were also not seen as separated into distinct categories, such as spiritual, sacred, physical. A given value can have all of these attributes (McGregor 2000: 98). Furthermore, Aboriginal participants did not consider that Aboriginal values were appropriately protected, citing reasons such as the lack of financial and human resources

to collect values, lack of understanding of Aboriginal values on part of a planning team, failure to protect broad values, reluctance of elders to share all of the values, and the refusal by planning teams to recognize identified Aboriginal values (McGregor 2000: 113). On the other hand, OMNR and the forestry industry participants saw Aboriginal values as site specific and were of opinion that all identified Aboriginal values were protected, with the industry participants recognizing broad Aboriginal values as an outstanding issue in the protection (McGregor 2000: 113). Elsewhere in Canada, the research relevant to Aboriginal values has also been scarce and could be divided into the older research projects with a format similar to TLUOS, which were looking at Aboriginal People's responses regarding forestry developments on their traditional lands, and more recent research projects, which examined responses by Aboriginal People regarding more pointed impacts of forest management on Aboriginal values. Duerden et al. (1983), conducted in Yukon one of the pioneering studies regarding forest management impacts on Aboriginal traditional lands and observed that older members of Aboriginal communities preferred preservation of traditional land use, while younger members were emphasizing non-traditional economic activities on the land to secure future prosperity. More recently, Lewis (2000) conducted a qualitative case study with members of the Cheam First Nation in British Columbia, and explored connections between land management and Aboriginal culture and use of the land through the use of VR GIS simulations. Some of the findings Lewis (2000) reports on are: (1) when considering three simulations of riparian forest management, no vegetation buffer, a 15 m vegetation buffer, and a 50 m vegetation buffer, the participants opted for the 50 m vegetation buffer through the reasoning that it provides best protection for the fish population in the stream and provides a visual protection for private spiritual ceremonies

conducted by Cheam people in the stream or on the stream banks; (2) forest management activities have a potential to disrupt "Cheam's uses and perceptions of the land as a place of spiritual renewal and physical sustenance, and as a source of cultural identity and social bonding"; (3) traditional views of the land see the whole landscape as sacred, which then translates into places on the landscape that have no evidence of human use or modification, but still possess "considerable cultural importance"; (4) participants from Cheam were concerned that forest management activities, clearcutting in particular, could cause decline in animals and thus become "a threat to the social values that are associated with sharing wild game for religious and ceremonial events"; and (5) in contrast to clearcutting, the participants preferred partial cutting—in this particular case a 75% tree removal partial-cut—to clearcutting, with a reasoning that partial cutting allows for some economic benefits while at the same time representing a forest management that is more respectful of Cheam's cultural and spiritual tenents (Lewis 2000: 224-230).

In summary, recent studies by McGregor (2000) and Lewis (2000) deal with Aboriginal values in Ontario and British Columbia, respectively, the former by studying the responses of negotiating representatives of Aboriginal communities in Ontario to conceptual and procedural themes of Aboriginal values definition, collection, and protection, and the latter by analyzing the responses of representatives of an Aboriginal community in British Columbia to simulations of forest management related to certain land use. The next step would be to investigate the responses of average land users and members of Aboriginal communities in Ontario regarding the definition and protection of particular Aboriginal values at the operational forest management level. This is one of the goals of this thesis.

3.5 ABORIGINAL LAND USE

Contemporary Aboriginal land use is the outcome of centuries of political, economical, and social forces interacting in the context of the colonization of Canada. Recent efforts to recognize Aboriginal Peoples rights, marked most prominently by the adoption of Section 35 of the Canadian Constitution Act, 1982, that recognizes and affirms Aboriginal and treaty rights, were historically preceded with the policies of domination and assimilation (Royal Commission on Aboriginal Peoples (RCAP) 1996a). The most recent attempt at assimilation, as seen by Aboriginal Peoples, was carried out as recently as 1969, through the federal government's White Paper that contained a proposal to erase the Indian Act, a move that provoked a country-wide cultural, legal, and political response by Aboriginal Peoples (RCAP 1996a: 201-204). Land use is at the very heart of disputes and negotiations between the Aboriginal Peoples and various levels of the governments in Canada, and in order to analyze and understand it, it is necessary to keep in mind historical causes and factors.

RCAP (1996a: 631) underlines that to Aboriginal Peoples 'land' means the whole biosphere including all its elements, beings and processes, such as ground, water, air, animals, fish, birds, seasons. Prior to the arrival of Europeans, Aboriginal Peoples inhabited and used all of Canada through the systems of tenures that had characteristics of governance and ownership (RCAP 1996b: 452), each nation's system of governance and occupancy intimately linked to its specific relationship with lands and resources. Northern and western nations, including Dene and Cree, had large territories necessary in the boreal setting to practice seasonal land use through hunting, fishing, and harvesting (RCAP 1996b: 453). However, the connection to the land was shaped not only through the governance and occupancy, but also in the knowledge, naming, and

stories that described activities on the land and created "one's sense of place in the scheme of the universe" (RCAP 1996b: 456). Aboriginal identity is enmeshed in territory, shaping the culture and a way of life, and when separated from the land, Aboriginal people lose the contact with the symbols of history and culture (RCAP 1996c: 588). Because Aboriginal reserves represent just a small portion of the communities' traditional territories, which are in turn largely under the control of provincial governments (Ross and Smith 2002), Aboriginal communities are largely excluded from decision making in forest management across Canada (Ross and Smith 2002)

Aboriginal land use encompasses a range of subsistence, cultural and spiritual uses, signifying Aboriginal societies residing on the land. These uses include, among others, hunting, trapping, fishing, gathering of subsistence and medicinal plants, camping and residential places, burial and spiritual sites. Aboriginal settlements and traditional daily activities are closely related to water bodies and waterways. Turner et al. (2003) look at settlement and land use patterns of Aboriginal communities in the northern and northwest Ontario, and along the coast in British Columbia and conclude that all of them are located near some type of a water body, either lake, sea, or rivers and estuaries. Tanner (1979: 34) documents the year-around life of Mistassini Cree hunting families from the northern Quebec and stresses the great importance of rivers, lakes and marshes to the boreal hunters. He observes that hunting and trapping takes place largely in the interface between closed-canopy forests and open lichen woodland (Tanner 1979: 36). As for the camp sites, they are chosen based on the criteria that have factored in the group size, the season and the duration of habitation. However, regardless of the season, camp sites must be close to a supply of fresh water and near a travel route, which used to

be a navigable waterway, and has been changing as the new modes of transportation are introduced, such as snowmobiles or bush-planes (Tanner 1979: 37). Camp sites also have to have available firewood, preferably deadwood, in close proximity, along with spruce and balsam fir trees for floor boughs, tent frames, and beaver stretches (Tanner 1979: 38). Tanner points out that abandoned camp sites are not reused for the very reason that their surroundings are depleted from firewood.

When it comes to trapping, today's traplines in Ontario and Quebec represent in fact former hunting territories, registered as traplines in the 1940's (Tanner 1979: 190, Feit 1982a: 38, The Great Council of Treaty 3 2004, Kayahna Tribal Area Council 1985: 17). Feit (1982b) comments on the circumstances in Quebec, stating that in the 1930's, a sudden increase of non-Aboriginal trappers triggered as a response a drastic increase in trapping by Aboriginal people, which combined resulted in a decimation of the beaver population. In order to replenish beaver population, exclude non-Aboriginal trappers, and improve the cash return to Aboriginal people from fur sales, the governments of Canada and Quebec introduced in the 1940's registered traplines (Feit 1982b) and trapping quotas (Tanner 1979: 190). Clancy (1991) describes conditions of over-harvesting and a lack of defined hunting territories as the reasons for introducing registered traplines in British Columbia and Northwestern Territories in 1940's. Tanner (1979: 190-191) notes the increase in size of Aboriginal traplines in eastern Canada in the northerly direction, and attributes that to the lower biological productivity of the northern ecosystems, necessitating a greater hunting territory to harvest a needed number of animals. Differences in sizes also implied differences in harvest management, so that smaller southern traplines would be harvested every year throughout, whereas the larger northern traplines would be harvested on a rotation basis, each year one part being

harvested above the reproduction rate and left to rest until its turn comes again in a few years time (Tanner 1979: 191).

Although territory itself is important to Aboriginal people, sites such as ancestral burial grounds and spiritual ceremony sites are especially significant (RCAP 1996c: 588). RCAP (1996c: 590) also draws attention to the fact that there are no consistent policies and laws in place to ensure that Aboriginal people control these sites. In terms of the location of spiritual sites on the land, a certain pattern has been observed and reported. For instance, Dormaar and Reeves (1993: 162) analyze the location of sacred Vision Quest sites in Alberta and Montana and note that the sites are located in remote and inaccessible areas, and are usually placed on hilltops and mountain ridges, but also near rivers and lakes.

Still, present Aboriginal land use cannot be understood without examining historic patterns and influencing social and economic conditions. Aboriginal land use has been changing historically, reflecting existing social and economic conditions. The indication and degree of change is usually measured in the territorial size and intensity of land use, and in the extent of dependency on subsistence food. Principal agents of change include permanent settlements, wage-employment, external natural resource development, governmental services such as school, health services and social assistance, and social attitudes towards trapping (Feit 1982b, Rogers 1966, George et al. 1995, VanStone 1963). Rogers (1966) examines the fur returns for the western James Bay communities of Fort Severn, Round Lake and Moose Factory from 1950 to 1963. He observes a decrease in the number of active trappers despite a growing Aboriginal population, attributes this change to the sedentary life, and predicts this trend to continue (Rogers 1966: 36). In a later study, George et al (1995), analyze harvest patterns and

yields in the same region by concentrating on the communities of Moose Factory, New Post and Moosonee. They acknowledge the changes in harvesting patterns but conclude that traditional activities have not disappeared but are now mixed in with wage-employment, creating a mixed economy. Aboriginal people have adapted to the new social, economic, technological conditions, by rearranging social units for hunting, adopting wage employment, and using new technologies such as snowmobiles to pursue harvesting (George et al. 1995). Feit (1982b) examines the James Bay Cree in Quebec and draws a similar conclusion, stating that Aboriginal people have responded to external pressures by creating a mixed economy of subsistence harvesting and wage-employment and by utilizing new technologies and modes of transportation to maintain harvest levels. Feit (1982b) also rejects acculturation theories of the inevitable dissolution of Aboriginal cultures into the dominant non-Aboriginal ones. He argues that communities do not simply succumb to existing external forces but also react with their own internal strengths, which in the case of Quebec Cree was demonstrated by their political response to the James Bay hydro projects and the consequent signing of the James Bay and Northern Quebec Agreement (Feit 1982b).

Other studies have also produced differing results on the trends in Aboriginal land use. VanStone (1963) analyzes trapping ranges and intensities of the Chipewyan community of Snodrift, on the southeastern shore of Great Slave Lake in the Northwest Territories. He documents a constriction of the total trapping area towards the community and decreased intensities in trapping, and contributes these changes to the increased government services, opening of a school, improved housing, wage-employment and decreased social acceptance of trapping. However, Usher (1990) conducted a TLUOS in 1990 in the Chipewyan communities in the region east of Great

Slave Lake, east of Lake Athabasca. He acknowledged the predictions of constricting land use made by the studies in the 1960's and 1970s in the same area, and concluded that in fact the extent of the land use areas has stayed the same or has grown (Usher 1990).

Wagner (1986) conducted a survey in 1984 on a number of animals harvested in 10 communities across Manitoba, dividing them into three 'southern' and seven 'northern' communities, depending on their location relative to the boreal forest boundary. Two of the southern communities are surrounded with agricultural land and two of the northern communities are not accessible by road. The results show noticeably greater harvests per hunter in the northern communities than in the southern communities (Wagner 1986), although the author does not verify the difference statistically. Wagner (1986) also attempts to compare the findings of his study with the findings of the studies in other parts of Canada from earlier times, but concedes that such a comparison is of little value because of the differences in data collection methods. Usher and Wenzel (1987) conclude as well that the lack of standardized methods makes it difficult to compare scholarly and governmental studies on Aboriginal animal harvests, but that this still does not mean that their individual reliability is diminished. In addition, Usher and Wenzel (1987) evaluate scholarly and governmental studies as superior in reliability and accuracy to statistics on Aboriginal harvest generated from administrative records, such as issuing of hunting and fishing licenses, or commercial transactions and export permits for trapping and fishing. The reason is largely attributed to the use of 'hunter recall' techniques employed by the scholarly and governmental studies rather than kill or consumption quantities registered by administrative records (Usher and Wenzel 1987). Of importance to this thesis is Usher and Wenzel's (1987)

observation that a 'hunter recall' harvest surveys, where a hunter recalls the number of animals struck and retrieved, although often carried out and analyzed by biologists, is primarily an exercise in social research. Data are being collected from people and describe activities by people (Usher and Wenzel 1987).

Unfortunately there are no land use extent and intensity baselines against which to measure the significance of a community's land use, nor are there scales available to measure rates of land use change and infer prevailing trends. Still, the research does suggest that Aboriginal people have retained a strong connection to the land and that they have found ways to maintain their traditional attachment to the land while adopting and taking advantage of new technologies and economic and social conditions. RCAP (1996b: 463) stresses that the subsistence economy in Aboriginal societies is more than just obtaining nutrition: it is a part of social and cultural system, reaffirming Aboriginal identity and serving as a medium for transferring skills and values between generations. Aboriginal societies and culture have been formed out of living on and off the land and they cannot be sustained without that connection.

3.6 TRADITIONAL LAND USE AND OCCUPANCY STUDIES (TLUOS)

3.6.1 Introduction to TLUOS

The FMPM 2004 in Ontario describes Aboriginal values as mapped locations of "natural resource features, land uses and values which are used by, or of importance to (...) Aboriginal communities" (OMNR 2004: Part A, 4.6.1). Also, the latest regulation direction in Ontario forest management policies, the Forest Class EA, describes Aboriginal values in the same terms (MOE 2003: 13).

Traditional Land Use and Occupancy Studies (TLUOS), carried out throughout Canada, preceded Ontario's policy of documenting Aboriginal values and have been addressing the same issue, namely the scope and nature of land use by Aboriginal people. Even though TLUOS can take different shapes when it comes to the methodology and the study scope, they can be broadly defined as mapped testimonies of Aboriginal people of their lifelong and historic land use, from traveling, trapping, hunting, fishing and berry picking, to habituation, place naming, and using cultural and spiritual sites.

The research on TLUOS presents a valuable insight into the available methods, generated types of land uses, and possible problematic areas in identifying Aboriginal land use. The presentation and evaluation of TLOUSs can provide a broader perspective in examining methods and research scope used in identifying Aboriginal values and to that aim, it can offer alternative research tools.

TLUOS projects were initiated in the early 1970's with a two-part project on Inuit land use and occupancy, one in the Northwest Territories and another in Labrador, and since then a series of other similar studies have been carried out with Aboriginal communities across Canada. These studies share a common motive: to document and prove Aboriginal traditional land use and occupancy or Aboriginal title outside of the present day reserves in light of planned or already occurring natural resource developments. Faced with the advancement of hydro, mining, oil and gas, and forestry projects, Aboriginal communities decide to document their historic and economic presence in their traditional territories. While Aboriginal title, being an Aboriginal right to the land itself (Supreme Court of Canada 1997) has been already recognized and affirmed in the Canadian Constitution Act,1982, Section 35, it has been further defined

in the Delgamuukw v. British Columbia, Supreme Court of Canada decision. Based on this decision, an Aboriginal community can prove Aboriginal title to their traditional territories either by proving that the land occupancy existed pre-sovereignty (i.e. prior to Royal Proclamation in 1763) based on physical objects or land use, or by proving continual "substantial connection between the people and the land" between the present and pre-sovereignty occupation (Supreme Court of Canada 1997). The Court also stressed the importance of oral histories of Aboriginal people in proving Aboriginal title, given the absence of written records in Aboriginal pre-sovereignty histories, and instructed that oral histories in land claim trails should be treated as any other evidence, to which end the common law rules of evidence should be adapted when admitting and assessing oral histories (Supreme Court of Canada 1997).

In the remaining sections on TLUOS, five TLUOS, representing the total number of TLUOS available to the researcher following a considerable literature review, will be examined for their objectives, scope, methods, and accuracy. The five TLUOS are the Inuit Land Use and Occupancy Projects, in the western part of today's Nunavut (Freeman 1976) and in Labrador (Brice-Bennett 1977); the Kayahna Region Land Use and Occupancy Study, undertaken in northern Ontario (Kayahna Tribal Area Council 1985); Land Use and Occupancy Study by Chipewyan-Denesoline bands in the Northwest Territories (Usher 1990); and the Traditional Land Use and Occupancy Study on the Dene Tha' First Nation in northern Alberta (Horvath et al. 2002).

3.6.2 TLUOS Research Objectives and Scope

The objectives and research scope of the TLUOS depend on their purpose, which is mainly either to support a land claim, meaning Aboriginal title, or to be used in negotiations around natural resource development.

When the principal purpose is to support a land claim, the objective becomes to prove continuous use of the land since prior to the assertion of British sovereignty–the Royal Proclamation in 1763. This then entails broadening of the TLUOS's scope into historical and archaeological studies, along with ethnographic and social descriptions of current cultural and social traditions (Freeman 1976 and Brice-Bennett 1977), with the reason being that these three pieces—the historic presence, generational land use, and present cultural and social attachment to the land—constitute a legal basis for Aboriginal title on the land. The prime example of this approach is the political creation of Nunavut, founded on the Inuit Land Use and Occupancy Project (Government of Nunavut 2004). On the other hand, if the main purpose is to document traditional land use to assert the interest and the right to the land when facing the opening of traditional territories to natural resource industries, the present generation's land use can be chosen as a sufficient objective, and interviews of land users as an adequate research scope, examples being the Kayahna Regional Land Utilization and Occupancy Study (Kayahna Tribal Council 1985) and Dene Tha' First Nation's TLUOS (Horvath et al. 2002).

The land use knowledge of land users is gathered by interviewing them about their lifelong land use, thus creating so called 'map biographies'—a term coined by Freeman (1976: 49)—which are then assembled into a composite to create a land use pattern for the whole community. Another approach of conducting TLUOS by recording annual animal harvests and calculating food weights to estimate economic impacts of

natural resource projects has been deemed as inadequate for its failure to take into account the temporal variability of available animals and historical changes in land use (Natcher 2001). Usher and Wenzel (1987) also point out that when it comes to the studies of animal harvests, there is rarely "any precise or detailed correlation of quantitative harvests with specific areas."

Along with the 'map biographies', the description of land use can also encompass information on social and family relations in order to explain changes and continuities in patterns of land use (Kayahna Tribal Area Council 1985). Connecting the known property rights and customary rules in using the land with the social and family relations of the land users can explain the intensity of land use. In this way, perceived disruptions can be revealed on a long-term scale as changes regulated according to customary rules. For example, people can be invited by their relatives from another settlement to share land resources, thus increasing the land use intensity there, but can also return to their original homeland to reinitiate their previous use (Kayahna Tribal Area Council 1985: 20-22).

Customary rules and property rights, linked with social and kinship organization, can be seen as an integral ingredient in analyzing and understanding the land use. Still, surprisingly, the incorporation of this information seems to be rare for TLUOS and was found only in the Kayahna Tribal Area Council's study in this particular review. Part of the answer might lie in Usher et al.'s (1992) observation that the map biography has become the only method in documenting land use due, to some degree, to its straightforwardness, visual effectiveness of the resulting maps, and implied scientific objectivity.

3.6.3 TLUOS Methodology

Methodology used in the reviewed TLUOS can be described in terms of research design, interview sampling, and type and structure of collected data. Despite the lack of standards guiding the application of TLUOS, there is a consistency in the employed methods, albeit with some individual modifications.

TLUOS are carried out by using a participatory research, which assumes the participation of the studied community in designing and implementing the research, training of community members to carry out parts of the fieldwork, and control of the generated information by the community. The project is presented and explained to community councils and representatives, inputs from the community taken, and fieldworkers trained to conduct interviews (e.g. Freeman 1976: 47; Horvath et al. 2002; Usher 1990: 4). Commenting on the original intentions of participatory research to involve communities and build their technical and research capacities, Natcher (2001) points out that participatory research in practice often turns into extractive research. Governments, industries or academic institutions, having a limited understanding of community participation, in many cases do the studies expediently, record a small portion of local land use knowledge, and thus produce community land use patterns that appear "historic, static and unrefined" (Natcher 2001).

Since the people who are interviewed in TLUOS are land users, the group of eligible interviewees excludes children and non-users. From there, the eligible interviewees can be further narrowed to, for example, the most active users in the households and people older than 30 (Usher 1990), hunters (Freeman 1976: 48), household land users (Kayahna Tribal Council 1985: 14), or community elders (Horvath et al. 2002). Once the eligible population is defined, a goal is made to interview all or as

many as possible of the eligible land users (Freeman 1976; Horvath et al. 2002; Kayahna Tribal Council 1985), or, for example, a sample is made up of the top 50% of the most knowledgeable land users (Usher 1990). The survey is conducted by using a questionnaire applied through an open-ended interview (Freeman 1976: 49; Horvath et al. 2002; Kayahna Tribal Council 1985: 14), which implies that the interviewees are invited to give additional information on the subject and this information is also analyzed.

Data collected in a TLUOS indicate primarily subsistence and habituation patterns and cover, depending on the study design, activities and places such as hunting, trapping, fishing, berry-picking, wild-rice growing areas, travel routes, cabins, camps, burial sites, cultural sites, place names and spiritual sites. In some instances, the information is collected on local histories and legends (Freeman 1976), animal and fish habitats (Brice-Bennett 1977), or cultural practices, rules of ownership, customary rights and genealogy (Kayahna Tribal Council 1985). Documenting animal and fish habitats gains importance when natural resource development is expected. Tobias (2000) argues that animal and fish habitats should be included in the TLUOS because they are the source of fish and animals that are harvested in the area, and therefore essential in sustaining Aboriginal culture.

The structure of collected data can be examined in terms of data types or the time periods within which the land use happened. With respect to the data types, the data can be structured by keeping land uses within broad categories, e.g. hunting, fishing, trapping, wild-rice harvesting, etc. (Kayahna Tribal Council 1985), or the information can be itemized into the specific species that were hunted (Freeman 1976), or the major subsistence activities such as trapping and caribou hunting can be defined as primary

categories, and hunting of animals outside of these categories recorded separately (Usher 1990).

Considering that the information captured in the TLUOS covers interviewees' lifelong land use, which can span back 50-60 years, and thus can be affected by major social and economic changes, some TLUOS divide the collected data into time periods marked by the social and economic changes. Such changes can be the beginning of the fur trade (Freeman 1976), movement into permanent settlements (Freeman 1976 and Usher 1990), or the introduction of new modes of transportation, such as snowmobiles and charter flights (Usher 1990). The intent here is to investigate if such events affected land use patterns. Kayahna Tribal Council (1985), on the other hand, which conducted TLUOS with 14 Aboriginal communities in northwestern Ontario, took the approach of testing the land use effects of social and economic changes on a sample of communities. The test showed that significant variation in land use did not occur, and the study proceeded with the examination of the remaining communities without separating the data into time periods.

3.6.4 TLUOS Verification and Accuracy

TLUOS' interviews are recorded on small scale maps, which are usually 1:250,000 (Brody 1981: 177; Kayahna Tribal Council 1985: 15), and can be as small as 1:1 000,000 (Usher 1990), the main reason for this being the convenience in mapping data (Usher 1990). If trapping and hunting activities for a TLUOS cover a 400 km radius area, at a scale of 1:250,000 that would imply bringing into interviewees' homes a 1.6 x 1.6 m composite map or around 10 National Topographic System maps. However, people sometimes find these scales too small and thus missing valuable landmarks

(Ames 1977: 280; Kayahna Tribal Council 1985: 15) As well, TLUOS inevitably deal with direct personal testimonies covering long periods and given sometimes by people who might not be familiar with the concept of topographic maps. All of that can affect the accuracy of collected information.

The main tool in examining the quality and accuracy of recorded information are verification sessions with the community upon the completion of collection. In these sessions people can view the maps generated by other land users, comment and correct the inaccuracies. When it comes to a possible deliberate bias towards exaggerating one's territory, an explanation has been offered that this was not a concern with the TLUOS, because in traditional Aboriginal societies, oral culture and strong dependence on the land results in people being very strict with the truthfulness of the information describing land utilization (Brody 1981: 175; Freeman 1976: 55). Freeman (1976) and Brody (1981) put forward the reasoning that the importance of precisely and truthfully describing land use is reflected in the Aboriginal languages used in their respective TLUOS, because there is no distinction made between the words for a judgment error or mistake and a deliberate lie, there is only one word for these two expressions and it means a lie. Tobias (2000: 53), on the other hand, suggests testing accuracy of land users' descriptions by groundtruthing the information provided, i.e. by verifying provided locations and descriptions on the ground. He also emphasizes that data collectors have to employ a consistent and transparent research methodology to ensure study reliability, and to use clearly defined terminology and key words in asking questions, to secure research validity (Tobias 2000: 49-53).

3.6.5 TLUOS Outcomes

Although the main purpose of the TLUOS is a spatial description of land use by Aboriginal communities, land use studies can have a larger social role and analytical power. TLUOS projects can help in preserving traditional knowledge and communicating it within a community and externally to resource managers. Furthermore, TLOUS' findings can be used to draw conclusions about the trends and changes in land use.

In their research on the impacts of a TLUOS on the Dene Tha' First Nation community in northwest Alberta, Horvath et. al (2002) interviewed selected members of the community and highlighted several impacts as expressed by the interviewees: (1) the TLUOS helped to maintain the culture and preserved the traditional knowledge of the elders from losing it forever; (2) it enhanced communication with natural resource industries and made them more aware of the land use locations and their importance; (3) whereas interviewees felt that the TLUOS helped protecting particular sites, they questioned its usefulness in protecting larger areas for trapping and hunting; and (4) training of people within community through participatory research enhanced their understanding of their culture and helped them to present it to outside people. Tobias (2000) stresses the benefits of TLUOS along similar lines, pointing out that TLUOS mapping has positive social effects by bringing people to work together, within and between communities, by making them aware of their rights, and by invigorating their pride in their cultural heritage.

TLUOS authors use the opportunity of having at hand land use recordings representing the living generation's lifetime, to observe the land use trends and comment on possible changes. In particular, the method of grouping collected data into time

periods is used as a basis to compare land use patterns and intensities following social and economic changes. Kayahna Tribal Area Council (1985: 22) states that critical social and economic events did not alter "the form and pattern" of the land utilization in "any important ways". However, it is not clear what criteria were used to determine what constitutes "important ways". Usher (1990) compares the results on the extent of land use for the communities he studied with earlier studies with the same communities, conducted in the late 1960s and early 1970s, and concludes that even though the authors of the earlier studies predicted a contraction of the traditional land use areas, his study does not confirm predictions. Rather, his study shows an equal or greater land use extent.

3.6.6 TLUOS Summary

TLUOS have been adopted by Aboriginal communities to document and present their contemporary and historical land use. They have been used by treaty and non-treaty Aboriginal communities, by those who seek land claim settlements and those who are addressing natural resource development in their traditional territories. The application of TLUOS through proper participatory research and direct, open-ended interviewing of land users, and compounded with their positive social impact, has given them legitimacy in the eyes of Aboriginal people. Their practical use in land claim settlements and natural resource development negotiations has given them broader recognition by the governments and industries, particularly those involved in the forestry sector.

However, as shown in the description of TLUOS' methodologies and interpretations of their results, and despite the broad use over several decades, TLUOS lack standards for their methodology, for the types of data collected, and for the criteria

on which conclusions about land use trends are made. This is compounded with limited options on testing accuracy, thus leading to possible misuse and unreliable products.

Nevertheless, the basic approach of TLUOS to research design, through participatory research and open-ended interviews, and their method of data collection via 'map biographies,' can be used as a reference for the practitioners documenting Aboriginal values in Ontario. Added to the interviews with the most active and knowledgeable land users, as mostly practiced in TLUOS, can be interviews with all users of Aboriginal values in a given Aboriginal community.

TLUOS can enable researchers to identify Aboriginal land uses, such as Aboriginal values, in such a way as to demonstrate that they are representative of a community's land activities and its cultural imprints on traditional lands. To allow for easier communication on identifying and defining Aboriginal values, and to communicate more easily in cross-cultural settings about how identified Aboriginal values should be protected, new technologies such as landscape visualization, with its prototype, VR GIS, can be considered as an alternative and improvement to traditional maps. In the following section an overview will be made of landscape visualization and VR GIS, and their use in managing natural resources.

3.7 LANDSCAPE VISUALIZATION AND FOREST MANAGEMENT

Spatial depiction of forest characteristics and planned forest management activities has been traditionally presented through two-dimensional thematic maps. With the advent of Geographic Information System (GIS) and the advancement of computer graphics, a capability has been created to depict forests and landscape by using realistic elements rather than colour concepts and abstract symbols employed in traditional

cartography. Instead of colouring an area on a map in green, to indicate for example that it is a spruce forest, and attaching a label to describe forest structure, we are today able to use a computer model to populate the area with images of real spruce trees, with height and density corresponding to the ones textually described on a cartographic map. The result becomes a rendering that can be three-dimensional (3D) with various degrees of resemblance to reality.

The described rendering belongs to one out of several visualization techniques used in the field of computer visualization. Computer visualization encompasses diverse disciplines that share a common aim of using computers to create visual renderings to help describe and understand their areas of interest. As such, computer visualization has been adopted under different names and used for different purposes. It has been called "scientific visualization" and used to present scientific data and concepts (MacEachren 1995), or "geographic visualization" (GVIS) (MacEachren 1995), and used to depict geographic information and relations, or "landscape visualization" (Sheppard 2001), and employed to describe natural landscapes.

Landscape visualization has been recognized as suitable and needed for the new realities of the forest management. Increased public participation in forest management and legal requirements to ensure certain aesthetic appeals have created a demand for visualization in presenting management options. Tang and Bishop (2002) and Palander et al. (2003) point out that depicting images of alternative harvest practices can be critical in communicating potential impacts and policy outcomes to the concerned public and forest owners, respectively, while Tress and Tress (2002) argue that landscape visualization is a vital tool in defining landscape futures through direct public participation in planning and decision-making. Sheppard and Meitner (2005) found that

in the context of participatory forest management planning, landscape visualization depicting forest management alternative scenarios can provide "considerable information quickly and relatively simply" (Sheppard and Meinter 2005). The potential of landscape visualization, however, is not only in applications for non-professionals. Bell (2001) observes that landscape visualization's operating mode has in some forestry jurisdictions switched from "hiding and screening" in the 1980's, where the chief purpose was to visually screen forest management operations, to the "positive design" mode in the 1990's, by becoming a valuable tool in ecosystem management, used to plan and design ecologically appropriate landscape changes. Dunbar et al. (2003) created landscape visualization models that depict temporal landscape changes and predicted the use of such models by professionals and non-professionals in relaying their research findings.

Rapid development of computer capabilities in manipulating still and animated images has resulted in the shaping of different visualization techniques within the field of landscape visualization. The main features that separate different techniques are the use of real images versus computer generated objects, the use of still photos versus the use of animation or video recording, integration of GIS functions or lack of, and incorporation of related spatial technologies, such as remote sensing. McGaughey (1998) defines four distinct techniques to present the impacts of forest management operations: geometric modeling, which represents a still image merger between computer-generated objects such as trees and GIS layers; video imaging, which are still photos or video recordings edited to introduce landscape changes; a hybrid of geometric modeling and video imaging; and finally, image draping, a simple laying of aerial images onto three-dimensional GIS terrain models. Tang and Bishop (2002) focus on

the 3D techniques from McGaughey's (1998) classification, namely geometric modeling and image draping, and see these domains expressed through four different approaches defined by the view types and content: (1) map-based, showing 3D models on a plane-view; (2) object-based, using computer created objects to represent features such as trees and optionally allowing for an egocentric viewpoint that moves through the model; (3) image-based, representing draping of an aerial image over a 3D terrain model; and (4) a mixed approach between the image-based and object-based one, where images of real trees are inserted onto a 3D terrain model. In order to take full advantage of current GIS data so widely used in forest management, Tang and Bishop (2002) argue for a complete functional integration of GIS and the mixed approach model that would also involve a high degree of interactivity. This integrated model would imply direct feeding of the visualized landscapes' attributes from the GIS database and conversely, editing and updating of the GIS database by changing the attributes in the visualized landscape, thus creating a VR GIS. The visualization software used for this thesis, Ecoviewer (Viewscape 3D Graphics Ltd. 2003), represents a version of VR GIS; visualized landscapes are created from GIS databases and there is a limited level of user interaction and communication between the visualized model and the GIS.

Developed in recent years, computer-based landscape visualization continues the history of landscape visualization going back for centuries but with an enlarged range and sophistication of the applications (Sheppard 2001). The sudden proliferation of various visualization techniques, venues where they have been applied, and types of audiences to which they have been exposed, has, however, outpaced the building of the supporting body of technological and usage standards and research on usability and user cognition (Sheppard 2001, Lange 2001).

Sheppard (2001) draws attention to the absence of standards in the current practice of landscape visualization and points to the inevitable problems in evaluating the reliability of the generated renderings and taking responsibility for the future impact-related changes in nature that do not correspond to the predictions displayed in the visualization. As a remedy to these situations, he proposes a code of ethics and a code of ethical conduct for landscape visualization (Sheppard 2001).

Realistic images are the centerpiece and main communication tool of landscape visualization, which then poses a question about the effects they have on users and the appropriateness of their utilization. Orland (1994) states that greater realism in visualization results in weaker demonstrable links to the underlying data and projection. Even when it comes to true photographs, MacEachren (1995: 453) cautions that they might appear "neutral" and less biased because they exhibit less evidence of the authors intervention. This adds potency to Sheppard's (2001) point, that simulations in landscape visualizations are rarely, if ever, value neutral. Lange (2001) tested the degree of realism that people assign to landscape visualizations. In the test, there were75 people participants and was given a set of 90 photographs comprised of true photographs and a range of versions modified through landscape visualization techniques. Participants were asked to place each photograph in one of the five categories representing degrees of realism, from very low to very high. Lange (2001) reported that 75% of participants assigned the highest degree of realism–'very high'–to one or more of the modified photographs and that visible details in the modified photographs were the deciding factor in evaluating them, resulting in higher rankings for the photographs with background scenes and fewer visible details and lower rankings for the photographs with middleground and foreground scenes and more visible details. As for the comparison

between cartographic media and landscape visualization, Lewis (2000) observed that cartographic media were more confusing and difficult to interpret for Aboriginal elders and adults from the Cheam First Nation in British Columbia than landscape visualization (Lewis 200: 231-232). Also, Aboriginal participants considered landscape visualization to provide more and clearer information than cartographic media and this view was expressed by young adults as well regardless of them having little difficulties in reading cartographic maps (Lewis 200: 231-232).

Although the realism of landscape visualization renderings is of great importance, it is also crucial to examine the potential of landscape visualization in presenting traditional map information in a more understandable way for non-professionals and professionals from other disciplines, more so in the increasingly multi-disciplinary environment of forest management practice and research. The research that would compare traditional maps and their landscape visualization counterparts in terms of the type of presentable information, or users' cognition of spatial relations between landscape elements, or scale importance, would help greatly in understanding and applying these new technologies.

The VR GIS software used for this thesis, Ecoviewer, creates renderings of limited realistic qualities but with strong links to the GIS forest inventory database. It was chosen for the thesis to explore the appropriateness of this medium for identifying Aboriginal values in forest management and to generate discussion about their definition and protection. Because the area that the VR GIS renderings depicted was not known to the participants, the renderings could be presented as representing a typical boreal forest. This removed the need for a highly realistic rendition since the renderings did not need to be recognized by the participants as known real places.

CHAPTER FOUR
METHODOLOGY

4.1 REASONS FOR QUALITATIVE RESEARCH

Research on Aboriginal values and their protection in the context of forest management is still in its infancy across Canada and more specifically in Ontario. A clear spatial definition of Aboriginal values is still elusive, which has made an implementation of Aboriginal values protection into forest management very challenging. To begin with—and since Aboriginal values are expressions of Aboriginal people's land use, which in turn is a reflection of their culture—it is necessary to find out about Aboriginal people's views on how to define and protect Aboriginal values.

Because (1) the Aboriginal people's views on Aboriginal values can be expected to be culturally pronounced , i.e. based on the stories and life accounts, or be indirect in meaning; and (2) the required investigation is exploratory in nature, the research type used in examining this subject will have to be able to capture the relevant information in the varied forms of responses and to allow for the inclusion of the unexpected.

Qualitative research is suitable to probe and analyze "person's lives, lived experiences, behaviors, emotions, and feelings as well as ...organizational functioning" (Strauss and Corbin 1998: 11). Qualitative analysis is "a nonmathematical process of interpretation, carried out for the purpose of discovering concepts and relationships in raw data and then organizing these into a theoretical explanatory scheme" (Strauss and Corbin 1998: 11). A particular phase of inquiry where the qualitative research can be especially beneficial is the exploratory phase, in which the subject of interest is largely unexamined and clear directions for the ensuing inquiry are unknown. The suitability of

qualitative research in examining people's views and perceptions and in serving as an exploratory tool makes it fitting for the investigation of Aboriginal people's views about Aboriginal values and their protection. Within the qualitative research, focus groups and individual interviews are two of the commonly used research instruments.

4.2 FOCUS GROUPS AND INDIVIDUAL INTERVIEWS

4.2.1 Focus Groups

A focus group represents a research instrument of qualitative research where a researcher facilitates a discussion among a group of participants based on a predefined agenda. The goal of the researcher is to generate data by acting as a moderator while positing research questions to a group of participants and eliciting responses in an atmosphere of discussion. The responses are provided in the form of views, perceptions, and ideas. The questioning format in the focus groups is mainly open-ended, encouraging the participants to provide their insights and elaborate on their answers. Focus group projects can be designed as stand-alone studies or in conjunction with other qualitative and quantitative studies, such as with individual interviews (Morgan 1988: 30) or surveys (Bernard 2000: 207; Morgan 1988: 33). Integral components of a focus group project are the interview guide, participants' profile, number of participants per a focus group, and number of focus groups per project.

Although focus group interviews are carried out through an open discussion, they are not improvisations but should be based on a predetermined interview guide, or agenda (Hedges 1985: 77; Morgan 1988: 56; Stewart and Shamdasani1990: 18). The interview guide flows out of the formulated research question and covers the topics that address the question. The interview guide serves as a steering tool to carry out the focus

group session concentrated on the probed topics but the guide should not be used rigidly by constraining the discussion and preventing the exploration of new views and ideas.

When selecting participants for a focus group, Stewart and Shamdasani (1990: 42) argue that participants compatible in their personal characteristics, needs, and attitudes, make for more efficient focus groups. Morgan (1988: 46), however, advocates homogeneity of the backgrounds of the focus group participants, but not attitudes, arguing that same attitudes create a flat discussion. The importance of homogeneity stems from the need for participants to feel comfortable with each other in discussing a certain topic (Morgan 1988: 46). Participants with significant socioeconomic or cultural differences might not have that level of comfort among themselves.

Because the purpose of focus groups is to have a discussion on a particular subject through engaged involvement of the individual participants, the number of participants per a focus group should be within the range that makes discussion and individual involvement possible. Too small focus groups can make maintenance of discussion difficult if some participants become uncooperative, and too large focus groups can create difficulties in managing a discipline in discussions or in avoiding discussions breaking up into several different ones, which makes taping impractical (Morgan 1988). The preferable range in the number of participants per a focus group varies amongst different authors: Morgan (1988: 44) proposes 4-12 participants, Stewart and Shamdasani (1990: 57) and Bernard (2000: 210) report the range of 6-12 people as mostly used, and Hedges (1985: 75-76) recommends 6-10 participants per a focus group but also points out that in a case of shy or inarticulate participants the number of participants can be lowered to two people.

With respect to the number of focus groups required to explore a research topic, Morgan (1988: 42) proposes 3-4 groups, based on a rule whereby the number of focus groups becomes sufficient once the responses in a focus group become predictable, i.e. the participants stop yielding new views or ideas. Stewart and Shamdasani (1990: 58) also report that the usual number of focus groups for a research project is between three and four.

4.2.2 Individual Interviews

Individual interviews can be used for identical purposes as focus groups, that is to explore the views, perceptions, and ideas of a specific social group. Individual interviews can be informal, unstructured, semi-structured, and structured (Bernard 2000). Out of the individual interviews, semi-structured interviews are closest to the focus group type of interviewing, because semi-structured interviews provide an open-ended format in asking questions and allow for the probing of themes outside of the predetermined questions by using an interview guide rather than a questionnaire. Bernard (2000: 191) describes an interview guide as a list of questions and topics that need to be covered in a certain order. Morgan (1988: 18-19) notes the differences in dynamics between the individual and focus group interviews, such as that in the focus group interviews there is a greater emphasis on the participants' points of view and less of the researcher's control, whereas the individual interviews give a researcher more control over the direction of the interview. Morgan's (1988: 19) advice in solving this problem is to employ both methods in a research project.

4.2.3 Focus Groups and Individual Interview Uses

Focus groups and individual interviews can be used to find out about the responses of a certain social group to some social questions, plans, or policies. Stewart and Shamdasani (1990) report that some of the uses of focus groups are to obtain general background information about a certain topic, and stimulate new ideas and creative concepts. According to Bernard (2000: 208), "If you want to know why people feel as they do about something, ... why they like or don't like some program, or the reasons behind some complex behavior, then a series of focus groups can provide a tremendous amount of credible information." However, focus groups and individual interviews cannot be used to provide statistically significant results, and they are not meant to do so. Focus groups and individual interviews should be used for the gathering of data about content, about *why* people think a certain way about a certain problem, not for estimating population parameters (Bernard 2000: 210). The suitability of focus groups and individual interviews to examine people's views, perceptions, and ideas has made them increasingly appealing to the disciplines beyond basic social sciences, where the social activities and related people's responses are part of the investigated phenomenon. Among these disciplines are sciences examining natural resources and their management, land use planning, cartography and geovisualization.

Kaplowitz (2000) notes a growing importance of focus groups in resource valuation questionnaire design and evaluation. He reports that "both focus groups and in-depth individual interviews can lead to a more robust understanding of what people value about a shared ecosystem" Kaplowitz (2000). Dutcher et al. (2004) employed open-ended individual interviews to find out about landowners' perceptions of protecting and establishing riparian forests. Enyong et al. (1999) used focus groups and

open-ended interviews to explore farmers' beliefs and rationale behind using soil fertility enhancing technologies, while Gobster and Rickenbach (2003) employed a method similar to focus groups—workshop discussions—to obtain perceptions of resource-oriented stakeholders towards private forestland parcelization. Slocum et al. (2001) report on the use of focus groups and interviews in studying the effectiveness of geovisualization methods and cite several studies which have used these methods.

4.3 QUALITATIVE DATA ANALYSIS

Analysis of qualitative data implies examination and interpretation of non-numerical, primarily textual data. While textual data can have a basic level of meaning in itself, the aim of qualitative data analysis is not only to describe data, but to address the object and events to which data refers, by interpreting, explaining, understanding, and predicting (Dey 1993: 30). As Bernard (2000: 452) puts it, "Data do not speak for themselves," researchers have to formulate ideas based on the analysis, state the ideas clearly and illustrate them with selected quotes from the participants.

Analysis of qualitative data is a process of segmentation and categorization. The data is at first searched and analyzed for the information that addresses the research questions, that information is marked and classified into categories and themes, which are then used to interpret, explain, and understand the content, and conceptualize theories that provide answers to research questions. The purpose of segmenting and grouping data into categories and themes is to make the analysis easier, clearer, and systematic, and to be able to make connections between concepts that would otherwise be hardly discernable when the information is dispersed in the raw data. However, segmentation and categorization have a potential of interpreting data out of its original

context. Dey (1993: 35) draws attention to this problem and stresses that data should not be "understood independently of the context in which it is observed." When it comes to creating categories, Dey (1993: 97-100) states that categories can be predetermined based on the research topics, or can be inferred from the data. He recommends four types of resources in generating categories: (1) inferences from the data, (2) initial or emergent research questions, (3) substantive, policy and theoretical issues, and (4) imagination, intuition and previous knowledge.

4.4 PROJECT METHODOLOGY

4.4.1 Introduction

The project was designed as a qualitative research project, with focus groups and semi-structured individual interviews as its instruments for collecting data, and a qualitative data analysis that is based on Dey's (1993) principles as its instrument for analyzing data. The researcher conducted interviews with selected members of six Aboriginal communities, in which he employed VR GIS models and mapping media as illustration tools. The project can be divided into three phases: (1) preparation of research materials, (2) data collection, and (3) data analysis.

While working on the project, the researcher contacted OMNR personnel involved with policy development and implementation of Aboriginal values to ask about their experiences and views in regards to implementing Aboriginal values in forest management planning. The summary of the held conversations is reported on as well.

4.4.2 Preparation of Research Materials

The preparation phase of the project consisted of the development and creation of research materials: VR GIS models, mapping media, and written research materials for focus groups and individual interviews. The preparation phase lasted from August 2003 to December 2003.

4.4.2.1 VR GIS Models and Mapping Media

VR GIS models were created for a comparison between VR GIS and selected mapping media and for the illustrations of protection of three different Aboriginal values: a trapper's cabin, a burial site, and a spiritual site. VR GIS models were created by using Ecoviewer software, a product of Viewscape3D Graphics Ltd., a company located in British Columbia.

Ecoviewer is a VR GIS software that creates three-dimensional (3D) forest landscapes based on forest inventory information. Ecoviewer is a combination of geovisualization technology and GIS. Images of tree species, whose composition, height, and density are derived from the forest inventory stand information, are placed on a 3D terrain model, which is generated from elevation data and covered with customized ground texture. For this study, the ground texture for the areas dominated with conifer species was chosen to be dark green and for the areas dominated with deciduous species was elected to be brown (Fig. 2-5). Muskeg was represented in the models as a non-forested area and with a darker brownish ground texture. Once created, Ecoviewer 3D models can be viewed by moving within the virtual space of the model from a position of a so-called 'camera.' This enables the user to see the landscape from

any point within the model space—from the air above the terrain or along the terrain ground—and to move around the landscape by moving the point of view—the camera.

For this thesis, tree images were created by taking pictures of the mature and seedling form of the main boreal tree species recorded by the Ontario's Forest Resource Inventory (FRI), by editing the images in Photoshop, and consequently building a tree library. The elevation information, basemap, and FRI stand information for the samples of VR GIS models and other mapping media were used from the GIS database for the Dog River-Matawin Forest Management Unit (Fig. 1), which was made available through the Legacy Forest, a project established through the Ontario's Living Legacy initiative (Faculty of Forestry and the Forest Environment, Lakehead University 2005).

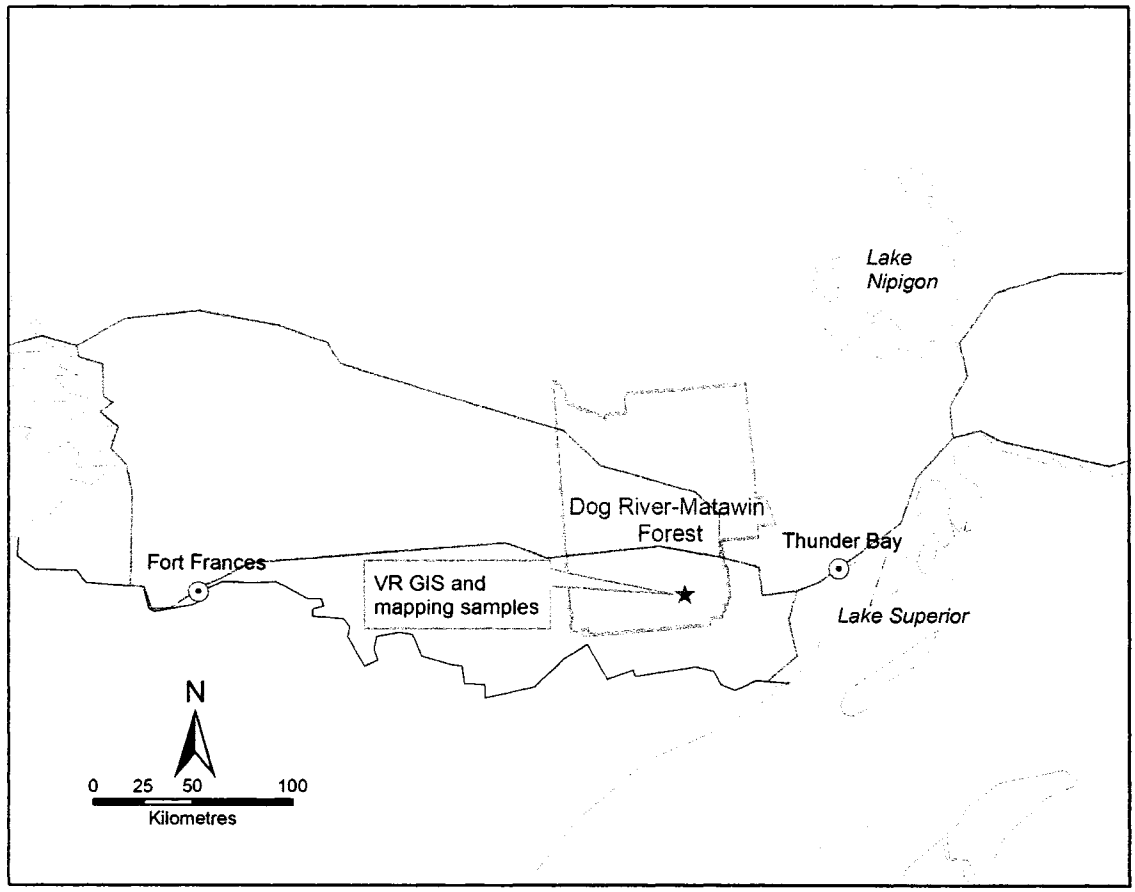
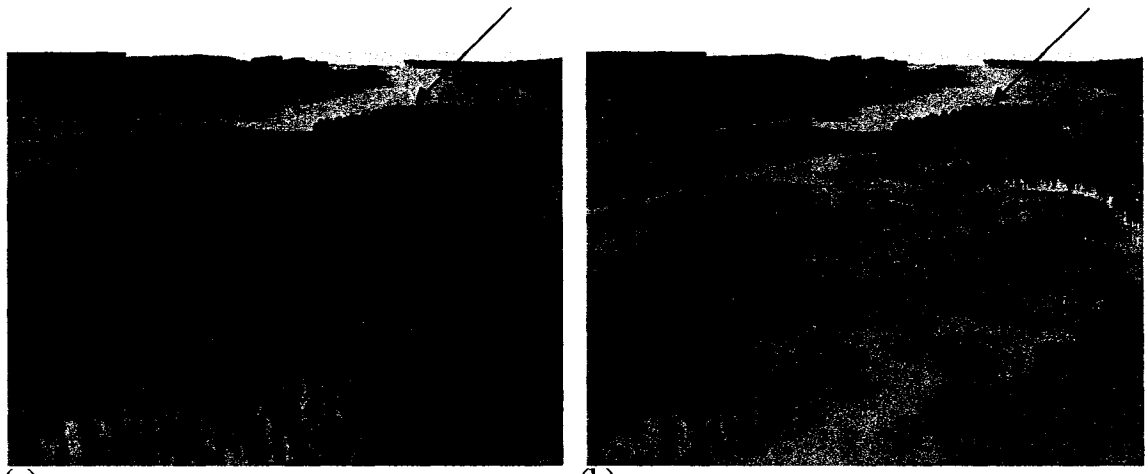


Figure 1. Geographic location of the Dog River-Matawin Forest Management Unit and the area used for the samples of VR GIS models and mapping media.

Four different VR GIS models were created: general model (Fig. 2) for a comparison of mapping media, and trapper's cabin model (Fig. 3), burial site model (Fig. 4), and spiritual site model (Fig. 5), as examples of individual Aboriginal values locations and protections. The general model represented the current landscape only, while the other three models had available in-built simulated harvest scenarios as well (see Figs. 3-5). The in-built simulated harvest scenario meant that during the viewing of the models, trees within the simulated harvest areas could be removed or put back in the

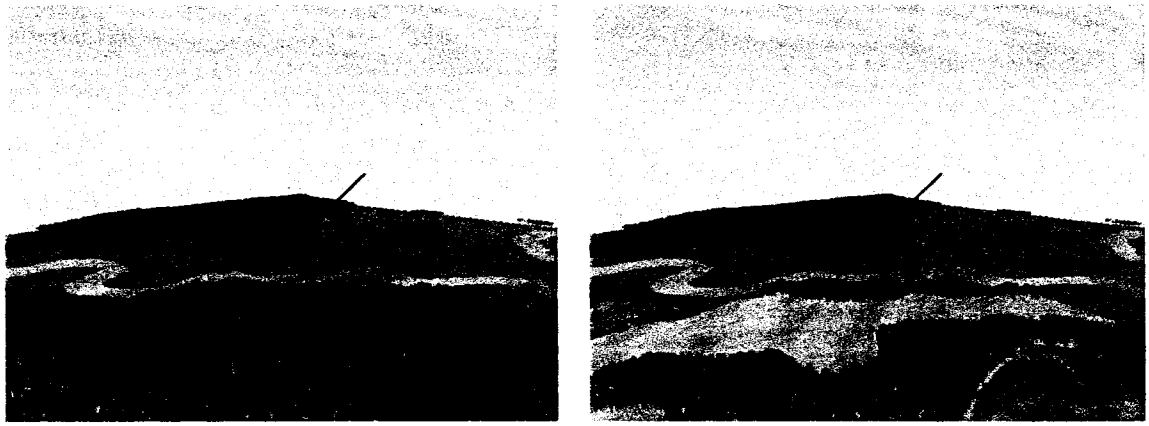
model, thus demonstrating the appearance of the landscape before the harvest and immediately after the harvest. Pictures of all tree species and their forms presented in the VR GIS models were also printed individually on a letter size paper and labeled, and made available to the participants for the definitive identification of the tree species in the models.

Figure 2. General VR GIS model.
Brownish non-forested areas represent muskeg.



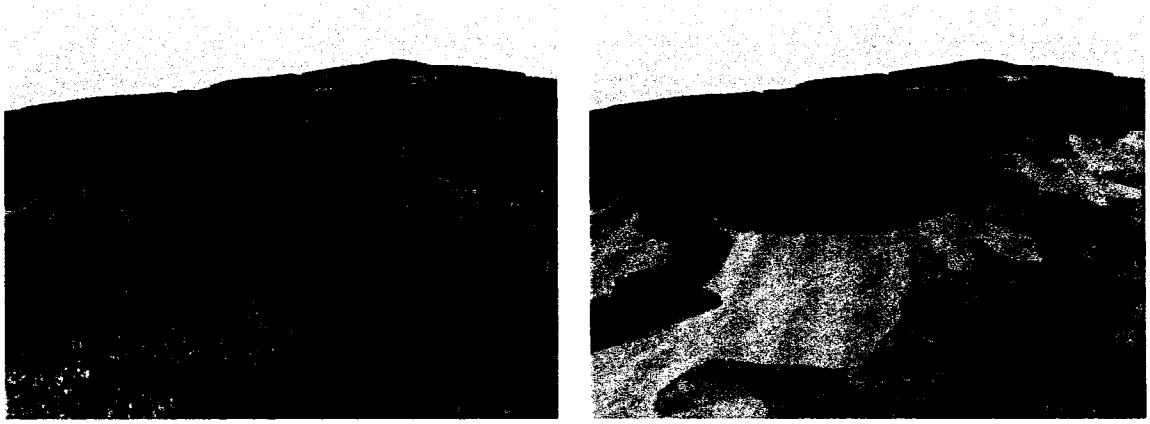
(a) (b)

Figure 3. Trapper's cabin VR GIS model.
(a) before harvest; (b) after harvest. Arrows point to the trapper's cabin location.
Brownish non-forested areas in (a) and (b) represent muskeg.



(a) (b)

Figure 4. Burial site VR GIS model.
(a) before harvest; (b) after harvest. Arrows point to the burial site location. Brownish non-forested areas in (a) and (b) represent muskeg.



a) b)

Figure 5. Spiritual site VR GIS model.
(a) before harvest; (b) after harvest. Arrows point to the spiritual area location. Brownish non-forested areas in (a) and (b) represent muskeg.

The area covered in the general VR GIS model was displayed on three different mapping media as well: a forestry map (Fig. 6), a plain map (Fig. 7), and an aerial photo (Fig. 8). The forestry and the plain map were presented at the scale of 1:20,000, on a paper surface, while the aerial photo was presented as an image on a computer screen. The forestry map contained forest stands represented through their working group (FRI

stand categories representing the dominant tree species in the stands) and labeled with the stand forest information, in addition to basic mapping features such as lakes, rivers, roads, and muskeg areas. The plain map displayed only basic mapping features—lakes, rivers, roads and muskeg areas—and the aerial photo represented a black and white aerial photography of the map area. GIS information for the forest stands and muskeg areas was generated from the FRI, while the lakes, rivers, and roads were generated from Ontario Base Map (OBM) datasets.

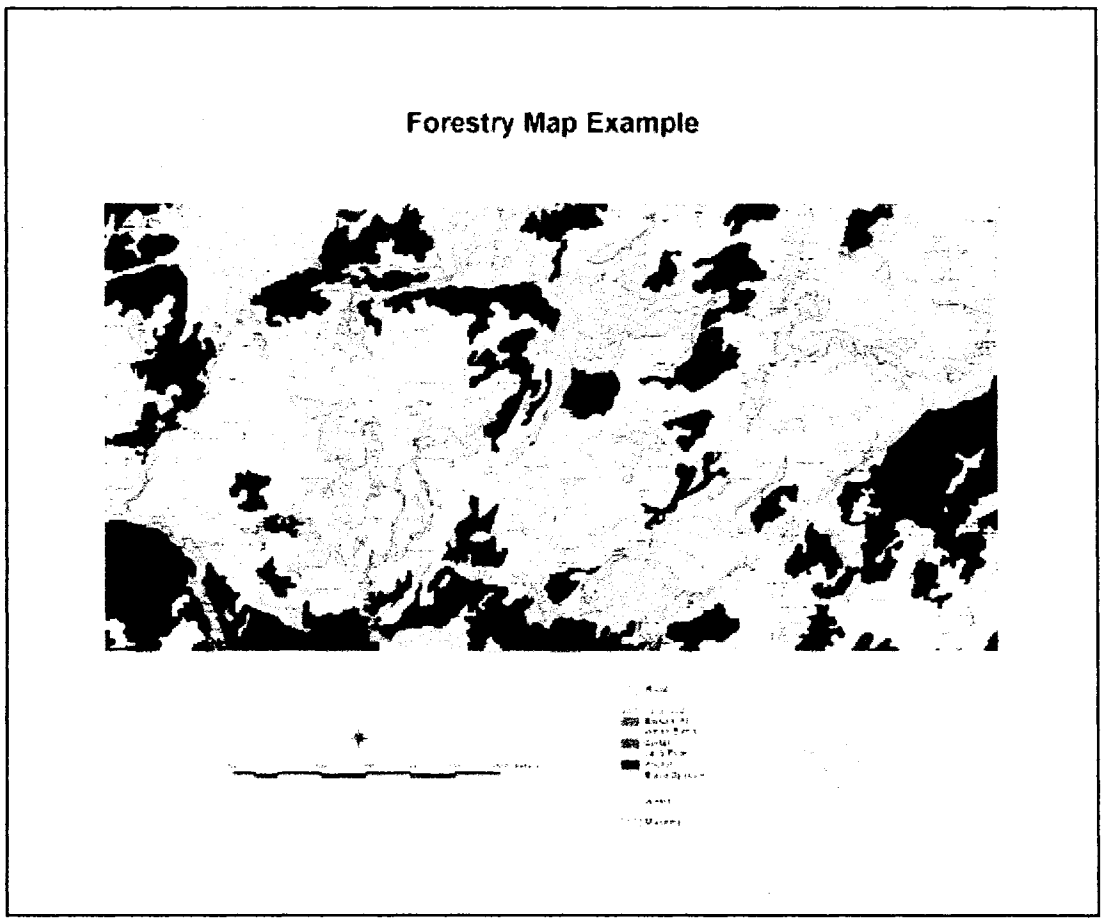


Figure 6. Forestry map.

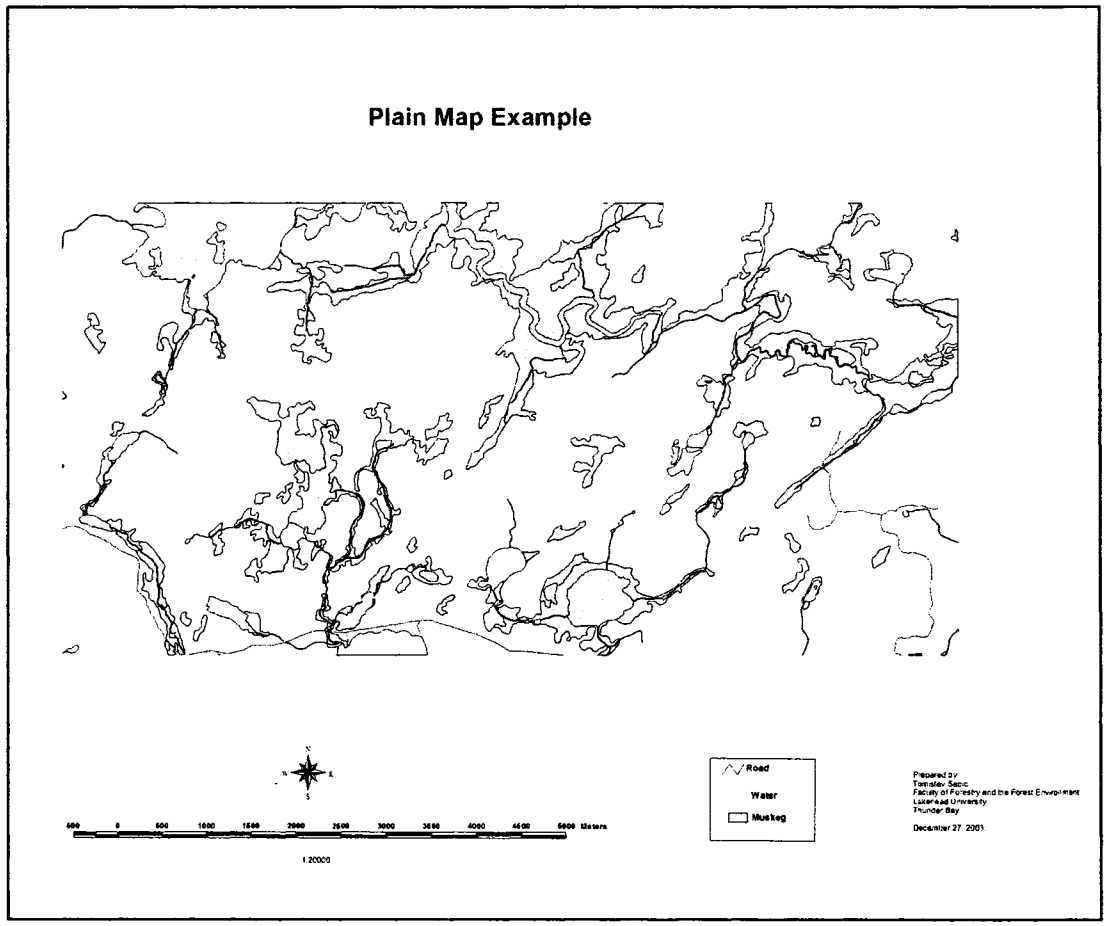


Figure 7. Plain map.

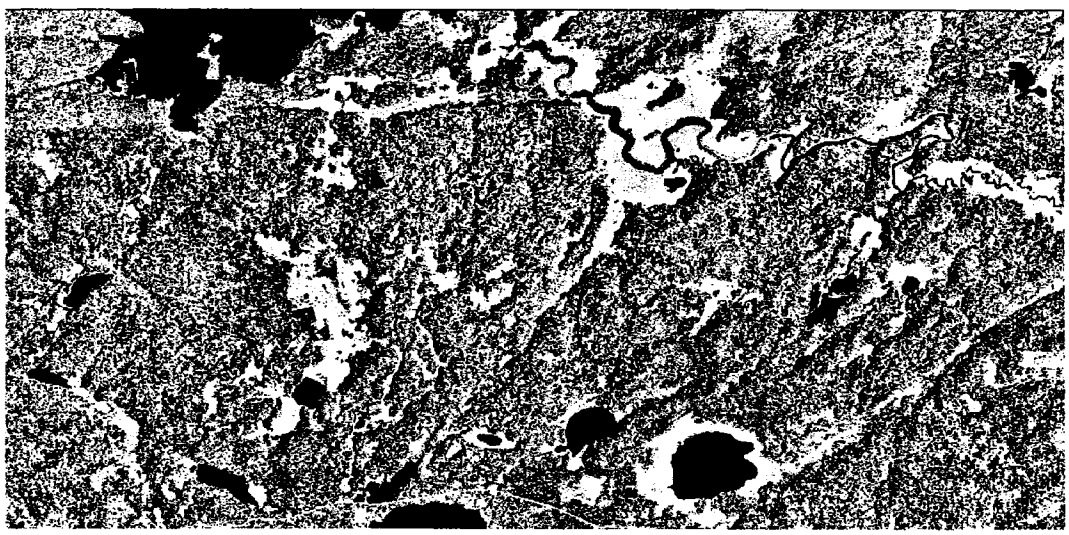


Figure 8. Aerial Photo.

The trapper's cabin, burial site, and spiritual site VR GIS models had a built-in simulated harvest operation in which a clearcut was placed outside a 120 m buffer that surrounded these Aboriginal values (Fig. 3). Simulated harvest areas in the trapper's cabin, burial site, and the spiritual site models were 43 ha, 160 ha, and 232 ha, respectively, and included internal residual patches and protective 30 m buffers along the lakes and rivers. The shape, size and the location of the harvest areas were simulated by following the Ontario forest management guidelines for the shape and maximum size of the clearcuts (see Chapter 6, Section 6.3.1.3), and for the protection of fish habitat (see Chapter 6, Section 6.2.2.4). Because of the absence of defined buffer widths around Aboriginal values in forest management regulations, the buffer of 120 m around each of the Aboriginal values was chosen based on a local agreement between three Aboriginal communities, namely Aroland First Nation, Marten Falls First Nation, and Eabametoong First Nation, the Buchanan Forest Products Inc. forestry company, and the OMNR, where the protection of a 120 m buffer was suggested for among others, a cemetery, a sacred place, and a campsite (Matawa First Nations Management 1999). In the models, the trapper's cabin and the burial site were geometrically and geographically defined as points and the spiritual site was designated as an area (Figs. 3-5). The spiritual site was designated to be the type of a fasting or a vision quest site—an area used for spiritual retrieval and spiritual ritual. There were no objects in the model representing any of the Aboriginal values, rather the location of the Aboriginal values was indicated to the participants while reviewing the models and they were asked to imagine that there is a particular Aboriginal value (a trapper's cabin, a burial site, a spiritual site) in the shown location. The particular landscape locations for the trapper's cabin, burial site, and the

location and size for the spiritual site were decided based on the pertinent literature and preliminary interviews with Aboriginal land users. The trapper's cabin site was placed on the west side of a lake. Tanner (1979: 101) reports that winter trapping camp sites are usually set up on the western shores of lakes, where the forest in the west protects from the prevailing western winds and the camps are exposed to the rising sun, which seems to have a cultural meaning. The locations of the burial site—along a river (Fig. 4)—and the size and location of the spiritual site—a leveled outing by a river (Fig. 5)—were learned as likely ones from the preliminary interviews and conversations with Aboriginal land users. The specific locations of Aboriginal values and surrounding local landscapes were unknown to all of participants.

The VR GIS models and mapping media were intended to represent a typical boreal landscape, without indicating toponyms. The reason for creating models with typical boreal settings that are non-recognizable to the participants was to avoid possible misinterpretation of the project by the participants. If the models were presenting landscapes that were recognized and used by the participants, the harvesting scenarios illustrated in the models could have been perceived as real plans and not simulations. This would then run a risk of participants refusing to openly discuss protection options because a student might be seen as an inappropriate figure for that purpose. Also, during the preparation and data collection stage, the VR GIS models were described as Visual GIS models (e.g., see Appendix III), a term that was in the later stages of the thesis substituted with the more appropriate, VR GIS term.

4.4.2.2 Written Research Material

Written research material included an Invitation Letter, a Questionnaire on Aboriginal Values, an Interview Agenda, and an Informed Consent form.

- The Invitation Letter (Appendix I) had the purpose of introducing potential participants to the nature, format, and objectives of the research.
- The Questionnaire on Aboriginal Values (Appendix II) had the purpose of establishing a commonly understood scope and meaning of the term 'Aboriginal values' between the participants and the researcher. Because the word 'value' in the context of forest management and land use can be interpreted in various ways, such as a 'monetary value,' or 'cultural value,' or 'emotional value', it was deemed necessary to present a list of values, as representing places and areas in the landscape, that are the subject of forest management planning treatment and thus the subject of this thesis, and to ask participants to expand it if necessary. The responses to the questionnaire were to be used as possible indications of the need to broaden or modify the scope of the interview.
- The Interview Agenda (Appendix III) had the purpose of informing the participants about the topics of the interview and their order, and to serve as a guide for the researcher to stay focused on the research topics.
- The Informed Consent (Appendix IV) form had the purpose of informing the participants about the nature and confidentiality of the research and their voluntary role in it, and for the research to meet the criteria of ethical research, set in the Ethics Procedures and Guidelines for Research Involving Humans, by the Research Ethics Board (Research Ethics Board 2004) of Lakehead

University, and in particular, the Ethical Guidelines for Research involving Aboriginal people, set by the RCAP (RCAP 1996d: Appendix E).

4.4.3 Data Collection

4.4.3.1 Selection of Participants

The data collection phase involved selecting participants and conducting the interviews. Aboriginal people who were interviewed in the research project are members of the following Aboriginal communities: Stanjikoming First Nation, Lac des Mille Lacs First Nation, Pays Plat First Nation (Pawgwasheeng), Ojibways of the Pic River First Nation, Constance Lake First Nation, and Moose Cree First Nation. Aboriginal communities and people were selected with the help of Peggy Smith from the Faculty of Forestry and the Forest Environment, and Terry Wilson from Nishnawbe Aski Nation, a regional Aboriginal organization representing Treaty #5 and Treaty #9 First Nation signatories. The usual procedure of setting up the focus groups and individual interviews was that the researcher would establish a contact with the selected Aboriginal community, either through the community's Chief and Council office, or through a contact person that would have a permission from the Chief and Council to help in organizing the interviews. The researcher would explain the nature, scope, and goals of the project, and express intention to interview members of the community in a focus group setting, or through individual interviews, in a case where focus group participation was not feasible for a community member. The eligibility criteria for participating in the interviews were that the person was an Aboriginal person who has identified his or her Aboriginal values during forest management planning, or has been using Aboriginal values through traditional land use. Participants were selected with the help of a

community representative. An exception was the participant from the Moose Cree First Nation, who the researcher met and interviewed in Thunder Bay where the participant attended school. The distribution of the participants between the communities, focus groups, and individual interviews is shown in Table 2.

Table 2. Number of participants per community and interview type

Community	Focus Group Participants	Individual Interviews Participants	Total
Constance Lake First Nation	4	0	4
Lac des Mille Lacs First Nation	4	0	4
Moose Cree First Nation	0	1	1
Ojibways of Pic River First Nation	4	0	4
Pays Plat First Nation	0	4	4
Stanjikoming First Nation	4	1	5
Total	16	6	22

4.4.3.2 Focus Group and Individual Interviews

Interviews for both, focus groups and individual interviews were based on the Interview Guide. The procedures, materials used, and questions asked were the same for the focus groups and individual interviews. Interviews took between 1.5 and 3 hours per interview, were audio taped, and involved a number of steps that followed the Interview Guide:

1) The researcher would introduce himself, describe briefly the research project and the format and goals of the interview, and remind the participants that the interview was going to be audio-taped.
2) Participants would be asked to introduce themselves and describe their use of the land.
3) The researcher would ask the participants to provide their comments and thoughts about the list of values presented in the Questionnaire on Aboriginal Values, and about the Aboriginal values in general in the context of forest management.
4) The researcher would present and explain to the participants four mapping media—the plain map, the forestry map, the aerial photo, and the general VR GIS model—and pose a question: "If you were to identify and discuss protection of your values, which of the presented media would you prefer to use and why?"
5) The researcher would ask the participants about their experiences with trapping in the context of forest management, about the problems that they have experienced, and about their proposals to solve these problems. Within the trapping interviewing segment, participants were also presented with two different patterns of harvest within a trapline and asked about their opinion.

However, the information regarding harvest patterns was deemed to require special attention and was not included in the data analysis for the purpose of narrowing the scope of the thesis.

6) The researcher would present the trapper's cabin model by showing in it the trapper's cabin site first from a distance to see the general area of 2-3 kilometers around the trapper's cabin site and then by moving the camera closer and zooming to 200-300 meters around the trapper's cabin site. The researcher would then move the model camera again back to the general view showing 2-3 kilometers around the trapper's cabin, remove the trees from the simulated harvest area, explain the harvest simulation, and pose a question: "Does the presented model, showing a 120m buffer around the trapper's cabin, represent an appropriate way of protecting a trapper's cabin, or not, and why?" During and following the participants' responds to this question, the model camera would be moved around the model if there was a request by the participants, and upon the participants' initial responses a discussion would be initiated about the definition of the trapper's cabin value, its importance, and about alternative solutions for its protection, if the one presented was not judged as appropriate.

7) The researcher would present the burial site model by showing in it the burial site first from a distance to see the general area of 2-3 kilometers around the burial site and then by moving the camera closer and zooming to 200-300 meters around the burial site. The researcher would then move the model camera again back to the general view showing 2-3 kilometers around the burial site, remove the trees from the simulated harvest area, explain the harvest simulation around it, and pose a question: "Does the presented model, showing a 120m buffer

around the burial site, represent an appropriate way of protecting a burial site, or not, and why?" During and following the participants' responds to this question, the model camera would be moved around the model if there was a request by the participants, and upon the participants' initial responses a discussion would be initiated about the definition of the burial site value, its importance, and about alternative solutions for its protection, if the one presented was not judged as appropriate.

8) The researcher would present the spiritual site model by showing in it the spiritual site first from a distance to see the general area of 2-3 kilometers around the spiritual site and then by moving the camera closer and zooming to 500-600 meters around the spiritual site. The researcher would then move the model camera again back to the general view showing 2-3 kilometers around the spiritual site and remove the trees from the simulated harvest area. The spiritual site would be described as the type of site used for fasting or vision quest. The researcher would explain the location of the spiritual site and the harvest simulation around it, and pose a question: "Does the presented model, showing a 120m buffer around the spiritual site, represent an appropriate way of protecting a spiritual site, or not, and why?" During and following the participants' responds to this question, the model camera would be moved around the model if there was a request by the participants, and upon the participants' initial responses a discussion would be initiated about the definition of the spiritual site value, its importance, and about alternative solutions for its protection, if the one presented was not judged as appropriate.

9) The participants would be asked about their opinion of the interview, the interview's format and its topic, and the researcher would thank the participants for their involvement in the project.

4.4.4 Data Analysis

Data analysis was carried out by transcribing each audio interview into a Microsoft Word file, and using a combination of Microsoft Word and Microsoft Excel computer software to perform analysis. The interview text was searched for the segments that were addressing the research questions regarding the identification and protection of Aboriginal values and the use of mapping media:

- "How are Aboriginal values defined and what influences their definition?";
- "What constitutes a protection of Aboriginal values and what influences it?"; and
- "What is the participants' perception of presented mapping media, in particular of the VR GIS, in terms of discussing Aboriginal values?"

Themes were identified and categories created by:

1) Analyzing the interview text and looking for text segments that address the research questions.
2) Assigning to each segment a description of the theme that emerged from it and capturing the theme description as a comment, with a Comment Tool in Microsoft Word. Because one of the properties of the Comment Tool is that the comments get indexed, each individual theme description was indexed with a unique number within the interview text.

3) Transferring the numbered theme descriptions from the Microsoft Word file into a Microsoft Excel worksheet, and using Excel cell formula to attach to all theme descriptions labels signifying their original files. Now, every theme description could be directly traced back to its original context.
4) Analyzing the themes in Microsoft Excel, finding connections between them, grouping them and assigning to the categories. Some categories were predetermined by the interview topics, while others emerged from the participants' responses. The theme analysis and creation of categories were carried out by constantly referencing the themes back to their original segments and contexts.

4.4.5 Interviews with OMNR Personnel

The OMNR has a central role in Aboriginal consultation and values processes in forest management planning. The OMNR designs procedural and material requirements for conducting consultation with Aboriginal communities and incorporating Aboriginal values into forest management planning. These mechanisms were implemented on the recommendation of the EA Board in 1994 and were subsequently incorporated into the FMPM. The OMNR is required to contact and consult affected Aboriginal communities during forest management planning and obtain information relevant to the FMP, including information on Aboriginal values (OMNR 2004: Part A, 4.0). Although the chief scope of this thesis is Aboriginal views and perceptions on defining and protecting Aboriginal values, in order to provide another dimension of the issue of Aboriginal values, the researcher contacted the OMNR personnel involved with Aboriginal questions either through policy making, or through a liaison work, or through

conducting forest management plans, and inquired about their opinions. Findings of these conversations were summarized and added to the results from the focus groups and individual interviews with Aboriginal people.

4.5 ABORIGINAL COMMUNITIES

4.5.1 Introduction

Aboriginal people from six Aboriginal communities from northern Ontario were interviewed for the thesis.

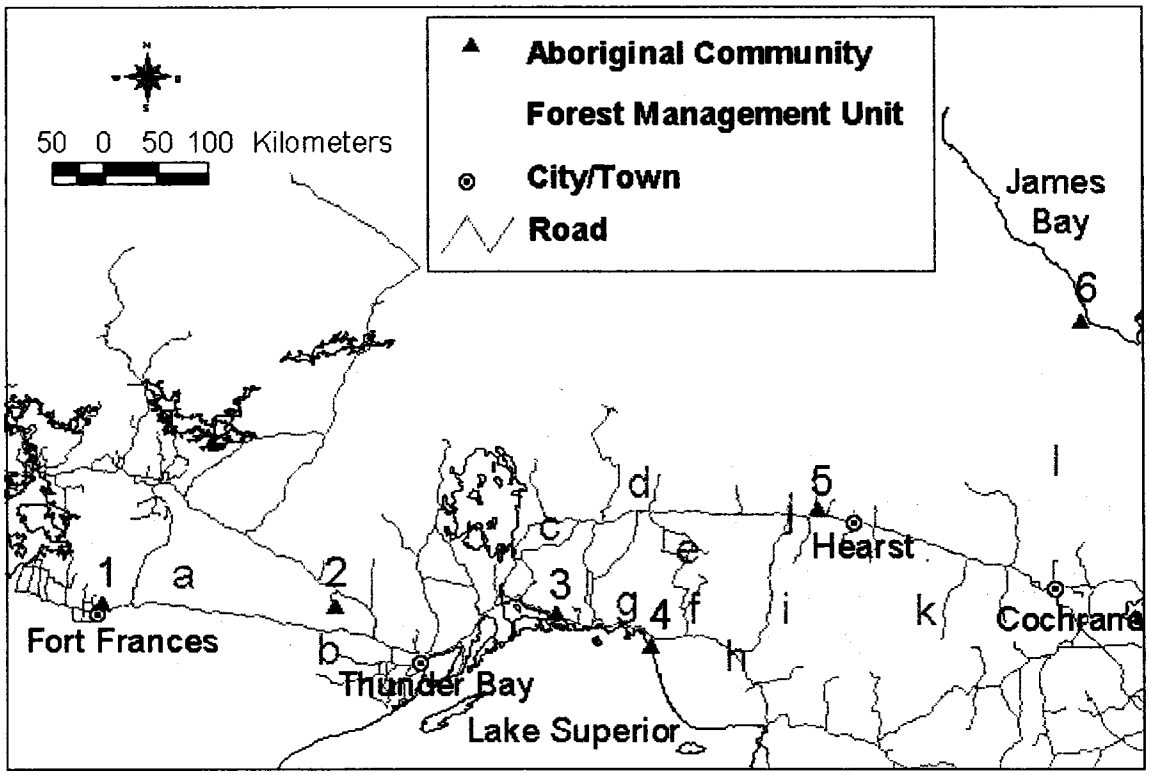


Figure 9. Location of Aboriginal communities (1-6) and FMUs (a-l) for the planning of which the communities have been contacted because of overlapping traditional territories.*
1 = Stanjikoming; 2 = Lac Des Mille Lacs; 3 = Pays Plat; 4 = Ojibways of Pic River; 5 = Constance Lake; 6 = Moose Cree; a = Crossroute; b = Dog River-Matawin; c = Lake Nipigon; d = Kenogami; e = Big Pic; f = Black River; g = Pic River Ojibway; h = White River; i = Nagagami; j = Hearst; k = Gordon Cosens; l = Cochrane-Moose River.
*See Table 3.

Short description of the six communities, Constance Lake First Nation, Lac Des Mille Lacs First Nation, Moose Cree First Nation, Ojibways of Pic River First Nation, Pays Plat First Nation, and Stanjikoming First Nation, and their locations were provided in the following sections, 4.5.2 – 4.5.7, and in Figure 9.

Short summaries and Aboriginal values related involvement of each community in FMPs written for the FMUs which overlap with a community's traditional territory are presented in Table 3, and relative geographical locations of the FMUs are depicted in Figure 9.

4.5.2 Constance Lake First Nation

Constance Lake First Nation is located off Hwy 11, thirty kilometers west of Hearst, and four hundred and ninety kilometers northeast of Thunder Bay (see Figure 9). The First Nation is composed of Ojibway and Cree people, and is located in the Treaty #9 area. There are 662 people living on the reserve, out of 1419 registered members for the First Nation (Indian and Northern Affairs Canada (INAC) 2005a). The Constance Lake people joined Treaty #9 in 1906 and initially settled at Mammamattawa, a place at that time also known as the English River Trading Post, situated ~70 km NW from Constance Lake, on the Kenogami River, near its intersection with the Kabinakagami, Nagagami, and Ridge rivers (OMNR 1996b: 13-14). In 1935 Constance Lake people moved ~80 km SW, to Pagwa River Post, located ~80 km W from Constance Lake (OMNR 1996b: 17), and in the early 1950's, most of Constance Lake people moved from the Pagwa River Post to today's Constance Lake reserve (OMNR 1996b: 18).

4.5.3 Lac des Mille Lacs First Nation

Lac des Mille Lacs First Nation members used to live on a reserve located hundred kilometers northwest of Thunder Bay (see Figure 9), but were forced to abandon the reserve in the late 1950's due to persistent flooding, caused by a series of dams on the Seine River system that were built for hydroelectric, timber transportation, and river navigation purposes (Lovisek 1994). Lac des Mille Lacs are Ojibway in their origin and are descendents of signatories to Treaty #3. There are 499 registered Indians with Lac des Mille Lacs, but as a result of the abandonment, all but 3 members live off-reserve (INAC 2005b). Four members live on other reserves (INAC 2005b) and all other off-reserve members live in the towns and cities surrounding the abandoned reserve, or elsewhere.

4.5.4 Moose Cree First Nation

Moose Cree First Nation is located on the southwest shores of James Bay, on the Moose Factory Island, three hundred kilometers north of Cochrane (see Figure 9). The Moose Cree First Nation belongs to the Cree people and is located on the Treaty #9 area. There are 1388 First Nation members living on the reserve, out of 3215 registered members (Moose Cree First Nation 2004).

4.5.5 Ojibways of The Pic River First Nation

Ojibways of the Pic River First Nation is located off Hwy 17, three hundred kilometers east of Thunder Bay (see Figure 9). The First Nation belongs to the Ojibway

people and is located in the Robinson-Superior Treaty area. There are 470 people living on the reserve, out of 940 registered members. (INAC 2005c).

4.5.6 Pays Plat (Pawgwasheeng) First Nation

Pays Plat First Nation is situated on Hwy 17, some hundred and seventy kilometers east of Thunder Bay (see Figure 9). The Pays Plat First Nation belongs to the Ojibway people and is located in the Robinson-Superior Treaty area. Statistics Canada recorded in the 2001 Census of Canada the population of Pays Plat at 65 (Statistics Canada 2004a).

4.5.7 Stanjikoming First Nation

Stanjikoming First Nation is located on a reserve approximately fifty kilometers north of Fort Frances and three hundred ninety kilometers west of Thunder Bay (see Figure 9). The Stanjikoming First Nation is Ojibway and belongs to Treaty #3. There are 125 people registered as belonging to the Stanjikoming First Nation, with 65 of them living on the reserve (INAC 2005d). The community was relocated in 1989 from an island that was artificially created after a local dam was built in 1920's, to a mainland location several kilometers away (Janice Henderson, pers. comm., March 31, 2005).

Table 3. Community profiles, FMPs in which communities were contacted, and comments related to the treatment of Aboriginal values in the FMPs.

Community Profile	*Current FMP(s) in which the community has been contacted	Comments
	Constance Lake	
Population On reserve: 662 Total registered: 1419 Indian reserve #: 182 Reserve size (ha): 6218.5 Ref: INAC (2005a)	Big Pic Forest FMP 2002-2007 (OMNR and Marathon Pulp Inc. 2002)	Community contacted but it did not participate in the Aboriginal consultation process.
	Hearst Forest FMP 2002-2007 (OMNR and Hearst Forest Management Inc. 2002)	The Native Background Information Report, the land use and occupancy Study and the derived Native Values map, and the Report on the Protection of Identified Native Values for the 1997-2002 FMP have been carried over into the 2002-2007 FMP.
	Kenogami Forest FMP 2005-2010 (OMNR and Kimberly-Clark Inc. 2005)	Values project not completed. The Report on the Protection of Identified Aboriginal Values states that trapping and hunting cannot be protected as a whole because of conflict with forest operations. Protection for individual values proposed through negotiations (e.g. for a trapper's cabin), or by creating 150 m buffers (e.g. for a cemetery, a sacred place).
	Nagagami Forest 2001-2006	The Report on the Protection of Identified Aboriginal Values could not be released by the OMNR due to confidentiality concerns (Paul Gamble, OMNR, pers. comm., September 6, 2005).
	Lac Des Mille Lacs	
Population On reserve: 3 Total registered: 499 Indian reserve #: 189 Reserve size (ha): 4948 Ref: INAC (2005b)	Dog River-Matawin Forest FMP 2005-2010 (OMNR and Bowater Inc. 2005)	The community started to work on the Aboriginal Values Map and the map was not ready for the FMP.

Table 3. (continued)

Community Profile	*Current FMP(s) in which the community has been contacted	Comments
	Moose Cree	
Population On reserve: 1388 Total registered: 3215 Indian reserve #: 144 Reserve size (ha): 16883 Ref: Moose Cree First Nation (2004) and Statistics Canada (2005)	Cochrane-Moose River Forest FMP 2003-2008 (OMNR and Tembec Inc. 2003)	In the Native Background Information Report, the community expressed disapproval with the consultation process and mistrust towards the MNR and the forestry industry. Report on the Protection of Native Values states that open house meetings were discontinued and the Aboriginal Values Map was not created.
	Gordon Cosens Forest FMP 2005-2010 (OMNR and Spruce Falls Inc. 2005)	The Aboriginal Background Information Report implies that the Moose Cree community was deemed not to be on the FMU or adjacent to it and was not contacted. Known Aboriginal values were planned to be protected by applying buffers and measures chosen by the planning team (e.g. 200 m from the perimeter for burial and spiritual sites, and the protection of trapper's cabins as per negotiations with the trappers)
	Ojibways of Pic River	
Population On reserve: 470 Total registered: 940 Indian reserve #: 192 Reserve size (ha): 317 Ref: INAC (2005c)	Big Pic Forest FMP 2002-2007 (OMNR and Marathon Pulp Inc. 2002)	The Native Values Map was created in 1999 by the Ojibways of Pic River community and the Final Report on the Protection of Native Values outlines that it is expected that the values map will be updated as new values are identified. No specifics on how the values will be protected are provided.
	Black River Forest FMP 2001-2006	Aboriginal Background Information Report and the Report on Protection of the Identified Aboriginal Values were not available by the OMNR because they were in the process of approval (Paul Gamble, OMNR, pers. comm., September 6, 2005).

Table 3. (continued)

Community Profile	*Current FMP(s) in which the community has been contacted	Comments
	Ojibways of Pic River (continued)	
	Pic River Ojibway Forest FMP 2001-2006 (OMNR and Great West Timber Ltd. 2001)	No discussion on Aboriginal values. The Native Background Information Report states that at the interest of the Ojibways of Pic River two overlapping licenses were issued to two logging companies, presumably linked to the community.
	Pays Plat (Pawgwasheeng)	
Population On reserve: 65 Total registered: NA Indian reserve #: 191 Reserve size (ha): 219 Ref: Statistics Canada (2004a)	Kenogami Forest FMP 2005-2010 (OMNR and Kimberly-Clark Inc. 2005)	The Aboriginal Background Information Report states that the Pays Plat community decided not to send a representative to the planning team because of the expenses. A consultant was hired by the community to collect the values for the Aboriginal Values Map.
	Lake Nipigon Forest 2001-2006 (OMNR and Domtar Inc. 2001)	The Aboriginal Background Information Report states that the Pays Plat First Nation was contacted but it did not respond to the contacts.
	Stanjikoming	
Population On reserve: 90 Total registered: 125 Indian reserve #: 133 Reserve size (ha): 7985 Ref: INAC (2005d)	Crossroute Forest 2002-2007 (OMNR and Abitibi-Consolidated Inc. 2002)	The Native Background Information Report states that the Aboriginal Values Map was created with the assistance of the community members and that the community raised concerns about herbicide spraying, harvesting along the waterways where the burial sites are suspected—a 300 m buffer proposed, the protection of large birch trees suitable for canoe making, increased water level, the returning of hawks.

* See Figure 9.
Note: NA, not available.

4.6 CHALLENGES IN CONDUCTING RESEARCH

Conducting research with different Aboriginal communities that involves organizing focus groups and individual interviews presented the researcher with some challenges. Although this does not apply to all of the participating communities, in some instances challenges were posed in obtaining the approval to conduct research, setting the interview date, selecting the interview participants, and in achieving the planned attendance.

To conduct a focus group or individual interviews in a community, the researcher needed an approval from the community leaders and help from a knowledgeable community member in selecting prospective interview participants. The researcher would usually directly contact the Chief and Council of the community, or would contact a specific person in the community based on an acquired referral, in which case, that person would proceed to contact the Chief and Council on researcher's behalf. At this point, and after providing contacted community members with the research project description, in some instances it took from two to four months before an approval was granted by the community leaders and commitment made.

Once the approval to conduct the research was obtained and the contact person to help in selecting prospective participants was established, in some instances it required from one to two months to contact the prospective participants and set the date for the interview. The difficulty might have arisen because the researcher was completely unknown to the communities and the communication was carried out impersonally, over the phone or through email. In one of the communities, the researcher traveled to meet the community leaders during the organizing stage, which resulted in a noticeably

heightened interest for the project on the part of the leaders and speedier arrangements of the interviews.

In terms of attendance, in some instances the number of participants that came to a focus group meeting was lower than the number of confirmed participants. In one instance, initially only two participants came out of confirmed ten, to be then joined with two more people but who were not on the list of confirmed participants.

The difficulties that were experienced were likely just an example of the challenges typical to research involving Aboriginal communities. Tuhiwai Smith (1999: 136-140) points out to the wariness of many indigenous communities towards participation in research projects prompted by historical experiences of research misuses in the service of colonization, which then creates a need for a careful negotiation of the entry to a community, including several preliminary meetings, and a recognition of a highly political character of the whole process.

CHAPTER FIVE
RESULTS

5.1 INTRODUCTION

The results present the outcome of analysis of focus groups and individual interviews and a summary of conversations with the OMNR personnel. Because the aim of the analysis of the focus groups and individual interviews was to examine the data by first segmenting and then grouping them into themes and categories, the results are represented by listing and describing categories and themes. Data analysis of the focus groups and individual interviews resulted in ten categories, each containing multiple themes. Ten categories are presented grouped into three general headings: the General Values heading containing categories Values Definition, Impacts on Values, Values Protection, Values Process, and Forest Management; the Individual Values heading containing categories Trapping, Trapper's Cabin, Burial Site, and Spiritual Site; and the Mapping Media heading containing one category, Mapping Media Perceptions. Some categories emerged through the data analysis while others represented discussions on the topics in the Interview Agenda. Categories that emerged through the data analysis are Values Definition, Impacts on Values, Values Protection, Values Process, and Forest Management. Categories that represented discussions on the topics in the Interview Agenda are Mapping Media, Trapping, Trapper's Cabin, Burial Site, and Spiritual Site. For the purpose of illustrating original data that gave rise to the themes and categories and their findings, selected excerpts and observations from the interviews are attached to each theme.

In order to establish common interview references for Aboriginal values between the researcher and the participants, participants were presented with the Questionnaire on Aboriginal Values containing a list of Aboriginal values and asked to evaluate if the list included Aboriginal values as they see them and if they would add some other values to the list.

The findings of the questionnaire are presented first in the results. They are followed with the description of categories and themes and the results end with the summary of conversations with the OMNR personnel.

5.2 QUESTIONNAIRE ON ABORIGINAL VALUES

The list of Aboriginal values (Appendix I) presented at the beginning of the interviews was deemed by all participants as containing Aboriginal values, with some comments and suggested additions. Some participants from Stanjikoming pointed to the caribou related values on the list and commented that those values are not relevant to Stanjikoming any more because caribou has departed their traditional areas. The suggested additions to the presented list of values, compiled from all participants, included values such as birch trees, eagle feather gathering sites, rocks with meaning, sites marking significant life events, (such as first a caribou kill or falling through the ice), cedar trees, sweat-lodges, rock pits and quarries, sacred springs, fasting place, shaking tents, and tobacco offering sites.

5.3 GENERAL VALUES

5.3.1 Category I: Values Definition

The Values Definition category emerged through the data analysis and is comprised of nine themes: Meaning of Value, Holistic Spatial Definition, Sacred and Spiritual Sites, Cultural Significance, Disappearance and Revival of Culture, Sources of Values, Historic Use, Land Use Right, Waterways.

5.3.1.1 Meaning of Value

The Meaning of Value theme emerged through the responses that indicated differing interpretations of the concept of Aboriginal values and different ways of defining Aboriginal values. Participants told that the concept of values is not completely clear to Aboriginal people and individual values not sufficiently defined. This theme emerged through the responses from five out of six communities. Examples of the responses include:

- Participants from Pays Plat and Ojibways of Pic River communities pointed out that when they were working on values mapping projects in their respective communities, the elders that they interviewed were bewildered with the concept of expressing and indicating different values—to the elders everything on the land was valuable.
- "Is value a culture or tradition, or a place where someone goes?" was a question from a participant from Constance Lake.
- A value can be a life event that has a location attached to it, such as a kill of the first caribou, explained the participant from Moose Cree.

- Participants from Stanjikoming pointed out that different First Nation communities have different customs and ways of defining values.

5.3.1.2 Holistic Spatial Definition

The Holistic Spatial Definition theme emerged through the responses that addressed the difficulties in spatially defining Aboriginal values. Participants indicated that values should be treated holistically and not as isolated places or points. This theme emerged through the responses from five out of six communities. Examples of the responses include:

- "... value is where we Aboriginal people live ...," was a response from a participant from Constance Lake.
- "If all Aboriginal values were protected, there wouldn't be any logging," was a response from a participant from Pays Plat.
- "Everything is pretty well intertwined, it's not just one value stuck over there, that space, and there is nothing in between," told the participant from Moose Cree.

5.3.1.3 Sacred and Spiritual Sites

The Sacred and Spiritual Sites theme emerged through the elaboration of participants on what these terms mean to them and what types of places can be sacred or spiritual sites. Participants indicated that many different places can be defined as sacred or spiritual sites, and that these two terms can be used interchangeably as well. This theme emerged through the responses from five out of six communities. Examples of the responses include:

- To a participant from Constance Lake, the place of birth is a sacred site.
- To a participant from Pays Plat, a place where rocks are collected is a sacred site. A participant from Stanjikoming pointed out that rocks are sacred.
- Participants from Pays Plat and Stanjikoming pointed out that burial sites are spiritual sites and a participant from Stanjikoming explained that a burial site is a sacred site.
- The participant from Moose Cree stated that a hunting ground, especially the one that is left in reserve for times of hunger, is a spiritual site. The participant also added that spirituality involves everything, respect towards people, hunting customs, children upbringing, customs during women's pregnancies.
- A participant from Stanjikoming noted that a meeting place can be a sacred place.
- Participants from Pays Plat and Ojibways of Pic River pointed out that everything in nature is a spiritual site.

5.3.1.4 Cultural Significance

The Cultural Significance theme emerged from the responses that indicated the cultural roots and cultural connotations of Aboriginal values. This theme emerged in the responses from five out of six communities. Examples of the responses include:

- A participant from Constance Lake expressed that he dreams about his ancestors, believes that they are present and talk to him, and said that because of that he wants to preserve sacred sites. In another response, the same participant cited a clearcut around a community member's trapping cabin and described it as taking livelihood and culture away.

- A participant from Lac des Mille Lacs pointed out the importance of birch trees to the Ojibway people.
- The participant from Moose Cree responded that the land means life to Aboriginal people and money to the forestry industry and the MNR.

5.3.1.5 Disappearance and Revival of Culture

The Disappearance and Revival of Culture theme emerged through the responses that indicated the disappearance of parts of Aboriginal culture and the responses that, on the other hand, testified to the return of customs that had been discontinued. Participants told about the disappearance of some customs, such as snowshoe making, and the revival of some ceremonies, such as Pow-Wows, and Sweat Lodges. This theme emerged from the responses from four out of six communities. Examples of the responses include:

- A participant from Constance Lake told that the snowshoe making craft has been disappearing throughout the course of his life, fearing that new generations are losing their Aboriginal identity.
- A participant from Stanjikoming spoke in the past tense about the culture of respect for killed animals, such as beaver, complete utilization of the meat, and ritualistic disposal of the bones in the water.
- A participant from Pays Plat pointed out that Pow Wow ceremonies, present in the community today, did not exist some 60 years ago when he was a small boy.
- The return of Pow Wow ceremonies was also mentioned by a participant from Stanjikoming.

5.3.1.6 Sources of Values

The Sources of Values theme emerged from the responses that emphasized the role of community elders and an inter-generational exchange of information to identify and define Aboriginal values. This theme emerged in the responses from four out of six communities. Examples of the responses include:

- Participants from Lac des Mille Lacs and Ojibways of Pic River pointed out that elders in the communities are keepers of the information on Aboriginal values.
- A participant from Lac des Mille Lacs reminded that traditional knowledge in Aboriginal societies is oral, not written.
- The participant from Moose Cree explained that traditional ecological knowledge is passed from generation to generation.
- A participant from Stanjikoming told that he teaches young people how to trap.

5.3.1.7 Historical Use

The Historical Use theme emerged from the responses that expressed land use in historical terms. When describing values, some participants depicted historical use of land by Aboriginal people. This theme emerged in the responses from three out of six communities. Examples of the responses include:

- A participant from Lac des Mille Lacs described how the life of members of his community used to be nomadic, with people covering large area and moving around in family units by using navigable rivers and lakes.
- A participant from Pays Plat suggested that Aboriginal values should include past values as well.

- A participant from Stanjikoming told that community members used to go outside the reserve to trap, fish, pick blueberries and rice. He also said that waterways were used like highways.

5.3.1.8 Land Use Right

The Land Use Right theme emerged from the responses that emphasized that land belongs to Aboriginal people and that they have a right to it. This theme emerged in the responses from three out of six communities. Examples of the responses include:

- A participant from Constance Lake told that Aboriginal people have a right to control developments on the land.
- A participant from Pays Plat said that the land belongs to Aboriginal people.
- "We never said we owned it [the land]. We have rights to it. You [non-Aboriginal people] have privilege. Big difference, eh?" was a response from a participant from Stanjikoming.

5.3.1.9 Waterways

The Waterways theme, representing navigable rivers and lakes, emerged from the responses that pointed the historical importance of waterways for traveling and thus their importance in spatially referencing different Aboriginal values. This theme emerged in the responses from three out of six communities. Examples of the responses include:

- Participants from Lac des Mille Lacs, Pays Plat, Stanjikoming, told that rivers used to be highways to Aboriginal people.
- Participants from Pays Plat told that campsites would be located by the rivers.

- Participants from Pays Plat and Stanjikoming pointed out that burial sites are usually located along the rivers.

5.3.2 Category II: Impacts on Values

The Impacts on Values category emerged from the data analysis and is comprised of six themes: Cumulative Effects, Social Changes, Diminished Resources, and Forest Management Operations.

5.3.2.1 Cumulative Effects

The Cumulative Effects theme emerged from the responses that cited non-forestry resource developments and activities that negatively impact Aboriginal values. Developments cited were dam building for the forest products industry, hydroelectric projects, and water level regulation, and mining. Activities cited were hunting, commercial fishing, and recreational use. This theme emerged in the responses from five out of six communities. Examples of the responses include:

- A participant from Constance Lake told that a local hydroelectric dam caused draining of a local river and disappearance of fish.
- A participant from Lac des Mille Lacs pointed out that the damming of the Seine River caused flooding on the reserve and eventual abandonment of it.
- A participant from Stanjikoming told that a local paper-mill dam in Fort Frances raised the water levels, which flooded burial sites, and disrupted wild-rice growing areas, muskrat trapping, fish spawning areas, and duck feeding areas.

- Another participant from Stanjikoming said that snowmobilers disrupt his beaver trapping and pointed out that commercial fishing on Rainy Lake has reduced the fish stock in the lake.
- Participants from Constance Lake and Pays Plat told that hydro-electric projects cause flooding of the burial sites.
- Participants from Pays Plat, Moose Cree, and Stanjikoming cited mining and related water pollution as concerning.
- The expansion of a nearby saw mill and suspected pollution was cited by the participants from Constance Lake as a reason that the ducks stopped migrating to the local lake.
- Participants from Stanjikoming told that pictographs on a nearby cliff have been sprayed over by off-reserve youth who come to the cliff for lake diving.
- The participant from Moose Cree pointed out that logging roads open the area for mining, making the area easily accessible for recreational hunters and also bringing wolves into the area, who follow the roads and prey on the angulates.

5.3.2.2 Social Changes

The Social Changes theme emerged from the responses that indicated social changes that might have had as a consequence a discontinuation of value usage or a gradual loss of value knowledge. The social changes mentioned by the participants were community relocations, reserve abandonment, and waning of values knowledge-sharing between generations which is coupled with the passing of mostly elderly knowledge keepers. This theme emerged in the responses from three out of six communities. Examples of the responses include:

- Participants from Constance Lake told that their community has been relocated two times during the present generation.
- Abandonment of Lac des Mille Lacs reserve because of flooding, which occurred due to river damming, and subsequent scattering of community members to the towns and cities in the region and wider, was cited by a participant from Lac des Mille Lacs as a cause of the loss of knowledge on Aboriginal values.
- A participant from Stanjikoming told that she does not know where the burial sites are and that she would need to consult the elders to find it out.

5.3.2.3 Diminished Resources

The Diminished Resources theme emerged through the responses that indicated a reduction in animal populations. Participants talked about the decrease in fish stocks and disappearance of caribou. This theme emerged from the responses from three out of six communities. Examples of the responses include:

- Participants from Pays Plat and Stanjikoming told about the disappearance of caribou.
- Participants from Constance Lake and Stanjikoming stated that there has been a decrease in fish stocks.

5.3.2.4 Forest Management Operations

The Forest Management Operations theme emerged from the responses that indicated various impacts of forest management operations on the wildlife, plants, and environment. The types of impacts include: absence of various wildlife species in clearcut areas, pollution from logging machines, aesthetic impacts of clearcuting,

negative impacts of road access, and aerial spraying. Although the majority of the responses in this theme expressed concerns about the impacts of forest management practices, some pointed to the positive outcomes of harvesting, in particular the creation of conditions for hunting. This theme emerged in the responses from all six communities. Examples of the responses include:

- Participants from all six communities expressed concerns about the absence of animals, such as moose, caribou, and marten, in clearcuts. Some participants from Constance Lake and Stanjikoming told that moose are absent from clearcuts; a participant from Constance Lake said that moose come only to feed in clearcuts but stay close to the surrounding forest cover. The participant from Moose Cree told that caribou avoid clearcuts for their winter habitat. However, some participants from Ojibways of Pic River and Lac des Mille Lacs pointed out that clearcuts are places that are preferable for moose hunting.
- Participants from Pays Plat and Stanjikoming told that forestry machines cause fuel and oil pollution.
- Participants from Pays Plat, Ojibways of Pic River, and Stanjikoming, pointed out that clearcuts sometimes stretch to the edge of a highway or a lake, without buffers.
- Participants from Pays Plat, Moose Cree and Stanjikoming cited the negative impacts of the logging roads because they provide easy access to external hunters. On the other hand, a participant from Ojibways of Pic River told that the logging roads are beneficial because they provide easier access to hunting for Aboriginal people.

- Participants from Pays Plat, Ojibways of Pic River, and Moose Cree singled out clearcuts as an especially disliked forest management impact.
- Participants from Constance Lake, Ojibways of Pic River, and Stanjikoming, expressed concerns about aerial spraying. Participants from Constance Lake and Stanjikoming particularly mentioned the detrimental effect of spraying on blueberry patches, and a participant from Stanjikoming expressed concerns about wind drifts during aerial spraying and told that aerial spraying kills medicinal plants.

5.3.3 Category III: Values Protection

The Values Protection category that emerged from the data analysis is comprised out of five themes: Importance of Protection, Specific Treatment, Confidentiality, Wildlife, and Waterways.

5.3.3.1 Importance of Protection

The Importance of Protection theme emerged from the responses that expressed the importance of Aboriginal values to Aboriginal people. Participants spoke about the attachment of Aboriginal people to the land and the responsibility to protect what previous generations have protected. This theme emerged in the responses from five out of six communities. Examples of the responses include:

- "You feel that you have an obligation to take care of that land because your ancestors did that in the past," was a response from a participant from Constance Lake.

- The participant from Moose Cree told that Aboriginal people are tied to the land and generations stay on it, as opposed to the people working for the forestry industry or the MNR, who tend to move elsewhere.

5.3.3.2 Specific Treatment

The Specific Treatment theme emerged from the responses that pointed out the need to treat each Aboriginal value individually and with a direct involvement of the value user. This theme emerged in the responses from four out of six communities. Examples of the responses include:

- Participants from Lac des Mille Lacs and Ojibways of Pic River stated that trappers should be consulted individually when their trapping cabins are affected.
- Participants from Lac des Mille Lacs and Pays Plat told that Aboriginal values should be considered individually; that there should not be the same protection rule applied to all values of the same type.

5.3.3.3 Confidentiality

The Confidentiality theme emerged from the responses that pointed out a need for confidentiality in treating Aboriginal values. Participants spoke about the confidentiality of the information that is provided for forest management planning purposes and of the value locations in the landscape in the situations where the values are conspicuously left buffered in a clearcut area. The exception to these responses was a participant from Constance Lake who told that burial sites are visible by nature and, while they should be respected and not disturbed, confidentiality does not play a major

role in their protection. This theme emerged in the responses from five out of six communities. Examples of the responses include:

- Participants from Constance Lake told that fish spawning sites displayed on publicly accessible maps get soon after used by the general public. A participant from Constance Lake also said that he would rather not give information about sacred sites to an FMP planning team, fearing that it might become publicly available.
- A participant from Stanjikoming told that burial sites should not be shown on values maps because then they get exposed to vandalism.
- Participants from Lac des Mille Lacs, Moose Cree, and Ojibways of Pic River told that a buffered Aboriginal value, such as a burial site, in a clearcut area makes that value conspicuous and more exposed to possible vandalism.
- One participant from Constance Lake told that the physical confidentiality of the burial sites is not a major concern because burial sites are visible in the forest. Another participant from Constance Lake told that the confidentiality of burial sites is a must; in his view, only Aboriginal people who take care of a burial site should be visiting that site.

5.3.3.4 Wildlife Habitat

The Wildlife Habitat theme emerged from the responses that indicated a need for a better protection of wildlife habitat in forest management. Participants expressed the need to maintain larger riparian buffers, leave more trees, and protect specific habitats for species such as moose, caribou, and marten. This theme emerged from the responses from three out of six communities. Examples of the responses include:

- Participants from Constance Lake commented that riparian buffers of 30 m are not wide enough for moose, who prefer habitats close to water. They also talked positively about the checkerboard harvest methods used in the 1980's, but concluded that these areas were eventually cut too soon, after 10-15 years, instead of 40-50 years.
- The participant from Moose Cree told that he witnessed caribou late winter areas on the upland being harvested and suggested that parts of these types of areas should be protected. He pointed out that caribou prefer upland lichens to tamarack-based lichens in bogs.

5.3.3.5 Waterways

The Waterways theme emerged from the responses that emphasized the importance of waterways for the protection of Aboriginal values. The participants spoke about a need to have wider buffers around navigable water bodies that would protect the possible burial sites, provide shelter for wildlife, and serve as a visual protection from clearcuts for the water travelers. This theme emerged from the responses from five out of six communities. Examples of the responses include:

- Participants from Constance Lake expressed the need to have wider buffers around navigable water bodies for wildlife shelters and burial site protection.
- Participants from Lac des Mille Lacs told that buffers along the rivers should be wider than 30m in order to include the protection of the burial sites that cannot be precisely located and to serve as a visual protection.

- A participant from Stanjikoming said that more trees should be left around the lakeshores and that buffers around the lakes should be wider to provide visual protection.

5.3.4 Category IV: Values Process

The Values Process category emerged from the data analysis and is comprised out of three themes: Values Mapping, Community Involvement, and Futility.

5.3.4.1 Values Mapping

The Values Mapping theme emerged from the responses that indicated the importance of mapping values in maintaining culture and regaining control over the land. This theme emerged from the responses from three out of six communities. Examples of the responses include:

- A participant from Lac des Mille Lacs pointed out that values mapping helps in transferring information about values between generations, and a participant from Pays Plat told that values mapping enables people in the community to learn about the values that other members use.
- The participant from Moose Cree told that values mapping in the hands of First Nations can help them to regain the control of the land that they lost through the years of colonization.

5.3.4.2 Community Involvement

The Community Involvement theme emerged from the responses that emphasized the need for Aboriginal communities and Aboriginal values users to be directly involved in discussing values protection. Participants acknowledged the

existence of Information Centres, but told that these centers are poorly attended. This theme emerged from the responses from four out of six communities. Examples of the responses include:

- Participants from Constance Lake, Lac des Mille Lacs, and Pays Plat told that Aboriginal people should get directly involved in discussing how to protect Aboriginal values.
- Participants from Constance Lake and Ojibways of Pic River acknowledged that there are Information Centres, as part of a public consultation process during forest management planning, but told that these centres are poorly attended.

5.3.4.3 Futility

The Futility theme emerged from the responses that indicated a resignation on the part of participants about the effectiveness of their comments or complaints during the FMP process. Participants told of pointlessness in getting involved in values protection because their comments and complaints would get ignored. As an exception to this, a participant from Ojibways of Pic River told that avenues for involvement, such as Information Centres are available, and that forestry companies are willing to accommodate. This theme emerged from the responses from all six communities. Examples of the responses include:

- Participants from Constance Lake told that complaints and suggestions about forest management operations are ignored and the consultations that occur cannot have any impact because the decisions have already been made by that time.

- A participant from Lac des Mille Lacs pointed out that after a history of neglect of Aboriginal values by the forestry establishment, some Aboriginal elders think that it is too late to engage in the protection of something that they see only as remnants of the values used throughout history.
- Participants from Pays Plat told that complaints and comments during FMP are unheeded. "Probably they had talked about it [his trapline] in these meetings, but I don't really attend them because I just gave up, because when you say something that they don't want, they don't really listen to you ...," was a response of one of them.

5.3.5 Category V: Forest Management

The Forest Management category emerged through the data analysis and it consists out of two themes: View of Forest Management and Revenue Sharing.

5.3.5.1 View of Forest Management

The View of Forest Management theme emerged through the responses that indicated participants' views of forest management as a natural resource industry. Participants had a range of opinions, from opposition to acceptance and interest. Forest management is opposed because of tree removal and the impact it has on Aboriginal values, and forest management is accepted and interest shown in it because of economic opportunities and job creation. When accepting forest management, participants cautioned that it should be carried out in an ecologically sensitive way. This theme emerged from the responses from four out of six communities. Examples of the responses include:

- A participant from Stanjikoming told that she is against any more tree cutting in the traditional lands.
- Participants from Constance Lake told that since the traditional land use activities have been affected regardless, the community wants to get involved in forestry, but the management has to be done wisely. Constance Lake participants were also employees of the community's logging company, and were complaining that the company's operations have ceased recently.
- A participant from Pays Plat told that trees should be harvested to prevent them from going to waste or burning in a fire. Another participant from Pays Plat stated that there is nothing positive in forest management for a trapper, but also told that there might be ways of reaching consensus between the forestry industry and the community.

5.3.5.2 Revenue Sharing

The Revenue Sharing theme emerged from the responses that pointed out to the need for Aboriginal communities to receive a share of forestry revenues. This theme emerged through the responses in three out of six communities. Examples of the responses include:

- Participants from Constance Lake told that a trusting relationship between Constance Lake community, the government, and the forestry industry should be developed, and that there should be a sharing of revenues. "They've been harvesting this area for around 50 years now, they've got everything on the table, but us, we are down here [under the table], picking crumbs" was a response from a participant from Constance Lake. Another participant from Constance Lake

told that there should be some compensation for the information on Aboriginal values.

- Participants from Lac des Mille Lacs and Pays Plat told that some revenue from the forest management should be directed to Aboriginal communities.

5.4 INDIVIDUAL VALUES

5.4.1 Category I: Trapping

The Trapping category relates to the discussions on the trapping topic in the Interview Agenda and is comprised of three themes: Clearcut Impact, Trapping Significance, and Trapping Protection.

5.4.1.1 Clearcut Impact

The Clearcut Impact theme emerged from the responses that pointed out to the impacts that clearcuts have on trapping. Participants stated that trapping animals, such as marten, fisher, and lynx, are absent from the clearcut areas and that they do not return to these areas for many years after. They also pointed out that trapping and clearcut-based forest management are incompatible, because the types of forests that are valued the most by the trappers, such as mature jack pine and spruce forests, are also sought after by the forestry industry. This theme emerged from the responses from five out of six communities. Examples of the responses include:

- Participants from Pays Plat and Stanjikoming told that animals such as marten, fisher, and lynx, move out from the clearcut areas.
- Participants from Pays Plat told that it took around 10-15 years for marten to come back to clearcut areas in their respective traplines.

- Participants from Pays Plat and Stanjikoming pointed out that forests valued by trappers, such as mature conifer forests that are marten habitats, are also sought after by the forestry industry.

5.4.1.2 Trapping Significance

The Trapping Significance theme emerged from the responses that described the importance of trapping. Participants told that trapping is a treaty right, that traplines are managed and passed between generations, and that trapping brings enjoyment of wildlife and nature. Some participants noted that trapping is rarely practised. This theme emerged from the responses from four out of six communities. Examples of the responses include:

- A participant from Constance Lake told that trapping is guaranteed to Aboriginal people as a treaty right.
- Participants from Constance Lake, Pays Plat, and Stanjikoming, pointed out that trapping brings pleasure and enjoyment of wildlife and nature.
- The participant from Moose Cree told that traplines are managed for the next generations as well.
- Some participants from Lac des Mille Lacs and Stanjikoming told that trapping is rarely practised.

5.4.1.3 Trapping Protection

The Trapping Protection theme emerged from the responses that discussed proposals to protect trapping during forest management. Participants spoke of wider riparian buffers and generally leaving more trees after tree harvest. Some harvest

methods were viewed as potentially more beneficial to trapping, namely Careful Logging Around Advance Growth (CLAAG) and selection cutting. This theme emerged from the responses from four out of six communities. Examples of the responses include:

- Participants from Pays Plat and Stanjikoming suggested that riparian buffers wider than 30 m should be left in order for animals to stay in these areas.
- Participants from Constance Lake told that CLAAG method should be practised not only in the lowlands, but also on upland sites.
- The participant from Moose Cree pointed out that a strip-cut harvest method in his trapline resulted in more animals staying in the affected area, compared to other areas that were clearcut.
- A participant from Pays Plat told that there should be selection cuts that leave more trees standing. His proposal was to retain approximately 60% of trees.

5.4.2 Category II: Trapper's Cabin

The Trapper's Cabin category represents discussions on the trapper's cabin topic in the Interview Agenda, which occurred during the presentation of the trapper's cabin model. This category consisted of three themes: Trapping, Wind, Firewood, and Protection Proposals.

5.4.2.1 Trapping

The Trapping theme emerged from the responses that indicated the importance of trapping when discussing protection of a trapper's cabin. Participants pointed out that the sole purpose of a trapper's cabin is to use it to carry out trapping in a particular area

and that trapping should also be the subject of protection, not only the cabin. This theme emerged from the responses from five out of six communities. Examples of the responses include:

- Participants from Constance Lake and Pays Plat suggested that a 120 m buffer around a cabin might be an appropriate level of protection for a recreational cottage, but that the main purpose of building a trapper's cabin is to trap in a particular area, requiring a protection of a larger area than what a 120 m buffer covers.
- Participants from Lac des Mille Lacs and Ojibways of Pic River pointed out that trapping in the cabin's surroundings is important too.
- The participant from Moose Cree told that a trapper's cabin surroundings are usually used to teach children how to trap and for women to set rabbit snares.

5.4.2.2 Wind

The Wind theme emerged from the responses that indicated wind as one of the factors to consider when protecting a trapper's cabin. Some participants pointed out that a 120 m buffer surrounded with a clearcut area would expose the cabin to more wind. An exception to this was a participant who told that a 120 m buffer protects the cabin from the wind. This theme emerged from the responses from all six communities. Examples of the responses include:

- Participants from Lac des Mille Lacs, Pays Plat, Moose Cree, and Stanjikoming told that a 120 m buffer surrounded with a clearcut area would expose the trapper's cabin to more wind.

- A participant from Constance Lake told that a 120 m buffer protects the trapper's cabin from the winds.

5.4.2.3 Firewood

The Firewood theme emerged from the responses that indicated the importance of available firewood for a trapper's cabin. Participants told that having a 120 m buffer surrounded with a clearcut area will result in a shortage of firewood. This theme emerged from the responses from two out of six communities. Examples of the responses include:

- Participants from Lac des Mille Lacs and Moose Cree told that a clearcut area around a 120 m buffer will mean a shortage of firewood for a trapper's cabin.

5.4.2.4 Protection Proposals

The Protection theme emerged from the responses that proposed different protection measures for a trapper's cabin. Participants proposed a larger buffer, a design of a protective area that is specific to local circumstances, or a selection cut rather than a clearcut around a buffer. This theme emerged from the responses from four out of six communities. Examples of the responses include:

- A participant from Constance Lake told that a buffer around a trapper's cabin should be at least one kilometer wide.
- A participant from Pays Plat told that a buffer around a trapper's cabin should be at least 500 m and that the harvest around the buffer should be a selection cut, not clearcut.

- The participant from Moose Cree told that a buffer around a trapper's cabin should be a few miles wide.
- A participant from Stanjikoming told that a 120 m buffer is not sufficient and rather than proposing a buffer width, he opted to propose a buffer design that was specific to the situation in the presented model, by pointing out on the screen where the buffer should be placed.

5.4.3 Category III: Burial Site

The Burial Site category represents discussions on the burial site topic in the Interview Agenda, which occurred during the presentation of the burial site model. This category consists of seven themes: Locality, Cultural Treatment, Extent, Confidentiality, Site Attractiveness, Impacts, and Protection.

5.4.3.1 Locality

The Locality theme emerged from the responses that described issues related to burial sites' localities. Participants pointed out that because of the culture of burying deceased people at the location on the land where they happened to die, the burial sites are scattered throughout the land, but because Aboriginal People were strongly connected to the rivers and lakes, most of the burial sites are along waterways. However, the general location or exact position of many of these burial sites is not known to Aboriginal people. The Locality theme emerged from the responses from four out of six communities. Examples of the responses include:

- Participants from Lac des Mille Lacs, Pays Plat, Ojibways of Pic River, and Stanjikoming told that burial sites are where people died, meaning that they are scattered in the landscape.
- Participants from Lac des Mille Lacs, Pays Plat, and Stanjikoming pointed out that burial sites are located mostly along the waterways.
- Participants from Lac des Mille Lacs, Pays Plat, and Stanjikoming told that the location of many burial sites is unknown.

5.4.3.2 Cultural Treatment

The Cultural Treatment theme emerged from the responses that described cultural attitudes towards burial sites. Some participants stated that they were told by their families about the general area of a burial site and to avoid the site; other participants told that they have visited burial sites. Participants also told that burial sites should be given a high respect. This theme emerged from the responses from four out of six communities. Examples of the responses include:

- Participants from Lac des Mille Lacs and Pays Plat told that they have not visited burial sites because they were told in their families not to go close to the burial sites.
- Participants from Moose Cree and Stanjikoming told that they have been visiting a burial site.
- Participants from Pays Plat and Stanjikoming told that burial sites should be given a high respect.
- The participant from Moose Cree told that he would not cut a tree for firewood anywhere near a burial site.

- A participant from Stanjikoming pointed out that trees are supposed to be around a burial site because burial sites are purposely placed amongst the trees.

5.4.3.3 Extent

The Extent theme emerged from the responses that indicated that a burial site can cover more than one grave. Participants told that some burial sites mark former battle grounds, from the historic wars between various Aboriginal Peoples, where many people died. This theme emerged from the responses from two out of six communities. Examples of the responses include:

- Participants from Pays Plat and Stanjikoming told that burial sites can represent more than one grave. Participants from Pays Plat pointed out that a burial site can be a site of a historic battle between Aboriginal Peoples, in which case it encompasses a larger area.

5.4.3.4 Site Attractiveness

The Site Attractiveness theme emerged from the responses that indicated that burial sites are sometimes in places that are attractive to recreationalists or cottagers, which then can result in their desecration or destruction. This theme emerged in the responses from three out of six communities. Examples of some of the responses include:

- A participant from Lac des Mille Lacs told about burial site locations on Lac des Mille Lacs that have been used for tourist outfitter camps.
- A participant from Stanjikoming told about a cabin being built on top of his brother's clearly marked grave.

- The participant from Moose Cree pointed out that buffer-protected burial sites along rivers may become attractive spots for recreational river travelers.

5.4.3.5 Impacts

The Impacts theme emerged from the responses that described different impacts on burial sites. Participants talked about impacts such as looting and shoreline and overall harvesting. This theme emerged from the responses from four out of six communities. Examples of the responses include:

- Participants from Lac des Mille Lacs, Pays Plat, and Stanjikoming cited looting as one of the concerns when it comes to burial sites.
- Participants from Constance Lake, Lac des Mille Lacs, and Stanjikoming said that shoreline harvesting affects burial sites located along water bodies.

5.4.3.6 Protection

The Protection theme emerged from the responses that commented on the protection presented in the burial site model and proposed alternatives. The participants told that the main goal should be the protection of the shores of navigable waterways where there are probably many burial sites, many of them with unknown locations. Participants had differing opinions in regards to the 120 m buffer around a burial site. Some participants said a buffer like that would be sufficient, while others said it would not, and some participants avoided stating their opinion. This theme emerged from the responses from all six communities. Examples of the responses include:

- Participants from Constance Lake, Lac des Mille Lacs, Pays Plat, and Stanjikoming said that protective buffers should be left along the waterways . Proposed buffer widths were from 100 m to 1000 m.
- Participants from Constance Lake told that a 120 m buffer around a burial site is sufficient with the condition that protection is arranged with the burial site's steward.
- Some participants from Pays Plat told that a 120 m buffer protection of a burial site is appropriate, while other participants from Pays Plat and a participant from Stanjikoming told that the protective area should be larger, some 2-3 square miles, because there might be other burial sites around as well.
- Some participants from Stanjikoming told that a 120 m buffer is insufficient. The participant from Moose Cree told that a 120 m buffer would result in a clearcut being offensively close to a burial site.
- Participants from Ojibways of Pic River declined to give their opinion about how a burial site should be protected and stated that the community should get involved in a burial site protection.

5.4.4 Category X: Spiritual Site

The Spiritual Site represents discussions on the spiritual site topic in the Interview Agenda, which occurred during the presentation of the spiritual site model. Spiritual sites were referred to by participants as places such as vision-quest sites, fasting sites, or any site that would be experienced as spiritual. The category consists of five themes: Usage, Significance, Locality, and Protection.

5.4.4.1 Usage

The Usage theme emerged from the responses that described usage of spiritual sites by the participants. Participants told that they perform ceremonies such as tobacco offerings, sweat lodges, and fasting. Some participants told that they do not use spiritual sites. This theme emerged from the responses from four out of six communities. Examples of the responses include:

- A participant from Constance Lake told that some places in the forest bring him a special experience and that he goes to these places regularly, yearly or so.
- A participant from Pays Plat told that he has not visited spiritual sites recently, and that before he had visited spiritual sites twice.
- Participants from Lac des Mille Lacs, Pays Plat, and Ojibways of Pic River told that they do not visit spiritual sites.
- Participants from Pays Plat and Stanjikoming told that they do tobacco offerings.

5.4.4.2 Significance

The Significance theme emerged through the responses that indicated the importance of the spiritual sites to the participants. Participants told about the cultural significance of spiritual sites and their importance to Aboriginal identity. This theme emerged from the responses from two out of six communities. Examples of the responses include:

- A participant from Constance Lake pointed out that he considers his birth place to be a spiritual site and that he would like to protect that site for future generations.

- A participant from Constance Lake told that visiting a spiritual site makes him feel Indian again.
- A participant from Pays Plat told that money should not be considered when it comes to the protection of spiritual sites.

5.4.4.3 Locality

The Locality theme emerged from the responses that described different locality characteristics for spiritual sites. Spiritual sites were described as either having a permanent location, or as a general area within which a spiritual site location is selected every year, or as having no predetermined location. This theme emerged from the responses from four out of six communities. Examples of the responses include:

- Participants from Stanjikoming told that there is a known spiritual site, a fasting site, on a nearby island. A participant from Stanjikoming, an elder, told that the site has been designated as such since before his grandmother's time.
- A participant from Constance Lake told that sweat-lodge and shaking tent ceremonies do not have a predetermined location, but that they can be performed anywhere.
- A participant from Pays Plat told that tobacco offerings and smudging ceremonies can be performed anywhere and that the sweat-lodge ceremony is performed in a specific area.
- A participant from Stanjikoming told that she at first goes to one general area to perform a spiritual ceremony and then chooses the exact location for the ceremony within that general area.

5.4.4.4 Protection

The Protection theme emerged from the responses that commented on the protection presented in the spiritual site model and proposed alternatives. Participants told that a 120 m buffer is not adequate because the area around a spiritual site should be undisturbed and left natural. An exception was a participant who told that a 120 m buffer around a spiritual site is adequate. Suggested measures of protection were riparian buffers, preservation of ceremonial plants, and preservation of naturalness. This theme emerged from the responses from all six communities. Examples of the responses include:

- Participants from Pays Plat, Ojibways of Pic River, Moose Cree, and Stanjikoming told that the area around a spiritual site should be left natural and undisturbed. They did not specify how large that area should be.
- A participant from Stanjikoming told that protection would ensure that the plants that are needed for a spiritual ceremony can be found in the general area of a site.
- A participant from Pays Plat told that a 120 m buffer around a spiritual site would be adequate but with the condition that the community gets involved with designing the protection.
- A participant from Constance Lake said that to him his birthplace is a spiritual site and that protection would mean to keep that place quiet, not to build roads close to it. Another participant from Constance Lake said that to him spiritual sites are close to the rivers and that protection of river banks would also guarantee the protection of spiritual sites. He proposed 1-2 km buffers around navigable waterways.

5.5 MAPPING MEDIA

5.5.1 Category I: Mapping Media Perceptions

The Mapping Media Perceptions category represents discussions on the mapping media topic in the Interview Agenda (see Chapter 4, Section 4.4.3.2, Point 4) and is comprised of five themes: Plain Map, Forestry Map, Aerial Photo, and VR GIS.

5.5.1.1 Plain Map

The Plain Map theme elicited responses that were comments on the applicability of a plain map in mapping Aboriginal values and discussing their protection. Participants saw a plain map as being less confusing than other media and the Forestry Map in particular. This theme elicited responses from two out of six communities. Examples of the responses include:

- Participants from Lac des Mille Lacs had a perception that the plain map would be most appropriate for the Aboriginal elders, other media being too complex and confusing.
- A participant from Stanjikoming told that he prefers the plain map to the forestry map because the forestry map looked too confusing with the different colours on it.

5.5.1.2 Forestry Map

The Forestry Map theme elicited responses that were comments on the applicability of a forestry map in mapping Aboriginal values and discussing their protection. Participants had a range of responses, from commenting that the map is too

confusing, to preferring it for use for mapping Aboriginal values. This theme elicited responses from all six communities. Examples of the responses include:

- Participants from Constance Lake, Lac des Mille Lacs, Ojibways of Pic River, and Moose Cree, commented that their previous exposure to the forestry maps has made it easy for them to read the presented forestry map.
- A participant from Pays Plat noted that a forestry map allows for a quick overview of the whole area.
- Participants from Stanjikoming told that the forestry map was too confusing.

5.5.1.3 Aerial Photo

The Aerial Photo theme elicited responses that were comments on the applicability of an aerial photo in mapping Aboriginal values and discussing their protection. Participants had a range of responses, from commenting that aerial photos can have landscape features, such as small ponds, obscured, to saying that aerial photos make landscape features easy to recognize and find. This theme elicited responses of five out of six communities. Examples of the responses include:

- A participant from Lac des Mille Lacs, who had experience in working with aerial photos, told that sometimes features, such as a small pond, can be obscured on an aerial photo because of the sun reflection and that a map becomes more reliable in such situations.
- Participants from Constance Lake, Pays Plat, and Moose Cree, told that aerial photos make landscape features easy to recognize and find.

5.5.1.4 VR GIS

The VR GIS theme elicited responses that were comments on the applicability of a VR GIS model to map Aboriginal values and discuss their protection. Participants told that the advantages of a VR GIS model are that it shows the trees of an area, it makes different animal habitats recognizable, and it allows for a simulation of forest management outcomes. An exception was a participant who told that species images in the model are not good representations of tree species. It should be also noted that the VR GIS media seemed to animate participants and (a) stimulate more detailed discussions about the landscapes, their content and affect and opportunities they pose for hunting and trapping, and (b) evoke experiences and memories about the activities on the land. This theme elicited responses from all six communities. Examples of the responses include:

- A participant from Constance Lake pointed out that a VR GIS model enables for an identification of moose feeding and calving areas.
- Participants from Lac des Mille Lacs and Pays Plat pointed out that a VR GIS model would need to cover a large area, similar to the one used on topographic and forestry maps. Participants from Lac des Mille Lacs and Moose Cree told that VR GIS would be enhanced in combination with a forestry map.
- Participants from Constance Lake, Pays Plat, and Stanjikoming told that the VR GIS model is good because it shows trees on the landscape. "Well, ... the trees are there, you know what you are looking at, in a map, you know, you are going by the map, it's just like, OK, you want to go to a certain point, you go by map, but when they show the trees right up on, that's what I like about it" was a response from a participant from Pays Plat.

- "Now I understand that there is moose here, he will come and eat here, because there is muskeg, and there is ducks that live on the creek and the muskeg and they got protection from the trees. Now if the beaver build the dam here, you will know, you will have other things going on in there. OK?", commented a participant from Pays Plat on a VR GIS model.
- "Because the beaver like these kind of places, a little lake there, and this creek here. They would dam this, dam that here, and over here by the lake, and they would have some food here," was a response by a participant from Stanjikoming while observing a VR GIS model.
- "From the trapper's cabin usually by lake like that [pointing to a lake in the model] we got one trail that goes off that way and by the lake there is another trail and behind the cabin we got another trail and across the lake another trail," was a response by a participant from Pays Plat while looking at the trapper's cabin model and describing how he would use the area around the cabin.

Table 4. Summary of categories and themes

Category	*Origin	Theme	Theme raised in # of communities
Values Definition	DA	Meaning of Value	5
		Holistic Spatial Definition	5
		Sacred and Spiritual Sites	5
		Cultural Significance	5
		Disappearance and Revival of Culture	4
		Source of Values	4
		Historical Use	3
		Land Use Right	3
		Waterways	3
Impacts on Values	DA	Cumulative Effects	5
		Social Changes	3
		Diminished Resources	3
		Forest Management Operations	6
Values Protection	DA	Importance of Protection	5
		Specific Treatment	4
		Confidentiality	5
		Wildlife Habitat	3
		Waterways	5
Values Process	DA	Values Mapping	3
		Community Involvement	4
		Futility	6
Forest Management	DA	View of Forest Management	4
		Revenue Sharing	3
Trapping	IA	Clearcut Impact	5
		Trapping Significance	4
		Trapping Protection	4
Trapper's Cabin	IA	Trapping	5
		Wind	6
		Firewood	2
		Protection Proposals	4
Burial Site	IA	Locality	4
		Cultural Treatment	4
		Extent	2
		Site Attractiveness	3
		Impacts	4
		Protection	6
Spiritual Site	IA	Usage	4
		Significance	2
		Locality	4
		Protection	6
Mapping Media Perceptions	IA	Plain Map	2
		Forestry Map	6
		Aerial Photo	5
		VR GIS	6

* Origin of the category: DA = category emerged from the data analysis, IA = category represents discussions on a topic in the Interview Agenda.

5.6 SUMMARY OF CONVERSATIONS WITH OMNR PERSONNEL

Several main points materialized from the conversations:

- Aboriginal organizations, including Nishnawbe Aski Nation covering Treaty #9 and Union of Ontario Indians were involved in negotiating provisions for Aboriginal consultation and Aboriginal values in the FMPM 1996 and FMPM 2004 respectively.
- Since the introduction of the Aboriginal consultation process and Aboriginal values consideration in the FMPM 1996, there has been a low participation level of Aboriginal communities.
- Some of the reasons for a low rate of completed Aboriginal values projects are lack of capacity in Aboriginal communities and lack of adequate funding for values projects.
- The realization of the difficulties in participation levels caused changes to the consultation process and introduction of a community-designed and driven consultation process into the FMPM 2004 (see Chapter 2, Section 2.3).
- The Aboriginal values process is tied to the FMP planning cycle with its different stages and deadlines which then poses problems in meeting on time delivery of mapping and negotiating the results needed to incorporate into the management plan to unfold.
- To date, there has been no research carried out by the OMNR on the topic of the definition and protection of Aboriginal values in forest management planning.

CHAPTER SIX
DISCUSSION

6.1 INTRODUCTION

Qualitative data analysis results presented in Chapter 5 are derived from the responses by Aboriginal participants. The discussion will serve to examine the significance of the results and their implications for the thesis objectives. Firstly, because the responses include individual views and interpretations, the discussion will examine if the available literature supports results findings. Secondly, since responses often refer to forest management and forest management planning practices and procedures, either in the form of comments or by positing a problem that requires a solution through according practices and procedures, current and recent Ontario's forest management and forest management planning regulations will be analyzed when pertinent as well. Thirdly, when discussing results for the themes, observations will be made about the implications of the findings for defining and protecting Aboriginal values in forest management planning in Ontario. The discussions presentation format will follow the results presentation format by reviewing themes within the categories and in the order they are laid out in Chapter 5.

6.2 GENERAL VALUES

6.2.1 Category I: Values Definition

6.2.1.1 Meaning of Value

Some participants expressed ambiguity about the meaning and definitions of the term 'value' and the concept of values in the context of Aboriginal land use and forest management planning. The ultimate purpose for values in the Ontario's forest management planning is to indicate places and areas in the forest that are affected by the forest management operations and thus need adequate protection. FMPM 2004 does not provide an explicit definition of the Aboriginal values, rather it describes them indirectly in the section on the Aboriginal values map, as "locations of natural resource features, land uses and values, which are used by or of importance to those [adjacent] Aboriginal communities" (OMNR 2004: Part A, 4.6.1). However, the word 'value', if used without its specific description, as in a request to "Please identify Aboriginal values on this forest," can carry multiple connotations. It can be understood as meaning not only valuable locations, but also cultural, social, and belief system values. Also, it can be understood to imply that what is not described as a value is not valuable. These alternative interpretations of the word 'value' can create confusion in the eyes of Aboriginal people. For Aboriginal people the value of the land goes beyond the mere physical use of it, and becomes a cultural, social, and belief system value. Also, the indication of some areas and places of land use as values does not imply that the remaining land is not valuable.

6.2.1.2 Holistic Spatial Definition

Indicating specific values on the land also defies the holistic view of the land that is characteristic to Aboriginal culture. Responses from five out of six communities contained holistic descriptions of or references to Aboriginal values. Because the land use and cultural interactions with the land take place on a spatial continuum, it becomes culturally inappropriate to express land use through a series of dispersed points and places. Drozda (1995: 104) describes the reactions of Yupiit people in Alaska to documenting their cultural sites based on the American National Historic Preservation Act, 1966, that instructs a registration of historic sites and cemeteries that are significant to Aboriginal people. Drozda (1995: 105) observed the frustration of Yupiit people when presented with the non-Aboriginal pattern of compartmentalization, where places are disconnected in their treatment from their surroundings and rated in terms of significance.

6.2.1.3 Sacred and Spiritual Sites

During the interviews, the attributes 'spiritual' and 'sacred' were used interchangeably to describe specific sites, and sometimes holistically, to describe the whole land. There does not seem to be a commonly accepted use for these two words. McGregor (2000: 98) also notes alternating use of attributes to describe a character of an Aboriginal value and concludes that Aboriginal values are seen as holistic and "for the sake of brevity" are described at times as cultural, and at other times as spiritual or physical. The differing understanding of the meaning of 'sacred,' is present in the literature as well. RCAP (1996c: 588) states: "Territory itself is important to Aboriginal nations, but certain areas hold special significance. Ancestral burial grounds or sites for

spiritual ceremonies are considered sacred land." Nepinak and Stock (1998) argue that "To the people of Waterhen First Nation, the land is sacred. ... Everything in the natural world is sacred; it was made and placed on earth by the Creator. Because all things are sacred, all places are sacred." They then clarify this statement by pointing out that characterizing the whole land as sacred does not preclude using the land and carrying out activities such as forest management. However, in doing that, negative effects on traditional land use should be minimized and the First Nation should receive some economic and financial benefits stemming from the natural resource management (Nepinak and Stock 1998). Different understanding of the words such as 'spiritual' and 'sacred,' can pose communication problems in defining and protecting Aboriginal values. For instance, isolating and defining only a specific site as 'sacred,' rather than the whole landscape, might be understood as an affront to Aboriginal cultural understandings of the land. Translation of Aboriginal words into English and the use of English translations in formulating policies and communicating land use plans to Aboriginal people implies dealing with broader and more fundamental challenges in translating between two different language structures and worldviews they represent. For example, Battiste and Youngblood Henderson (2000: 102) argue that Algonquian languages are structurally based on verbs, reflecting the Aboriginal worldview that the world and its phenomena are in constant and interdependent movement and flux, whereas the English language is structured around nouns, reflecting the worldview, as Battiste and Youngblood Henderson (2000: 102) put it, where one is to be "an impartial observer of nature to gain objective knowledge of an external realm of things-objects."

6.2.1.4 Cultural Significance

Aboriginal culture has evolved through land use and has been imprinted back into the land and landscapes. Andrews et al. (1998) describe landscapes used by Aboriginal people as mosaics of culturally significant places where the physical character is often transformed through the attached names and narratives into cultural processes. Howitt (2001) argues that many Aboriginal people see landscapes as "a seamless fabric of physical, spiritual and cultural threads." The result is that Aboriginal values carry cultural connotations for Aboriginal people, but so also do places outside of identified Aboriginal values that do not have a tangible physical use. Through the culture, the land and landscape play a role in forming Aboriginal identity as well. Some Aboriginal people would depict that role as primal, or as a Dene witness to RCAP stated when quoting a Dene elder, "He said we can get rid of all the Dene people in Denendeh, we can all die off for some reason, but if there was another human being came stumbling along and came to Denendeh, the environment will turn him into a Dene person. It's the environment and the land that makes us Dene people" (RCAP 1996a: 639). Lewis (2000) depicts Aboriginal identity as being formed out of the interactions with the land at the abstract and physical level. At the abstract level, land features and their symbolic messages create a connection between the members of a First Nation and link them to their history, becoming a part of social and individual identity. At the physical level, the physical use of the land in a certain cultural context creates social bonds between the land users, and reinforces cultural activities, thus contributing to social and individual identity (Lewis 2000: 170-173).

6.2.1.5 Disappearance and Revival of Culture

Participants pointed to two opposing social processes in Aboriginal communities, the disappearance and revival of Aboriginal culture. Both of these processes have had direct and indirect impacts on Aboriginal people's use and relation with Aboriginal values. Since the time of contact with European colonizers, Aboriginal societies in Canada have gone through and been subjected to numerous and drastic social, economic, and cultural changes. Most of the changes have been imposed upon them by the more powerful colonial British power at first, and, since the establishment of Canadian confederation, by the Canadian government. Governmental policies and initiatives following settlement establishment, namely assimilation policies, relocations, and industrial developments, have been directly causing the disappearance of some parts of Aboriginal culture or creating conditions for it. These changes have also been influenced by the broader social, economic, and technological changes in Canada. The disruption of intergenerational knowledge transfer, compounded with the fact that Aboriginal traditional knowledge is transferred orally, has meant that Aboriginal societies face a loss of knowledge through the passing of their elders (Horvath et al. 2002, Tsuji 1996) The worrisome present situation, however, has deeper historical causes. Usher (1996) notes that in the Subarctic, treaties between the federal government and Aboriginal Peoples were initiated by the federal government as the need arose for the agricultural, transportation, and natural resources use of the land at the end of the 19th and the beginning of the 20th century. This led to the settling of Aboriginal populations on reserves. However, since the settlement, policies in managing natural resources on the Crown lands resulted in abrogation of Aboriginal and treaty rights (Usher 1996). Aboriginal people were prevented from using land in newly formed provincial and

federal parks, they were losing their proprietary type rights in the traplines, and were limited in their hunting rights on Crown lands (Usher 1996). RCAP (1996c: throughout) lists laws such as Gradual Civilization Act, 1857, Gradual Enfranchisement Act, 1869; Indian Act, 1876, and various amendments to it, and residential schools, as parts of a strategy to assimilate Aboriginal people and their culture into non-Aboriginal western society. In the case of Gradual Civilization Act, 1857 and Gradual Enfranchisement Act, 1869, policies aimed at encouraging Aboriginal people to abandon Indian status created a process of devaluing Aboriginal cultural identity (RCAP 1996c: 271-273, 274-276). Through the Indian Act, 1876, and its amendments, certain Aboriginal cultural practices, such as the potlatch and Tamanawas dance, were banned or interfered with in the late 19th century (RCAP 1996c: 291-293). With respect to residential schools, RCAP (1996c) describes them—especially the first decades of residential schools, from the inception in 1879 to the 1940's—as devastating Aboriginal communities, their social and cultural life (RCAP1996c: 334). The explicit intent in that period, by the federal government and the church who were jointly running the program, was a complete assimilation, a systematic erasure of Aboriginal culture by bringing up new Aboriginal generations that are physically, culturally, and spiritually dislodged from their societies and raised to function in and value industrial western society (RCAP 1996c: 337-344). Relocations of Aboriginal communities and industrial development on Aboriginal traditional lands have also had negative impact on Aboriginal culture. RCAP (1996c: 491) states that relocations have a profound impact on Aboriginal culture and their identity, because "the cultural importance of homeland is that it links a people with its past and its future" (RCAP 1996c: 491), and because identity is symbolized in the land through cultural sites, such as burial and ceremonial sites, and through geographical

features, such as mountains and lakes (RCAP 1996c: 491-492). Subsistence is especially important for the maintenance and nurturing of culture. Usher (1996) describes the role of subsistence in Aboriginal culture as a social lynchpin, essential for the reinforcement of kinship, reaffirmation of Aboriginal identity, and intergenerational transmission of skills and values (Usher 1996).

On the other hand, recently and going back several decades, Aboriginal cultural and political movements throughout North America have created a resurgence of traditional Aboriginal culture. Frideres (1993: 309) specifies two of the revitalization movements that have marked cultural resurgence: the pow-wow movement and pan-Indianism. The pow-wow movement centers around pow-wow ceremonies, which are social events that celebrate Aboriginal culture through Aboriginal dance, singing, drumming, regalia, rituals, and customs. Pan-Indianism is a political and cultural movement born in the USA in the 1960's amongst urbanized Aboriginal people who forged a unified Aboriginal identity across tribal divisions and joined forces with Aboriginal traditionalists to advocate cultural renewal and tribal sovereignty (Rawls 1996: 123). Pow-wows too have grown out of the pan-Indian movement according to Rawls (1996: 119). Rawls (1996) notes that the 1980's and 1990's saw a renewed interest in Aboriginal languages and revival of Aboriginal traditional culture manifested through, for example, traditional boat and canoe building, totem-pole carving, and reintroduction of bisons to the Great Plains and Aboriginal reservations in the early 1990s (Rawls 1996: 178-181). Hamilton et al. (1995) point to the efforts of the Poplar Point First Nation in northern Ontario to reintroduce traditional culture into modern day living. Great social and cultural changes in Aboriginal societies have provoked a range of responses by Aboriginal people. There are those who argue that traditional values are

doomed to disappear and that Aboriginal people should embrace Western values, and there are those who advocate for retention of traditional values, or for various degrees of that retention (DesBrisay 1994, Frideres 1993: 307-308). Whichever will be the outcome of the debates and cultural processes in Aboriginal societies, the fact remains that cultural practices once abandoned can be reinstated in some form later on, especially if the abandonment occurred due to historical injustices. This principle carries repercussions for the concept of Aboriginal values in forest management planning, in that land use sites and practices that might have been considered forgotten can resurface in current Aboriginal land use.

6.2.1.6 Sources of Values

Participants stressed the importance of Elders as keepers of the knowledge on Aboriginal values, and of the fact that this knowledge gets transferred orally and between generations. Elders have a status of respect and moral authority in Aboriginal societies and their knowledge and guidance is sought after by members of the community in matters of traditions, culture, spirituality and oral history. The status of being an Elder is attained not only by getting old, but it also involves a recognition by the community of the accumulated knowledge and wisdom, and of the demonstrated living in accordance with traditions (Hamilton et al. 1995, Stiegelbauer 1996). Because Aboriginal values are part of broader ecological, spiritual, and cultural knowledge, the Elders are also authorities on information about the location and significance of Aboriginal values. Traditional Aboriginal knowledge is acquired through personal experiences and oral history passed between generations (Usher 2000). The interesting point in the interviews was that participants who were saying that, for example, they did

not know about the location of burial sites and that the Elders should be asked about that information, were themselves passed their thirties. At that age one would suspect that the majority of intergenerational knowledge transfer has already occurred. Because the transfer of Aboriginal traditional information takes place in the context of direct land use through childhood upbringing, mentorship, and cultural norms (Berkes et al. 2002), the lack of some aspects of Aboriginal knowledge on the part of adult participants might indicate a present discontinuation and/or disruption of Aboriginal land use in Aboriginal communities. This phenomenon was documented by Horvath et al. (2002) in their analysis of a TLUOS on the Dene Tha' First Nation in northern Alberta, and elaborated by Tsuji (1996) in his study of the Fort Albany First Nation community in the James Bay region. Community Elders are indispensable in the process of defining and protecting Aboriginal values. Documentation of their knowledge about Aboriginal values does not only enable for a proper definition and protection of Aboriginal values, but also allows, to a certain degree, for the preservation of Aboriginal culture related to Aboriginal values, in the face of weakened intergenerational transfer of knowledge.

6.2.1.7 Historical Use

Some participants emphasized historical use of Aboriginal values and a desire to include historical values in Aboriginal values. Historical use of values can not only identify historical Aboriginal values, but can also help in identifying present ones and describing their importance. Historical patterns of traveling and land use can indicate areas with a higher probability of containing Aboriginal values and can explain spatial connections between presently used Aboriginal values. Also, the meaning and interpretation of history is different in Aboriginal societies compared to the Western

notion of history. Gulliford (2000) describes the interpretation of history in Aboriginal cultures, not as linear and bracketed into decades and centuries, as in the Western culture's sense, but as circular and boundless. Historical and mythical sites are as important today as they were at the time of their creation (Gulliford 2000: 2).

6.2.1.8 Land Use Right

The right to use land and a sense of stewardship over the land was one of the themes that emerged from the interviews. Aboriginal people have continuously expressed and asserted their rights to the land since the time of contact with European colonists. Usher (1996) notes that "to aboriginal people aboriginal rights are basic rights of existence as distinct peoples or 'nations', including the right to self-government." However, despite the reluctance on the part of Canada's courts to adopt a comprehensive definition of Aboriginal rights, at minimum the rights to hunt, trap, fish, and gather in traditional use and occupancy areas have been recognized by the Canadian government's policies towards Aboriginal people (Usher 1996). These rights were affirmed in the series of treaties that were signed between the Crown and various First Nations in the 19th and 20th century, and presently they are recognized in Section 35 of the Canada's Constitution (The Constitution Act of Canada, 1982). Treaty rights are exclusively in federal jurisdiction and their potential limitation or infringement by provincial laws is subject to the justificatory test established in the *Sparrow* and *Badger* Supreme Court of Canada decisions (Macklem 1997). Still, apart from the legal formulations and definitions, Aboriginal people see their rights to the land bestowed upon them through their relation with the land (Hedican 1995: 112). As RCAP (1996b) stresses, Aboriginal people use Crown land according to their own customary rules, which the governmental

managers are generally not aware of, nor are they aware that "Aboriginal people generally consider state rules an unfortunate imposition" (RCAP 1996b: 525).

6.2.1.9 Waterways

Participants spoke of the historical importance of waterways and significance of waterways in locating Aboriginal values. Waterways, such as rivers and lakes, have historically been essential to Aboriginal people. They were used as transportation routes and fishing sources, and their shores were often chosen as preferable locations for habitation sites (Ames 1977: 211, Hamilton 2000, Turner et al. 2003). RCAP (1996) points out that the Ojibway tribal territories north of Lake Huron—recorded in the 19th century—follow major river systems flowing into the lake (RCAP 1996b: 454). The importance of waterways to Aboriginal people has been also recognized by archaeologists who have been using them as spatial indicators to predict locations of Aboriginal artifacts (Hamilton 2000). More than sources of food and transportation venues, waterways have had a spiritual significance and animate presence in Aboriginal cultures (Yellow Bird 2001, Hamilton et al. 1995), poignantly illustrated in the description of Lake Nipigon by an Aboriginal Elder: "Since time immemorial this lake had been and still is the Mother of all our people who had and still reside in and around its watershed. All of the eighteen rivers that empty into it are her bloodstreams and 36 creeks that also empty into it are her veins ..." (Hamilton et al.1995). Because of their prominence in Aboriginal land use and spirituality, waterways, especially navigable ones, become a crucial component in the identification and protection of Aboriginal values. Values such as camp sites, cabins, and burial sites are expected to be located on the shores of navigable waterways and the protection of areas around waterways might

be requested on part of Aboriginal communities as a way of protecting known and suspected value locations, and to preserve the sacred character of the waterways.

6.2.2 Category II: Impact on Values

6.2.2.1 Cumulative Effects

Participants listed a number of non-forestry types of resource development and land uses that individually and cumulatively have a negative and sometimes detrimental effect on Aboriginal values and Aboriginal land use. Although environmental impacts cited by the participants cannot be verified within the scope of this thesis, environmental impacts of the types of resource development projects that the participants were referring to have been studied and documented.

Flooding and water flow changes caused by large and small scale hydroelectric projects lead to the disruption and destruction of habitats for fish, fur, and big game animals, consequently negatively affecting the harvest and subsistence of local Aboriginal communities. Rosenberg et al. (1997) report on the deleterious effects of floods from large scale hydroelectric projects on commercial fisheries due to disruptions in fish-food organisms, nursery grounds, spring spawning, and migration. Aboriginal communities in Peace-Athabasca Delta in northern Alberta, 700 km downstream from the Bennett Dam in northern British Columbia, experienced sharp declines in harvests of muskrat, fish, and waterfowl following the dam construction (Rosenberg et al. 1997), reaching 95% of harvest reduction over ~15 years in the case of muskrat (Green 1992). Losses in muskrat population due to, in this case, natural floods and freezing, were documented in historical records for Rainy Lake/Lac Seul area in northwestern Ontario, and reported by Lovisek (1994). Diminished harvests in the wake of hydroelectric

projects have also been reported for the Grand Rapids Hydro Project in Manitoba (Loney 1987), Churchill-Nelson River Diversion Project in northern Manitoba and La Grande River Hydro Project in Quebec (Rosenberg et al. 1997). Negative effects on the habitat that supports Aboriginal subsistence are reported for smaller dam projects as well. Usher (2003) states that a network of 18 smaller dams on the Churchill and Winnipeg Rivers in Manitoba and northwestern Ontario caused a loss of habitat for moose, muskrat, wild rice, and ducks on the Lac Seul First Nation reserve. Burial sites are often located along the waterways (see Chapter 3, Section 3.5) and thus are exposed to damages and destruction due to flooding. Tuesday and Tuesday (1998) and Waldram (1993) cite destruction of burial sites and resources caused by dam-induced flooding in the areas of Aboriginal communities in northwestern Ontario and central British Columbia, respectively. The importance of burial sites and their vulnerability to dam flooding is being recognized internationally with other indigenous people as well. Ezzell (2001) depicts the prospects of flooding burial sites around Kunene River, due to a proposed dam at Epupa Falls in Namibia, as one of the main concerns for local indigenous Himba people. The mining industry has been recognized as one of the main contributors, along with the pulp and paper, oil, and hydroelectric industries, to cumulative negative effects on the environment, primarily through pollution (DesBrisay 1994). Two prominent channels of possible pollution from mining projects are pollutant spills and leakages from mining tailings. One participant raised concerns about logging roads creating easier access for wolves to the area to pray on the ungulates. James and Stuart-Smith (2000) found in Alberta a greater than random use of corridors—such as roads with little human use and seismic lines—by wolves and subsequent higher risk of predation for caribou near these corridors. They, however, added that the study did not

show that wolves use corridors to go where they otherwise would not go. The introduction of logging roads into an area brings with it a greater use of that area for recreation, recreational hunting, and fishing. Schindler (2001) notes that easier access, more versatile vehicles, faster boats, and sonar technologies cause a diminishing of fish stocks. It is probably also safe to say that many logging roads are used by Aboriginal people themselves for hunting, accessing fishing lakes, and other land use activities.

Some natural resource development projects and instances of affected Aboriginal values described by participants have been depicted in the literature or have been raised by community members in forums outside of this research, and thus can help in evaluating the accuracy and reliability of participants' statements. Holzkamm and Waisberg's (2000) report that describes a construction of a dam at Fort Frances in 1905 and raising of Rainy Lake water level by ~2.6 m in 1916, seems to support the claim by a participant from the SFN about flooding in the area caused by a dam at Fort Frances. Also, more recently, fluctuations of water levels were brought up as a concern during negotiations between the SFN members and Abitibi Consolitated representatives in the process of producing the Native Background Information Report for the 2002-2007 Crossroute Forest FMP (Abitibi Consolidated 2002). As for the Lac des Mille Lacs, Lovisek's (1994) description of the history of Lac des Mille Lacs supports the claim by the Lac des Mille Lacs participants that the community was forced to abandon its reserve due to artificial flooding. Migratory Ojibway families around Lac des Mille Lacs started to settle at the reserve site in the beginning of 1900s and were eventually forced to leave the reserve in the 1950s (Lovisek 1994). The reason for their departure was the repeated flooding in the reserve caused by the operation of several dams on the Seine River, the principal of which was the Backus dam that was used to impound Lac des

Mille Lacs helping to generate hydroelectric power for a pulp and paper mill in Fort Frances (Lovisek 1994).

Although natural resource developments can have a negative effect on Aboriginal values, it would be erroneous to conclude that Aboriginal communities categorically oppose them. The decisions that communities make regarding involvement in natural resource industries are formed in the context of a community's socio-economic conditions, geographic position, historical contingencies, and internal political forces. There are Aboriginal communities that are engaged in forestry operations and there are communities that are opposed to forestry. In hydroelectric developments a case in point are the Cree people to the east of James Bay in the northern Quebec. The eastern James Bay watershed has been planned for a mega-hydroelectric project by the government of Quebec. The project spans tens of years and consists of three phases that are geographically and temporally separated. The Cree people agreed to the first phase, La Grande Project, in 1972, which also led to the first modern land settlement in Canada, opposed the second phase, the Great Whale River Project, from 1985-1994, and agreed through a plebiscite to the third phase, the Nottoway Basin Project, in 2002 (Bone 2003). Within the acceptable boundaries of environmental impacts, a tradeoff is found between traditional land use and natural resource developments.

Regardless of the community's position on the natural resource development, it can be summarized that when discussing Aboriginal values, Aboriginal people do consider not only the impacts of the natural resource industry in question, such as forestry, but bring into consideration any other natural resource development that potentially compounds negative effects on Aboriginal values.

6.2.2.2 Social Changes

During the interviews, social changes, particularly relocations and discontinuation of inter-generational knowledge transfer, emerged as possible impacts on the use of Aboriginal values. Relocations can have profound effects on the land use, social relations, and culture of Aboriginal communities. RCAP (1996) notes that, although it is sometimes difficult to separate effects of relocation from those of other changes, it has been shown that relocation can be a major cause of "declining health, reduced economic opportunities, increased dependence on government and cultural disintegration" (RCAP 1996a: 490). The transfer of cultural knowledge between generations can be disrupted (RCAP 1996a: 493). Impacts on land use can involve the loss of cultural attachment to homeland landscapes and difficulties in applying cultural knowledge learned in the homeland in the new environment (RCAP 1996a: 491-492). As a result, the outcomes of relocation can mean a disruption of the use of Aboriginal values and a loss of the knowledge about them.

6.2.2.3 Diminished Resources

Some participants from the SFN and Constance Lake talked about the diminished wildlife resources, especially the disappearance of caribou and diminishment of fish stocks. The recession of caribou populations northwards over the 100 years has become common knowledge in forest management. Schaefer (2003) demonstrated the historical shrinkage of the caribou range towards the north and linked the current southern limits of the caribou range with the northern boundaries of forest management activities in Ontario. In terms of fish stocks, there are no reports or studies that give an overview of present or historical levels of fish in the waters outside of Great Lakes in northwestern

and northern Ontario, but the OMNR considers fishing in northwestern Ontario generally one of the least affected in Canada and of highest fishing quality (Terry Marshall, OMNR, pers. comm., March 3, 2005). A lack of an overall quantitative assessment applies to the state of recreational fisheries in Canada as a whole, as well (Post et al. 2002). In Ontario, monitoring program on fish stock levels is being carried out locally, on the lakes that are deemed important (Terry Marshall, OMNR, pers. comm., March 3, 2005). Localized cases of fish decline have been documented however, and one of them was reported for Rainy Lake, nearby the SFN. In 1993, a local newspaper cites the OMNR officials that there was a crisis in walleye fishing on Rainy Lake because of overfishing (Meadows 1993), with some parts of the lake already experiencing crashes in walleye population, and some in danger of crashing. With respect to forest management, an important factor contributing to overfishing has been a creation of access to lakes through logging roads. Gunn and Sein (2000) measured the lake trout, *Salvelinus namaycush*, population in a lake north of Sudbury, Ontario, before and after the establishment of logging road access and found a reduction in the lake trout population of 72% over a winter and spring fishery, within one calendar year. Since Aboriginal values are closely connected with the harvest of animals, which forms and is guided by Aboriginal culture, absence or diminished availability of animals can have a significant impact on Aboriginal culture and subsequently on the use of Aboriginal values.

6.2.2.4 Forest Management Operations

Participants listed a number of effects of forest management operations on Aboriginal values. The comment that was present in the responses from all six

communities was the absence of wildlife species, such as moose, caribou, and marten, from clearcut areas. Digressing from these prevalent views were responses from some participants who stated that they use clearcut areas for moose hunting. Scientific knowledge on the presence of the mentioned wildlife species in clearcut areas, albeit not entirely conclusive, supports the statements on caribou and marten and offers a differing view on the presence of moose in the clearcut areas. Smith et al. (2000) found in their research in Alberta that woodland caribou, *Rangifer tarandus caribou*, avoid areas containing clearcuts for their winter habitat, staying on average ~11 km from the clearcuts. Chubbs et al. (1993) found in their study in east-central Newfoundland that female and male woodland caribou increase distances from clearcuts with ongoing operations by 10.2 km and 3.7 km, respectively, and that in the following summer they further increase their distance by 4.3 km and 2.2 km, respectively. Avoidance of clearcuts by marten, *Martes americana*, has been reported in the research by Potvin et al. (2000). When it comes to the presence of moose in the clearcuts, the scientific knowledge does not support the statements that moose are absent from the clearcuts, at least when it comes to 2 years and older clearcuts. Lautenschlager and Voigt (2001: 532) include moose, *Alces alces americana*, in a group of animals that are expected to benefit from the food, cover, and structural conditions created by clearcuts. Parker and Morton (1978) recorded winter moose browsing of ~35% of available pin cherry, balsam fir, birch, and willow vegetation on clearcuts 2 years old and varying levels of browsing for subsequent ages. However, Parker and Morton (1978) also noted that the winter presence of moose declines for clearcuts greater than 50 ha offering the explanation that this might be because of deeper snow in such areas and larger distances from forest cover. Participants who stated that moose are absent from the clearcuts might have been

referring to very large clearcut blocks where it is expected that large central portions of these blocks would be unattractive to moose because of the distance from protective cover, and in the winter because of deep snow.

The issue of fuel and oil spillage that was raised by some participants is addressed through provincial regulations, in particular the Environmental Protection Act (1990) and should not be legally occurring during forest management operations. The fact that the issue of oil and fuel spillage was raised in two communities might mean that some forestry operators do not abide by the law in this respect.

With respect to the responses pointing to the lack of buffers around roads and lakes, the application of buffers in Ontario forest management implies a designation and protection of areas of concern to which such buffers apply. The FMPM instructs FMP planning teams to apply prescriptions from the applicable forest management guides to design forest management around areas of concern, or, in the absence of applicable forest management guides, to develop prescriptions themselves (OMNR 2004: Section A 1.3.5.1) Protection of lakes and streams by, among other things, leaving buffers of vegetation around them, is addressed in the Timber Management Guidelines for the Protection of Fish Habitat. The guidelines require leaving 30-90 m buffers, with widths depending on slope steepness, around critical fish habitats and upstream from them, and along at least 50% of a lake shoreline or stream length. Harvesting of trees should not be part of extensive clearcuts, and should not be part of a contiguous cutblock if carried out to the lakeshores of larger lakes (OMNR 1988: Section 7.3.3). Buffers around highways refer to protection of the visual aesthetic from the impact of harvesting. There are no forest management guides that specifically address protection from aesthetic impacts along highways, but the FMPM 2004 anticipates consideration of visual aesthetics when

developing areas of concern for cultural, tourism, and recreational values (OMNR 2004: Section 1.3.5.1), which might include highways. The described regulations in Ontario forest management regarding buffers around lakes and highways leave a possibility for the absence of such buffers.

Clearcuts were singled out as especially disliked forest management practices by some participants. The sight of an area denuded of trees seemed to be particularly unpleasant and unacceptable to them. Negative aesthetic and possibly cultural perceptions of clearcuts are present in the broader society as well. The British Columbia Ministry of Forests conducted a study across all regions of British Columbia on people's perception of the appearance of harvest systems and concluded that the public in British Columbia strongly favors natural forest states and non-clearcut harvest systems over clearcuts (British Columbia Ministry of Forests 1996).

Some participants voiced their concerns about the effect of aerial spraying on blueberry patches and medicinal plants. In Ontario, herbicide aerial spraying is the most common tending method to release young conifer stands from hardwood and broad-leaf competition and the most common herbicide used for that purpose is glyphosate (EA Board 1994: 233-236), usually applied through Vision, a herbicide product made by Monsanto. Moola et al. (1998) found that conifer-release operational treatment with the Vision herbicide causes a 67.2% reduction in cover for, on average, lowbush blueberry, *Vaccinium angustifolium* (Ait.) and velvetleaf blueberry, *Vaccinium myrtilloides* (Michx.), three years after the start of the treatments. The two species exhibited different responses in their berry yield to the herbicide treatment, with the velvetleaf blueberry showing no significant reduction in berry yield three years after the treatment (Moola et al. 1998). Since the glyphosate kills all plants—conifers are resistant only when they

hardened—it can be assumed that all non-conifer medicinal plants are negatively affected as well. Adding to the negative impact of the glyphosate herbicide on the amount of blueberries and medicinal plants, it should be also kept in mind that people are probably reluctant to harvest plants that have been treated with herbicides despite their, as argued by Campbell et al. (2001: 230), very low risk to the public. Blueberry patches and medicinal plants sites are part of Aboriginal values, and their identification during forest management planning should prevent direct aerial spraying of herbicides on them. The remaining concern are the wind drifts that can carry herbicide onto the protected areas from the treated adjacent clearcuts.

6.2.3 Category III: Values Protection

6.2.3.1 Importance of Protection

Some participants expressed a need and responsibility to protect Aboriginal values because of Aboriginal people's historical attachment to the land. Aboriginal people in Aboriginal communities in Canada and Ontario have remained attached to their local geographies and the land despite an ongoing process of urbanization. In Canada, the absolute number of Aboriginal people who live on reserve in recent years is greater than the number of Aboriginal people who lived on reserve several decades ago despite today's lower percentages out of the total Aboriginal population. Frideres (1993) reported that 80.5% of the registered Indian population lived on reserve in 1966 (Frideres 1993: 258), and Statistics Canada reported that 31.6% of people reporting Aboriginal identity lived on reserve in 2001 (Statistics Canada 2004b). But because of a high overall Aboriginal population growth, in absolute terms these percentages represent an increase in the number of people living on reserve over the specified time span, from

~180,500 in 1966 (calculated from Frideres 1993: 128, 258) to ~308,500 in 2001 (calculated from Statistics Canada 2004b). In terms of regional, northern Ontario demographics, Southcott (2004) notes that out-migration of Aboriginal youth from Aboriginal communities from 1996 to 2001 was at 4.7%, which was comparatively lower than the out-migration of youth from northern Ontario as a whole, recorded at 18.3% for the same time period (Southcott 2004). A sense of a long-term—from time immemorial—attachment to the land, over many generations, and a sense of a destined attachment to the land for many generations to come, might bring a different perspective for Aboriginal people on the importance and way of protecting Aboriginal values.

6.2.3.2 Specific Treatment

Some participants suggested that each Aboriginal value should be treated individually and with the involvement of the value user. Even though Aboriginal values are expressions of Aboriginal culture, they can also be used mostly by certain individuals and have a specific importance and meaning to these individuals. The surroundings of, for example, a trapper's cabin can be of specific use and importance to the cabin user in terms of, for example, the use of land for trapping or availability of firewood. Value users might develop their own needs and appreciation of the landscape around a value, which might not be addressed through a standardized value protection. A value protection designation with the involvement of the value user would probably ensure satisfaction of the user and easier implementation of the FMP.

6.2.3.3 Confidentiality

Confidentiality of Aboriginal value information and location was raised in the interviews as an important element in protecting Aboriginal values. One response indicated that confidentiality of burial sites is not a concern. Publicly known Aboriginal values are exposed to possible desecration, vandalism, and overuse. McGregor (2000: 111) also registers concerns by Aboriginal communities around confidentiality of Aboriginal values in forest management planning. The FMPM 2004 does address to a certain extent the confidentiality of Aboriginal values. According to the FMPM 2004, development of a FMP in Ontario is open to public scrutiny, and the areas of planned forest management operations and the values they affect are shown in map format to the public along a FMP's progressive stages (OMNR 2004: Part A Section 3.3). However, when it comes to Aboriginal values, the FMPM 2004 instructs to avoid publicizing the location of Aboriginal values on an Aboriginal values map when that can put at risk the conservation of such values (OMNR 2004: Part A Section 4.6.1), which was also a stipulation in the FMPM 1996. As a new feature, the FMPM 2004 proposes setting "conditions on the public availability of Aboriginal values" in the FMP consultations between the OMNR and Aboriginal communities (OMNR 2004: Part A, Section 4.6.1). The FMPM 2004 still does not provide clear directions and procedures on how to ensure confidentiality of the information on Aboriginal values throughout the forest management planning process. Given the past difficulties in communication and consultation between the OMNR and Aboriginal communities, it remains to be seen if the new approach will help alleviate concerns of Aboriginal values users.

Some participants also expressed concerns over the confidentiality of a physical location of an Aboriginal value that is situated in a clearcut area and surrounded by a

buffer of trees. The impression was that such a feature would be conspicuous in the landscape and thus draw attention and be exposed to vandalism. Newly adopted patterns of forest harvest outlined in the Forest Management Guide for Natural Disturbance Pattern Emulation (FMGNDPE) might provide some help in this area. The FMGNDPE recommends a spatial designing of clearcuts that resembles in shape more closely the patterns left by natural disturbances such as fire (OMNR 2002a: 18), including the internal patches of remnant forest (OMNR: 10). Such patterns of clearcuts might visually mask buffered values by producing similar 'islands' around the landscape. Still, the FMGNDPE encourages maximum utilization of areas of concern for the role of residual patches (OMNR 2002a: 11), which might again create a landscape in which islands of trees in a clearcut likely indicate some kind of a value, be it Aboriginal or of other origin.

6.2.3.4 Wildlife Habitat

Interview responses also contained concerns about the protection of habitats used by animals such as moose, caribou, and marten. Some participants commented on the existing and former harvesting practices and protection measures, and how they affect animals in the view of the participants. Responses revealed that participants critically observed forest management operations and their possible impact on the animals. Conclusions about the impacts on animals were presumably based on traditional ecological knowledge (TEK), which can serve to make a point about the possible role of TEK in forest management. TEK has been defined in varying ways by different authors, an overview of which is provided by McGregor (2000: 135-136). Two examples from the variation are definitions by Usher (2000) and Berkes et al.(2000). Usher (2000)

emphasizes life experience and describes TEK as experience based, formed by people who have learned about their environments through their lifetime experiences and as a result function very effectively there, but who have not been tutored in the "conventional scientific paradigm" (Usher 2000). He divides TEK into four categories: (1) knowledge about the environment, (2) knowledge about the use of the environment, (3) values about the environment, and (4) the knowledge system (Usher 2000). Berkes et al. (2000) take a culture-centered approach, and define TEK as "a cumulative body of knowledge, practice, and belief, evolving by adaptive processes, and handed down through generations by cultural transmissions, about the relationship of living beings (including humans) with one another and with their environment." Incorporation of TEK into forest management is part of Canada's international commitments and national forest policy strategy. Internationally, Canada is a signatory to and has ratified the Convention on Biological Diversity (CBD), 1992, whose Article 8(j) encourages the inclusion of TEK in the sustainable use of natural resources. Nationally, TEK is introduced into forest management policies through the National Forest Strategy (NFS), and the Criteria and Indicators (C&I) of the Canadian Council of Forest Ministers (CCFM). Canada's National Forest Strategy takes a lead from the CBD and makes a pledge in its section on Aboriginal people to identify the means to incorporate TEK into sustainable forest management in accordance with Article 8(j) of the CBD (NFS 1998). The CCFM includes TEK in its C&I as one of the measurements of sustainable forest management (CCFM 2003: Criterion 6.2). Also, there is a broad recognition of TEK as valid and valuable to state-run systems of natural resource management (Usher 2000, Berkes et al. 2000, Huntington 2000, Tsuji and Ho 2002, and Sherry and Myers 2002). Dissenting voices are present as well, such is in the case of Howard and Widdowson (1996 and

1997), who question the merit of TEK, especially the knowledge in it that is spiritually based. Nevertheless, considering the broad policy and academic acceptance of TEK and since Aboriginal values are largely part of TEK, discussions in forest management planning about TEK would help in defining and protecting Aboriginal values. As for the already occurring treatment of TEK, McGregor (2000) notes that TEK has been used informally in the forest management planning process in Ontario (McGregor 2000: 129-147). The FMPM 2004 does not mention TEK, as was the case with the FMPM 1996, but it might be seen as creating an opening for the consideration and inclusion of TEK with the introduction of a community influenced and approved consultation process, and with an added element to the Report on Protection of Identified Aboriginal Values—a discussion on "how local Aboriginal hunting, fishing, trapping, and gathering activities have been addressed in the planning of forest operations" (OMNR 2004: Part A, 4.6.3). Consideration and inclusion of TEK into forest management would certainly improve communication and relations between the OMNR, forestry industry, and Aboriginal communities. The inclusion of TEK does not have to be an automatic and unscrutinized process. If TEK is formally included, the components of it that are comparable to scientific knowledge—in specific, Usher's (2000) categories (1) knowledge about the environment, and (2) knowledge about the use of the environment—can be tested for their validity and reliability (Usher 2000). Usher (2000) cautions against protecting TEK from public scrutiny once it is placed into public arena, and argues that it should be critically examined like any other knowledge.

6.2.3.5 Waterways

Waterways figured prominently in the responses that dealt with the protection of Aboriginal values. Waterways, meaning navigable waterways, have occupied a central role historically in Aboriginal transportation, subsistence, and habitation, and through it in Aboriginal culture and spirituality (see Chapter 3, Section 3.5). It is not surprising therefore that waterways are brought into the foreground when it comes to the protection of Aboriginal values. Some participants noted that a buffer width of 30 m was commonly left un-harvested along waterways and commented that the buffer should be wider. The reasoning behind the need for the wider buffer was that wider buffers would provide meaningful shelter for the wildlife, would protect possible burial sites, locations of which are expected within a wider zone around waterways, and would provide a better aesthetic protection for waterways users. The need to provide larger shelters for wildlife is likely part of the overall concern for wildlife populations that participants expressed in other categories (see Chapter 5, Sections 5.3.2.3 and 5.3.2.4). The need for larger buffers for the protection of burial sites comes from the chain of arguments that states: first, people used to be buried in the same locations where they died and these locations used to be near waterways where people usually habituated; second, places of habituation, such as camps and cabins, would often be located further than 30 m off the shoreline; and third, many of these locations are unknown or cannot be precisely located. Conducting forest management operations in the areas that are suspected to contain burial sites might be considered as offensive and a desecration. Waterway shores presented a particularly important part of the landscape for the participants, and judging by the literature (see Chapter 3, Section 3.5), for Aboriginal people broadly as well. Thus, the process of discussing Aboriginal values in forest management planning would

need to address the definition and protection of significant areas around navigable waterways.

6.2.4 Category IV: Values Process

6.2.4.1 Values Mapping

Participants expressed approval of the process of collecting and mapping Aboriginal values, and saw different benefits in it. One important outcome of the values mapping process that was cited was the transfer and preservation of the knowledge that is reposited with the older members of the community. Horvath et al. (2002: 366-367) found similar assessments on the part of members of an Aboriginal community of the process of mapping Aboriginal places and activities on the land. Another beneficial outcome of mapping was the opportunity for the communities to regain influence over the lands they use. Mapping itself, however, was not always viewed positively by the Aboriginal people in Canada. During the years of colonization, mapping was associated with "external power sources" (Assembly of First Nations (AFN) 1995: 2), with taking over the land and imposing the colonizer's worldview. Maps were used to assess the land Aboriginal people lived on and to reduce Aboriginal presence to small reserves scattered across the country. Brealey (1995) depicts the use of maps in the process of dispossession of Nuxalk and Ts'ilhqot'in First Nations in coastal British Columbia, from 1793-1916. However, in the recent years Aboriginal communities have embraced mapping through TLUOS (see Chapter 3, Section 3.6; Freeman 1976: 48; Sparke 1998; AFN 1995: 2 cited in McGregor 2000: 155; Chiefs of Ontario 2004) and the development of GIS (Walsh 1998). There is a recognition that once conducted and under the control of Aboriginal communities, mapping and GIS can help in settling land

claims, monitoring and managing natural resources, and preserving Aboriginal traditions and cultures. For this reason, mapping Aboriginal values can gain importance to an Aboriginal community beyond strictly forest management use, which in turn can help to engage Aboriginal people in discussion about Aboriginal values and their protection in forest management planning.

6.2.4.2 Community Involvement

Participants expressed a desire for Aboriginal communities to be involved in the discussion of the protection of Aboriginal values but the responses also indicated a poor attendance of Information Centres on FMPs organized in the communities by the OMNR. The importance of community involvement in designing and carrying out land use projects and research has been well emphasized in recent history (see Freeman 1976: 47, Robinson et al. 1994: 7-8, RCAP 1996d: Appendix E, Tobias 2000: 5, Natcher 2001, Horvath et al. 2002: 393). Meaningful involvement of a community can lead to higher participation rates within the community and greater interest in the project by individual participants. Tobias (2000) cautions that the involvement and approval to conduct a land use project must come from both the community's governing administration and members at large for the project to be successful. Hastily secured fundings and administrative support only will likely result in the project's failure (Tobias 2000: 21, 25). Low attendance levels at Information Centres was another comment by the participants. Information Centres are part of the public participation component of forest management planning in Ontario and are required in both, the FMPM 1996 and the FMPM 2004. They are by regulation required, periodical events during forest management planning process in which the public is given for review and comment the

description of the latest stage of a forest management planning process (OMNR 1996a: Part A Section 3.0 and 3.3.3, OMNR 2004: Part A Section 4.5.1.1) Low attendance levels at Information Centres by community members occur presumably for a variety of reasons. Verifying that attendance levels are low and explaining the reasons for it would require specific research, which unfortunately is still lacking in Ontario.

6.2.4.3 Futility

When commenting on the forest management planning consultation process, participants expressed resignation and described involvement as futile. Their impression was that all decisions have been already made by the time consultation occurs and that planning teams eventually disregard suggestions and complaints that are made. An exception to this position was a comment by one of the participants, who noted that avenues for complaints are available and that forestry companies are willing to accommodate suggestions. The general public and specifically Aboriginal involvement in forest management planning have been addressed by a string of international, national, and provincial policies. Internationally, the first global consensus on forests, the United Nations Conference on Environment and Development (UNCED) Statement of Forest Principles in 1992, forged as a non-legally binding report, calls for the nation states to promote opportunities for the participation of, among others, Aboriginal people, in "the development, implementation and planning of national forest policies"(UNCED 1992). In Canada, the NFS makes the pledge to "implement institutional arrangements between Aboriginal Peoples and governments that reflect a spirit of sharing responsibilities and benefits for the management, conservation and sustainable use of forest lands and resources" (NFS 2003: Objective 3.2), and the CCFM C&I recognizes

that quality public involvement is important for improved forest management and states that "quality public involvement provides a democratic process for influencing forest management decisions"(CCFM 2003). Still, some analyses of instances of Aboriginal involvement and influence during land use and natural resource management have not produced encouraging observations. Duerden et al. (1996) and Berneshawi (1997) pointed out that the nexus of the problem is the attempt to accommodate Aboriginal views, culture, and perspectives into conventional, 'Western-style' planning and management processes. Duerden et al. (1996) see this incongruity as impossible to reconcile, while Berneshawi (1997) finds that it creates delays, frustration, and misunderstandings in the process. In Ontario, regulations have seen a change in the level and type of consultations that might cause improvement in the effectiveness of Aboriginal consultation. While in the FMPM 1996 the consultation with Aboriginal people was designed in a form of a review of solutions proposed by the planning team, the FMPM 2004 introduces inclusion of representatives from Aboriginal communities on planning teams and prescribes a direct involvement of Aboriginal communities in creating consultation processes that are suitable to their needs and in the planning of forest management operations to protect Aboriginal values (see Chapter 2, Section 2.3). In the seminal work on public participation, Arnstein (1969) divides the range of public participation levels, from no real participation to full control of the process, into eight 'ladder rungs,' named from bottom up: manipulation, therapy, involving, consultation, placation, partnership, delegated power, and citizen control. The top three rungs are grouped into a category named Citizen Power, the next three into Tokenism, and the bottom two into Non-participation (Arnstein 1969). The transition from the Tokenism category, where the participating public is allowed to have a voice but has no assurance

that the voice will be heeded, into the Citizen Power category, occurs when the participating public is enabled to "negotiate and engage in trade-offs with traditional power holders" (Anstein 1969). From a regulatory perspective, prescriptions of the direct involvement of Aboriginal people in the new FMPM 2004 might be seen as a step onto the ladder rungs in the Citizen Power category.

6.2.5 Category V: Forest Management

6.2.5.1 View of Forest Management

Participants' views of forest management spanned from an opposition to forest management activities because of the removal of trees and its impact on Aboriginal values, to an acceptance of forest management because of economic development and job creation. Opposing views of forest management were present in the responses from the members of the same community as well (see Chapter 5, Section 5.3.5.1). Aboriginal communities seek involvement in the forestry sector and associated economic development and employment opportunities (National Aboriginal Forestry Association (NAFA) 1995). However, forest management practices should incorporate Aboriginal traditional values and preserve conditions for Aboriginal traditional land use (NAFA 1995, Parsons and Prest 2003). NAFA (1995) reported on the economic involvement of Aboriginal communities in Ontario in forestry activities on- and off-reserve. On-reserve, 12 communities are reported to own a forestry-related company, with four of them engaging in traditional forestry, logging and sawmilling and others in making value-added forest products (NAFA 1995). For off-reserve engagement, four communities reported owning a company involved in forestry activities on the Crown land, and eight communities reported some sort of employment of their members with non-Aboriginal

companies (NAFA 1995). When looking at the number of people involved, in total 1039 people were holding either part-time or full-time jobs in forestry, both on and off reserve (NAFA 1995). Still, there are members of Aboriginal communities who oppose any harvesting of trees in Aboriginal traditional territories, or at least in the areas that they directly use. Attitudes towards forestry would most likely affect Aboriginal land users' views about the protection of Aboriginal values during forest management planning.

6.2.5.2 Revenue Sharing

Participants objected to the lack of revenue sharing with Aboriginal communities. The expressed sense was that Aboriginal communities have not been receiving their share which participants believed Aboriginal communities deserved because of their rights to the land. Nishnawbe Aski Nation (NAN), an Aboriginal political territorial organization representing communities signatories to Treaty 9, states in its Declaration of Principles and Rights that Nishnawbe Aski people have "the right to receive compensation for our exploited natural resources" (NAN 2004). RCAP (1996b: 519) states that "the historical record shows that while Aboriginal communities contributed capital in the form of lands and resources to the accumulated wealth of Canada, they derived little benefit in return."

6.3 INDIVIDUAL VALUES

6.3.1 Category I: Trapping

6.3.1.1 Clearcut Impact

Participants pointed to the impacts of clearcuts on trapping as a major concern. They said that trapping animals, such as marten, fisher, and lynx, are absent from the

clearcuts and that it takes many years for the animals to return into the area. Morel and Belanger (1998) cite a number of studies in Quebec boreal forests and point that they "indicate that recent cutovers, even those which include regeneration cuts, are hostile ecosystems for wildlife, akin to wildlife deserts." Lautenschlager and Voigt (2001: 534) note that with a few exceptions, there is a lack of research on the effects of harvesting on small and large carnivores. The limited research that has been carried out deals mostly with marten, *Martes Americana*, which is also the most valuable dry-land trapping species. The findings support the claims that marten avoids clearcuts but they provide variable time periods for the return of marten. Thompson and Colgan (1994) report that harvested boreal forest are suboptimal habitat for marten for up to 40 years, while Thompson (1994) finds that marten density indices in boreal forests in Ontario were 88-95% higher in uncut forests than in logged forests, and that the density index drops to 0.25 marten/km2 in logged forests, for about one year after logging and declines to zero in subsequent years. Potvin et al. (2000), however, found that contrary to common assumptions, marten do not necessarily require mature or overmature stands for their habitat but also select stands in a sapling stage with dense coniferous shrub, where they are protected from predators and can prey on certain small mammals in certain seasons, such as snowshoe hare, *Lepus americanus*, in the winter. Although there seem to be a consensus on the negative impact of clearcuts on populations of furbearers such as marten, a study by Savage (2003) suggests that trapping on a whole is not affected. One of Savage's (2003) findings was that forest harvest in Ontario did not decrease per trapline numbers of trapped and reported beaver, marten, fisher, and lynx, with an explanation that large trapline sizes might have allowed trappers to move into other forested areas within the trapline affected by forest harvest (Savage 2003: 107).

With respect to participants' attitude towards clearcuts, Suffling et al. (1980) conducted a survey with Aboriginal and non-Aboriginal trappers in northwestern Ontario about their feeling towards logging and reported that one half of trappers had negative feelings about logging expressed on a scale positive–neutral–negative (Suffling et al. 1980: 55). Trappers who were neutral about logging did not have their traplines significantly logged, to which Suffling et al. (1980: 55) pointed as evidence that negative feelings were not expressed out of prejudice but because of the logging itself.

6.3.1.2 Trapping Significance

Some participants spoke about the significant importance of trapping, while others noted that in their communities trapping is rarely practised. Participants who stressed the significance of trapping said that trapping is a treaty right, is part of the inter-generational cultural knowledge transfer, and brings enjoyment of nature. Ross noted that historically many Aboriginal people registered their traplines in the hope securing a degree of protection for their traditional trapping grounds in the face of trapping pressure coming from non-Aboriginal trappers (Ross 2005). Aboriginal and treaty rights to hunt, trap, and fish have been recognized and affirmed by Section 35(1) of the 1982 Constitution Act of Canada, and have been further defined in terms of their extent and dealings with the impacts on them in the court cases such as the Sparrow case with the Supreme Court of Canada (Macklem 1997: 131, Natcher 2001). However, the OMNR have taken the position that directions from the EA Board instruct them not to address subjects of Aboriginal and treaty rights in the process of forest management planning (OMNR 2002b: 185), and that the CFSA acknowledges Aboriginal and treaty rights but does not attempt "to define or delineate what those rights and obligations are" (OMNR

2001b: 3-119). The differing views on the place of Aboriginal treaty rights in forest management planning, between Aboriginal people and OMNR, can have a great impact on discussions about Aboriginal values and hinder finding solutions. The OMNR acknowledges the difficulties posed to forest management planning caused by different interpretations and states in the State of the Forest Report, 2001, that "First Nations view treaty rights from the perspective of the spirit, or intent, of the rights rather than literally. This perspective creates a challenging environment for Aboriginal peoples and forest planners and managers in the context of forest sustainability" (OMNR 2001b: 3-119).

Trapping is also a part of TEK and thus a part of culture and cultural transfer between generations (see Chapter 6, Section 6.2.3.4), and has a recreational and spiritual value. For these reasons, successes in carrying out forest management practices that are viewed as acceptable by Aboriginal trappers would have positive repercussions that go beyond the number of animals trapped. On the other hand, some Aboriginal communities might not see trapping as a pressing issue because very few or no community members are involved in trapping.

6.3.1.3 Trapping Protection

Participants who trap suggested that other harvest methods, such as CLAAG and strip-cutting should be practised in the traplines, and noted that the riparian buffer zones were inadequate. FMGNDPE describes CLAAG as a "harvesting system in lowland black spruce stands [that is] designed to help foster the natural regeneration that would occur in these stands after extended periods without fire disturbance" (OMNR 2002a: 15). With the acknowledgment that clearcuts, at least short-term, result in lower numbers of many wildlife species, different authors have offered their recommendations for

remedying that outcome. Morel and Belanger (1998) proposed a forest management and decision making concept that would address trapping and traditional areas of the Innu First Nation in Quebec, and allow for a complementary relation between forest management and wildlife habitat management activities. They argued for a landscape management approach that would provide residual forest within clearcut areas, occur at a scale of a wildlife production unit, ~100–500 ha, and reflect the existence of traplines, land values, and resource needs of Innu people (Morel and Belanger 1998). In Morel and Belanger's (1998) proposal, forest management would be a consensual decision-making process between forest management planners and Innu people. Potvin et al. (1999) recognized the unsuitability of recent clearcuts for many wildlife species, including marten, and proposed for marten management a specific harvest pattern. This pattern would be based on an area unit of 10 km^2, which is approximately the size of marten home range, and would include 50-150 ha clearcut patches scattered across such area unit, while leaving 50% of the unit in uncut forest >30 years old and >1 km^2 patch size (Potvin et al 1999). The clearcut harvest method that Potvin et al. (1999) suggest is "clear-cutting with protection of regeneration". In Ontario, new forest practices guidelines contained in the FMGNDPE prescribe modifications to traditional clearcutting in Ontario in terms of harvest patterns. FMGNDPE prescribes harvest patterns that would better mimic landscape patterns created by fire disturbance, which is to be accomplished by leaving residual, internal (>0.25 ha) and peninsular, patches within clearcut blocks, and by leaving 25 trees/ha, at least six of which should be cavity potential trees (OMNR 2002a: 11-12). The proportion of patches to a clearcut ranges from 2-8% and 8-28%, for internal and peninsular patches respectively, depending on the forest type (OMNR 2002a: 12). The FMGNDPE allows for unlimited size of

clearcuts, with the requirement that a rationale is provided in the FMP for ones >260 ha (OMNR 2002a: 5). The FMGNDPE does, however, also prescribe partial harvest methods, such as CLAAG and patch cuts, to create "natural proportions of uneven-aged forests ... within the bounds of natural variation" (OMNR 2002a: 15). Marten habitat specifically is in Ontario's forest management addressed through the creation of marten core areas according to the Forest Management Guidelines for the Provision of Marten Habitat (FMGPMH). The FMGPMH prescribes a maintenance of 10-20% of a forest management unit in 30-50 km² marten core areas that are comprised of ≥75% of stands suitable for marten habitat, which is described as stands that are mature or overmature and that contain ≥40% of spruce, fir, or cedar, or, preferably, a mix of these species (OMNR 1996c: 17). Marten core areas and natural pattern emulation harvesting have a different spatial application: marten core areas are concentrated zones, one or several of them, placed around a forest management unit, while natural pattern emulation harvesting applies to harvesting throughout the whole management unit, thus potentially having a larger overlap with traplines. New stipulations in natural pattern emulation harvesting in harvest patterns and harvest methods, i.e. residual patches and provision for partial harvest methods, might make it easier to reach consensus between forest managers and Aboriginal trappers.

6.3.2 Category II: Trapper's Cabin

6.3.2.1 Trapping

Participants pointed to the usage significance of a trapper's cabin: a trapper's cabin is not on the land as an isolated object with a purpose unto itself; rather it is part of the trapping area around it and it is dependent on its surroundings. The main purpose of

having a trapper's cabin is to trap in the trapline, and particularly in the immediate area around the trapper's cabin. Also, the use of the area surrounding a trapper's cabin can have a cultural meaning, such as in the case of teaching children how to trap, as was cited by one of the participants (see Chapter 5, Section 5.4.2.1). A buffer of 120 m, while providing a physical protection from felled trees, is insufficient protection because it does not address the trapping area around the cabin.

6.3.2.2 Wind

Participants raised concerns about a 120 m buffer being insufficient protection from the wind. An exception to this opinion was a participant who said that a 120 m buffer does provide protection from the wind. Wind has been cited as a major concern in regards to camp sites. Based on his work with Mistassini Cree in Quebec and by quoting other studies, Tanner (1979: 101) reports that camp sites locations are overwhelmingly on western lakeshores, where they are better protected from prevailing western winds. Protection from prevailing winds as a factor in placing a camp was also cited by Hamilton (2000). While the literature on tree windbreaks is extensive, these types of studies might not be appropriate references because of the differences between a typical windbreak structure and an average 120 m buffer in a boreal forest. Typical man-made windbreaks consist of one to a few rows of trees with a preferred form, planted at regular distances; a 120 m buffer around a trapper's cabin, on the other hand, would likely be quite wider than a few rows of trees, with irregular densities and consisting of stand-tree-forms with small top crowns. 'Likely' is used because the 120 m distance is from the cabin itself and one can assume that there is some space between the cabin and the surrounding forest, making the actual buffer of trees narrower than 120 m.

Nevertheless, some studies can be used to deduct the possible impact that leaving of 120 m buffers will have on wind protection. Flesch and Wilson (1999) carried out a study in Alberta and looked at wind patterns in cutblocks created through a strip shelterwood system in a poplar-dominated forest with a spruce understory, where 150 m wide cutblock rows alternate with 150 m wide remnant forest rows. One of the findings in the study was that the winds oriented across the cutblock rows were reduced in the lee to ~ 20% of the wind speed in the open field, at a leeward horizontal distance up to ~ 1 tree-height (Flesch and Wilson 1999). Wind speed reduction in the lee to ~ 20% of the open field speed, up to ~ 1 tree-height leeward horizontal distance, corresponds to the wind speed reductions for dense windbreaks reported by Peri (1998) and Naegeli (1946). Heisler and Dewalle (1988) summarize several studies and point out that "wide shelterbelts with many rows or trees are not required to produce effective wind reductions."

Concern about wind exposure has been raised by some participants and has been recorded historically as a factor in positioning a trapper's cabin. Depending on the density of trees in a 120 m buffer and their form, a 120 m buffer might be an appropriate protection from the wind. In cases where the forest structure in the buffer does not constitute a good barrier, it might be necessary to widen the buffer. Still, wind protection is only one of the components of a trapper's cabin use and function, and should be considered through an integrated approach to protecting a trapper's cabin as an Aboriginal value.

6.3.2.3 Firewood

A shortage of firewood for a trapper's cabin was a concern for participants, if a trapper's cabin is protected with only a 120 m buffer from clearcuting. Firewood availability as a prerequisite for a camp site location was reported by Tanner (1979: 38) for winter camp sites in a study with the Mistassini Cree, and by Hamilton (2000) for a camp location in a cited study with the Wawakapewin First Nation in the northern Ontario. Also, Tanner (1979: 38) notes that new camps were not placed in the locations of old camp sites that were abandoned for several years because of the shortage of firewood in the immediate area of the old camp. Firewood seems to be one of the components that constitutes part of the Aboriginal value *trapper's cabin*, and therefore the availability of firewood should be considered when designing protection around a cabin.

6.3.2.4 Protection Proposals

Participants proposed buffers wider than 120 m for the protection of a trapper's cabin. As can be seen from the examples (see Chapter 5, Section 5.4.2.4), proposed widths were from 500 m in combination with a surrounding selective cut, to several kilometers. Added to the participants' indication that a 120 m buffer is insufficient, is the realization that there is no defined single buffer width that is seen universally as providing adequate protection. Proposals appear to be personal estimates of the needed protection, and more a response to the perceived narrowness of the presented buffer rather than a predetermined notion of the buffer width. Two conclusions that might be drawn from this are that a 120 m buffer is not sufficiently large to protect a trapper's cabin, and that the protection of a cabin would be designed most appropriately by

discussing it with the cabin's owner. Barring the participation of a cabin's owner in designing the protection, the protection should be created so that the other components of a trapper's cabin value, such as the trapping area around it, wind impact, and firewood availability, are considered as well.

6.3.3 Category III: Burial Site

6.3.3.1 Locality

Responses on the location of burial sites indicated that burial sites are located across the landscape, but mostly along waterways (see Chapter 5, Section 5.4.3.1 and Chapter 6, Section 6.2.1.9). However, the general location or precise position of many of the burial sites are unknown to Aboriginal people. Hamilton et al. (1995) documented the explanation by Elders from the Poplar Point First Nation in the northwestern Ontario that when they were young they were told by an Elder to stay away from a local sacred site that contains graves and were never told the precise location of the graves. They never asked Elders in those times about the precise locations and considered such inquiries "impertinent and inappropriate" (Hamilton et al. 1995). Still, this did not diminish the significance of the sacred site and importance of protecting it (Hamilton et al. 1995). On the other hand, missing knowledge on the location of burial sites would obviously not apply to people who witnessed burials or who visit burial sites.

6.3.3.2 Cultural Treatment

Burial sites receive different cultural treatments. Some participants stated that they were told about a general area of a burial site but instructed not to go there, while other participants said that they visit burial sites. Avoidance of burial site areas out of

respect was reported by Hamilton (2000) for the Poplar Point First Nation and by Gulliford (2000: 88) for Navajo Indians in the southwest United States. Petch (1995) describes a terror-like experience of the Sayisi Dene Elders, when their community was relocated next to a cemetery, nearby Churchill, Manitoba. Petch (1995) explains that the "Sayisi Dene ideology included a fear and respect of the dead. When a person died on the land, they were buried almost immediately with their possessions and the area was not occupied again and no hunting took place. To live beside the dead was to tempt the spirits." It is not only the very burial site that is avoided out of respect, but also the local area around it. Respect for a burial site area, avoided or visited, might include abstinence from activities such as tree cutting in the area. Nonetheless, it is important to mention that one of the participating communities, Pays Plat, has a cemetery that is located right next to the community. Also, in terms of having knowledge of and visiting burial sites, some participants from communities other than Pays Plat said that they do know about some burial site locations and they do visit these sites (see Chapter 5, Section 5.4.3.2).

6.3.3.3 Extent

Existing burial sites do not necessarily contain only one grave. As some participants explained, some burial sites were established following historical battles between different Aboriginal peoples. Even if not a result of war calamities, burial sites can be expected to contain more than one grave. Hamilton et al. (1995) reiterate the inevitable scattering of Aboriginal burial sites across the landscape, considering the historical nomadic type of Aboriginal land use, and conclude that it can be expected to find a number of burial sites strategically distributed across the landscape with each containing "a few individual unmarked graves" (Hamilton et al.1995).

6.3.3.4 Site Attractiveness

Burial sites are often located within previously used camp sites for the simple reason that people, presumably older, were more likely dying in the camps than outside of them. It seems that Aboriginal historical camp sites appear as appealing locations for contemporary camp placement as well (see Chapter 5, Section 5.4.3.4). A common sense explanation might be that what was good then is good today as well, i.e. camp sites were chosen for similar aesthetic, ground type, and water access qualities by Aboriginal people historically as they are by non-Aboriginal recreationalists and cottagers contemporarily. Implications for forest management planning are that burial sites might be even more exposed to inappropriate treatment if they are left buffered and thus considered as recreational oases in a landscape affected by harvesting.

6.3.3.5 Impacts

Looting of burial sites and shoreline harvest operations were raised as concerns by the participants. In forest management, looting might be exacerbated by an inadvertent release of information through the processes of forest management planning and forest management operations, or by conspicuous areas of concern left as circled buffers in harvested areas. Security procedures for keeping information confidential in a GIS system, the planning and public participation process, and forest management operations would need to be considered to protect confidentiality. New directions in harvest patterns, prescribed through the FMGNDPE might lessen the visual conspicuousness of burial sites (see Chapter 6, Section 6.3.1.3) if the buffer approach is taken. Outside of known and addressed burial sites, harvesting close to shorelines might have impact on unidentified burial sites.

6.3.3.6 Protection

Participants told about the need to protect unknown burial sites by protecting shorelines, and responded to the protection of individual burial sites in four different ways: (1) conditionally agreeing with the presented protection, (2) disagreeing with the presented protection and proposed alternative buffer widths, (3) disagreeing with the presented protection but declining to propose alternative buffer widths, and (4) declining to address protection, leaving that to burial site stewards in real situations. When proposing alternative protective buffer widths for individual burial sites or for shorelines, participants did not offer the same or similar distances, but varied in their responses. Participants' responses can be interpreted as an indication that there is a need to address shorelines for the protection of potential burial sites and that there is no common definition of what constitutes an adequate protection of individual burial sites. Some Aboriginal communities or people might approve of a 120 m buffer as a protection, and others might require a larger buffer, or a specific approach to a particular burial site. Burial sites can also be singular graves, significant to a person or a family, or can mark historical events, contain many graves, and have significance to the whole community.

6.3.4 Category IV: Spiritual Site

6.3.4.1 Usage

Some participants described their use of spiritual sites and a number of participants said that they do not visit spiritual sites. To start with, the term *spiritual site* did not seem to carry a lot of meaning to participants, and specific designations, such as vision-quest site, fasting site, sweat lodge, and tobacco offering site, were more easily

recognizable. Also, some participants were using the terms *spiritual site* and *sacred site* interchangeably. Since the FMPM uses the term *spirit sites* (OMNR 2004: Part A, 4.6.1) in the listing of features that belong on an Aboriginal values map, there is a likelihood of miscommunication during values mapping as to what sites need to be recorded for the mapping. Next, usage wise, the types of spiritual sites used and the regularity of use seem to differ from participant to participant both between and within communities. Still, this information on usage can be very important in forest management planning when designing protection of a spiritual site. A tobacco offering site that was used once in a lifetime might carry a lower demand for protection than a regularly visited, communal vision-quest site. Finally, participants who said that they do not visit spiritual sites consisted of both, older and younger people. The cause for the absence of use of spiritual sites is presumably a combination of social and cultural changes that have been experienced by Aboriginal communities throughout the history. Nevertheless, it cannot be assumed that the use of spiritual sites is dying away. In recent years, Aboriginal communities have experienced a revival of Aboriginal culture (see Chapter 6, Section 6.2.1.5), an indication of which in the interviews might be the fact that some of participants who said that they do visit spiritual sites were younger people , e.g. a male in his 30's and a female in her late teens.

6.3.4.2 Significance

The traditional worldviews and philosophies of North American Aboriginal people see the whole world, animate and inanimate, imbued with spirits (Tanner 1979: 92, RCAP 1996a: 628, Gulliford 2000: 95). According to one of the interpretations, "We [people] come from the spirit; we live and move surrounded by spirit; and when we

leave this life we return to a spirit world" (RCAP 1996a: 628). Thus, spirituality plays a fundamental part in forming Aboriginal culture and identity, and Aboriginal people's relation to the land. The spiritual or sacred character of something carries a need to respect it, to take care of it and pass it onto the next generation (Gulliford 2000: 68) Although the whole world is believed to contain spirits, there are places and ceremonies on the land that are treated with heightened reverence and carry a greater significance to Aboriginal communities and individuals. Gulliford (2000: 70-91) proposes the following typology of spiritual (sacred) sites used by North American Aboriginal people:

religious sites associated with oral tradition and origin stories; trails and pilgrimage routes; traditional gathering areas; offering areas—altars and shrines;

vision quest and other individual-use sites; group ceremonial sites—sweat lodges, dances, and sings; ancestral habitation sites; petroglyphs and pictographs—ceremonial rock art; individual burials and massacre sites; and observations and calendar sites.

6.3.4.3 Locality

According to the responses, spiritual sites can have a permanent location, or their location can be chosen within a defined general area during a ceremony, or can be chosen impulsively within the whole traditional use area of a community. Gulliford (2000: 70-91) outlines sacred sites as permanently designated locations on the land, marked according to traditions and visited periodically by Aboriginal people. A site can be considered relevant by Aboriginal people even when its appearance might suggest abandonment. According to Gulliford (2000: 81), an altar offering that might appear prehistoric and no longer used, can be still revered by Aboriginal people, who see the time lapse as inconsequential. On the other hand, some participants described the

locality in their spiritual site use as either not specific and spatially defined within a general area, or not associated with a particular place at all. Knowledge about the character and locality characteristics of spiritual sites can be considered vital when defining and designing protection of Aboriginal values in forest management planning. Consequently, this information would need to be captured during the collection of Aboriginal values.

6.3.4.4 Protection

Responses indicated that a 120 m buffer around a spiritual site is inadequate protection, but no alternative buffer width was given. A measure of protection that was proposed was that the area around the spiritual site is left natural and undisturbed. Other measures for the protection of spiritual sites included the preservation of ceremonial plants, larger buffers around navigable waterways, and the naturalness of a site. An exception was the response that agreed with a 120 m buffer, with the condition that the community in question gets involved in designing the protection. The notions expressed by Aboriginal people that naturalness and natural disturbances are preferred conditions and processes in and around the sacred sites, are cited by Lewis (2000: 200) and Gulliford (2000: 117), respectively. These notions, in conjunction with the measures of protection proposed by the participants, might suggest modified forest management operations, such as lower intensities of forest management operations and higher tree retention rates, around spiritual sites, or creating designated protection zones, where, upon a mutual agreement between the involved parties, an area would be set aside for undisturbed spiritual ceremonies with minimal or no forest management activities.

6.4 MAPPING MEDIA

6.4.1 Category I: Mapping Media Perceptions

6.4.1.1 The Plain Map

The Plain Map (Fig. 7) was seen by some participants as preferable to the Forestry Map (Fig. 6) and other media, for the purpose of identifying and discussing protection of Aboriginal values, because it looked less confusing—in specific, it did not display working groups and their colour symbols (Fig. 7). It should be noted that participants were not tested for the cognition of the maps, so that the statements regarding confusion referred to the perception the participants had about the media, once explained what the media represented. Also, some participants assumed that plain maps would look less confusing to Aboriginal elders. The primary purpose of the land maps is to communicate a certain spatial content and spatial relations existing on the landscape. A map containing Aboriginal values that might look confusing to its users defies its own purpose and might render a discussion about protection of Aboriginal values unworkable.

The inevitable fact is that forest management activities are complex in their type, spatial arrangements, and temporal sequences. Thus, information relevant to the protection of Aboriginal values might include, among others, the location of different types of roads, the location of different harvest types and silviculture operations, and the location of AOCs. Nevertheless, to avoid creating difficulties in reading maps for some Aboriginal community members, this information might need to be presented in a simple form by using only essential elements to communicate the location of forest management operations and their relation to Aboriginal values.

6.4.1.2 The Forestry Map

The Forestry Map, with its depiction of forest stands by species working groups, received a range of comments. Some participants found it comprehensible and readable, and some participants found it too confusing. Participants who had opportunities to use similar maps in the forest management planning processes or in their work in forestry, said that they did not have difficulties in reading the map. Participants who did find the Forestry Map confusing were older people.

6.4.1.3 The Aerial Photo

The Aerial Photo was seen as an easy to read medium by participants from three communities (see Chapter, Section 5.5.1.3)—a medium on which landscape features are easy to recognize and find. One response pointed to possible deficiencies in aerial photos, when effects inherent to capturing aerial photos, such as sunlight reflections off a lake, obscure landscape features. Aerial photos are mechanical, direct captures of sunlight reflection from earth surfaces onto a photo film. Consequently, if taken in a visible light spectrum, aerial photos show real visuals of landscape, but also contain any deficiencies that result from the mechanics of recording the photo. Features can be hidden behind other objects, such as creeks behind tree crowns, and features can be obfuscated by the flashes of sun reflection. There is no intermediate expert interpretation of the captured landscape, such as in the case of cartographic map creation. Nonetheless, the real depiction of the landscapes can make the identification of Aboriginal values easy for people unaccustomed to cartographic maps. Furthermore, in GIS, forest management information can be added to the aerial photos, as layers of harvest areas or

roads, which can make them suitable for discussions about planned forest management activities and their impacts on Aboriginal values.

6.4.1.4 VR GIS

Participants noted that the advantages of VR GIS are that it shows trees, it makes different animal habitats recognizable, and allows for a simulation of forest management outcomes. An exception was a response that tree species were not recognizable. This response came from only one participant; other participants could either recognize tree species in the model immediately, or do so with the help of tree species legends (see Chapter 4, Section 4.4.2.1). The VR GIS software employed in the research used images of real trees to represent tree species present in the forest inventory. This type of use of realistic images as representation elements has been interpreted varyingly, however. Tang and Bishop (2002) see realistic representations positively, and argue that a high level of realism includes "reduced ambiguity and ease of interpretation." Myers (1990) on the other hand, warns that photographic images are not mechanical reproductions of reality, but products of decisions by a photographer in selecting and defining them. In scientific presentation, gratuitous details of photographs move them away from an abstract, general scientific claim, and towards particular observation (Myers 1990), thus increasing a possible bias in their use. Also, when it comes to computer models, Sheppard (1989: 55) cautions that people frequently become compelled to believe in computerized presentations because of the perceived sophistication and complexity of computer simulations. However, the primary reason for using a VR GIS model for this thesis was to initiate and carry out discussions about the definition and protection of certain types of Aboriginal values, and to see reactions and responses by Aboriginal

people in using VR GIS for that purpose. The questions around the accuracy of VR GIS, compared to the real landscapes, are important ones and should be investigated, but are beyond the scope of this thesis. Participants pointed to the possible benefits of VR GIS in depicting wildlife habitats. With respect to interpretation, participants did not seem to find VR GIS models confusing, unlike some of the observations they made about the Forestry Map (Chapter 6, Section 6.4.1.2). Similarly, but based on actual cognition tests, Lewis (2000) found that cartographic media, in specific topographic maps, were more confusing and difficult to interpret for Aboriginal elders and adults from the Cheam First Nation in British Columbia than landscape visualization (Lewis 200: 231-232). Also, Lewis (2000) noted that Aboriginal participants considered landscape visualization to provide more and clearer information than cartographic media and this view was expressed by young adults as well regardless of them having little difficulties in reading cartographic maps (Lewis 200: 231-232).

One of the comments was that the model would need to cover a larger area and for that purpose it could be complemented with a forestry map whereby a particular place can be found on a forestry map and then examined more closely in a VR GIS model. The demands of the software used in the thesis and its visualization model on computer hardware do not allow for forested scenes larger than ~50 km^2. However, a typical traditional land use area for an Aboriginal community can be hundreds of kilometers across. The need for covering large areas is recognized in the practice of documenting TLUOS, where standard map scales are 1:250,000 – 1:1,000,000 (see Chapter 3, Section 3.6.4). The suggestion by some participants to complement the VR GIS model with a forestry map, or a topographic map for that reason, might be the right approach to solving the problem of scale. Otherwise, it is likely that the continuous

increase of the computer hardware power and the development of the landscape visualization software will very soon yield a VR GIS program that can handle large geographic areas.

Participants were recognizing landscape features in the VR GIS models and were using VR GIS models to depict their own land use and discuss potential land use of the shown landscapes. VR GIS models would trigger participants' memories and references to certain situations or land use problems. Or, participants would use VR GIS models to clarify their answers and statements. Most importantly, VR GIS models seemed to engage people actively discussing Aboriginal values and bringing themes into their discussions, such as the use of landscapes by animals for their habitats or by people for hunting, or the presence or absence and function of remnant trees—the theme that would probably not be raised if, instead, the illustration media were traditional maps. Sheppard et al. (2004: 46) carried out VR GIS projects with two Aboriginal communities in British Columbia and concluded that "GIS technology coupled with landscape visualization capability provides a better representation of the land because it provides more holistic and meaningful information with greater clarity than conventional (i.e. 2D) resource maps." They also found that VR GIS provides a "richer basis" for communities to discuss the impacts of forest management on their values and stimulates their members in engaging in discussions by bringing out their stories and local knowledge (Sheppard et al. 2004: 47).

Until more comprehensive studies on the comparative comprehension between the VR GIS and traditional media are undertaken, the benefits of VR GIS for eliciting discussions about the landscapes and the land use can be utilized and the VR GIS

models considered to accompany traditional media in holding discussions about Aboriginal values and the land use for forest management planning.

CHAPTER SEVEN
CONCLUSION

> "We used to get nuts, wild nuts up on that hill. Cherries we know where to get, we know where to get cedar, different types of trees, different types of values, as you guys call them, values, we call them our life, you know. What we need." (Participant from Pays Plat)

7.1 INTRODUCTION

At the outset of this thesis, four research objectives were identified (see Chapter 1, Section 1.4). The aim of this thesis has been to fulfill the set objectives and by doing so to gain new knowledge about Aboriginal values in forest management. The following chapter will synthesize and conclude the research findings identified throughout the thesis as they relate to the posited research objectives. Sections 7.2–7.5 will address Research Objective 1 "To obtain views from Aboriginal people in northern Ontario about important aspects in defining and protecting Aboriginal values in forest management. Specifically, to obtain views on how individual Aboriginal values such as trapping, a trapper's cabin, a burial site, and a spiritual site should be defined and protected," and Section 7.6 will address Research Objective 2 "To obtain views from Aboriginal people in northern Ontario on the use of different mapping media, and VR GIS in particular, in representing and discussing Aboriginal values." In addition to the overview of regulations presented in Chapter 2, Research Objective 3 "To review and analyze pertinent forest management planning regulations in Ontario for their treatment and impact on Aboriginal values" will be addressed in Section 7.8. Also, directions from the research findings, both the results from the focus groups and interviews with Aboriginal people and conversations with the OMNR personnel, have made it possible

to propose an alternative and improved Aboriginal values process, presented in Section 7.7, thus addressing Research Objective 4 "To make recommendations to improve the process of Aboriginal values identification and protection in forest management planning in Ontario." Finally, suggestions for future research in the area of Aboriginal values are laid out in Section 7.9. The results and conclusions in this thesis are stemming from qualitative research which by its very definition is not subjected to statistical testing. However, the exploratory nature of this thesis and the fact that the interviewees were Aboriginal people meant that qualitative research was the most appropriate choice (see Chapter 4; Adamowicz et al. 1998). Still, the methodology used in the thesis in collecting and analyzing data follows the methodology prescribed in the literature to be used in qualitative research (see Chapter 4) and thus the results and conclusions in this thesis can be assumed to be valid and reliable within the bounds of qualitative research.

7.2 ABORIGINAL VALUES DEFINITION

Aboriginal values are by their own definition and by Ontario forest management regulations, determined by Aboriginal people. Aboriginal people's views and depictions are the preeminent source and direction in defining and protecting Aboriginal values in forest management. Therefore, the views and perceptions expressed during the interviews conducted this study can provide a part of the picture about Aboriginal values.

When defining Aboriginal values it is important to keep in mind that as a whole, Aboriginal values require a holistic approach, while individual Aboriginal values need an examination of their function and their practical and cultural use. But in order to start

defining Aboriginal values, the terminology used in their naming should be precise and meaningful, allowing for clear communication between Aboriginal people and forest management planners.

Analysis of the participants' responses reveals the holistic character of Aboriginal values. Aboriginal values are depicted as representing Aboriginal land use and as being expressions of Aboriginal culture, history, and social conditions, rather than simply locations on a map. Participants' views of Aboriginal values as representing their land use are indicated by their concerns about overall animal habitats, animal and fish populations, and wild rice and blueberry habitats (see Chapter 5, Sections 5.3.2.3 and 5.3.2.4). The suggestion that Aboriginal values are expressions of Aboriginal culture, history, and social conditions can be supported by the responses that link cultural activities and habits, historical spatial patterns, inter-generational communication, and social disturbances to the patterns and intensity of the use of Aboriginal values (see Chapter 5, Sections 5.3.1.3, 5.3.1.4, 5.3.1.5, 5.3.1.6, and 5.3.1.7). Consequently, derived from the described broad view of Aboriginal values, and also singled out through the responses (see Chapter 5, Section 5.3.1.2) is the assertion that Aboriginal values have a holistic character, spatially and socially. They are spatially related—trapping is carried out around a trapper's cabin, burial sites are close to former camp sites, which are close to animal and wood resources and waterways—and socially influenced—culture and social conditions influence each other, and together, they dictate the extent, patterns, and intensity of land use. Lewis (2000) observed a broader, social, cultural, and spiritual implication of Aboriginal land use, as well, concluding in his study that Aboriginal land use benefits Aboriginal communities by providing spiritual renewal, cultural identity, and social bonding (Lewis 2000: 225).

Individual Aboriginal values might be spatially defined by more than the object or site they represent. Spatial relations between Aboriginal values and surrounding landscapes and the functions that the landscapes provide in the particular land use can also be components of the values' definition. For instance, a trapper's cabin value includes the area surrounding the cabin if it is acknowledged that the availability of trapping habitat and firewood, and the provision of wind protection (see Chapter 6, Sections 6.3.2.1, 6.3.2.2, and 6.3.2.3) are integral to the cabin's use. Also, the cultural treatment of a burial site might define the area around the grave itself as sacred and thus a part of the burial site value (see Chapter 6, Section 6.3.3.2). As Lewis (2000: 225) finds it, "Frequently, settings with no visible evidence of human use or modification may possess considerable cultural importance [to Aboriginal people]." Such definitions of Aboriginal values differ from the definition of values offered by the Cultural Heritage FMG that sees cultural heritage values as belonging to the past and being confined to the physical objects that represent them (see Chapter 2, Section 2.4). As McGregor (2000) noted, definitions of cultural heritage values in the Cultural Heritage FMG were adopted from the heritage conservation field long before Aboriginal values emerged as a category in forest management and as such their definitions do not address Aboriginal values (McGregor 2000: 151). Aboriginal values, while sometimes being sites and objects of primarily historic significance, such as pictographs and historically significant burial sites, are also sites and areas actively used and created in the present time. For this reason, functional relations to the surrounding landscape and/or the cultural significance of Aboriginal values might create requirements for defining them together with their surroundings.

Some terminology used in forest management regulations might hinder or blur the communication between Aboriginal value users and forest management planners. The very term *value* when used to indicate certain areas and places in the landscape, can be understood to imply that other areas and places are not valuable. This implication would run contrary to traditional Aboriginal beliefs, worldviews, and cultural attitudes that see the whole land as sacred and imbued with spirits. Landscapes become cultural landscapes, imprinted in culture and mythology, and having a value beyond physical use. The term *spiritual* or *spirit site* might not have a defined meaning to Aboriginal people. Its synonym can sometimes be the term *sacred site*, or it can be used for other Aboriginal values, such as burial sites. McGregor (2000) reports on an alternating description of Aboriginal values by Aboriginal people—sometimes as cultural, and at other times as spiritual or physical—as well. Because of the belief among Aboriginal people that everything in the nature is sacred (spiritual), insistence in forest management planning on describing particular sites as sacred or spiritual might cause misunderstandings. Describing the spiritual sites by their particular use, e.g. vision quest sites, fasting sites, sweat-lodge sites and offering sites can help in avoiding possible misinterpretation.

7.3 ABORIGINAL VALUES IMPORTANCE AND PROTECTION

The spatial and social interconnectedness inherent in Aboriginal values assumes another implication: the zone of both the Aboriginal values' relevance and the negative impacts on them extends beyond the particular natural resource development, such as forestry, and encompasses a host of other social conditions, political questions, and natural resource developments. Aboriginal values can be relevant to the identity of

Aboriginal people and to cultural processes in Aboriginal communities (see Chapter 6, Sections 6.2.1.4 and 6.2.1.5) and, conversely, values can be negatively impacted by the processes of traditional culture disappearance (see Chapter 6, Section 6.2.1.5). As for the natural resource developments, Aboriginal values can be negatively affected by the cumulative effects of, for example, hydroelectric and mining projects, along with forestry, which can cause disruptions in hunting, trapping and gathering activities (see Chapter 6, Section 6.2.2.1).

Aboriginal values, being part of Aboriginal and treaty rights, are affected by the provincial and federal laws and policies that define these rights and regulate their application in land use. However, irrespective of existing laws and policies governing natural resources and land use, Aboriginal people consider their traditional territories as theirs, if not in the sense of legal ownership, then at least in the sense of having a right to continue to use these areas and to share in the benefits generated from them through natural resource development.

Judging by the participants' responses, Aboriginal communities engaged into the process of defining and protecting Aboriginal values will likely have this broader perspective of Aboriginal values when they enter into discussions during forest management planning and will consider impacts beyond forest management operations.

Confidentiality and specific treatment of the values figured prominently as required mechanisms when designing the protection of Aboriginal values. Confidentiality of the information on Aboriginal values and the involvement of individual users in designing the protection of their values are critical for the preservation of the values and for building the trust between Aboriginal communities and forest management planners.

Waterway shorelines and wildlife habitat emerged as very important across-landscape features when protecting Aboriginal values, and the clearcut harvest method and herbicide spraying surfaced as particularly disliked forest management practices (see Chapter 5, Section 5.3.2.4). An emphasis on wider buffers around waterways, provisions for harvest types and patterns that would provide more suitable habitat for the wildlife populations than traditional clearcuts, and minimizing herbicide spraying should be included in discussions on forest management in the traditional areas of Aboriginal communities.

7.4 ABORIGINAL VALUES PROCESS

The Aboriginal values process is comprised of the collection of Aboriginal values and their incorporation and protection in the process of forest management planning. Participants expressed positive opinions about the process of collecting values and saw benefits in it for Aboriginal communities as a way of documenting knowledge that might get lost because of a weakened intergenerational knowledge transfer. As well, mapping is increasingly being seen as a tool for acquiring more power and a stronger position in negotiating off-reserve land use (see Chapter 5, Section 5.3.4.1).

Currently, there are no directions in Ontario's forest management planning regulations about how to conduct the collection of Aboriginal values in an Aboriginal community. This is so despite the fact that the FMPM 2004 dedicates a separate section to the process of Aboriginal involvement and consultation, including Aboriginal value collection and protection (OMNR 2004: Part A Section 4.0), setting them apart from the remaining consultation process brought together under the Public Consultation category (OMNR 2004: Part A Section 3.0) . Since Aboriginal values represent Aboriginal

traditional land use, their collection can be seen as equivalent to documenting Aboriginal traditional land use and TEK. TLUOS is an already established methodology of documenting Aboriginal land use (see Chapter 3, Section 3.6). Although still lacking a consensus and standardization on protocols, procedures, accuracies, and criteria, TLUOS provide a good reference for how to construct a land use mapping research project in Aboriginal communities. Specifically, TLUOS suggest a template for community-based mapping that includes: participatory research designs, open-ended interviews as the data collection instruments, map biographies as formats of individual data collection, and the selection of all experienced land users for interviewees (see Chapter 3, Section 3.6.3).

Improved and more thorough collection of Aboriginal values will ensure that the collected values more accurately represent a community's land use but improved collection method will still not guarantee a more favorable approach and perception of the forest management planning consultation process by Aboriginal communities and individual people. To build the more positive perception will require (1) having Aboriginal community and individual users actively involved in discussing and designing forest management operations around Aboriginal values, (2) taking into account or addressing non-forestry impacts on Aboriginal values, such as cumulative natural resource developments, social, and cultural impacts, and (3) exploring trade-off scenarios, where the possible economic benefits to an Aboriginal community (employment opportunities, co-management, joint-venture, third-party licensing) are considered along with Aboriginal values, and the middle-ground between forest management operations and extent of protection of Aboriginal values found.

7.5 INDIVIDUAL ABORIGINAL VALUES

Individual Aboriginal values are places and areas on the land that Aboriginal people use, visit, or worship. Although many Aboriginal values are represented by a physical object, such as the case with a cabin in a trapper's cabin value or a grave in a burial site value, the use and treatment of Aboriginal values is not necessarily confined to the object itself. The use of a value might be a part of broader land use, and/or dependent on the value's surroundings, as it can be in the case of a trapper's cabin (see Chapter 6, Section 6.3.2), or the treatment of a value and its surroundings can be an expression of cultural attitudes, as it can be in the case of a burial or a spiritual site (see Chapter 6, Sections 6.3.3 and 6.3.4). For these reasons, protection measures applied around an Aboriginal value should reflect the value's function, use, and its cultural treatment.

With respect to trapping, the main concern raised among participants were clearcuts as a harvest method because of the resultant removal of tree cover (see Chapter 5, Section 5.4.1.1). Harvest methods, such as CLAAG, that retain more trees, were seen as preferable to clearcutting. Recently introduced directions in harvest patterns, outlined in the FMGNDPE, might be suitable for implementing harvest patterns recommended in the research (see Morel and Belanger 1998) on forest management within Aboriginal traditional areas and traplines (see Chapter 6, Section 6.3.1.3). Most importantly, because trapping is an Aboriginal and treaty right (see Chapter 6, Section 6.3.1.2), the appropriate way to approach conducting harvest operations in a trapline would be through consultations with the trapline owner (Morel and Belanger 1998).

Because Aboriginal values have a strong holistic component and in some instances have a spatial definition that expands into local surroundings—the trapping

area around a trapper's cabin, reverence of the area around a burial site—a zonal treatment might be the proper approach to protecting them. Areas with a higher concentration of Aboriginal values could be either set aside as protected areas, or modified harvesting operations could be prescribed.

7.6 MAPPING MEDIA AND VR GIS

A geographic map is a representation of the earth's surface, drawn to scale, and usually displayed on a plane surface (Thrower 1972: 4). Maps are a means to communicate spatial and attribute information about geographic features through abstract representations. Traditionally, landscape maps have been either general topographic maps depicting basic features on a landscape, such as rivers, lakes, and roads, or thematic, using colour and other symbols to represent specific features on a landscape, such as forest types (Thrower 1972: 4). With the development of GIS, other media, namely aerial photography and VR GIS, have become viable mapping medium alternatives for presenting landscapes. Responses in the interviews indicated that the reading of thematic forestry maps might be difficult for some Aboriginal people who have not used them often and was seen as easy by participants who were familiar with forestry maps. Plain maps, aerial photos, or VR GIS, on the other hand, were seen by different participants as preferable options (see Chapter 5, Sections 5.5.1.1, 5.5.1.3, 5.5.1.4). VR GIS technology might provide a better medium for conveying spatial information about landscape plans to people in general, and particularly to those not accustomed to thematic maps. Responses in the study indicated that VR GIS can be considered as an alternative to a forestry map and/or as a platform for discussions about Aboriginal values and their protection (see Chapter 6, Section 6.4.1.5), which echoes

findings in similar studies by Sheppard et al. (2004). Disparity between the need for presenting traditional land use on maps across larger scale areas and the current computer limitations on the size of forested areas covered by the used software (see Chapter 6, Section 6.4.1.4) could be overcome by combining small-scale maps covering large areas with a VR GIS model. Areas of interest can be found and defined on the small-scale maps, and then these areas can be further analyzed in VR GIS. VR GIS models were not rejected by the participants, and often engaged participants in describing and discussing Aboriginal values and their protection. The presentation of trees and associated recognition of wildlife habitat, along with the capabilities to simulate forest management options, were seen as beneficial characteristics of VR GIS models by the participants. A necessary cautionary note here is that the presented models depicted typical boreal landscapes unknown to the participants. If presented with the same type of VR GIS models depicting known and familiar landscapes, participants' reactions might have changed, depending on how accurately the models would depict these landscapes, and/or to what degree participants would accept the representative nature of the models. What should be noted is that the VR GIS models used in this thesis do not create reproductions of a landscape but use more easily recognizable symbols and features—tree images, ground textures, and 3D renderings—to represent the forest inventory information on a given terrain.

7.7 ALTERNATIVE ABORIGINAL VALUES PROCESS PROPOSAL

The definition and protection of Aboriginal values goes beyond their mere identification and standardized buffering and becomes a process of engaging Aboriginal communities and individual value users in discussing and expressing how to define and

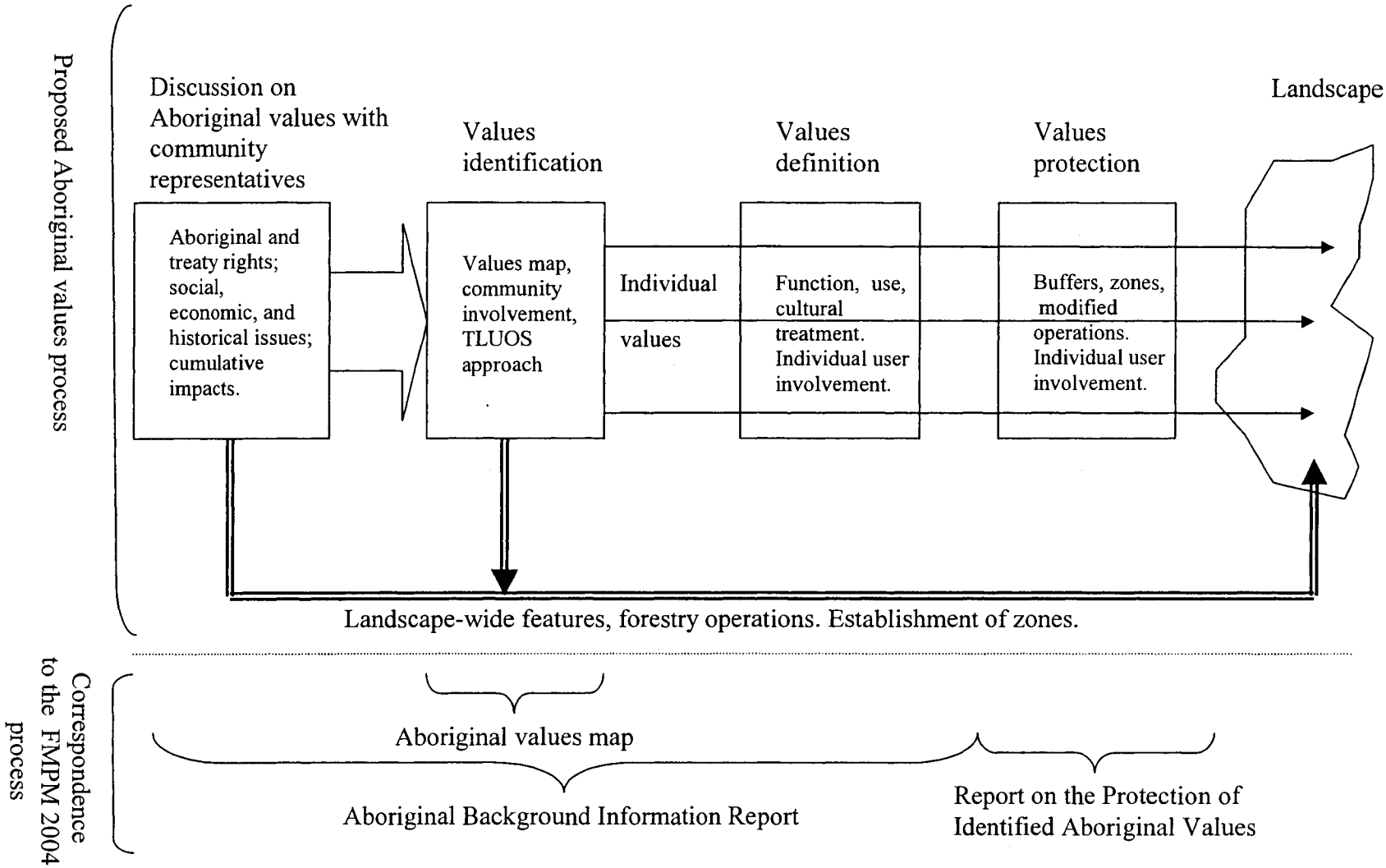
protect Aboriginal values in the face of planned forest management. This process, if designed properly, should yield satisfactory protection of Aboriginal values in the eyes of Aboriginal people, and forest management operations feasible to manage and economically viable in the eyes of the forestry industry. The access of Aboriginal communities to the benefits of forest management, through joint ventures, harvest allocations, co-management, or revenue sharing, should act as an incentive for them to come to an agreement with forest management planners about how to protect Aboriginal values. Although there are conceivable extreme situations of either an Aboriginal community declining any involvement in forest management and objecting to any type of forest management operations in its traditional territories, or of forest management planners unwilling to approximate Aboriginal values protection as requested by an Aboriginal community, the proper design of a process of defining and protecting Aboriginal values should make it easier to reach agreements where the will for reaching an agreement exists. Based on the results and observations in this study, several components have emerged as conditions for a successful process of defining and protecting Aboriginal values:

- Aboriginal values should be considered holistically, by acknowledging and taking into consideration social, economic and historical impacts, and the cumulative impacts of natural resource developments on them.
- Certain landscape features, such as the shorelines of navigable waterways, or forest management practices, such as wildlife-suitable harvest methods, can require a broad, landscape-wide protection or application, respectively.

- TLUOS methods should provide the framework for documenting traditional land use and collecting Aboriginal values.
- Individual Aboriginal values should be defined based on their functions, use, and cultural treatment, and the prescribed protection should reflect that definition.
- Aboriginal values should be defined and their protection designed with the participation of Aboriginal people.
- When discussing Aboriginal values definition and protection, landscape visualization computer software should be considered as an alternative or aid to traditional topographic or thematic maps.
- The Aboriginal values process should allow ample time to hold discussions with Aboriginal communities, collect Aboriginal values, define them and discuss their protection with their users.

Figure 9 depicts graphically the proposed process for defining and protecting Aboriginal values. The process starts with the consideration of the social, economical, and historical issues impacting the values, along with the cumulative effects of natural resource developments. The process proceeds with the collection of Aboriginal values by using methods developed in TLUOSs. Once identified, Aboriginal values can be defined based on their functions, use, and cultural treatment, and protection with appropriate buffers, and/or zones, and/or modified forest management operations can be designed. In addition to individual values, landscape-wide applications of protection of targeted land features, such as shores of navigable waterways, or application of forest management practices, such as wildlife-suitable harvest methods, can be implemented as well.

Figure 10. Proposed Aboriginal values process and a comparison with the existing regulatory process



7.7.1 Correspondence With the Existing Aboriginal Values Process

The proposed Aboriginal values process, derived from the study results, can be compared to the existing process of implementing Aboriginal values in forest management planning in Ontario. Discussion on broader impacts and issues related to Aboriginal values, and Aboriginal values identification and definition correspond to the Aboriginal Background Information Report, and the values protection stage corresponds to the Report on the Protection of Identified Aboriginal Values (Figure 10). It is noticeable that the interviews in the study indicated a need for a broader consideration of Aboriginal values and impacts on them (see Chapter 6, Section 6.2.2.2), similar to the function of the Aboriginal Background Information Report in the Aboriginal consultation process (see Chapter 2, Section 2.2 and 2.3). However, consideration of cumulative natural resource development impacts, application of TLUOS methodology, definition of individual values through their function, use, and cultural treatment, and consideration of landscape-wide feature protection and forest management practices are additional elements that have emerged through the interviews.

The time available for carrying out discussion on, and collection, definition, and protection of Aboriginal values, can become an issue. FMPM 2004 instructs the OMNR to initiate the development of a consultation process with Aboriginal communities six months prior to the official launching of the planning process and the beginning of a long term management planning (OMNR 2004: Part A, 4.4). One of the background information elements needed for the commencement of forest management planning process and therefore for the beginning of long term management planning is the Aboriginal Background Information Report, albeit not necessarily the newly created

one—the existing one from the previous FMP can be used as well (OMNR 2004: Part A, 1.1.7). The allocated six-month period would likely be insufficient for the proposed Aboriginal values process segment corresponding to an Aboriginal Background Information Report (Figure 10). Moreover, the available six-month period might be insufficient within the existing planning framework as well. This is so because considering the low participation rate of Aboriginal communities in the Aboriginal consultation process since its regulatory introduction in the forest management planning in 1994, and the even lower rate of completed Aboriginal values map projects (Bill Taylor, OMNR, personal communication), it is conceivable that many Aboriginal Background Information Reports will be either incomplete or not created at all. The time shortage will likely be exacerbated in forest management units in which there are several Aboriginal communities.

7.8 ABORIGINAL VALUES AND ECOSYSTEM FOREST MANAGEMENT IN ONTARIO

Forest management in Ontario has evolved historically over several stages into its present stage of embracing the tenets of ecosystem management for its policy direction (see Chapter 3, Section 3.3). One of the main components of ecosystem management is the acknowledgment that humans are part of ecosystems and hence the need for incorporation of human activities and values into ecosystem management. Forest management in Ontario has moved through the phases of increased presence and management of non-timber values. On this trajectory, it has been noted that non-timber values were sometimes treated merely as constraints to forest management operations, were not integral to the forest management, and were lacking management objectives

(Baskerville 1986). The integration of non-timber values into forest management planning needs to include their definition, the relation to and impacts on them by forest management practices, and their protection and management objectives. The FMPM 2004 provides broad indicators, objectives, and general non-timber values targets, and adjoining forest management guides and guidelines provide definitions and management prescriptions for natural, heritage, and tourist values. The definition, protection, and management objectives regarding Aboriginal values are not dealt with in the FMPM 2004 or the associated guides and guidelines. Instead, the treatment of Aboriginal values is left to the local consultations between the OMNR and the planning team and Aboriginal communities when developing individual FMPs. This approach potentially creates inconsistencies in space and time because FMPs are made for individual FMUs and are redone every 10 years. While a highly prescriptive approach to defining, protecting, and managing Aboriginal values would likely falter, due to the specific character of the values and their treatment by their users (see Chapter 6, Section 6.2.3.2), a set of standards would help in creating a degree of consistency across management units, necessary for monitoring and assessing results, and for dealing with Aboriginal values when the participation of Aboriginal communities or value users is low or absent. A guideline similar to the Management Guidelines for Forestry and Resource Based Tourism (see Chapter 3, Section 3.3) might serve as an appropriate approach to incorporating Aboriginal values into forest management planning.

Aboriginal values are part of Aboriginal land use and therefore are representations of active human interactions with the landscape and natural resources. Furthermore, Aboriginal values are cultural expressions—they can be established through cultural ceremonies, or they can be treated in a specific cultural way. As such,

Aboriginal values can extend spatially beyond the objects by which they are named, e.g. they become more than a trapper's cabin, or a burial site. Most importantly, their functions, meaning, significance, and extent, are defined by Aboriginal people. For these reasons, the information needed to establish standards on definition and protection of Aboriginal values can be learnt or observed only from Aboriginal people. This information can be derived through applied research and then used to support or develop forest management policies. Unfortunately, research on Aboriginal values in forest management in Ontario is presently lacking, from both governmental and academic sources. This is in contrast with other, natural, social, and economic spheres of forest management in Ontario, where research and derived policies are becoming commonplace. Ecosystem management assumes that humans and their activities are embedded in nature, so it is hoped that Aboriginal values will receive treatment equal to other values' treatment in forest ecosystem management in Ontario.

7.9 FUTURE RESEARCH

Lack of substantial existing research on Aboriginal values and their incorporation into forest management planning in Ontario creates the need for a range of research projects. Because the incorporation of Aboriginal values in forest management planning is not only a question of mapping and designating protected areas and forest management treatments, but also a question of the type and intensity of land use and of consultation, required research should include these broader aspects of Aboriginal values as well. Some of the research areas that need further examination are as follows:

- To expand upon the individual Aboriginal values covered in this thesis and to learn from Aboriginal land users about appropriate forest management practices

around other Aboriginal values by simulating different harvesting and silviculture methods through VR GIS models.

- To obtain views from Aboriginal values users that have had their values incorporated and protected during forest management about the effectiveness of the protection.
- To determine age and gender variations within Aboriginal communities with respect to the type of Aboriginal values used and use intensity.
- To determine zones of use intensity and of Aboriginal values types around Aboriginal communities with respect to socio-economic conditions and the geographic position of the communities.
- To compare through a case study approach an Aboriginal community that has had a successful process of identifying and protecting Aboriginal values with a community that has not and to determine the causes for the different outcomes.
- To find out if there are variations in views on how to define and protect Aboriginal values among representatives of the Aboriginal treaty organizations, Aboriginal community leaders, and individual Aboriginal land users.

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APPENDIX I: INVITATION LETTER, INFORMED CONSENT FORM

Invitation Letter

Tomislav Sapic, MScF Candidate
Faculty of Forestry and the Forest Environment
Lakehead University, Thunder Bay, ON P7B 5E1
PH: (807) 343-8299; email: tsapic@lakeheadu.ca

Dear Invitee,

Have you ever participated in an exercise, as part of forest management planning, to identify how you as an Aboriginal person use your traditional land? This process of identifying Aboriginal land use and values is part of forest management planning in Ontario. In the 1996 Forest Management Planning Manual, a process was introduced which was referred to as Native values collection and protection. In the draft revised Manual, released in November 2003, it is renamed Aboriginal values collection and protection.

Aboriginal values have been collected and their protection designated in forest management units where forest companies have been issued Sustainable Forest Licenses to conduct forestry activities such as building roads, logging and planting. Aboriginal values have included trapping and hunting areas, trapper's cabins, camps, spiritual sites, and medicinal plants sites, among other places. Aboriginal values collection and protection has been conducted by the Ministry of Natural Resources (MNR) with the involvement of planning team members, including forest industry representatives. There have been objections by Aboriginal communities with respect to how the Aboriginal values have been collected and protected. In order for forest management planners to improve the collection and protection of Aboriginal values, there needs to be an understanding and agreement by all parties involved—Aboriginal people, the MNR and forest industry license holders—about how to improve this aspect of forest management planning.

If you have been asked to describe and identify your land use for the purpose of forest management or if you use Aboriginal values, **I would like to invite you to a focus group meeting in which the problems related to identifying and protecting Aboriginal values will be discussed**. The focus group will concentrate on the problems surrounding the mapping of Aboriginal values and their protected areas, with the intention of identifying problems and offering possible solutions by using some newly available mapping tools. There will be no more than nine other people from Aboriginal communities attending the focus group, who have participated in similar exercises of Aboriginal values collection and protection.

Today, the collection and protection of Aboriginal values is becoming more and more important and is included as a requirement in the Ontario's forestry regulations following the legal requests to uphold Aboriginal and treaty rights, and is being

recognized in the sustainable forest management as essential part of a broader area of non-timber values which need to be addressed to achieve complete sustainability.

I am a Master's student at the Faculty of Forestry and the Forest Environment, working on my Master's thesis on Aboriginal values in forest management in Ontario, and will be using the focus group study for my thesis' research. I will be acting as a moderator during the meeting.

If you choose to participate, you will be a part of a focus group that will be held in an atmosphere of open discussion and equal participation. The focus group's goal is that the participants come forward with their experiences, observations, opinions, and ideas, that the problems get defined and possible solutions offered in a group environment. Everyone's opinion and input will be welcomed and considered equally important. The meeting will last for approximately 2 hours.

If you have decided to participate in the focus group, please read and sign the enclosed informed consent form and fill out the attached questionnaire on Aboriginal values.

There are no psychological or physical risks associated with participating in this focus group. All information that you provide will be kept in confidence and securely stored at Lakehead University for a period of seven years. You may withdraw from the study at any point, at your wish. Following the focus group meeting, if you wish, you will be consulted about the observations and conclusions that will have been made based on your participation and you will be presented the findings of the project upon its completion.

Please feel free to contact me if you have any questions!

Sincerely,

Tomislav Sapic
Graduate student
(807) 343-8299
tsapic@lakeheadu.ca

Informed Consent Form

My signature on this sheet indicates that I agree to participate in a Master's thesis research by Tomislav Sapic on Aboriginal values in forest management planning in Ontario and it also indicates that I understand the following:

1. I am a volunteer and can withdraw at any time from the study without penalty.
2. There is no apparent risk of psychological or physical harm.
3. The data I provide will be confidential.
4. The data will be securely stored at Lakehead University for a period of seven (7) years.
5. I will have an opportunity to review the thesis prior to its completion and, if I desire so, to have my comments included in the thesis.
6. I will have access to the final version of the thesis and will be sent a copy of the full thesis or a summary, if I wish.

I have received explanations about the nature of the study, its purpose, and procedures.

_____	_____	_____
Name (please print)	Signature	Date

APPENDIX II: QUESTIONNAIRE ON ABORIGINAL VALUES

Questionnaire on Aboriginal Values

Current forest management regulations in Ontario require protection of Aboriginal values when conducting forest management planning on the Crown land. Ministry of Natural Resources and a forest management planning team should consult with affected Aboriginal communities and describe in a Forest Management Plan (FMP) how Aboriginal values will be protected. Aboriginal values are mapped and placed on an Aboriginal Values map and their proposed protection is incorporated in the forest management planning.

The following is a list of Aboriginal values that would be usually recorded in a forest management plan. Please read the list and answer the questions below it.

Trapper's Cabin
Fish Spawning Site
Canoe Route
Wild Rice
Trapline Trail
Caribou Calving Site
Caribou Concentration Area
Portage(s)
Moose/Caribou Concentration Area
Summer Trail
Eagle Nest
Winter Trail
Heronry
Berry Picking Site
Hunting Cabin
Waterfowl Staging Area
Trapping Tents
Waterfalls
Eagle Area
Fishing Area
Moose Concentration Area
Bear Trapping Area
Waterfowl Hunting Area
Cold Water Fishery
Moose Hunting Area
Moose Calving Site
Osprey Nest
Caribou Hunting Area
Trapline
Pictograph
Meeting Place
Archaeological Site
Cemetery

Sacred Place
Traditional Campsite
Medicinal Plant Gathering Area

Question 1:

Do you think that the above list includes all Aboriginal values? Yes □ No □

Question 2:

If the answer to the previous question was No, please provide in the space below Aboriginal values that you think were missing in the values list (please use additional paper if the space is not sufficient):

APPENDIX III: INTERVIEW AGENDA

INTERVIEW AGENDA

Introduction

Each participant will be asked to introduce herself or himself, stating the community she or he is coming from, occupation and personal relation to the subject of Aboriginal values (type and extent of traditional land use, type and extent of working with Aboriginal values for the forest management purposes, etc.).

Discussion on Aboriginal values currently used in the forest management regulations

Participants will discuss results of the survey that each participant received in the invitation package and Aboriginal values in forestry in general.

Discussion on preferable land representation media

Participants will be presented different representation media (forestry thematic map, plain map, Visual GIS, aerial photography) of a boreal forest and will be asked to rank and discuss these media in terms of their suitability for describing Aboriginal values description and protection.

Discussion on forest harvesting within traplines

Participants will be presented with different scenarios of harvest patterns within a trapline and will be asked to discuss the presented scenarios and propose their view of appropriate harvest patterns within traplines.

Discussion on protection of individual Aboriginal values

Participants will be presented with map cases of a trapping camp, burial site and vision quest site, with their protected areas as currently designed in forest management planning. Participants will be asked to discuss the presented cases and, if not satisfied with the protection designs, give their suggestions on how these protections should be designed. Questions of information confidentiality will also be discussed.

General discussion

Participants will be invited to provide additional comments on the subjects covered in the meeting and to introduce areas and problems not included in the meeting subjects.

Close

Terminology

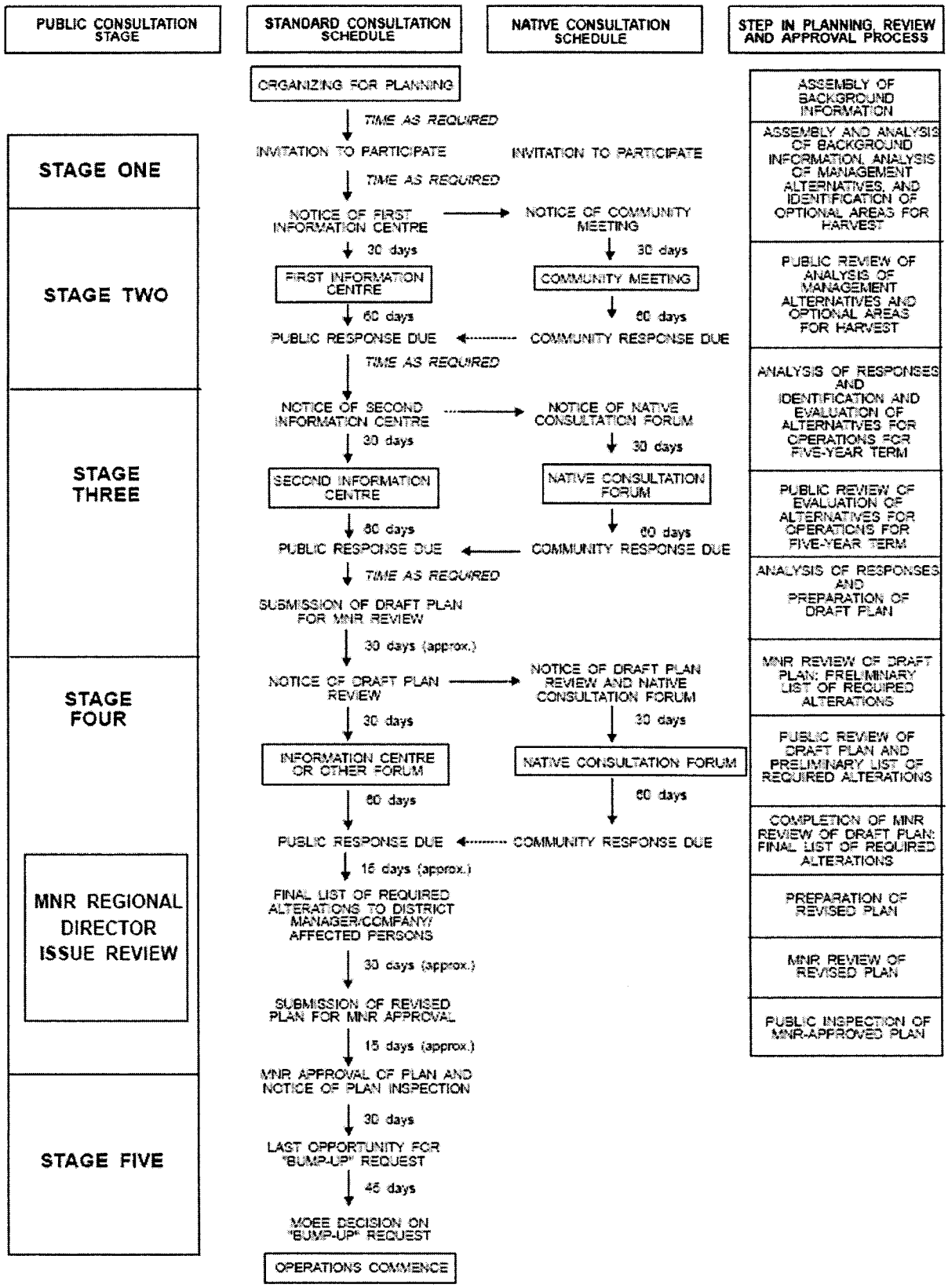
'Moderator' – researcher playing a role of the meeting moderator.

'Aboriginal values' – traditional land use and cultural sites as described in the Ontario Ministry of Natural Resources' Forest Management Planning Manual.

'Visual GIS' – landscape description technology that uses images of real trees to build a three-dimensional forest inventory model.

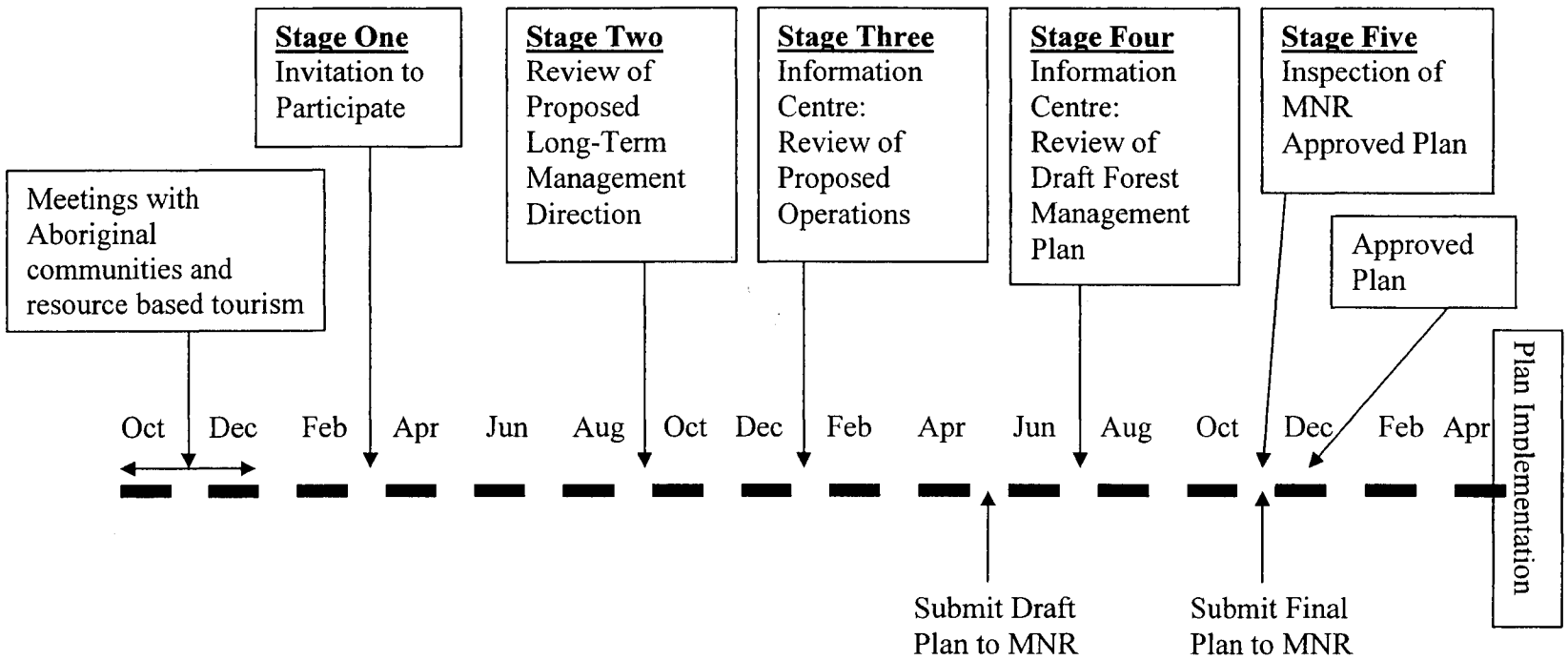
'Aerial photography' – black and white photography of the land taken from an aeroplan.

APPENDIX IV: NATIVE AND PUBLIC PUBLIC CONSULTATION PROCESS IN FMPM 1996



Source: FMPM 1996 (OMNR 1996a: Section A, 3.3.1)

APPENDIX V: PUBLIC CONSULTATION PROCESS IN FMPM 2004



Source: FMPM 2004 (OMNR 2004: Section A, 3.3.3.1)