

**A Journey of a Thousand Miles Begins with a Single Blueberry:
Learning Journeys of the Whitefeather Forest,
Pikangikum First Nation, Ontario**

By

C. Jane Driedger

A Thesis
Submitted to the Faculty of Graduate Studies
In Partial Fulfillment of the Requirements
For the Degree of

Master of Natural Resource

Management

Natural Resources Institute

University of Manitoba

Winnipeg, Manitoba

August, 2006

THE UNIVERSITY OF MANITOBA
FACULTY OF GRADUATE STUDIES

COPYRIGHT PERMISSION

**A Journey of a Thousand Miles Begins with a Single Blueberry:
Learning Journeys of the Whitefeather Forest,
Pikangikum First Nation, Ontario**

By

C. Jane Driedger

A Thesis/Practicum submitted to the Faculty of Graduate Studies of The
University of

Manitoba in partial fulfillment of the requirement of the degree

Of Master of Natural Resources Management (M.N.R.M)

(c) 2006

Permission has been granted to the Library of the University of Manitoba to lend or sell copies of this thesis/practicum, to the National Library of Canada to microfilm this thesis and to lend or sell copies of the film, and to University Microfilms Inc. to publish an abstract of this thesis/practicum.

This reproduction or copy of this thesis has been made available by authority of the copyright owner solely for the purpose of private study and research, and may only be reproduced and copied as permitted by copyright laws or with express written authorization from the copyright owner.

Abstract

The purpose of this research was to work cooperatively with Pikangikum community members to identify and document a sub-set of values and meanings of their cultural landscape. The research objectives were to: 1) Explore the dynamics of cultural landscapes in the Whitefeather Forest, 2) Identify possible interpretive/ educational sites and themes, 3) Identify and document plant and other cultural values found at cultural landscape sites, 4) Investigate ways in which indigenous knowledge can be accommodated into school curricula, 5) Create educational materials for use in developing programs and activities for youth, adults and tourists.

Field work took place in the Whitefeather Forest surrounding the community of Pikangikum, Ontario August to October, 2004. It was a participatory approach in which I traveled to various sites on the land with community researchers and elders to document plant uses, stories, and ways of learning. Community workshops where results were presented took place before, during, and after the field work. Through the act of journeying on the land and describing sites with words and photos, I created examples of 'learning journeys'. These are actual routes elders could take youth and/or tourists on as a way to teach them about the cultural landscape and Anishinaabe ways of learning/teaching: a type of environmental education. The learning journey approach to education is applicable to the Whitefeather Forest because it is a

medium to maintain customary stewardship practices, cultivate new values and relationships in a variety of people, and maintain old and foster new livelihoods for Pikangikum. Learning journeys use indigenous knowledge and curriculum based knowledge and can be adapted to any setting while respecting different ways of knowing.

Acknowledgements

I thank first and foremost my colleagues in Pikangikum who worked with me throughout my time there and gave me not just information for my thesis but also an invaluable experience that has changed me for the better. There are many people who guided me along the journey: George B. and Lucy Strang, Alex Suggashie, Paddy Peters, Reggie, Murray, Marlene, Jackson, Josephine, Amy, Lebius, Silas, Henry, Barry, Georgina, and all the elders who I had a chance to meet. I would also like to thank Alex Peters, President of the Whitefeather Forest Management Corporation and the Chiefs and Councils for supporting my work in Pikangikum.

Thanks to my committee: Dr. Fikret Berkes, Dr. Leslie King, and Dr. Ted McLachlan for the encouragement and constructive criticisms. And a huge thank you to my advisor Dr. Iain Davidson-Hunt for sticking by me through the good, bad, and even the ugly times.

I have to thank all my friends in Winnipeg for keeping me sane (for the most part), especially: Carrie-Anne for the nightly chats and cowboy hats, Janene for understanding even when I make no sense, Manju for timbits™ and scholarly advice, Damian for the recipes and the vacation, Tessa for letting me hide out in your basement, my UMREG colleagues for keepin' it real, everyone else who made me laugh, and to everyone who rides a bike- you make me happy.

SSHRC and SFMN provided support through grants to Dr. I. Davidson-Hunt.

CONTENTS

Abstract	i	
Acknowledgements	iii	
List of Figures	v	
List of Tables	v	
List of Plates	vi	
Acronyms	vii	
Chapter 1	How it All Began	1
1.1	The Journey Commences	1
1.2	Purpose and Objectives	2
1.3	Study Area	5
1.4	The Whitefeather Forest Initiative	5
1.5	The Boreal Forest	7
1.6	Livelihoods in the Whitefeather Forest	8
1.7	Organization of Thesis	10
Chapter 2	Methods	11
2.1	Methodological Framework	11
2.2	Methods	12
2.2.1	Phase 1 - Planning	13
2.2.2	Phase 2 - Fieldwork and Primary Data Collection	15
2.2.3	Phase 3 - Analysis and Verification	18
2.2.4	Phase 4 - Final Output	19
2.3	Limitations as Opportunities	19
Chapter 3	Literature Review	22
3.1	Cultural Landscapes	22
3.2	Ojibway History	25
3.3	Indigenous Knowledge	30
3.4	Landscape-level Environmental Education	36
3.5	Literature Summation	44
Chapter 4	Wonders of the Whitefeather Forest	46
4.1	Introduction	46
4.2	Site Descriptions	48
4.2.1	Pikangikum Lake	48
4.2.2	Berens Lake	56
4.2.3	Stormer and Kirkness Lakes	63
4.2.4	Roderick Lake	72
4.3	Plant Values	79
4.3.1	On the Lake	79

4.3.2	In the Forest	84
4.4	Cultural Values	90
4.5	The Cultural Landscape of the Whitefeather Forest	94
4.6	Documenting a Cultural Landscape	99

Chapter 5	Learning Journeys	101
------------------	--------------------------	------------

5.1	Application of Learning Journeys	101
5.2	Curriculum Based Education	104
5.3	Adult Education/Visitor Learning Experiences	106
5.4	Economic Opportunities	107
5.5	Learning Journey Examples	107
5.6	Chapter Summary	117

Chapter 6	Concluding Thoughts	118
------------------	----------------------------	------------

6.1	The Medium is the Message	118
6.2	To Wrap it Up	119

Works Cited	127
--------------------	------------

APPENDIX 1
 APPENDIX 2
 APPENDIX 3
 APPENDIX 4
 APPENDIX 5

List of Figures

Figure 1	Study Area	5
Figure 2	The Whitefeather Forest	5
Figure 3	Pikangikum Lake Places Visited	51
Figure 4	Berens Lake Places Visited	58
Figure 5	Stormer and Kirkness Lakes Places Visited	67
Figure 6	Roderick Lake Places Visited	74
Figure 7	New Ways of Learning	108
Figure 8	Learning journey, Pikangikum Lake	109
Figure 9	Learning journey, Berens Lake	112
Figure 10	Learning journey, Stormer/Kirkness Lakes	115

List of Tables

Table 1	Plant Names and Uses	97
---------	----------------------	----

List of Plates

Plate 1	<i>Mashkiigobagoon</i>	52
Plate 2	Shoreline habitat	52
Plate 3	View from blueberry patch	53
Plate 4	<i>Miinaan</i>	53
Plate 5	Inlet with <i>manomin</i>	54
Plate 6	Otter	54
Plate 7	Alex Suggashie with <i>aniipiimiinaan</i>	55
Plate 8	Alex Suggashie with pike	55
Plate 9	<i>Manomin</i> flowers	59
Plate 10	Field of <i>manomin</i>	59
Plate 11	<i>Wiikansh</i>	60
Plate 12	George harvesting <i>wiikansh</i>	60
Plate 13	Duck habitat	61
Plate 14	George with old cabin	61
Plate 15	Rapids	62
Plate 16	Big Drumming Place Island	62
Plate 17	George and Lucy Strang with muskrat lodge	68
Plate 18	George and Lucy paddling	68
Plate 19	<i>manomin</i> close up	69
Plate 20	Old commercial fishing site	69
Plate 21	Jane by rapids	70
Plate 22	Lucy Strang by tree	70
Plate 23	Jane digging <i>watapiin</i>	71
Plate 24	Pictograph	75
Plate 25	Old cabin	75
Plate 26	Renata with fish	76
Plate 27	Jackson with fish	76
Plate 28	Fish smoking tipi	77
Plate 29	Whitefish getting smoked	77
Plate 30	Jane preparing fish	78
Plate 31	Sucker spawning grounds	78

Acronyms

PFN	Pikangikum First Nation
WFMC	Whitefeather Forest Management Corporation
WFRC	Whitefeather Forest Research Cooperative
TEK	Traditional Ecological Knowledge
WFPA	Whitefeather Forest Planning Area
OMNR	Ontario Ministry of Natural Resources
NTFP	Non-Timber Forest Product
EE	Environmental Education

Chapter 1 – How it All Began

1.1 The Journey Commences

I grew up in the farming town of Roland, Manitoba. For many decades, the population has hovered around three hundred, with another six hundred residents living on farms in the municipality. When the grain elevator was torn down I, like many other “Rolanders”, felt sad, empty, and nostalgic: and my family did not even farm. More was lost than just a building. The town was born on the rail line back in 1889. The elevator, in all its giant silver grandeur, formed a comfortable, familiar skyline that always welcomed me home. It also welcomed the many farmers whose livelihoods depended on the very reason for its existence- grain, grown in square fields one mile wide by one mile wide. With that many farmers coming into town, the coffee shop was essential in a small town. Townsfolk discussed local politics and the weather while scarfing down fried eggs and greasy potatoes. For my brother and me, the elevator was a focal point of fun and competition. Our baseball skills improved as we spent countless days seeing how often we could hit the elevator with the ball.

Cultural landscapes are not objects or places in and of themselves, but include the social and cultural processes of which they are a manifestation (Robertson and Richards 2003). Size and geographic area delineate a physical landscape, but a *cultural landscape* is represented by places and events meaningful to the specific culture or group of people. To someone from a city, the elevator referred to above may have been just another building, but to the people who lived in the area, it was one part of a web that represented home, life, money, memories, and social relationships that change over time. While the cultural landscape of Roland is very visible and meaningful to me because I experienced life there, this research focused on learning about the cultural landscape of the

Whitefeather forest while aided by partnerships with elders from Pikangikum First Nation (PFN).

This research was undertaken as a partnership with PFN and the Whitefeather Forest Management Corporation (WFMC) and guided by the Whitefeather Forest Research Cooperative (WFRC) agreement (see Appendix 1).

1.2 Purpose and Objectives

The purpose of this research was to work cooperatively with Pikangikum community members to identify and document a sub-set of values and meanings of their cultural landscape. The objectives were to:

- 1) Explore the dynamics of cultural landscapes in the Whitefeather Forest.
- 2) Identify possible interpretive/educational sites and themes.
- 3) Identify and document plant and other cultural values found at cultural landscape sites.
- 4) Investigate ways in which indigenous knowledge can be accommodated into school curricula.
- 5) Create educational materials for use in developing programs and activities for youth, adults and tourists.

The study of cultural landscapes is important because it incorporates a holistic view encompassing elements such as living organisms, water, soil, minerals, values, meanings, and beliefs (Toupal et al. 2001; Stoffle and Halmo 1997). In a time when resource management is usually carried out within the sphere of economic development and a world driven by profit (Clover 2003), research using a cultural landscape scale can provide the opportunity for people to gain a deeper understanding of and appreciation for their landscape. Often in the past the common notion was that protecting nature involved keeping people out of it. This, however, is nonsensical, as humans have always played a role in shaping landscapes (Farina 2000) and are now the principle agents of change on the earth (Gragson and Blount 1999). Examining cultural landscapes partially involves documenting species and places important for subsistence, cultural, and spiritual reasons. Knowing what species and places are important to Pikangikum people will help the WFMC manage the biological aspects, while respecting their culture.

By focusing on landscape values and education, this research can provide some information and ideas for PFN, aiding them in their goal of managing the Whitefeather Forest according to their values. Like many other First Nations in Canada, PFN is undergoing a period of change and adaptation. While they are working towards economic development and new land-based opportunities, PFN wants to ensure that any changes are compatible with their own principles and traditional knowledge of the land. Engaging people in exploring their traditional

values and producing stories and data in a written format encourages the training of youth to create educational tools and new land-based opportunities. Although aided by partnerships with outside researchers such as universities and government agencies, the ultimate products of this research will be used by PFN so that they can pursue economic development while managing the lands according to their values.

The people who live in and around Pikangikum are Anishinaabe, also called Ojibway, whose ancestors have lived on that land since time immemorial and maintained an indigenous way of life (WFI 2003). Traditional ecological knowledge (TEK) about the land has been passed down through generations. Although relationships with the land are changing in PFN, the land is still important for hunting, fishing, and gathering and providing a sense of well-being. Animals and plants have and do provide subsistence as well as an economy for the region. The area and the people also possess a rich cultural uniqueness, both historically and presently. It is the intention of the community to diversify their economy by developing forestry and tourism and creating protected areas through the Whitefeather Forest Initiative (described below) (WFI 2003). As well, the combined areas of the Whitefeather Forest, Woodland Caribou Provincial Park, Atikaki Provincial Park, and the Poplar River, Pauingassi, and Little Grand Rapids First Nations are seeking designation as a World Heritage Site. This area is currently on Canada's tentative list for World Heritage Sites (PFN 2006).

1.3 Study Area

The study area was the Whitefeather Forest Planning Area (WFPA) (figure 1) in northwestern Ontario. Centred on the headwaters of the Berens River watershed, this 1.3 million hectare area of land comprises the community of Pikangikum as well as areas traditionally occupied and used by the Pikangikum First Nation (WFI 2003). PFN is located approximately 120 kilometres north of Red Lake, Ontario.



Figure 1 Study area



Figure 2 The Whitefeather Forest

1.4 The Whitefeather Forest Initiative

The Whitefeather Forest Initiative (WFI) is a community-based land use planning process based on the principles of sharing, cooperation, respect, and bringing together the “best of local indigenous knowledge and western science” (WFI 2003). It was initiated by PFN in cooperation with the Ontario Ministry of Natural Resources (OMNR) in this region beginning in 1996. Through this

planning process, PFN plans to bring economic renewal to the community and maintain cultural integrity and biodiversity (WFI 2003). Goals of the initiative are to secure forest management tenure, establish protected areas, and diversify the PFN economy while ensuring conservation of biodiversity and resource abundance (WFI 2003). Under the WFI umbrella, the WFRC is an initiative involving the Ontario MNR, Sault College, the University of Manitoba, Lakehead University and the University of Winnipeg. The WFRC aims to foster partnerships between elders of the community and outside research partners and create a knowledge network (see appendix 2). The land-use plan was approved in June, 2006.

PFN has conversed with many partners who are now working cooperatively on the WFI. These include, among others: Universities, Ontario MNR, Ontario Parks, and other first nations. The partnership with Ontario Parks includes the future creation of an Indigenous Knowledge Teaching Centre, which is a vision of the elders (see appendix 3). Pikangikum is and will continue to seek other partners interested in this venture. The Teaching Centre would be a physical building located on the Nungessor road for people from the community, youth, university researchers and tourists to use and share. Education and job training for contemporary livelihoods would be the focus of activities, with research and education concentrating on the cultural landscape and traditional knowledge. Materials from such research and training of local guides would facilitate tourism as well.

1.5 The Boreal Forest

The Whitefeather Forest is in the boreal forest ecoregion, which stretches across Canada and covers 58% of our land mass. The Canadian boreal forest represents 25% of the world's remaining intact forest, is home to millions of lakes and wetlands, and contains a high degree of biodiversity, from lichens to large mammals (CBI 2006). Millions of birds migrate to the boreal forest in the summer or live there all year. Plants and wetlands of the boreal forest produce oxygen, represent a large and important carbon sink, and filter millions of litres of water daily. One half of Canada's wood harvest comes from the boreal forest, although currently less than 10% of the region is strictly protected from development (CBI 2006). Ecologically the region is globally valuable in maintaining large intact habitats, and tempering the effects of climate change. It is culturally significant too, as the area is home to 4 million people, including over 600 First Nations communities (CBI 2006).

Dominant tree species of the boreal forest are spruce (*Picea spp.*), pine (*Pinus spp.*), poplar (*Populus spp.*), birch (*Betula spp.*), balsam fir (*Abies balsamea*) and tamarack (*Larix laricina*), with black (*Picea mariana*) and white (*P. glauca*) spruce, jack pine (*Pinus banksiana*) and poplar dominating the Whitefeather region.

1.6 Livelihoods in the Whitefeather Forest

Pikangikum is the only First Nation community within the Whitefeather forest planning area, but they have agreed to work with the neighbouring First Nations of Poplar River, Pauingassi, and Little Grand Rapids to create a region of linked protected areas. The WFPA is bordered to the south by the Red Lake and Trout Lake Sustainable License units, where logging is currently occurring as a commercial activity (WFI 2003).

Moose (*Alces alces*) and fish are the most important animals for providing food to the people of Pikangikum, with the hunting and trapping of ducks, caribou (*Rangifer tarandus*), and beaver (*Castor canadensis*) also providing sustenance. Noteworthy plants used as foodstuffs are blueberries (*Vaccinium spp.*) and wild rice (*Zizania aquatica*), although many other plants are utilized for food, medicines, tools, building materials, and crafts.

The economy of northern communities, including Pikangikum, is mixed with a 'formal' economy of wages and transfer payments and an 'informal' subsistence economy. The subsistence economy involves activities such as hunting, trapping, gathering, and fishing, and also an in-depth knowledge of and close relationship to the land (Henry 2002). Such activities have always been and are still significant for the people of Pikangikum, with many trappers and their families camping out on the land away from town for days, weeks or months in the pursuit of a supply of moose or caribou meat. Fur trading, commercial fishing

and sale of wild rice (*manomin*) are examples of subsistence activities that have contributed to a wage economy in Pikangikum. Also augmenting the formal wage economy are band office, maintenance, education, and local commercial businesses. Future endeavours like logging and tourism will also contribute to an evolving mixed economy.

The WFPA is informally divided into trapline areas, each with a senior trapper(s). The trapline system was created in 1946 by the OMNR. As George B. Strang says “the people who set the boundaries were called the ‘meat bosses.’ They designated areas for us to trap in and we have not broken these areas to date” (translation from written text, in Draft land use strategy, 2006). This system allocates a designated area for each family to hunt, fish, and trap in. As people grow up hunting with their families in these specific areas they develop a keen sense of place. Even without maps, people are very familiar with the layout of the landscape and know where the best fishing, hunting, and trapping spots are, and where to find berry patches, medicinal plants, birch trees for harvesting bark and more. On the landscape are culturally important places such as burial grounds, thunderbird nests, traditional ceremony sites, old campgrounds, and pictographs. Many of these cultural sites would not be visible to an outsider. For a variety of reasons, many young people today do not spend as much time on the land as their parents and grandparents did during their youth, and therefore do not have the same intimate knowledge of the landscapes.

In terms of providing food, animals were much more important than plants. During the winters (before a grocery store), people survived almost solely on meat, they did not really preserve berries or plants in any way in winter, only in summer (Lucy Strang, Katie King, personal communication, Sept 8 2004). Today plant gathering is much less common than it was one and two generations ago. Elders and many middle-aged people, though often not collecting and using plants to the extent that people used to, still know what plants to use for food or medicine, where to find them, and how to use them. Because plants and related habitats cannot move, they are relatively easy places to visit and research.

1.7 Organization of thesis

This thesis contains six chapters. Chapter two outlines methods undertaken for both preparation and completion of my field work and concludes with limitations and opportunities. The third chapter introduces literature about Ojibway history and plant use and delves into environmental education in the past and present. Chapter four presents descriptions of where I went, what I did, and what I saw. It is mainly a documentation of primary data that was collected. Chapter five describes how the kind of data described in chapter four can be used to create 'learning journeys' and the various applications of these journeys. The document concludes with my reflexive analysis and general conclusions.

Chapter 2 – Methods

2.1 Methodological Framework

This research falls within the qualitative paradigm, characteristics of which are: the researcher interacts with those they are studying with, the research aims to study human interactions and behaviours, and the researcher admits to and reports her or his values and biases (Creswell 1994). The nature of this research was such that it can be described as a cooperative research approach (Davidson-Hunt 2003b; Davidson-Hunt and O'Flaherty 2006). There are many partners in the Whitefeather Forest Initiative who come from different cultural, linguistic, economic, educational, and religious backgrounds. Cooperation is necessary to incorporate these differences to produce knowledge that will benefit the variety of people and groups.

The methodology can be considered adaptive-interactive. Plans continually changed, and so adaptation of my methods and objectives was crucial. It is extremely important when studying ecological knowledge with local people that they are actively involved in the research, and are actually 'research partners' as opposed to 'informants', a term used often in the past (Cotton 1996). Before any research even begins, it is highly recommended, if not absolutely necessary, to seek a willingness to cooperate and permission of the local people (Martin 1995; Marles 2001). My research was undertaken under a partnership agreement between the University of Manitoba and the WFRC (see Appendix 1) and verbal

approval was given by elders at a preliminary workshop before my fieldwork began.

2.2 Methods

Research was divided into four main phases, described in more detail below. The first was the planning stage, which involved meeting with elders: potential research partners from Pikangikum. The second more intensive phase was the fieldwork. The primary methods employed, among others, were journal keeping and participant observation. Activities undertaken included participating in daily activities on the land with research partners. For example, I went fishing, collected plants, and checked beaver traps. I resided in Pikangikum for a total of 75 days; however, for various reasons, the total number of days I spent on the lakes and forests outside of the town was only 20. Analysis of data began in Pikangikum, as I had plenty of free time, and also needed people in the WFMC research office to help translate videos and verify spelling of Anishinaabe words. The fourth phase involved writing, the creation of posters and maps based on the results, and verification of information.

2.2.1 Phase 1- Planning

Before field research began, preparation including the selection of a research site, the selection of methods, choosing a representative population sample, and developing strategies for management and analysis of data were necessary (Dewalt and Dewalt 2002). In early August, 2004, a WFI meeting was held in Pikangikum with the Chief and Council of PFN and over thirty elders were present. At this time I presented an outline of my proposed research to the elders, translated by Mr. Alex Peters, WFMC president. (see appendix 4 for a verbal script of this presentation). Concern was brought up by an elder about how much medicinal plant knowledge I was seeking, as he said the Creator has boundaries on who should know what. I assured the elders that I was not seeking any information about medicines, rather knowledge of 'every day' uses of plants. George B. and Lucy Strang, elders who have been previously involved with the WFI mapping project, agreed to be part of my research team.

This research was a cooperative learning approach and as per the WFRC Partnership agreement, there were principles and guidelines that I adhered to. A research protocol was developed according to the guidelines in the partnership agreement (see Appendix 2). The written protocol was important because it signified agreement between all parties, and outlined roles and authority. The process of creating a protocol allowed, through workshops, discussions, and

reviews of written work, the opportunity to build trust, mutual respect, and partnerships (Davidson-Hunt 2003b). Also specified in the protocol were considerations of consent and confidentiality. In the preliminary workshop, we discussed what the results would be used for and to whom they would be available to. Through the signing of the WERC partnership agreement, PFN had provided a process by which research can be cooperatively planned with university researchers. My proposed research was presented, and informed consent of individuals wishing to participate was demonstrated by a verbal agreement and their attendance at subsequent meetings and activities.

The Whitefeather Forest Management Corporation had already created a number of maps that indicate ecologically and culturally important sites and routes. These maps were created by community researchers and elders who traveled on the land to document the location of and modest descriptions of the sites. Examining these maps with Pikangikum elders was part of the process to determine my research sites. In the rest of this document, these maps will be referred to as WFMC maps.

Most of the voyages on the land were conducted with a research team. Along with myself, I was often accompanied by a community researcher/translator, and one or two elders, as described in more detail below. Occasionally on trips I joined people who were not considered elders, but I obtained valuable and interesting knowledge nonetheless.

2.2.2 Phase 2- Fieldwork and Primary Data Collection

Originally I was hoping to focus on ethnobotany- the relationships between local people and the plants in their environment. Specifically, I suggested to the community the idea of focusing on plants used as teas and flavourings. Presenting a specific topic of research gave the elders a clear idea of what they could teach me and could act as a tangible starting point. This topic was suggested at the preliminary workshop to discuss the feasibility and the interest of elder participation. As previously mentioned, an elder spoke of concerns about medicinal secrets, which made it apparent that what I consider a “tea” is generally considered *mashkiki* (medicine), even though I had not once mentioned the word “medicine”. The first major adaptation occurred here, when I, with the help of Chief Paddy Peters, broadened my objectives to include plants used in every day life, as food, tools, dyes, animal habitats, etc.

Research was undertaken using the following methods, beginning with general methods and becoming more specific. For the sake of clarity, the following methods have been described as separate units, but it is important to note that they are not mutually exclusive and were used in various combinations at different times.

Participant Observation

Participant observation is the most commonly undertaken method in cultural anthropology and ethnographic studies (Dewalt and Dewalt 2002), including ethnobotany (Cox 2001). It is through participating in the day-to-day activities with her research partners that she or he can most accurately observe and describe phenomena (Dewalt and Dewalt 2002; Jorgensen 1989).

Mentioned in Dewalt and Dewalt (2002) are typologies of different levels of participation. There are varying degrees of involvement run along a continuum from non-participation (observing from outside the research setting) to complete participation (in which the researcher becomes a member of the group), as opposed to being distinct categories. My situation is closer in the continuum to complete participation; however, since my time in the field was limited to 20 actual in-the-field days out of spending 75 days in the community, I remained more of an observant participant.

Journal

Journal keeping was an important means of recording data. Mine acted as a diary to expose my personal thoughts, feelings, and reflections. Also recorded were stories told by elders during the participation in daily activities, as well as notes about the physical settings, locations, and Anishinaabe words. My journal was recorded on paper, and then entered into a computer. Qualitative research,

especially with active participation of the researcher, is admittedly laden with values and biases (Creswell 1994). When these values and biases are expressed in a journal, the medium becomes especially helpful during analysis. It allowed me to consider how my thoughts may have influenced perceptions or even the data I recorded.

Research Team

Elders, a younger community researcher, and I composed the research teams. I worked with various elders and translators, depending on who was available. An apprenticeship model describes the methods undertaken. Many elders speak only Ojibway, or their English is limited, so the community researcher was necessary as a translator. Under this model, however, the community researcher also traveled on the land with the elders and learned from them, so this method offered a new opportunity for inter-generational transmission of knowledge within their culture. In fact, when I went out with George B. Strang, on different occasions he brought two grandsons and his son as the translator. I too, was an apprentice.

Interviews

Informal, or semi-structured interviews utilize a minimal amount of pre-determined questions, letting probing questions arise through conversation (Pretty and Vodouhe 1997). Sometimes I would begin with a question about a

plant, and at other times my research partner would start talking about something and the conversation would go on from there. These conversations/interviews were recorded on paper or by video.

2.2.3 Phase 3- Analysis and Verification

Most of my collected data was organized in spreadsheets while I was in Pikangikum. With the help of the community researchers in the WFMC office, videos and scripts that were in Ojibway were translated to English. Verification and feedback were ongoing throughout the course of the research. During subsequent visits to the community, the research team helped me verify spelling, plant names, and incomplete information. Part of analyzing my data required a more extensive review of environmental education literature. Although this was not specific to Pikangikum, it was crucial to pull my data together into something tangible and comprehensible.

Similar to quantitative studies, a goal of qualitative research is to maximize the validity of the study. Validity refers to the extent to which the observations (results) accurately reflect the actual reality (Jackson 1999). WFRC partnership agreement research protocols stipulate that all research results must be presented to the community in clear language at community workshops. A powerpoint presentation of my results and conclusions was given to the community during a workshop in April, 2006.

2.2.4 Phase 4- Final Output

The information gathered about plant uses, values, cultural landscapes, etc. was used in conjunction with a literature review and my ability to create the educational/interpretive materials presented in chapter five. These materials can potentially be used in the school and the proposed Teaching Centre.

2.3 Limitations as Opportunities

All research projects have limitations, although sometimes limitations are actually opportunities in disguise. The most significant limitation in any participatory approach is objectivity. Participatory research “represents a continuum of closeness to an accurate description and understanding of observable phenomena” (Dewalt and Dewalt 2002:94). The Anishinaabe have a worldview much different than the one which I grew up with, so my understanding of the culture was mostly learned through experience, albeit limited by the relatively short time period of my field work. In retrospect, I discovered that my worldview was actually more similar to an Anishinaabe perspective than any other. It took living in the community for me to realize it. Still, the descriptions and interpretations given by me, the researcher, are biased by my own values, beliefs, and predetermined notions of what I expected (Creswell 1994; Jackson 1999). One historian (cited in Brown 1996:xi) called this

our “predicament of nature”-the chains that bind each of us to the cultural and social constructs we were raised in. For a researcher to really understand a different way of thinking and drastically alter values and biases would require a lot of time in the environment she is working in, which is not practical in this case. However, in retrospect I do not feel this was a limitation; I kept an open mind and was able to explore a cultural landscape as I saw it. This is a document of *my* experience, not a script of someone else’s.

The main, and often only, language spoken by Pikangikum elders is Ojibway; therefore I generally worked through translators. For various reasons, it was not always possible to find a translator when an elder was available. When I had a translator, information and meanings were probably lost or altered. However, had everyone spoke English, I would have never learned what *gimewan* means.

The weather greatly hindered my opportunities to get out on the land. I just happened to be in Pikangikum during the summer with the most rainfall in decades. Middle aged people there could not remember ever seeing the lake levels that high. As a consequence of this mass precipitation, many, many days were spent watching the downpour through the office window instead of being on the land. Every dock around town was submerged, and for a couple of weeks we were prevented from boating to Berens Lake due to dangerous rapids. The high water levels also drowned almost all the wild rice, so harvesting it was out of the question.

Cultural factors can also be considered limitations that were amplified by my relatively short length of time in the community. For example, every year in September the school and band office close for two weeks so families can go moose hunting. At first this presented an excellent opportunity for me: I had a week long moose hunting expedition planned with a family. However, the man I was to go with was not the senior trapper of the area, and ultimately could not get permission from his brother to use the cabin, so the trip was cancelled. More than one trip was cancelled, but this gave me the opportunity to do a lot of thinking and craft-making with forest plants.

Chapter 3 – Literature Review

3.1 Cultural Landscapes

It is difficult to accurately define the rather broad concept of cultural landscapes. One description is that cultural landscapes are reflections of the cultural groups that construct them and are “culturally and geographically unique areas” (Stoffle and Halmo 1994). Parks Canada’s definition is “any geographical area that has been modified, influenced, or given special cultural meaning by people” (Parks Canada 2003). However, terms such as ‘reflections’ or ‘geographical areas’ do not adequately elucidate the breadth and depth of what a cultural landscape is. Landscapes are not mirrors of social relationships, but rather they are interwoven with processes by which people shape, experience, and understand the world (Robertson and Richards 2003). Davidson-Hunt (2003a) adds the temporal aspect by defining a cultural landscape as “the physical expression of the complex and dynamic sets of relationships, processes, and linkages between societies and environments.”

The uniqueness of, and the difficulty in delineating a cultural landscape is that it may be visible to a certain group of people but may not be visible in the same way to another group of people (Davidson-Hunt 2003a). This is due to the differences in cultural perceptions, values, and interests in the land that people have. A cultural landscape can really only become visible to someone who

immerses themselves in the land and becomes “intimately aware of the forms, functions, and processes of [that] specific landscape” (Davidson-Hunt 2003a:23).

UNESCO’s World Heritage Centre defines three types of cultural landscapes: those intentionally created and designed by people, such as gardens or cities; “organically evolved landscapes” that have been shaped by people using them for traditional ways of life, such as the agricultural patchwork of the Canadian Prairies; and “associative landscapes” that are significant because of religious, spiritual, or cultural associations with nature, as opposed to material evidence (UNESCO 1996). These types of landscapes are not mutually exclusive and in areas such as the Whitefeather Forest, all types can be found in one area.

There are values and meanings attached to nature and the environment that cannot be measured in terms of economical value or practical use. Similarly, these values need not be translated to and recorded in technical or scientific jargon, although scientists sometimes feel the propensity to do this (Nabhan 1997). Each species, site, and event in an ecosystem tells its own unique story (Nabhan 1997). It is by discovering and paying attention to these stories that we as humans can connect with nature and appreciate it.

Contrary to the old opinion that the best way to conserve nature is to keep humans out of it is the fact that human activities have vastly shaped and played an important role in creating landscapes (Farina 2000), and are now the principle agents of change on the earth (Gragson and Blount 1999). However, much research of conservation strategies has been collected from 'non-manipulated'

ecosystems, with the goal of protecting these 'untouched' zones (Farina 2000). Gerard et al. (2004) suggest that a new paradigm in land management is emerging- one that recognizes the less tangible aspects of the land- symbols, emotions, and values. This is quite relevant to managing natural resources, as stakeholders not only have various economic or social concerns; along with a diversity of people comes a diversity of values and meanings (Gerard et al. 2004). Resource management cannot revolve around the notion that ecosystems can be broken down into distinct resource categories (e.g. water, mammals, trees) because "people, policies, and politics are as much a part of an ecosystem as are timber, fish, and wildlife" (Davidson-Hunt and Berkes 2001).

The idea of using cultural landscapes for conservation and management purposes has not been very effective to date. "Western" scientists have tended to isolate and categorize resources into the study of plants, or animals, or historic sites, which is convenient for managing these resources separately, but does not address the ways in which particular cultures view the land (Stoffle and Halmo 1997, Sterling 2002). The underlying premise of cultural landscapes is that they are holistic; the physical resources, traditional practices, beliefs, and values of a particular group of people are all interconnected and interrelated (Toupal et al. 2001; Stoffle and Halmo 1997). In fact, Robertson and Richards (2003:2) have the view that "the most important meaning attaching to landscape is the cultural."

Another obstacle to effective conservation lies in the people in charge of "conserving" the landscapes. Landscapes tend to be representative of the

dominant culture living in them (Robertson and Richards 2003), which is fine, until the dominant culture of a larger area (e.g. a country) attempts to 'manage' or 'conserve' a smaller area (e.g. an indigenous community) and inadvertently imposes their social, political, spiritual, and economic processes on the smaller area. Similar to this has been the habit of creating resource inventories of only physical elements such as artifacts, significant sites, or crafts (Toupal et al. 2001; Ingold 2000). Alternatively, resource management that takes into account cultural landscape studies should incorporate all resources, including plants, animals, air, water, minerals (Toupal et al. 2001), stories, and sacred sites.

3.2 Ojibway History

This section of the literature review attempts to focus on the Ojibway of Pikangikum. The term "Indian" is used here only when referring to texts that used that term.

The amount of literature about the Ojibway is not sparse. Much of the literature describes accounts of post-European contact, with emphasis on the fur trade, around which European-Indian relationships often revolved (Lytwyn 1986; Bishop 1974; Hallowell 1992; Morrison 2003). The Ojibway people, who call themselves Anishinabek (or Anishinaabe) (Hallowell 1992), linguistically belong to a larger Algonquian group of aboriginal people (Hallowell 1992).

Pikangikum First Nation is located on the Berens River, named after Joseph Berens Jr., who was a governor of the Hudson's Bay Company from 1812 to 1822 (Lytwyn 1986). To the Ojibway, it was known as *omimisipi*, or Pigeon River, referring to the now extinct passenger pigeon that once inhabited the area (Hallowell 1992).

A. Irving Hallowell was a historian and anthropologist who spent seven summers living with and studying the Ojibway along the Berens River in Manitoba and Ontario between 1930 and 1940 (Brown 1992). He also visited Pikangikum in 1932 with Chief William Berens as his guide and interpreter. By this time, native people were experiencing the effects of acculturation from the fur trade and from missionaries. Inland reserves, however, felt these effects to a lesser degree. Hallowell was amazed by the fact that "there were still un-Christianized Indians 250 miles up the river in the Pikangikum band" (Hallowell 1992:8). Common activities Hallowell observed in Pikangikum included: "women mending nets, chopping and hauling woods, and stitching the birch (*Betula papyrifera*) bark covers for their dwellings with spruce roots" (Hallowell 1992:9). He noticed that the people still all wore moccasins, carried babies in cradle boards, and dried the highly absorbent sphagnum (*Sphagnum spp.*) moss in the sun (Hallowell 1992). Signs of "civilization" to him included modern clothing, utensils, and canvas canoes, as opposed to the more traditional birch bark canoes.

Before the fur trade and the infusion of Europeans into Canada's north, aboriginal people remained widely scattered in the forest as the land was not

suitable for agriculture (Johnson et al. 1995). They lived a life of hunting, trapping, and gathering for subsistence (Vennum 1982). The fur trade introduced guns, commercial fishnets, metal tools, as well as alcohol and disease. Despite this, aboriginals still lived life similar to the past in that they remained scattered, followed migration routes of game, and depended on the forest to provide subsistence (Johnson et al. 1995). Hallowell thought that part of the reason for this is that the people entered into a cycle of debt to fur traders. They would take goods from the traders on credit, owing furs in exchange. In years of low beaver populations, they had not much else to offer. Trade goods were raising their standard of living, but there was no way in such limited time that they could acquire skills or infrastructure to manufacture these goods themselves. Thus they remained a hunter-gatherer society (Hallowell 1992). The area of the Pikangikum band was not as heavily involved in the fur trade as bands to the west and south.

Shortly after confederation in 1867, the federal government was quick to negotiate treaties with the Indians. Treaty number 5 (the Winnipeg Treaty) was willingly agreed to by Indians of Grand Rapids (on the Berens River) (Dunning 1959). Pikangikum band members were presumed to be part of this treaty, as it was reported that some went upriver to sign the treaty in 1875 (Dunning 1959). The treaty relinquished land title to the crown, which designated 160 acres of land per family of five. It also gave the crown power to maintain schools, prohibit liquors on reserves, and offer an annuity of five dollars per person (Dunning 1959). Dunning assumes that Pikangikum residents felt only benefits from this

treaty, as they were inland and far from main trade routes. They got annual payments and a visit each year by an "Indian agent" who brought them tools, fish nets, gun supplies, food and medicines (Dunning 1959). Until 1939 government contact was limited to annual visits, at which time they held a "canoe treaty party" with drumming, dancing, and feasts (Dunning 1959).

A fur trade post was not set up in Pikangikum until the early 1900s. Until 1946 the post managers were able to speak Ojibway and interacted with the community. After this, white people ran the post and traders tended to deal only with them (Dunning 1959). Outsiders became more common in the community in the 1920s. Mission activities from Methodists, Roman Catholics, and Mennonites attempted to convert Indians to Christianity. The local people appeared to generally accept missionaries if they possessed leadership qualities, were competent in bush life, and could speak Ojibway, however, at the time of Dunning's writing in 1959, he noticed few converts (Dunning 1959). Mennonites who went on to missionize the northern Ontario reserves learned quickly that listening was more important than preaching if they were to be welcomed by aboriginal communities (Wiebe 2001). In the late 1960s, the Mennonite Central Committee (MCC) was appalled at the injustices aboriginals had faced from Euro-Canadians and realized that they must take on a new role with First Nations, one of advocacy. In 1967, MCC supporter Jacob Rempel stated that the new role of missions was to help aboriginal people "work out their own social, religious, and economic systems" by providing them a frame of reference (Marr 2001:80). Six

MCC members from Ontario visited reserves, including Pikangikum, in 1968 and to this day have maintained relationships, for better or worse, with aboriginal people living in Ontario (Marr 2001). Missionaries conducted permanent day schools on the reserve from 1929 to 1947, with low attendance, except in 1946, when the Government's Family Allowance Act offered money on the condition of compulsory school attendance (Dunning 1959).

Plant use among indigenous peoples has been extensively documented, although more commonly for tropical areas (Balick and Cox 1997). Animals provided a main source of food for the Northern Ojibway diet. In summer, berries were the main food plants consumed, along with some roots, bulbs, shoots and birch sap as a treat (Johnson et al. 1995). Hallowell (1955) witnessed people using plants for many things: wooden bowls, snowshoes, paddles, canoes, drums, and cradleboards, birch bark containers, cattail (*Typha latifolia*) mats, and twine from nettle (*Urtica dioica*) fibre were mentioned. Plants were also used as indicators: for example, when fireweed (*Epilobium angustifolium*) was flowering, people knew that moose were feeding and fattening. The mating season was underway when the plants had gone to seed. People used this to determine hunting times (Johnson et al. 1995). Herbal teas were made from all sorts of plants. Although store bought tea is common now, wild mint (*Mentha arvensis*) is still a popular exception. Teas have been used for beverages and medicines to varying degrees (Johnson et al. 1995). The list of plants could go on for pages, but is touched on more in the following chapter.

3.3 Indigenous Knowledge

Aboriginal peoples did not have textbooks or laboratories to learn about science, as 'western' societies did. Instead, they learned from the land and from using the resources of the land directly. All children are required by law to attend school in Canada now, but in the past, native people had a different way of learning, which they still use. An example of a different learning system is the 'songlines' of Australian aborigines. Stories, often told in song, described travel routes and sites such as water holes and were shared with neighbouring peoples and intergenerationally (Adams and Mulligan 2003). Simpson (2000), through her study of Anishinaabe ways of learning in Manitoba and Northern Ontario Ojibway culture, states that life-long experience provided for mental, emotional, physical, and spiritual learning. Learning in the Ojibway culture is framed in observing and doing activities. Elders do not necessarily *tell* learners what they are doing, rather they *show* them, thus forcing the learner to be very attentive, and allowing the formation of her or his own skills and competence (Davidson-Hunt 2003; Turner 2001).

Indigenous knowledge of the environment and resource management is the result of trial-and-error experiments and observations over many generations of people living in a particular habitat (Gragson and Blount 1999). Although *biodiversity* loss is a much more prominent issue of global public alarm, *cultural* diversity loss may be more critical, as there is a great deal of biological knowledge

held within indigenous cultures (Gragson and Blount 1999). Highly effective land and resource management practices have been used by indigenous cultures for thousands of years: controlled burning and clearing, selective harvesting and breeding, and manipulation of crop species and varieties are examples (Turner 2001; Gragson and Blount 1999; Berkes 1999). Explorers on the Canadian prairies noticed that the people who lived there intentionally set fires to create open meadows, which would result in more bison (*Bison bison*) being around. The Anishinaabe knew that fire created habitat ideal for berry growth (Duchesne et al. 2001), and intentionally set fires for this purpose (Davidson-Hunt 2003).

Traditional ecological knowledge (TEK) is a term often used to describe this body of knowledge learned through experience and passing down knowledge and beliefs through generations (Berkes 1999). Berkes (1999) defines TEK as being cumulative and adaptive. Indigenous knowledge is similar TEK, but refers to local knowledge that is unique to a particular culture/society (Davidson-Hunt 2003b:22).

In the current context, educators, academics, scientists, and conservationists are emphasizing the use of traditional knowledge in conjunction with non-native “western” science in natural resource management (Clayoquot Sound Scientific Panel 1995; UNEP 2000; Watson, Alessa and Glaspell 2003). Utilizing traditional ecological knowledge can save time and money by presenting information/data that would otherwise have to be gathered anew even though it already exists. As well, traditional knowledge conveys long-term understanding of environmental

cycles/changes and deep-rooted values of respect (Davidson-Hunt and Berkes 2003) and is an avenue for Indigenous peoples to be involved in resource management/planning/research (Clayoquot Sound Scientific Panel 1995).

Ethnobotany

It is well known, though not always recognized, that humans are intimately intertwined with the physical environment. The discipline of ecology examines networks of relationships between organisms, generally excluding humans. With ethnoecology, on the other hand, humans are the reference point from which relationships in a system are investigated (Gragson and Blount 1999). Encompassing many sub-disciplines, ethnoecology is generally used to study relationships between local people and their natural environment (Martin 1995), with ethnobotany being more specific to people and plants.

The famed botanist Carl Linnaeus became the first botanist to interview an indigenous healer back in 1732 (Cox 2001). Unlike many scientists who traveled to the tropics to find medicinal plants, Linnaeus headed north to study the Sami people of Sweden and learn about how they use plants. Linnaeus could be considered the first trained 'ethnobotanist', although the term was not conceived until 1895, by J.W. Harshberger (Cotton 1997). The term ethnobotany has had many definitions applied to it, and over time the term gets redefined, broadened, and narrowed. It is the "study of the relationships between people and plants" to

Johnson et al. (1995). Modern definitions tend to include 'relationships' as a key element of ethnobotany, including the premise that it includes perceptions, management techniques, (Cotton 1997, Martin 1995) and ecology (Davidson-Hunt 2000).

Botanical, even ecological, knowledge is merely one small part of the overall culture of a group of people (Berkes 1999). Ethnobotanical research, with its emphasis on relationships, often offers insights into topics such as linguistics, education, management systems, and health (Davidson-Hunt 2000).

The idea of studying relationships between people and plants has been advanced in one approach by Lantz and Turner (2003) in their study of phenological indicators. Phenology is the "formalized study of seasonal biological changes" (Lantz and Turner 2003:264). The authors studied "traditional phenological knowledge" of indigenous groups in British Columbia. An example in the results includes: the blooming of the wild roses (*Rosa* spp.) indicated to a group of people that saskatoon (*Amelanchier alnifolia*) berries were ripe. The Anishinaabe of northwestern Ontario knew when birch bark was ready to harvest, as it corresponded with the ripening of raspberries (Davidson-Hunt and Berkes 2003). As noted by the authors, writing about plants as indicators is rather sparse in the literature, even though it was and is important to people. It gave people a means by which to determine the availability and abundance of plants and animals necessary for their survival (Lantz and Turner 2003). It is difficult to obtain answers from people to questions directly about phenology. People 'know'

what organisms tell them, but do not conceptualize it as a kind of systematic science.

Economic botany is the discipline concerned with research to discover plant uses that can be important in global or regional markets for economic gain (Martin 1995). Medicinal products derived from forest plants are actively looked for, and these help a broad array of people. Scientific investigations of traditional uses have resulted in the discovery of 75% of over 120 pure plant-derived commercial drugs on the global market today (Marles 2001). Paclitaxel, a chemical from Pacific and Canadian yew (*Taxus brevifolia* and *T. canadensis*, respectively), is highly effective for treating breast, ovarian, lung, and other cancers (OMNR 2003). *Taxus canadensis* is found in the Whitefeather forest.

Non-timber forest products (NTFPs) have generally been referred to as resources other than timber that can be harvested from a forest and used commercially or for personal or traditional uses (Chamberlain et al. 1998): berries, medicinal plants, crafts, and mushrooms for example. Davidson-Hunt et al. (2001) choose to include "biological organisms, excluding timber, valued by humans for both consumptive and non-consumptive purposes..." thus tourism can be included in the definition of NTFPs. NTFP harvesting offers opportunities for diversification by providing economic return while cutting less timber and offering sustainable employment development for local peoples (Marles 2001). Forestry, however, is generally profitable, so NTFP enterprises may not be

financially feasible enough to replace timber harvesting, (Davidson-Hunt et al. 2001) but do offer diversification and a reduction of the reliance on forestry.

In northern Ontario, timber has long been the primary attraction to the forests, but people have traditionally harvested NTFPs for thousands of years (Marles 2001; Hammett and Chamberlain 1998), and the interest in the subject by researchers and industry and the popular press has been growing recently (Chamberlain et al. 1998). A look around any health food store reveals shelves of NTFPs, from ginseng capsules to herbal shampoos.

Aboriginal peoples have been using forest plants for thousands of years, thus the traditional knowledge of elders is one of the best sources of information (Marles 2001). Very often, the discovery of useful NTFPs is done through work with aboriginal peoples, including many in Canada. In northwestern North America, at least 500 plant and fungus species are used by aboriginal cultures (Turner 2001). Wild rice and wild berry products are being harvested and marketed from the Wabigoon First Nation in northwest Ontario (Davidson-Hunt and Berkes 2003; Mohammed 2001). People who use these generally keep medicinal 'recipes' and formulas confidential to protect their intellectual property rights and to avoid being exploited by large industry (Marles 2001). Investigating the potential for NTFPs to promote community economic development is not as simple as finding useful plants. Considerations of market, ecological, social, and cultural effects are required. Cultural aspects of NTFP development have largely been ignored in the past (Turner 2001). Projects should aim to improve the well-

being of people and communities and local people should retain control of the land, protection, and production of the resource (Martin 1995).

Ecological sustainability must be addressed before NTFPs can be marketed. Understanding the biology of plants is necessary to ensure sustainable harvesting techniques, since moving from subsistence use to commercial production will demand more of ecosystems and species (Duchesne et al. 2001). Factors such as a species' resilience to disturbance, abundance, and ease of harvesting should be determined before exploiting the resource (Balick and Cox 1997). Understanding the ecology of the region can enable managers and harvesters to purposely alter the abundance or location of NTFP resources if necessary (Davidson-Hunt et al. 2001; Balick and Cox 1997). For example, people can replant areas that are not regenerating enough naturally, or burn patches of land to stimulate berry growth (Davidson-Hunt et al. 2001).

3.4 Landscape-level Environmental Education

Environmental education (EE), the term, is hardly new. It was in 1948 at an IUCN (World Conservation Union) conference that the two words were used in conjunction, and they have now found their way into common discourse (Palmer 1999). The union of formal education and the out-of-classroom environment is often credited to Sir Patrick Geddes, who, in 1892, opened an outlook tower in Edinburgh, Scotland as a field studies centre for town and country planning

(Palmer 1999). Since then, environmental studies programs have emerged in universities world wide, and discourse of EE is diverse in academia and elsewhere.

Globally, EE has been recognized as important to conservation and the maintenance of earth's natural resources. A UNESCO Biosphere conference in Paris, 1968, called for "the development of curriculum materials relating to studying the environment for all levels of education..." (Palmer 1999). Principles of environmental education were imparted in the noteworthy Tbilisi Declaration. This declaration was created as a result of the world's first Intergovernmental Conference on Environmental Education, October 14-26, 1977, organized by UNESCO and the United Nations Environment Programme (GDRC 2005). The declaration emphasizes that EE is (ideally): life-long, interdisciplinary and holistic, an "approach to education as a whole, rather than a subject", and is concerned with all geographical and temporal dimensions. More importantly, the declaration encouraged EE to include "social, political, economic, technological, moral, aesthetic and spiritual aspects", be participatory, concerned with building environmental ethics (Palmer 1999).

It really is not possible to give definition to EE, because of the myriad conceptions of both 'environment' and 'education'. To some it merely means ecology or biology. EE is dynamic, value-laden, social, scientific, political, economic, and crosses every scale (Suave 1996). Teaching EE is very complex, and

there is certainly no agreed upon set of guidelines to follow. A common theme throughout the literature, however, is the emphasis of EE in schools. Although the Tbilisi Declaration states that EE should be “provided for all ages, at all levels, and in both formal and nonformal education,” (GDRC 2005) literature about formal environmental education is generally focused on youth education.

Given that EE is recognized, but not usually practically implemented in most elementary and high schools (Palmer 1999) (when society has the lawful attention of that generation), most adults will not have had exposure to it. However, social science studies have shown that children actively influence parents’ attitudes and actions (Ballantyne, Fien and Packer 2000). Children often have a more up to date knowledge base than their parents, since environmental education is a relatively new phenomenon in schools (Ballantyne, Fien and Packer 2000). Adults tend to get information about environmental issues through the media, who sensationalize and misinterpret reality. Therefore, effective EE in schools could indirectly educate adults. However, the paradox and roadblock of implementing effective EE is the school system we generally use in Canada now. Many environmental educators concur that a classroom is not very successful in teaching EE (Weston 1996; Palmer 1999) or is focused too much on science and unfamiliar environments that children do not experience (Marouli 2002; Palmer 1999). Yet children are required to spend a large amount of time in school, necessitating the blending of EE in to school curricula.

In the current context, a problem of incorporating environmental education (EE) effectively into school curriculums is that it tends to compete with traditional disciplines, and therefore is not given enough time and attention (Gaylor 1996). However, EE should not be a separate 'subject' but rather should be interwoven with other academic subjects and learned through hands-on experience on the land. Environmental education is cross-curricular and interdisciplinary (Young 1990).

A landscape can be defined as any geographic unit that may be comprised of various land/water cover types (Perera et al. 2000). The scale of a landscape depends on the organism defining it (Perera et al. 2000); the landscape of a spider is much smaller than that of a moose. A person with a truck or boat may spend time in a larger landscape than someone who does not have the means to travel more than a few kilometres from home. People delineate landscapes nested in one another. For example, the landscape of the Whitefeather forest is the approximately 1.3 million hectares of traditional hunting and trapping grounds. Within this, people are intimately familiar with a smaller landscape of their own trapline areas. In the context of this thesis, landscapes of the Whitefeather forest generally refer to a trapline area, for this is how people of Pikangikum currently divide their territory amongst themselves.

Learning about a landscape and environment can take many forms: a science class in school, a TV show, an interpretive event in a park, a field trip, or

living with a close connection to the land. Most people are familiar with their own landscape, but for many, this means a cityscape. Even many rural people, in this age of computers and cars, may not have intimate knowledge of the so-called “natural” world. Indigenous people, especially those living in the remote wilderness, often participate in mainly land-based activities such as trapping, hunting, gathering, and boating, and thus tend to have that more intimate knowledge of the land. Regardless of where one lives, however; understanding and appreciation of and connectedness to the land is key to environmentally sustainable behaviour (Curthoys & Cuthbertson 2002; Kimmel 1999). In other words, conservation, protected areas management, and a generally healthy environment are dependent upon people possessing “ecological literacy.”

Although there is no definitive definition, the term ‘ecological literacy’ encompasses more than just environmental education one may acquire in a classroom setting. Cognitive knowledge of ecological processes must be accompanied by experience on the land and being able to “interpret the stories of the landscape (Curthoys and Cuthbertson 2002:226). Becoming environmentally literate requires time and continual involvement in the learning process: one is persistently engaged in learning through hands-on experiences. Kato (2002) suggests a more encompassing phrase-environmental cognition-which involves knowledge (ecological literacy), as well as values and belief systems.

A classic example of landscape-level environmental education is park interpretation. Anyone who has gone camping in a provincial (or state), or national park has likely experienced this technique of EE. Extensive literature exists about interpretation, a tool best defined by Freeman Tilden (1967:8):

“An educational activity which aims to reveal meanings and relationships through the use of original objects, by first-hand experience, and by illustrative media, rather than simply to communicate factual information.”

Indeed, it was in U.S. National parks that interpretation as a teaching tool, was born. Originally intended as a way to enhance visitor experience in parks, interpretation today attempts to instil greater appreciation for conservation and sense of place and teach visitors park management practices (Curthoys and Cuthbertson 2002). Interpretation is a venue for adult education, however; due to the nature of park interpretation, interpreters only have a couple of hours to teach/inform/influence people and so it is not a highly effective tool for EE.

Experiential, land-based education as a structured activity is not completely novel, nor is it very common. The Gwich'in Social and Cultural Institute, with a main office in Tsiigehtchic, NWT, was established in 1993 to “document, preserve and promote the practice of Gwich'in culture, language, traditional knowledge and values” (Gwich'in S&CI 2003). It is governed by local people and the Gwich'in Tribal Council, and one priority of the Institute is education. Science camps for local high school youth include ten day outings on the land with elders,

professionals, and/or graduate students. Students get school credit and learn research techniques for field work as well as traditional ecological knowledge. Ideally, these kinds of activities encourage local youth to complete school, stay more connected to their culture and be able to stay in the community and manage the Gwich'in lands and resources (Gwich'in S&CI 2003).

Eaton Wilderness Education from Ontario offers courses in wilderness survival and outdoor education. Of note are the school programs offered that have been specifically designed to address the expectations of the Ontario curriculum. These cater to grades 1-6 and are taught by professional environmental educators (EWE 2005).

The United Kingdom has been a leader in the advancement of novel environmental education models. The Learning Through Landscapes Project was initiated in 1986 when educators and the Department of Education and Science decided that the landscapes around schools had potential as learning grounds but were being neglected. The popularity of this idea spread across the country and the Learning Through Landscapes Trust was formed to provide resources for schools to create outdoor learning grounds (Young 1990). Schools that are part of this project have a variety of learning environments: gardens, animals, native plants, building projects, natural landscaping, and many other outdoor activities.

In Anishinaabe culture knowledge and stories are passed down through oral narratives, stories and myths. Such narratives *are* a form of EE, and may

change depending on the storyteller, time or place but convey lessons about appropriate behaviours and act as a channel between the natural and supernatural world (Smith 1995). This was and is still a method of 'education' for which the Anishinaabe have a word for: $\phi\phi\upsilon\beta\psi\phi\mu\chi\omicron$ (pronounced *KEE-no-ah-MAH-tee-win*). This does not mean education specific to a school as we often define it in English, but rather a more holistic way of life-long learning: learning through school but also every day activities and learning from elders and life experience. Learning was inter-generational and acquired through experience journeying on the land.

Learning through experiential land based activities incorporates "place" into education. This is important, for in a school setting it complements lectures/discussions by adding components of "direct observation, investigation, experimentation, and skill in the application of knowledge" (Orr 2005). Classrooms/laboratories narrow reality in a sense, often into a specific subject. The study of place facilitates a wider focus on interrelationships between time, space, organisms, land, and disciplines (Orr 2005). As well, children spend a lot of time in school so it is important to be aware that schools not only transmit knowledge, but also cultural norms, values, and customs (Stone and Barlow 2005). Therefore, education is more effective when done within a proper cultural context, for example, with elders guiding learning, access to land-based living, and the application of indigenous philosophies, teaching, and learning mechanisms (Simpson 2002).

It is also not enough to merely 'educate' children in schools. Lifelong learning is essential to and facilitated by solving environmental problems (Gough et al. 2001). Gough et al. (2001) recognize that different people have different ideas of the purposes of environmental education and actions to resolve environmental issues. The important point is that the facilitation of lifelong learning comes through engagement of different practitioners whom have different perspectives and goals.

3.5 Literature Summation

The theme of cultural landscapes shows up in the literature with increasing frequency in more recent years. This is part of a larger paradigmatic shift (at least in academia) from science based on linearity, separation of parts and control to one of systems thinking, indigenous knowledge, complexity, and participatory ecology: an expanded worldview (Sterling 2002). Environmental education in schools is gaining ground in theory in Canada and in practice in the United Kingdom. The literature rarely addresses formal methods environmental education for adults, although there is plenty of literature about EE in schools. However, most of it is about school yards, where children spend a lot of time. As stated previously, in 1968 the UN called for EE to be incorporated into school curricula, and in 1977 declared that EE should be lifelong, holistic and

participatory. Into the 21st century EE still gets very little attention in the Canadian and American school systems.

Although literature about cultural landscapes and literature about environmental education exists, rarely do these two terms show up together in the same document. Cultural landscape discourse is rare outside of academia. If environmental education is thought of as a structured process or subject that can be taught in accordance with a curriculum, the literature does not address the merger of EE and curricula in Aboriginal contexts. If environmental education is thought of as holistic- considering social, ecological, and political aspects- then it is not addressed as such in the Ontario school curriculum.

Chapter 4- Wonders of the Whitefeather Forest

4.1 Introduction

My field work took place in August, September, and October of 2004. I, along with elders and community researchers, visited four lakes in the Whitefeather forest: Stormer/Kirkness (two closely connected lakes), Pikangikum, Berens, and Roderick. This chapter contains information regarding places I visited with elders, community members, and local translators. We primarily went to sites that were indicated on the pre-existing WFMC maps, but also went to places not indicated. The original intent was to focus on plants and their uses, but I found that going to a site to learn about a particular plant also allowed me to observe the habitat, learn about animals that could be found there, and hear some stories. This chapter is somewhat like a journal of my time spent in the Whitefeather Forest and outlines *my* personal learning journey. In this chapter I describe my experiences at each lake. I also describe some common plants and traditional uses and habitats on land and water. Some places we examined were more significant culturally than ecologically, and descriptions of some of these are included in this chapter.

As part of the WFI, Pikangikum undertook an Indigenous Knowledge Documentation Project which involved the creation of maps. These were created by community researchers going out with and interviewing senior trappers to

identify ecological, historical, and cultural values. Maps like these exist for every trapline area in the Whitefeather forest. As well, every region has separate maps that indicate ecological values, cultural values, traditional uses, recreation potential, tourism potential, mining resources, NTFP potential, and caribou mapping. Appendix 5 is an example of one map: Ecological values on Pikangikum Lake. Further in this thesis, these maps will be referred to as “WFMC maps.” I used these maps as a starting point to help decide where to go with elders. They are shown here as examples of information that has already been gathered for the Whitefeather Forest Initiative and how it has been displayed. In chapter 5 I discuss how these maps were used in conjunction with my fieldwork to create a new set of maps.

Figures 3-6 illustrate places I visited with elders and translators. The tables underneath the maps indicate the major features I observed at the sites. Chapter 5 contains figures 7-10, which are new maps created by using pre-existing maps and my field data to identify a subset of sites that could be valuable teaching places along learning journeys. Applications of these journeys are discussed in chapter 5.

4.2 Site Descriptions

The lakes were chosen on the basis of accessibility and human resources. Abnormally high amounts of rain and water levels limited access to some lakes. Pikangikum Lake and Berens Lake are close to the townsite, and so were ideal areas to study: they were easily accessible for my research, which in turn means they are easily accessible to the community and therefore ideal locations for interpretive and educational routes. Stormer and Kirkness Lakes are right off the Nugessor road, and are easily accessible from the south, making them ideal lakes for tourism. The trip to Roderick Lake was a last minute decision. An originally planned trip had fallen through, but Paddy Peters knew of some people out at their cabin for another few days and a plane that was going there anyway, so it conveniently worked out.

4.2.1 *Pikangikum Lake*

The community of Pikangikum is located on the east side of Pikangikum Lake, which is the transportation route to the south both in summer and in winter (as a winter road). The Berens River flows through Pikangikum Lake. My first exploration of this lake occurred in August when I went with George B. and Lucy Strang and their grandson Lebius (translator). The waters were rough but the sun was warm and it was not raining. George asked what I wanted to see and I said I

wanted to make some wild tea, so we stopped on a rocky shore (plates 1,2) with a lot of *mashkigobagoon* (labrador tea, *Ledum groenlandicum*) and *apapowan* (mint) there. This was my first research excursion, and I was not really sure what I was looking for, so I just absorbed what George showed me. Later we climbed up a steep cliff that revealed a sparse blueberry patch (plates 3,4).

In early September I again explored Pikangikum Lake with Alex Suggashie (plate 8) and Murray Quill (translator). It was the first day in a week that it had not rained, although by the time we got back to town it was raining again. Alex, by his own admission, is not quite old enough to be an elder, though he is quite knowledgeable about the land. The theme of the day was berries: we saw hawthorn (*miinasuk*, *Crateagus sp.*), blueberries (*miinaan*) (plate 4), and high-bush cranberries (*aniipiimiinaan*, *Viburnum trilobum*) (plate 7).

After a week of rain, I went out one day with Barry Peters and his wife Georgina and their children Gwendolyn and Wendall. We made bannock over a fire started with dried birch bark, and also went to a place that was supposed to have manomin. Like all the other *manomin* this summer, it was all underwater (plate 5). We tried catching fish but were unsuccessful.

My last exploration of Pikangikum Lake was with Alex Suggashie. We went out after it stopped raining, which had become a common event. Alex had to check his fishing net that day so I joined him. He caught many fish (plate 8), and we also passed by some otters swimming peacefully among reeds and fallen poplar trees (plate 6).

The following map indicates places I visited around Pikangikum Lake and what was found at each place: plants, animals, human artifacts, stories, changes, etc.

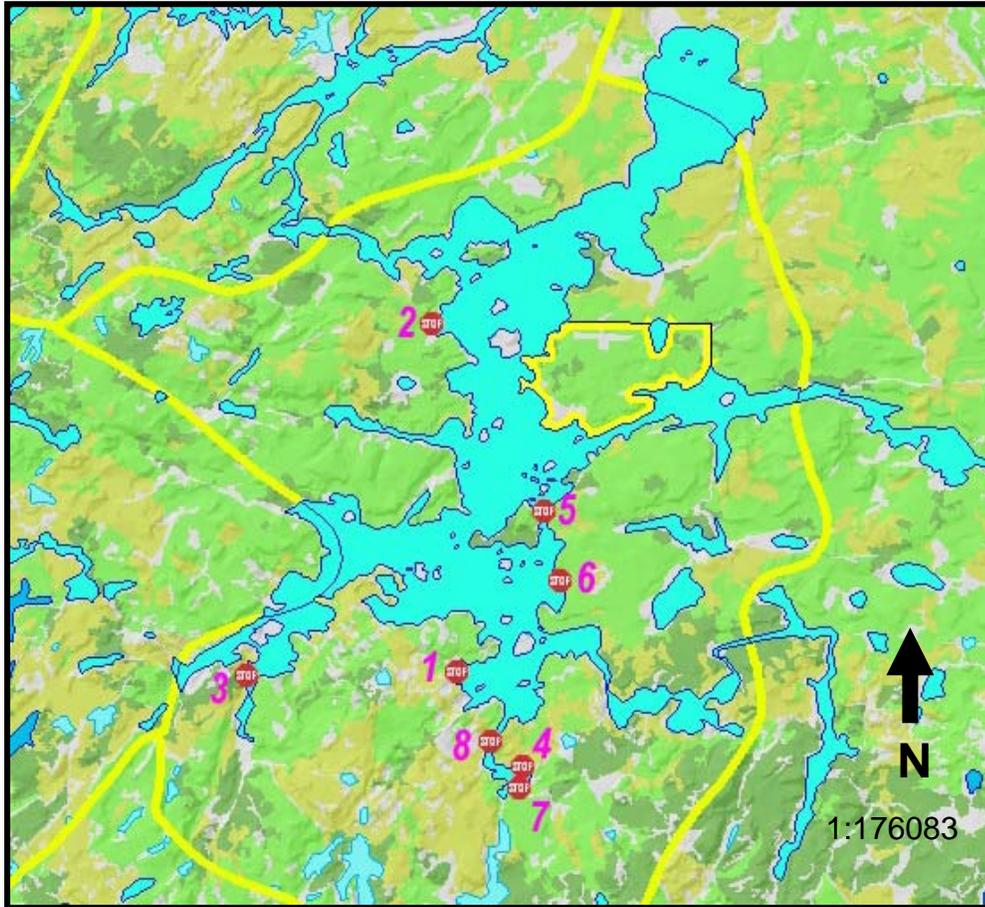


Figure 3 Pikangikum Lake. Places visited during research.

ID	UTM	Habitat	Food	Medicine	Cultural
1	429329 5733049		Miinaan (blueberries)		
2	428763 5741518		Miinaan		
3	424225 5732968		Apapawoon (mint)	Mashkiigobagoon (Labrador tea)	
4	430938 5730754	Shallow inlet	Manomin (wild rice) Beaver		Manomin trapping
5	431465 5736962	Willows along shore	Ducks		
6	431868 5735265	Shallow inlet	Beaver		trapping
7	430863 5730261	Burned 50 years ago			
8	430164 5731381	Narrows full of downed trees	Otters		



Plate 1 George B. Strang making *mashkiigobagoon* (Labrador tea) from freshly picked plants. Site 3 on figure 3.



Plate 2 Shoreline habitat with *apaapowaan* (wild mint) growing here. Site 3 on figure 3.



Plate 3 View of Pikangikum Lake from blueberry patch. Site 2 on figure 4.



Plate 4 *Miinaan* (*Vaccinium myrtilloides*). Site 2 on figure 4.



Plate 5 Shallow inlet with *manomin* that is all under water. The willows along the shore indicate how high the water was this summer. Site 4 on figure 3.



Plate 6 River Otter swimming near fallen poplar trees. Site 8 on figure 3.



Plate 7 Alex Suggashie with *Aniipiimiinaan*, High-bush cranberry.



Plate 8 Alex with a pike he caught

4.2.2 *Berens Lake*

Berens Lake is located just east of Pikangikum Lake and is accessible by boat. However, one must either cross dangerous rapids or portage across a point to get to it. The lake has a long section running east-west and a long section running north-south. The Berens River, a popular tourist canoe route, flows in and out of the east-west portion of this lake and continues into Pikangikum Lake. I visited this lake on three different occasions, all with George B. Strang (it is his trapline) and a translator. The first time I went with him and his grandson Lebius. It was a beautiful warm sunny day, but I was thankful for my 95% DEET mosquito repellent! To get to Berens Lake we had to park our boat at one side of some rapids and hike to the other side, where another boat was strategically waiting for us. This day was my first introduction to the famed *wiikansh* (Sweet flag, *Acorus americanus*, plate 11), and I was fascinated watching George dig down to the bottom of the lake to get some of the medicinal rhizome of this plant (hoping he didn't fall in!) (plate 12). For the first time I also saw *manomin* that was not completely submerged. However, George said the water was still too high that year for the *manomin* to grow and produce edible grains (plates 9,10).

Due to high water levels that made the rapids (where we docked the first visit) more dangerous than usual, we did not get out to Berens Lake again until mid October, this time with George and his son Henry to check George's beaver traps. I have always loved beavers but had never seen one so close up until that

day and I discovered that they are bigger than I had thought! George has been trapping since he was fifteen. That day we checked out three of George's traps but went home with only one beaver. Beaver trapping is a common activity for Pikangikum people and a significant food source. Even the tails are eaten and the hides are stretched (George B. Strang, personal communication 2004). All the beaver lodges were located in shallow inlets surrounded by poplar and red-osier dogwood, the berries of which are eaten by beavers (George B. Strang, personal communication 2004). A cache of poplar branches and twigs was being constructed by the beavers outside of their lodge in preparation for winter. Habitats with plenty of poplar, willows (*Salix spp.*), and birch are important for these animals to survive, as one beaver will use half a hectare of poplar in a year, and each lodge is home to a family unit of beavers (HWW 2006).

My last day trip out 'on the land' was along the Berens River to the falls/rapids east of Berens Lake (plate 15). The long and winding trip down the river allowed me time to take in the surroundings, which were mostly broken birch trees along the river's edge. By this time, late October, the water marks on the trees revealed that the water had gone down about one metre since its peak. George, his grandson Silas, and I walked along some paths beside the stunning falls/rapids: portage paths that have been used for hundreds of years by the Anishinaabe. This place was also used as a camping spot in the past and present, and is also a favourite spot for American fishermen, as sturgeon can be found in this area (George B. Strang, personal communication, 2004).

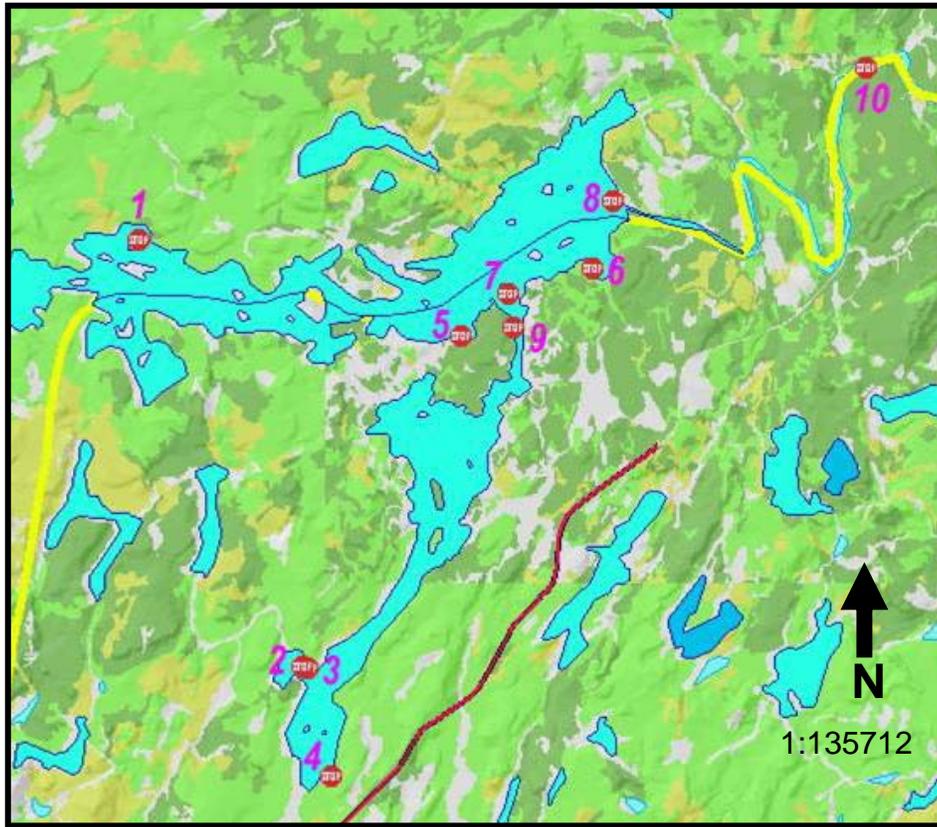


Figure 4 Berens Lake. Places visited during research.

ID	UTM	Habitat	Food	Medicine	Cultural
1	446514 5736281			Wiikaansh (sweet flag)	
2	449611 5728202			Wiikaansh	
3	449707 5728170		Manomin		Manomin
4	450148 5726157				Campground (for public)
5	452584 5734443	Shallow inlet	Amik (beaver)		trapping
6	455067 5735733	Shallow inlet	Amik		trapping
7	453478 5735263				Big drumming place island
8	455465 5737004	willows	Ducks Aniipiimiinaan (high- bush cranberry)		Old campsite
9	453578 5734599	shallow inlet	Beavers		
10	460229 5739523	falls			falls



Plate 9 *Manomin* flowers close-up. Site 3 on figure 4.



Plate 10 *Manomin* (Wild rice, *Zizania aquatica*)



Plate 11 *Wickansh* (Sweet flag, *Acorus americanus*) **Site 1** on figure 4.



Plate 12 George B. Strang gathering *wickansh* rhizomes. **Site 1** on figure 4.



Plate13. Good duck habitat near George’s old campsite. Site 8 on figure 4.



Plate 14 George B. Strang standing beside an old cabin on an island where he used to camp. Site 8 on figure 4.



Plate 15 The rapids on Berens River east of Berens Lake. Site 10 on figure 4.



Plate 16 Big Drumming Place Island where Pikangikum people danced up to fifty years ago. Site 7 on figure 4.

4.2.3 Stormer and Kirkness Lakes

These two lakes are connected by a narrow channel and lie south of Pikangikum Lake. They present a plethora of flora and fauna, and cultural and ecological sites. Many significant ecological sites we visited were along a creek running out of the northeast part of Stormer Lake. The Nungessor road follows and then crosses Stormer Lake, making it easily accessible by vehicle.

Since we flew into these lakes, I went once for a weekend trip with George and Lucy Strang and Barry Peters as my translator. We met Iain Davidson-Hunt and Chris Beeman at a Christian camp along the Nungessor road, where we rented a cabin for two nights. We were blessed with three days of the most beautiful fall weather one could ask for, and not one drop of rain! On day one we took a motor boat around Stormer Lake and stopped at the bottom of a rocky cliff, at the top of which was a thunderbird (*Binessi*) nest (see p72). If George and Lucy had not pointed this out to us, there is no way one would know that there was any significance to this site. To the people of Pikangikum, however, a thunderbird nest is to be respected and not disturbed: "We leave them alone, they leave us alone" (George B. Strang, personal communication 2004).

The concept of a cultural landscape was becoming clearer to me this day as I realized that what I was seeing around me was quite different from what George and Lucy and Barry were seeing. We were privileged to visit an old burial site,

which is very sacred to Pikangikum people (and very secret to outsiders). It was atop a short cliff, out of sight from the water and with no indication (to me) that this particular site was anything special. Due to the sacredness and sensitivity of this site, I have not included its location anywhere in this document. As we were sitting in the boat George indicated that the island behind us, *manitouminis*, was not to be pointed at or a massive wind storm would arise. I did not believe this personally, but at the same time deep down inside me I did not feel like tempting fate.

We stopped for lunch at a bay and walked upstream of a creek through the mossy berry-laden forest to some picturesque rapids (plates 21,22). There was so much labrador tea around that I could not resist making a pot. George and Lucy had Red Rose tea, their favourite. Here was yet another example of two different views of the landscape, albeit an unexpected one. Despite the fact that *mashkiigobagoon* grows around Pikangikum and has a long history of use by people from there, it was I, the prairie/city girl who was using it as tea, while the elders were using store bought tea. Upon closer scrutiny though, it is not such an unusual situation. Labrador tea for me was a novelty, and when I saw expansive patches of it growing in the forest, I saw an endless supply of a uniquely bitter hot beverage. To George and Lucy, *mashkiigobagoon* was a typical, common plant that was there as emergency food and *mashkiki* (medicine); but not very tasty and not to be drunk often. In fact, *Ledum spp.* all contain the volatile oil ledol, which

can cause headaches, cramps and paralysis in large doses (University of Alberta Plantwatch 2002).

On the shore of Kirkness Lake we stopped at an open area with a bench and table (picture 20). This was a place that people, including tourists, picnic and clean fish when they are fishing. About 40 years ago, this was the site of a commercial fishery: the people of Pikangikum would sell whitefish, northern pike, and pickerel to men from Kenora. Eventually it was costing more money to fly to the lake and fish than they were making, so the commercial fishing ended, although people still fish for their personal usage (George B. Strang, personal communication).

The second day of the trip was especially enjoyable for me because we ventured down a meandering creek by canoe, which is one of my favourite forms of transportation. I even stood on a small beaver dam to pull the canoe over it so we could continue our upstream journey. When the creek opened up we were paddling right through cattails and *manomin* (plate 18). The water level on Stormer Lake was lower than on Berens Lake, so the wild rice was visible, with 0-30cm of the plants above water. Still, the water was too high and this rice was not harvestable this year. With sandhill cranes (*Grus canadensis*) captivating us from above, we drifted to a pile of sticks and mud in the middle of the *manomin*/cattail wetland, which turned out to be a muskrat lodge (plate 17). It was here that I first heard the creation story involving Whiskeyjack, beaver, muskrat, and caribou.

That night as we ate supper at the cabin we listened to George and Lucy tell us stories about animals. One I liked in particular was about the ruffed grouse. George told the story that the drumming sound that male ruffed grouses make in spring to try to attract mates is actually the sound of these birds building 'canoes' for the ducks; the ducks are migrating back up north and need these 'canoes' to float on. I had heard ruffed grouse drumming before and thought of it as the sound of a lawnmower having trouble starting. We both contributed the sound of the grouse to a sign of spring, but in our own cultural context. The last day at Kirkness Lake began with breakfast of bannock (*paakwaashiiganiikaan*) and blueberry sauce (*pashkiimiinasiigin*) made by Lucy. For someone who had never really liked blueberries, I will admit that the sauce made of those freshly picked wild fruits was one of the most delicious foods I had tasted in a long time.

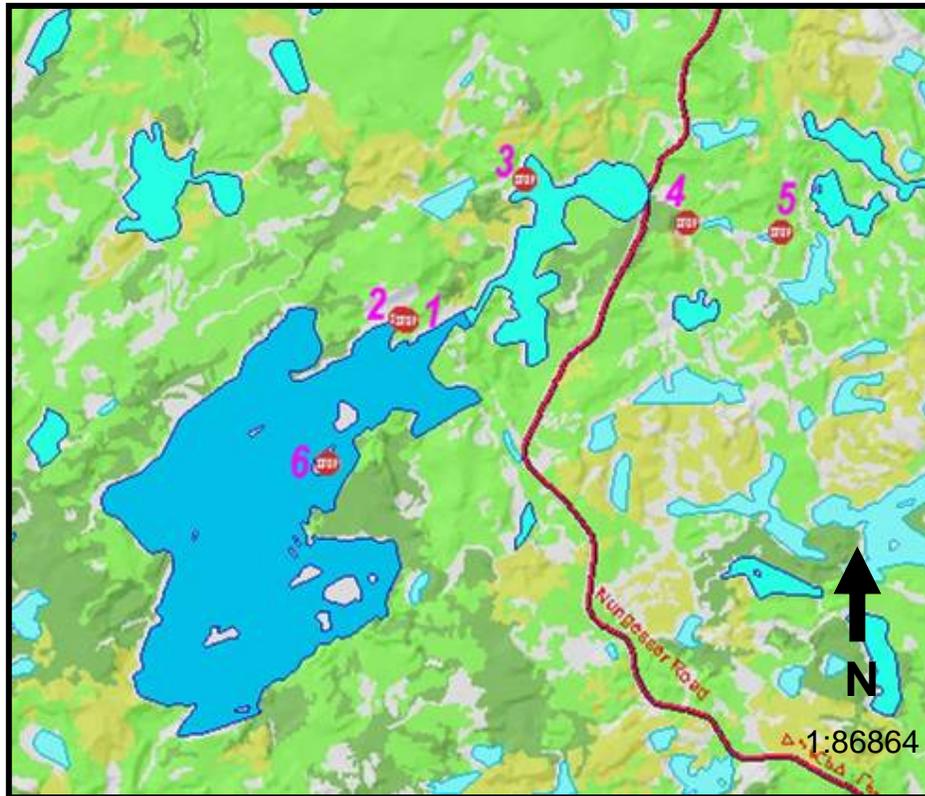


Figure 5 Stormer and Kirness Lakes. Places visited during research.

ID	UTM	Habitat	Food	Medicine	Cultural
1	438077 5712444		Bog cranberries		watapiin (spruce roots)
2	438032 5712459				Old fish camp
3	440089 5714808				Thunderbird nest
4	442826 5714093	Wetland, muskrat, birds	Manomin geese		
5	444415 5713933	rapids-bear fishing	manomin miinaan	Wigwaasatig (birch)	Wigwaasatig (birch)
6	436912 5710543				Cabins, sphagnum moss



Plate 17. George and Lucy beside a muskrat lodge surrounded by *manomin*. Site 4 on figure 5.



Plate 18. Lucy and George paddling through drowned *manomin*. Site 4 on figure 5.



Plate 19. *Zizania aquatica*. Site 4 on figure 5.

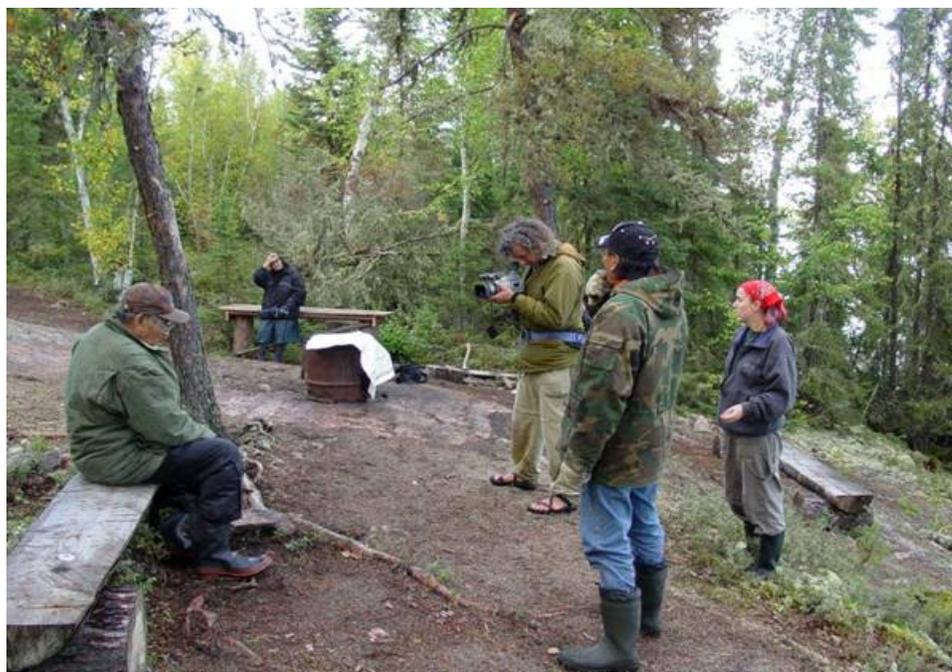


Plate 20. George talking about the commercial fishing that used to take place here. Site 2 on figure 5.



Plate 21. Jane standing by rapids, where bears sometimes come to fish. Site 5 on figure 5.



Plate 22 Lucy Strang.



Plate23. Jane digging up *watapiin* (spruce roots). Site 1 on figure 5.

4.2.4 Roderick Lake

Roderick Lake is south of Pikangikum Lake and west of Kirkness Lake and is not accessible by road. Due to poor weather conditions, while I was visiting this lake we were limited to boating around the southern part of it. This was a last minute trip, so instead of going to this lake with Paul Moose, the senior trapper, I flew out and met his daughter Josephine and son-in-law Jackson there. They had been at the cabin for a few weeks so I joined them and their daughter Renata for their last days there. Amy Owen came with me from Pikangikum. He had spent time in this area when he was younger.

It was mid-October so the weather was getting cool, but it was still a shock to wake up and see everything blanketed in a thick layer of snow (plate 25)! The weather did not dampen our spirits though, so the first thing we did was set up Jackson's fishing net in the rain (plate 27), and then warm up with some fresh bannock. The morning brought snow, but also about 30 fish-pike, whitefish, suckers, and walleye. I knew that my time had come and I was finally going to learn how to fillet a fish (plate 30). It was more of a hack job on my part, and between Jackson, Josephine, and 4 year old Renata (plate 26), they pretty much had the rest of the fish gutted and filleted by the time I got mine done. The reward, however, was fried fish dinner and smoked fish breakfast the next day. Smoking the fish requires a special technique- a small tipi like structure made of

birch and wrapped with a tarp (plates 28,29). The important thing I learned was that poplar is the best kind of wood to smoulder under the racks of drying fish.

I almost experienced another first- eating beaver meat- but unfortunately a beaver did not come out of its lodge in the 45 minutes that we waited for it. Jackson said we probably 'warned' the animals when we were standing on their lodge earlier that day. The evenings were cold and blustery so I made bannock, played scrabble and talked with Josephine and Jackson about medicines and life when they were young. When Jo was young, kids "watched [their] grandparents and learned. They didn't tell us anything." (personal communication Oct 15, 2004).

The last day on Roderick Lake it was too windy to go to the north part of the lake, but we went far enough to see a red pictograph on the side of a rock face (plate 22). We did not touch it- nobody did- because nobody knew what kind of powers the people who painted it had. We also parked our boat and traversed a well worn path past some rental boats and through a multitude of blueberries, cranberries (*Vaccinium spp.*), and labrador tea to reach some fast-moving rapids. Thousands of suckers spawn here each year, and Jackson and his family and friends used to catch them with spears and their hands (plate 31).

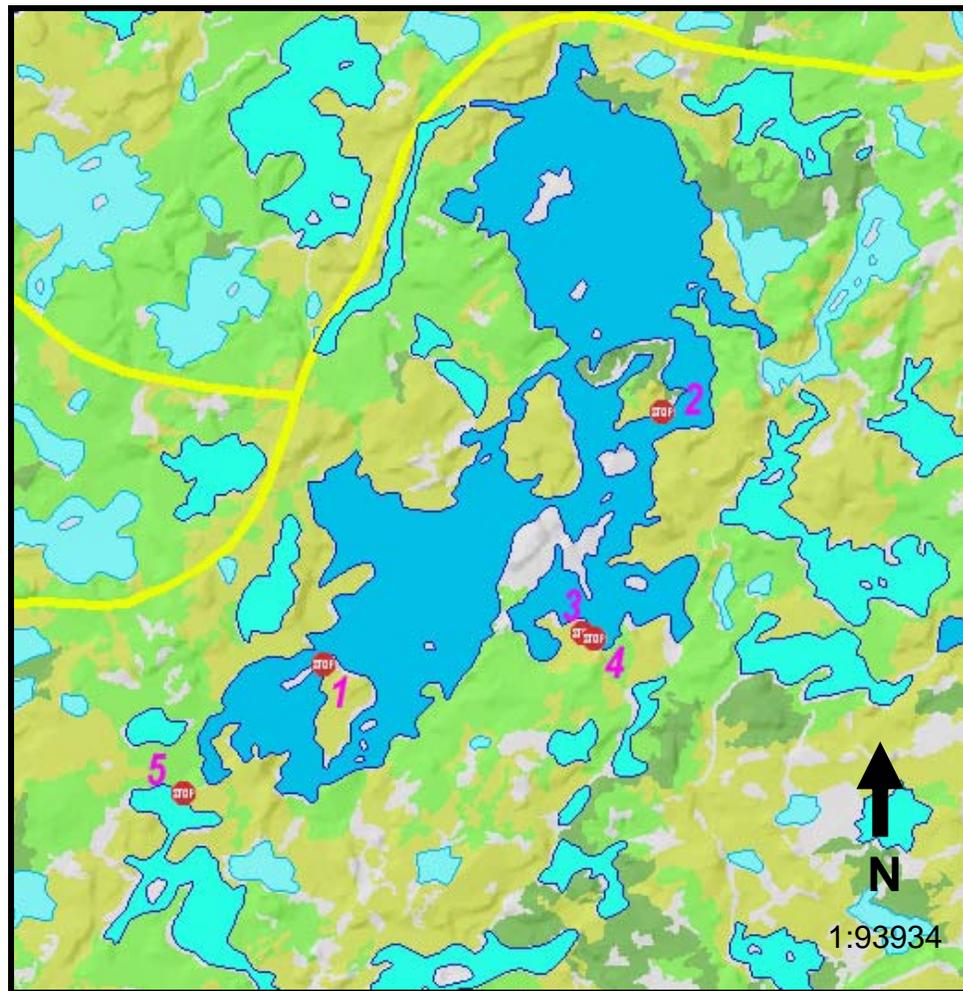


Figure 6 Roderick Lake. Places visited during research.

ID	UTM	Habitat	Food	Medicine	Cultural
1	400560 5711116		<i>Mashkiigobagoon</i> (Labrador tea)	<i>Mashkiigobagoon</i>	
2	405038 5714428				pictograph
3	403988 5711513		<i>Miinaan</i> <i>Apakosaykanaymiinaan</i> (small bog cranberry)		Old cabin
4	404045 5711563	Shallow inlet	<i>Amik</i> (beaver)		Trapping
5	398784 5709469	Running creek	Fish spawning ground		



Plate 24 Pictograph. Site 2 on figure 6.



Plate 25 Paul Moose's old cabins. This area was very sandy and there were many pits where sand was dug for building the cabins. Site 3 on figure 6.



Plate 26 Renata helping her parents prepare the fish for supper.



Plate 27 Jackson with a fish we caught in his net. We ate it for supper.



Plate 28 Smoking tipi made of birch.



Plate 29 Whitefish drying and smoking. Smoked with poplar.



Plate 30 Jane about to clean a fish for the first time after watching Josephine and Jackson do it.

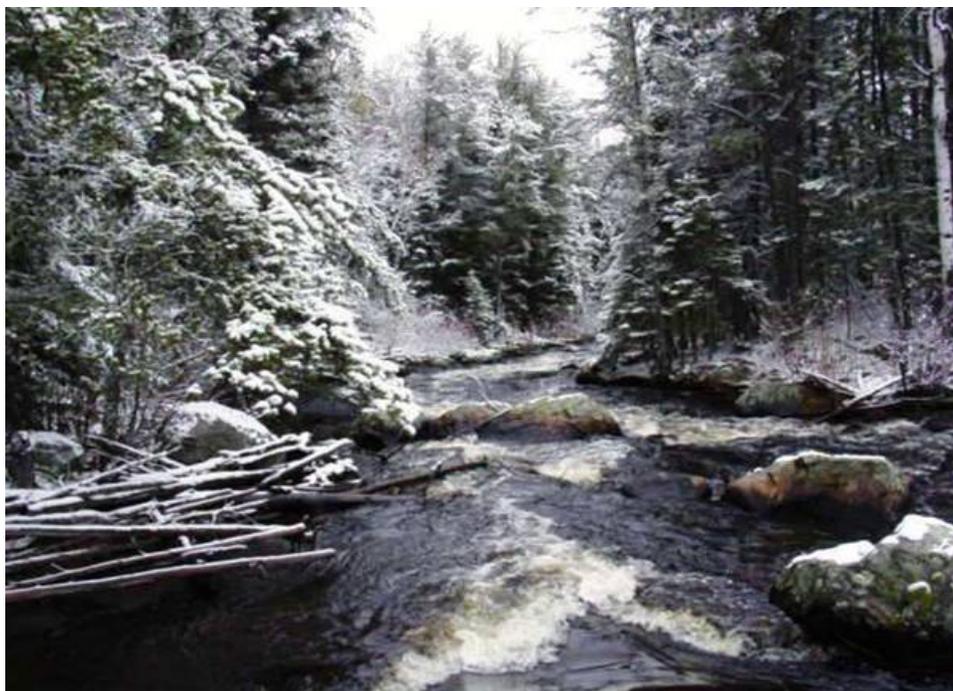


Plate 31 Sucker spawning grounds. Site 5 on figure 6.

4.3 Plant Values

To learn about traditional plant uses and associated habitats and harvesting techniques, I visited a wide variety of sites/habitats and saw a variety of plants. There were certainly some plants, such as *manomin*, which were more common: both in abundance and utility. I did not get a great amount of detailed information about any one plant. After my fieldwork I felt that this meant that I did not gather enough data. In reality though, it turned out that detailed information was not possible given my time frame and not necessary for my analysis. The following sections detail some of the plants and sites I saw and learned about.

4.3.1 On the Lake

The aquatic habitat is extremely important to all the people and animals in the Whitefeather forest for habitat, food, and transportation. People spend a large amount of time on the water because the waterways are transportation routes, a supply of fish and medicine and sometimes a reprieve from mosquitoes and blackflies that thrive inland.

Shorelines are a transition zone between the forest and the river/lake that are abundant in biodiversity and have unique habitats. Important to Pikangikum people is waterfowl habitat, as ducks and geese are food

sources. Such habitat is often found along shorelines or in shallow water: *manomin*, reeds, willows and cattails offer superb waterfowl environments. In fact, people both plant *manomin* and burn shoreline plants to promote waterfowl and muskrat habitat (Draft land use plan 2006).

Sweet Flag/*Wiikansh*

Wiikansh has always been an important plant to Ojibway people, and, unlike many other medicinal plants used by Pikangikum people, it is still very frequently used to this day. It is an aquatic plant that grows in small patches, often with *Iris versicolor*, cattails, and wild rice. Though uncommon, it is widely distributed in wetland regions across Canada (Morgan 1999). People suck on fresh or dried rhizome as medicine for sore throats, earaches, headaches, fevers, and to prevent colds (George B. Strang, personal communication 2004). Another benefit of using *wiikansh* as a medicine is that the root, once dried, lasts “forever” (George. B. Strang, personal communication 2004). I understood the importance of this plant when I asked George if he showed other people where the *wiikansh* was. His reply was, “No, it’s *my* mashkiki!” Rhizomes were once a popular trade commodity and can be fairly easily propagated. It is interesting to note that the geographical distribution of *A. americanus* correlates to the movement patterns of indigenous people in North America. Low genetic diversity, coupled with this,

suggests that the distribution can be highly attributed to the deliberate cultivation and trading of the rhizomes in the past (Morgan 1999).

Wild Rice/*Manomin*

Manomin, the Anishinaabe word for wild rice has long been one of the more valuable food plants for the Anishinaabe, though its usage has decreased recently. The plants themselves are beautiful, with long grass like leaves and gorgeous magenta flower spikes. A large dense patch resembles a grassy meadow, water not visible. Unfortunately the water levels were so high I most often looked *into* the water to find the plants. Wild rice in the Whitefeather forest has been purposely planted in shallow lakes/bays by the people of Pikangikum and still is today (WFI 2003).

“When the water goes down it will look beautiful” – Alex Suggashie

Wild rice is in the grass family, Poaceae, as is common white rice, but the two plants are distantly related. Wild rice is native to North America, although in southern Ontario and the United States it is generally cultivated and planted in paddies now. These plants are annuals and propagate by seed and require shallow, slow-moving water to grow successfully (Vennum 1988). Natural spread of wild rice is slow, and spreads downstream as water carries seeds. Aeration of soil by animals, ice, and wind promotes growth (Vennum 1988), as well as hand

seeding by people. This was a common activity of aboriginal people years ago and today.

Wild rice is sensitive to pollution, but the most important factor in successful wild rice growth and yield is water level (Vennum 1988). If water levels are too high, they will either uproot or drown the plants, which it did around Pikangikum in the summer of 2004. While healthy rice stalks grow between five and eight feet above water level, most of the rice I observed was completely drowned or rose a mere foot above water level. Maturation time of the fruit varies within stands, with fruits on the top of the stalk ripening first followed by lower grains so often more than one harvest is done in one summer. There is about a ten to fourteen day harvesting window in August or September before the grains fall to the bottom of the river on their own (Vennum 1988). Harvesting too early causes unripe grain to fall, but it will not grow next year. Care must be taken not to damage rice plants with excessive boating as well. There are so many variables that the knowledge of how and when to harvest wild rice is deeply engrained in Anishinaabe people through centuries of traditional ecological knowledge dissemination.

Wild rice needs a specific habitat, but through hand planting, it is easy for people to create new areas, thus generating a new type of habitat for other plants and animals. Once established in an area, wild rice will stay and re-grow there for as long as the surrounding environment remains relatively constant.

A shallow lake full of *manomin* offers more than just *manomin*. The density of the plants offers food and shelter to an abundance of wildlife, especially waterfowl. When I paddled down a narrow on Stormer Lake with George B. and Lucy Strang in mid-September, we came upon a widening in the creek that contained a lot of the plant, but we also saw muskrat lodges covered in goose dung (*ishkiimoo*), ducks, and sandhill cranes flying overhead. Geese and cranes rest in swampy, shallow areas such as this. Moose can also be found in such a habitat, however, I was not lucky enough to spot one. Muskrats are commonly found among *manomin* because of the shallow water, and they eat the roots of wild rice, horsetails and cattails. Ducks also eat roots (George B. Strang personal communication 2004), and some eat fallen grains of wild rice (Vennum 1988). *Manomin* around Pikangikum is ready to harvest at the end of September (Norman Quill, personal communication Jan. 25, 2006); however the high water levels had rendered these plants unharvestable. The grains that were above the water were not ripe at that time.

The last time people harvested *manomin* around Pikangikum to any great extent was around fifty years ago. Some elders do still plant manomin. Norman Quill (personal communication, Jan. 25, 2006) planted some ten years ago on a lake in his trapline, although he does not collect large quantities of it. Woodland Caribou Provincial Park was established in 1983 (OMNR 2000) just south of the current Whitefeather forest region, and for the seven years prior to that Norman used to harvest lots of *manomin* from Larus Lake and sell it to people from

southern Ontario. He would sell it to the highest bidder (personal communication Jan. 25, 2006).

Even though *manomin* currently is not harvested by people of Pikangikum, it is sometimes planted to create the associated habitats that provide excellent duck hunting and muskrat trapping grounds (Draft Land Use Strategy 2006).

4.3.2 In the Forest

The southern boreal forest is characterized by closed stands of coniferous trees, cold winters, and acidic nutrient poor soil. Evergreen plants with needle-like leaves are well adapted to the short growing seasons and thus dominate the vegetation. Needles have less surface area than broad leaves from which to lose moisture, and they are able to photosynthesize earlier in the season than broad leaf trees without having to expend energy for new leaves (Henry 2002). As well, most boreal plants have mycorrhizae associations that help the shallow rooted plants obtain minerals from the soil: minerals that the plants are adapted to hoard (Henry 2002). The soils of the boreal forest are only 6000 to 9000 years old and are therefore relatively immature, having little time to acquire organic material (Henry 2002). The needles of spruce trees, as well as fire, add more acidity to the soil.

Fire plays an important ecological role in the boreal forest; in fact, it is a driving force in the life of the forest. Most of the forest will have experienced fire

every 100 to 200 years or less (Henry 2002). Fire drives succession: serotinous jack pine and black spruce cones open with the intense heat, aspen trees regenerate through underground suckers, and new birch stems sprout from the root collar, and seeds of many understory plants finally have sun-warmed soil and the freedom from leaf litter to germinate (Henry 2002). One such plant that is utilized by Pikangikum people and thrives in fire affected areas is the blueberry.

Blueberries/*Miinaan*

Blueberries are a common edible food in the Whitefeather forest. Two species, *Vaccinium angustifolium* (low bush blueberry) and *V. myrtilloides* (velvet-leaved blueberry) inhabit the Whitefeather forest, although *V. myrtilloides* is more common. Blueberries are post disturbance colonizers, meaning the plants benefit from a disturbance such as a fire or clear-cut to thrive. Blueberries grow well in acidic soils and can be found in rocky areas, open conifer forests, and muskeg of the Canadian shield (Vander Kloet 1988). They are shade tolerant but fruit production is best in sunny areas. Plants generally bear fruit in the second or third year after disturbance (NB DAFA 1996). Disturbances such as fire and clear-cuts are helpful to renew a berry crop. It follows that due to the need for a disturbance, blueberry habitats are not static. Even without a disturbance, a blueberry patch would eventually be overgrown by other plants. Therefore, preserving blueberry habitat involves preserving the natural processes that create it, namely fire.

Associate plants include jackpine, spruce, cranberries, Labrador tea, bunchberry (*Cornus canadensis*), as well as reindeer lichen (*Cladonia spp.*). Blueberry patches provide food and habitat for bears, porcupines, squirrels, rabbits, and birds. Grouse frequent such habitats and are hunted by people of Pikangikum.

“if you put all kinds of berries in your pail at the same time, you’re a dirty picker!” –Lucy Strang

Some people in Pikangikum still do collect wild berries in the clear cut areas south of the WFPA and other patches near town. A decline in forest fires near Pikangikum has resulted in fewer patches and fewer berries than elders remember (George B. Strang, personal communication 2004). Blueberry picking is less frequent now than it was when elders were young. During a conversation in a blueberry patch with Alex Suggashie, he admitted that there is little need to collect tiny wild blueberries when they can get big juicy ones at the Northern Store, especially when the best blueberry patches are along the Nungessor road, which is a fairly long boat ride away. Mostly these days blueberries are something people eat-as-you-pick while out on the land. Lucy Strang remembers picking blueberries as a child and collecting them in birch bark baskets. They would only put blueberries in a basket, for if other berries were mixed in, that was ‘dirty-picking’. Sometimes women would make jam by adding sugar to squished berries, or making a sauce called *pashkiiminasiigin* to eat with bannock (Lucy Strang, personal communication Sept 16, 2004).

Cranberries/*Makonsiimiinaan, Apakosaykanamiinaan*

There are two species of cranberries found in the WFPA: *Vaccinium vitis-idaea* (bog cranberry, lingonberry), and *V. oxycoccus* (small bog cranberry).

Physiological differences between these two plants are minimal and they are used in the same way and found in the same types of habitats. These creeping, mat forming plants are commonly found in wet, mossy forested areas with spruce, jack pine, and labrador tea, but can grow in drier areas as well. They grow in habitats similar to blueberries, those with nutrient poor, well-drained soils, and thrive in the sun. Moose, bears and rabbits feed on the browse, and grouse and other birds eat the berries.

Cranberries are relatively common in the WFPA, although these berries are also generally eaten-as-picked instead of being gathered and preserved for later and have traditionally not been used as much as blueberries.

Labrador Tea/*Mashkiigobag*

Labrador tea (*Ledum groenlandicum*) was an important and commonly used plant by the Anishinaabe. It grows in abundance in the Whitefeather forest, and is commonly found in large patches in acidic sphagnum bogs. It also grows on upland sites with sufficient moisture, often in association with *Vaccinium spp.*, *Pinus spp.* and black spruce (Nellessen 2006). This short shrub is an evergreen, so

leaves stay green all year, even under snow. Thus, this accessibility makes labrador tea a popular beverage. The leaves and stems are boiled in hot water until the water turns bright yellow. It can then be drunk as a tea, although to the Anishinaabe, ingesting a plant in this manner generally meant that it was a medicine, rather than just a tasty warm drink.

Birch/Wigwaasatig

Birch (*wigwaasatig*) trees are one of the first plants to establish in a burned area due to their light seeds and sun tolerance and ability to send up new shoots around burned trunks (Henry 2002). Willow and aspen are also early successional species, and these deciduous habitats are ideal for moose, which are often found browsing in recently burned areas (Henry 2002). Over two or three decades without another disturbance, deciduous stands will be taken over by shade tolerant spruce. Birch trees are extremely utilitarian to the Ojibway people. There are many practical uses, which have been frequently documented. For example, in Pikangikum, people would peel the bark in early summer and use it to make baskets, in which they collected berries. Baskets were held together with rope-like willow branches or spruce roots. Trees were also tapped for syrup, and a coffee-like drink made out of the bark (Lucy Strang, personal communication 2004). As everyone there knows, dried bark makes an excellent fire starter. This, and birch bark moose-calling funnels, are

still common uses of the bark. Other practices are generally not common very much today, like canoe-building, although the knowledge of *how* to utilize birch trees is still present among elders.

Black Spruce/*Kaawaataak*

Black spruce (*kaawaataak*) is the one of the most common tree species in the Whitefeather forest, as they grow well in the acidic soil. It is a common tree species across the boreal forest, spanning from Alaska to Newfoundland.

Black spruce thrives in wet, acidic soils and peat bogs (Borealforest.org 2006). I learned from George that young spruce cones could be boiled and used as an anti-diarrhea medicine (although too much would have the opposite effect!).

Although interesting, I later discovered a much more practical utility of the spruce tree. The roots, called *watapiin*, are used as rope to bind canoes, birch bark baskets, or to make rabbit snares. George and Lucy showed me how to dig them up with your hands, after which they are boiled and the outer layer is peeled off. The soaking makes the roots malleable so they can be shaped/bent/tied. Despite learning about the practical uses of *watapiin*, I personally viewed them as artistic material and made them into wreaths.

4.4 Cultural Values

Although plant sites are described separately from cultural sites, it is important to note that these are not exclusive: it is for clarity that I categorize and organize information. For example, a bay of *manomin* or a patch of *wiikansh* are plant harvesting sites, but are also culturally significant. In fact, *manomin* fields are indicated as a “cultural practice” on the “Cultural Values” maps produced by the WFMC. Part of the difficulty in organizing this data was just that- organizing it. For simplicity, I have divided my data by ‘ecological’ and ‘cultural’ types of information, however, as most people view the landscape outside of the academic context, objects, changes, and meanings fall into both categories. The following are ‘types’ of sites that we visited that can be found in numerous places around the forest.

Burial Grounds

Burial grounds are located throughout the Whitefeather forest, for in the past when people spent more prolonged periods away from Pikangikum, people were buried where they died, out of necessity. Burial spots are very sacred places to the Anishinaabe and should not be disturbed at all. We were privileged to be shown one sacred place, and agreed not to tell anyone about it. George B. Strang (personal communication 2004) stated that where one was buried was where they

would rise again; therefore, that site will always have a spiritual presence that must be respected. Many of the youth of the community do not know about all these ancient graves. Elders and other with intimate knowledge of their traplines generally know where burial sites are, although they are often hidden and an outsider to the area would probably not notice them. These are not sites elders would show to outsiders.

Thunderbird Nests

A Thunderbird nest is a sacred site: the home of the mythical thunderbirds (*biñessi*), whose wing flapping creates the sound of thunder. This Thunderbird nests are found throughout the WFI and other Anishinaabe lands. This particular site was only viewed by me from the water. Firstly, the nest was atop a steep non-navigable cliff, and therefore inaccessible from our vista. Secondly, George suggested that this was a spot suitable for youth and tourists to visit from a distance. The sacredness was demonstrated by George's words (translated by Barry Peters, Sept. 14 2004): "We leave him [Thunderbird] alone, he leaves us alone." This is an example of a static site on the landscape. The thunderbird nest is here, always has been, and always will be: it is not dependant on ecological changes like blueberries are. It is also still a relevant place because people still know and talk about thunderbirds.

Ceremonial Places

Traditional Anishinaabe ceremonies and dancing in Pikangikum today are uncommon or vastly different from the past. However, elders still remember them from their youth. One place I stopped at with George on Berens Lake was called *Ojagwatchminis*, which I was told means “women island” (George. B. Strang, translated by Henry Strang Oct. 22, 2004). On the WFMC map this site is called ‘Big Drumming Place Island’. Forty years ago people would still go to these islands to have pow-wows (George B. Strang, personal communication Oct. 22, 2004). Once a white man danced here, but these are not spots George ever shows tourists. The stories and history of places such as *Ojagwatchminis* are culturally significant for Pikangikum youth.

Old Camp and Commercial Fishing Sites

At this time, people from Pikangikum often stay in cabins out on the land, sometimes for weeks or months at a time to hunt and trap. These, as well as historical occupancy sites such as places where people once lived are indicated on the Whitefeather maps. I visited outpost and private family cabins, and also places with only ruined remains of bygone years. I only saw cabins used for spring/summer/fall. Winter cabins tend to be more inland to be protected from the wind. A common theme in the location is the soil type and vegetation. One

will see gravel pits near cabins, because gravel is packed onto the roof to make it rain proof. The gravel is packed on top of sphagnum moss, which is also placed in between wall logs to seal the cabin (George B. Strang and Barry Peters, personal communication 2004). George and Barry called sphagnum moss *akii*, but also said that word can be used to refer to the earth” and “our world” (Barry Peters, personal communication 2004).

On Berens Lake I went with George to an old campsite of his, where people were camping until the early 1990s. There were remains of three old cabins, but George said they often used tents there. The rationale for this location was obvious from the surrounding scenery; it was even obvious to me (though it may not have been at the beginning of my fieldwork). This site was at the end of a spit enclosing a small bay full of willows, cattails, bulrushes, and reeds- prime duck and goose hunting habitat. Five families used to share this spot for camping, hunting, and fishing sturgeon (George B. Strang, personal communication 2004). Although George and Lucy do not camp here anymore, others may, as it is still a great spot for hunting and fishing.

Decades ago people from Pikangikum would sell fish to a man in Kenora mainly, but also to other buyers in southern Ontario. For two to three weeks each summer people would fish for this commercial venture. The buyer would tell people how much fish he wanted, and then he would bring them money and take

the fish. Eventually people stopped fishing commercially because the costs (mostly flying to the lakes) were higher than the benefits.

4.5 The Cultural Landscape of the Whitefeather Forest

A cultural landscape is dynamic, whereas maps represent a static condition. Many of the places I visited had a corresponding symbol on a WFRC map. That does not necessarily mean that what is on the map is on the ground. We went to the blueberry patch, and there were blueberries, but they were sparse. George and Alex both commented that many years ago there used to be more blueberries, but there had not been a fire in the area for as long as they could remember. Blueberries are dependant on disturbance, so if there is no fire or clear-cutting, the berries will eventually disappear, taken over by other plants. To protect blueberry plants it is necessary to protect the processes and habitats that create proper conditions. This is a good example of a dynamic landscape, one that can and has been changed by both nature and people.

Manomin is also dependant on habitat- it needs a certain level of slow-moving water. Over time, seeds are carried downstream and new plants will grow where they previously did not. Generally though, *manomin* will grow in the same area every year barring a very drastic change, such as construction of a dam. Although there will be some years of drought or flooding (as in 2004) that render a

harvest impossible, over the long term the habitat/location is fairly stable.

However, most of the *manomin* one would find in the Whitefeather Forest is there as a result of being planted by people. It is quite easy to collect seeds and start a new patch of *manomin* in a suitable habitat. Humans can easily alter the location of this plant. On the same vein, if a certain area is over-harvested (which can be done with machines, not really by using traditional methods), stocks could be depleted. In the context of protection, habitats of slow-moving shallow water are necessary for the sustained growth of *manomin*. However, seeds can easily be planted in new locations, so if one habitat is destroyed (e.g. through damming or diversion) another one can be created.

A site on a map labelled 'old cabin' may have anything from a run-down but still standing building to a few logs representing a frame to an overgrown clearing with some shallow gravel pits. There may also be other indicators of past inhabitants, such as blue ribbon baking powder cans and old figure skates (which we found at a site on Stormer Lake). George excitedly exclaimed that there would be "interesting stuff three or four feet below the surface" (personal communication Sept. 16, 2004), implying that this would be a worthy site for archaeologists to study. The usage of these kinds of sites change over time, but there is a permanent history written in (and under) the land. The locations of cabin/residence sites are dependant on a supply of gravel and *akii* but are variable over space.

A site can be physically static but psychologically dynamic. For example, a place marked as “*mashkiki*” is only a place with medicines to people who know what the medicine is and how to use it. To me, the *mashkiki* (as indicated on the map) did not exist until I knew that a certain plant, like *wiikansh*, is a medicine. Therefore, the site is dynamic in the sense that it changed not over time, not over space, but in my mind. By this logic, everything is dynamic, and indeed it is. The explanation of this, however, is relevant to the WFI. If land is to be protected effectively, everyone needs to know *why* it is being protected. If a child or an adult is to gain any learning from the land, places have to change in their minds- new meanings and values must be attached to places, plants, animals, etc. This is a simple concept, but people are not always aware of its application. For example, looking at a pre-existing map that indicates that *aniipiimiinaan* (high-bush cranberry) is ‘here’ prejudices the reader to think that perhaps just *aniipiimiinaan* is there, when in fact, there is so much more.

Knowledge, as well as relevance, can be gained, but also lost. For example, many young people in Pikangikum are unaware of the traditional medicinal uses of a lot of plants. Even if they knew them, they may not seem relevant: there are drugs available thanks to modern medicine that are more effective than traditional remedies. *Wiikansh*, on the other hand, is a medicine that everyone still knows and uses, even the children (George B. Strang, personal communication 2004). Many households have stockpiles of the rhizomes in their homes. Sites gain and lose cultural relevance as well. Even though today thunder and lightning are

explained through science (as opposed to the flapping wings of giant birds) to children in school, Thunderbird nests are still meaningful and sacred places to them, places they would not disturb.

Table 1 lists some plants with known uses found in the WFPA that I learned about. Though this list is by no means extensive, it contains culturally and ecologically relevant plants and habitats. By visiting these sites, talking with elders, and conducting outside research, I have assembled information about traditional plant uses, potential NTFP uses, and habitats. The relatively static nature of these plant/habitat oriented sites (as opposed to trying to find animals which are always moving) makes them useful for educational purposes.

TABLE 1 Plant names and uses

Plant, common name	Ojibway name	Latin name	Use Category	Specific Uses
Blueberry	Miinaan	<i>Vaccinium myrtilloides</i>	Food	Berries, jam, syrup, mixed with fish
			Animals	Grouse, bear food
Bog cranberry	Apakosaykanay miinaan and Makonsiimiinaan	<i>Oxycoccus macrocarpa</i> and <i>Vaccinium vitis-idaea</i>	Food	berries
Sweet Flag	Wiikansh	<i>Acorus americanus</i>	Medicine	roots for sore throat, fever, earaches, headaches, cold prevention
Labrador tea	Mashkigoobag	<i>Ledum groenlandicum</i>	Medicine	nosebleeds
			Beverage	tea available in winter
			Animals	rabbits
Wild Rice	Manomin	<i>Zizania aquatica</i>	Food	great in duck soup
			Medicine	roots for urinary infections and diabetes
			Animals	food for muskrat and ducks

Paper birch	Wiigwaas	<i>Betula papyrifera</i>	Tools	dried bark as fire starter; funnels to call moose; canoes
			Crafts	baskets, birch bark biting
			Food	Cambium under bark used like coffee
			Medicine	dried bark as baby powder; other
			Building material	fish-smoking tipis
High-bush cranberry	Aniipiimiinaan	<i>Viburnum trilobum</i>	Food	Berries
Poplar	Azaadin	<i>Populus spp.</i>	Tools	burned for smoking fish
			Animals	beaver food and shelter
Wild Mint	Apapoowaan	<i>Mentha arvensis</i>	Beverage	tea. Often added to Red Rose
Hawthorn	Miinasuk	<i>Crateagus</i>	Food	berries
Willows	Wiingop	<i>Salix spp.</i>	Animals	bird, moose habitat
			Building material	snowshoes; other things that required bendable branches
Black spruce	Kaawaataak	<i>Picea mariana</i>	Medicine	cones for diarrhea treatment
			Tools	roots for ropes, used to bind birch bark baskets and canoes
			Building material	wood for sleds
			Craft	yellow dye from roots
Jack Pine	Ookiik	<i>Pinus banksiana</i>	Food	Eat inside, just under bark
			Medicine	Sap for burns
Sphagnum moss	Aki	<i>Sphagnum spp.</i>	Tools	diapers, pot cleaners, 'toilet paper'
			Building material	used on cabin roofs and to fill cracks in log cabin walls
Raspberries	Miskomiinaatiik	<i>Rubus ideaus</i>	Food	berries mixed with fish
Dwarf raspberries	Oskiishiikoomiinaan	<i>Rubus pubescens</i>		
Balsam fir	Iiniiaandaag	<i>Abies balsamea</i>	Craft	dark yellow dye used on moose hides
Canada yew	Moosootaak	<i>Taxus canadensis</i>	Food	berries
			Medicine	toothaches
Showy Mountain Ash	Makoomiinaan	<i>Sorbus americana</i>	Food	berries
			Medicine	stem used as medicine
			Indicator	when berries are ripe, wild rice is ready to harvest
Bulrushes		<i>Scirpus spp.</i>	Food	Shoots were emergency food
			Tools	Women used to weave plates and bowls
			Animals	muskrat, otter food

4.6 Documenting a Cultural Landscape

It is difficult to explain what a cultural landscape is; it is even harder to describe one, which I discovered during the writing process. One can describe historical events, human movement, and ecological processes but a cultural landscape is better experienced than read about. When someone is transplanted from one cultural context to another it is human instinct to look for familiarity. As a researcher, one tends to be more conscious of the differences between her/his own landscape and the new one. The documentation of the cultural landscape, in a sense, of the Whitefeather forest was partially done by the elders and research team of the WFRC through the creation of their land use maps, but I can really only describe the cultural landscape from my own perspective, as an outsider.

This thesis is a static document, so it is difficult to ‘document’ a cultural landscape because it is always changing and is different from person to person. Before my field research I thought I would “explore the dynamics of the cultural landscape”. I ended up exploring the landscape through my own eyes, and could not help but compare it to my home landscape. This turned out to be constructive because I realized that it was not solely the ‘landscape’ that was important to document, it was the process of learning about that landscape.

Chapter 4 reports the data I collected through my fieldwork as the basis for the following discussion about learning journeys. Documentation of ecological

and cultural features and traditional knowledge by mapping and recording oral histories is imperative in a modern context for use in land use/land protection plans and proposals (Watson, Alessa and Glaspell 2003). Land protection/conservation in the form of legally sanctioned protected areas comes about through political processes generally overseen by non-aboriginal people who do not live in the proposed protected areas. Especially in a multicultural and geographically diverse country like Canada, there are differing worldviews of and relationships with landscapes that need to be taken into account during resource plan/management processes (Watson, Alessa and Glaspell 2003).

In the Whitefeather forest, the mapping by elders of ecological, cultural, and heritage sites has been integral in the land use plan to identify to outsiders important travel routes, traditional harvesting sites, burial grounds, etc. Documentation is an important step to slow/prevent loss of traditional knowledge but not enough to effectively protect land and culture, for true understanding and appreciation of the land/earth cannot be conveyed through paper. Chapter 5 illustrates a way to bridge the gap between documenting and applying indigenous knowledge. I present how indigenous knowledge can be the basis for learning from the land in the form of a learning journey. For youth of Pikangikum, who spend a lot of time in school, this approach can complement and enhance the Ontario curriculum. It is also applicable for outside visitors to the community.

Chapter 5- Learning Journeys

5.1 Applications of Learning Journeys

The Anishinaabe have a word for ‘education’: *ᑭᑲᑦᑎᑦᑭᑦᑎᑦᑭᑦᑎᑦᑭᑦᑎᑦ* (pronounced KEE-no-ah-MAH-tee-win). This does not mean education specific to a school as we often define it in English, but rather a more holistic way of life-long learning: learning through school but also every day activities and learning from elders and life experience. It is this definition that I adhere to when writing about ‘education’. Indigenous knowledge, and specifically traditional ecological knowledge, *is* a way of understanding the natural environment and how people fit into their surrounding environments – what we might call environmental education.

Youth and adult education and tourism can be accomplished through the same processes of experiential environmental education: learning by using the land as a classroom, with knowledgeable teachers (including elders). I describe using the land as a ‘classroom’ or learning setting as a “learning journey”. My objective of identifying and documenting plant and cultural values contributed to the creation of the learning journeys, which met my other objectives: to consider how traditional land-based knowledge can be accommodated with the school curriculum and how it can be used for visitor (youth and adult) education.

The field research I conducted with elders demonstrates that the Whitefeather Forest is a rich landscape and a suitable living classroom for both adults and children. Any landscape has learning potential if there are leaders and teachers who realize that potential (Kimmel 1999). Elders realize this potential and can be teachers, since the landscape was, in a sense, a living classroom for them. The traditional forest lands of Pikangikum people are an idyllic setting for education and tourism. Currently this region there is no mining, logging, or hydro development and is part of a large tract of unfragmented boreal habitat that sustains many faunal populations: woodland caribou, moose, black bear (*Ursus americanus*), wolverine (*Gulo gulo*), wolf (*Canis lupus*), beaver, bald eagles (*Haliaeetus leucocephalus*), and many birds (WFI 2003). It is also home to wise teachers/elders. In this chapter I give some examples of how indigenous knowledge can be applied in a contemporary context.

Figures 8-11 are original maps that I created by looking at pre-existing WFMC maps and my gathered data. The yellow lines represent learning journeys, while the purple squares represent learning places. These are merely examples of how the landscape could be used as a teaching/learning tool. The possibilities of learning journeys are many. In fact, I would encourage teachers/elders to not follow these journeys, but rather to use this idea as an approach for developing their own journeys. Their utility is as a demonstration that landscape-level environmental education is possible in the Whitefeather forest. This method can

meet the requirements and make Ontario school curriculum more relevant to Pikangikum students and can enhance visitor experience to the region.

Basically, a learning journey would entail the youth or visitors spending a few days (or as long as they wanted) on the land with elders as guides. This would include overnight camping. The elder/guide would take the students along the proposed route and would stop at various sites. At the site the students could partake in traditional activities and learn Anishinaabe plant and animal names, plant uses/medicines, stories, history, values, survival skills or other things the elders might decide to teach. There are already ten outpost camps operated by Pikangikum residents in the Whitefeather forest that could be utilized as campsites for learning journeys. It is important to emphasize that the learning journeys presented in this thesis are merely examples- the journey and sites would be developed by the guides, and of course would be very flexible.

The learning journeys are effectively what I did while I was in Pikangikum. When I arrived in the community I was unsure of how my planned methods would work. I ended up going to numerous places on each lake; I was myself being taken on learning journeys, though not necessarily the same routes I have suggested in my maps. The learning journey approach is applicable to youth through school, and adults through tourism. I now describe the justification for these applications, followed by examples of learning journeys.

5.2 Curriculum based Education

There is a good deal of literature advocating that a holistic and participatory approach to environmental education is more effective than a subject-by-subject approach (Second Nature, Inc. 2006; Marouli 2002; Holt 2005). It is not a new idea in theory. Mumford, in the 1940s, advocated the importance of 'place' in the school curriculum. He proposed that children study their local environment by incorporating that study into every subject and examining the ecological and socio-cultural relationships of their communities (Orr 2005). An objective of this research was to examine how indigenous knowledge could be accommodated with the school curricula.

First Nations children on reserves, like all children in Canada, are required by law to go to school, and their teachers are required by law to follow a provincially constructed curriculum. It is clear that the goals and objectives of the Ontario curriculum can be met through this alternative learning structure I present. Although applicable to almost any grade and subject, I looked at the grade 4 Science and Technology Curriculum as an example. Using learning journeys (or any land based activity) in conjunction with the in-class time is a compromise that could satisfy the community and the government: Pikangikum children learn about their landscape and traditional lifestyles in their Ojibway language from elders, and politicians and curriculum developers in the south are

satisfied that the children are learning what they need to become constructive members of modern society.

While it is easy to view classroom based education and landscape based experiences (learning journeys) as separate entities, in reality these two methods of education are complementary (See figure 2). School teachers would actually go on the learning journey with her/his students. This would facilitate the merging of the two learning approaches: the in class assignments and projects could encompass and be a continuation of the land-based learning and students could apply what they learned in class to hands-on activities. The teacher would learn a lot as well.

Environmental education is cross-curricular, so one teaching place could be a useful location to study biology, physics, math, art, language, and physical education. Figure 8 demonstrates how landscapes can be used to meet specific requirements, those of the grade 4 Science and Technology Curriculum. Indicated in the chart below the map are items found at each place, and a letter (from Appendix 1) referring to a component of the curriculum that could be taught at that place. Many curricular elements could be taught anywhere.

Education using the landscape as a classroom is more effective when conducted within the cultural context, with elders guiding the learning. PFN uses the term “Keeping the Land” to refer to their responsibility for “keeping a spiritual connection to the land and the Creator” (Draft Land Use Strategy 2006:3). This term encompasses caring for the land, water, plants, animals, youth, and way

of life. Pikangikum's way of "keeping the land" may not be an education system in the non-native capitalist sense of the term; however, it is a valid system of education.

5.3 Adult Education/ Visitor Learning Experiences

These learning journeys, while applicable for children, are also pertinent for adult education, broadly speaking. In terms of the Whitefeather Forest Initiative, such 'adults' could include:

Tourists: people who visit to explore the outdoors or who are interested in the Anishinaabe way of life and TEK.

Government workers, business associates, teachers, nurses, etc.: people who work with/in Pikangikum.

University/College students: students doing research with the community or for field courses.

Kimmel (1999) recognizes that *ecotourism* is also an ideal channel for environmental education. For children, school is an avenue for such education, but for adults, there is no way to impose structured education upon them. These learning journeys would not have to be highly structured, but the point is that tourism is a practical avenue to offer adults a learning experience.

5.4 Economic Opportunities

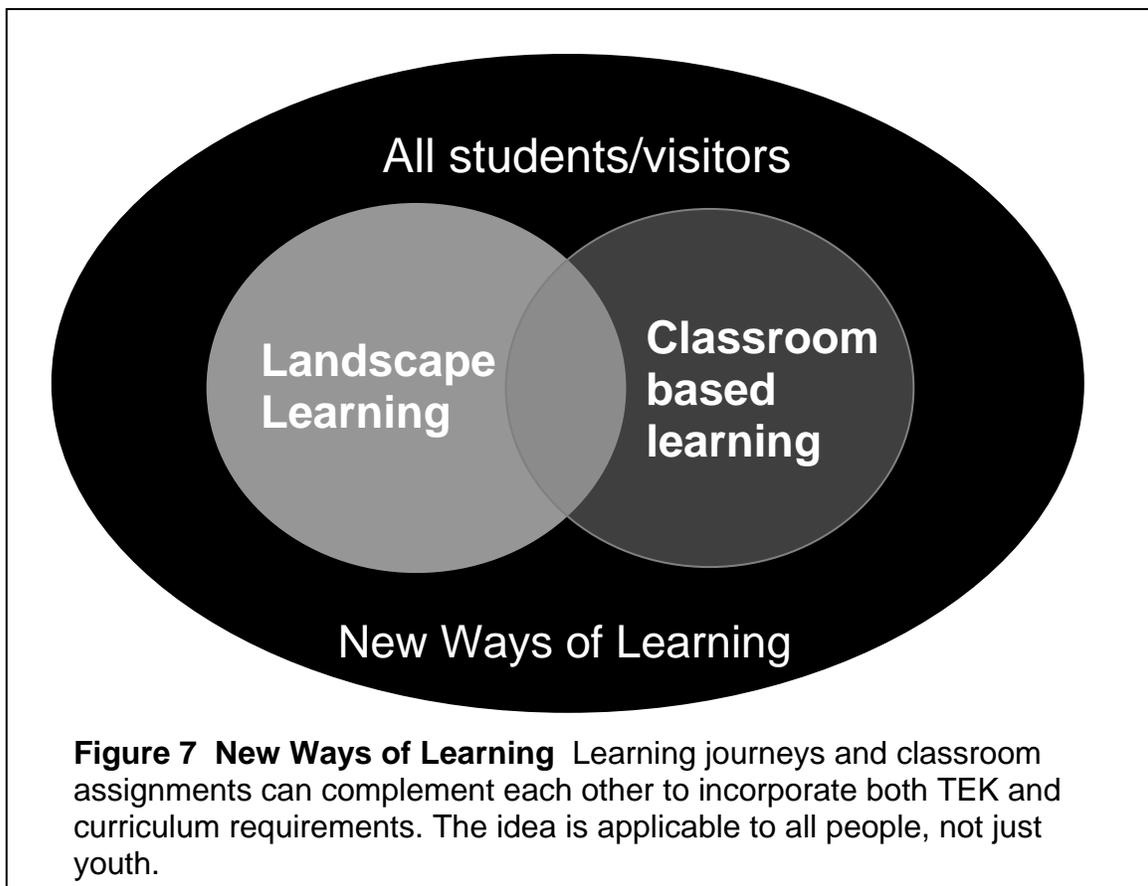
The proposed Indigenous Knowledge Teaching Centre (see page 8 and appendix 3) can both benefit from and facilitate educational approaches such as learning journeys. One of the objectives of the Teaching Centre is to “serve as a focal point for bringing together school children and elders.” It could act as a physical start/end point in the journeys and a classroom and a repository for documentation of the cultural landscapes and traditional knowledge (e.g. the WFMC maps). Results of research projects carried out in the community may provide materials for interpretive/tourism activities. The Teaching Centre will be accessible from both Pikangikum and the south (by way of the Nungessor road) and would be a “gateway for visitors and scientists to the protected areas of the Whitefeather Forest...” (appendix 3).

New economic initiatives are goals of the WFI. Learning journeys could be part of tourist packages. The Teaching Centre will provide training to youth for forestry and resource management, and the opportunity also exists for elders to train youth as guides.

5.5 Learning Journey Examples

With the multitude of learning opportunities one could spend hours or days traveling on the land/water. In the Ontario elementary Science and Technology Curriculum there are five ‘strands’ students complete each year: Life

Systems, Matter and Materials, Energy and Control, Structures and Mechanisms, and Earth and Space Systems. Each grade has more specific topics within these strands. The grade four Life Systems unit is “habitats and communities”. A learning journey is a perfect method to provide a holistic learning experience while meeting curriculum requirements. For three of the lakes I spent time on, I have created an example of a learning journey. As stated earlier, any actual journeys in the Whitefeather forest would be tailored to the audience/conditions, dependant on grade level, time of year, and length of the journey.



Pikangikum Lake

Below is a sample learning journey on Pikangikum Lake. Developed by looking at the WFRC maps and visiting sites 1, 4 and 5 personally, the chart below exemplifies some features found at each site. Sites 2 and 3 were indicated by elders to be tourist spots, suggesting opportune sites for a learning journey. Due to the propinquity of the town to the lake, this would be an ideal journey for school children and/or for short trips of one or two days. Following the chart is an illustration of how a specific site can engage a unit of the Ontario curriculum.

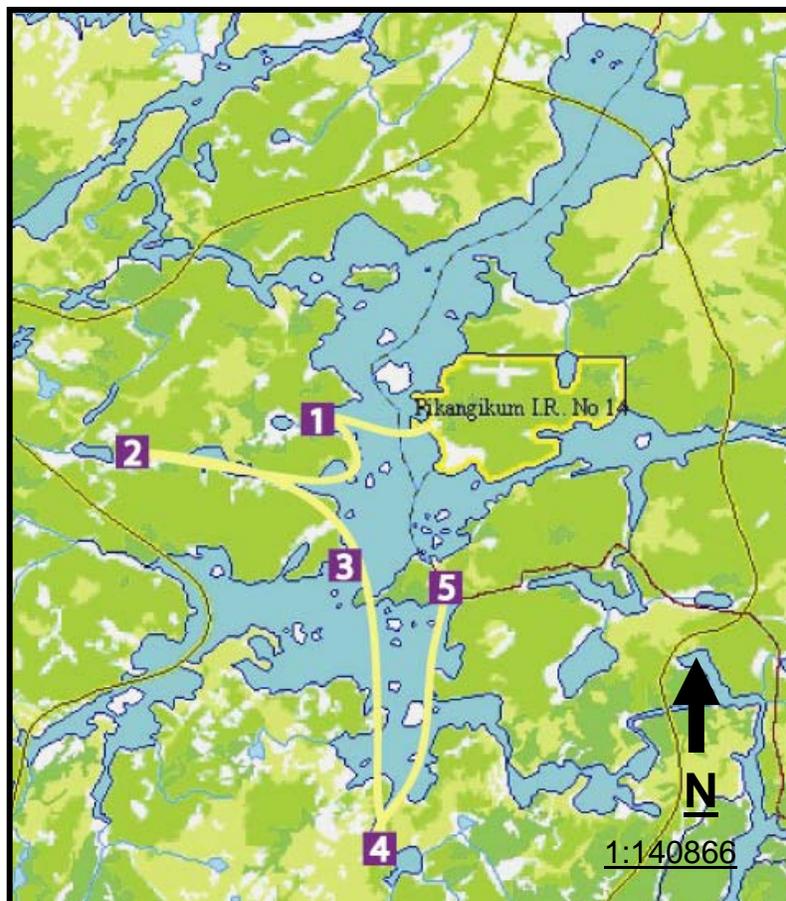


Figure 8 Learning journey, Pikangikum Lake

Place	Visited	Indicated on Map	Curriculum
1	Blueberry patch, lichen, grouse habitat	Wolf tracks	C H I M N F
2		Bear fishing, moose feeding, northern pike spawning; pass muskrat dens, mashkiki; tourist spot	E M B
3		Mide ceremony, bear dens; tourist spot	B
4	Manomin, labrador tea, fire 50 years ago; pass otters	Ducks, bald eagle fishing, northern pike spawning, bear travel route; good trees for birch harvesting, white-tailed deer, muskrat	E C H I M N B F
5	Willows, duck habitat	White spruce, bald eagle, otters, sandy beach	G I M B F

Site 4

In my brief time at this location, we passed some otters and saw *manomin* and labrador tea and George said there was a fire here about 50 years ago.

Indicated on the WFMC maps at this site are: ducks, bald eagle fishing site, northern pike spawning ground, bear travel route, good trees for birch harvesting, white-tailed deer and muskrat habitat.

Specific curriculum expectations of Habitats and Communities unit that could be met at site 4:

- demonstrate an understanding of a food chain as a system in which energy from the sun is transferred eventually to animals, construct food chains of different plant and animal species (e.g., carrot' rabbit' fox), and classify animals as omnivore, carnivore, and herbivore;
- describe ways in which humans can change habitats and the effects of these changes on the plants and animals within the habitats.
- classify plants and animals that they have observed in local habitats according to similarities and differences (e.g., in shape, location).

- formulate questions about and identify the needs of animals and plants in a particular habitat, and explore possible answers to these questions and ways of meeting these needs (e.g., predict the structural adaptations, such as webbed feet, that help aquatic animals live in water);
- describe ways in which humans are dependent on plants and animals (e.g., for food products, medicine, clothing, lumber);
- investigate the dependency of plants and animals on their habitat and the interrelationships of the plants and animals living in a specific habitat;
- describe structural adaptations of plants and animals that demonstrate a response of the living things to their environment (e.g., the height of a plant depends on the amount of sunlight the plant gets; many animals that live in the Arctic have white fur);

In addition, this is an ideal place for youth to learn from elders and to *participate* in activities such as hunting, fishing, trapping, plant harvesting, story-telling, medicines, etc. Although the elders are the guides of the learning journey, a school teacher can create classroom based activities/assignments that complement/use the landscape journey. For example, children could construct a food chain relevant to what they see: *cattails---ducks---people*.

Berens Lake

The Nungesser road ends at Berens Lake, thus making it easily accessible to visitors. Here is an example of a four day learning journey in summer for tourists.

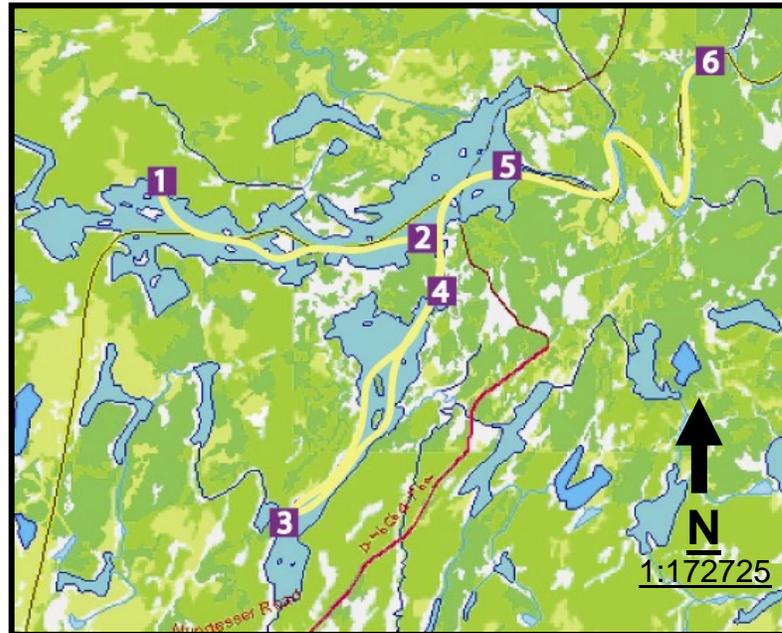


Figure 9 Learning journey, Berens Lake

Place	Visited	Indicated on Map
1	Wiikansh	Sandy beach
2	Big Drumming Place Island	Story place
3	Manomin	Muskrat dens, blue sucker spawning
4	Beaver lodge	White-tailed deer, mint, white spruce, muskrat, whitefish, sturgeon, sandy beach
5	Old campsite, aniipiimiinaan, willows, sturgeon	Mashkiki, ducks gather in fall, swans, garter snake pits
6	Rapids	Pass bear fishing site, deer summer feeding; sturgeon, whitefish, pickerel spawning grounds; follows old dog sled route

Day 1

-Boat from taxi bay (where the road ends) to Pikangikum (follow the river west).

Visitors would get the experience of pulling a motor boat over rollers to avoid dangerous rapids. They also get the chance to see the town and share the experience of living in a community without year round road access.

-head back to site 1. Set up camp along sandy beach. The guide would then talk about *wiikansh*, and perhaps pick some- an introduction to traditional ecological knowledge. Understand the importance and significance of leaving tobacco at a medicine harvesting site. Enjoy peace and quiet.

Day 2

-Boat to site 2. Picnic while hearing stories of past activities (drumming and dancing).

-Boat to site 3. Trade motorboat for canoes. In fall, there may be opportunities to harvest *manomin*. Otherwise, hear about ecology, history, culture surrounding *manomin*. At a muskrat lodge, hear creation story. Take out binoculars and field guide and brush up on bird identification.

-Canoe back to motorboat and set up camp. Cook wild rice for dinner (pre-packaged).

Day 3

-Boat to site 4. Elder may check or set up a beaver trap. Fish. If any are caught, cook them for lunch. Collect plants (mint, labrador tea, spruce) to make tea.

-Boat to site 5. Set up camp. Take out field guides and learn plant identification, including Anishinaabe names. Gather some willow branches and reeds and learn how they were used (ropes, baskets, snowshoes etc.). Make tea. Fish some more.

Day 4

-Boat to rapids. Walk along path that has been used by Pikangikum people for centuries. Talk about rapids and hydro (i.e. relationship of land to contemporary livelihoods). Look for edible plants (this is a 'quiz' of what was learned already).

Stormer/Kirkness Lakes

These lakes are easily accessible from the south. Here is an example of a learning journey applied as an ethnobotany field course for university students.



Figure 10 Learning journey, Stormer and Kirkness Lakes

Place	Visited	Indicated on Map
1		Bear den, bald eagle fishing
2		Good trees for birch bark harvesting, duck nests, garter snake pits
3	Old cabins, artifacts, moose	
4	Old commercial fishing site	aniipiimiinaan
5	Thunderbird nest	Thunderbird nest
6	Manomin, muskrat, geese	Mashkiki, bald eagles
7	Bear fishing site, rapids	

Day 1

-Travel by boat to site 1. Introduction to boreal plants, island ecology.

Students would get an introduction to qualitative approaches such as forming relationships with local people and open ended interviews.

-Lunch at site 2. The afternoon would be spent here learning about birch bark harvesting and uses. If springtime, students would be taught how to harvest birch bark. How people use animals and what was done to modify habitats would be discussed here.

-Camp at site 3. Identify plants using botanical keys and Anishinaabe names. Make wild tea. Learn how to use plants in construction (e.g. logs of cabin, sphagnum moss on roof).

Day 2

Boat to site 4. Botany field techniques- quadrats, transects, ecological field work, etc. This would be guided by the university instructor- these are the more technical aspects of the field work. Camp here.

Day 3

-Boat past site 5 and hear stories about Thunderbirds (cannot land at this site).

-Canoe to site 6. Learn about *manomin* history and harvesting techniques. Also explore relationships between animals, plants, and people. Take plant samples for pressing.

-Discuss applications of ethnobotanical research for both economic development and resource conservation, as *manomin* is sold commercially in places but is also a cultural resource.

-Dine on wild rice soup and labrador tea at site 7. More plant identification. Record Anishinaabe names and uses for plants observed. Canoe back to starting point.

5.6 Chapter Summary

The concept of learning journeys was presented in this chapter along with three examples of what actual journeys could look like. They were based upon my travels with elders on the lakes and the plants, habitats, and values documented in chapter 4. Livelihoods in Pikangikum still rely on hunting, fishing, trapping, gathering, and traveling on the land. Traditionally, this was how youth learned to survive and how to respect the earth: it was their 'education' system. Today children go to school, but with learning journeys, curriculum requirements can be met while accommodating the more traditional education system with youth learning from elders while interacting directly with the environment. Learning journeys are applicable for people from other cultures and age groups as well- they can be tailored to the audience. It may be logistically challenging to establish this method into the school system or as a tourist venture, but the Whitefeather forest is an ideal setting for learning journeys.

Chapter 6 Concluding Thoughts

6.1 The Medium is the Message

From conception to completion, this project has been a learning experience for me, both in the field and during the writing process. It was a learning journey for me. In fact, through my readings and experiences in the community, my entire worldview has changed. The research guided me more than I directed it. There is a section in my methods chapter about ‘planning’, but I came to learn that the more that I planned, the less that worked out. Initially I had intended to go to the Whitefeather Forest to learn about plants used by Pikangikum people and document those uses, as stated in my first objective. This information is certainly practical knowledge to document: as a back-up plan to ensure that this knowledge is preserved, and for personal utility. Table 1 documents some of the knowledge I was privileged to learn, and this allowed me to go through the process of learning about that land through experience.

The research was definitely reflexive for me. In the beginning I was an outsider to the community and went there as an observer. As I participated in land based activities, the way I observed the land changed, and my presence affected the way the elders taught. I wanted to learn about plants, but perhaps to the elders I was not ready. The first time I went out with George and Lucy I told them I wanted to find some *mashkiigobagoon*. That day we made labrador tea

and that was pretty much it. George said there were no other plants they made tea with and that there were no stories about *mashkiigobagoon*. I wondered to myself why it was so difficult to get information out of them. Over time though, as we became more comfortable with each other, I would ask George to show me one thing and he would show me three, and eventually I did not ask to see anything specific and that is when I learned the most. My presence affected the way the elders acted- I was not used to learning the way they do. Basically, instead of learning about plants, I was learning *how* to learn, and how to behave and relate to the land. For example, one can pick berries for food, but if one is picking them to use as a medicine, they must leave tobacco as a gift to the creator. So although the action (picking berries) may be the same in both cases, the meaning behind the action determines appropriate conduct. Every time I went boating and hiking through the forest, the elders were taking me on a learning journey, although I did not comprehend it until after I “came up with” the idea of learning journeys. The journey was the method *and* the results.

6.2 To Wrap it Up

The purpose of this research was to work cooperatively with Pikangikum community members to identify and document a sub-set of values and meanings of their cultural landscape. Numerous cultural and ecological sites were documented by visiting them with elders. This information was used in the

creation of learning journeys. However, the learning journeys are about much more than merely visiting sites. They represent the results of all of my objectives.

The first objective was to explore the cultural landscape of the Whitefeather Forest. By undertaking learning journeys with elders I was able to do this. Cultural landscapes are reflections of the relationships of people and their landscape. They may include physical elements, places given cultural meaning, and spiritual connectedness. Landscapes and sites are dynamic: physically, ecologically, and culturally. Places and objects can change location, for example, when *manomin* is hand planted somewhere new, and they can also gain or lose relevance. People modify landscapes and the land changes people also. The way I viewed the landscape changed over time and I attached meanings to places as I learned about them. For example, until I went to check beaver traps with George, I had never thought of beavers as 'food', because they are not food in my culture.

I found that, although I was privileged to see the cultural landscape with my own eyes, it is difficult to document. We can put onto paper where exactly a burial ground or duck habitat is, but that does not express the relationships between places, people, animals and other beings. A cultural landscape is more than the sum of its parts. However, the *act* of documenting plants, habitats, and cultural sites has value. The creation of the WFMC maps for the Indigenous Knowledge Documentation Project got elders and youth working together, facilitating intergenerational learning opportunities.

Understanding the dynamic nature of a landscape reveals that protecting that landscape takes more than a political boundary. It is not just sites that need protection, but also the people and processes (like fire) that create them. Sometimes an understanding of the value of a site is necessary for it to be protected. For example, a thunderbird nest *means* more to a person when they know it is there and they hear stories about it, and people are more likely to want to protect something that they feel has value. Over time, cultural landscape elements disappear and new ones emerge. For example, birch bark is rarely harvested anymore. One can tell which birch trees that have had bark harvested, and these altered trees contribute to a cultural landscape. If people do not harvest the bark, the distinctive looking trees will not exist on the landscape. Alternatively, when PFN begins logging the forest, the landscape will take on a new look and include new meanings.

My second objective was to identify possible interpretive/educational sites and themes. This was accomplished by going on the land with people and taking photographs and notes at various sites. The learning sites along the journeys in chapter 5 are places I visited as well as places identified on the WFMC maps as having ecological or cultural value. The third objective is related to the second: to identify and document plant and cultural values. Although I did not document *all* plants and cultural sites in the Whitefeather forest, chapter 4 highlights some attributes of the landscape and the TEK of Pikangikum elders. Table 1 lists plants I saw and talked about with elders and the various ways Pikangikum people have

and still use them. This knowledge is both interesting and valuable for educational purposes. Some sites do not actually exist unless one knows about them. For example, a thunderbird is a mythical creature that has existed for generations through the oral tradition of passing down stories. There are sites on the landscape that elders identify as 'thunderbird nests', but if narratives about Thunderbirds are not passed down to youth, the thunderbirds, and henceforth their nests, will not physically or figuratively exist. Having sites such as these documented is one way of keeping them in existence. Learning journeys can facilitate the teaching of TEK, cultural history, stories, beliefs, and values associated with the landscape. The learning journeys are applicable to a variety of people, including youth.

My fourth objective was to investigate how indigenous knowledge can be accommodated in the school curriculum. Learning journeys are one way to use the land as a classroom which allows hands-on learning in a cultural context. They consider not just physical landscape, but the cultural landscape as well. As evidenced in chapter 5, curriculum requirements can be met through learning journeys. A curriculum has discrete subjects-- math, language arts, science, history-- but indigenous knowledge can and should be incorporated into the entire curriculum.

Children spend a lot of time in school so it is important to be aware that schools not only transmit knowledge, but also cultural norms, values, and customs (Stone and Barlow 2005). Teachers on reserves who come from the south and do

not have any experience with the local culture are capable of transmitting some knowledge, but not the values and customs of the children's families and society. This is why elders are valuable teachers; they are most valuable when teaching on the land with which they have an intimacy. Learning journeys may also benefit children on a personal level. Children are impressionable, so positive learning experiences at a young age can strengthen cultural identity and foster adaptive learning. If they can relate to what is being taught (in class or on the land) they will be more interested in school. It is easier to teach children who are interested in what they are learning and who are getting positive reinforcement within their cultural context.

Curriculum developers from the south may not understand the value in the Anishinaabe way of learning from elders. The content of the curriculum is less important than the method of learning, and Anishinaabe methods of learning are not currently part of the curriculum.

Learning journeys are also the outcome of my fifth objective- to create educational materials for youth, adults, and tourists. That is a broad group of people, but learning journeys can theoretically accommodate anybody. The information in this document about plant uses, ecological and cultural values can be used to create different learning journeys. Although I provided detailed examples of journeys in chapter 5, it is the general idea, not the specific stops, that is adaptable to different people. Learning journeys in the Whitefeather Forest can teach visitors about the cultural landscape of Pikangikum people and the

ecological landscape of that area of the boreal forest. Although the visitor may go back to a city or somewhere completely different than the boreal forest, it is plausible that the unique nature of the journeys (with elders as guides) would confer a sense of appreciation and reflection that could be applied to one's own landscape. As tourism development is an objective of the WFI learning journeys can be used as guided tours.

Beyond a way to get elders and youth on the land together, enhance the school experience, maintain customary livelihoods, and potentially generate ecotourism opportunities for Pikangikum, there are broader implications of the learning journey approach. There are values and meanings in landscapes that can only be realized by *being* at certain places or doing certain activities. According to Sterling (2001:12), "It is the change of mind on which change towards sustainability depends," and a new view on learning is needed that recognizes the interdependence of people and nature. In other words, landscapes and cultures can best be conserved/preserved/managed/appreciated when people have a connection with and understanding of them.

I feel that anyone who has a working relationship with Pikangikum should go on a learning journey with elders. Pikangikum First Nation is a very different culture than most outsiders are used to, and it is difficult for non-native people who work in the community to understand, and sometimes accept, that culture. An opportunity to spend time on the land with elders may foster cross-cultural

awareness (both ways) and allow outsiders to at least begin to understand the cultural landscape of the local people.

Canada is a consuming society. We value consumption of resources and generation of waste, even though it is understood that this type of lifestyle is ecologically unsustainable. Part of this reason is the loss of direct connection to the earth (for example, we get our food at a store with no idea where it came from) and the predominant view of resources as commodities to be developed for economic gains (Henry 2002). Also, if environmental education ends after high school, it often becomes irrelevant to people. Sustainable environments can only be achieved in conjunction with education. However, in Western society, our education system continually promotes competition and consumption (Sterling 2001, Gough et al. 2001). Despite the fact that environmental issues are taught in school now, our world is becoming more polluted, depleted, and degraded. In other words, we need a total shift in education- people must feel that their learning is “meaningful, engaging, and participative, rather than functional, passive, and prescriptive” (Sterling 2001:27). Outside of the Whitefeather forest context, I feel that learning journeys can benefit people anywhere, for everyone lives within their own cultural landscape. There are knowledgeable people in every society/town/region and people who still respect the land/creatures/earth albeit each in their own particular way.

The earth provides us with food, water, and shelter, the essentials of life. If we do not take care of those resources, we will not survive as a species. So, the premise of “keeping the land” should underscore everything we do. That is what a learning journey is about. Although presented as an ‘activity’ to include in schools or offer to tourists, it is really just a metaphor for how we should live our lives: respect people, respect nature, and be observant. Life is a journey, what we get out of it depends on how much we are willing to learn along the way.

Works Cited

- Adams, W. and M. Mulligan. 2003. Decolonizing Nature: Strategies for Conservation in a Postcolonial Era. Earthscan Publications Ltd.: UK.
- Agriculture and Agri-Food Canada website. *Nutraceuticals/Functional Foods: An Exploratory Survey on Canada's Potential*. 2004. Available at: http://www.agr.gc.ca/misb/fb-ba/nutra/index_e.php?s1=nutra&page=intro#Introduction. Accessed Feb. 10, 2006
- Balick, M. and P. Cox. 1997. Plants, People, and Culture: The Science of Ethnobotany. Scientific American Library, New York.
- Ballantyne, R., J. Fien and J. Packer. 2001. Program effectiveness in facilitating intergenerational influence in environmental education: lessons from the field. *The Journal of Environmental Education* 32(4):8-15.
- Berkes, F. 1999. Sacred Ecology: Traditional Ecological Knowledge and Resource Management. Taylor and Francis: Philadelphia.
- Bishop, C. 1974. The Northern Ojibwa and the Fur Trade. Holt, Rinehart and Winston: Toronto.
- Brown, J. and E. Vibert, (eds). 1996. Reading Beyond Words. Broadview Press: Peterborough, Ontario.
- CBI. Canadian Boreal Initiative. 2006. Available at: www.borealcanada.com. Accessed Jan. 24, 2006.
- Chamberlain, J., R. Bush and A.L Hammett. 1998. Non-timber forest products: the OTHER forest products. *Forest Products Journal* 48(10): 10-19.
- Clayoquot Sound Scientific Panel. March 1995. First Nations' Perspectives: Relating to Forest Practices Standards in Clayoquot Sound.
- Clover, D. 2003. Environmental adult education: critique and creativity in a globalizing world. *New Directions for Adult & Continuing Education*. 99:5-15.
- Cotton, C. 1996. Ethnobotany. Principles and Applications. John Wiley & Sons.
- Cox, P. 2001. Carl Linnaeus: the roots of ethnobotany. *Odyssey* 10(2): 6-9.

- Creswell, J. 1994. Research Design. Sage Publications, Thousand Oaks, California.
- Davidson-Hunt, I. 2000. Ecological ethnobotany: stumbling toward new practices and paradigms. *MASA Journal* 16(1): 1-13.
- Davidson-Hunt, I. 2003a. Indigenous lands management, cultural landscapes and Anishinaabe people of Shoal Lake, Northwestern Ontario, Canada. *Environments* 31(1): 21-41.
- Davidson-Hunt, I. 2003b. Journeys, Plants, and Dreams: Adaptive Learning and Social-Ecological Resilience. PhD Thesis. Winnipeg, Canada: University of Manitoba.
- Davidson-Hunt, I. 2004. A contribution to Anishinaabe (Ojibway) ethnobotany of northwestern Ontario, Canada: toward a holistic rRepresentation of Iskatewizaagegan (Shoal Lake) plant knowledge. *Journal of Ethnobiology* 25(2): 189-227.
- Davidson-Hunt, I. and F. Berkes. 2001. Changing resource management paradigms, traditional ecological knowledge, and non-timber forest products. In *Forest Communities in the Third Millennium: Linking Research, Business, and Policy Toward a Sustainable Non-Timber Forest Product Sector* (L. Duchesne, J. Zasada, and I.J. Davidson-Hunt, eds.). St. Paul, MN: Northern Centre Research Station, pp. 78-92.
- Davidson-Hunt, I. and F. Berkes. 2003. Learning as you journey: Anishinaabe perception of social-ecological environments and adaptive learning. *Conservation Ecology* 8(1): 5.
- Davidson-Hunt, Iain, L. Duchesne and J. Zasada. 2001. Non-timber forest products: local livelihoods and sustainable forest management. *Forest Communities in the Third Millennium: Linking Research, Business, and Policy Toward a Sustainable Non-Timber Forest Product Sector*. St. Paul, MN: Northern Centre Research Station, pp. 102-109.
- Davidson-Hunt, I, and R.M. O'Flaherty. 2006. Researchers, indigenous peoples and place-based learning communities. In press.
- Dewalt, K. and B. Dewalt. 2002. Participant Observation: A Guide for Fieldworkers. AltaMira Press, Walnut Creek, CA.

Duber-Smith, D. 2005. The Market for Natural Cosmeceuticals. Natural and Nutritional Products Industry Center website. Available at: <http://www.npicenter.com/anm/anmviewer.asp?a=11562&print=yes>. Viewed Feb. 10, 06

Duchesne, L., Zasada, J. and Davidson-Hunt, I. 2001. Ecological and biological considerations for sustainable management of non-timber forest products in northern forests. In: *Forest Communities in the Third Millennium: Linking Research, Business, and Policy Toward a Sustainable Non-Timber Forest Product Sector* (L. Duchesne, J. Zasada, and I.J. Davidson-Hunt, eds.). St. Paul, MN: Northern Centre Research Station, pp. 102-109.

Dunning, R. 1959. Social and Economic Change Among the Northern Ojibwa. University of Toronto Press.

EWE. 2005. Eaton Wilderness Education website. Available at: www.wildernessalive.com. Accessed Nov. 12, 2005.

Farina, A. 2000. The cultural landscape as a model for the integration of ecology and economics. *Bioscience* 50(4): 313-320.

Gaylor, C. 1996. Environmental education in schools: and alternative framework. *Canadian Journal of Environmental Education* 1: 104-120.

Gerard, K., A. Graefe, R. Manning and J. Bacon. June 2004. Effects of place attachment on users' perceptions of social and environmental conditions in a natural setting. *Journal of Environmental Psychology* 24(2): 213-225.

GDRC. The Global Research Development Center website. Tbilisi Declaration (1977). Available at: <http://www.gdrc.org/uem/ee/tbilisi.html>. Accessed Nov. 3 2005.

Gough, S., K. Walker and W. Scott. 2001. Lifelong learning: towards a theory of practice for formal and non-formal environmental education. *Canadian Journal of Environmental Education*. 6:178-196.

Gragson, T. and B. Blount (eds.) 1999. Ethnoecology: Knowledge, Resources, and Rights. University of Georgia Press, Athens, Georgia.

- Gwich'in Social and Cultural Institute. 2003. Available at www.gwichin.ca. Accessed Nov. 23, 2005.
- Hallowell, I. 1992. *The Ojibwa of Berens River, Manitoba: Ethnography Into History*. Harcourt Brace, Toronto.
- Hammett, A. and J. Chamberlain. 1998. Sustainable use of non-traditional forest products: alternative forest-based income opportunities. *Proceedings, Natural Resources Income Opportunities on Private Lands Conference*, pp. 141-147.
- Health Canada website. Policy paper: Nutraceutical/Functional Foods and Health Claims on Foods. Available at: http://www.hc-sc.gc.ca/fn-an/label-etiquet/nutrition/claims-reclam/nutra-funct_foods-nutra-fonct_aliment_e.html. updated 2002.
- Henry, D. 2002. Canada's Boreal Forest. Smithsonian Institution Press. Washington & London.
- HWW. Hinterland Who's Who website. 2006 Available at: <http://www.hww.ca/hww2.asp?id=82>. Accessed Feb. 13, 2006.
- Ingold, T. 2000. The Perception of the Environment: Essays in Livelihood, Dwelling, and Skill. Routledge, London.
- Jackson, W. 1999. Methods Doing Social Research. Prentice-Hall Canada Inc. Scarborough, Ontario.
- Johnson, D., Kershaw, A. MacKinnon and J. Pojar. 1995. Plants of the Western Boreal Forest & Aspen Parkland. Lone Pine Publishing, Edmonton.
- Jorgensen, D. 1989. Participant Observation: A Methodology for Human Studies. Sage Publications, California.
- Kato, Kumi. Spring 2002. Environment and Culture: Developing Alternative Perspectives in Environmental Discourse. *Canadian Journal of Environmental Education* 7(1):110-116.
- Kimmel, J. 1999. Ecotourism as environmental learning. *Journal of Environmental Education* 30:40-44.

- Borealforest.org. 2006. Lakehead University Faculty of Forest and the Forest Environment. Available at: www.borealforest.org. Accessed Jan. 12, 2006.
- Lantz, T. and N. Turner. Fall/winter 2003. Traditional phenological knowledge of aboriginal people in British Columbia. *Journal of Ethnobiology* 23(2): 263-286.
- LaRochelle, S. and F. Berkes. 2003. Traditional ecological knowledge and practice for edible wild plants: biodiversity use by the Rarámuri in the Sierra Tarahumara, Mexico. *International Journal of Sustainable Development and World Ecology* 10: 361-375.
- Lytwyn, V. P. 1986. The Fur Trade of the Little North. Rupert's Land Research Centre, Winnipeg.
- Marles, R. 2001. Non-timber forest products and aboriginal traditional knowledge. In: *Forest Communities in the Third Millennium: Linking Research, Business, and Policy Toward a Sustainable Non-Timber Forest Product Sector* (L. Duchesne, J. Zasada, and I.J. Davidson-Hunt, eds.). St. Paul, MN: Northern Centre Research Station, pp. 53-65.
- Marouli, C. 2002. Multicultural environmental education: theory and practice. *Canadian Journal of Environmental Education* 7(1): 26-42.
- Marr, L. 2001. Breaking down barriers: MCC Ontario and Ontario Native communities, 1967-1999. *Journal of Mennonite Studies* 19: 78-91.
- Martin, G. 1995. Ethnobotany. Chapman & Hall, London.
- Mohammed, G. 2001. Recommendations for sustainable development of non-timber forest products. In: *Forest Communities in the Third Millennium: Linking Research, Business, and Policy Toward a Sustainable Non-Timber Forest Product Sector* (L. Duchesne, J. Zasada, and I.J. Davidson-Hunt, eds.). St. Paul, MN: Northern Centre Research Station, pp. 116-120.
- Morgan, S. 1999. The Design Protocols for the Sustainable Harvest of the Non-Timber Boreal Forest Products *Acorus americanus* and *Vaccinium angustifolium*. Master of Science Thesis: Winnipeg, Canada: University of Manitoba.

- Nabhan, G. P. 1997. Cultures of Habitat. Counterpoint: Washington D.C.
- NBDAFA. 1996. New Brunswick Department of Agriculture, Fisheries, and Aquaculture. *Growth and development of the wild blueberry*. Available at: <http://www.gnb.ca/0171/10/0171100026-e.asp>. Accessed Jan. 5, 2006.
- Nellessen, James E. *Ledum groenlandicum* Oeder. USDA Forest Service website. Available at: <http://www.fs.fed.us/global/iitf/pdf/shrubs/Ledum%20groenlandicum.pdf>. Accessed Mar. 6, 2006.
- Ontario Environmental Registry website. Available at: www.ene.gov.on.ca/envregistry/020470ep.htm. Accessed Sept. 13, 2005.
- OMNR 2000. Ontario Ministry of Natural Resources. 2000. Woodland Caribou Provincial Park Interim Management Statement.
- OMNR 2002. Ontario Ministry of Natural Resources website. www.mnr.gov.on.ca/MNR/nbi2002. Accessed 2005.
- OMNR 2003. Ontario Ministry of Natural Resources website. Canada Yew: Developing a New Value-Added Crop for Northern Ontario. http://ofri.mnr.gov.on.ca/spectrasites/viewers/showArticle.cfm?objectid=6B8E2C4B-F2A2-4FC0-8FDD3F07A5FE2D9A&method=DISPLAYFULLNOBARNOTITLE_R&id=6B8E2C4B-F2A2-4FC0-8FDD3F07A5FE2D9A. Accessed May 16, 2006.
- OMNR 2005. Ontario Ministry of Education. The Ontario Curriculum. Available at: <http://www.edu.gov.on.ca/eng/curriculum/elementary/grade4.html>. Accessed Dec. 2005.
- Orr, D. 2005. Place and pedagogy. In *Ecological Literacy*. (M. Stone and Z. Barlow eds.) Sierra Club Books: San Francisco: 85-95.
- Palmer, J. 1998. Environmental Education in the 21st Century: Theory, Practice, Progress, and Promise. Routledge: New York.

Parks Canada Guiding Principles and Operational Policies. 2003. Available at:
http://www.pc.gc.ca/docs/pc/poli/princip/gloss_E.asp#c. Accessed June 9, 2004.

Perera, A., D. Euler and I. Thompson (eds). 2000. Ecology of a Managed Terrestrial Landscape. UBC Press: Vancouver, BC.

PFN. Pikangikum First Nation and Ontario Ministry of Natural Resources. 2006. Keeping the Land: A Draft Land Use Strategy for the Whitefeather Forest and Adjacent Areas. unpub. doc.

Pretty, J. and S. Vodouhe. 1997. *Chapter 6 - Using rapid or participatory rural appraisal. In Improving Agricultural Extension: A Reference Manual*. Available online at:
<http://www.fao.org/docrep/W5830E/W5830E00.htm#Contents>. Accessed July 18, 2005.

Ransley, J., J. Donnelly and N. Read. 2001. Food and Nutritional Supplements. Springer. Verlag Berlin Heidelberg: Germany.

Roberston, I. and P. Richards. 2003. Studying Cultural Landscapes. Hodder Headline Group: London.

Santiago, C. May 29, 2000. The lost and found cure. *Forbes* 165(13): 88-92.

Second Nature Education for Sustainability. 2002-2006. Available at www.secondnature.org. Accessed Apr. 2, 2006.

Simpson, L. 2000. Stories, dreams, and ceremonies- Anishinaabe ways of learning. *Tribal College* 11(4): 26-30.

Simpson, L. 2002. Indigenous environmental education for cultural survival. *Canadian Journal of Environmental Education* 7(1): 13-25.

Smith, T. 1995. Island of the Anishnaabeg. University of Idaho Press.

- Sterling, S. 2001. Sustainable Education: Re-visioning Learning and Change. Totnes: Green Books for the Schumacher Society.
- Sterling, S. 2002. A baker's dozen- towards changing our "loaf" . *The Trumpeter*. 18(1):1-14.
- Stewart, H. 2002. Drink in the Wild. Douglas and McIntyre, Vancouver.
- Stoffle, R. and D. Halmo. Spring 1997. Cultural landscapes and traditional cultural properties: a southern Paiute view of the Grand canyon and Colorado River. *American Indian Quarterly* 21(2): 229-250.
- Stone, M. and Z. Barlow eds. 2005. *Ecological Literacy*. Sierra Club Books: San Francisco.
- Takarda, Y. and B. Aggarwal. 2003. Betulinic acid suppresses carcinogen-Induced NF- κ B activation through inhibition of IKK α kinase and p65 phosphorylation: abrogation of cyclooxygenase-2 and matrix metalloproteinase-9. *Journal of Immunology* 171: 3278-3286.
- Toupin, R., N. Zedeno, R. Stoffle and P. Barabe. 2001. Cultural landscapes and ethnographic cartographies: Scandinavian-American Indian knowledge of the land. *Environmental Science & Policy* 4: 171-184.
- Turner, N. 2001. "Keeping it Living": Applications and Relevance of Traditional Plant Management in British Columbia to Sustainable Harvesting of Non-timber Forest Products. In: *Forest Communities in the Third Millennium: Linking Research, Business, and Policy Toward a Sustainable Non-Timber Forest Product Sector* (L. Duchesne, J. Zasada, and I.J. Davidson-Hunt, eds.). St. Paul, MN: Northern Centre Research Station, pp.66-77.
- UNEP. United Nations Environment Programme 2000. *Traditional Knowledge: Indigenous and Local Communities Knowledge, Innovations and Practices*. Available at: www.biodiv.org/outreach/awareness/publications.asp. Accessed July 2005.
- UNESCO. 1996. World Heritage Centre website. Available at: <http://whc.unesco.org/en/culturallandscape/>. Accessed June 10, 2004.

- University of Alberta Plantwatch. Available at:
http://plantwatch.sunsite.ualberta.ca/plants/lab_tea.php. Accessed Mar. 8, 2006.
- Vander Kloet, S. 1988. The Genus *Vaccinium* in North America. Canadian Government Publishing Centre: Ottawa.
- Vennum, T. 1982. The Ojibwa Dance Drum: Its History and Construction. Smithsonian Institute Press: Washington.
- Vennum, T. 1988. Wild Rice and the Ojibway People. Minnesota Historical Society Press.
- Watson, A., L. Alessa and B. Glaspell. 2003. The relationship between traditional ecological knowledge, evolving cultures, and wilderness protection in the circumpolar north. *Conservation Ecology* 8(1): 2-12.
- Weston, Anthony. Spring 1996. Deschooling environmental education. *Canadian Journal of Environmental Education* 1:35-46.
- WFI Whitefeather Forest Initiative. 2003. Available at: www.whitefeatherforest.com. Accessed May 2005.
- Whitefeather Forest Research Cooperative (WFRC) Partnership Agreement Letter of Agreement. Draft, December 12, 2003.
- The Whitefeather Forest Initiative: Economic Opportunities and Resource Stewardship: A Partnership Framework Letter of Agreement. August 15, 2003. Available at: www.whitefeatherforest.com/pdfs/ppl-agreement.pdf.
- Wiebe, M. 2001. From Bloodvein to Cross Lake: a 25 year synthesis. *Journal of Mennonite Studies*: 19: 13-24.
- Young, Kirsty. 1990. Learning Through Landscapes: Using School Grounds as an Educational Resource. Learning Through Landscapes Trust: Winchester, UK.

APPENDIX 1

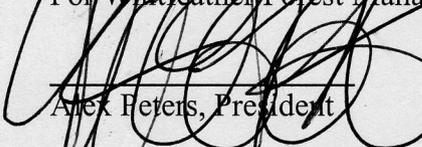
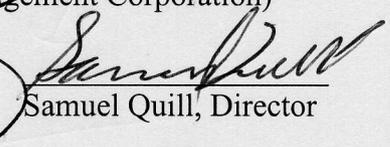
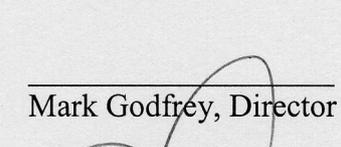
Ontario Grade Four Science and Technology Curriculum

Life Systems- Habitats and Communities	
demonstrate an understanding of the concepts of habitat and community, and identify the factors that could affect habitats and communities of plants and animals;	A
investigate the dependency of plants and animals on their habitat and the interrelationships of the plants and animals living in a specific habitat;	B
describe ways in which humans can change habitats and the effects of these changes on the plants and animals within the habitats.	C
identify, through observation, various factors that affect plants and animals in a specific habitat (e.g., availability of water, food sources, light; ground features; weather conditions);	D
demonstrate an understanding of a food chain as a system in which energy from the sun is transferred eventually to animals, construct food chains of different plant and animal species (e.g., carrot' rabbit' fox), and classify animals as omnivore, carnivore, and herbivore;	E
describe structural adaptations of plants and animals that demonstrate a response of the living things to their environment (e.g., the height of a plant depends on the amount of sunlight the plant gets; many animals that live in the Arctic have white fur);	F
recognize that animals and plants live in specific habitats because they are dependent on those habitats and have adapted to them (e.g., ducks live in marshes because they need marsh plants for food and shelter and water for movement);	G
classify plants and animals that they have observed in local habitats according to similarities and differences (e.g., in shape, location).	H
formulate questions about and identify the needs of animals and plants in a particular habitat, and explore possible answers to these questions and ways of meeting these needs (e.g., predict the structural adaptations, such as webbed feet, that help aquatic animals live in water);	I
use appropriate vocabulary, including correct science and technology terminology, in describing their investigations, explorations, and observations (e.g., habitat, population, ecological niche, community, food chain);	J
compile data gathered through investigation in order to record and present results, using tally charts, tables, and labelled graphs produced by hand or with a computer (e.g., display data gathered in a population-simulation exercise, using a labelled graph; classify species of insects in the neighbourhood according to habitat, using a chart or table);	K
communicate the procedures and results of investigations for specific purposes and to specific audiences, using media works, oral presentations, written notes and descriptions, drawings, and charts (e.g., prepare a poster illustrating the components of a local habitat; trace a food chain in an illustrated chart, using the sun as the starting point).	L
describe ways in which humans are dependent on plants and animals (e.g., for food products, medicine, clothing, lumber);	M

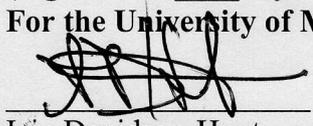
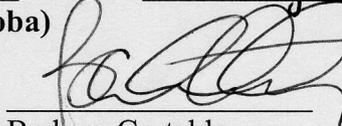
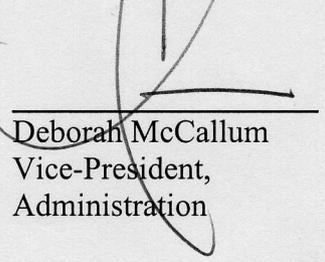
describe ways in which humans can affect the natural world (e.g., urban development forces some species to go elsewhere and enables other species to multiply too rapidly; conservation areas can be established to protect specific habitats);	N
construct food chains that include different plant and animal species and humans (e.g., grass'cattle'humans);	O
show the effects on plants and animals of the loss of their natural habitat (e.g., nesting sites of ducks may be destroyed when a dam is built);	P
investigate ways in which the extinction of a plant or animal species affects the rest of the natural community and humans (e.g., chart the distribution of wolves on a world map and predict the effects if wolves were to become extinct; use a software program that simulates a specific environment to track the effects of the loss of a plant species).	Q
Earth and Space Systems	
demonstrate an understanding of the physical properties of rocks and minerals and the effects of erosion on the landscape;	R
investigate, test, and compare the physical properties of rocks and minerals and investigate the factors that cause erosion of the landscape;	S
describe the effects of human activity (e.g., land development, building of dams, mine development, erosion-preventing measures) on physical features of the landscape, and examine the use of rocks and minerals in making consumer products.	T
describe the effects of wind, water, and ice on the landscape (e.g., ice breaking rocks into soil), and identify natural phenomena that cause rapid and significant changes in the landscape (e.g., floods, tornadoes, heavy rainstorms);	U
Materials and Matter	
demonstrate understanding that certain materials can transmit, reflect, or absorb light or sound;	V
investigate materials that transmit, reflect, or absorb light or sound and use their findings in designing objects and choosing materials from which to construct them;	W
Energy and Control	
describe the behaviour of light, using their observations, and identify some of its basic characteristics (e.g., that it travels in a straight path, bends as it passes from one medium to another, and is reflected off shiny surfaces);	X
recognize, using their observations, that most objects give off both light and heat (e.g., the sun, a candle, a light bulb), and identify some objects that give off light but produce little or no heat (e.g., light sticks, fireflies);	Y
recognize, using their observations, that sound can travel through a substance (e.g., place a vibrating tuning fork in a shallow dish of water and describe what happens to the water; place rice on a drum-head and describe what happens to the rice when the drum is tapped);	Z
identify common phenomena related to light and sound (e.g., rainbows, shadows, echoes) and describe the conditions that create them;	AA

APPENDIX 2

ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ June 2004
ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ
(Signed this 17th day of June, 2004 at Pikangikum First Nation
For Whitefeather Forest Management Corporation)

 Alex Peters, President
 Samuel Quill, Director
 Mark Godfrey, Director

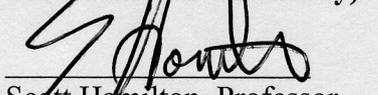
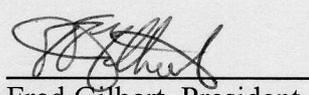
ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ June 2004
ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ
(Signed this 17th day of June, 2004 at P. Kangikum
For the University of Manitoba)

 Iain Davidson-Hunt
Asst. Professor,
Natural Resources Institute
 Barbara Crutchley
Director
Research Grant and
Contract Services
 Deborah McCallum
Vice-President,
Administration

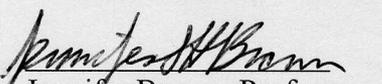
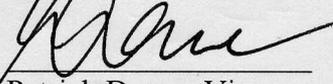
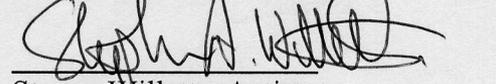
ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ June
2004 ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ
(Signed this 10th day of June, 2004 at Sault College
For Sault College)

 Brian Punch,
Academic Administrator
 Colin Kirkwood, Dean
Natural Resource Program

ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ June
2004 ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ
(Signed this 17th day of June, 2004
For Lakehead University)

 Scott Hamilton, Professor
Dept. of Anthropology
 Fred Gilbert, President
(Acting V-P Research)

ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ
2004 ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ ᐅᑭᑭᑦ
(Signed this 17 day of July, 2004 at Winnipeg
For the University of Winnipeg)

 Jennifer Brown, Professor,
Dept. of History, Centre for
Rupert's Land Studies
 Patrick Deane, Vice
President (Finance and
Administration)
(Academic) and
Provost.
 Stephen Willetts, Acting
President/Vice President
Academic
Stephen Willetts,
Vice-President
(Finance + Administration)

APPENDIX 3

CONCEPT PAPER

1st DRAFT: FOR DISCUSSION PURPOSES ONLY

INNOVATION AND OPPORTUNITY

IN ONTARIO'S PROTECTED AREAS STRATEGY

The Whitefeather Forest Teaching Centre

PIKANGIKUM FIRST NATION

IN

COLLABORATION WITH WOODLAND CARIBOU PARK

AND

PARKS ONTARIO

(APRIL 2003)

Developed by:



Pikangikum First Nations

Pikangikum, Ontario P0V 2L0
Tel. No.: 807-773-5578 / 773-5523

and prepared in partnership with:

Pikangikum First

Location

Pikangikum Lake,

THE  **Nation**
Taiga
INSTITUTE FOR LAND, CULTURE & ECONOMY

Pikangikum First Nation is located on
approximately 100 km northwest of Red

Lake, Ontario. “Pikangikum” is from the Ojibway word – Biikanjikamiing – that refers to how the Berens River flows into Pikangikum lake on the east, how the lake spreads out from the river on either side, and how the River leaves the lake in the west across from where it comes in.



Population

Our current population of Pikangikum First Nation members living in our community is more than 2,100.

Accessibility

The community is currently a remote access community, and is reached:

- By air with direct flights from Red Lake, Sioux Lookout, and Winnipeg
- By road on the Nungesser Road north of Red Lake 95 kilometers to the Berens Landing and by boat from the Nungesser Road into the community (about a 30 km boat ride)
- In the winter, by winter road north of Red Lake via the Nungesser Road

Our First Nation is currently building a controlled access all-weather emergency road that will avoid dangerous rapids on the Berens River and reduce the boat ride into the community to approximately 4 kilometers.

Language

We cherish our language - our community has a 100 % retention rate of Ojibway language. Most of our children come to kindergarten as unilingual Ojibway speakers. This has meant that our youngest members still learn easily from our Esteemed Elders.

We see the threats to our language and we are determined to protect it. Ojibway language is used as a language of instruction in our elementary school in classrooms where Pikangikum members are the teachers. We are training our own community members as teachers to enable continued instruction in Ojibway.

Ojibway is the language of work in Pikangikum. To continue in this tradition, community knowledge is documented in the Ojibway language.

Decision Making

We have a Chief, a Deputy Chief and a First Nation Council of nine at Pikangikum. Our Chief and

Council receive their mandate from the people through custom elections. Our Chief and Council are supported by customary community decision-making processes of the larger community including our Community Assembly process (Onaashowaywinaniwung). In these customary assemblies, our community meets as a whole to deliberate upon significant issues.

The wisdom of Esteemed Elders (kitchi aayaa'aag) carries great weight in all of our decision-making. Our former Chief Louie Quill calls them the "decision-makers" of our First Nation. Our Whitefeather Forest Management Corporation President, Alex Peters, calls them his "capacity".

Consensus-based participatory decision-making is highly prized by our people. We are bringing our customary decision-making process, and especially our Elders, into our dealings with the outside world wherever we go. This is our best resource to build consensus through dialogue with people from the outside who have an interest in our Traditional Territories.

Our record of building consensus rather than conflict has been acknowledged by all of our partners in the Whitefeather Forest Initiative.

Land

We cherish our relationship to our Traditional Territories that we have occupied since time immemorial. A majority of our community members still derive a significant portion of their domestic and livelihood needs from the forest and spend a significant portion of the year living on the land, outside the community.

They engage in land based livelihood activities – hunting, trapping, and gathering. This has meant that the cycle of being on the land and learning how to protect and enhance abundance on the land is still something that we are able to draw upon.

The Whitefeather Forest

The Whitefeather Forest Planning Area is located in Northwestern Ontario, and is centered on the headwaters of the Berens River Watershed. It is bounded by Woodland Caribou Provincial Park in the southwest, the Red Lake and Trout Lake Sustainable Forest License units in the south and southeast, the Albany River Watershed to the east and the Severn River Watershed to the north.

The Whitefeather Forest is based on the area of consolidated traplines within Pikangikum Traditional Territories (Biikanjikamiing Bimaadiziwaat O'Daakiimiwun). This 1.3 million hectare land base is called the Whitefeather Forest Planning Area.

The Whitefeather Forest is a northern boreal landscape within the traditional territories of Pikangikum First Nation in Northwestern Ontario. Since time immemorial it has been cherished and cared for by our people. In return the land has provided for our people. The Whitefeather Forest will continue to provide opportunity for future generations if we continue in our role as keepers of the forest.



The Whitefeather Forest is an Indigenous Cultural Landscape of Pikangikum people. Since time immemorial, we have protected and enhanced the biodiversity of the landscape and nurtured the abundance of its diverse resources. Our people have achieved this through customary indigenous resource stewardship practices and management tools supported by our rich Indigenous Knowledge tradition.

Under the care of our people, the Whitefeather Forest cultural landscape has been protected and enhanced as a rich, boreal ecosystem inhabited by black bear (Mahkwa), caribou (Atik), moose (Moos), timber wolf (Maaingan), wolverine (Kwiingwa'aagay), fox (Waagoosh), ducks (Shiishiibug), bald eagle (Migisi), sandhill crane (Oochiichaag) and many others.

From its vast tracts of jack pine to wild rice (Manomin) fields planted by Pikangikum people (picture on right), to rich muskrat marshes that were historically burned to increase food for these bearing animals as well as the ducks and other animals that live there, the Whitefeather Forest cultural landscape is of international ecological significance.

The ecological richness of the Whitefeather Forest landscape is complemented by a cultural heritage legacy that includes features such as pictographs, campgrounds, portages, and canoe channels. These enhance the numerous pristine waterways that through the forest.



fur-

flow

The Whitefeather Forest Initiative

The Whitefeather Forest Initiative is an economic renewal and community stewardship vision for the Whitefeather Forest based on sustainable forestry and protected areas management.

It is the intention of Pikangikum First Nation in the Whitefeather Forest Initiative to provide economic opportunities for our members while protecting the rich ecological and cultural heritage of our ancestral forests.

Since time immemorial, the people of Pikangikum have cared for the land; in return, that land has provided abundantly for our way of life, providing resources for domestic household needs and commercial livelihood pursuits.

Today the Whitefeather Forest continues to provide for the domestic household needs of Pikangikum

people. Bush foods including fish, moose and berries continue to be a significant part of the diet of our people. The forest continues to provide medicines. And it continues to provide wood for home heating and as a raw material for construction.

Historically, the Whitefeather Forest cultural landscape has also provided commercial livelihood pursuits for our people through the fur trade and commercial fishing. After the collapse of the fur trade and commercial fishing in the 1980's, our First Nation began establishing alternative livelihood opportunities for our members. These have included ten outpost camps operated by families of the community and the First Nation.

The Whitefeather Forest Initiative is continuing in this tradition of caring for and, in return, being provided for by the forest. From generation to generation, the people of Pikangikum have protected the Whitefeather Forest cultural landscape with the future in mind. That is why today, the forest still has the potential to provide new livelihood opportunities for our youth at a time when these needs are most pressing. Guided by our Indigenous Knowledge tradition through community stewardship, these opportunities will be realized in a manner that ensures the continued protection of the diversity and abundance of the forest as it has been cared for by our people since time immemorial.

The Whitefeather Forest Initiative is rooted in a commitment to meeting the livelihood needs of Pikangikum First Nation while continuing to conserve and foster ecological diversity and abundance of the forest.

The Whitefeather Forest Teaching Centre

The Whitefeather Forest Teaching Centre is a vision of the Elders of Pikangikum. They consider the teaching centre as a focal point to bring together their efforts to document and pass on knowledge about the indigenous cultural landscape known as the Whitefeather forest. They have been discussing this idea with our youth for a couple of years. Pikangikum elders have welcomed researchers who would work with them in cooperative research projects. The goal of such projects has been to contribute to the planning of the Whitefeather Forest Initiative. An important part of this goal has been to introduce young people with the field and technological skills that will be necessary to manage forestry and protected areas in the future. This work has resulted in the Forest Resource Inventory for the Whitefeather Forest (projected completion, December 2003) and an Indigenous Knowledge Inventory (projected completion, July 2003).

The Indigenous Knowledge Inventory includes an atlas of occupancy, cultural values and ecological values that community researchers documented with elders. This information was then entered into our own Geographic Information System on our computer network and maps were printed out on our large-format plotter. Community researchers also worked with elders to undertake a rapid biodiversity inventory of plants during the summer of 2002 and also create preliminary biodiversity checklists for mammals and birds. The results of this project will be presented through map atlas, print and multimedia interpretive products produced by the community researchers.

The experience of the elders with this research project has generated an interest to continue this type of work through a teaching centre. Recent discussions with Ontario Parks led to an agreement of cooperation between Pikangikum First Nation and Ontario Parks. This agreement commits Ontario Parks to work cooperatively with Pikangikum First Nation regarding collection, documentation and interpretation of pre-historic, historic and contemporary Indigenous lifeways and artifacts within Pikangikum's area of interest of Woodland Caribou Park. Initial indigenous knowledge mapping and an archaeological field project are being initiated under this agreement in 2003.

Pikangikum is also working with the Ontario Ministry of Natural Resources and Ontario Parks for the planning of protected areas within the Whitefeather Forest (see <http://204.40.253.254/envregistry/016410ep.htm>). This has included working with neighbouring First Nations of the Whitefeather Forest to develop an Accord regarding First Nations and protected areas

(see Appendix 2). Pikangikum First Nation has also worked with Ontario Parks, Manitoba Conservation and the International Union for the Conservation of Nature (IUCN-Canada) to develop a submission to the World Heritage Centre for expert evaluation of an Atikaki-Woodland Caribou-Whitefeather Forest cluster as a World Heritage Site. The Teaching Centre will be the gateway for visitors and scientists to the protected areas of the Whitefeather Forest and potential World Heritage Site Cluster. The centre will seek partners to undertake cooperative research projects that document the indigenous cultural landscape of the Whitefeather Forest. We will also document our Indigenous Knowledge tradition for use in new learning settings, including our own school. Such projects will provide benefits to the planning, management and operation of the Whitefeather Forest. The projects will also be expected to provide training and employment opportunities for the people of Pikangikum. Results of these projects will provide, where possible, materials that can be used in the interpretive programming and tourism activities of the Whitefeather Forest.

The Teaching Centre will provide a physical hub where researchers, tourists and Pikangikum people will intermingle. It will also provide a gateway where visitors to the Whitefeather Forest will register and obtain access to guided tourism opportunities within the Whitefeather Forest. However, it is also expected that a central thrust of the teaching centre will be to provide educational and training experiences for the youth of Pikangikum, other First Nation youth and resource managers, college and university students and resource managers from government agencies like the Ontario Ministry of Natural Resources. A proposed theme for the teaching centre at this time will be the documentation, planning, operation and management of indigenous cultural landscapes and indigenous knowledge for contemporary livelihood opportunities through forestry and protected areas management.

Ontario Parks has agreed to "...support the investigation of a partnership to develop a world-class initiative which could include a First Nation research, experiential teaching program and visitor centre related to interpreting cultural heritage. This could explore the linkages between cultural and natural heritage and indigenous ecological perspectives. A priority of this partnership would be to offer a program of research and learning opportunities to indigenous people. This shall include the investigation of economic opportunities and the development of interpretive materials, programs and businesses."

Pikangikum and Ontario Parks are currently approaching other partners who could help develop the vision through a feasibility and business planning process in the short term. In the long term these same partners would be asked to contribute to the teaching centre in a manner appropriate to their institutional mandate. For example, partners may contribute to the documentation of the natural and cultural history of the Whitefeather Forest through cooperative field programs. This may lead to partnerships to develop interpretive products such as guidebooks that enhance, for example, the Ojibway biodiversity inventories and products currently being prepared. This document has been prepared to help our potential partners to consider participating in a feasibility and business planning process during 2003 and 2004.

APPENDIX 4

VERBAL SCRIPT

Research project title: **Indigenous Knowledge of Land and Plant Resources in the Pikangikum Area, NW Ontario**

Principle researcher: Jane Driedger

Sponsor: Social Sciences and Humanities Research Council

Purpose: To learn about plants used by different people and in different seasons to make teas.

Why: The Whitefeather Forest Management Corporation would like to know types of places that are home to important plants, including those used for teas. This research is important to make sure that those places are cared for and for the creation of programmes for the teaching centre in teaching youth and identifying new community enterprises.

How: I will work with 2-4 people (1 or 2 trapline holders on their trapline) to harvest plants and make teas, and/or use plants in cooking other foods.

I will also work with a community researcher who will come on the trips and translate.

I will take plant samples, pictures, and videos using equipment that the Whitefeather Forest Management Corporation has.

I will show all pictures and data to you before I release anything to the public, and will only use your pictures and information with your permission. Copies of pictures, samples, and written work will be left in Pikangikum.

What I would like to learn about plants:

- a. Where plants used for teas are found
- b. The methods for respectfully harvesting plants
- c. How plants are made into tea
- d. What teas are used for
- e. Recipes for teas made with more than one plant
- f. How people use plants to teach others
- g. Stories about the plants
- h. When the best times to harvest are

Participation: If you would like to participate, it is voluntary. You can withdraw from the study at any time and there will be no penalty.

University researchers: Jane Driedger, Master's student
Iain Davidson-Hunt, advisor

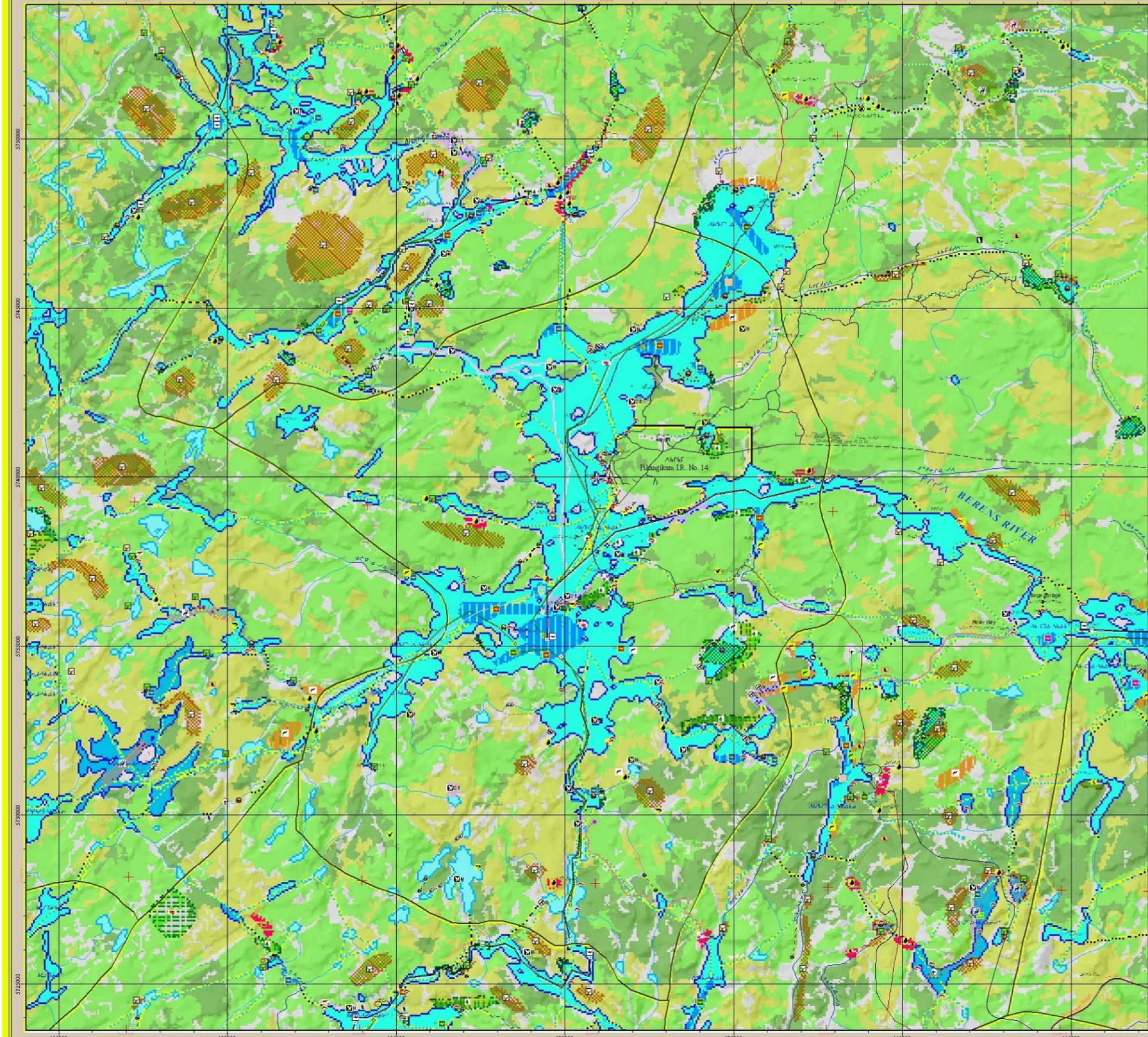
Centre for Community-based Resource Management, Natural Resources Institute, University of Manitoba

If you feel that your concerns are not being addressed during meetings called to discuss this research or if you have concerns with how the research is being carried out, please feel free to raise your concerns with the people listed below. You may also obtain public documents related to the research from Mr. Alex Peters of the Whitefeather Forest Management Corporation or Iain Davidson-Hunt of the University of Manitoba.

<p>Paddy Peters, Chief Pikangikum First Nation Pikangikum, Ontario P0V 2L0</p> <p>Ph. 807-773-5578 Fax 807-773-5536</p>	<p>Alex Peters, General Manager Whitefeather Forest Management Corp. Pikangikum, Ontario P0V 2L0</p> <p>Ph. 807-773-9954 Fax 807-773-5536 Email alex.peters@whitefeatherforest.com</p>
<p>Iain Davidson-Hunt, Assistant Professor Natural Resources Institute, University of Manitoba Winnipeg, MB R3T 2N2</p> <p>Ph. 204-474-8680 Fax 204-261-0038 Email davidso4@ms.umanitoba.ca</p>	<p>Human Ethics Secretariat University of Manitoba Winnipeg, Manitoba R3T 2N2</p> <p>Ph. 204-474-7122 Email Margaret_bowman@umanitoba.ca</p>
<p>Social Sciences and Humanities Research Council 350 Albert St. P.O. box 1610 Ottawa, ON K1P 6G4</p> <p>Ph. 613-992-0691 Fax 613-992-1787</p>	<p>Jane Driedger, Master's student Natural Resources Institute, University of Manitoba Winnipeg, MB R3T 2N2</p> <p>Ph. 204-487-6005 Email janedriedger@yahoo.ca</p>

APPENDIX 5

Special Ecological Values
Special Ecological Values



Special Ecological Values

Legend

Forest Productivity Rating

- High Productivity
- Medium Productivity
- Low Productivity

Historical Occupancy

- Abitibi Flangikum First Nation
- Other

Map Scale

Index Map Scale: 1:1,400,000
 Local Map Scale: 1:10,000,000

Map of Manitoba and Ontario

Map of the Study Area

Map Symbols

- Abitibi Flangikum First Nation
- Other
- Abitibi Flangikum First Nation
- Other
- Abitibi Flangikum First Nation
- Other

Map Symbols

- Abitibi Flangikum First Nation
- Other
- Abitibi Flangikum First Nation
- Other
- Abitibi Flangikum First Nation
- Other

Abitibi Flangikum First Nation