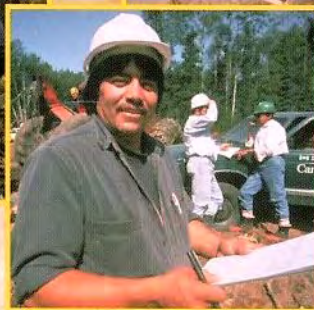
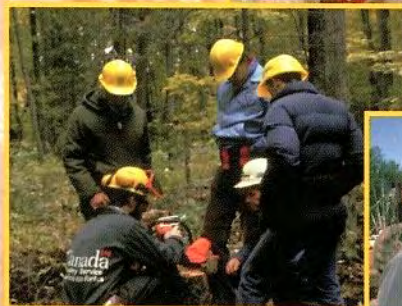
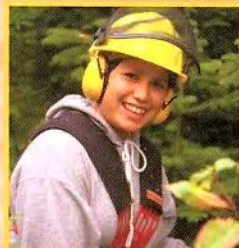


# First Nation Forestry Program

Traditional Ecological Knowledge  
within the Government of Canada's  
First Nation Forestry Program

- A Case Study -



Government  
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et du Nord Canada

*In partnership with  
First Nations*

**Traditional Ecological Knowledge  
within the Government of Canada's  
First Nation Forestry Program**

**- A Case Study -**

Prepared in response to a call for case studies on the Implementation of Article 8(j) and related provisions  
under the Convention on Biological Diversity  
(In accordance with Decision IV/9)  
March 1999

Cette publication est disponible aussi en français

Canadian Forest Service  
Natural Resources Canada

Indian & Northern Affairs Canada

In partnership with First Nations

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## Preface

Issues of traditional knowledge are becoming increasingly important to global conservation initiatives and sustainable use of natural resources. The Convention on Biological Diversity, signed and ratified in Rio de Janeiro in December, 1993 by over 150 nations of the world, recognizes the important role Indigenous communities play in achieving sustainable development. The key provisions are found in Article 8 (j) of the Convention and relate to the use of traditional ecological knowledge (TEK) of indigenous and local communities.

In late 1998, the Secretariat, Convention on Biological Diversity, called for case studies on the implementation of Article 8(j) and related provisions under the Convention on Biological Diversity. In response to the call, the Canadian Forest Service, a sector within the federal Department of Natural Resources, took up the challenge of documenting TEK activities supported by the First Nation Forestry Program<sup>1</sup>.

This report represents the Canadian Forest Service's response to the Secretariat's request and, along with other federal government submissions, was tabled at the *Intergovernmental Forum on Forests* in Geneva, May 3-14, 1999.

This project presented an opportunity to bring together a number of TEK projects supported by the First Nation Forestry Program. Preparing this report would not, however, have been possible without the cooperation and assistance of First Nation project managers and others. The First Nation Forestry Program would like to acknowledge the contributions of the following individuals:

Elliot Fox, Blood Tribe, Alberta  
Michael Anderson, MKO, Manitoba  
Karen Stock, Waterhen First Nation, Manitoba  
Gilles Soucy, Eel River Bar First Nation, New Brunswick  
Donna Mae Perley, Eel Ground First Nation, New Brunswick  
Bill Trerice, National Aboriginal Forestry Association, Ontario  
Bill McKay, First Nation Forestry Association, Nova Scotia  
Michael Keefer, Ktunaxa/Kinbasket Tribal Council, British Columbia  
Heather McLean, North Shore Tribal Council, Ontario

and, the following Canadian Forest Service staff members:

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<sup>1</sup> A joint federal program funded by the Department of Natural Resources (Canadian Forest Service) and the Department of Indian Affairs and Northern Development.

Art Shortreid, Pacific Forestry Centre, Victoria, British Columbia  
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Nello Cataldo, Pacific Forestry Centre, Victoria, British Columbia  
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# Traditional Ecological Knowledge within the Government of Canada's First Nation Forestry Program -A Case Study-

by Erin Kinsella\*

*" Their very survival has depended upon their ecological awareness and adaptation... These communities are the repositories of vast accumulations of traditional knowledge and experience that links humanity with its ancient origins. Their disappearance is a loss for the larger society, which could learn a great deal from their traditional skills in managing very complex ecological systems. It is a terrible irony that as formal development reaches more deeply into rain forests, deserts, and other isolated environments, it tends to destroy the only cultures that have proved able to thrive in these environments."*

**- World Commission on Environment and Development, 1987**

## **Introduction**

Not so long ago, the Aboriginal<sup>2</sup> peoples of North America practised a harvest based economy where they managed resources according to an intricate knowledge of the land, its ecological processes and patterns. Through trade, they exchanged both goods and knowledge. However, in the post-colonial era, the opportunities for such formal and informal exchanges have severely dissipated.

Today, many First Nation<sup>3</sup> people are turning to traditional teachings and practices to regain a connection with the earth. In an era where greater job opportunities exist in small business, local government and non-renewable industries, they wish to preserve their special understanding of the landscape that has been enriched over generations<sup>4</sup>. To do this, Elders are passing on traditional ecological knowledge (TEK) to respected community members. This exchange of knowledge may hold the key to unlocking new approaches to environmental concerns. In fact, TEK's holistic approach may ultimately help reshape the typically linear method of Western cultures to resource management.

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<sup>2</sup> **Aboriginal**: A term enshrined in the Canadian Constitution that includes Indian, Inuit, and Métis people of Canada..

<sup>3</sup> **First Nation**: A term used to indicate that Indian peoples were the first nations to exist on this continent and with whom the treaties were signed.

<sup>4</sup> Garvin, T., Hodgson, G., and M. Robinson. 1994. Mapping How We Use Our Land. Canadian Cataloguing in Publication Data.

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The recognition of TEK's relevance has developed alongside growing international concern for the protection of biodiversity, deforestation and many other forms of environmental

degradation.<sup>5</sup> With few exceptions, however, the practical application of traditional ecological knowledge has been negligible to date. Still, there is a growing library of opinion on the subject and its potential in resource management.

In 1992, the Convention on Biological Diversity was completed. By 1993, the Convention had entered into force. The Convention recognized, among many other issues, that the unique knowledge held by indigenous peoples is essential to conserve biodiversity<sup>6</sup>. Although negotiations related to the topic were controversial, the Biodiversity Convention ultimately included the following objectives:

Article 8. In-situ Conservation

Each Contracting Party shall, as far as possible and as appropriate:

- (j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.<sup>7</sup>

The First Nation Forestry Program (FNFP), implemented in 1996, is a partnership program between the federal Department of Natural Resources (NRCan) and the Department of Indian Affairs and Northern Development (DIAND). In response to Decision IV/9 and the accompanying call for case studies,<sup>8</sup> the FNFP is pleased to provide examples of projects that reflect the wide range of values and traditions associated with First Nation-based TEK. Specifically, the paper will discuss how the FNFP draws upon this knowledge. The application of TEK continues to evolve both inside and outside Canada's native communities, and the examples must be viewed in this context. In other words, it may take decades for TEK to show tangible results in terms of biodiversity conservation.

### ***What is Traditional Ecological Knowledge ?***

Many theorists have attempted to define "*Traditional Ecological Knowledge*", both in the spiritual and cultural sense. LaDuke (1994) describes TEK as "the culturally and spiritually based way in

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<sup>5</sup> Bombay, H. 1996. *Aboriginal Forest-Based Ecological Knowledge in Canada*. National Aboriginal Forestry Association. Ottawa, Canada.

<sup>6</sup> Mann, H. LL.M., PH.D. 1997. *Intellectual Property Rights, Biodiversity and Traditional Knowledge: A Critical Analysis In The Canadian Context*. International and Environmental Law and Policy.

<sup>7</sup> The Convention on Biological Diversity. 1992. Convention Text.

<sup>8</sup> **Decision IV/9**, adopted at the fourth meeting of the Conference of Parties (COP 4), invites Governments, international agencies, research institutions, representatives of indigenous and local communities and NGOs to submit case studies and relevant information on the implementation of Article 8 (j) and related provisions to the Secretariat of the Convention on Biological Diversity Executive Secretary, who will disseminate this information, through appropriate means, such as the clearing house mechanism.



which indigenous people relate to their ecosystems.” Here, TEK is a “way” that has emerged out of an understanding of the Ojibway word “minobimatsiiwin” or the “good life”<sup>9</sup>. Using more pragmatic terms, Freeman (1992) suggests TEK “is directed toward gaining a useful understanding of how ecological systems generally work, to how many of the key components of the total ecosystem interrelate, and how predictive outcomes in respect to matters of practical concern can be best affected.”<sup>10</sup>

Traditional ecological knowledge is a perceived value based system effectively passed down for thousands of years. TEK reflects an understanding of the earth’s essential elements, and evolving processes and patterns. Thus, its teachings and practices are inseparable from the person, place and context in which they are revealed.

In the indigenous view of the cosmos, every living and non-living entity on Mother Earth is interconnected and lives according to the Creator’s instructions.<sup>11</sup> These spiritual beliefs and values help bestow moral responsibility and help justify protecting the environment.<sup>12</sup> In the absence of traditional ways to share knowledge, many First Nation people fear this context for TEK will be lost and, in the end, TEK will be misused.<sup>13</sup>

There are crucial differences between traditional and ecological knowledge. As a result, the term “traditional ecological knowledge” is, by definition, ambiguous.<sup>14</sup> Ecology is the study of how organisms relate to their environments. Ecological knowledge includes geography, wildlife patterns and migration, vegetation, biodiversity conservation and protection, seasonal changes and yearly life cycles, and the interconnected relationships between local environments.<sup>15</sup> Throughout history, Aboriginal communities developed technologies based on their knowledge of the land (Bill Trerice, NAFA, pers. comm., 1999). However, while traditional or Indigenous knowledge has strong connections to the natural environment, its ideas and insights may not be ecological in nature. Still, if the term ‘ecological knowledge’ were expanded to encompass all knowledge acquired about the harmony of the living earth, the term TEK would have more validity.<sup>16</sup>

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<sup>9</sup> Brubacher, D. and D. McGregor. 1998. Aboriginal Forest Related Traditional Ecological Knowledge in Canada. National Aboriginal Forestry Association, Ottawa, Canada.

<sup>10</sup> Freeman, M.R. 1992. The Nature and Utility of Traditional Ecological Knowledge. *Northern Perspectives*:20(1): pp.9-12.

<sup>11</sup> Blanchet-Cohen, N. 1996. Strategies for a Living Earth: Examples From Canadian Aboriginal Communities. Biodiversity Associates Report, Environment Canada.

<sup>12</sup> Low, A. P. 1992. Indigenous Knowledge Systems: The Key to Worldwide Sustainable Development. Joint Research Project. Plenty Canada and Indigenous Network of Indigenous NGOs and Practitioners Involved in Development.

<sup>13</sup> Lambrou, Y. 1998. Benefit Sharing of Indigenous Knowledge. Paper prepared for the 1998 Biodiversity Convention.

<sup>14</sup> Inglis, T. J. 1993. Traditional Ecological Knowledge Concepts and Cases. International Program on Traditional Ecological Knowledge and International Development Research Centre. Canadian Museum of Nature.

<sup>15</sup> Intellectual Property Policy Directorate, Corporate Governance Branch. 1998. Protecting the Traditional Knowledge of Indigenous Peoples. Industry Canada. (the views expressed in this paper are those of the author, and do not necessarily represent the views of Industry Canada or the Government of Canada).

<sup>16</sup> Inglis, T. J. 1993. Traditional Ecological Knowledge Concepts and Cases. International Program on Traditional Ecological Knowledge and International Development Research Centre. Canadian Museum of Nature.

While no conclusive definition exists for traditional ecological knowledge, the FNFP has chosen the following working definition for this report:

TEK is a cumulative body of knowledge and beliefs, handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment.<sup>17</sup> It is “a body of information derived from a geographically and environmentally distinct group of people, who have experienced, adjusted and transferred this data cross generationally. The ability of each cultural group to transform the flora and fauna around them into elements of sustenance such as food, clothing, shelter, medicine and tools, etc., is distinct and identifies them from one another. The knowledge is culturally diverse and its spiritual significance to each group varies.”<sup>18</sup>

## ***Forestry in Canada***

Forests are a fundamental part of Canadian history. Today, of Canada’s total land base, 417.6 million hectares or 45% is covered by forests. This represents 10% of the world’s forested landscape. Private interests account for 6% of Canadian forests; 71% falls under provincial jurisdiction; and 23% is federally owned and managed by or in cooperation with territorial governments.

Of the forested land, approximately 236.7 million hectares or 57% is deemed “commercial.” However, only 119 million hectares are actually used to produce timber. Open forests comprised of small trees, shrubs and muskeg make up the balance.

Management of Canada’s forests has evolved over the past few hundred years to reflect much of the world’s changing social, economic and cultural needs. In colonial times, New World pioneers exploited the vast forests, giving little thought that the resources were finite. In fact, North America was partly colonized to meet the urgent demand for timber in other areas of the world devastated by war and over-exploitation of forest resources.

During colonial times, traditional forest activities of First Nation people in Canada were also increasingly restricted. The Royal Proclamation of 1763 recognized Aboriginal rights and created an atmosphere of potential coexistence between European and Aboriginal people. However, systematic policy shifts marginalised unique Aboriginal forest-based knowledge and practices.<sup>19</sup> These shifts included the devolution of responsibility for resource management from the federal to the provincial level of government and greater allocation of Aboriginal traditional territories within Crown land. Increasingly, Aboriginal people in Canada were seen as a hindrance to development, especially in the case of land rights.

During the 1800s, colonists pushed westward. Lawmakers and officials regulated forests only to

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<sup>17</sup> Inglis, T. J. 1993. Traditional Ecological Knowledge Concepts and Cases. International Program on Traditional Ecological Knowledge and International Development Research Centre. Canadian Museum of Nature.

<sup>18</sup> Lambrou, Y. 1998. Benefit Sharing of Indigenous Knowledge. Paper prepared for the 1998 Biodiversity Convention.

<sup>19</sup> Brubacher, D. and D. McGregor. 1998. Aboriginal Forest Related Traditional Ecological Knowledge in Canada. National Aboriginal Forestry Association. Ottawa.

establish standards, quality and sizes for export. This attitude fuelled the perception of vast forest resources. Needless to say, the forest-based ecological knowledge systems of First Nation peoples may have been helpful during this time, but went largely unrecognized.

Finally, in the mid- to late 19<sup>th</sup> century, legislation started to regulate the forest industry in Canada. Quickly, new concepts of tenure licenses, stumpage and ground rents were integrated into provincial legislation. One such example was Ontario's *Crown Timber Act*, passed in 1849.<sup>20</sup>

More recently, forest management in Canada has recognized the need to manage entire forest ecosystems as opposed to only the timber resource.<sup>21</sup> Growing concern about the state of the forested landscape has been accompanied by heightened awareness of how traditional Aboriginal knowledge can apply to conservation and management.

### ***Indigenous Knowledge with Respect to Forestry Practices***

During the past few decades, Canada has increasingly recognized native rights to land and resources. Aboriginal and treaty rights have enabled First Nation people to become more involved in resource management in Canada. In addition, they have become more involved in decision making due to several factors: the implementation of land claims agreements, the resolution of long-standing disputes over treaty land entitlements, an improved technical capacity to manage forests on Reserve lands, and in some places, an increased willingness of provincial governments and industry to recognize the value of First Nation involvement.<sup>21</sup>

The 1987 United Nations World Commission on Environment and Development played a key role in linking traditional ecological knowledge with sustainable development within the global community. The Brundtland report (1987), *Our Common Future*, referred to Aboriginal communities as "repositories of vast accumulations of traditional knowledge and experience." In a similar spirit, Canada's first National Forest Strategy (1992), *Sustainable Forests: A Canadian Commitment*, recognized the integral role of Aboriginal people to manage forests sustainably. Specifically, the strategy "respects the shared beliefs and aspirations of Aboriginal people, and addresses...the development of models for sustainable forest management."

Canada's second 5-year National Forest Strategy released in May 1998 continues to recognize a commitment to Article 8 (j) in its Principles and Framework for Action in Strategic Direction Seven: *Aboriginal Peoples: Issues of Relationship*. This commitment includes the need to recognize Aboriginal and treaty rights and to consider Aboriginal land use in forest management.

### ***The First Nation Forestry Program (FNFP)***

Respect for natural resources has always shaped the lives of Canada's First Nations. Close to 80% of First Nations are located within the boreal and temperate forest regions of the country. Over

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<sup>20</sup> Hardy, Y. Ph D. 1997. Sustainable Forest Management: The Mark of a Society. Assistant Deputy Minister, Canadian Forest Service, Natural Resources Canada, Ottawa.

<sup>21</sup> Ibid.

<sup>21</sup> Bombay, Harry. 1996. Aboriginal forest-based ecological knowledge in Canada. National Aboriginal Forestry Association. Ottawa.

2,300 Indian reserves are located across Canada, exceeding an area of 3 million hectares; 1.4 million hectares are suitable for activities such as timber management, hunting and trapping, recreation, fisheries management and non-timber forest products.

Traditionally, the forest has played a pivotal role in the social and cultural lives of First Nation people. But forests also contribute to the economic development of First Nations. Although forest lands on many reserves are too small to support large scale, long-term commercial forestry, they offer a foundation upon which First Nations can build technical capacity, develop on- and off-reserve business partnerships, maintain their spiritual and cultural connection with the land, and carry on traditions.

Several factors are expected to significantly change the social and economic fabric of the forest sector in the coming years. First, land claims, treaty-making and treaty land entitlements between the federal and provincial governments and First Nations are ongoing processes that will increase First Nations' control of land. Second, First Nation communities are the fastest growing demographic units in rural forested Canada. First Nation leaders believe it's vital for their people to become actively involved in the forest sector as a way to create jobs and generate revenue in these growing communities.

The First Nation Forestry Program, introduced in April 1996, was implemented to improve economic conditions in status Indian communities while respecting the principles of sustainable forest management. The five-year economic program is designed to create jobs, encourage financially viable forestry operations and enhance First Nation forest management skills, both on and off-reserve.

The FNFP has four objectives that receive federal funding. Objective Four, "*to enhance the capacity of First Nations to sustainably manage reserve forests,*" recognizes the need to improve, and in certain cases, restore deteriorated reserve forests. The objective also implicitly recognizes the need to incorporate traditional ecological knowledge within the plans.

From the outset, First Nations have been involved in the management and implementation of the FNFP. The program forges strategic alliances to ensure that First Nations participate as equal partners in sustainable forest management practices. In so doing, the program provides long-term benefits to communities.

The First Nation and federal government partnership, which is the heart of the FNFP, helps in a variety of ways to prepare First Nations for current and future opportunities in the forest sector. In turn, as illustrated in the following examples, the native holistic approach towards resource management both inside and outside of the community will inevitably lead to conservation of biological diversity both directly and indirectly in Canada and around the world.

"The global environment crisis has more than adequately demonstrated that business as usual will not and cannot ensure global survival. What is needed is a fundamental shift in consciousness and this means that the views of indigenous peoples- our laws rules and relationships to the natural world-have to be brought back into the picture. In fact, these natural laws and rules have to become the focus of humanity."

## **Project Examples**

The FNFP is about to complete its third successful year of operation (March 31, 1999). The following examples illustrate how traditional ecological knowledge has been applied to the planning and coordination of particular FNFP projects. No doubt, they will also help elicit further discussion on the implementation of Article 8(j) as it relates to maintaining ecological integrity.

### **Example 1**

**Project Title: Ethno Botany Project**  
**Proponent: Ktunaxa Independent School, British Columbia**

Under the jurisdiction of the Ktunaxa Kinbasket Tribal Council (KKTC) in interior British Columbia, the Ktunaxa and Independent School Society initiated an Ethno botany project in November, 1996. With financial assistance from the province of British Columbia's "Forest Renewal British Columbia" (FRBC) program, the project studied the Ktunaxa and Kinbasket communities' traditional use of plants. A traditional use study incorporated the collected information; it has proven educational for both Elders and the general community.

Through detailed surveys of Ktunaxa reserves in the East Kootenays and permanent vegetation research plots on reserves, the project increased the botanical information base from which to manage both reserve and Crown lands in the Ktunaxa territory. Specifically, the project studied the impact of prescribed burning to improve ungulate grassland habitat.



Work will continue on the Ethno botany project. Another field season of plant collections (with specimens prepared for the herbarium) is planned. In addition, staff will monitor the project or support related projects in cooperative fire ecology and botanical inventory in the Ktunaxa and Kinbasket traditional territories. Partners include the following:

- First Nation Forestry Program
- University of British Columbia (UBC)
- Ministry of Forests and Environment, Lands and Parks
- Columbia Basin Trust Advisory Committee
- The Native Plant Society of British Columbia
- The Ktunaxa Kinbasket Tribal Council (KKTC)
- The Ktunaxa Kinbasket Development Corporation

Upon completion, the project will have achieved KKTC's goals: to improve grassland habitat on the reserve lands, to increase community awareness of botanical diversity and cultural uses within reserve lands, and to increase the capacities of Ktunaxa members to manage natural resource projects and to explore economic opportunities using native plants.

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<sup>22</sup> Low, A. Peter. 1992. Indigenous Knowledge Systems: The Key to Worldwide Sustainable Development. Joint Research Project. Plenty Canada and Indigenous Network of Indigenous NGOs and Practitioners Involved in Development.

Already, the program has enjoyed a number of achievements:

- An additional 243 plants have been collected, classified for medicinal or other cultural purposes, prepared, and stored in the herbarium;
- An extensive annotated bibliography on Ktunaxa and Kinbasket traditional and current uses of cultural plants has been completed along with a small guide to 23 culturally important plants;
- Guided plant walks to encourage greater understanding among all community members of the physical environment were successfully undertaken. Community members also accompanied ecological interpreters on a “Traditional Trek” through the Purcell Wilderness Conservancy to map traditional ecosystem uses and their boundaries;
- Project staff assisted a student with her Master’s thesis which included observing various intensities of prescribed fires and their effect on certain species, soil and noxious weeds.

## **Example 2**

**Project Title: Forest Management Pilot Program**

**Proponent: Blood Tribe, Alberta**

The purpose of the Blood Tribe Forest Management Strategy is:

To protect, preserve and maintain the cultural and ecological integrity of Blood Tribe forests in the true spirit of Kainaysinni-the Blood Tribe Elders Declaration, through sustainable development, for the use and benefit of present and future generations.

The current year, 1998-99, is the third year of a partnership between the FNFP and the Kainaiwa (Blood Tribe). This partnership is expected to continue for the remaining two years of the program.



The land base of Kainaiwa, the largest of any designated Indian Reserve in Canada, consists of Blood Reserve #148 (the main reserve) on the prairies (144,379 hectares) and Blood Reserve #148A (Blood Timber Limit) at the foot of the Rocky Mountains (1,940 hectares). Both reserves are in southwestern Alberta. Since the Blood Timber Limit is in the Montane and Foothills parkland and makes up most of Kainaiwa managed forests, the FNFP focuses mainly in this area.

In the first year, a feasibility study concluded that a forest management plan was possible for Kainaiwa. The study noted that such a plan must integrate current and traditional ecological knowledge to sustain the integrity of the Kainaiwa culture.

In the second year, the Kainaiwa Forest Management Pilot Project was initiated. Through an intensive two-day workshop, tribal stakeholders, which included tribal government staff, and Elders, members of the elected Chief and Council and other community members, helped conceive the Kainaiwa Forest Management Strategy.

The current project, which continues the Pilot, involves collecting baseline data relevant to both traditional land use and archaeological and biophysical resources on Blood Reserve #148A (Blood Timber Limit). The data will provide a foundation for the Kainaiwa Forest Management Strategy beginning in May 1999.

Stakeholders agreed that the forest management strategy must incorporate cultural values, beliefs and principles to ensure the integrity of the Kainaiwa culture. They also agreed to conduct a traditional land use mapping (TLUM) initiative to help incorporate traditional and current ecological knowledge within the strategy. The TLUM component of the project will be completed by March 31, 1999.

### **Example 3**

**Project Title:           Traditional Forest Resource Inventory**  
**Proponent:               Horse Lake First Nation, Alberta**

In 1997, to improve economic conditions in their community, the Horse Lake First Nation, in partnership with the FNFP, initiated a forest management plan for forestry related business and training. The Chief and Council created a Natural Resources Committee which then hired an Environmental Officer and an Assistant to investigate business and training opportunities, and to manage on and off-reserve forests on traditional land.

The Horse Lake First Nation developed a forest management plan on its traditional territories for two reasons: the ecological diversity of these territories lent themselves to a variety of potential uses, including forestry, agriculture and ecotourism; and forest use affects the fish and wildlife needed by many Western Cree Tribal Council (WCTC) subsistence hunters and anglers. Since WCTC members are guaranteed access to fish and wildlife resources by Treaty rights, any management plan must consider traditional uses of their territories.



The Horse Lake First Nation and FNFP partnership continued into 1998-99. The WCTC proposed a global inventory of its lands to provide the basis for a sound forest management strategy. It will also enhance the ability of member First Nations to participate in the management of off-reserve forest resources. A global inventory will yield three important results:

- it will identify resources that may be developed consistent with cultural aspirations, or used as part of an economic development strategy to improve the self-sufficiency of reserve communities;
- the experience gained by Western Cree Tribal Council members during the training program and fieldwork will provide a solid basis for future employment in the forestry sector;
- a completed inventory and silvicultural prescriptions will improve the ability of WCTC member First Nations to manage and sustain both on- and off-reserve forest resources.

The Horse Lake First Nation, a leader in environmental management practices in the First Nation

community, has already developed an on-reserve forest management plan. Through its expertise and commitment to sharing information with other First Nations, Horse Lake is ideally suited to teach other communities about forest related issues through workshops.

#### **Example 4**

**Project Title:**       **Traditional Land Use and Occupancy Study**  
**Proponent:**         **Swan River First Nation, Alberta**

In 1998, the Swan River Band, Driftpile Band and Sucker Creek Band in Alberta (known collectively as part of the Lakeshore First Nations) requested a traditional land use and occupancy study (TLUOS). The FNFP, as well as other contributors in the industrial and government sector, funded the study which had three main objectives:

- to map traditional and current environmental knowledge for future development initiatives;
- to help stakeholders negotiate land-use and plan resource development for the proposed project area;
- to help preserve the cultural history of the Lakeshore people for future generations.



The Lakeshore First Nations asked the Arctic Institute of North America (AINA), a non-profit membership organization of the University of Calgary, to help with the TLUOS.

The project uses an “evolving methodology.” This means the participatory nature of the project influences how it develops. However, the project tries to maintain the same methodology.

Data for the maps are collected from both historical information and the Elders. Typically, the Elders’ environmental knowledge comes from their grandparents. This dates first hand traditional ecological knowledge near 1850, preceding the signing of Treaty 8 in 1899. The project interviewed a number of respected Elders and band members about the mapping of traditional sites, including graves, cabins and hunting.

Examples of traditional ecological information on the base map include: migratory patterns, calving sites, wintering sites, habitat boundary changes, migratory pathways, plants (including berries, trees and roots) and forest fires to help explain some of the habitat changes over time. Ethnographic and cultural information is also integral to the mapping system.

The final document will compile mapping data, ethnographic information and life stories. Members of the band will be trained in global positioning systems (GPS) and geographic information systems (GIS) to ensure continuity in the analysis of traditional patterns of land use.

In July 1999, the Swan River TLUOS project will distribute the final document to coincide with the 100<sup>th</sup> anniversary commemoration of the signing of Treaty 8 at Lesser Slave Lake. Ultimately, these excellent maps of traditional land use will help stakeholders cooperate in resource development planning, treaty claims and preserve cultural history for education. Lakeshore Chiefs and Councils



and the Tribal Council, for example, will use the document in their dealings with the forest industry. At the same time, schools will use it to teach children how to keep their traditions alive.

### **Example 5**

**Project Title:**       **Nisichawayasihk Cree Nation Land Use Study, Harvest Strategy and Plan**

**Proponent:**         **Nisichawayasihk Cree Nation, Manitoba**

The Nisichawayasihk Cree Nation of north-central Manitoba (Nelson House) is developing a comprehensive land use plan for its traditional territory. As part of its provisions, the multi-party Nisichawayasihk Cree Nation Implementation Agreement (a successor agreement to the 1977 Northern Flood Agreement) provides for land use planning and resource co-management with the Province of Manitoba. To that end, a Resource Management Board was created to prepare the land use plan for the Nisichawayasihk Cree Nation Resource Area. The plan will address the management of forest resources and the potential for commercial forestry development.

In addition, the Nisichawayasihk Cree Nation signed the May 29, 1997 Manitoba Treaty Land Entitlement Framework Agreement. As an Entitlement First Nation, the Nisichawayasihk Cree Nation is now selecting some 32,000 hectares of lands pursuant to the Traditional Land Entitlement (TLE) Agreement and the terms of Treaty No. 5. The TLE Agreement also provides for a Community Interest Zone (CIZ) extending in a 30 kilometre radius from the main community at Nelson House. According to the TLE Agreement, the interests of the Nisichawayasihk Cree Nation have a priority over most resource-related developments and allocations proposed within the CIZ, including commercial forestry operations, during the three year land entitlement selection process.

Although the main community at Nelson House is accessible by Provincial Trunk Highway 391, most of the 22,000 km<sup>2</sup> of the Nisichawayasihk Cree Nation Resource Area is relatively remote and can only be reached by boat, snow machine, dog teams and by float- and ski-equipped aircraft. In addition to the Nisichawayasihk Cree Nation's extensive traditional land uses throughout its territory, it operates Nelson House Forest Products. Not surprisingly, the First Nation wishes to enhance sustainable employment in the forest sector, particularly by producing housing construction materials. Thus, the Chief, Council and community members are keenly interested in a land use plan that protects traditional uses of lands and natural resources while encouraging commercial forestry operations.

With the exception of the most southerly portions, large-scale commercial forestry operations have not yet developed the traditional territory of the Nisichawayasihk Cree Nation. However, Tolko Manitoba Inc. a forest based company, now holds a Forest Management Licence affecting most of the Nisichawayasihk Resource Area. In December 1997, the company also received provincial licences for a 13-year Forest Management Plan which proposes extensive forestry operations and road construction activities in the Nelson House Resource Area. The Nisichawayasihk Cree Nation wishes to integrate the approved and proposed forestry operations of Tolko Manitoba Inc. within the overall land use plan for the Nisichawayasihk Resource Area.

Funded in part under the FNFP, the Nisichawayasihk Cree Nation is working with the Manitoba Keewatinowi Okimakanak, Inc. Natural Resources Secretariat on a *Nisichawayasihk Cree Nation Land Use Study, Harvest Strategy and Plan*. It has the following goals:

- to determine the geographic extent and nature of the traditional use, occupancy and habitation of lands and natural resources by members of the Nisichawayasihk Cree Nation. This includes identifying sacred, burial and other special sites, and developing a data-base of these traditional land uses through the application of Geographic Information Systems (GIS) technology;

- to document the traditional ecological knowledge of the Nisichawayasihk Cree Nation with respect to sensitive ecological features and sites, medicinal plants, cumulative changes to environmental processes arising from existing forestry and hydroelectric operations and other matters;



- to inventory, with the support of GIS technology, the forestry resources within the Nisichawayasihk Resource Area, including areas identified for forest harvesting within the 13-year FMP of Tolko Manitoba Inc.;
- to compare traditional land uses to forestry resources within the Nisichawayasihk Resource Area, including the areas identified for forest harvesting within the 13-year forest management plan of Tolko Manitoba Inc.;
- to develop, through community consultation and participation, a timber Harvest Strategy that protects traditional uses of lands and natural resources in the Nisichawayasihk Resource area and provides for appropriate commercial forestry operations;
- to initiate negotiations between Tolko Manitoba Inc., the Province of Manitoba and the Nisichawayasihk Cree Nation regarding the Nisichawayasihk Cree Nation Harvest Strategy.

## **Example 6**

**Project Title: Harvest Company Planning**

**Proponent: Mitigaawaaki Forestry Marketing Cooperative, Ontario**

Beginning in 1997, with financial assistance from the FNFP and other agencies, the Mitigaawaaki Forestry Marketing Cooperative in Blind River, Ontario explored the purchase of a timber harvesting company. This would enable the Cooperative to access harvesting rights on Crown land for economic development, ensure a seat at the negotiation table for the Sustainable Forest Licence process and open up other opportunities from the licensee. Potential benefits of the project include economic development and employment opportunities for First Nation timber harvesters; a potential source of timber for First Nation mills; the development of First Nations' business capacity and skills; and additional marketing opportunities for the Cooperative.

The project has two objectives: to identify products from the two forest zones currently used for commercial purposes or that have significant potential; to identify the structure of the non-timber forest product industry to help communities find their niche in this industry.

The project considered five groupings of non-forest products:

- wild edible and medicinal mushrooms
- products used for the floral industry and interior decoration
- wild edible berries and other foods
- herbs used for health and cosmetics
- seeds collected from forest plants



Each of these groups has its own history in the context of traditional ecological knowledge of the eastern boreal and Great Lakes/St. Lawrence forest zones.

In 1997, the project completed a report on Phase 1 entitled “*Non-timber forest products from the eastern boreal and Great Lakes/St. Lawrence forest zones.*”<sup>23</sup> The report, which evaluated potential commercial opportunities for the area’s First Nations, was expected to guide research for the project’s second and subsequent phases.

Ideally, the next phase will research develop models to estimate the presence of promising species in the North Shore region. This work will build upon the botanical knowledge available in the various species and known geographical and ecological conditions.

### **Example 7**

**Project Title:**           **Aboriginal Heritage Garden**  
**Proponent:**           **Eel River Bar First Nation, New Brunswick**

The Aboriginal Heritage Gardens in Chaleur Park, New Brunswick will be the first of its kind in the world. As a celebration of contributions by Aboriginal people to society, it will be the first significant Aboriginal tourism attraction in Atlantic Canada.

Using the North American Indian Heritage Garden Smithsonian concept as a model, the community began work on a master plan for the site in 1995. Staff researched plants and their relationship to the people carefully.

“The community based project was researched using the knowledge of the Elders,” explains Tim Dedam, Manager of Economic Development and Tourism for Eel Ground Bar First Nation. “It celebrates the contribution of nature and plants to our medicines and food, and to the spirituality of our society.”

“The First Nation Forestry Program (FNFP) assisted directly with the development of the land,” explained Dedam. “Fungi and other undesirable species and invasive plants were removed. Test

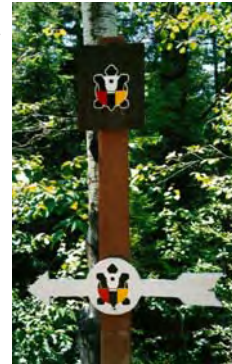
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<sup>23</sup> **Note:** This report is not for distribution and contains information confidential to the Mitigaawaaki Marketing Coop.

plots of sweet grass and other plants were sowed. Geographic and information systems and global positioning systems helped map the overall site. Security systems were also implemented on the site to keep animals from eating the plants.”

FNFP funding also enabled the First Nation to leverage funds from other sources. This is crucial for a project of this magnitude.

The Aboriginal Heritage Gardens will educate the general public about the vast contributions made to society by the Mi’kmaq and other First Nations in terms of traditional ecological knowledge. At the same time, the project will allow community members to become reacquainted with their contributions. The Gardens will demonstrate the fragile relationship between people and plants by teaching profound respect for Mother Nature and her fragile resources. By participating in interpretive and educational programs, Elders will resume their traditional roles as educators within the community, sharing knowledge through the oral tradition. In essence, the Gardens will become a place of respect, demonstrating the contributions of First Nations in a sensitive and honourable manner.



### **Example 8**

**Project Title: Mi’kmaq Hiking Trail**

**Proponent: Pabineau First Nation, New Brunswick**

For many years the local government and membership of the Pabineau First Nation community considered restoring an elaborate trail system used by their Mi’kmaq ancestors for thousands of years prior to European contact. This intricate trail follows the shoreline of the Nepisiquit River some 130 kilometres to Mt. Carleton in northern New Brunswick. The Mi’kmaq people used the trail for many reasons, including for access to tribal hunting, fishing, trapping and gathering sites, spring and fall migration, and as a road to reach other First Nation communities.

In 1985, a Mi’kmaq trail restoration program was initiated. During the first two years, much time was spent gathering information (historical, legends, flora and fauna) and flagging the route to Pabineau Falls. In 1998, aided in part by FNFP financial support, the program expanded the trail beyond Nepisiquit Falls and built a footbridge spanning the river. In this way, historical activities carried out on traditional territories can be preserved for cultural/ecotourism purposes.

Along the trail, the Pabineau Nation is preparing an inventory of special areas where, for example, legends of Glooscap are alive and waiting to be told. Similarly, the Tobique First Nation is reconstructing the traditional Maliseet trail along the banks of the Tobique River, which will join the Mi’kmaq trail at the Nepisiquit Falls. This historic area is rich in cultural heritage sites that tell much of the traditions of First Nation people who inhabited the region. Fragments of stone tools dating

back 5,000 years have been recovered from archeological sites along the river banks. To this day, rock blinds used for hunting caribou can be found along various sections of the trail.

### **Example 9**

**Project Title: Medicinal Plants Within Eel Ground's Forest Lands**

**Proponent: Eel Ground First Nation, New Brunswick**

The forest management plan adopted in Eel Ground First Nation recognizes the traditional knowledge of their ancestors. Donna Mae Perley, the project Coordinator and Manager, views the medicinal plants project as “a small component of the overall holistic approach to forest management for Eel Ground” and feels that “traditional knowledge of Elders is integral to the sustainable management and preservation of the forest biodiversity.”

This project also recognizes that commercial forest management practices are generally not designed to accommodate plants with medicinal properties. In some instances, for example, the social, spiritual, ecological and economic value of medicinal plants may be greater than the value of timber. However, Eel Ground First Nation acknowledges that it cannot give up timber values entirely. At the same time, it knows that forest management must be sensitive to the habitat requirements of these, mostly understory, plants.

According to Donna Mae, this project intends to bridge Mi'kmaq traditional knowledge with the scientific principles of ecology, botany and, specifically, plant taxonomy. In so doing, it will preserve the biodiversity of the plant species found in Eel Ground's bioregion. Ultimately, the knowledge gathered from Elders will be compiled in a written document that can be easily understood by community members. The document will promote understanding of each species' habitats and its place and function within the ecosystem. Additionally, it will describe the plants' medicinal qualities, their distribution and population characteristics across the forested landscape. Once completed, the document will encourage other First Nations searching to revitalize their traditional ways. Hopefully, through the development of partnerships over the course of the project, other similar initiatives will occur on larger land bases.

### **Conclusion**

Canada's First Nation peoples are rediscovering their history of traditional ecological knowledge. They are finding ways to recapture this knowledge, enabling the current generation to understand it and ensuring that it is passed on to future generations for their use and benefit. At the same time, non-Aboriginal Canadians from coast to coast are also interested in traditional ecological knowledge as practised for centuries by the country's first peoples.



their past.

The federal government, which has long recognized the value of traditional ecological knowledge, has developed a variety of different programs to assist First Nations to research and record this information. In response to Canada's implementation of Article 8 (j) under the Convention on Biological Diversity, this paper discusses one of the many national and regional programs funded by the Canadian government that assists First Nations to secure varying elements of

The First Nation Forestry Program, the case study prepared in response on the implementation of Article 8 (j), is jointly funded by two federal departments. It aims to improve economic conditions in status Indian communities while maintaining the principles of sustainable forest management. Since inception in 1996, the program has financially supported over 300 projects ranging from reserve forest management to business development.

The program is committed to helping First Nations participate in the forest sector, including the development of information on traditional ecological knowledge for land use planning. This paper cited a number of projects presently funded by the FNFP to help First Nations research and document traditional ecological knowledge. Many of these projects are funded in partnership with other levels of government, the forest industry and academic institutes.

As different aspects of traditional ecological knowledge are compiled and better understood, TEK finds its way into existing land use planning guidelines for forest lands managed by the community. In this way, modern forestry practices are inextricably linked with traditional knowledge and use of the land base. First Nations and non-Aboriginals alike share this wisdom for all to manage resources better.

It is apparent from the paper that no one definition exists for “traditional ecological knowledge.” The term varies according to one’s relationship to nature and the environment. From the possible definitions, the paper created a suitable working definition.

It is also apparent from the project examples that no one approach exists to gather information on traditional ecological knowledge. Moreover, the variety of uses for the information underscores the fact that TEK has many faces. Each First Nation community is socially and culturally distinct and unique with its own priorities and approaches with respect to traditional ecological knowledge. However, from a few project examples summarized below, one common thread is apparent: the desire to keep First Nation traditional ecological knowledge alive in the community.

The Ktunaxa Kinbasket Tribal Council in the interior of British Columbia augmented their botanical information base as a way to manage their reserve lands and Crown forests.

In southern Alberta, on one of Canada’s largest reserves, the Blood Tribe is collecting biophysical baseline data on traditional land use practices to incorporate into its forest management strategy. Elders and the community at large believe that the management strategy must incorporate the tribe’s cultural values, beliefs and principles.

In New Brunswick, the Eel River Bar First Nation is developing an Aboriginal Heritage Gardens, the first of its kind in the world. The research phase of the project used Elders’ knowledge of the various plants growing in the area. The Gardens will celebrate the contribution of nature and plants to the Nation’s medicines and food, and the spirituality of its society. In addition, the Gardens will educate the general public on the vast contributions made by the Mi’kmaq and other First Nations in terms of ecological knowledge.

In northern Manitoba, the Nisichawayasihk Cree Nation is developing and implementing a comprehensive land use plan for a 22,000 km<sup>2</sup> resource area. The First Nation is located in a relatively remote community far removed from the economic opportunities and social infrastructure found to the south. Consequently, the community struggles to balance the creation of viable

economic opportunities from the forest for its members while protecting traditional uses of the land. The Chief, Council, and community members of the Nation have decided to develop the land use plan to protect traditional uses while encouraging commercial forestry that can co-exist with these uses.

The First Nation Forestry Program represents a case study for the Canadian Government's continuing efforts to help preserve First Nations' traditional ecological knowledge for future generations of Canada's first peoples. The cited projects illustrate how First Nations approach this topic and how the information will be used to preserve this knowledge. Much of the gathered information is being shared among Canadians at large. Most importantly, much of the knowledge is directly integrated into the land use planning processes by First Nations and non-Aboriginals alike, processes that will protect the integrity of what this rich knowledge can offer in the sustainable management of our country's resources.

“ All living things are one and all are connected to one another on the Earthweb; every plant and creature has lessons they can teach us. The Earth web is a medicine wheel, and such wheels can be seen in the tradition of all Earth peoples and all ancient cultures, each expressing it in their own way...Everything and everyone needs to find this balance if they are to create opportunities for progression”

**- Grey Wolf**

“The reservations did reserve a part of our culture. We've changed, but that thread of our culture is still there. And that thread is a key to changing the thoughts and consciences of those that have the power right now to make this decision: Do we change the system and protect the environment, or not change the system and destroy it? “

**- Jewell Praying Wolf James**

### ***References***

Bayne, D., Hamilton, R., Lucas, M., Paul, A., Paul, L., Mickey, C. and Sutherland, T.1996.

- Traditional Ecological Knowledge: Draft #3, Protocols for Researchers. Long Beach Model Forest. British Columbia, Canada.
- Berkes, F. and G. Madhav. 1991. Traditional Resource Management Systems. Resource Management and Optimization. Harwood Academic Publishers, U.S.A. 8( 3-4): pp. 127-141.
- Blanchet-Cohen, N. 1996. Strategies for a Living Earth: Examples From Canadian Aboriginal Communities. Biodiversity Associates Report, Environment Canada. Ottawa, Canada.
- Bombay, Harry. 1996. Aboriginal forest-based ecological knowledge in Canada. National Aboriginal Forestry Association. Ottawa, Canada.
- Brubacher, D. and D. McGregor. 1998. Aboriginal Forest Related Traditional Ecological Knowledge in Canada. National Aboriginal Forestry Association. Ottawa, Canada.
- Brundtland Report. 1987. Our Common Future. World Commission on Environment and Development. New York: Oxford University Press.
- Canadian Council of Forest Ministers. 1992. Sustainable Forests: A Canadian Commitment. Ottawa, Canada.
- Canadian Council of Forest Ministers. 1998. National Forest Strategy: 1998-2003. Ottawa, Canada.
- Freeman, M.R. 1992. The Nature and Utility of Traditional Ecological Knowledge. Northern perspectives:20(1): pp.9-12.
- Garvin, T., Hodgson, G., and M. Robinson. 1994. Mapping How We Use Our Land. Canadian Cataloguing in Publication Data. Alberta, Canada.
- Grenier, L. 1998. Working With Indigenous Knowledge. International Development Research Centre. Ottawa, ON.
- Hardy, Y. 1997. Sustainable Forest Management: The Mark of a Society. Assistant Deputy Minister, Canadian Forest Service. Ottawa, Canada.
- Inglis, T. J. 1993. Traditional Ecological Knowledge Concepts and Cases. International Program on Traditional Ecological Knowledge and International Development Research Centre. Canadian Museum of Nature. Ottawa, Canada.
- Intellectual Property Policy Directorate, Corporate Governance Branch. 1998. Protecting the Traditional Knowledge of Indigenous Peoples. Industry Canada. Draft Report. Canada.
- Limbri, Y. 1998. Benefit Sharing of Indigenous Knowledge. Paper prepared for the 1998 Biodiversity Convention. Ottawa, Canada.
- Low, A. P. 1992. Indigenous Knowledge Systems; The Key to Worldwide Sustainable Development. Plenty Canada and Indigenous Network of Indigenous NGOs and Practitioners Involved in Development. Canada.



Mann, H. 1997. Intellectual Property Rights, Biodiversity and Traditional Knowledge: A Critical Analysis In The Canadian Context. International and Environmental Law and Policy. Canada.

Natural Resources Canada. 1998. The State of Canada's Forests 1997-1998. Canadian Forest Service, Ottawa, Canada.

Poole, P. 1995. Indigenous Peoples, Mapping & Biodiversity Conservation: An Analysis of Current Activities and Opportunities for Applying Geomatic Technologies. BSP Peoples and Forest Program, Discussion Paper Series. WWF, The Nature Conservancy and World Resources Institute. Canada.

Some Key Facts: Aboriginal Peoples in Canada. A brochure by the Federation of Canadian Municipalities.1998. Ottawa, Canada.

Supply and Services Canada. Indian Act. 1989. Canadian Government Publishing Centre. Ottawa, Canada.

The Convention on Biological Diversity.1992. Convention Text, Article 8(j) and Decision IV/9 adopted at the fourth Conference of Parties.