Aboriginal Forest-Related Traditional Ecological Knowledge in Canada

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Introduction

This paper provides a brief overview of some of the ways in which Aboriginal knowledge related to the forest is being gathered and applied in the context of forest management in Canada today, reviews some of the important issues posed by this use, and begins to set out a vision of the potential for the application of this knowledge to forest management. The purpose of the paper is to provide an Aboriginal perspective on traditional knowledge in Canada for incorporation into a document that describes experiences of the three member countries of the North American Forest Commission (NAFC) on this topic. As lead author, Mexico will finalize the technical paper and make a presentation to participants at the nineteenth session, for information.

Background

First Nations people have been working with a knowledge base that has enabled them to live and prosper in the forest in a sustainable manner for thousands of years. The forests that the first Europeans saw upon their arrival in North America half a millennium ago were not untouched virgin forest, but rather they were products of management regimes practised by a diverse range of Aboriginal peoples over centuries.

Many forest regions that today are assumed to be untouched wilderness were actually fully inhabited landscapes. Since colonization, however, the ability of Aboriginal peoples in Canada to carry out their traditional forest management activities has been dramatically restricted. The Royal Proclamation of 1763 recognized Aboriginal rights and was understood by Aboriginal peoples to create a climate whereby both European and Aboriginal peoples could coexist. However, devolution of responsibility for natural resource management from the federal to the provincial level of government and increasing allocation of Aboriginal traditional territories within Crown land to corporate resource interests have served to marginalize Aboriginal forest management knowledge and practice. Recent events, described below, show promise in ameliorating this situation.

What is Aboriginal Forest-related Knowledge (TFRK)?

Several definitions or descriptions of Aboriginal knowledge, frequently referred to as "traditional ecological knowledge or TEK, can be found within the Aboriginal literature. LaDuke (1994) writes that TEK is, "the culturally and spiritually based way in which indigenous people relate to their ecosystems." While referring to TEK as knowledge, this author goes further than many non-aboriginal writers (see Johnson 1992 for example) by expanding her description of TEK as a "way" rather than simply as a discrete body of knowledge. According to LaDuke, TEK emerges out of an understanding of existing in the world in a manner that she calls simply "minobimaatsiiwin" or the "good life." Traditional knowledge is thus interpreted as a way of life or a way of relating to Creation, rather than as simply an accumulated set of knowledge about the environment.

Another essential aspect of traditional Aboriginal forest-related knowledge which is often overlooked is the fact that this knowledge is inseparable from the people who hold it. Clarkson et al. (1992) allude to this idea, stating that Aboriginal people live in a respectful way with the land

and "provide a living example of a sustainable lifestyle." Traditional knowledge is thus expressed in how you live and how you relate to Creation. You cannot take the knowledge and ignore the people. In the absence of the people expressing, living and doing, the knowledge loses much of its meaning and its context.

The potential for abuse of knowledge becomes tempting and occurs frequently when extracted from the people. This practice is inappropriate and a gross violation of Aboriginal ethics. Traditional knowledge is transmitted via the oral tradition. Unlike the written word, this process ensures control and context to the knowledge. It includes story telling, behaviour modelling, experiential learning, singing, dancing, mask-making, and ceremonies. It has long been asserted by First Nations people that this knowledge is oral. To put it into writing will strip it of its power and render it vulnerable to exploitation (see Wavey 1993, for example).

Some authors now advocate moving away from using the term TEK in favour of "Indigenous Knowledge" (O'Meara and West 1997, Stevenson 1996). Henry Lickers of the Akwesasne Mohawk Nation speaks of "Indigenous Knowledge Systems," thereby emphasizing that this knowledge is part of a system in which knowledge is passed on from individual to individual and from generation to generation. Specific knowledge of the environment is seen as only one component of a vast collection of knowledge about living in harmony with the world. AFN (1995), Luckey (1995), and Stevenson (1996) all observe that there are levels of Indigenous knowledge. There is the data or fact level, which is the level at which most state managers attempt to "integrate"or "incorporate" TEK. Stevenson (1996) describes an ecosystem level (understanding relationships between ecosystems) and a "code of ethics" level (p.281). Luckey (1995, iii) identifies a world view level and notes that it is practically impossible to integrate this level into a project or co-management regime. AFN (1995, 2) identified four "interlinked elements" of TEK: the world view level (cosmologies and creation), codes of behaviour (ethics) that govern the relationship with the land and which LaDuke (1994) and other Aboriginal people call "natural laws," practices associated with resource use and management that emerged out of expressing a relationship with Creation, and a body of factual knowledge.

Indigenous knowledge has long held the interest of a small number of scholars, particularly those interested in medicines and the identification of new plant and animal species. Until recently, however, it has received little consideration by government, industry, scientists as a potential contributor to environmental management and planning. It is only during the past two decades that the knowledge of Aboriginal peoples has begun to receive the attention of environmental managers.

Context for the discussion of Aboriginal Forest-related Knowledge in Canada

A growing awareness of Aboriginal forest-based TEK has begun to occur within the forest community in Canada. While interest in traditional knowledge — and recognition of its value in forest management — is not held equally by all players in the forest sector, several factors can be identified as important contributors to an emerging interest.

From the international stage, adoption of the notion of "sustainable development" arising from the Brundtland Report (WCED 1987) and further developed through the UNCED process set the stage for significant shifts in the language used in Canadian forest management, and opened discussions of forestry issues to a broader range of perspectives and voices than in the past. Canada endorsed Agenda 21, which called, in Chapter 26, for "Recognizing and strengthening the role of indigenous people and their communities," and which notes the special historical relationship of Indigenous peoples to the environment they have traditionally occupied. Posey (1994) provides a good overview of this and other international instruments relevant to traditional knowledge.

Canada also ratified the Convention on Biological Diversity (CBD). This legally binding instrument supports an increased role for holders of traditional knowledge in its application and in the benefits arising from its use (Article 8j), and supports the encouragement and protection of customary uses of biological resources (Article 10c). Recently, a Working Group on Article 8j was established to facilitate and coordinate the exchange of views and provide advice regarding the implementation of Article 8j in Canada. Membership includes Aboriginal organizations and provincial and federal governments. A challenge, though, to the actual incorporation of these articles into forest management is the fact that, while the federal government has committed to the CBD, resource management responsibility lies overwhelmingly with provincial governments. Participation by the provinces in the working group has, so far, been slow to develop.

Other international developments that have promoted awareness and interest in traditional knowledge include the establishment of the Intergovernmental Panel on Forests (IPF) by the UN Commission on Sustainable Development. The issue of traditional forest-related knowledge (TFRK) was addressed in an IPF report dated 26 February 1997. In this document, the IPF agreed that "indigenous people and other forest dependent people embodying traditional lifestyles should play a key role in developing participatory approaches to forest and land management," and that these approaches should focus on "community forest management, land-use systems, research, training and extension, the formulation of criteria and indicators, and conflict resolution (IPF 1997). The panel noted that exploration of the relationships between TFRK and sustainable forest management is needed, and that holders of this knowledge will, amongst other things, "need to feel secure in their land tenure arrangements; ... and to be convinced of a common purpose compatible with their cultural and ecological values" if they are to offer their TFRK. Eighteen proposals for action related to TFRK were developed by the panel, including: "promote activities aimed at advancing international understanding of the role of TFRK in the management, conservation and sustainable development of all types of forests; and, "provide opportunities for participation of TFRK holders in planning, development and implementation of national forest policies and programmes."

In addition to its participation at the forefront of international processes, Canada has recognized the value of TEK in a variety of domestic contexts, including the recently revised National Forest Strategy. Early versions of Canada's National Forest Strategy (NFS) were oriented to the forest industry's need for sustained yield. In 1992, however, the NFS reflected a recognition of society's changing attitudes toward its forests and began to adopt the language and perspectives

of sustainable development. For the first time, Aboriginal peoples — through the National Aboriginal Forestry Association — were involved in the discussions that led to this renewed vision and action plan for forests in Canada, and which confirmed the shared commitment to achieve the vision, goals and objectives set out in the strategy. The renewed NFS was adopted in the spring of 1998 by federal and provincial governments, industry, Aboriginal and other organizations. It continues to strengthen language dealing both with forest sustainability and with Aboriginal forestry issues, and makes reference to traditional knowledge. Commitment 7.4 of the strategy states that:

> "We will ensure the involvement of Aboriginal peoples in forest management and decision-making, consistent with Aboriginal and treaty rights ... By identifying means by which traditional knowledge can contribute to sustainable forest management, and by developing guidelines for defining this knowledge, incorporating it into forest research, management practices, planning and training, in a manner that respects Article 8(j) of the Convention on Biological Diversity" (National Forest Strategy Coalition 1998).

Efforts to define what sustainable forest management actually entails — and to certify products or practices as meeting these definitions — have been made both by the Canadian Council of Forest Ministers (CCFM) in its efforts to develop criteria and indicators for sustainable forest management (CCFM 1995) and by the Canadian Standards Association (CSA Z808 1996). In these documents, the role of Aboriginal peoples in relation to management activities is recognized as a key component of sustainability. Both the CSA standards and those of an international certification agency, the Forest Stewardship Council (FSC), require that Aboriginal values be considered during forest management planning (Smith 1998).

Canada has also established the Sustainable Forest Management Network, a network of university-based research capacity in partnership with a wide range of partners from the wider forest community. The SFMN is currently undertaking research into issues and institutional frameworks relevant to incorporating TEK into sustainable forest management practice.

The role of Aboriginal traditional knowledge has also been supported in recent legal and jurisdictional developments of importance to forest management in Canada. For example, the landmark ruling of the Supreme Court of Canada in the Delgamuukw case in December 1997 recognized that the Aboriginal perspective on land (First Nations traditional land tenure systems) and traditional Aboriginal laws governing land use are relevant in establishing occupation for the purposes of proving Aboriginal title, where such title has never been extinguished (Davidson et. al. 1998, see also Davis & Company 1998, and House 1998 for additional assessment of this court ruling). Further, the court ruling explored the nature of Aboriginal title and found that it is more than simply a right to use the land for specific activities such as hunting or fishing etc, but extends a right to the land itself. Aboriginal title is held communally — not individually — so decisions related to the land must be made by the community. Davidson et. al. (1998) suggest that future court decisions may decide whether clans and their hereditary chiefs may be able to establish communal clan rights to carry out their responsibilities vis a vis forest stewardship for future generations. Of further significance, the court recognized that Aboriginal oral history and

traditional knowledge can be used in court to assist in defining Aboriginal rights, including title to land.

In the past, the provinces managed the forests"as if they held exclusive legal interests in the forests." As a result of Delgamuukw and other cases, provinces must now ensure First Nation involvement in forest management planning, and must seek out information to assess the impact of logging operations on Aboriginal and treaty rights (Davidson et. al. 1998). These rulings will have a significant impact on the practical interest in TEK amongst provincial and industry resource managers, in addition to Aboriginal peoples.

Resource management in Canada has historically taken place without regard to the presence of Aboriginal peoples, in spite of the fact that they carried out a broad range of resource management and utilization activities. Chapeskie (1995) notes, for example, that, "customary Anishinaabe relationships to land and their tangible expression in the form of rich aboriginal culturescapes in northwestern Ontario remain virtually unknown to, or appreciated by, [provincial resource managers] and non-aboriginal residents." Similar situations can be found across Canada.

As a result of lost access to traditional forest resources and loss of input into the way these resources are managed, traditional knowledge has been severely threatened during the past century. More recently, further pressures continue to erode the context in which traditional knowledge is developed and taught. Access to traditional territories has continued to decline; education has moved from the "hands-on" style of the past to school-based systems; involvement in traditional land-based activities, especially by youth has declined; and Aboriginal language skills — an important medium through which traditional knowledge is formulated and expressed — have declined. Traditional knowledge, because it is a living knowledge, requires access to the landscape and the ability to carry out the traditional resource management and utilization activities upon which it is based if it is to continue.

In the context of these threats to the body of knowledge held by Aboriginal peoples, a cultural and spiritual reawakening is taking place in many ways across Aboriginal Canada today. Renewed interest has emerged in gathering, documenting and teaching the knowledge of the elders. Skills to carry out this work are being gained as more and more Aboriginal youth graduate from centres of higher learning. Further, First Nations have increasingly recognized the importance of sharing their understandings and knowledge of their environment in an effort to protect their interests in the land, their traditional activities, and their cultural and spiritual values. Further, as interest in TEK grows within circles outside Aboriginal cultures, the issue of how to gather and document this knowledge in forms that can be utilized in the context of sustainable forest management also becomes relevant.

Aboriginal Traditional Forest Knowledge in Canada Today

It is possible to identify a range of mechanisms by which traditional Aboriginal forest knowledge is being gathered and, to varying degrees, applied to forest management in Canada today. In very broad categories, these include: knowledge of traditional forest management activities that have survived in spite of the loss of forest management jurisdiction and the application of traditional knowledge in the context of conventional forest management.

Contemporary Aboriginal "traditional" activities

Consideration of the use of traditional knowledge in sustainable forest management should begin with the recognition that this knowledge continues to be developed and applied by Aboriginal peoples themselves on their own terms and in their own contexts. In this "domestic" or traditional form, Aboriginal knowledge of forest management is acquired through a combination of cultural learning; teachings by those who hold expert knowledge; and personal experience. Cultural learning can be described as a complex interaction between the individual, the family, the community and the full range of knowledge that is expressed through the language, ceremonies, mythology and spirituality, and leads to the adoption and adaption of the world view and principles underlying the knowledge system.

As noted in the previous section, opportunities for the practice and acquisition of traditional knowledge have been reduced over recent history. Nonetheless, considerable practice has survived and it is through these practices that the data, principles and world views that underlie traditional knowledge are developed and passed on from generation to generation. This is an important reservoir of knowledge from which Aboriginal forest-based knowledge that is to be adapted to conventional forest management can be drawn.

TEK in conventional forest management

There are a variety of mechanisms that are being used to gather and apply traditional knowledge to forest management within conventional management regimes. Among these are: provincial consultation processes; Traditional Use Studies; and Aboriginal forestry, both on- and off-reserve.

Provincial Consultation Processes

The provinces are increasingly coming to understand that forest management planning can no longer ignore the fact that much of the Crown forest under their jurisdiction also happens to lie within the traditional territories of Canada's First Nations. In recent years, several provinces have begun to develop policy frameworks that can be used to guide forest managers in seeking out Aboriginal input into forest management planning. Examples of these initiatives are provided for three provinces, British Columbia, Saskatchewan and Ontario. While not all provinces currently have such policy developed, others are working in this direction.

British Columbia developed its Protection of Aboriginal Rights – Policy 15.1 in 1997 to ensure that the activities of its forest service staff do not infringe without legal justification on Aboriginal rights. This initiative has been taken in response to court decisions in that province

that recognize the contemporary existence of Aboriginal rights. Amongst the steps to be taken are notification of First Nations that may potentially be affected by a proposed forest management activity; consultation and research to determine what rights might exist, based upon historical activities; assessment of whether the proposed activity might infringe on the exercise of the right, and to what extent; identification of ways in which the Aboriginal right and the proposed forest management activity can be accommodated. Of particular relevance to the discussion of TEK is the reference in the policy to the use of Traditional Use Studies during the consultation and research stage. These will be discussed below.

In Saskatchewan, three primary mechanisms are currently in place to encourage greater Aboriginal participation in forestry which may in turn allow for greater expression of traditional values and knowledge. These include: a public involvement program; forest management policy, which specifically encourages Aboriginal involvement in the forest industry; and the Aboriginal Affairs Policy Framework. This policy framework acknowledges that Aboriginal people have a particular interest in the province's forests and recognizes Aboriginal contributions to sustainable environmental management in Saskatchewan. A guiding principle of the policy is, "respect for Aboriginal tradition, knowledge, culture and values both in the workplace and in the field."

The Saskatchewan government is sensitive to global developments in relation to Aboriginal peoples' contributions to sustainable resource management and traditional knowledge. Saskatchewan has not yet formalized the incorporation of TEK into forest management. However, incorporation does occur informally as part of the public involvement program, including partnerships with Aboriginal groups and co-management involving Aboriginal and stakeholder representatives. In principle, Saskatchewan supports the use of local and traditional Aboriginal knowledge and currently respects its inclusion in decision-making processes. However, there are still many questions to be answered as to the nature of traditional knowledge and its applicability. In the near future, the province will be approaching Aboriginal groups to jointly develop a framework — including definitions, principles and protocols, for the use of traditional knowledge, innovations and practices in the management of renewable resources and the environment.

In Ontario, formal recognition of Aboriginal forest-related interests is provided under the Native consultation process and values mapping exercise described in the Forest Management Planning Manual for Ontario's Crown Lands (1996). The planning process outlined in the manual includes the direction of the Class Environmental Assessment by the Ministry of Natural Resources (MNR) for Timber Management on Crown Lands in Ontario (EA-87-02) and The Crown Forest Sustainability Act 1995 (CFSA). This planning process is viewed as the formal, institutionally recognized mechanism through which to advocate Aboriginal interests and knowledge in forest management. This process is designed to achieve two goals with respect to Aboriginal interests: enable participation of, and gather information from, First Nations people in Ontario. Thus, opportunities and mechanisms for incorporating TEK into Ontario's forest planning process lie primarily within the bounds of these two objectives.

These two objectives provide the basis for current incorporation of TEK into forest management planning in Ontario. In the public participation process, Aboriginal people can choose between involvement in the standard public consultation process or the "Native Consultation Program." Regardless of the selection made, MNR and the Native community involved will identify, gather, document/map and discuss information on Native people's values and uses of the forest.

A large component of the consultation process thus consists of obtaining information on values such as traditional land use areas (fishing, hunting, trapping, gathering, etc.), sites or areas of cultural and spiritual significance, burial sites and traditional grave sites. How this information is gathered depends upon the decisions of the First Nation involved and their preferred approach. Once collected, the data are used to develop a "Report on the Protection of Identified Native Values." The information in the report is then utilized in the preparation of the forest management plan. Both the Native and standard consultation processes are viewed by MNR as effective ways of incorporating TEK into its forest management planning exercises.

Traditional Use Studies

Studies of current or historic activities carried out on traditional territories — traditional use studies (TUS); values-mapping; or traditional land use and occupancy studies (TLUOS) — have been initiated in the context of forest management planning/consultation as well as for the purposes of establishing land claims. In the former context, these studies are generally supported by provincial governments as part of the Aboriginal consultation process mandated by resource management policy. In BC, for example, TUSs are supported through the Forest Renewal British Columbia fund to ensure that the government lives up to its legal obligations to consult. Similarly, in Ontario, limited funds for values mapping are available to First Nations that are willing to take part in forest management consultations.

In Alberta, support for several TLUOSs has been provided on an occasional basis in order to address First Nation demands for special consultation processes in the context of large scale pulp and paper developments in their traditional territories (Brubacher 1996a; Robinson and Ross 1997). In these cases, cooperation between industry, the First Nations and the provincial and federal governments was needed to accomplish the study.

These studies typically consist of mapping TEK data based upon interviews with elders and other local Aboriginal resource experts. This may include identifying sites of cultural, spiritual and economic importance. Areas of interest might include grave sites, old home sites, culturally modified trees (CMT), areas of rare or medicinal plants, important wildlife areas, fish spawning beds, berry harvesting areas and so on. The results of the research provide the First Nations with data they can use in forest management consultations. Frequently First Nations have other objectives in carrying out the studies as well, such as to document knowledge that is rapidly being lost. In one of the Alberta studies (Fort McKay First Nation 1994) the resulting publication has been widely used in local schools.

The following example helps to illustrate how one First Nation in BC used its TUS to help achieve local objectives.

Profile: Huu-ay-aht First Nation, Vancouver Island, BC

The Huu-ay-aht First Nation of west-central Vancouver Island have recently completed a traditional use study (TUS) on their traditional territory. This territory comprises 78,800 ha, all of which is within Tree Farm License #44 (TFL 44) licensed to Macmillan Blodel Ltd, a major forest resources company in Canada. This particular part of TFL 44 also falls within an area subject to special management conditions set out by the Clayoquot Working Circle, as recommended by the Scientific Panel (see Scientific Panel 1995, and Brubacher 1996b). The area is also under relatively heavy logging development pressure, accounting for nearly half of the AAC of 1.89 million cubic metres, even though Huu-ay-aht territory makes up only 17% of the TFL 44 area. During the past year, of the 2,200 ha that were logged by the company, 1,050 ha were within this traditional territory.

The TUS, funded through the Forest Renewal BC program, identified areas throughout Huu-ay-aht traditional territory of interest or concern to members of the First Nation. The study involved working with members of the community to identify areas of significance. The areas identified included, among others, spiritual sites; areas of cultural significance such as culturally modified trees and ancient village sites; and, important harvesting and hunting areas. The data collected was used to prepare GIS maps.

The First Nation has successfully negotiated an improved consultation process with the government and the TFL-holder that is being pilot-tested in their traditional territory. Under this pilot, data from the TUS is being used to mitigate logging impacts of concern to the Huu-ay-aht. Proposed logging developments (cut-blocks, logging roads and so on) are over-laid on the TUS maps. Areas that are identified as of potential concern are then investigated in the field by a crew from the Huu-ay-aht Natural Resources Department. This field crew then reports its findings to the Chief and Council, who, in consultation with the Natural Resources Department identify appropriate management approaches. Rather than having an absolute veto over logging activities, the First Nation sees their arrangement as one of "joint stewardship," based upon negotiation. Depending upon the significance of the sites identified through the TUS, the Huu-ay-aht may attempt to have an area protected from logging activity or it may negotiate an exchange of areas of moderate concern for economic opportunities. An example of the former is a 23 ha area in which a large concentration of culturally modified trees were identified that the First Nation is attempting to preserve for cultural education/eco-tourism purposes. In other cases the logging company has offered silvicultural contracts to the Huu-ay-aht in exchange for permission to cut CMTs.

Under the ancient Huu-ay-aht stewardship arrangements, the traditional territory was divided into six hahuulhi areas — areas in which hereditary chiefs traditionally exercised authority over people, land and resources. During recent history, this stewardship responsibility has been usurped from the hereditary chiefs through the assignment of resource management to the provinces, disregarding Huu-ay-aht traditional jurisdiction. While some contemporary hereditary chiefs have given up their traditional roles, others have maintained their stewardship concerns for their areas. Through the new referral process established in partnership between the Huu-ay-aht, the province and the TFL-holder, these individuals — along with other concerned members

of the community — may begin to regain some of their traditional resource management responsibilities.

Aboriginal-controlled forest management

In recent years, many First Nations have begun to gain control over the management of their reserve lands. Others have succeeded in gaining access to timber resources off-reserve, either directly or in partnership with non-Aboriginal business.

The emergence of an Aboriginal forest sector has led to new mechanisms for the development and application of TEK to sustainable forest management. While First Nation forest managers are still subject to federal (in the case of on-reserve forest management) and provincial (on provincial Crown land) management guidelines, they also have significant responsibilities toward members of their community who use the land for their traditional activities. How is TEK being applied in these contexts? A glimpse at several instances in which First Nations are actively involved in forest management can provide some insight into this question.

Eel Ground First Nation, New Brunswick

The Eel Ground First Nation has taken a community-based approach to managing the forest resources of its 2,631 ha Reserve land base. Community input into forest management planning consultations led to the identification of concerns amongst some of the elders over the impact of silviculture and logging on populations of valued medicinal plants. In response, a partnership arrangement has been established with the First Nation Forestry Program of Natural Resources Canada, Eel Ground First Nation, and the Fundy Model Forest to initiate a project to catalogue and protect medicinal plants and other rare and endangered species. This project will serve to identify species of interest and concern to elders in the community, in order to alert forest managers of their importance. By identifying the location of these plants, forest managers can be alerted to their presence and take appropriate action to avoid negative impacts.

The project combines western knowledge of plant taxonomy and ecology with elders' knowledge of plant occurrence and uses, and with field research. In addition to information on habitat and companion plants, that can be used to identify areas of occurrence, the project also considers the life cycles of these species in relation to silvicultural applications. One example of the sort of impact that this knowledge may have on forest management practices in Eel Ground can already be found. Concerns about the impacts of silvicultural treatments and logging activities on golden thread — an important medicinal plant in the community — has led to intentionally timing such activities to occur during the winter months, when the ground is frozen and the shallow roots of this plant are less susceptible to damage.

While the primary motivation for this project arose from the concerns of the elders, Eel Ground also recognizes that this sort of management is called for within the context of sustainable forest management, as defined in documents such as Canada's Criteria and Indicators for Sustainable Forest Management.

First Nation Forestry Association of Nova Scotia

In Nova Scotia, the First Nation Forestry Association (FNFA) has initiated efforts to manage reserve forests for black ash productivity. This tree played an important role in the past, being used by the Mi'kmaq for baskets and other purposes. While some continue to use ash for basket making, the rarity of the black ash has led to use of other species, including white ash and swamp ash (both of these trees share the same botanical designation, although Mi'kmaq specialists recognize significant differences).

A challenge faced by the Mi'kmaq in this project is the loss of knowledge that has taken place during the 400 years of colonization. The First Nations do not know what the forest was like prior to colonization, nor the extent and genetic variety of black ash stands at that time. What was the role of this species? Has there been genetic impoverishment? How was the species managed?

In an effort to re-learn the management of black ash, the FNFA, with project funding from the Aboriginal Enhancement Program of the Model Forest initiative provided through the Nova Forest Alliance, has begun to explore methods to germinate black ash seed, and has searched for local provenances of the species.

In the process of setting out on this project, the FNFA has discovered a renewed interest in the knowledge surrounding the use and management of the black ash. Much of this knowledge has been fragmented or entirely lost. What remains is often associated with relatives who held the knowledge in the past — "I remember that my grandfather/grandmother used to say ..." Thus the process of learning how to manage for this species builds upon traditionally held principles and understandings, combined with sparse knowledge of the management regimes and new research to re-discover what was probably well-known to the Mi'kmaq in pre-colonial times.

Peter Ballantyne Cree Nation, Saskatchewan

The Peter Ballantyne Cree Nation in Saskatchewan is currently in negotiations with the Saskatchewan government for a Forest Management Agreement in their region. To ensure that traditional resource uses are respected, they have set up local advisory committees open to all members of these northern communities. Representatives from these local groups are appointed to the Regional Advisory Board which will bring concerns and knowledge of local resource uses into the forest management planning process. In addition to these local committees, elders have been involved in two ways. First, the Peter Ballantyne Forestry Committee includes an Elder in its membership, who advises on issues of traditional use. In addition, the agenda of an annual elders meeting held in 1997 focused on issues around forest management. By working from the community level up to the regional planning level, the PBCN has begun to identify important traditional resource use areas at the earliest stages of forest management planning. They have also begun to work on issues that will arise from the identification of these areas, such as how to plan around areas of traditional use and, where this is not possible, how to compensate for loss of use.

The experience of Peter Ballantyne Cree Nation is still at the early stages and negotiations with

the province continue. Many questions regarding ways in which traditional knowledge may be incorporated into forest management planning have yet to be raised, let alone addressed. However, by carefully building a framework in which local residents — both Aboriginal and non-Aboriginal — have direct input into the planning structures, answers may be found.

Tl'azt'en Nation, British Columbia

In British Columbia, the Tl'azt'en Nation is the only First Nation in that province to hold a Tree Farm License (TFL 42). Through two Band-owned companies the community manages the licence area and operates a sawmill. As a TFL-holder, Tanizul Timber must comply with conventional forest management regulations, including meeting the annual allowable cut assigned to the license area. Although community support for entry into the forest sector was initially strong, expectations for the way in which the forest is managed have led to tensions between the company and the community, that contributed to the sawmill temporarily ceasing its operations (Booth 1998).

Recently, a research project has been initiated by the University of Northern British Columbia and the Tl'azt'en Nation to examine community goals regarding the management and use of TFL 42, and the extent to which Tl'azt'en values can be reconciled with the goals of the commercial forestry company. This research will involve, among others, the "keyoh" holders — those who hold the traditional stewardship rights and responsibilities for the land. Early findings suggest a "deep concern over protecting traditional values," and an awareness that economic values and community/traditional values may never be reconciled, at least within the present tenure arrangements (Booth 1998).

Key Issues

Several broad issues relating to traditional knowledge in the context of forest management in Canada remain to be resolved. These include the *relevance* of this knowledge in the context of sustainable forest management; the *context* in which traditional knowledge and sustainable forest management come together; *accessibility* of traditional knowledge to forest managers; and the *compatibility* of traditional knowledge with sustainable forest management as it is currently practised.

Relevance

Recognition of the relevance of traditional knowledge to sustainable forest management in Canada is a key issue that requires significant attention, if the potential contribution of this knowledge to forest management is to be realized. From an Aboriginal perspective, the relevance of traditional knowledge to forest management is clearly evident. Traditional forest-related knowledge is knowledge that focuses on how to manage relationships between people and the forest (Stevenson 1998). It is relevant to forest management because it is, intrinsically, knowledge about managing our actions in the forest. Traditional knowledge tells us how to live in the forest and thereby guides our actions and practices. At the same time, living in the forest is the means by which this knowledge is gathered, developed and passed on. Traditional knowledge and forest management ("how we live in the forest") are indistinguishable.

The relevance of traditional knowledge to sustainable forest management is assessed quite differently from the perspective of industry and government. At one end of the range in western perspective, TEK is seen to provide some assistance in carrying out sustainable forest management -- by identifying sensitive ecological or cultural sites, for example. It might even provide some insight into the values underlying the concept of "sustainability." At the other end, many forest managers and industry players have yet to be convinced that Aboriginal traditional knowledge has any relevance at all to sustainable forestry.

Clearly, there is a need to further develop an understanding within the forest community of the relevance of traditional knowledge to sustainable forest management.

Context

A closely related issue is that of the context, or set of assumptions, under which traditional knowledge and sustainable forest management come together in Canadian forest management discussions and practice. Currently, the status quo is a situation where TEK is knowledge held by Aboriginal peoples whose cultures and languages are threatened by continued alienation from their lands. As Aboriginal peoples are further and further removed from their ability to carry out traditional forest stewardship activities, the foundation of TEK is being eroded. As a result, the depth and quality of TEK is rapidly being lost.

There is a significant distance between the Aboriginal view of their traditional activities as being part and parcel of their stewardship role and the western view that distinguishes "management" from "harvesting." Further compounding the distance between these understandings is the fact that dialogue around TEK takes place on the basis of a largely dis-empowered Aboriginal minority talking to the dominant culture, in the language of the dominant culture and within the existing western institutional frameworks that govern forest management.

In situations where discussion of the relevance or use of Aboriginal knowledge is being applied to forest management, Aboriginal people who wish to communicate their concerns or insights are generally obligated to do so in a language that is "foreign" to the concepts being discussed and within institutional frameworks — environmental assessments, wildlife management, forest management plans — that are unfamiliar to the management institutions or contexts in which these concepts are traditionally applied. (Stevenson 1996). For example, the non-Native concept of "wilderness" is not easily translatable into Aboriginal languages (Barnaby 1992). Other examples include "management" or "use," which, as described by Chapeskie (1995) and Notzke (1994), do not have counterparts in Anishinaabe culture. A whole set of terms integral to non-Native understanding and application of Indigenous knowledge do not find adequate expression in Native languages. Such words include, in addition to the above, "environment", "ecology", "wild", "endangered", and "sustainable."

As a result, the knowledge shared easily loses its context and becomes susceptible to reinterpretation or misrepresentation. Reinterpretation into terms familiar to the western language and ideology is easier to achieve than accepting or respecting this knowledge within its own context — a context unfamiliar to the western world view.

Access to traditional Aboriginal forest-related knowledge

The accessibility of traditional knowledge to forest managers outside traditional forest stewardship contexts is a significant issue. This knowledge can be described as coming in layers — ecological data; cultural data; values; moral teachings; spiritual understandings; world views. Frequently, only the "hard data" aspects are recognized or sought by forest managers. This narrow dimension of TEK is the most easily integrated into forest management without challenging the underlying assumptions on which the forest resource is managed. Subsequently it is only these elements of TEK that get incorporated into management decisions, which leads to the possibility of forest landscapes that are predominantly subjected to conventional management, with patches of forest left to surround areas identified as having specific values according to TEK data. Thus, although a patch of valued medicinal plants may be spared from intensive logging, the gatherer may find herself walking across clear-cuts to gain access. It also leads to situations, such as in the case of the Huu-ay-aht, where "significant sites" become commodities that can be traded off in exchange for marginal economic benefits. McGregor (1994) poses the question of who really benefits from this exercise when mainstream processes are still viewed as the only legitimate frameworks from which to manage the environment.

Interestingly, these sorts of "hard" data may be all that knowledge holders are willing to share. Those aspects of traditional knowledge which are of deeper significance to Aboriginal peoples — such as information on ways of life or spirituality; concepts of thanksgiving and reciprocity — may not even emerge during the process of "TEK gathering" (Chapeskie 1995). It may be that Aboriginal people wish to participate and be forthcoming with some of their knowledge, but wish to retain the right to pick and choose what they are willing to relinquish. Still, it is important that researchers realize that the facts and data that holders of traditional knowledge can provide exist within a much larger realm of knowledge.

Within this context, the traditional ways in which traditional knowledge is shared is worthy of note. TEK is transmitted via the oral tradition. This may include story telling, behaviour modelling, experiential learning, singing, dancing, mask-making, and ceremonies. It has long been asserted by Aboriginal peoples that this knowledge is oral. To put it into writing will strip it of its power and render it vulnerable to exploitation (Wavey 1993).

Knowledge in Aboriginal societies was and remains strictly controlled (McGregor 1995). Only certain people were permitted to "know" certain things, such as how to make particular medicines or perform certain ceremonies. In this way the "data" components of the knowledge are less likely to become divorced from the "moral" aspects which govern how this data is utilized. Aboriginal peoples prefer that their knowledge remain in its oral form because it then remains easier to control; it has not been written down so that anyone can read it. Good Striker (1996) recalls a dispute with INAC around this issue during an environmental assessment documenting exercise. Good Striker explains:

> "Those languages carry within them our thoughtworlds and our cultures, and the differences in world view between these cultures and the West often make concepts difficult to render into English. An additional difficulty arises because our languages have been reduced to

> written form only within the last twenty years. Though these transliterations are reasonably advanced, they are far from perfect." (p.148)

In the western scientific tradition, knowledge is only valid in a literate form. Until the recent Delgamuukw decision which recognized the validity of Aboriginal oral testimony, this was also true in the context of evidence applied in the legal setting. To "scientize" or "textualize" TEK has meant that only those facts or data that make sense to scientists — or which are amenable to translation and scientific understanding — will be translated and used. "Text, rather than holders of knowledge, becomes the authoritative source" (Stevenson 1996). Indeed, in the western view, knowledge may not even "exist" until it is written down. Copyright applies to documents, not ideas. Intellectual property is a broader concept that is currently of substantial interest as a means of addressing ownership of knowledge.

When knowledge is written down, it can then be transmitted in the absence of the original holder of the knowledge. From a western researcher's point of view, this makes it easier and faster to disseminate the knowledge. From an Aboriginal perspective, it means that the knowledge is no longer properly controlled, as the physical aspects of the knowledge can now be divorced from its social — and moral — context. Moreover, it means that the original knowledge holders can now be excluded from decision making processes, even in cases where Aboriginal knowledge is supposedly being accounted for.

Reticence on the part of TEK holders to imparting their knowledge is therefore based, in part at least, to a fear that "authentic TEK" — that is, traditional knowledge within its proper moral context — will not be applied to decision making but rather only certain fragments of data, particularly those which can be readily defined and understood by western science. As Stevenson (1996) notes, documenting TEK results in "inventories of elements or simply descriptions of natural processes couched in scientific terms." Facts and data are "integrated" into resource management regimes, often without the knowledge holder involved and with the rich moral understandings that characterize this knowledge stripped away.

Such use of TEK may succeed in supporting *status quo* forestry, by minimizing conflicts that arise when, for example, sacred sites or ecologically significant areas are destroyed by inappropriate forestry activities. As one Aboriginal leader has noted, "traditional use studies identify small patches where things of value are found — but we are concerned about the whole area, not just the patches. What ends up happening is that they log around the patches. That is not good forest stewardship" (anonymous, personal communication).

When this happens, however, the goal of incorporating TEK in order to improve sustainable forest management decision-making is grossly undermined, and the potential value of TEK is trivialized. This neither achieves Aboriginal goals of co-existence in forest management nor does it support stated government goals of ensuring that benefits from the use of TEK accrue to those who hold this knowledge.

As noted by the Intergovernmental Panel on Forests, holders of traditional knowledge need to

feel secure in their land tenure arrangements and need to be convinced of a common purpose if they are to share their knowledge. In the absence of security over the control of how TEK is collected, documented, used and managed, knowledge-holders will be justifiably hesitant to share the more profound elements of this knowledge.

Some progress may be occurring to bridge this gap in perspective. First, the shift from a management paradigm of "sustainable yield" to "sustainable forest management" has introduced the notion of multiple values into forest management dialogue and, albeit slowly, practice. Secondly, the significant progress that Aboriginal peoples are making in the legal arena is helping to empower them to "sit at the table" as partners in forest management discussions.

Compatibility

A fourth fundamental issue is that of the degree of compatibility between traditional knowledge and the rich forest-based cultures upon which it is developed, and the concept of sustainable forest management as it is currently defined and practised. Is there room within the management of forests for commercial purposes to accommodate more than just the superficial aspects of TEK, or to move beyond applying only TEK "data" to applying some of the values that underlie these data? Are traditional Aboriginal values — and the knowledge that flows from it — inherently incompatible with an industrial model of forest management, even when principles of sustainable forest management are applied?

These questions have not yet been answered in the Canadian context. However, as some of the profiles presented earlier demonstrate, there may be room to develop new applications of traditional knowledge that will apply to commercial forestry. Designing silvicultural techniques to maintain medicinal plant habitat, such as is being done in Eel Ground, is one such example. At the same time, however, situations such as faced by Tanizul Timber where operations have had to cease, partly due to increasing concerns of community members indicate that the issue is not a simple one to resolve. The research currently being carried out in collaboration between the University of Northern British Columbia, the Tl'azt'en First Nation and Forest Renewal British Columbia should be illuminating in this regard (see Booth 1998).

At the national level, the resolution of the compatibility issue may rest on the commitment within the forest management community to undergo a paradigm shift in the practice of sustainable forest management. As noted in NAFA (1996):

> "The integration of Aboriginal ecological knowledge into the process of forest resources management will require a change ("paradigm shift") in the way resource users view the forest, from treating the forest as a place from which to extract commodities for profit, to a community-based system. Aboriginal people and local communities in the commodity system are viewed only as providing a ready and able workforce for extracting forest products. In the new paradigm, the community is viewed as keepers of the forest, with long-term commitments to sustainability."

The Potential For The Future

This paper has briefly described existing mechanisms for — and barriers inhibiting — the application of Aboriginal forest-related ecological knowledge in developing sustainable forest management in Canada. The application of traditional knowledge continues to be limited in forest management contexts. It has yet to achieve the full and meaningful involvement of Aboriginal people and their knowledge. First Nations are challenging the "integration" model of TEK application. Integration implies the assimilation of fragments of Aboriginal knowledge into conventional management systems. This approach does not fully respect Aboriginal knowledge, and incorporates only a limited portion of such knowledge. From an Aboriginal point of view, incorporation of TEK into sustainable forest management planning is not merely a technical exercise of gathering more information for decision making and planning. It is a political and moral exercise.

A broader view of traditional knowledge is thus required. A management framework which accommodates values, ethics and world views of Aboriginal people and their knowledge is needed. Having explored some the key issues surrounding the use of Aboriginal forest-related knowledge in forest management, a move from an "integration" to a "co- existence" model of TEK application may be justified. Co-existence is the original model that First Nations people promoted in their dealings with other foreign nations. Early treaties with Europeans are actually based on this model.

The primary advantage of "co-existence" over "integration" is that it may result in a move away from focusing on "extracting" TEK from Aboriginal people and simply applying it in a conventional framework. Instead, a co-existence approach would promote a focus on formally acknowledging Aboriginal peoples as legitimate partners in resource management. It would help to ensure their rightful place in the development and implementation of management policies and decision making. In order to effectively utilize TEK, the people with whom it originates must be meaningfully and equitably involved; it will not work for Aboriginal people any other way.

NAFA's "Aboriginal Forest Land Management Guidelines: A Community Approach" sets out five principles for guiding forest land management carried out by Aboriginal peoples:

1. Ensure that the community guides and accumulates wisdom about all aspects of forest land care.
2. Ensure that Aboriginal forest lands are protected and their management enhanced so as to optimize long-term social, spiritual, environmental and economic values.
3. Ensure that forest land management embraces all parts of the forest, including plants, animals, soil, air and water, and all forest users.
4. Ensure that the diversity of Aboriginal communities as distinct societies with their own languages, cultures, values and customs is respected.
5. [Ensure that management guidelines] be acceptable and optional to Aboriginal communities.

While developed specifically for use by First Nations in carrying out sustainable forest

management on their own lands, these principles can serve equally as a starting point for developing a co-existence model for bridging between sustainable forest management and Aboriginal traditional forest-related knowledge.

The foundation of such a co-existence model in Canada can also build upon the statements of shared beliefs and values endorsed by the broad forest community in the Canada Forest Accord, and from the guiding principles of the National Forest Strategy section addressing Aboriginal forestry issues.

For example, amongst the values expressed in the Canada Forest Accord are the following statements: "Healthy forest ecosystems are essential to the health of all life on earth;" ... "The spiritual qualities and inherent beauty of our forests are essential to our physical and our mental well-being;" and, "As forest stewards, we must ensure the wise use of our forests for the environmental, economic, social and cultural well-being of all."

From the National Forest Strategy Strategic Direction 7: Aboriginal Peoples: Issues of Relationship, the following statements of principle are made:

> *Aboriginal peoples have an important and integral role in forest policy development, planning and management. Forest management in Canada, therefore, must recognize and make provision for Aboriginal and treaty rights and responsibilities, and respect the values and traditions of Aboriginal peoples regarding the forests for their livelihood, community and cultural identity.*
>
> *To address their legitimate needs and aspirations, Aboriginal communities require greater access to forest resources, and an increased capacity to benefit from forests in their areas of traditional use and treaty areas, and to contribute to their management.*
>
> *Honourable, fair and timely resolution of land claims, modern treaties and Aboriginal self-government is necessary in order to create a stable environment for sustainable forest management.*

Within the context of the international and domestic events of the past ten years, there are grounds for considerable — if guarded — optimism that great strides will be made in the coming decade to restore to Aboriginal peoples a significant role in sustainable forest management. By drawing upon principles which express the values and perspectives of both Aboriginal and non-Aboriginal cultures, there is potential for developing an effective co-existence model, one that bridges distinctions by building upon shared values.

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