REVIEW / SYNTHÈSE

First Nations, forest lands, and "aboriginal forestry" in Canada: from exclusion to comanagement and beyond

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Abstract: The term "aboriginal forestry" is used increasingly to describe the evolving role of First Nations peoples in Canadian forestry over the last 30 years. This paper reviews a diversity of experiences and identifies issues that have important implications for governments, forest planners, and First Nations: a forestry regime that reflects the interests of governments and industry rather than those of First Nations; variable implementation of aboriginal rights in forestry practice; benefits and problems of economic partnerships; limitations on consultation, traditional knowledge, and comanagement in forestry; and finally, different forestry paradigms. Among these experiences and issues, we recognise different visions for the participation of First Nations peoples in Canadian forestry. At one end of the spectrum, "forestry excluding First Nations" is no longer accepted. The most common form may be "forestry by First Nations," representing a role for First Nations within existing forestry regimes. Other options include "forestry for First Nations," in which forest managers seek to incorporate aboriginal values and knowledge in management activities and "forestry with First Nations," in which aboriginal peoples are equal partners in forest management. However, aboriginal forestry is better understood as a potential new form of forestry that uses knowledge and techniques drawn from both traditions and conventional forestry and is based on aboriginal rights, values, and institutions.

Résumé : Au Canada, le terme « foresterie autochtone » gagne en popularité pour décrire le rôle grandissant des Premières nations en foresterie au cours des trente dernières années. Cet article passe en revue de nombreuses expériences et identifie des enjeux aux conséquences importantes pour les gouvernements, les gestionnaires forestiers et les Premières nations. Un régime forestier qui reflète les intérêts des gouvernements et des industriels plutôt que ceux des Premières nations, la reconnaissance inégale des droits autochtones dans les pratiques forestières, les bénéfices et les problèmes associés aux partenariats d'affaires, les limites propres à la consultation, la place des savoirs traditionnels et de la cogestion en foresterie et enfin, la variété des paradigmes forestiers composent ces enjeux. Parmi ces expériences et enjeux, nous reconnaissons l'expression de différentes façons de concevoir la participation autochtone à la foresterie canadienne. À un bout du spectre, « une foresterie qui exclut les Premières nations » n'est plus une option acceptable. La vision la plus répandue est probablement celle d'« une foresterie par les Premières nations » signifiant que celles-ci ont un rôle à jouer dans les régimes forestiers existants. Une autre conception est celle de « la foresterie pour les Premières nations » lorsque les gestionnaires forestiers tentent d'intégrer des valeurs et des savoirs autochtones à leurs activités d'aménagement. Enfin, les situations où les autochtones sont partenaires à part entière dans l'aménagement de la forêt s'inscrivent sous la rubrique « la foresterie avec les Premières nations ». Cependant, la foresterie autochtone est mieux comprise lorsqu'elle implique la possibilité d'une nouvelle foresterie qui a recours à des savoirs et des techniques inspirés à la fois des traditions et de la foresterie conventionnelle et qui est fondée sur des droits, des valeurs et des institutions autochtones.

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Introduction

Forests and First Nations are two of Canada's enduring symbols. Forests cover nearly half of Canada's surface area and are a critical sector in the economy. First Nations peoples are the traditional occupants of these forest lands, and nearly 500 First Nations communities are still located in commercially productive forest areas (Curran and M'Go-nigle 1999). Unsurprisingly, First Nations have long histories of using a wide variety of natural resources as well as knowledge and traditions relating to the management of these resources. Despite this, it is only in the last 30 years that First Nations peoples have been able to take a greater role in forestry and resource utilization. A series of landmark legal judgements has developed notions of aboriginal rights, while the 1982 Constitution Act recognised these

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rights without defining them. Both legal judgements and government policy have often followed direct action by First Nations opposing forest exploitation and other natural resource projects. Increasingly, First Nations are seeking to share the economic benefits of forestry and there are now hundreds of aboriginal businesses involved in the forestry and resource industries. These domestic trends are supported by international movements towards sustainable development and sustainable forestry, increasing recognition of the rights and roles of indigenous peoples, and commercial strategies such as forest certification.

With the increasing participation of First Nations in forestry, the term "aboriginal forestry" is gaining in popularity (Parsons and Prest 2003; FNFP 2004). Parsons and Prest (2003) define aboriginal forestry as sustainable forestry incorporating respectful interaction between aboriginal peoples and the forest. However, developing the role of First Nations in forestry has not been straightforward; there have been numerous conflicts and misunderstandings, as well as successes and advances. Quaile and Smith (1997) noted that Canadian practice still needs to catch up to government policies and international commitments and that First Nations often have little confidence in government or the forest industry. If aboriginal forestry is to be attained, it is important that practitioners and policy makers understand the meaning of the term and some of the factors that contribute to its realisation.

This paper will provide a broad review of First Nations participation in Canadian forestry over the last 30 years. These experiences are based not only on the existing Canadian forest management system, but also on the expanding recognition of aboriginal rights concerning Canadian forests. From these two bases, First Nations are seeking participation in both the economic benefits of the forest industry and the control of the management of forest landscapes. Successes and failures in these efforts demonstrate the importance of differing cultures, values, and forestry paradigms. A deeper understanding of these issues enables us to consider what aboriginal forestry really is and how it could be achieved.

Forest management systems in Canada

Aboriginal forestry is not just about forests. It is about forest management systems, which include the resource along with the bureaucracy, the industries, and the public that use it (Miller et al. 1987). Although the specific rules for forestry vary among the Canadian provinces, most forestry occurs on publicly owned land (often potentially subject to aboriginal title) where private enterprises manage and log forests under government licence. Such licences ensure industry access to timber resources in exchange for controls on logging operations and specified forest management responsibilities (Burton et al. 2003). These forest management systems represent the evolution of colonial government decisions to retain public ownership of forests (referred to as Crown forests or lands), while permitting logging through leases or licences. As forestry science and the economic importance of timber and paper developed during the 1900s, responsibility for forest planning and forest management was shared between the government and the forest industry, with the actual balance of rights and obligations

depending on specific situations and wider government policy. Forest management came to be dominated by rational scientific planning aimed at ensuring supplies of wood fibre coupled with economic analysis of the costs and returns of such management (Bouthillier 2001; Burton et al. 2003).

These forest management systems were established with little place for First Nations peoples, who were generally excluded from the management of forest lands (Ross and Smith 2002). Certainly, aboriginal peoples continued to practice a wide range of activities on forest lands and many were employed in the forest industry. They were not, however, able to participate in decisions about the way in which forest lands were managed. Treaties between First Nations and the Crown justified government responsibility for forest management while the scientific and economic basis of this management also minimized the potential contribution of First Nations (Willems-Braun 1997). As government policies have changed over the last 20 years, a number of provinces have sought to encourage participation of the First Nations in the forest industry by facilitating access to particular tenures (NAFA/IOG 2000; Wilson and Graham 2005). Notzke (1994, p. 83) describes government forestry licences (or tenures) as "the most powerful tool of forest management." The conditions of these tenures have usually been negotiated between the government and the forest industry and limit the ways in which First Nations peoples can apply their own values to the forest management system.

Forest management, however, is not static and practices across Canada have changed greatly over the years, moving from uncontrolled exploitation through administrative forestry systems to ecological and social forestry (Kimmins 2002). The sustained yield of wood products, long perceived as the guiding precept of forestry, is giving way to broader conceptions of sustainability and to principles such as ecosystem management and natural disturbance (Adamowicz and Veeman 1998; Kimmins 2002; Burton et al. 2003). These approaches are based on the forest as an integrated system, rather than solely as wood fibre. As such, they may be more compatible with traditional approaches of First Nations peoples to the occupation of forest lands (Curran and M'Gonigle 1999). However, ecosystem management can also be interpreted as concentrating on biological rather than social factors (Adamowicz et al. 1998); a view that could act against the interests of First Nations. If ecosystem management is to serve as a basis for the participation of First Nations in forestry, it will need to acknowledge both the complexity of forest ecosystems and the role of humans and their values within these systems.

The continued evolution of Canada's forest management system is almost certain. Forest management is no longer restricted to principles and practices for producing timber. Forestry systems are increasingly concerned with the institutions, processes, and decision making that acknowledge both the complexity of forest ecosystems and the role of humans within these systems. Furthermore, First Nations are asserting their right to be part of forest management. Future evolution of management systems will need to accommodate this.

Aboriginal rights

Aboriginal rights and aboriginal title have their origins in

the occupation of North America by First Nations peoples before the arrival of European traders and settlers. Early treaties between First Nations and colonial powers provided for the establishment of European legal and government systems and aimed to extinguish aboriginal title to facilitate European settlement. Aboriginal rights are often perceived as being unclear and in need of definition, and in 1993 federal government policy was "to relinquish undefined aboriginal rights ... in favour of the rights and other benefits which are written down in the settlement agreement" (1993 Federal Policy for the Settlement of Native Claims, in Asch and Zlotkin 1997). However, Asch and Zlotkin (1997) describe aboriginal rights as including not only the right to use land, but also the rights to self-government, language, culture, and identity. These authors argue strongly against federal policy, recommending instead that negotiations between governments and First Nations be based on the affirmation of rights followed by the development of cooperative political relationships. In the absence of recognition of aboriginal rights and title, First Nations are constrained to act within the scope of provincial and federal regulations or to challenge these regulations in the forests or in the courts.

In the last 30 years, the Canadian court system has taken a major role in defining the nature and extent of aboriginal rights and aboriginal title as a specific right to use the land. The Calder decision in 1973 acknowledged the existence of aboriginal title; in 1982, the Constitution recognised the existence of aboriginal treaty rights; the Sparrow case in 1990 strengthened the recognition of aboriginal rights by specifying conditions under which governments could regulate or limit these; and the Haida Nation case in 1997 established that aboriginal title (if proven to exist) would limit the government's ability to impose forest management rules (Notzke 1995; House 1998). Also in 1997, the Delgamuukw judgement concluded that First Nations peoples may use oral history to prove their claims and that aboriginal title gives the right to use the land for a variety of activities, not only for "traditional" or "subsistence" purposes (House 1998; Curran and M'Gonigle 1999). Curran and M'Gonigle see the Delgamuukw finding as a model for development of aboriginal lands: "collective decision-making that must maintain the ecological integrity of traditional lands necessary to support historic practices" (Curran and M'Gonigle 1999, p. 726). In this model, they stress the importance of First Nations' governance of their lands as a means of managing for other values and responding to their contemporary needs.

The effect of the evolution of the understanding of aboriginal title can be seen in the case of the Cree of northern Quebec. The James Bay and Northern Quebec Agreement of 1976 aimed to replace aboriginal title (except for some specific areas) with a series of specific rights and a comanagement regime. However, the agreement did not specifically address forestry, and the opposition to forestry by the Cree grew as harvesting expanded in the 1990s (Curran and M'Gonigle 1999; Scott 2001). Cree protests and legal action through the 1990s finally culminated in a new agreement with the Quebec provincial government in 2002 that addressed issues such as forestry and hydroelectric development, but failed to modify positions on aboriginal title.

Similarly, the experiences of the Nisga'a in British Columbia illustrate a long road towards recognition of aboriginal rights. Since the late 1970s, the Nisga'a have contested forestry practices on their traditional lands by protesting to the provincial government, undertaking legal challenges, proposing an alternative forest management plan, applying for a provincial forestry licence, and trying to buy such a licence from the company that held it (Notzke 1994). Finally, in 1998, the Nisga'a reached a settlement with the federal and provincial governments that gave them control of nearly 2000 km^2 of their traditional territory, subject to a number of conditions.

The negotiation of these agreements may have resolved issues of aboriginal rights and title, but the full extent to which the Cree and the Nisga'a will be able to manage forest lands remains to be determined. Under the terms of their agreement, the Nisga'a are establishing their own forestry management rules and activities (with provincial standards representing a minimum), while in Quebec, the Cree and the government have established a joint board to set the rules and guidelines for forestry (Ross and Smith 2002). Reviewing forestry and fisheries among the Nisga'a, King (2004) noted the way that traditional knowledge (TK) and institutions were being integrated in the new context of decision making and governance. Taking a different view, Curran and M'Gonigle (1999) are concerned that the Nisga'a agreement does not reflect traditional systems of governance and that, in practice, both the Cree and the Nisga'a will find it difficult to establish their own approaches to forest management. Similarly, Rynard (2000) believes that the Nisga'a agreement is too limiting of aboriginal title and does not really represent a change from previous policies of extinguishing rights. Clearly, the recognition of aboriginal title or rights does not guarantee that First Nations peoples will be able to manage forest lands as they wish; instead, it should be seen as step towards governance structures that will enable First Nations to develop their own management systems and to negotiate forest land management with other parties.

Economic participation

The difficulty of obtaining a role in forestry and forest management coupled with the need for economic development has led many First Nations peoples to seek economic participation in the forest industry. In 2002, there were at least 1500 aboriginal firms involved in forestry across Canada (Wilson and Graham 2005) and the number of firms, workers, and partnerships will almost certainly continue to increase. Relations for economic participation can take many different forms. Hickey and Nelson (2005) identify four types of partnership — contracting relationships, cooperative business arrangements, MOUs and protocols, and joint ventures — as well as seven functional roles — conflict avoidance, profit, employment, capacity building, resource access, resource management, and sociocultural benefits.

The simplest and most common arrangements occur when First Nations forest service companies undertake contracts for larger companies (NAFA/IOG 2000; Hickey and Nelson 2005). Such arrangements enable the First Nations to develop technical and management skills and to establish links

with larger forestry enterprises. However, such arrangements also provide few opportunities for First Nations to participate in the decision making about the forest or to implement activities in ways that differ from those of the industry or from the government norms specified in the contract (Curran and M'Gonigle 1999; Wyatt 2004).

A smaller number of First Nations are involved in joint ventures for the construction of a timber mill or for forest planning and management. Such partnerships give First Nations a greater degree of control over activities, recognised rights to forests, and access to the skills and resources of their partner. Benefits for the industry can include better links with First Nations, improving corporate image, or complying with government requirements (Anderson 1997), but ensuring that a business relationship works in the long term requires a clear understanding of the different interests of each partner (Brubacher 1998; Nixon 1999; NAFA/IOG 2000; Wyatt 2004; Wilson and Graham 2005).

Joint ventures and forest management partnerships may give First Nations a greater degree of control and more benefits than contracting arrangements, but they are typically still limited in the way that forests and lands are managed. Almost all such partnerships are based on forestry permits or licences issued by government. This can lead to situations such as that in Meadow Lake, Saskatchewan, where in 1992 members of aboriginal communities blockaded the operations of Mistik, the forestry company in which they were majority shareholders, leading to the reformulation of partnership arrangements (Anderson 1997; Chambers 1999). There are a number of successful partnerships (such as Mistik and Mishtuk at Waswanipipi, Quebec), but there are also many barriers to participation by First Nations in the forest industry, including market conditions, regulatory frameworks, and a lack of capacity among both First Nations and industries (Wilson and Graham 2005).

The interest of First Nations in partnerships as a means of economic development also focuses attention on the question of "development." Far from being a neutral term, development often implies that "undeveloped" peoples need assistance to meet the development level of the majority of society (Escobar 1997). Scott (2001) notes that the development of First Nations' traditional lands has often eroded their traditional economies, while providing few financial returns. According to Charest (2001), most First Nations peoples are willing to share their land and resources with non-aboriginal people, but only in partnerships that respect their rights and interests. Such partnerships need to be flexible and adaptable to reflect the needs of First Nations and to provide control over both the resources and the institutions (Natcher 2000; Scott 2001).

First Nations that enter into economic relationships with forest companies are usually asked to accept existing forest management systems and to adopt dominant visions of development. In this context, planning, management, and use of natural resources are viewed as technical activities, based on economic benefits and positivist, scientific, and rational criteria (Lane 2001). The aspirations of the First Nations, their choices about development, or their views on ways to access and distribute economic benefits may conflict with government or industry objectives for the management of forest lands. Although economic relationships may enable

First Nations to share the benefits of forestry, new tenure arrangements (Ross and Smith 2002) or the resolution of land claims may be necessary if they are to achieve their own goals for managing forest lands. Curran and M'Gonigle (1999) conclude that sustainable management and traditional governance will only be possible if the government recognises aboriginal rights.

Participation in forest management

Political negotiations, legal challenges, and economic participation in the forestry industry offer possibilities to First Nations who seek greater control over the management of forests and other resources on their traditional lands. However, few achievements have been made in setting forest management directions in these ways, so First Nations are increasingly seeking direct participation in or control of forest management.

Participation and consultation

The need to consult First Nations (and the public) on forestry and resource management has become a major issue during the last two decades and is now found in numerous policy documents as well as in new provincial requirements in Quebec and British Columbia. Aboriginal peoples also benefit from a "duty to consult," which originates from the constitutional protection of their rights and the Crown's fiduciary responsibilities, that obliges governments to take measures to avoid infringing these rights (Ross and Smith 2003). In practice, the meaning of "consultation" is not clear and governments or companies may provide information to First Nations or seek their opinions on particular questions or to identify specific sites that should be protected. However, such consultation processes rarely include participation in decision making, do not fully take aboriginal rights into account, and may treat First Nations as "just another stakeholder" (Smith 1995). Feit and Beaulieu (2001) concluded that participation processes established under the James Bay and Northern Quebec Agreement did not satisfy Cree expectations and that consultation was, in fact, aimed mainly at legitimizing government and industry practices. This has led to demands for "meaningful consultation," indicating effective and equal participation and decisions that respect the views of the First Nations peoples (NAFA 2000; Ross and Smith 2003). Although consultation and information-sharing processes rarely provide a decision-making role for First Nations, they can contribute to greater mutual understanding among First Nations, governments, and the forestry industry.

Impact assessment, criteria and indicators, and certification

Across Canada, impact assessment regulations, criteria and indicator processes, and forest certification requirements are increasingly being adopted as ways of ensuring forest sustainability. These tools frequently oblige forestry planners and decision makers to consult with First Nations, contributing to meaningful consultation and helping to monitor ways in which concerns and information are incorporated in forest management practices. However, assessment requirements are often aimed at approving a particular project or

management plan; whereas, the interests or concerns of a First Nations people may be much wider (Wiles et al. 1999). Equally, processes and evaluation criteria tend to be highly technical or "scientific" (in the western positivist sense) and are not necessarily conducive to the integration of the views and knowledge of First Nations (Notzke 1994; Scott 2001).

Forest certification schemes are becoming increasingly important in Canada, particularly for First Nations (Abuscow and Rotherham 1998; Takahashi et al. 2003). Of particular interest is Principle 3 of the Forest Stewardship Council, which states "the legal and customary rights of indigenous people to own, use and manage their lands, territories and resources, shall be recognized and respected" (Collier et al. 2002). Collier et al. (2002) explain that while few First Nations have full control of forestry on their lands, this principle requires that forest managers seek the full and informed consent of traditional owners. Similarly, criteria and indicators such as those developed by the Canadian Council of Forest Ministers (CCFM 2003) include both aboriginal and treaty rights and informed decision making as elements of sustainable forestry. However, the effectiveness of these criteria in guiding forest management and even the real effects of Principle 3 of the Forest Stewardship Council remain to be seen. Assessment, monitoring, and certification do not necessarily give First Nations a decision-making role in forestry, but are rather processes that encourage forest managers to modify practices to account for the concerns expressed by the public, including First Nations.

Traditional knowledge, land use, and institutions

TK and traditional ecological knowledge refer to knowledge and beliefs held by indigenous peoples concerning the relationship among humans, other living beings, and the environment that is transferred from generation to generation (Berkes 1993). Such knowledge is an essential part of contemporary resource management and studies of TK and traditional land use and occupation have become important in Canada. Robinson and Ross (1997) describe three goals for traditional land use and occupation studies: collecting and documenting TK, integrating this information into forestry planning, and active participation of First Nations in forestry planning. However, the second two goals prove harder to achieve than the first; these goals are constrained by factors that include government policies, cultural differences, and the lack of recognition of aboriginal rights (Robinson and Ross 1997). Documenting and researching traditional land use is particularly important as a means of establishing aboriginal title. Such studies enable First Nations to demonstrate the geographical extent of lands that they used prior to European settlement as well as the social organisations by which they asserted their ownership and controlled land use (House 1998; Natcher 2001). Recognising TK and utilization practices is also essential for determining whether contemporary forest management interferes with aboriginal rights to use and occupy the land for traditional purposes.

An important issue in the use of TK has been the relation to western positivist science. A number of authors have compared differences between these two on the basis of distinct knowledge systems (e.g., Johnson 1992). Characteristics of TK include a holistic approach based on detailed observation of a particular area over a long period and an explicit acknowledgement of the social context of knowledge in beliefs, values, and resource use. In comparison, western science is positivist and reductionist and based on observation and experimentation over shorter time scales that are extrapolated to other situations. For some authors (e.g., Kawagley 1995), aboriginal knowledge is not intended as a means of managing or controlling nature, whereas western scientific studies of forests or other environments are often aimed specifically at managing natural resources. Despite these differences, TK is increasingly accepted as a valid and important part of resource management, notably as a result of the work of the Clayoquot Sound Scientific Panel in British Columbia (CSSP 1995). Discussion of TK has developed from its use in supporting science, through the integration of western and traditional science or the "blending" of two world views (MacKinnon et al. 2001) into a recognition of parallel but complementary approaches (Stevenson 2005).

Recognising TK as a distinctive knowledge system also emphasises the importance of placing this knowledge in its social and institutional context (Stevenson 2005). Natcher (2001) notes that mapping and documentation approaches to TK often fail to describe the cultural importance of the landscape, reducing it instead to a series of particular sites in a forest that are otherwise available for logging. Documenting TK is often a technical process involving the type of information collected, access to the information, and maintaining the context of the information (MacKinnon et al. 2001), a process that favours governments and industries and may actually reduce their interest in face-to-face consultations with First Nations. Stevenson (2005) suggests that research should not focus on TK per se, but rather on aboriginal values and on revitalizing traditional management systems and institutions as a means of supporting the role of First Nations in forest management decision making. Similarly, Folke et al. (1998) and King (2004) strongly link management practices based on traditional ecological knowledge to the social systems that have enabled these practices. Accordingly, the incorporation of TK into forest management systems will need to include the social systems and institutions that sustain this knowledge, enabling First Nations peoples to apply their knowledge and values in a contemporary forestry context.

Comanagement

Comanagement, an arrangement between First Nations and governments, dates from 1942 in Canada and has become a popular model for sharing control of natural resource management (Robinson 1999). There are many formal definitions of comanagement, but the common theme is sharing responsibility and control of resource management between local groups and government or industry (Curran and M'Gonigle 1999). Elements of importance within a comanagement structure usually include the recognition and application of TK, devolution of decision-making authority, and specific power sharing arrangements (Berkes et al. 1991). Often these arrangements have arisen from disputes concerning aboriginal rights or access to natural resources, and therefore comanagement may be considered as a means by which First Nations can increase their power in land management (Rodon 2003). However, comanagement agreements fre-

quently include a clause whereby the government retains a final right to approve decisions made by comanagement partners (Notzke 1995). Other forms of comanagement include the First Nations – industry agreements at Meadow Lake, Saskatchewan (Chambers 1999), and collaboration between First Nations and a university in British Columbia to develop criteria and indicators based on aboriginal knowledge and values (Karjala et al. 2004). Internationally, experiences with community-based resource management show an immense variety of institutional structures with varying degrees of decision-making responsibility and power sharing (Messerschimdt 1993; Ostrom 1999).

As comanagement becomes more widespread, its achievements are being examined more critically. Importantly, comanagement does not redefine government power or recognise aboriginal title (Curran and M'Gonigle 1999), but instead enshrines a decision-making relationship between First Nations and the rest of society. First Nations peoples may find that in accepting management structures and processes established by governments they are submitting to continued domination (Rodon 2003). Stevenson (2006) adds that comanagement also obliges First Nations to conform to non-aboriginal expectations concerning knowledge, skills, rights, and organisations and to adopt new concepts such as management of resource "stocks." If comanagement is to be successful, then structures need to reflect cultural and value differences, historical and existing political situations, and conflicts, among other factors (Natcher et al. 2005). In fact, according to Natcher et al. (2005) comanagement is more about managing relationships than about managing resources. Hence, it is probably most useful to think of comanagement not as an organisational model, but rather as a process and a structure by which First Nations are negotiating power with the government or with the industry while also influencing parties on both sides (Rodon 2003).

Differing cultures, values, and paradigms

A recurrent theme in almost all discussions of aboriginal participation in forestry is the existence of cultural factors, which implies that First Nations have particular beliefs, values, norms, practices, or knowledge associated with forest landscapes. These cultural factors are increasingly understood to represent traditional land and resource management systems based on ecological knowledge, management practices, and social systems (Notzke 1995; Folke et al. 1998). Such management systems include a number of key elements: an information base or paradigm, practitioners that share a world view, a system of regulations, and objectives that are derived from society as a whole (Usher, in Notzke 1995). If this is true for First Nations, then it is also appropriate to recognise that "mainstream" forest management also reflects cultural and historical values that emphasise economic production and scientific management. Brown and Harris (1992, p. 232) define a resource management paradigm as "the set of common values, beliefs, and shared wisdom that collectively provide the lens through which individuals in a resource management profession such as forestry interpret and act upon their world." First Nations and forest managers each have their own forest paradigms.

The issue of paradigms becomes critical to understanding aboriginal forestry. The paradigms of professional foresters in both government and industry are the basis for the goals, knowledge, and techniques used in forestry, as well as for the institution of forest management. In contrast, aboriginal paradigms and the management systems based upon them have been overlooked, ignored, or replaced by mainstream forestry. Different paradigms underlie many of the misunderstandings and conflicts associated with the growing presence of the First Nations in forestry. Nevertheless, aboriginal management systems have proved remarkably resilient as First Nations peoples have maintained their own beliefs, knowledge, practices, and institutions in the face of mainstream forestry (Feit and Beaulieu 2001; Wyatt 2004; Stevenson 2006). Conflict has not led to aboriginal paradigms inevitably being replaced by mainstream forestry (as suggested by Kuhn's (1962) original conception of paradigm). Instead, as King (2004) describes for the Nisga'a, First Nations' institutions have adapted through contact and conflict with new institutions, ideas, knowledge, and practices.

Canadian forest lands are simultaneously subject to two (or more) forest paradigms, which lead to different management systems. Stevenson (2006) uses the analogy of the "two-row Wampum belt" to illustrate the coexistence of indigenous and scientific approaches to forest management; two systems, each with their own values, knowledge, and traditions, contribute to understanding forest lands and cooperative planning, decision making, and action. Recognising the coexistence of the paradigms represents a change from previous approaches that accommodated the interests of the First Nations within the existing forest management system. Coexistence also means re-establishing indigenous management systems on forest lands to complement mainstream systems rather than compete with them. Such a change will require structures, including comanagement and partnerships, that provide space for aboriginal management (Stevenson 2006) and that support more equitable relationships between First Nations and forestry managers (Natcher et al. 2005).

Aboriginal forestry: What does it really mean?

It is clear that Canadian forestry is evolving to provide a greater role for aboriginal peoples. Aboriginal rights are being defined and recognised, First Nations are taking their place in forest industries, and forest management increasingly takes their interests into account. That this participation occurs within the existing forest management system indicates that this system is able to modify itself. That most of these changes have been the result of long judicial battles, protests, and hard-fought negotiations indicates that forestry institutions are not easily modified. But it is important to consider where this evolution is going. Will aboriginal participation lead to a new form of forestry that improves sustainable management with the incorporation of aboriginal values and knowledge (Parsons and Prest 2003) or will First Nations be obliged to trade their values and knowledge for access to the forest resource and a share in economic benefits? Based on Canadian experiences, we can propose a range of different possibilities (Table 1):

1. Forestry excluding First Nations
2. Forestry by First Nations

3. Forestry for First Nations
4. Forestry with First Nations
5. Aboriginal forestry

Forestry excluding First Nations

For many years, Canada's forests were managed by forest industries and government agencies and First Nations were either ignored or excluded from forest management and decision making (although they often held less-skilled jobs in the industry). While such an attitude may still exist in some situations, all Canadian governments and most major forestry companies and organisations recognise the importance of participation of First Nations in forestry. Excluding aboriginal Canadians from forestry is no longer an accepted position.

Forestry by First Nations

Encouraging First Nations to undertake forestry within the existing management system is the simplest form of participation. In this scenario, First Nations members may work in forest industries or receive financial and economic benefits. Indigenous companies may hold forestry contracts or operate milling facilities, and First Nations may hold tenures under existing laws. First Nations may provide TK to forest managers, but they would have little opportunity to modify forest practices to respect their own values or goals or to see traditional institutions recognised in forest management. While consultation may occur, this would not necessarily lead to any changes and may be meaningless. Although the definition of aboriginal rights may continue in the courts, this scenario sees little progress in translating these rights into changes in forest management systems. "Forestry by First Nations" may represent a common position across Canada, but continuing pressure by First Nations is likely to lead to further evolution.

Forestry for First Nations

Forestry for First Nations represents the existing forest management system with a number of modifications to reflect greater acknowledgement of and a place for First Nations. Notably, existing government regulations and tenure arrangements would continue, but with flexibility to encourage participation by First Nations and to take other forest values into account. Professional scientists and forest managers would continue to hold the primary responsibility for forest management, while adopting new principles such as ecosystem management and accepting TK in support of western science. More effective consultation processes could enable First Nations' views to be included in planning, but the planning framework itself remains fixed. First Nations would almost certainly become increasingly active in the forest industry through partnerships and joint ventures, but they would be obliged to adopt existing business and economic development models. Similarly, comanagement arrangements may exist, but financing, institutional structures, or ultimate government decision making may leave relatively little power with First Nations. This position does not recognise aboriginal rights in ways that lead to greater control over forest management. Hence, forestry for First Nations is likely to be unstable as further definition of rights (through legal, policy, or negotiation processes) leads to changes in existing regulatory frameworks.

Table 1. Meanings of aboriginal forestry: different visions for First Nations and forestry in Canada.

	Forestry by First Nations	Forestry for First Nations	Forestry with First Nations	Aboriginal forestry
Aboriginal rights and government forestry regimes	Little or no recognition of aboriginal rights; First Nations obtain tenures under existing forestry regimes	Aboriginal rights do not lead to significant control of forest lands; First Nations obtain tenures under forestry regimes	Aboriginal rights are acknowledged with new forms of tenure within forestry regimes	Aboriginal rights are fully recognised, enabling First Nations to establish forest management regimes
Economic participation	First Nations work in forest industries and management; partnerships may exist	Partnerships and joint ventures are established using existing business models	Partnerships and joint ventures share decision making and reflect aboriginal goals	Partnerships, joint ventures, and aboriginal companies are based on achieving aboriginal goals
Consultation	Consultation may occur, but does not necessarily lead to changes	Consultation processes are used to identify aboriginal views for inclusion in forest planning	Extensive consultation results in all issues being addressed in forest management	Traditional consultations within First Nations; separate processes for non-aboriginals
Impact assessment and certification	Assessment and certification may occur, but do not necessarily lead to changes	Assessment and certification processes help to identify aboriginal concerns	Processes identify needs, develop options, and monitor operations and participation	Processes and monitoring based on both traditional and scientific knowledge
TK and institutions	TK may be sought by managers and used to facilitate forest management planning	TK is used by professional managers as additional data to support science	TK and institutions and western science are equally important in forest management	Forest management is based on aboriginal knowledge and institutions, combined with western science
Comanagement	Not used	New management structures may be established to reflect existing forest management regimes	Equal sharing of power that builds on traditional forest management institutions	Comanagement of resources, but with First Nations retaining final right of approval
Differing paradigms	Professional forestry is the accepted paradigm	Professional forestry remains the dominant paradigm	Coexistence of aboriginal and professional paradigms for forest lands	Aboriginal paradigm for forest lands is supported by professional paradigm

Note: TK, traditional knowledge.

Forestry with First Nations

Forestry with First Nations is based on significant modifications to existing forestry regimes that allow forest management to be shared with First Nations as a means of recognising aboriginal rights. New forestry tenures would need to be developed to facilitate forest management by First Nations as well as their economic participation in forest industries. Comanagement and joint ventures would provide for equal sharing of power and responsibility and ensure that First Nations can manage for their own interests and development goals. Extensive consultation processes would ensure that all issues are incorporated into management planning, including the consultation and planning processes themselves. Forest management would reflect both professional forestry and traditional management institutions. Both TK and western science could contribute to forest management, without one assuming a priority over the other. Certification and related processes would monitor not only the impacts of operations, but also the extent of aboriginal participation in management. Although this position recognises aboriginal rights and establishes new systems for forest management and comanagement, it remains largely within existing regulatory frameworks. Hence, it may not be acceptable to those who interpret aboriginal rights outside this framework and will also be subject to further definition of rights. Forestry with First Nations may, however, prove to be acceptable to governments and the public as a compromise between aboriginal rights and the interests of non-aboriginal Canadians.

Aboriginal forestry

Aboriginal forestry represents a forest management system in which the interest of First Nations (their "aboriginality") is dominant and in which First Nations are able to ensure that this interest is respected. Establishing space, either by recognising aboriginal rights or through other arrangements, is the basis of this position and enables First Nations to define the institutions and practices they wish to engage in or to permit on their land. In theory, First Nations could establish such a system on existing title or reserve lands, but the absence of recognition of aboriginal forestry renders this difficult in practice. Aboriginal management systems and institutions would be central to forest land management, reflecting the various traditions and interests of each Nation. Both TK and western science would be required, acknowledging the distinct basis of each. Professional foresters would need to learn about aboriginal management systems, while training for indigenous people in science for forest lands should be expanded. Comanagement of the land and joint business ventures would facilitate utilization and management of resources, possibly with a clause whereby the First Nations retain a final right to approve decisions made by comanagement partners to ensure the primacy of the interests of First Nations. Traditional processes would be used for consultations within each First Nation, while separate processes would be needed for consultations with non-aboriginals. By recognising aboriginal rights, this position should overcome the need for further definition of these rights in relation to forestry, enabling the parties to concentrate on mechanisms of cooperation. However, it is a position that may not be broadly accepted by non-aboriginal stakeholders. This type of aboriginal forestry would require significant development of human capacity, financial and material resources, institutions, and systems.

Conclusions

Canadian First Nations occupy an enviable position compared with indigenous participation in forestry around the world. Forestry is one of the most important sectors of the national economy, and First Nations, with claims to much of the timber resource, are steadily increasing their influence. As a result, governments and industries are investing in programs and practices aimed at ensuring collaboration. There have been many success stories, but there are also ongoing conflicts.

The range of possibilities presented in the final section of this paper represent different balances between the existing Canadian forest management system and the participation of First Nations in this system. The first position, forestry excluding First Nations, is now rejected by most stakeholders. The second position, forestry by First Nations, is probably the most common scenario across Canada, as First Nations achieve a role in forestry, but with few opportunities to change it. The final three positions represent different visions for the future of indigenous forestry in Canada. The level of recognition of aboriginal rights is central to these positions; this determines the roles of the First Nations in decision making for forest lands and the extent to which they can realise their own goals. Although the positions are presented as distinct, it is inevitable that there will be gradation and overlap among them, and probably a progression from one to another. Each element in each position is changing, but these changes are not linear. Some elements are evolving faster than others in different provinces or in various ways in the same province. Nevertheless, each of the final three positions represent a certain level of change in forest management systems in response to the participation of First Nations. Each recognises different levels of power held by First Nations and their ability to contribute to determining how forest lands are managed.

Increasing participation of First Nations in forestry has resulted in the term "aboriginal forestry" being used to cover a multitude of situations, and having different meanings depending on the user and their objectives. Governments, forest industries, and First Nations all have an interest in promoting aboriginal participation in forestry and in describing their efforts as aboriginal forestry. These efforts are contributing to changing our understanding of forestry and to making forest management more sustainable. However, these efforts often represent modifications and improvements to existing models of forestry. As such, these models integrate First Nations into mainstream forestry, rather than establishing an alternative model, as suggested by the two-row Wampum belt analogy. "Aboriginal forestry" should represent more than just minor modifications to an existing forestry regime; it should be a new form of forestry based on aboriginal values, systems, and paradigms, and supported by the science and technology of mainstream forestry. "Aboriginal forestry" should be forestry in which First Nations peoples have re-established their own institutions for managing the use of forest lands.

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