

Arriving at Appropriate Criteria and Indicators for Sustainable Forest Management: A First Nation's Perspective

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Abstract: Forest management in the Little Red River/Tall Cree traditionally used territory has long been dictated by 'professionally' trained foresters whose interests often run counter to those of aboriginal community residents. Because of this, band members have largely been excluded from the decision making process while their concerns, values, and knowledge have failed to be recognized, let alone applied, to the planning process. However, through the development of criteria and performance indicators, derived from a community perspective, an ongoing system of feedbacks is being used in the development of a self-improving management system which is facilitating an assessment of forest management as it relates directly to Little Red River/Tall Cree culture and their continued land use needs.

Keywords: Forest Management, Aboriginal, Criteria, Indicators, Sustainability.

Introduction

The Little Red River and Tall Cree (LRR/TC) First Nations are located in north-central Alberta, Canada. Residing in five separate reserves, the collective population of the LRR/TC First Nations is approximately 2,500. The local environment is classified largely as boreal mixed-wood and boreal subarctic eco-regions. This region of the boreal forest provides critical habitat for free-roaming wood bison, moose, and scattered populations of woodland caribou. This region is also home to approximately 236 species of birds, 43 species of mammals (Westworth and Associates Ltd., 1990), as well as a mosaic of rare vegetation. Signatories of Treaty Eight (1899), the LRR/TC First Nations are constitutionally assured of their continued rights to hunt, trap and fish in all seasons of the year on all unoccupied crown lands. This constitutional protection has therefore imposed a fiduciary obligation on the Canadian government to maintain an environment conducive to the exercise of those rights.

Since the 1950s the expansion of agriculture into the lower Peace River region, coupled with the development of the forest industry, has resulted in the clearing of approximately 4,000,000 hectares of forested lands; lands that constitute the traditionally used and occupied territory of the LRR/TC First Nations. Over this same time period, rights to the remaining commercial timber have been awarded to non-aboriginally owned forest companies in the form of Forest Management Agreements (FMA). The annual allowable cut for this

region is currently 1,000 hectares per year; a volume that does not include the extensive network of industrial access roads needed to support this industrial activity. Owing to agricultural and industrial encroachment, coupled with a growing population of the LRR/TC First Nations (a rate of 4 percent per year), band leaders argued that the remaining forested lands were incapable of supporting a hunting and trapping lifestyle of community members; a lifestyle constitutionally affirmed and protected.

In response to what the LRR/TC First Nations saw a failure by government to recognize rights of treaty, the LRR/TC initiated a dialogue with the federal and provincial governments in an effort to ensure their rights to lands and resource were protected. In 1995 the efforts of the LRR/TC First Nations were awarded through the formation of a cooperative management agreement signed between the LRR/TC First Nations and the Government of Alberta (Departments of Environment Protection and Aboriginal Affairs). In the form of a Memorandum of Understanding, this agreement has established an institutional framework for co-operative forest management for a 20,000 km² Special Management Area (SMA) stretching throughout the Lower-Peace River Valley. Following four years of negotiations and political maneuvering the LRR/TC First Nations and the provincial government finalized the terms of agreement and implementation is now underway.

The mandate by which the co-operative board operates is based upon the concept of sustainability,

adaptive management, and the meaningful consideration of local knowledge, values, and needs in resource management. This mandate recognizes the need for sustainable and adaptive management so as to ensure human use of environment does not exceed the ecosystem's ability to perpetuate itself for the use and enjoyment of future generations. In addition to gaining a degree of shared management responsibility for the SMA, LRR/TC were also successful at negotiating a commercial timber permit for the SMA. Through these negotiations the LRR/TC First Nations were successful at securing the rights to one-half, or approximately 350,000 m³, of all commercial timber in the SMA.

However, in being awarded a commercial timber permit, strong concerns were expressed by LRR/TC band members regarding their involvement in the very industries that were seen, by many, as the greatest threat to community survival. That is, to many band members, and specifically the elders, industrial timber harvesting is seen as being in direct conflict with the sustainability of their homeland. However, with a 65 percent on-reserve unemployment rate and 85 percent of all band members receiving some form of social assistance, band leaders were intent on finding a way in which local concerns could be addressed while still providing much needed economic opportunities for band members. Thus the question facing band leaders was how to incorporate local concerns and values into forestry management without sacrificing financial goals and business requirements of industrial forest management. Specifically, the question posed was to what extent does the incorporation of aboriginal forest values affect the likelihood of achieving industrial forest management objectives; that is, the annual allowable cut.

In partnership with the Sustainable Forest Management Network at the University of Alberta, the LRR/TC First Nations have undertaken a process to address this question. Specifically, this research set out to establish a set of local criteria and indicators (C&I) for sustainable forest management that are derived directly from the community perspective.

The C&I approach to forest management resulted largely from the work of the United Nations Conference on Economic Development (UNCED) (1992) which addressed the need to arrive at specific criteria and indicators of sustainability that could define, monitor, and guide management of the world's forests. Recognizing the need to measure and monitor ecosystemic change, Chapter 11 of Agenda 21, 'Combating Deforestation' called for "the formulation of scientifically sound criteria and guidelines for the management, conservation and sustainable development of all types of forests." Since this time the application C&I have been applied to

regional, national, and international levels of forest management.

In Canada, national C&I were implemented in 1995. Following three years of nation-wide consultation with government officials, NGOs, aboriginal and non-aboriginal communities, foresters and academics, the Canadian Council of Forest Ministers (1995) produced a set of six national criteria and 83 indicators for evaluating forest sustainability. However, while providing a comprehensive framework from a national perspective, a review of the literature suggests that there has been little effort to apply C&I at the local level and even fewer examples of C&I being applied in an aboriginal context. Therefore, this research has set out to define a set of local criteria and indicators that are specific to the LRR/TC culture and their continued land use needs. It is our hope that by developing local indicators of sustainability, forest managers will be able to demonstrate how managing for certain performance objectives (e.g., annual allowable cut) affects the achievement of other community objectives (e.g., the availability of critical moose or bison habitat) thereby creating an adaptive management framework in which alternative management scenarios can be developed and decided upon.

While this research is ongoing, and the finding are quite preliminary, initial results suggest that the use of criteria and performance indicators can provide an accurate assessment of forest management as it affects local land use concerns. Specifically, this approach has: 1) established a mechanism by which forest management can be monitored and assessed in a manner that considers LRR/TC cultural and land use needs; 2) facilitates an assessment of existing and future forest management practices in the LRR/TC territory based upon prevailing cultural, social, ecological and economic criteria; 3) provides a local assessment of forest management and establishes a basis for continuous improvement; and 4) serves as a means of conflict management by articulating the diversity of landscape values nested with the LRR/TC communities.

It is important to note that the results of this research (and decisions made from them) are not meant to represent a definitive set of C&I, but rather should be seen an initial stage of ongoing community-based research. Recognizing the pluralism and dynamics of local value formation, this phase of research represents an initial approximation of local values that have been arrived at by interviewing a relatively confined sample of community members.

As defined by LRR/TC band members, criteria for sustainable forest management in the Special Management Area, include (see examples in Table 1):

- I. Modifying Forest Management Operations so as to Reduce Negative Impacts to Wildlife Species.
- II. Increase the Diversity of Forest-Based Economic, Social and Cultural Benefits Available to the LRR\TC Communities.
- III. The Protection of LRR\TCFNs Aboriginal and Treaty Rights to Hunting, Fishing, Trapping and all Other Land-Based Activities.

Methods Used In Assessing Local Landscape Values

There has been a tendency within social and biological research to view aboriginal resource use largely in 'western' economic terms. A review of the literature has shown that the standard methodology for the valuation of resource use (both market and non-market) has relied predominantly on utility maximization theory, such as contingent valuation methods which employ survey questionnaires as a means to identify an individuals willingness-to-pay (WTP) or the accept compensation (WTAC) for the loss of access to a specific resource or activity. Similarly, replacement value methodologies have often been used to quantify the value of subsistence resources in aboriginal communities in an attempt to measure the volume and value of production and exchange for the making of public policy, resource management, economic planning, and for impact mitigation and compensation (i.e., the replacement cost of one pound of caribou for one pound of ground beef). These approaches have, however, misrepresented and devalued the cultural significance of aboriginal resource use by failing to account for the cultural values (i.e., spiritual, individual and collective health and identity) that are nested within subsistence activities. Thus by failing to consider the cultural significance of aboriginal resource use, the valuation of subsistence activities have proven inadequate and often damaging to aboriginal communities. By recognizing that subsistence pursuits represent more than merely food gathering activities, it follows that a quantification of subsistence resources does not reflect the cultural value of subsistence activities, much less indicate the value of the lands from which specific resources were obtained. Therefore any attempt to evaluate aboriginal resource use must recognize that aboriginal culture remains rooted in the landscape and practiced through land-based activities; thus the cultural significance of the landscape cannot be quantified in economic terms alone. Thus one of the major criticisms we find with these approaches, specifically when applied in an aboriginal context, is the underlying and arguably ethnocentric assumption that all resource use can be measured by a monetary valuation. Recognizing this methodological limitation this research has employed a

range of alternative methods in order to elicit landscape values.

Contributing to the completion of this research has been the partnership the LRR/TC First Nations have established with the Sustainable Forest Management Network at the University of Alberta. Owing to this partnership we have been able to pull from a significant amount of biological and socio-economic research already completed. This past research includes critical vegetation research and landscape mapping, traditional ecological knowledge of critical wildlife species (i.e., woodland caribou, moose, and woodland bison), and research regarding environmental and community health. Our research has also benefits from previous work concerning the socio-economic changes within the LRR/TC communities. This research has provided a better understanding of how personal values may be evolving as the subsistence-based economy of the LRR/TC First Nations is supplanted by wage earning opportunities. In addition, community land use and occupancy research, conducted in partnership with the University of Alberta School of Native Studies, has provided a base-line of information regarding past and contemporary land use patterns, thereby articulating visually the spatial and temporal changes/continuity in community land use.

Combined with direct observation, the use of semi-structured and unstructured interviews provided additional information regarding the observed The interview format was intended to be open-ended so as to allow for elaboration of the meaning and importance of resource use, the description of resource locations, as well as local perceptions of forest management (and the idea of 'managing' resources in general). The interview sample sought in this research was an accurate representation of the LRR/TC community population. The interview coverage included a range of age cohorts ranging from 16 to 72. The sample sought included those known to have the greatest knowledge and personal extent of land use, such as LRR/TC trappers; available male and female elders; knowledgeable hunters and/or fishers as recognized by community members (i.e., snowball methodology); as well as band members who are or have been employed by resource development industries. Therefore, this approach recognizes that within the LRR/TC communities exist a range of interests, each with differing values (often conflicting), attitudes, concerns, and perceptions that need to be considered in the planning process.

In addition to the differences that exist between aboriginal and non-aboriginal landscape values are the value differences that exist between male and female community members. The value difference ascribed to specific resources and the preferred vision of the landscape's future can generate very different cognitive maps between aboriginal and non-aboriginal and male

and female resource users. The recognition of these differing perspectives must be incorporated into a valuation methodology if an accurate portrait of community values is to be developed. Because there exist very real differences between male and female land use, a gender-based analysis of how 'place' and 'space' are used, and therefore valued, has been incorporated into the research design. Previous research (Natcher, 1999) in other Cree communities has shown that areas used by women are often nested within areas noted to be used only by men for specific subsistence activities. When not a primary use area of men, whether owing to temporal or ecosystemic change, these areas may be considered by land managers as areas of limited use, and thus limited value. However, by classifying these areas as 'limited use', land use planners (generally men) may be inadvertently justifying the conversion of the areas to an alternative land use (i.e., clearcut) that may be of little value to local women. Thus by failing to consider the landscape values held by women an inaccurate portrait of community values is created. However, if recognized, men's and women's knowledge of the shared landscape can be brought together effectively, thereby articulating the held values of each.

While the land use research that has already been completed by the LRR/TC First Nations will contribute to this phase of research, even the most thorough documentation of community land use generally reflects only one perspective, and it is the women's perspective that is often excluded. Because of this we are elucidating this often missed perspective by first, documenting the 'everyday' use of the female landscape (i.e., specific resource areas); second, examine the social relations that shape that use (i.e., who is using what areas); and third, document multiple female perspectives on the use, value, and meaning of the landscape (Rocheleau et. al., 1995).

While pulling from the large body of literature devoted to gender sensitive research, our approach includes informal interviews, focus/discussion groups, transect walks with female community members, and participatory analysis. Additional methods for eliciting information about 'place' and landscape values include the use of landscape sketch maps with species labels and gender symbols and the use of felt boards that allow community members to simulate changes in land use and preferred options for future development. Used elsewhere (Rocheleau et. al., 1995), these approaches have proven effective in enabling community members to recreate the past, depict the present, and create a favorable future. In affect, these exercises create a 'what if' scenario that facilitates discussion on access, use, and values of the landscape.

Methodological Challenges

It is important to note that C&I research is not without its methodological challenges, especially when applied in an aboriginal context. Because this approach requires band members to compartmentalize the biophysical components of the landscape C&I may in some ways conflict with the Cree worldview, a worldview that places an equal significance on all environmental features. Owing to this holistic understanding of the environment band members may have difficulty separating specific biophysical features of the landscape into distinct categories as well as segment the social, cultural, spiritual, and economic aspects of environmental interaction. A similar challenge to eliciting local values is the questioning methods or the ways in which information is sought. The direct question, which serves as an accepted way of gathering information in western culture, is often considered inappropriate by aboriginal participants. Based upon initial interviews it is our experience that community members are more likely to "talk around the question" until the information is provided rather than responding directly. Similar to Nelson's (1980) experience with the Inupiat of northwest Alaska, we have found that community members rarely give direct advice or tell another person what to do other than through narrative. Unfortunately, few researchers can fully appreciate the meaning and complexity of aboriginal narratives, a limitation that often leads to misunderstanding. Owing to these cross-cultural challenges, as well as the need to continually monitor and evaluate changing community values, a transfer of skills from researcher to community is required to help alleviate cross-cultural mis-communication as well as to ensure research continuity.

Because adaptive forest management requires the continued monitoring of ever-changing socio-economic values of community members this research partnership has emphasized a process of capacity-building in order for community researchers to assume responsibility for future and ongoing analysis. This is critical to the issue of community ownership in that by failing to demonstrate the relevance of conducting C&I research, community-based research is often seen as "community housework" that is of little social value and receives little sustained attention (Hubbard, 1996). Thus by failing to transfer the necessary skills and experiences to community researchers the dichotomy between those who produce information and those who are most affected by it remains; a situation that merely reinforces many of the dependencies that have long worked against aboriginal communities seeking change.

Conclusion

Because forest management in the Caribou – Lower Peace River Region has long been characterized by conflicting social perspectives there exists a need for a shared and articulated understanding of local values and concerns in order to minimize the level of confrontation surrounding forest management issues.

The approach adopted in this research recognizes this diversity, as well as the pluralism of values nested within the Little Red River and Tall Cree communities. By emphasizing a process that provides each of those perspectives with a better understanding of the others point of view, it is our hope that greater cultural awareness will contribute to the reevaluation of current approaches to forest management and future policy formation.

Table 1. Examples of Local Criteria and Indicators for Sustainable Forest Management.

Criteria	Critical Element	Local Value	Goal	Indicator	Objective
1) Modify Forest Management Operations so as to Reduce Negative Impacts to Wildlife Species.	Species Diversity and Availability	Healthy population of woodland caribou.	Enhance critical habitat for woodland caribou.	Protection of critical habitat blocks of old growth conifer along the Caribou Mt. slope.	Long-term harvest rotation of critical conifer habitat along the Caribou Mt. slope, specifically in elevations between 1500-2000 feet
1) Modify Forest Management Operations so as to Reduce Negative Impacts to Wildlife Species	Species Diversity and Availability	Healthy Population of Moose in the Management Area	Enhance Necessary Habitat for Moose	Actual Increase in Necessary Habitat – Eliminate the practice of scarification following forestry operations.	Eliminate the Practice of Scarification in the Management Area: *Utilize alternative silviculture methods: - Controlled Burns. - Hand Scalping followed by hand seeding and planting.
1) Modify Forest Management Operations so as to Reduce Negative Impacts to Wildlife Species.	Species Diversity and Availability	Healthy population and continued availability of whitefish.	Reduce run-off caused by clearcuts into primary fisheries.	Increase buffers along the Lawrence River as it flows from the Caribou Mts. into the Peace River.	Increase buffers to no less than 300 m. from each shoreline of the Lawrence River.
2) Increase the Diversity of Forest-Based Economic, Social and Cultural Benefits Available to the LRR\TC Communities	Increased Forest Sector Employment Opportunities for LRR\TC Band Members.	Enhance the Managerial and Technical Capacities of the LRR\TC in Forest Management	Increase the Level of Training and Employment Available to LRR\TC in the Forest Sector	Develop an Operating Business Plan that will address Training, Employment and Business Development Goals and Objectives.	Increase Seasonal and Full-time Employment in Forest Sector by 10% by 2003.

2) Increase the Diversity of Forest-Based Economic, Social and Cultural Benefits Available to the LRR\TC Communities	Increased Involvement of the in Forest Management	To Achieve an Equitable Role in all Phases of Forestry Planning	Community-Approved Consultation Process for Forest Management Planning	Framework for community involvement in forest management planning (FMP).	Implementation of Community Consultation Process for FMP by 2001. * Including: Youth, Women, Wage-Earners, and Subsistence Harvesters.
3) Protection of LRR\TCFNs Aboriginal and Treaty Rights to Hunting, Fishing, Trapping and all Other Land-Based Activities.	Continued hunting, Trapping and Fishing Rights are Protected	Ensure that the LRR\TCFNs Maintain Access to a Lands Base Sufficient to Meet Their Current and Future Needs	Area of Land Currently Available to Hunting, Trapping and Fishing is Maintained	Develop Long-Term Network Plan for Industry Operations to Control Access Linkages.	Implementation of Long-term (20 yr.) Land Management Plan by 2002.

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