

PROJECT REPORT 1999-5

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Whitefish Lake First Nation Land Use and Occupancy Study

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Whitefish Lake First Nation

Land Use and Occupancy Study

SFM Network Project Report: Whitefish Lake First Nation
Land and Resource Use Study: Incorporating
Traditional Knowledge with GIS Technology

by

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ABSTRACT

In 1994 the Whitefish Lake First Nation and the Province of Alberta entered into an agreement that called for co-operative approaches to land, wildlife, and fisheries management in the area surrounding the Whitefish Lake reserve (approx. 2,700 sq. km.). In January of 1998 the terms of the WFLFN Co-Operative Management Agreement underwent implementation. Specific goals of the agreement include economic development initiatives, education and training programs for Whitefish Lake residents, and the implementation of a cooperative management regime for local lands and resources. Through these negotiations, WFLFN was successful in establishing the only First Nation - Province of Alberta Co-operative Management Agreement to date as recognized under the terms of a Treaty Entitlement.

Specific to the objectives of the Sustainable Forest Management Network and a primary component of the co-operative management agreement was the undertaking of a land use and occupancy study of the Whitefish Lake community. It was recognized that any attempt to make informed land 'management' decisions required an understanding of community land and resource use patterns. Therefore, this study was designed to incorporate the cultural (non-market) values of community residents with the economic interests of resource developers operating in the area, thus the textualization of both market and non-market forest values was initiated. The ultimate purpose of this study is not to restrict future land and resource use per se, nor was it a form of cultural triage, but rather is to be used as a guide for sound land use initiatives that serve to preserve and protect the cultural values of Whitefish Lake residents.

Through the completed land use study, the Whitefish Lake First Nation (WFLFN) has been successful at visually articulating historical and contemporary land use patterns, as well as the knowledge base that supports that system of use, in a medium (ArcView) that has facilitated the integration of local knowledge into forest management planning (FMP). Forest management in the S-9 F.M.U. is now being approached cooperatively by the WFLFN, Tolko Forest Products, Zeidler Ltd. and Alberta Lands and Forests in a way that takes into account both the market values of the boreal forest as well as the non-market or cultural values nested within that same geographical landscape. The completion of this research has also proven instrumental in the implementation of the Whitefish Lake Co-operative Management Agreement signed between the Province of Alberta and the WFLFN. By visually authenticating the extent of local land use this research has demonstrated the need for greater local involvement in the management process and was largely responsible for the province's decision to expand the cooperative management area from 27 townships to 30 with future discussions to expand the management area even further.

ACKNOWLEDGMENTS

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Foremost among the individuals who have contributed to this project has been the Whitefish Lake Elders Advisory Council which served as a steering committee throughout the development and duration of this project. Specifically, the contributions of Bennett Grey, Eunice Grey, Mabel Grey, Henry Lubicon, Frank Nahachick, Joseph Nahachick, George Tallman, Jean Whitehead, Peter Kesapapa, Henry Thunder, Evelyn Thunder, Mariane Thunder, Griffin Grey, Russell Grey, and Pat Grey made this work possible. The vision and leadership of Chief Eddie Tallman, along with councilmen Dwayne Thunder, Jessie Grey and Whitefish Lake Project Coordinator Jeff Chalifoux all contributed to the successful completion and implementation of this research.

I would like to thank Tim Martin from the University of Alberta for GIS assistance as well as Jerry Kowalyk from the University of Alberta Science and Technology Library for aiding in the acquisition of the topographical datasets for the Whitefish Lake cooperative management unit. I would like to thank Dave Knight of Tolko Industries Ltd. for his assistance throughout the project. The involvement and continued support of Pat Long, Tony Sakora and Jason Cottingham from Alberta Lands and Forests, along with Mark Hechbert of Alberta Fish and Wildlife, proved invaluable to the successful completion of this project.

INTRODUCTION

This project stems from previous research conducted by Dr. Michele Ivanitz as partial fulfillment of her doctoral program in Anthropology while attending the University of Alberta (1996). Dr. Ivanitz's research, funded in part by the Sustainable Forest Management Network, was approached theoretically through applied/development anthropology, social forestry, and change. Specifically, the focus of her research was to develop an "Implementation Plan" that would facilitate the co-operative management of land and resources by the WFLFN and the province of Alberta. The development of this plan was to reflect a realistic co-operative management arrangement that would contribute to the reconciliation of scientific, bureaucratic, and traditional (local) ecological epistemologies (Ivanitz 1996).

Our current involvement in this process has existed on two levels. First, we have been involved in the continued development and negotiations of the "Implementation Plan" initiated by Dr. Ivanitz. And second, we have been involved in the development of a traditional land use and occupancy study of the S-9 Forest Management Unit, which constitutes a large portion of the WFLFN's traditional homeland, and serves as a primary component in the cooperative management process.¹

Due to the nature of this research, and the partnership approach that has been taken, access to the community of Whitefish Lake has been mutually advantageous. Because the benefits of the research have been recognized community wide, access to the Whitefish Lake community has not been viewed as an intrusion but rather as a partner in the research process. To help facilitate the research effort, Whitefish Lake has provided on-reserve housing for the project researcher (Natcher) throughout the duration of the research.

PROJECT BACKGROUND

Following the establishment of the Whitefish Lake reserve in 1908, it was recognized that the Crown had failed to administer a land base to which the Whitefish Lake band had legally been entitled. Thus in 1985, a treaty land entitlement claim was submitted to the Government of Canada. The entitlement claim was validated by the Crown in April 1986, and subsequent negotiations with the province of Alberta resulted in a Memorandum of Intent in November of 1988. In addition to providing a supplementary land base, the Memorandum contained a clause indicating that the province of Alberta and WFLFN would enter into discussions regarding co-operative approaches to land, wildlife, and fisheries management in the area surrounding the Whitefish Lake reserve (2,700 sq. km.). Through these negotiations, WFLFN was successful in establishing the only First Nation - Province of Alberta Co-operative Management Agreement as recognized under the terms of a treaty entitlement claim to date. This agreement is in the form of

¹ The S-9 FMU represents the land-base included under the terms of the original Whitefish Lake Co-operative Management Agreement.

a Memorandum of Understanding (MOU) signed between Alberta Environmental Protection, Alberta Aboriginal Affairs, and the WFLFN. Terms of the MOU include economic development initiatives, education and training programs for Whitefish Lake residents, and the implementation of a cooperative management regime for local lands and resources.

A primary component of the co-operative management agreement was the undertaking of a land use and occupancy study of the Whitefish Lake community. It was recognized that any attempt to make informed land 'management' decisions required an understanding of community land and resource use patterns. As well, this study was designed to incorporate the cultural (non-market) values of community residents. Recognizing that these values would need to be reconciled with the economic interests of resource developers operating in the area, the quantification of both market and non-market values was initiated.

This report represents the initial results of that study. It is not, however, meant to represent a complete account of Whitefish Lake land and resource use. Rather, this report is meant to represent an initial account of a dynamic process of land use activities; one that recognizes both temporal and spatial shifts in land use. Therefore, the Whitefish Lake Land Use and Occupancy Study should be viewed as an ongoing documentation of community land use patterns.

The area of use and occupancy identified in this report (S-9 Forest Management Unit) represents the land base recognized under the terms cooperative management agreement. While this area represents a major portion of the Whitefish Lake band's traditional territory, it does not constitute the extent of their historic land use patterns. Therefore, this report has placed an emphasis on current and recent uses (i.e. c.1930s) that have occurred within the S-9 area based upon the memory of community elders along with limited supplementary accounts of nineteenth and early twentieth century occupation from a preliminary archival review. Further archival and oral history research regarding historic land use and regional occupation will be forthcoming in future research reports.

METHODS

Several approaches have been used to document spatial land tenure systems in Canada. The Fort George Resource Use and Subsistence Economy Study (Weinstein 1976) combined land use data and subsistence harvesting research. The intent of this study was to determine the spatial distribution of harvesting activities of roughly 1500 community residents covering a geographical area of approximately 60,000 sq. km.. The harvest data that were collected were then converted into food weights. It was believed that such a process could accurately quantify the economic effects of the proposed hydro-electric project on local harvesting activities and resource availability.

Although this approach accurately quantifies the intensity of local land use, a number of deficiencies have been recognized. First, the study method failed to take into account variability and seasonality of wildlife resources common to the arctic and sub-arctic environment. Second, this method does not account for historical changes in land use and residency patterns of local residents, suggesting an ahistoric appearance of land and resource use. For instance, it was later determined that the geographic extent of James Bay and Fort George Cree land use was at an all time low during the early and mid-1970s (Weinstein 1993: 13).

Another approach, pioneered by Freeman (1976), has served as a model for most of the recent land use studies being conducted in North America (Brice-Bennett 1977; Brody 1981; Usher 1990, Hrenchuk 1993). The method uses a 'map biography' in which respondents are asked to locate and map harvesting or related activities during their adult lives (i.e., hunting, fishing, gathering). The community's land use patterns are then aggregated by map categories with outer areas representing boundaries and high density areas representing the spatial intensity of community land use. Additional areas of coverage included burial sites, travel routes, toponyms, and spiritual locations. Usher et al (1992) have argued that the 'map biography' has become virtually the sole method used in Canada owing to its straightforwardness in documentation, the visual effectiveness of the maps, and the perceived 'scientific' objectivity derived from the survey methods.

Other approaches that have been used include the recording of oral histories and ceremonies to delineate land use and 'ownership' of specific territories, as in the case of the Gitksan - Wet'suwet'en and Nisga'a of northwest British Columbia.

For the purpose of this research, however, an additional method was employed. Commonly used since the Berger Inquiry, this approach combines local land use patterns with the mapping of proposed or existing industrial activity in order to assess the spatial aspects of conflict on 'traditional' lands (e.g., Brody 1981; Fort McKay First Nation 1994). This approach consists of: 1) a map biography consistent with the methods developed by Freeman (1976); 2) the documentation of the system of land use (i.e., the adaptive strategies of WFLFN residents to the biological ecology of their 'traditional' lands); and 3) the mapping and analysis of competing resource development and recreational harvesting of wildlife resources (Weinstein 1993: 22). This method, originally developed by the Union of British Columbia Indian Chiefs (UBCIC), has proven successful in cumulatively assessing the spatial conflicts that exist between subsistence activities and competing industrial resource development.

With an emphasis being placed on the use and occupation within a period of living memory, a range of local knowledge was sought. The areas addressed in this research consist of occupation sites, burial locations, archaeological sites, local place-names, traditional harvesting areas, trapline distribution, traditional and current trails, berry picking areas, and the distribution of commonly used medicinal plants and herbs. Further, information regarding the local furbearer

population and the distribution, staging and nesting areas of migratory and non-migratory birds and waterfowl was sought.

Using this approach it was our intention to show that the knowledge held by community residents is based upon experiences that have been passed down from generation to generation. It is a multidimensional understanding of the landscape that can not be separated nor considered mutually exclusive from the people who hold it. Viewed in this way, the information presented in this report should be viewed as:

"... a body of knowledge and beliefs transmitted through oral tradition and first-hand observation. It includes a system of classification, a set of empirical observations about the local environment, and a system of self-management that governs resource use. Ecological aspects are closely tied to social and spiritual aspects of the knowledge system. The quantity and quality of TEK varies among community members, depending on gender, age, social status, intellectual capability, and profession (hunter, spiritual leader, healer, etc.). With its roots firmly in the past, TEK is both cumulative and dynamic, building upon the experience of earlier generations and adapting to the new technological and socioeconomic changes of the present." (Dene Cultural Institute 1997)

Initial research began in August of 1996 with the WFLFN Elders Advisory Council to establish appropriate methods and protocols for the research agenda. This meeting was followed by a number of individual and group mapping sessions with council members in an attempt to refine our methodology further. Recognizing that an essential principle of land use and occupancy research is the adjustment of categories to conform to the experience and concepts of community residents (Usher 1990: 6), subsequent modifications were expected to arise during these initial sessions. These modification were then incorporated into the interview protocols prior to community wide research. The majority of land use research was conducted from May 15, 1997 through August 30, 1998 with subsequent steering committee meetings continuing on a regular bases throughout the duration of this research.

There are obvious challenges in land use research. Very often the information sought is of a highly personal nature. Because of this, community residents may be hesitant to share such information with an outsider. In other cases base maps may prove inaccurate. With the ever changing sub-arctic environment one would expect that the mental geography of community residents would naturally differ from base maps developed by government agencies years earlier. These obstacles can however be overcome. More important is the accurate representation of the complex relationship that exists between community residents and the landscape that constitutes their territorial identity. This approach requires the researcher, as Ingold (1987: 154) argues:

... [to] stop thinking about the land in excessively two-dimensional terms, as surface area. Regarded as a generalized, creative potential, land may just as well be condensed within particular locales, or distributed along particular paths. That is to say, it remains embodied in the properties of the landscape.

As noted above the primary method of data collection employed a time horizon of within living memory (contemporary or current use). This approach is believed to provide a broad range of coverage that relies on informant recall. A complete coverage of those known to have the greatest knowledge and personal extent of land use were sought (i.e. each of the 26 registered trappers in the S-9 area). In this way a close approximation of the maximum extent of use was established by interviewing a relatively finite sample of land users (Usher 2: 1990).

Rather than developing a structured interview questionnaire, the interview format relied upon open ended questioning which would allow for elaboration as to the importance of the land, as well as the location and description of specific resources. From these interviews, individual map biographies were created that represented the respondent's lifetime involvement on the land. From these individual biographies a composite map (summary), showing a collective pattern of land use was developed. These composite maps, representing each of the categories listed above, represent an initial account of the traditional and contemporary land use of the Whitefish Lake community.

PHYSICAL DESCRIPTION OF CO-OPERATIVE MANAGEMENT AREA

The area included under the terms of the cooperative management agreement comprises a 2,700 sq. km. area situated in north central Alberta (S-9 Forest Management Unit). The closest regional center is the community of High Prairie, located approximately 76 kilometers to the southwest. The management area is trisected in a north - south direction by Route 88 and Route 750. The Metis Settlement of Gift Lake represents the southwest boarder of the co-operative management area.

The physical landscape of the management area can be characterized as a gently undulating plain consisting of a number of upland areas dissected by two primary river drainages: Sipiik 'The Big River' (Utikuma River) and Atcakasipik 'Mink Creek'. The management area consists predominantly of forested crown lands that lie within the Boreal Mixwood Ecoregion. The forest cover is principally made up of aspen, balsam poplar, jackpine, white and black spruce dispersed between a diversity of wetlands, peatlands, lakes and streams.

The management area is known to support a diversity of wildlife species. These include approximately 236 species of birds and 43 species of mammals (Westworth and Associates Ltd. 1990). The distribution of rivers, lakes and streams within the management area support important domestic, commercial, and recreational fisheries.

Principal land use in the study area includes the subsistence pursuits of the Whitefish Lake First Nation (i.e., fishing, hunting, trapping, and gathering), oil and gas exploration and extraction, timber harvesting, sport hunting and fishing, and other forms of recreational activities.

SUMMARY OF DATA ANALYSIS

Local Land & Resource Use

Burial Sites	Berries
Archaeological and Historic Sites	Birds and Waterfowl
Cabins and Trails	Large Mammals
Local Place Names	Fur Bearers
Traplines	Herbs and Medicinal Plants
	Fisheries

Burial Sites

A number of burial sites have been recorded within the cooperative management area (S-9 FMU). These burial sites range from one to sixteen graves. However, in some cases interviewees were not sure of the exact number of graves in some of the locations. In these instances a collective estimate from WFL elders was recorded.

All graves are designated on the map with the number of approximated graves at each location. Most of the grave sites correspond with places that individuals or families had once occupied. Some of the graves were reported to have had visible markings, such as head stones, wooden crosses, or fenced areas. However, many of these areas remain only in the memories of Whitefish elders, adding urgency to the documentation of these sites. At this point in the research a total of 11 burial location, with approximately 40 individual burials have been recorded (Note: legal descriptions of burial locations have been removed from this report as to ensure the protection of these sites).

Archaeological Sites

Much of the archaeological survey work that has been done in the study area (S-9 F.M.U) has been conducted by Tri Link Resources Ltd. as part of a historical resources impact assessment prior to the construction of wellsites, pipeline alignments and plant expansions. The following archaeological sites are significant for several reasons, including:

Site integrity, or degree to which an archaeological site has been impaired or disturbed as a result of past land alteration, is an important consideration in

evaluating site significance. In this regard, it is important to recognize that although an archaeological site has been disturbed, it may still contain important scientific information.

Archaeological resources may be of scientific value in two respects. The potential to yield information which, if properly recovered, will enhance understanding of [Alberta's] archaeological resources is one appropriate measure of scientific significance. In this respect, archaeological sites should be evaluated in terms of their potential to resolve current archaeological research problems. Scientific significance also refers to the potential for relevant contributions to other academic disciplines or to industry.

Public significance refers to the potential a site has for enhancing the public's understanding and appreciation of the past. In this respect, the interpretive, educational, and recreational potential of a site are valid indications of public value. Public significance criteria such as ease of access, land ownership, or scenic setting are often external to the site itself. The relevance of archaeological resource data to private industry may also be interpreted as a particular kind of public significance.

Historic archaeological sites may relate to individuals or events that made an important, lasting contribution to the development of a particular locality or the province. Historically important sites also reflect or commemorate the historic socioeconomic character of an area. Normally, sites having high historical value will also have high public value (Apland and Kenny 1989: 13).

1. Site Name: Utikamasis Lake NT.'S. Ref.: Atikameg 83 - 0/13
Latitude: 55 54' 25"- Longitude: 115 38' 25" UTM Location: 11UNM845962
Legal Description: SE 1/4- NE 1/4 of section 4 - Twp.80, R. 11 - West of the 5 M
Air Photo Ref. #: AS 1221 Series: Line 15/195 Elevation: 1:20,000

Description: * Site is in a grassy field at outlet of Utikameg River on east side of Utikumasis Lake (Hudson's Bay on right).

* Materials found on vehicle track exposure ca. 20 m. from the bank of the river, and 1.5 m. above it.

* 1 black chert flake and 1 core (?) of siltstone.

* Dating evidence suggests prehistoric based on use of lithic material.

2. Site Name: Gift Lake NT.'S. Ref: Atikameg 83-0/13
Latitude: 55 52' 55"- Longitude: 115 45' 40" UTM Location: 11UNM734933
Legal Description: NW1/4 - NW 1/4 of section 28 -Twp79, R 12 - West of the 5 M
Air Photo Ref. #: AS 1221 Series: Line 15/190 Elevation: 1:20,000

Description: * Site is a flat disturbed area on the left bank of Utikameg River outlet on the east side of Gift Lake.

* Surface scatter consisting of cultural debris including chert flakes, fire cracked rock, quartzite flakes and scraper.

* Dating evidence suggests prehistoric based on use of lithic material.

Historic Site

Hudson Bay Outpost (74516)

Location: Two. 79 R. 11 - West of the 5th M.

Located on Utikameg Lake near the mouth of the Utikumasis River.

Historic Significance: Because of the large number of freemen and Cree wintering at Utikameg Lake in 1820-1821, HBC's district manager, J.L. Lewis sent Joseph Cardinal (interpreter) and five men to establish a post in October 1820. The outpost served mainly as a fishing house.

Archaeological Significance: The outpost was closed during the spring of 1821.

Toponyms

The accompanying map represent a mosaic of culturally significant places to the residents of Whitefish Lake. These places have been named, often with stories attached, thereby transforming the features of the physical landscape into the cultural geographies of community residents.

Local place names are numbered consecutively beginning with number 1 on the southwest end of Utikameg (Whitefish Lake), and proceeding clockwise in a northeast direction. These numbers correspond with the site location on the accompanying map. A translation has been provided next to the local Cree term. Three types of sites have been recorded during the research process. The first are resource procurement areas. These are areas where specific resources can be found, such as Wacaskomitsowinkayak (Rat Root Lake) or Wahcaskosamahkan (Rat Lakes). The second are descriptive locals, such as Kihskwaskoakak (As Far As The Mud Is) or Wihkwiwasak (Inside Bay). And the third are sites where specific events have occurred, such as Burnt Forest Lake or Koskayowik (New Lake); thus illustrating an important temporal dimension in local place names.

Traplines

The registration of traplines was officially introduced in the 1930s. The registration process was the province's first attempt at regulating fur production for the commercial markets. The system was further altered when, in the 1960s, the province changed from a linear distribution of traplines (running the length of creeks and rivers) to a system of trapping areas.

These areas are represented on the corresponding map. There are 26 individual traplines registered in the co-operative management area. Of these 25 are held by Whitefish Lake band members (names and contact information for individual trappers have been excluded from this report).

Cabins and Trails

Fifty cabins were identified by local trappers to exist within the co-operative management area. Of these, forty-five were said to be actively used. These sites, however, mark only a fraction of places where community residents may have camped throughout a lifetime of travel. These sites represent important focal points for subsistence harvesting, as well as cultural activities for Whitefish Lake residents. The Whitefish Lake community is strongly interested in protecting these sites along with maintaining the quality of the local environment that surrounds them.

Connecting these sites is an extensive trail system that ranges throughout and beyond the management area. These trails, once cut exclusively by hand, have been largely replaced by seismic lines that now zigzag the local landscape. Major travel routes were found to have run east to west (the Old Wabasca Trail), linking Whitefish Lake to the Big Stone band; and north to south, linking Whitefish Lake to the bands of Woodland, Lubicon, and Loon River. The recording of trails and travel routes represent only major travel corridors. Not represented are the many 'minor' trails commonly used by community residents. It would be difficult and perhaps impossible to record community travel routes in their totality. Any attempts would show that there exists no area within the management unit that has not been traveled or that is not intimately known through its continued use.

Birds and Waterfowl

The categories of birds mapped in the study area include: Canada goose, ducks, loons, pelicans, swans, eagles, grouse, gulls, and ptarmigan. While there are additional species present in the study area, reference to them was limited during interview sessions.

The mapping of waterfowl habitat and corresponding harvesting sites illustrates intensive use of Utikameg (Whitefish Lake), Atikamegosak Ahihkani (Little Whitefish Lake), Acakasakahkan (Mink Lake), and Kaniswastikwaw (Twin Lakes). Of these, Utikameg serves as a primary breeding and staging area for a number of waterfowl species, including: Widgeons, Shoveler, Mallards, Gadwells, Lesser Scaup, Redheads and Canvasbacks.

The majority of harvesting on Utikameg occurs along the western portion of the lake. According to local hunters, exposure to prevailing winds directly affects the distribution of waterfowl. The western shore offers protection from westerly winds and the resulting wave action on the lake. Additionally, western sites that are sheltered from winds have a greater abundance of aquatic vegetation available to staging waterfowl.

The study area also contains important sites for colonial nesting birds. During the study period three species were reported to have long occupied both Utikameg and Atikamegosak Ahihkani (Little Whitefish Lake), they include; the White Pelican, Double-Crested Cormorant, and the Western Grebe. Whitefish Lake residents noted a recent rise in the White Pelican population. These observations are significant due to the White Pelican's placement on the American Audoban's Blue List which identifies species whose low numbers have undergone non-cyclical declines.

Few Canada Geese were reported to be present in the study area. This corresponds with census data obtained from Alberta Fish and Wildlife representatives who have similarly reported few species present in this area. Gull eggs continue to make an important contribution to the community diet. Eggs are harvested from the small islands located in the southern end of Utikameg, east of Eka Wasahk (Sandy Bay). Gull eggs are also harvested from Kamsak Minstihk (Big Island). It was reported that more gulls have been nesting on Kamsak Minstihk (Big Island) in recent years due to crow ducks forcing gulls from Minstihk Wapshok (Small Rock Island).

Large Mammals

A total of six species were reported to occupy, or to have occupied, the management area within living memory. These include: moose, whitetail deer, woodland caribou, bison, black bear, and grizzly bear. Of these, moose represent the primary subsistence resource for community residents. Community residents reported a dramatic decline in the overall moose population in recent years. This decline is believed to be a result of several factors which include increased hunting pressure from recreational hunters, growing access to remote areas facilitated by road development, and an overall decline of productive moose habitat. These changes have forced many residents to expand their moose hunting territory to areas well outside the management area. However, Whitefish Lake hunters did report that areas that have yet to be opened up to development have maintained healthy moose populations, but acknowledge that these areas are likely to be lost if the current rate of resource development continues as it has in the recent past.

Whitetail deer have and continue to be well established within the management area. Their abundance is testimony to their adaptability as characterized by the Whitetail deer population across all of north central Alberta. Despite their availability, Whitetail deer represent a secondary subsistence resource, taken when the opportunity arises, but with little concerted effort. Reports of Woodland caribou were limited, but the occasional sighting was not considered out of the ordinary. Encounters were most often reported on the extreme eastern boundary near the Nipisi River area. Isolated herds of free roaming bison were reported in the northwest quarter of the management area; these herds were reported to roam to and from the Red Earth region. Wild horses are also said to range throughout this area. Frequent sightings were reported while traveling Route 88 to Red Earth and by trappers whose lines are located in the northwest section of the management area.

Black bear inhabit the entire management area. Their abundance contributes to frequent encounters throughout the summer and late summer months when berries are in full bloom. Grizzly are far less prevalent throughout the management area with occasional sightings occurring in the far northwest quarter of the management area and throughout the eastern quarter, specifically near Sawle Lake and the Nipisi River area. Both of these areas are characterized by hilly terrain with steep ravines, a preferred habitat for the grizzly.

Furbearers

Fifteen fur bearers were noted during interviews with Whitefish Lake trappers. They include: beaver, muskrat, wolf, coyote, fox, martin, lynx, weasel, rabbit, fisher, mink, otter, skunk, squirrel, and wolverine. Of these, beaver and muskrat were reported to be the most widely distributed fur bearers in the management area. Fisher and mink populations were also reported to be high at the time of recording.

Wolves were reported to have long occupied the management area. A collective estimate by Whitefish Lake trappers suggest a pack ranging up thirty animals. This pack was said to roam as far south as High Prairie were they have reportedly become a growing threat to cattle.

Of the fifteen fur bearers illustrated on the corresponding map, wolverines were reported to be the least abundant. Only a few elders recalled encountering wolverines in the Utikameg area. The location of these encounters generally occurred in the northern most section of the management area and no encounters were reported to have occurred in recent years. The remaining fur bearers were reported to be evenly distributed throughout the management area. There were, however, acknowledged concerns over the future availability and sustainability of the local fur bearer population. These concerns included:

- 1) According to Whitefish Lake trappers, the permit system for property damage has illustrated a clear preference for the interests of industrial developers over the interests of local trappers. In the course of road and/or rail expansion entire colonies of beaver have been eliminated with little to no notification of the trapline owner. Trappers argue that they have successfully 'managed' these colonies for years only to have them destroyed for the interests of industrial developers.

- 2) Whitefish residents expressed concern over the amount of roadside and right-of-way spraying, pipeline spillage, and other industrial residues entering the local food chain. These residues are believed to affect the health and availability of the local wildlife population directly; thus adversely affecting the health of Whitefish Lake residents.

Fisheries

Seven species of fish can be found within the management area, including: whitefish, jackfish, pickerel, perch, lingcod, chub, tullibee, grayling and goldeye. Of these, whitefish plays the most significant role in the diet and harvesting effort of community residents. Pickerel, jackfish and perch also serve as an important part of the local food supply.

A majority of the fish supply is harvested during the spring and fall migration. At these times whitefish can be harvested near the mouths of both the Sipiik 'The Big River' (Utikuma River) and Atcakasipik 'Mink Creek'. Additionally, whitefish, jackfish, pickerel, perch, goldeye and lingcod are caught throughout the open water months by hook and line and set nets, and during the winter months by net from below the ice.

Most of the fishing effort occurs on Atikameg 'Utikuma Lake' and Atikamegosak Ahihkani 'Little Whitefish Lake' along with Acakasakahkan 'Mink Lakes' to a limited extent. Commercial fisheries operate on both Atikameg 'Utikuma Lake' and Wisakimsakahikan 'Cranberry Lake'. The commercial harvest includes whitefish, pickerel and jackfish. Currently there is only one family from the Whitefish Lake First Nation participating in the commercial fishery. The limited involvement by community residents, however, does not reflect a lack of interest in the fishery, but rather, reflects the Provincial allocation of fifty percent of the commercial quote to non-Native commercial fisherman and the remaining fifty percent to Gift Lake Metis Settlement commercial fisherman. (Note: This issue is currently under review by the Co-operative Management Implementation Committee).

Medicinal Plants and Herbs

A variety of plants and herbs have been and continue to be used by community residents for medicinal purposes. Among the most commonly referred to were rat root, mint, wintergreen, muskeg moss, sweet grass, balsam root, aspen, alders, mountain ash and balsam fir. These and others were said to be applied to a number of ailment ranging from sore throats and headaches to heart disease.

In reviewing the medicinal uses of plants and trees distributed throughout the study area it became quite apparent that virtually all species of flora contain some measure of medicinal use. However, community elders expressed concern about the future availability of these plants as a result of increased resource development. The removal of ecological transition zones and micro-environments from the local landscape is creating a homogeneous environment that lacks the ecological diversity to support the growth of traditionally used plants and herbs. With a change in environmental variables (i.e., the amount of shade, soil acidity, and erosion) new plants that are better suited to that environment are being established, thus reducing the availability of traditionally used medicinal species. Further, the practice of roadside and corridor spraying of

pesticides and herbicides also threatens to the continued use and availability of medicinal plants (specifically mint) and herbs.

Berries

Ten different types of berries were said to be distributed throughout the management area, these include: blueberry, strawberry, saskatoon, rosehip, raspberry, cranberry, bunchberry, chokeberry, pinchberry and kinnickinnick. For the purpose of this study it was decided to generalize berry type with a common mapping symbol rather than differentiate specific species.

Each of the species listed above serves as an important dietary component for community residents. Depending on the characteristics of the berry (i.e., sweet or bitter) they can be cooked, eaten raw, dried, steeped for tea or frozen and stored for later use. By comparing the composite maps it is evident that the location of berry patches and the seasonal harvesting of berries generally coincide with other land use activities. For instance, September waterfowl hunting in the Acakasakahkan 'Mink Lakes' area also allows hunters and families to gather blueberries which are in abundance in the area at that time of the year. Further, berry patch locales represent important recreational sites for families.

COMPETING LAND USE PATTERNS

Within this delineated environment exist a number of competing interests that have influenced the land and resource use of the WFLFN. As a result, each of these interests have individually and collectively influenced the land use patterns of the WFLFN. These interests include:

Habitat Protection and Reclamation Areas

Within the co-operative management area exists a number of land use reservations which limit and/or influence community land use activities. Classification of these areas include:

- | | |
|-------------------------------------|---|
| 1) Surface Material Exploration | 7) Research or Sample Plots |
| 2) Sand and Gravel Removal | 8) Silviculture Plot |
| 3) Surface Material Stockpile Site | 9) Habitat Management Area |
| 4) Surface Material Potential | 10) Seed Production Area |
| 5) Reclamation Project | 11) Waterfowl Production Areas |
| 6) Ungulate Habitat Protection Area | 12) Lakeshore Recreational Site Potential |

Forestry Activity

Timber extraction in the Whitefish Lake area first began in 1970 with the first Timber License being awarded to a local contractor. However, it was not until 1988 that serious interest was given to the area as a primary source of both deciduous and conifer timber. With the encouragement of the Alberta provincial government Yuen Fung Yoo (YFY) Paper Company from Taiwan proposed the first pulp/paper complex to be located in the community of High Prairie (approximately 76 kilometers southwest of Whitefish Lake). YFY's proposal was well received by provincial land managers enabling YFY to issue debentures in American markets to finance the facility. However, owing to a number of internal reasons, YFY's proposal failed to materialize forcing the province to "advertise" in an attempt to attract another forest products industry.

Tolko Industries Ltd. based in Vernon, British Columbia was the successful bidder for the High Prairie Timber Development Area (TDA) and was subsequently awarded the deciduous rights to the area in 1994. Construction for the Tolko pulp/paper mill began in 1994 and was completed in 1995. Following the mill's completion and successful negotiations with the province, Tolko, in 1997 was awarded a Forest Management Agreement (FMA) covering most of the TDA lands, including lands that represent the traditional territory of the Whitefish Lake First Nation. The annual allowable cut for this area is 160,000 m³ per year.

Oil/Gas Development

The rise of the oil and gas industry in Alberta was initiated through the discovery of oil in the County of Leduc, just south of Edmonton, in 1947. With this discovery the oil and gas industry in Alberta (and to a large extent western Canada) sprang to life. Soon after the Leduc discovery, many of the world's largest petroleum companies began investing in the exploration and development of Alberta's crown lands.

Several Whitefish Lake residents recalled their first encounters with oil workers in the mid-1950s. Arriving in "large trucks", workers began clearing exploratory seismic lines on the north shore of Utikuma Lake (lines that would soon zigzag the entire Whitefish Lake territory). Because road access to the Whitefish Lake territory was seasonal, and to a large extent quite variable, barges were used to transport both men and machinery across Utikuma Lake to reach its' north shore. Because of the difficulty in travel, as well as the expense associated with the development of this still remote area, only a few wells had been established north of Utikuma Lake. However, by the 1960s, seismic activity and road access had begun to reach some of the most remote areas of the Whitefish Lake territory.

By the mid-1960s, exploration in the Whitefish Lake territory took a giant leap forward. With the completion of an all-weather road that extended north from the community of Slave Lake (now Rt. 88), a network of industrial access roads soon spread throughout the north and

north-east portions of the Whitefish Lake territory. Resulting from the heightened exploration, the Nipisi Oil Field was discovered and went into operation in the winter of 1966-67. Located just east of Utikuma Lake, the Nipisi Field represents one of the most productive fields in north-central Alberta. Housed on the Nipisi Field are several hundred wells supported by approximately 600 miles of industrial access roads and an equivalent amount of seismic and pipelines.

Since their first encounters with oil workers in the 1950s, Whitefish Lake residents have witnessed their landscape transformed to meet the needs of external interests. Within the traditional territory of the WFLFN now exist approximately 875 petroleum wells, 127 petroleum depots and a supporting infrastructure of primary and secondary access roads, pipelines, electrical powerlines and seismic lines. To compound the effects of this developing infrastructure, "No Trespassing" signs have been posted, warning local residents of these private industrial areas.

'Resource' Competition

A residual effect of the industrialization of the Whitefish Lake territory has been the development of an extensive infrastructure of primary and secondary access roads, right-of-way corridors, and seismic lines that have effectively opened up and made accessible even the most remote areas of the Whitefish Lake territory. As a result of the increased accessibility Whitefish Lake residents have experienced increased competition from non-aboriginal hunters over declining populations of 'game' species (i.e., moose, mule and whitetail deer, and black bear).

While many of the non-aboriginal sportsmen travel from the nearby communities of Slave Lake and High Prairie, a growing number are being attracted from Edmonton, Red Deer and Calgary. Further, non-aboriginal outfitters are attracting a growing number of U.S., European and Asian sportsman who have further "saturated the backyard" of the WFLFN with additional hunting pressure (NMMPPR 1998). Within the Whitefish Lake territory there are approximately 15 moose outfitters and 21 black bear outfitters currently in operation (Heckbert, pers. com. 1999a).

WMU²	544	542	520	Total
Black Bear	60	129	90	279
Moose	22	58	60	140
Mule Deer	3	0	10	13
White-tailed Deer	10	4	7	21

Outfitter-Guide Allocations (1998-2003)
(Heckbert 1999b)

While harvest figures for guides and outfitters can be tabulated it has proven difficult to ascertain accurate figures for a total harvest of game species owing to the limitations common to

² The 'traditional' territory of the WFLFN is provincially managed as three distinct Wildlife Management Units (WMU 544, 542, 520).

survey methodologies. Because of this, total harvest figures can only be estimated. However, since 1993 the Natural Resource Division of Alberta Environmental Protection has initiated the Northern Moose Management Program (NMMP) in response to concerns expressed by aboriginal and sport hunters regarding the declining moose population in northern Alberta. Funded through the Fish and Wildlife Trust Fund, the NMMP is developing and enacting measures in an effort to reverse the declining moose population that ranges throughout the Whitefish Lake territory.

WMU 544, 542, 520	1997	1996	1995	1994	Total
Moose	322	209	306	280	1117
Black Bear	X	16	51	35	102
Mule Deer	17	0	28	15	60
White-tailed Deer	85	48	123	141	397

Sport Harvest Data
(Heckbert 1999b)

Gift Lake Metis Settlement

In the context of aboriginal land conflicts, the Alberta Metis Settlements represent an anomaly in Alberta. Only in Alberta have the Metis succeeded in establishing their own communal land base. Through the Metis Betterment Act of 1938/40 more than 500,000 hectares of communal land have been provided along with hunting and fishing rights, socio-economic benefits, and health programs for Metis residents (Notzke 1994:186). Under this Act, twelve settlement were established (of which eight remain) throughout Alberta. The Gift Lake Metis Settlement represents one of the those land bases.

The Gift Lake Metis Settlement is located directly west of Utikuma Lake, bounded by Peavine Metis Settlement to the west and the Whitefish Lake Reserve (R. 155) to the east. The land base that was established for Gift Lake residents comprises a 83,916 hectare (207,273 acres) area. This land base is approximately 839 km² (324 mi²) and represents the second largest Metis Settlement in Alberta (McCully and Seaton 1982: 16).

Despite First Nation treaty rights of "hunting, trapping, and fishing for game and fish for food at all seasons of the year on all unoccupied crown lands and any other lands to which the said Indians may have a right of access", Metis settlement lands have been classified as private lands administered by the province, thereby removing them from First Nation access. The establishment of the Gift Lake Settlement subsequently removed 839 km² of land and resources from the use of Whitefish Lake residents despite its representing a significant portion of their traditionally used and occupied territory.

MANAGEMENT APPLICATIONS: CHALLENGES IN LAND USE MAPPING

Despite efforts to quantify accurately traditional and contemporary land use patterns, researchers have been methodologically limited in depicting the cultural significance of the 'land' and the ideological images of these 'places' in the maintenance of Aboriginal culture. One of the primary challenges in land use research has been in accurately representing the landscape in a culturally appropriate manner that represents both spatial and temporal associations.

The landscape of the WFLFN represents a mosaic of culturally significant 'places', often with names and narratives attached that transform the physical embodiment of the landscape into a cultural process (Andrews et al 1998). However, the growing interest in aboriginal land use has often been grounded in conventional planning and resource management practices that have generally represented only the spatial distribution of physical features of the landscape. Because the landscape elicits a range of cultural associations - mythographies, passages in one's life - physical features of the landscape take on a functional role that far exceeds their value as an instrument of reference in land use mapping. The system of knowing that is unique to Whitefish Lake residents demonstrates a temporal depth that can not be textualized or mimicked by the fixed parameters of land use maps. Unfortunately, land use research has often been reduced to a process of 'cultural triage', where the cultural (holistic) landscape of Aboriginal communities is presented as a series of fixed coordinates or physical attributes distributed randomly throughout a vernacular environment.

Through the objectification of 'memory-scape'¹ the cultural significance of the 'land' and the ideological images of these 'places' have often failed to be accurately represented in a way that symbolizes the multidimensional landscape of Aboriginal peoples. As a result, the limitations of land use mapping have in many cases entrenched an attitude within government/industry that the Aboriginal relationship to the landscape is more or less site specific and of little heritage value (Ives 1982). In these cases government and industry planners have often denied aboriginal ties to the land beyond the existence of these documented sites; sites which from the developer's perspective might be grudgingly accepted as small pinpoints in an otherwise empty landscape (Lane and Chase 1996: 181). By simply extracting local knowledge and reducing the cultural landscape to a series of static codified sites land use research may actually contribute to alienating Aboriginal peoples from the lands they have long worked to protect.

The De-Contextualization of Land Use Knowledge

An additional concern in land use research is in the removal of local knowledge from community control. Once removed from the local context, land use information may be easily misrepresented or inappropriately used by external interests in ways that do not serve local needs and aspirations. By being accessible in a cartographic format, 'western' land managers are able to elicit specific elements of local knowledge (i.e. moose yarding areas) and insert them into the

western management model, thereby empirically removing aspects of the local knowledge system from its cultural context as well as eliminating any direct involvement at the local level.

In addition, once removed from local control, land use information may be used by industry planners to satisfy government requirements of incorporating local knowledge and involvement into the planning and assessment process, excluding any actual community participation in the planning process. As Stevenson (1998: 6) has noted, by textualizing or transforming TK into 'literate' forms (i.e. Geographical Information Systems), the text becomes the authoritative source rather than the holders of the knowledge, thereby rendering control over access, use, and application to external interests.

Moving From Commodity to Process

If the landscape of the WFLFN is to be presented in a culturally appropriate way we have recognized that research must extend their depiction of the landscape beyond a series of codified sites. More important is the establishment of a process that conveys the complex relationship between community residents and the landscape that constitutes their territorial identity. Because of this, land use research should be seen as a dynamic process rather than a static representation. Therefore, capacity building at the community level that facilitates dialogue has represented one of the primary objectives in this land use study.

To have local land use knowledge shared only to collect dust on a shelf; to be incorporated into a Geographical Information System with no local means of access; or to have the project abandoned when researchers leave the community, not only misrepresents the Aboriginal landscape but is in the end a disservice to the holders of that knowledge. If land use research is meant to safeguard the cultural landscape of Aboriginal peoples, future research initiatives must be seen more as a vehicle for involvement and empowerment than as a salvaging of cultural artifacts. By failing to promote capacity building mechanisms at the community level, land use research may actually hasten the extinguishment policies Aboriginal peoples have long resisted, thereby leaving the traditional territories of Aboriginal peoples as the isolated sites they are often depicted as. As Kemp and Brook (1995: 27) have noted:

... 'collecting' and 'documenting' indigenous environmental knowledge is in fact counter-productive. These knowledge systems have been under serious attack for centuries, and the social systems that support them have been seriously undermined.... It is not just a question of recovering and recording indigenous knowledge; it is one of respect and revitalization.

To promote this capacity Aboriginal communities must assume 'ownership' of the research process in order to gain an equitable role in the management of their traditionally used lands. Often, *Participatory Action Research* (PAR) methods have been equated with this type of

approach. However, as Berardi (1998: 443) has noted, Aboriginal communities must remain cognizant of the fact that PAR methodology can misrepresent 'participation' for what is still extractive research. That is, despite the label, unless the process is truly 'owned' by the community PAR initiatives can easily be co-opted by industry, government, and academic institutions who have very limited notions of community 'participation'. Used as a catch phrase, 'participatory' research can be superficially applied by researchers holding firmly to traditional research methodologies.

However, Whitefish Lake has recognized that when properly exercised, PAR can serve as a capacity building process in itself. By employing collaboratively developed research designs, the views of community residents can be articulated in a dialogue that recognizes the multi-dimensional landscape. Further, the involvement of local residents has extended beyond merely administering questionnaires and surveys to the acquisition of marketable skills that will enhance local involvement in the land management process. By establishing a process of 'ownership' local knowledge can be controlled in accordance with community norms and desires, thereby empowering and mobilizing local initiatives in order to further their own self-defined development.

Because there is a growing reliance on land use research in the planning and assessment process, direct community involvement is required more than ever. It must be recognized that the knowledge presented in land use research is not mutually exclusive from the people who actually apply that knowledge system. Therefore, if the cultural landscape of Aboriginal peoples is to be recognized in land use research, a process must be established that recognizes that the textualized landscape comes with people and a culture attached.

RESEARCH OBJECTIVES

One of the primary objectives of the Whitefish Lake community was the documentation and preservation of cultural sites that are known to exist throughout the management area. In cooperation with Alberta Community Development (Cultural Facilities and Historic Resources Division) and Alberta Lands and Forests, the cultural 'values' of the WFLFN, which include grave sites, historic sites and archaeological sites have been recorded and placed under Protective Notations through the Historical Resources Act, thereby ensuring the preservation and protection of these areas from future development. To date a total of 40 individual burial sites have been documented and registered that were previously at risk from unknowing development. In most cases these sites are places that individuals or families had once occupied. While some of the graves have visible markings, such as headstones, wooden crosses, or fenced areas, many of these areas remain only in the memories of Whitefish Lake elders, making the documentation and protection of these sites even more important.

Local knowledge regarding fish and wildlife habitat is also being used to safeguard specific locales. By working with the Alberta Department of Fish and Wildlife, areas such as medicinal plant locations, berry locations, mineral licks, waterfowl nesting and staging areas, and other critical wildlife areas have been recorded and are being placed under Protective or Consultative Notations, again serving to safeguard these areas from future development. When development plans are slated for these areas Whitefish Lake representatives, industry representatives and government personnel review the plans, make recommendations and then decide how best to proceed in a cooperative manner.

To help enhance their role in the management process, Whitefish Lake is developing and rendering operational a digital, automated land management system (GIS) to demonstrate their capabilities of incorporating industrial land management data with their own traditional land and resource knowledge. Through the completed land use research, WFLFN is developing the capacity to convert traditional land values digitally into a GIS computer based system which can visually display, edit and analyze the geographically referenced material. This system will enable the WFLFN to incorporate industrial land management plans with the traditional land and resource component of the project, allowing the WFLFN to identify and then promote, preserve and protect their traditional values and knowledge. This will allow the WFLFN to identify both market and non-market forest values before any activity occurs in the area. In addition to protecting traditional land values, it will further allow the WFLFN to participate in land management and resource development planning with government and industry partners.

An additional objective of Whitefish Lake was the recording of community held 'place-names' or toponyms for the local landscape (accomplished through the TLUOS). Seen as being integral to sound co-operative management, Whitefish Lake has recognized the importance of establishing common terms of reference for physical features of the landscape.

While the recording of named-places or toponyms, together with their spatial and epistemological correlates, have long been the subject of anthropological inquiry, the recording and use of local place-names has received no regard from government/industry land managers operating within the traditional territory of the Whitefish Lake Cree. In addition, the provincial maps generally used by industry and government planners refer to landscape feature by names that have no relevance to local residents and are sometimes represented by only a number and a legal description of its location (i.e. NW 1/4-1/4 of section 19: 7-Twp.83, R.13-W.of the 5th). Because of the significance of 'place' to Whitefish Lake residence, the establishment of common toponyms is an attempt to illustrate the relationship local residents have with the surrounding landscape. The recognition of this relationship by industry and government land managers is believed to be vital to successful co-operative land management.

Integrating TEK and Wildlife Research

Failure to incorporate TEK into provincial management decisions stems from a number of cross-cultural barriers. Foremost among these barriers is the belief among government resource managers that TEK is ill-suited to meet the demands of contemporary environmental management. However, through the textualization of local landscape knowledge provincial managers who are involved in the cooperative management process have begun to recognize the value of local knowledge (temporal/spatial) in the development and conducting of wildlife research.

This cooperative approach to research is currently being demonstrated by the Alberta Fish and Wildlife Service and Whitefish Lake regarding the location and preservation of 'mineral licks' located throughout the management area.³ Of concern to both parties is the preservation and protection of these valued habitat areas. Through efforts facilitated by the Whitefish Lake Land Use Study, provincial managers are working with Whitefish Lake hunters and trappers to locate and safeguard these critical habitat areas from unknowing development projects.

To enhance local involvement, Whitefish Lake plans to be actively involved in all wildlife research to be conducted within the management area. This will be achieved by cooperatively designing and conducting research that is considered to be of importance to the both the Whitefish Lake community and provincial agencies (i.e., land use research, wildlife/habitat research and environmental/community health studies).⁴ This includes conducting, monitoring, and reviewing research results, thereby ensuring community concerns and observation are recognized by provincial managers and incorporated into the research process. Whitefish Lake residents, and specifically the elders, can provide valuable information (both spatial and temporal) regarding the landscape that must be considered before any land management plans can be developed. It is hoped that future research that is of mutual concern to each party can be undertaken in a co-operative manner, thus achieving greater accuracy in results while strengthening the co-operative management relationship.

Environmental Health Concerns

There is a growing concern among the Whitefish Lake residents regarding the impact of industrial effects on the health of local wildlife and community residents (e.g., industrial residues, roadside/right-of-way herbicide spraying). In response, environmental health research will be conducted to identify specific areas of concern, including the perceived contamination of country foods, the identification and location of specific contaminants and the resulting effects on environmental health (human/non-human), and the documentation of local perceptions regarding

³ Mineral licks are natural spring areas with high concentrations of sodium which attract moose and other ungulates.

⁴ This has been demonstrated by integrating components of the WFL land use and occupancy study into the 1999 Timber Management Plan for the S-9 Forest Management Unit developed cooperatively between the WFLFN, Alberta Lands and Forests, Tolko Forest Product and Zeidler Forest Industries.

the functioning ecosystem in relation to temporal and spatial change. Through the Whitefish Lake Land Use Study a vehicle for dialogue has been established that enables the concerns of community residents to be expressed in a forum which can facilitate co-operative approaches leading to change.

Reclamation of Industrial Activity

Over the past three decades, industrial land disturbance activities such as exploration, pipeline construction, road access, seismic work and sand and gravel extraction have resulted in ecologically unbalanced and aesthetically unappealing areas in the Whitefish Lake territory. Under the 1973 *Land Surface Conservation and Reclamation Act*,⁵ these areas are to be returned to a condition which will allow for 'productive' use. However, because of provincial regulatory limitations (i.e., limited funds and man-power to enforce provincial regulations) these industrial abandoned areas are often left unreclaimed, leaving the landscape scarred by past industrial activities.

Through the completed land use research Whitefish Lake is establishing a process that will facilitate their involvement in the reclamation of these industrial areas. By working directly with the Canadian Forest Service, Alberta Lands and Forests and industry, Whitefish Lake plans to ensure that disturbed areas located within their traditional territory are reclaimed in a manner that incorporates the interests of the WFLFN, be it wildlife habitat recovery, watershed benefits or recreational opportunities.

As no two disturbance areas are the same, government, industry and the WFLFN will work cooperatively on a site-by-site basis to determine the most appropriate reclamation approach. This involvement will also allow Whitefish Lake to be involved in the actual reclaiming process, thereby providing an economic benefit to local contractors while facilitating a transfer of skills that can be applied to other reclamation projects outside the Whitefish Lake territory.

CONCLUSION

In the co-operative management process, the use of local knowledge, presented through traditional land use maps, is central to effective land use planning. The textualization of landscape knowledge provides the basis of information necessary for effective management while providing Whitefish Lake with the tools needed to address land use issues accurately. Land use mapping in this sense provides government and industry with a textualized account of the historic and contemporary land use activities occurring within the traditional territory of the WFLFN. Used in this capacity, land use mapping has provided Whitefish Lake with the means to articulate visually arguments that support their point-of-view in the co-operative management process. For the

⁵ The provincial Land Surface Conservation and Reclamation Act was enacted in 1973. The act is now being revised and will be integrated into the Alberta Environmental Protection and Enhancement Act.

WFLFN, land use maps have served as a vehicle for dialogue between themselves, government and industry. It gives a clear indication of the territory utilized by Whitefish Lake residents and provides a basis for governmental understanding of the intimate relationship that Whitefish Lake residents have with a specific geographical landscape.

In addition to its use in the land management process, land use mapping serves as an effective tool for political empowerment. Maps have been used to defend territories of land and sea by showing that aboriginal landscapes have long been occupied and sustainably 'managed'. Strategies for mapping the Whitefish Lake landscape have too effectively challenged the justification of 'state' intrusions (political and industrial) by visually 'authenticating' the traditional territory of the WFLFN, thereby contesting government claims that Whitefish Lake lacks a clearly defined land base. For Whitefish Lake, land use mapping has defined the summation of historic and contemporary uses of the area and is a textualized expression of Whitefish Lake's long-standing involvement with the known landscape. Mapping in this sense is a metaphor that speaks a universal language that all can understand and it is this ability to communicate through maps that will help self-empower the WFLFN (Jarvis and Stearman 1995: 61).

Beyond its political component, land use mapping has served as a means of cultural empowerment as well. By visually defining a collective sense of territory, the sense of 'place' has sparked a renewed cultural identity among the Whitefish Lake residents. By bringing both young and old together to communicate about the land a renewed sense of cultural pride and territorial identity has arisen - in essence Whitefish Lake has visually said - "this is our home."

REFERENCES CITED

- Andrews, Thomas D., John B. Zoe and Aaron Herter 1998. On Yamozhah's Trail: Dogrib Sacred Sites and the Anthropology of Travel. In Oakes, Jill, Rick Riewe, Kathy Kinew and Elaine Maloney (eds.), *Sacred Lands: Claims, Conflicts and Resolutions*. Canadian Circumpolar Institute, University of Alberta. Edmonton, Alberta: 305-320.
- Apland, Brian and Ray Kenny (eds.) 1989. *British Columbia Archaeological Impact Assessment Guidelines*. Province of British Columbia, Ministry of Municipal Affairs, Recreation, and Culture, Archaeology and Outdoor Recreation Branch, Victoria.
- Berardi, Gigi 1998. Application of Participatory Rural Appraisal in Alaska. *Human Organization*, Vol. 57(4): 438- 446.
- Brody, Hugh 1981. *Maps and Dreams*. Vancouver: Douglas and McIntyre.
- Dene Cultural Institute 1997. *Report on Aboriginal Participation in Mining: Increasing Knowledge*. Eighth Annual Report, July.
- Fort McKay First Nation 1994. *There Is Still Survival Out There: A Traditional Land Use and Occupancy Study of the Fort McKay First Nation*. Alberta, Canada.
- Freeman, Milton M.R. 1976. *Report, Inuit Land Use and Occupancy Project (3 vols.)*. Ottawa: Department of Indian Affairs and Northern Development.

- Heckbert, Mark 1999a. Wildlife Biologist, Alberta Environmental Protection, personal communication, March 22.
- Heckbert, Mark 1999b. Outfitter-Guide Allocation and Harvest Data: Wildlife Management Units 544, 542, 520. Alberta Environmental Protection, Natural Resource Division, High Prairie, Alberta.
- Ingold, Tim 1987. *The Appropriation of Nature*. Iowa City: University of Iowa Press.
- Ivanitz, Michele J. 1996. *Co-Management of Resources Between Whitefish Lake First Nation and the Province of Alberta: Social Forestry and Local-Global Articulation*. Thesis (Ph.D.) University of Alberta, Department of Anthropology: Edmonton, Alberta.
- Ives, John W. 1982. Evaluating the Effectiveness of Site Discovery Techniques in Boreal Forest Environments. In Francis, Peter D. and Eric C. Poplin (eds.), *Directions in Archaeology: A Question of Goals*. Calgary: Archaeological Association, University of Calgary: 95-114.
- Kemp, William B. and Lorraine F. Brooke 1995. Toward Information Self-Sufficiency: The Nunavik Inuit Gather Information on Ecology and Land Use. *Cultural Survival Quarterly*, Winter: 25-28.
- Lane, Marcus and Athol Chase 1996. Resource Development on Cape York Peninsula: Marginalisation and Denial of Indigenous Perspectives. In *Resources, Nations and Indigenous Peoples*. Oxford University Press, Oxford: 172-183.
- McCully, Al and Hugh Seaton 1982. Gift Lake Metis Settlement Land Use Planning Inventory. Municipal Planning Section, Planning Branch Alberta Municipal Affairs.
- Natcher, David 1999. *Co-operative Resource Management as an Adaptive Strategy for Aboriginal Communities*. Ph.D. Thesis, Department of Anthropology, University of Alberta. Edmonton, Alberta.
- Natural Resources Canada 1996. *The State of Canada's Forests: Learning From History*. Canadian Forest Service, Ottawa, Canada.
- Northern Moose Management Program Progress Report (NMMPPR) 1998. Northern Moose Management Program Progress Report (NMMPPR). Alberta Environmental Protection, Natural Resource Service. Edmonton, Alberta.
- Notzke, Claudia 1994. *Aboriginal Peoples and Natural Resources in Canada*. York: Captus University Publications.
- Stevenson, Mark 1998. *Traditional Knowledge and Environmental Management: Moving From Commodity to Process*. Paper presented to the National Aboriginal Forestry Association Conference, "Celebrating Partnerships", Prince Albert, Saskatchewan, September 14-18.
- Usher, Peter, F.J. Tough, and R.M. Galois 1992. Reclaiming the Land: Aboriginal Title, Treaty Rights and Land Claims in Canada. *Applied Geography* 12: 109-132.
- Usher, Peter 1990. *Recent and Current Land Use and Occupancy in the Northwest Territories by Chipewyan and Dene' Bands*. Office of the Prince Albert Tribal Council. Saskatchewan, Canada.
- Weinstein, Martin S. 1993. *Aboriginal Land Use and Occupancy Studies in Canada*. Workshop on Spatial Aspects of Social of Social Forestry Systems. Chiang Mai University, Chiang Mai, Thailand.

- Weinstein, Martin S. 1976. What the Land Provides: An Examination of the Fort George Subsistence Economy and the Possible Consequences on it by the James Bay Hydroelectric Project. Montreal: Grand Council of the Crees (of Quebec).
- Westworth, D.A. and Associates Ltd. 1990. Significant Natural Features of the Eastern Boreal Forest Region of Alberta. Technical Report, Alberta Forestry, Lands and Wildlife. Edmonton, Alberta.
-