SIDENIUS CREEK ARCHAEOLOGICAL INVENTORY PROJECT: POTENTIAL MODEL
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MUSKWA-KECHIKA MANAGEMENT AREA

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Prepared by:

BC Regional Office
Big Pine Heritage Consulting & Research Ltd.
#206-10704 97th Ave.
Fort St. John, BC
V1J 6L7

Credits:

Report Authors – Rémi Farvacque, Jeff Anderson, Sean Moffatt, Nicole Nicholls, Melanie Hill; *Report Production* – Jeff Anderson, Rémi Farvacque, Sean Moffatt; *Archival Research* – Nicole Nicholls, Vandy Bowyer, Elvis Metecheah, Chris Wolters; *Interview Personnel* – Maisie Metecheah, Elvis Metecheah, Colleen Metecheah, Nicole Nicholls, Rémi Farvacque; *Project Director* – Rémi Farvacque

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INTRODUCTION

Information related to archaeological and heritage remains in the southern Muskwa-Kechika Management Area (M-KMA) is generally sparse, despite recent elevated – and growing – levels of industrial and recreational use. An effective and fiscally efficient tool for the remote management of heritage remains is the archaeological potential model. In an attempt to illustrate the practical nature of this management tool, a potential model has been developed for an area of the M-KMA. This model, identified here as the Sidenius Creek model, is believed to be representative of the archaeological environment in the south and east portions of the M-KMA. Given the nature of documented impacts present industrial and recreational activities are creating, and the projected intensification of the use of areas adjacent to access trails in the M-KMA, potential models can readily identify physical areas of future concern as they relate to existing or potential human activity & natural events. Our Sidenius Creek model is presented here, enhance by ethnohistoric and oral history information of the study area that was gathered for this project. Recommendations with respect to the use of this model as a management tool are also provided, discussing the benefits and drawbacks of potential mapping versus the archaeological inventory survey.

BACKGROUND

The impacts of industrial activities such as forestry, oil & gas prospection & development, and mining on heritage remains and the archaeological record are generally subject to the guidelines of the Heritage Conservation Act in British Columbia. As a result, many of these developments are subject to archaeological overview and/or impact assessments (A0As / AIAs). In contrast, the results of long-term impact by recreational activities are not readily identified, as AOAs and AIAs rarely address this issue. Pre-planning is therefore advocated in those instances where impacts not related to heavy industrial activity are known or predicted to occur. In this instance, significant impacts from non-industrial anthropogenic and natural sources are predicted for archaeological sites in the Sidenius Creek study area, and are identified here as requiring management.

The level of impact recreational activities are having on archaeological and heritage sites in the M-KMA had not been addressed prior to the completion of a Muskwa-Kechika Trust Fund project concurrent to this one (# M-K 2000-01-58 – see Hill *et al* 2001). Results from this latter project clearly identify a need for the management of heritage and cultural remains in the M-KMA, particularly as a result of compounded

impacts from ungulates and, to a lesser degree, increasing recreational traffic along existing pack and access trails. Our preliminary recommendations on the archaeological potential of the study area include the implementation of management objectives related to the conservation/mitigation of known heritage remains, and the need for inventory work in areas of current or future projected impact.

The initial potential model resulted in the creation of several thousand loci (polygons) divided into various levels of archaeological potential. This potential was largely determined from the physiographic & ecological characteristics of the polygons, and relatively rated according to the number of positive and/or negative attributes present. A discussion of these attributes is provided in the 'Archaeological Potential' section of this report, and is based on the information provided in the 'Environment", 'Ethnohistory', 'Oral History', and 'Archaeological background' sections & sub-sections that follow.

PRIMARY OBJECTIVES

This project was originally proposed as an Archaeological Inventory Survey. As accepted by the Muskwa-Kechika Trust Fund, the project was modified to enable the creation of an archaeological potential for the initial study area. As a result, our primary objectives of the project present here were as follows:

- to produce a preliminary archaeological potential model of the study area, with a focus on identifying areas at greatest risk of impact;
- to identify immediate research and management needs for cultural remains and heritage sites in the study area;
- to support M-KMA planning initiatives regarding recreation and industrial activities;
- to provide enhanced technical and scientific training to assistants in the creation of archaeological data sets for eventual management requirements, and;
- to accumulate a database and materials that will promote awareness of management requirements for Heritage in the southern Muskwa-Kechika Management Area.

The creation of an archaeological potential model for the subject study area in the M-KMA was completed without noted biases towards anthropogenic impacts. As a result, the model can be used to identify concerns and/or management needs as they relate to all types of impact, resulting in informed management options for the continued conservation of the physical and visual integrity of the M-KMA. A description of recommended management options and planning initiatives for the M-KMA as they

pertain to recreational & industrial impacts to archaeological resources can be found in the 'Discussion' section of this report. An expanded research program based on the results of the model generated for this report would be essential in defining the Heritage management needs of the M-KMA, as management considerations and concerns could be better addressed through the incorporation of real-time field data.

LOCATION & PRESENT ENVIRONMENT

The study area is defined by the Sikanni Chief River to the north, Sidenius Creek to the south, and Embree & Bartle Creeks to the west (Figure 1). This relatively small area (101.14 km^2) was selected because it possessed tremendously variable terrain and ecology identified as reflective of the southern M-KMA. The area encompasses terrain and vegetation elements of the Boreal White & Black Spruce (BWBS), Spruce – Willow – Birch Subalpine (SWB) and Alpine Tundra (AT) biogeoclimatic zones (BGCZ). The following is a description of these zones, followed by a detailed description of the study area relative these zones.

The Boreal White & Black Spruce zone is not officially recognized as being present in the study area by DeLong *et al* (1991), yet it has been directly observed by the authors within the upper Sikanni Chief River drainage, and interpreted from orthophotographs covering the study area. As such, it is briefly described here to account for its minor presence at elevations below 1300 m above sea level (asl).

Depending largely on the drainage quality of soils, forests in the BWBS BCGZ are composed or varying proportions of white spruce (*Picea glauca*), trembling aspen (*Populus tremuloides)*, lodgepole pine *(Pinus contorta)*, black spruce *(Picea mariana)*, balsam poplar *(Populus balsamifera* spp. *balsamifera)*, tamarack *(Larix laricina)*, and varies birches *(Betula* spp.*)*. The understory also varies with the quality of soil drainage, as lichens cover the driest sites, and hydrophilous shrubs and grasses grow in areas of poor or confined drainage. This zone is generally characterized by black spruce peatlands ('muskeg'), tamarack fens, and open lodgepole pine forests, with the longevity of forest stands limited by the frequent, cyclical occurrence of fires. A rather lengthy list of animal species associated with this zone can be found in DeLong *et al* (1991:246-247).

The Spruce–Willow–Birch Subalpine zone occupies the middle elevations and inter-montane valleys of the northern Rocky Mountains, at elevations ranging from 900 to 1500 m asl (Pojar and Stewart 1991a). An intermittent to closed forest cover of white

spruce, lodgepole pine, and trembling aspen dominates in valley bottoms and on lower slopes, while more elevated areas are predominately covered with subalpine fir (*Abies lasiocarpa)*. In the more protected valleys, large mature white spruce forests are common on north and west-facing slopes, and in areas of moderate to poor drainage. Forests of large, mature lodgepole pine are commonly found on more southerly slopes. The understory typically consists of willow (*Salix spp.)*, juniper (*Juniperus spp.*), sedge (*Carex spp.*), kinnickinnick (*Arctostaphylos uva-ursi*), and grasses (*Poa glauca, Calamagrostis purpurascens, Festuca altaica, Aconitum delphiniifolium, Artemisia norvegica* spp*.,* among others). Where drainage is not well developed, willow and scrub brush wetlands can be found along the creeks and in contained basins.

Moose (*Alces alces*), caribou (*Rangifer tarandus*), Mountain Goat (*Oreamnos americanus*), Grizzly and Black bears (*Ursus horribilis, Ursus americanus*), and wolves (*Canis lupus*) are abundant throughout the SWB-BGCZ. Lakes and rivers within this zone are also populated by diverse fish communities. Lake Trout (*Salvelinus namaycush*), Mountain Whitefish (*Prosopium williamsoni*), Pygmy Whitefish (*Prosopium coulteri*), Arctic Grayling (*Thymallus arcticus*), and Lake Whitefish (*Coregonus clupeaformis*) have been captured in water bodies adjacent to the study area (Government of British Columbia Ministry of Agriculture, Food, and Fisheries, 2001).

The Alpine Tundra zone occurs at elevations between 1400 and 2700 m asl in the study area, and is relatively treeless. Krummholz subalpine fir, Engelmann spruce (*Picea engelmannii*), white spruce, and lodgepole pine can occur in clusters at lower elevations. Where present, alpine vegetation is dominated by willows, sedges, mosses, lichens (*Cetraria spp., Alectoria spp., Umbilicaria spp., Parmelia spp., Rhizocarpon spp., Lecanora spp., Thamnolia subuliformis, and Dactylina arctica*), and grasses (Pojar and Stewart, 1991b). Stone Sheep, Mountain Goat, caribou, moose, Grizzly bear, and red fox (*Vulpes fulva*) have been observed in the AT, and are responsible for many of the major game trails observed at these elevations. Glaciers and perennial ice patches were noted on orthophotographs, and have been reported to the authors by individuals who have visited the area. These features occur at elevations above 2400 m asl.

The western-most portion of the study area encompasses the height-of-land portion of the Embree and Bartle drainages, rising from 1600 m asl at the headwater lakes of the later two creeks, to 2460 m asl at a mountain peak separating the two drainages. Much of this area lies in the AT BCGZ, and is characterized by steep scree

slopes and bedrock exposures. At lower elevations, small portions of the drainages fall into the SWB BCGZ.

The central portion of the study area is characteristically defined by the north-south orientation of its major physiographic features: a massive, rounded mountain rising to 1980 m asl and stretching between the Sikanni Chief River and the junction of Sidenius and Embree Creeks, define to the east and west by wide, like-oriented inter-montane valleys. The western valley contains the lower reaches of the Embree and Bartle Creek drainages, with a maximum valley floor elevation of 1350 m dropping to 1220 m asl at the confluence of Embree & Sidenius Creek to the south, and 1190 m asl at the confluence of Bartle Creek and the Sikanni Chief River to the north. The eastern valley is not as well defined as its western counterpart, but has a maximum floor elevation of 1430 m asl and is drained by numerous small creeks flowing to the north & east into the Sikanni Chief River, and south into Sidenius Creek. The valleys in this portion of the study area lie in the SWB BGCZ, with a minor BWBS BCGZ component. Drainage is relatively good, as identified on orthophotographs. The lowest portions of the subject mountain falls into the SWB BGCZ while the remainder of the mountain lies in the AT BCGZ. Unlike its more westerly neighbours, this mountain is characterized by unvegetated expanses of low-angle bedrock exposures, and relatively few scree slopes or avalanche chutes. Soil development is poor to non-existent in the more elevated alpine areas, while valley bottoms frequently have well-developed and well-drained soils.

The eastern portion of the study area is characterized by large tracts of undulating terrain and relict fluvial features (i.e., terraces, paleo-channels) at the confluence of Sidenius Creek and the Sikanni Chief River. The generally level nature of this area (1130-1220 m asl) is largely due to post-glacial fluvial events, where the two major drainages appear to have alternately captured each other and successively downcut through the delta fan of the smaller Sidenius Creek. This area falls within a transition zone of the SWB and BWBS BCGZs.

PAST ENVIRONMENT

The greatest gap in our present understanding of the natural history of the M-KMA is paleoenvironmental information. It is non-existent for the study area, and otherwise extremely poor for NE BC (i.e. Farvacque 1999a, Farvacque and Kinzie 2000; Wilson 1989). As a result, this information has been extrapolated from paleoecological and Quaternary geology studies conducted elsewhere in northern BC, the southern NWT and Yukon, and NW Alberta. For the purpose of this report, a brief generalized

review of Late Quaternary events from the time glaciers last covered the land is provided.

Starting c. 22,000 years before present (ybp) and originating in the Rocky Mountains, a massive ice sheet (the Cordilleran) covered the study area by *c*. 18,000 ybp. Deglaciation started *c*. 14,000 ybp in the lowlands east of the study area, and by *c.* 12,000 to 11,500 ybp much of the region was ice-free (Jackson *et al.* 1990). However, (small) ice masses likely stagnated in the project area for some time thereafter, a result of elevation and sheltered northern exposures. Evidence for the stagnation of a glacier in the Sidenius Creek drainage is found in the large-scale hummock terrain at the confluence of Embree and Sidenius Creeks, which is interpreted here as a ground moraine deposit.

Deglaciation was a geologically tumultuous time, as rapid erosion occurred and drainage systems began to coalesce in an initially treeless, steppe-like environment. Large quantities of melt waters from latent glacier masses appear to have coursed through the valleys of the Sikanni Chief River and Sidenius Creek, where wide, flat-bottomed meltwater channels are clearly evident on topographic maps and orthophotographs. Well-defined abandoned glacial meltwater channel features are also readily apparent in the valleys containing Embree and Bartle Creeks, where present creeks occupy a relatively small portion of the valley floor through which they now flow.

As the glacier masses melted further into the Rocky Mountains, the young landscape may have become home to some of the extinct animals known to have inhabited NE BC at this time. This includes *Mammuthus primigenius* (mammoth), various species of *Equus* (horse), several species of large *Bison* (bison), and a species of *Camelops* (camel). Extant species may have also included elk, bison, and musk-ox (Churcher and Wilson 1979). By 9900 ybp the landscape was covered by patchy spruce-dominated forests, and by 7300 ybp the ecological equivalent of today's forest cover had emerged (Clague and McDonald 1989). It has also been suggested that major modern bird migration patterns through NE BC were established by at least 8000 years ago, at which time the Passenger Pigeon (*Ectopistes migratorius*) was already ranging into the region (Driver and Hobson 1992).

Paleoecological evidence suggests wetter climatic conditions led to the formation of many wetlands in NE BC between 7700 and 5000 ybp (MacDonald 1987). There appears to have been little major ecological change since then, although small-scale events such as forest fires have played a role in the distribution and presence of current

patterns in the forest cover, particularly in the BWBS BCGZ. At higher elevations, such as in the alpine-tundra zone, fluctuations in tree-line, minor glacial advances, and the accumulation of perennial snow patches are likely to have occurred as a result of low-level environmental trends and cycles (i.e., Little Ice Age of *c.* AD 1500-1850, Medieval Warm period of *c.* A.D. 800-1200) (i.e., Campbell *et al* 1998; Fall 1997; Ryder 1989; Vance *et al* 1992). The most visible and best-preserved paleo-landscape features present in the study area are abandoned or relict fluvial features such as terraces, meander channels, alluvial fans, and channel deposits. Relict fluvial features are particularly evident on orthophotographs in the eastern portion of the project area, where extensive and intensive use of grasslands by bison has resulted in a scant vegetative cover. As a result, abandoned meander channels and point bar deposits are readily apparent, and evidence for the past capture of the lower Sidenius Creek valley by the Sikanni Chief River is strongly supported.

Despite the careful analysis of orthophotographs, and apart from the observations noted above, relict glacial terrain features are not readily apparent today in the study area. This may be a result of erosion, or the rugged nature of the immediate terrain. Where glacial features were noted, these tended to be at higher elevations and likely related to more recent, small glacier movements dating to the latter portion of the Holocene.

A BRIEF ETHNOGRAPHY OF THE BEAVER INDIANS

HISTORY & CULTURE

The project area is located within the traditional territory of the Beaver, or *Dunne-za*, people. The Beaver are members of the Athapaskan language group of the Na-Dene language family, and are closely related to the Sekani of British Columbia, the Sarcee of Saskatchewan, and Chipewayan whose range extended from the Slave River south to Cold Lake and from Heart Lake eastward to Reindeer lake in north central Saskatchewan. Not much is known about the Beaver prior to the historic era, although it is believed that westward expansion of Cree during the fur trade contributed to conflict among the northern Athapaskan peoples as the Cree pushed them north and west. According to Ives (1990), the eastern Beaver pushed the western Beaver further up the Peace River and they displaced the Sekani into the mountains. It has also been hypothesized that before white traders penetrated the Peace River region, the Sarcee separated from the Beaver-Sekani, as linguistic evidence and oral history points to their common origin (Goddard 1916). It is possible that the western extent of the Beaver, prior

to the disruptions caused by the fur trade, was the western end of Lake Athabasca. By the time Alexander Mackenzie had penetrated the British Columbia Peace River region in 1790, the Beaver had spread out west and south from Lake Athabasca, following the Peace River and its tributaries (Goddard 1916).

Jenness (1937) noted that the Sekani and Beaver were once one people, defined by language and custom, divided into many bands with a territory that stretched from Lake Athabasca to the Rocky Mountains, although they were divided by the early 19th century due to conflicts between them. The first distinction between the two groups is recorded in Harmon's Journal:

> *The people who are now called Sicaunies….at no distant period, belonged to the tribe called Beaver Indians, who inhabit the lower part of the Peace river; for they differ but little from them in dialect, manners, customs, etc. Some misunderstanding between the Sicaunies and the rest of the tribe to which they formerly belonged probably drove them from place to place, up Peace river, until they were, at length, obliged to cross the Rocky Mountains*. (Cited in Jenness 1931:21 and Jenness 1937:5)

Harmon's classification has persisted in the literature regarding the Aboriginal people of northeast BC (*c.f.* Jenness 1931, 1937, Goddard 1916, 1917, and Osgood 1936). For example, Goddard (1916) stated that "the Sekani (Tsek'ene) of the Rocky Mountains" were the western neighbours of the Beaver.

The divisions in the historic record between "Sekani" and "Beaver" were largely arbitrary, although Harmon's classification was based on observed hostilities between bands southwest of Hudson's Hope and others down river on the Peace (Jenness 1931 and 1937). Ridington (1968:146) notes that the tribal designations "Sekani" and "Beaver", referring to two groups divided both by geography and dialect, were largely false categories based on names for *wutdune* ("the people of a certain place"). The classification of all the native people east of the Rockies as Beaver, probably derived from *tsa-huh* or *tsa-dunne*, "Beaver People". The natives living in the Rocky Mountains were called Sekani after *tsekani* or *tsekane*, "Rocky Mountain People". Affiliation to specific *wutdunne* was fairly plastic:

> *Wutdunne have probably always contained people of diverse origins and their identification has been relativistic. They are best seen as generalized place names which tend to persist over time while individuals migrate in and out, only gradually giving up the name of their place of origin and taking on the name of their new location.* (Ridington 1968:148)

Harmon classified six different groups, which likely correspond to different *wutdunne*, and Jenness (1931:24 and 1937:8) noted that the distinctions must have been largely arbitrary as "these six groups were undoubtedly divided into many bands, and neighbouring groups mingled…intimately, and…resembled one another". It seems, then, that hostilities between different *wutdunne*, observed by white traders in the late 18th and early 19th centuries led them to create false cultural divisions. Although the *tsa-dunne* and *tsekane* were simply two *wutdunne*, out of many, the derivatives of these terms, Beaver and Sekani, have different meanings that have become the authoritative "facts" encoded in the written history of these people.

The Beaver traditionally lived along the Peace River of British Columbia and Alberta between the Rocky Mountains and Lake Athabasca (Ridington 1988). Jenness (1931) subdivided the Beaver into three groups, ranging from the falls below Fort Vermillion, AB to Hudson's Hope. Three geographic groups of Beaver were identified by Goddard (1916), occupying a region stretching from the Peace River to the falls about forty miles below Fort Vermillion. Of these groups, the band designated the "Rocky Mountain Indians," may be of the most relevance here (Goddard 1916:208). Goddard (1916) stated that their northern range was the headwaters of the Liard River and their southeastern range the confluence of the North Pine and Peace Rivers. This group of Beaver is likely the "Sikanni Indians" referred to in the written historic record by white trappers and traders (Ridington 1990).

Phillip Godsell, the author of many colorful, and often exaggerated, accounts of life in old Fort St. John during the early 20th century, subdivided the "Sikannis Indians" from the larger group of Peace River Beaver (Godsell 1933). According to Godsell (1942:11,13) the "Sikannis" were a band whose southern range was the "Sickannie Chief River". Godsell (1942) also refers to the "Sickannie" as the "Prophet River Indians" and, judging from this, it can be assumed that this group refers to the progenitors of the Prophet River First Nation. Ridington (1968:72) notes that the Prophet River band is descended from the families of Old Man Bigfoot and Decutla and that "they were collectively called Sekani Indians by white traders." Decutla's band, "were probably 'Sekani' Indians from the country to the north and west of the mountains since they were not closely related to any of the people living on the Peace River…their dialect…is difficult for Peace River Beavers to understand" (*Ibid.*). Thus the term "Beaver" as it is used in this report may refer to both Beaver and Sekani people as they have been "defined" in the historical and ethnographic records.

In 1900, the Beaver of Fort St. John signed Treaty 8. Muckithay, Aginaa, Dislisici, Tachea, Appan, Attachie, Allalie, and Yatsoose signed on behalf of the 46 Beaver who were admitted into Treaty that year (TERA and FMA 1995). Many of the individuals who had not taken treaty in 1900, signed adhesions in the following years (Madhill 1986). Canada's reasons for desiring the lands of the Dene were based mainly on economics and resource development. The Klondike Gold rush and increased mining activities both provided an impetus for the government to pursue treaty and led to the signing of Treaty 8 (Fumoleau 1973). Between seven and eight hundred people had gone through the BC Peace River region, prospecting along the various tributaries of the Peace and the Liard until they reached the north. This influx of prospectors brought increased lawlessness, liquor and native insecurity (TERA and FMA 1995). Treaty 11 (NWT) was preceded by the discovery of petroleum and oil deposits in the Northwest Territories (Fumoleau 1973). Another important reason for the treaties was that the Crown needed a way to assert greater control over the Dene groups in order to insure peaceful settlement and development of the land by white settlers and to promote friendly relations between the natives and whites (Ibid.). Thus, because the Canadian government wanted to gain control over the lands, resources and peoples in the areas of Treaties 8 and 11, the written treaties required the native people to "cede, release, and surrender" their title and rights to the land to the Crown (Canada 1966[1899]).

Although the Crown viewed the treaties as land surrender documents, extinguishing aboriginal title to the land and ensuring their own legitimitate sovereignty, the Dene adherents considered Treaties 8 and 11 peace treaties (Smith 1999). There is much evidence in the written and oral historical records that the treaties were negotiated as peace treaties and that the negotiated terms of the treaty agreements did not involve cession of lands and rights. In the Paulette caveat, Francois Paulette testified that:

> *No lands have ever been surrendered or ceded in the first treaty [Treaty 8]. It was sort of a peace treaty. . . . No land was mentioned. That peace treaty was with regard to whether the white people can come in without any conflict with the Indians and the Indians have no conflict with the white people.* (Supreme Court of the N.W.T. 1973:153)

The native people negotiating the Treaty 8 conditions were aware of the problems that the Cree who had signed Treaty 6 were experiencing in Alberta and Saskatchewan; they wanted to be sure that the same would not happen to them. Charles Mair (1999[1908]) recorded the prepared statements that were read during the Treaty 8 negotiations at Lesser Slave Lake in 1899. These statements assured the native peoples that "you will

be just as free after signing a treaty as you are now," that they would not be confined to reservations, and that their hunting and fishing rights would not be impacted:

> *Indians have been told that if they make a treaty they will not be allowed to hunt and fish as they do now. This is not true. Indians who take treaty will be just as free to hunt and fish all over as they are now.* (Mair 1999[1908]:58)
>
> *When the reserves are offered you there is no intention to make you live on them if you do not want to* (Mair 1999[1908]:62)

The native leaders Keenooshayoo and Moostoos voiced their concerns about the treaty process in order that they may negotiate the best terms for their people:

> *Do you not allow the Indians to make their own conditions, so that they may benefit as much as possible? Why I say this is that we to-day make arrangements that are to last as long as the sun shines and the water runs.* (Keenooshayo, cited in Mair 1999[1908]:60).

The treaty commissioner, Mr. Liard framed Treaty 8 as one of peace:

> *In return for this the Government expects that the Indians will not interfere with or molest any miner, traveller or settler. We expect you to be good friends with everyone, and shake hands with all you meet.* (Mair 1999[1908]:58).

In exchange for annual treaty money, the Dene agreed to engage in peaceful relations with the white people coming onto their lands. Additionally, the treaty represented the government's promise to protect the economy and interests of the Dene against the pressures of outside settlers and trappers (Smith 1999). Peace and friendship between the Dene and white settlers was to be cemented and guaranteed by the annual payment of treaty money:

> *Every time the Native, they get together, they exchange gifts, to keep the friendship and make sure about that . . . all it is, they're giving us 5 dollars a year, that's just a handshake. Each year, handshake and friendship. We keep peace between us. That's why they're giving that stuff for.' That's the way he [grandfather] understood. He didn't think we sold anything. There's no way on the earth, he [grandfather] didn't believe that we surrendered anything. We just made peace with another nation, and that's the way it was.* (Leo Norwegian, Dene elder, quoted in Smith 1999:100)

Money represented the reciprocal and ongoing relationship between the Crown and the Dene, two sovereign and equal nations.

Today, the Beaver of northeast British Columbia have had their homes constricted to reserve lands set aside for them. Their traditional territories are host to oil and gas and forestry developments that provide limited economic opportunities to First

Nations and threaten their traditional culture and way of life. Elders fear that such developments threaten areas, many within the Muskwa-Kechika Management Area, that have significant cultural and spiritual value.

CULTURAL CHARACTERISTICS

There are several characteristics that are important when discussing the culture of the Dunne-za. Primarily, the traditional Dunne-za consisted of nomadic groups of people who affiliated themselves with other groups through kinship ties. Second, "they valued knowledge and information as the fundamental instruments of a successful adjustment to the demands of the nomadic hunting way of life" (Ridington 1990:82). And third, they possessed a Dreamer religion based on the acquisition and application of knowledge in dreams.

Traditionally, the Beaver lived a nomadic lifestyle based on a seasonal cycle of movement and resource procurement. According to Ridington (1968), prior to the early 1960s when an Indian day school program was initiated by the government, the Beaver people led relatively nomadic lives, traveling with horses in the summer and dog teams in the winter. The primacy of the nomadic lifestyle was such an important culture characteristic that it was engrained in their oral tradition. According to Ridington (1964): "Beaver myths and stories are set in a context of nomadic movement. Plots and themes are woven around a rhythm of travel and camps" (34). For example, the story of "Tumaxale, a Culture Hero", recorded by Goddard (1916:232-237) is framed by references to travel which serve to link episodes within the tale and this story with others. The hero's name Tumaxale, translates as "he goes along the shore", a reference to travel. Interestingly, another more recent culture-hero, Makenunatane, the Dreamer who originated the Prophet movement, also has a symbolic name associated with travel. Makenunatane translates literally as "his tracks earth trail" or more freely as "his trail circles around the edge of the world" (Ridington 1990:74). Throughout the Tumaxale story, travel links episodes of action that occur in camp.

The Beaver traditionally built short-term camps on dry ground often near creeks and / or in areas associated with certain resources (Farvacque and Bowyer 1999). Godsell (1938) noted Beaver encampments near Fort St. John along the terraces and clearing of the Peace River valley. Hills near creeks and open prairie locations also provided good camping localities (*Ibid.*). The spatial organization of camps may have been structured around certain prescribed rules. For example, Ridington (1990:130-131) notes that among the Beaver camp dwellings were not built between another person's

dwelling and the place of the sunrise: “The Dunne-za set up their camps so that people sleep with their heads pointing in the direction of the sun’s return across an expanse of bush unbroken by human trails.” Moreover, there were no trails behind the dwellings, between the camp and the bush; camp trails existed only in front of the dwellings, and linking the habitations together and leading to wood, water and lavatory (*Ibid*: 56). The bush was the “realm of men and animals” while the camp was the “realm of women and children” (Ridington 1968:85).

Camp was centered on the family group, which formed the basic economic unit and was characterized by flexibility and resiliency in their relationship with the environment (Ridington 1990). A typical encampment, prior to the 1960s, would consist of several families and up to approximately 30 people (Ridington 1968). Moses Wokeley, an elder of the Halfway River First Nation, stated that “in the old times people lived in groups of about 50” (Dickson et. al. 1991:3). Kinship bound groups together and defined the social universe. They did not group themselves into larger cultural affiliations based on language or social characteristics (c.f. Jenness 1937:5 in reference to the Sekani: “a number of bands with no central organization and very little unity”). They did, however, congregate in larger groups during the summer months for feasting, dancing and visiting. Although the people amalgamated during summer and fall into larger social groups and may have “considered themselves a single *wutdunne* or people…the *wutdunne* is not a permanently viable corporate economic unit” (Ridington 1968:33).

Ridington (1968) suggested that group size and distribution among the Beaver was a factor of ecological determinants, and in particular the seasonal availability of resources. Because life was dependent on big game hunting, the success of which was unpredictable, large groups of people could only come together for ceremonial and social activities when resources were readily available and reserves were easily accumulated (*Ibid.*). The ability of the Beaver to survive in the unpredictable environment of the northern boreal forest of British Columbia required not only an intricate knowledge of resources and geography, but also an efficient technology based on “artifice rather than artifact” (Ridington 1990:82).

The mere possession of artifacts was less important than the knowledge and control of technique:

> *Sophisticated traditional subsistence techniques such as snare-hunting, surrounds and drives required very simple material artifacts. Their success depended entirely on the accurate application of complex strategic knowledge.* (Ridington 1979:69)

This example of traditional communal hunting techniques illustrates the prevalence of knowledge and technique over specific tools. According to Ridington (1979:67), "hunting strategy emphasized knowledge of animal behaviour and local conditions". It is not surprising, then, that traditional Beaver culture emphasized the acquisition of knowledge about animals through dreaming and vision quests. According to Ridington (1979:70), "'knowing something' symbolized traditional Dunne-za competence. To be human, to be Dunne-za, was to be in possession of knowledge." Hunt-chiefs were Dreamers with specific and special knowledge about certain animals.

The traditional Dreamer religion of the Beaver emphasized knowledge and was closely tied to subsistence. According to Ridington (1979:69) to "know something" about an animal gave the person in possession of that knowledge certain measures of power over procuring those animals for food, clothing, shelter and tools:

> *People with knowledge or power in traditional Dunne-za society focused their attention on the pattern woven by the moving paths of celestial bodies, game animals and humans. They sought to visualize the times and places where animal trails might come together with those of game animals. The ability to visualize the anticipated behaviour of animals was essential to hunting by means of snares, surrounds and drives…the people who "knew something" were able to live self-sufficiently within their environment.* (Ridington 1979:69)

Dreaming allowed hunters to draw upon their personal experiences, gained from vision quests, with the natural world to facilitate contact between humans and animals (Ridington 1990). Success in hunting lay in knowing how to navigate the dream trails that emerged out of the past and traveling into the future:

> *The trails that lay ahead, as well as those that lay behind, could be followed in the mind back to the point of visionary encounter with a medicine animal, just as the trail of a successful hunter could be followed ahead to his point of encounter with the spirit of an animal. Each actual point of meeting between person and animal was believed to be the manifestation of antecedent meetings in the medium of dream or vision.* (Ridington 1990:90)

Dreams and trails were closely interwoven in the traditional Dreamer religion of the Beaver.

RESOURCE USE & SEASONAL CYCLE

Traditionally, the Beaver used a diversity of plants and animals for various purposes, ranging from food to utility to medicine. This included, but was not limited to: moose, wood bison, elk, caribou, bear, hare/rabbit, grouse, duck, geese, beaver, lynx,

coyote, sheep, goat, porcupine, squirrel, marten, weasel, wolverine, jackfish, trout, grayling, whitefish, horses, dogs, Saskatoon berries, choke cherries, Labrador tea, huckleberries, cranberry, blueberries, soapberry (soopolallie), bunchberries, raspberries, beaver root/rat root, mosses, muskrat root, moose-stick, wild celery, wild rhubarb, puffballs, fungi (specifically, *Trametes suaveolens*, Polyporacaeae), sphagnum moss, poplar/aspen, white and black spruce, fir, birch, willow, red willow, alder, and lodgepole pine. Minerals and stone were also important resources.

Procurement of resources traditionally followed a seasonal cycle following the natural rhythm of the land, in which people aggregated and dispersed in relation to the availability of resources (Ridington 1968). Resource use has changed since the inception of the fur trade. For example, prior to 1830 the Beaver hunted bison, moose, woodland caribou, mountain goats and sheep; by 1830 moose had become the major source of food (Ridington 1968). Other animal and plant foods were still counted upon, especially in times of scarcity. Thus, an awareness of the timing and availability of plant and animal resources was critical to Beaver life. People moved throughout the landscape to access areas that were associated with certain resources in specific seasons.

The period spanning late summer and fall was a season of plenty and was the time when people prepared for the following winter. Intensive hunting of both large and small game was pursued, so that large stores of cached drymeat could be prepared for the ensuing lean months (Ridington 1968). Berries and other edible plant parts were collected and eaten fresh or processed for storage. White spruce were felled to be used later as firewood when dead and dry (Farvacque and Bowyer 1999).

During the early part of the season, moose, goats, sheep, elk, deer, rabbit, grouse, porcupine, and marmot were important food animals and many types of berries, such as cranberries, strawberries and currents, were in season. Because marmots were plentiful and easy to trap, they may have been an important resource in mountainous regions such as the Sidenius Creek area. According to Moses Wokeley, an elder from Halfway, marmot skins could be sewn into blankets that would not frost up in the cold, a big marmot provided enough meat for three men, and marmot were easy to trap and were caught “just like the flies” (Dickson et. al. 1991:3). Moreover, Bobby Jackson and Jasper Wokeley, who have guided and traveled through the project area, report that marmot are abundant (personal communication, March 15, 2001). According to Goddard (1916) rabbits were also easily hunted in the summer, as the imitated cries of young

rabbits would bring their mother out into the open, making her an easy target. Food, both vegetable and animal, were plentiful at this time.

This was also the time of year when people came together in large groups at traditionally used campsites for feasting, dancing and socializing. For example, for generations the Beaver people came together with their relatives for singing and dancing at Where Happiness Dwells, present-day Montney area (Ridington 1988). Goddard (1916) also reported a semi-annual gathering, under the direction of a Prophet, where a large area was fenced off and a central fire prepared. The ceremony involved dancing and a ritual feeding of the fire and prayer for good hunting in the future. One of Goddard's (1916) informants also said that tea dances were held where feasting and dancing occurred and prayer and thanks were given. Ethnographic accounts of such gatherings are important because large campgrounds are easily distinguished in the archaeological record. Based on ethnographic accounts and former archaeological assessments, large camps and gathering sites may be common in the Muskwa-Kechika Management area. For example, the Tuchodi Lake Village Site (IbSc-001) has been identified as a possible gathering place for Decutla's band and used well into the 1930s. Hill *et. al.* (2001) identified a site (IaSa-t002) in the vicinity of Gathto Creek that they believed might represent another village site of greater antiquity. Moreover, HgRv-001, a previously recorded site on Sidenius Creek, is a historic campsite characterized by cut trees Buried archaeological resources of greater antiquity may be present, at each of these locations.

As the season progressed, small groups dispersed once again throughout their hunting territories to accumulate stores of food. According to Brody (1988) the areas used for the fall hunt differed from year to year depending on the availability of game. Moose hunting was the best during this time as the animals had accumulated stores of fat and were easily called because it was their rutting season (Ridington 1968, Goddard 1916). Deer, bear, migratory waterfowl, sheep, goats and rabbits were also hunted at this time (Burley *et. al.* 1996, Ridington 1979). According to ethnohistoric and ethnographic accounts, bison were once abundant in the region and wood bison were likely more common prior to the fur trade and the introduction of firearms (Francis and Payne 1993; Goddard 1916; Jenness 1937; Ridington 1979). According to Ridington (1968), bison were hunted during the latter part of the nineteenth century, but after 1830 people relied more on moose. Moreover, Moses Wokeley was told by his elders of a time when the country had few trees, buffalo were abundant and there were hardly any moose (Dickson et. al. 1991). In fact, the extirpation of bison in this region may have

coincided with a population-low of moose at the turn of the century leading to hardship for native peoples who relied on these large game animals to see them through the winter. According to Brody (1988:7):

> *In years when other resources were not readily available, the scarcity of moose used to bring extreme hardship to many Indian hunting bands. (The buffalo, whose northern range once brought them into the lands of the Patsah [a fictitious name for a Halfway family] family, had by the 1880s been more or less exterminated.) After several years of struggle and near starvation, Joseph's family moved north and west, higher into the foothills of the Rockies. Patsah's people had long regarded these higher into the foothills as a sort of meat bank on which they could draw when the usual game resources or hunting patterns failed.*

Today, wood bison have been reintroduced in the Sidenius Creek area and people from Halfway are once again hunting them (Bobby Jackson, personal communication, March 15, 2001). Moreover, when animals were scarce in their usual hunting grounds, the Halfway people used the region of the headwaters of the Sikanni Chief River during their fall hunt (Brody 1988). This region likely included the Sidenius Creek area.

Communal hunting techniques were important strategies for procuring food, prior to the acquisition of firearms (Ridington 1979). According to Goddard (1916), Mackenzie noted that bison were hunted solely on a community basis, with the usual method being that of driving the animals into a pound. Snaring was an efficient method to obtain both large and small game (Ridington 1968, 1979; Goddard 1916). According to Moses Wokeley, for example:

> *In the old days moose were snared…In summer moose were fat. If a man spotted two or three fat bulls, he would come back and tell his friends. The moose had a trail in the creek bed. The men would set snares in two or three places, then run around behind the moose to chase them down to the snares. You can't break a moose hide snare! Sometimes they would get two bulls, then the people would have lots of fat and eat well.*
> (Dickson *et. al.* 1991)

Mountain sheep were also snared because they were too wily to sneak up on with a bow and arrow; up to three a day might be snared on the mountain trails. Obviously snaring was an efficient means of obtaining several animals at a time.

Once the game was procured, the meat had to be processed for long-term storage. Meat was cut up into thin strips that were dried on racks exposed to the sun and wind. Smoky fires lit under the racks helped preserve the meat and keep away flies. Godsell (1938) noted that rotten wood was used, while elder Alex Chipesia said that dried alder bark could be used (Bannister 2000). The meat racks required constant supervision to ensure that meat was dried evenly, to keep the fires going and to keep

away opportunistic scavengers and dogs. The resulting dry-meat was not only nutritious, lightweight and impervious to decay but also tasted delicious, flavored as it was from the wood smoke.

Plant foods were also gathered and processed for storage. Berries, of course, were an important plant crop to be harvested. Saskatoon berries were gathered in prairie-like ecotones while blueberries and cranberries were plentiful in the boreal woods and montane environments. Soapberries were a delicacy used to make “Indian ice-cream” (Bannister 2000) and their use in this way has been reported throughout the interior of British Columbia (MacKinnon et. al. 1999). Other berries that were utilized include: cloudberry, gooseberries, currants, huckleberries, raspberries and rose hips (Bannister 2000; TERA and Pokiak 1994). Berries were dried when they were either fresh or boiled by spreading them out in the sun on large cottonwood leaves.

Obtaining large stores of food during this time was important because, as the seasons progressed through winter to early spring, starvation was a threat due to unpredictable weather, uneven distribution of game and the possibility of illness (Ridington 1968). Although large game animals were hunted throughout winter, their availability was unreliable. As the winter season advanced and food stores became low or caches were inaccessible, people began to rely on other food sources. Small game such as rabbits, grouse, porcupines and squirrels were snared (*Ibid.*). According to elders from Prophet River rabbits, martens, and weasel were trapped at this time (Farvacque and Bowyer 1999). Such resources, however, are subject to population cycles and only provide more than emergency food during peaks in their cycles (*Ibid.*). Bears were sought in their dens during the winter for the fat they provided, and were welcomed during times of scarcity.

Ridington (1990:23-25) recorded a story told by Nachi, an elder at Doig, who told him of a time when she found a denning bear that saved her family group from starvation during the winter. When she finally arrived back in camp it was late at night, but once they learned she had found the bear, the camp mobilized immediately: “that same night we all set out to find it in the moonlight”. Once found, the bear was dispatched and butchered immediately: “when we came to the hole we took the bear and killed him…it was very fat. They started to skin it while I made a fire. We were so hungry we ate the bear’s liver and guts.” The bear provided them with the strength to continue on until the weather changed: “the next day we were feeling better and we moved camp again. A

chinook came and it turned nice and warm. Then we got two moose. It was all right then."

Fish were also an important food in times of scarcity. In general, fish were not a favoured food of the Beaver and they did not establish fish camps in the fall to gather and process fish for the winter (Ridington 1968). When emergency rations were needed during the winter, however, fish were netted or taken with a line and hook through holes in the ice (Farvacque and Bowyer 1999; Goddard 1916; Ridington 1968).

Early spring was often the leanest time as food stores were becoming exhausted, animals were lean, and early plant foods were not yet available. In recent times one of the earliest big spring hunts was the Beaver hunt which occurred as soon as the rivers were clear enough of ice for horses to cross (Brody 1988). Other spring foods included, ducks, muskrat, otter and eggs (Burley *et. al.* 1996; Ridington 1979), although geese appear to have been taboo hunting in the spring when they were nesting (Farvacque and Bowyer 1999). Fish were snared in weirs (Farvacque and Bowyer 1999; Goddard 1916) and sometimes with white spruce trees hung across creeks and lined with boughs (Bannister 2000). Goddard (1916) also states that nets were stretched across eddies in rivers to obtain fish in the spring. One of the earliest plant foods was the inner cambium of lodgepole pine and white spruce that could be scraped when the sap began to rise in the spring. According to Farvacque and Bowyer (1999), the roots of aquatic plants were collected in the early spring when they were believed to be the most potent.

Burning was likely an important activity in early spring. Lewis (1982) has documented the use of fire as a tool among the Beaver of northern Alberta for managing grazing lands and berry patches. Gottesfeld (1994) documented the use of fire among the Wet'su'weten and Gitksan of northwestern BC to manage berry patches, plants used for basketry, and to maintain open grasslands around settlements. In the historic record of northeast BC many references exist to the use of fire by the Beaver to maintain pastureland and influence berry growth. For example Godsell (1933) noted that the Sikanni burned the area to the east of Chicken Creek in 1926.

As the season progressed into early summer other plant foods became available. The roots of alpine sweet vetch, gathered while the plants were still flowering were considered both a healthy food and a good emergency food (Bannister 2000). The stalks of young cow parsnip were broiled in a low fire and peeled before eating (Ibid.). Undoubtedly, other plant foods were an important part of the late spring / early summer

diet. As well, many medicinal plants were gathered at this time. As the summer continued, food became more abundant and people were able to gather once again.

MATERIAL CULTURE

As noted above, artifacts were of less importance in Beaver technology than the knowledge underlying their production and use. However, archaeology relies on the material record embodied in such artifacts. In general, the Beaver possessed an efficient material technology based on wood, bone, hide and stone. Although the archaeological record in this region is based largely on lithic technology, the ethnographic record shows that bone was used in place of stone for many implements.

Overall, reliance on organic materials rather than on stone for hunting tools and domestic implements is evident (c.f. Goddard 1916; Jenness 1937). The Slavey used a bone flesher made from the leg bone of a moose that had been rubbed down to an oblique blade and sharpened to a cutting edge (Honigmann 1946). The Sekani used a similar style of flesher, made either from caribou antler or the shoulder bone of a moose (Jenness 1937). Among the Beaver of Fort St. John, a scraper made of the leg bone of a moose was used for dressing hides (Goddard 1916). Containers for collecting food and cooking included birch-bark baskets sewn with spruce roots, leather bags, and woven spruce root baskets. Cooking implements were made of wood and horn. Nets for fishing and food collection were woven from babiche or various plant materials including nettle fibers and willow withes. As most food was boiled, boiling stones are one of the few domestic implements that are lithic. Most hunting was done with the aid of snares of babiche and with deadfalls made of wood (Goddard 1916; Jenness 1937; Ridington 1979, 1968).

Honigmann (1946) noted several interesting beliefs and practices among the Fort Nelson Slavey in regards to stone technology. Old men who were requested to prepare stone blades and points for others did so with the aid of their medicine animal whose call they would often imitate as they worked. According to one informant “this made the knife” (Ibid:52). Another informant, in reference to weapons tipped in stone, said:

> *Once the people had a war over to the east. The people knew just where this was, and when I was a child and traveled through the country, the people used to hunt for knives on the battle ground. They would find many fragments. Heads of arrows were also found. My grandfather used to tell us that these stones were good and that they should be picked up by children. They were then used to strike fire with a piece of steel* (cited in Honigmann 1946:73).

In addition to stone tool technology, various metals were used in late pre-contact times. Among the northern Dene, a Copperwoman myth telling of the discovery and trade of copper is prevalent (Abel 1993; c.f. Goddard 1916 for the Beaver version of the Copperwoman myth). Iron, as well as used. Even prior to direct contact between the Athapaskan peoples of northern BC and white traders, iron was already infiltrating the area from the northwest coast (Jenness 1937).

Clothing and moccasins were made of tanned moose and caribou hide (c.f. Goddard 1916; Jenness 1937). According to Moses Wokeley, “the old timers wore buckskin. The women made pants from small soft moose hides” (Dickson et. al. 1991). Even today, the durability of hide clothing is recognized among the elders at Halfway as Charlie Butler noted that pants made of moose hide could withstand conditions in which jeans would rip easily (personal communication, March 15, 2001). Furs which would not frost such as wolverine and marmot were used in the winter for clothing and blankets. Woven rabbit skin coverings and groundhog skin blankets were noted by Jenness (1937) among the Sekani. Snowshoes were constructed from wood and sinew.

The traditional nomadic lifestyle of the Beaver required versatile and practical dwellings. The typical winter structure was a conical tipi supported by three poles and covered by caribou or moose skins (Goddard 1916). Jenness (1937) noted a similar conical structure in use among the Sekani of the Parsnip and Finlay River basins which was typically used in winter. The Sekani winter lodge differed from that described for the Beaver by Goddard (1916) in that it had four forked poles and was covered in spruce bark (Jenness 1937). The Slavey of Fort Nelson also used a conical, moose-hide covered tipi although they also constructed smaller rectangular shelters with pitched roofs (Honigmann 1946). Jenness also noted that moose skins gradually replaced the use of spruce bark as a covering for these lodges in historic times. However, Honigmann (1946) states that his Slavey informants said that spruce bark was never used to cover winter dwellings because it would be too hard to strip at that time of year. Instead, spruce boughs were used because they would not inhibit the escape of smoke as a fire burned in the center of the dwelling (*Ibid.*). Old campgrounds are often marked by the presence of tipi poles, which were typically left stacked or left standing (Hill *et. al.* 2001). For example, Lamarque (1934:49), during his survey for the Bedaux expedition, noted “there were some old, Indian tepee poles in the forest near our camp.” Historic campsite locations often have high potential to contain archaeological remains, indicating continuous habitation.

In the summer months, more temporary dwellings were created at each camping locality. These structures typically consist of simple windbreaks of brush. Goddard (1916) says that trees, with the leaves still on them, were thrown together upon a tripod foundation. Similar structures were also used in the winter when trappers and travelers were overtaken by bad weather away from their dwellings (*Ibid.*). Jenness (1937) reported that the Sekani constructed windbreaks of conical shape with an open top but covered with bark, hides or boughs on the sides. Although canvas tents were replacing more "traditional" dwellings, Jenness (1937:33) noted that by then "most, if not all, of the [Sekani] Indians now have cloth tents", bush camps modeled on the traditional windbreaks were still in use as late as the 1960s. In the summer of 1964 Robin Ridington camped with Jumbie's family from Prophet River and witnessed the use of lean-tos which were pitched facing each other with a long fire in between and were enclosed on the top by tarps over a pole frame, and on the back and sides with branches from spruce trees (Ridington 1989).

Few other structures were built, besides dwellings. Caches were constructed of stacks of large timber over the items to be stored, or consisted of a platform supported by at least four posts (Goddard 1916). The use of high stone platforms in areas with no trees of appropriate size for platform caches was noted among the Long Grass Sekani by Jenness (1937). Structures, including fences, corrals and pounds used for the communal hunting of game, such as bison, were also built (Goddard 1916; Ives 1990). Other structures included deadfall traps, fish weirs and dry-meat racks. Marmot traps were marked with little sticks (Dickson et. al. 1990) and Lamarque (1934:31) commented on their presence in the Prophet River foothills: "in two or three places we found old, Indian signs; sticks or pickets propped up by rocks to mark where traps had been set for whistlers." Platform burials were common prior to the twentieth century; a body was placed on a platform suspended between two trees (*Ibid.*). In some cases, people were buried in hollow logs placed between two tree trunks (Goddard 1916; Godsell 1938). Goddard (1916) noted that by the early twentieth century, bodies were interred underground and small houses were built over the burials. Many grave houses are still evident today at burial sites with recorded Borden numbers. Large cross-like structures, called *Dechinn* ("where the stick stands", from *datcin*, "trees" / "stick" and *detcin* "tree"), were also constructed and continue to be of great cultural significance to the Beaver. Some still exist, scattered across the traditional lands of the Beaver.

In the early twentieth century Goddard (1916) recorded *Dechinn*, ranging from a group of standing poles to poles with crossbars, to crossed poles with crosses on each end of the crossbar, constructed by the Fort St. John Beaver. Although Goddard was not able to ascertain what their significance was at that time, at a later date a Vermillion Beaver informant provided these comments:

> *It is called* enatenûggedi *(leave something ready for somebody coming along there) as if one had agreed to leave something for somebody and then puts it up until the person came along. The medicine pole is left for the one who helps him in dreams.* (Goddard 1916:228).

The Vermillion informant added that the Beaver had never constructed such poles, as far as he knew; rather they were built by the Cree and Slavey (*Ibid.*). The *Dechinn*, or medicine crosses, are related to the prophet religion of the Beaver of northeastern BC and are specifically associated with dream augury.

The best ethnographic descriptions of Dechinn are in the work of Brody (1988). Following several years of hardship during a time of low moose populations, the Patsah family moved out of their familiar hunting grounds into the higher foothills, which they regarded as a "meat bank" that they could draw on when in need. To seek confirmation of the new area's potential they erected a medicine cross which was to aid in dream prophecy:

> *They stripped a tall straight pine of its bark and affixed a crosspiece about four-fifths of the way along its length, then attached smaller crosses to the crosspiece – one at each end. They nailed a panel, also in cross formation, close to the base of the pole. Even when its base was sunk into the ground, this cross, or set of crosses, was twice the height of a tall man. When it was in its place, Patsah and others hung skin clothing and medicine bundles from the main crosspiece, and on the panel near the base they inscribed "all kinds of fancy" – drawings of animals that had figured in people's dreams, animals, of the place that would make themselves available for the hunt.*
>
> *The night the cross was completed, an augury came to one of the elders in a dream. A young cow moose, moving to the Patsah camp from the Bluestone Creek area, circled the base of the cross, then went off in the direction from which she had come. Two days after this dream, hunters discovered the tracks of a young cow moose, and, following these, recognized them to be the tracks of the dream animal. The tracks led to the cross, circled it, then returned to the Bluestone. The dream prediction had been auspiciously fulfilled. The new area would provide abundantly.* (Brody 1998:8-9).

Later, Joseph Patsah took Hugh Brody to visit this *Dechinn*. The *Dechinn* mentioned by Brody (1988), although its identity was protected through the use of pseudonyms for his

informants and geographic places, is believed by Jasper Wokeley to be the medicine cross that is located south of the Chowade River (TERA and FMA 1995). When the cross was visited during the Chowade Traditional Knowledge Study, it was observed to have deteriorated (*Ibid.*). The crosspiece was broken and detached from the pole, as was the central symbol piece depicting the animals. The cross itself had fallen over out of its original supporting hole. According to Jasper Wokeley the *Dechinn* and the area surrounding it are considered sacred to members of the Halfway River First Nation.

There are several other *Dechinn* still reported to be in existence. According to Jasper Wokeley:

> *There's one up…Twin Sister—you know where's Moberly lake where they call Twin sister there's one in there, one here, one up…Keely [Keiley] Creek…this be about 200 years old? maybe more?* (cited in TERA and FMA 1995:32).

The *Dechinn* overlooking the confluence of Keily Creek and the Besa River was recorded during the Upper Sikanni Traditional Knowledge Study (TERA and FMA 1996). This cross was possibly noted by Lamarque (1934) during his survey for the Bedeaux Expedition. According to Lamarque (1934:20), as he was on his way from the Besa River to Keiley Creek:

> *Right by the trail, before we came in sight of the cabin, is a high, wooden cross with its base in the stump of a tree. It bears no inscription and we knew not whether it marks the grave of an Indian or white man. There it stands, that lonely cross, a monument, perhaps to some grim tragedy of the wild and from it the traveler, as he pauses for a moment nearby, can see where the waters of the Besa and Keiley Creek meet amid the gloomy hills a mile or so below.*

Although Lamarque mistook the purpose of the cross, it is obvious from the description of its size and location that it must be the Keiley Creek *Dechinn*.

The significance of *Dechinn* in the Beaver Prophet religion may be related to their creation myth (recorded in Ridington 1990:129-130). In the beginning God created the world, which was void of people and animals and consisted only of land and water:

> *There was just water and God made a big cross that he floated up on the water. He floated the cross on the water. He floated that cross on the water and then he called all the animals that stay in the water. He sent them down to get dirt but they just came out. They couldn't get it. Too far down. The last one was rats [Muskrat]. He sent him down to get the dirt and he stayed down for how long. Finally he just brought up a little dirt. He put that piece of dirt on the cross and he told it, "You are going to grow."*

This story symbolizes more than merely creation. Ridington (1990:129) believes that the creation story makes the point that substantive reality is determined by a design plan that represents "the relationship inherent in the world as it is experienced." In other words, "in order for meaningful action to be possible in the world of substance, cultural plans must be impressed upon the flow of events" (*Ibid*:130). Moreover, Muskrat's action in the story is symbolic of the abilities of the dreamer to travel to a different world. The story is a metaphor for growth of the world from the point at which two lines intersect, just as the hunt grows from the point at which the trials of men and animals come together in a dream (*Ibid.*). Thus, a *Dechinn*, with its cross structure, is symbolic of the cross from which the world grew and represents the point from which a hunter will make contact with an animal in his dreams. When a hunt is successfully carried out after the erection of a *Dechinn*, it is because the events have already been represented in the dreams of the hunter.

ORAL HISTORY

Oral history has been defined as "oral testimony transmitted verbally from one generation to the next or more" (Vansina 1971:444). Julie Cruikshank (1991) says that the term "oral history" has two separate but related meanings. It may refer to a "body of *material* retained from the past and known to elders", or to the "*process* by which that material has been handed down to the present" (Cruikshank 1991:141, emphasis in original). Oral histories can be a significant source of historical information for areas about which little has been documented in the written record (Cruikshank 1981). They often incorporate historical events into traditional narratives, may contain highly technical information (i.e. "traditional knowledge") concerning environment and place, and are often highly persistent between generations even during eras of rapid culture change (Cruikshank 1981). Stories concerning traditional use activities and place names analysis are two important sources of information that can abet the identification of areas of high archaeological potential and archaeological sites (Cruikshank 1981). For example, traditional place names can encode information concerning historical events, mythic events, geology, resource gathering localities, and many other topics. Recently, many archaeological projects in the Canadian north have incorporated First Nations' elders and knowledge in their research (c.f. Gotthardt and Hare 1994; Hare and Greer 1994). For instance, Walde (1999) identified the Tuchodi Lake Village Site (IbSc-001) from oral history recounted by members of the HRFN and the DTTKFN. Thus, oral

history is considered an appropriate, and important, portion of the archaeological overview assessment of the Sidenius Archaeological Inventory Project.

Although various First Nations (e.g. Halfway River, Prophet River, Blueberry River) may have used the study area on occasion, Halfway River is one of the closest communities to this area and thus it was considered that the HRFN would provide representative ethnographic information. The Halfway River people originated from three intermarrying sibling groups: Hatayakle's children; Maketsueson, the Prophet's children; and Old Thomas Hunter's children (Ridington 1968). These sibling groups hunted and trapped together as independent units and came together during the summer with related families from Prophet River and the eastern bands (Ridington 1968). In the early 1960s, the Halfway Band designated itself as *tse-ta-ma-kwonne*, "this side of the mountain people" although other groups, such as Doig called them *tsekane* (Ridington 1968:147).

On March 15, 2001 a group interview with four members of the HRFN was conducted with the objectives of aiding archaeological survey and interpretation in the study area, and to record the concerns of Halfway elders about archaeological and cultural heritage sites. The participants included elders Jasper Wokeley, Charlie Butler, and Billy Fox and councilor Bobby Jackson. The participants were all people who had extensive guiding, hunting and trapping experience in and around the study area. Although the interview was largely informal, encouraging discussion among the participants, it centered on questions of concern for this study and was facilitated by the presence of a map of the study area to stimulate the memories of the participants. The information in this section concerning the cultural heritage of the Sikanni Chief River area was recorded during the interview process.

Northeast BC is a popular destination for big game sport and trophy hunters from Canada, the USA, and Europe (Brody 1988). The Sidenius Creek area was part of Don Beattie's guiding area, which covered a large area up the Sikanni Chief River, over the Continental Divide and into the Akie watershed (TERA and FMA 1996). Beattie's guiding and outfitting business provided wage labor for many men from the Halfway Community including Pete Butler, Billy Fox, Johnson and Jasper Wokeley, Lee Hunter, Alberta and Dave Akla and Bob Metecheah (TERA and FMA 1996). Brody (1988:206) mentioned the "long history – almost tradition – of guiding" among the Beaver reserves of northeast BC In fact, the stories told about mishaps and adventures during guiding trips have become an important part of the recent oral history of Halfway. Men such as Jasper Wokeley,

who guided in this area, have fond memories associated with it. In effect, they have a personal relationship with the area validated through personal narratives, which is akin to the connection between place and people that is integral to many First Nation's cultures and their claims to traditional territories.

The guiding, hunting, and trapping experiences of the participants interviewed was evident in their anecdotes recounting humorous incidents. Their authority to issue warnings concerning the disturbance of cultural heritage resources was based on their personal relationship with the lands encompassing the study area. Many concerns were noted, such as the safety of *Dechinn*, and the elders communicated that there is a prohibition against disturbing heritage resources. When asked by the interviewers whether they had noticed whether the people they had guided had ever removed artifacts from sites as souvenirs, the elders replied that although many people had wanted to, they had frequently told them to leave such things alone. Jasper Wokeley provided the explanation that a Dreamer had one time dreamt about such things, and had learned in that dream that things belonging to the ancestors were to be left alone where they were. This admonition is especially important concerning artifacts, but is also relevant to *Dechinn*.

The participants voiced a common concern for the safety of *Dechinn,* which are considered sacred sites by members of the HRFN. Jasper Wokeley said that the *Dechinn* near the Chowade River narrowly escaped being destroyed by a fire lit by the grazing tenure holder who had obtained a permit to perform a controlled burn. Either he was ignorant of the presence of the *Dechinn*, or was not concerned about its destruction. Jasper says that the fire stopped approximately 150 m from the *Dechinn*. There seems to be some belief that the fire stopped short as a result of divine intervention. Brody (1988:108) also voiced concern about impacts to the medicine cross:

> *I knew that a logging road was scheduled to be pushed along Bluestone [Horseshoe] Creek towards Quarry [Chowade] River. It would probably follow the trail that led us from the camp to the cross. The cross itself, so inconspicuous, blending into the trees from which the Indians had built it, would all too easily be bulldozed into the ragged brush piles that lie alongside the new roads on the frontier.*

Although *Dechinn* are sacred, and perhaps have some powers of protection, they are still threatened by fire, development and those who do not respect their power.

Of interest to the archaeological overview assessment, was the mention of numerous trails existing in the Sidenius Creek area. Such trails were used by the guides and outfitters and are believed to represent old travel-ways used by the native peoples

who traversed the valleys, foothills and mountains in the M-KMA. Billy Fox mentioned a trail that he had heard of from his elders that followed the “Little Sikanni” (Sidenius Creek). This pack trail runs north to cross the Sikanni Chief River, passes Red Fern Lake and eventually becomes the Tuchodi-Gathto-Kluachesi pack trail. Lamarque (1934) followed an old pack trail that runs along the Halfway River and turns north to the Sikanni, and eventually joins the previously mentioned trail. It was part of a network of trails used by the Beaver who ranged from west of the divide to east of the Rockies and south from the Peace River, north to Fort Nelson. Surveyors, explorers, traders, and even the R.C.M.P. used the old pack trails of northern B.C to traverse this rugged country. Many of these trails were expanded and became roads. For instance, the original Alaska Highway followed pack trails north. This vast network of trails could be confusing, as main trails could have many branches, just as rivers have tributaries. For example, G.B. Milligan recounts:

> *During our first summer in the country we traveled with horses, following, generally, the Beaver Indian trails. In making one’s way across the country without a guide, great difficulty is experienced in keeping to the right trail, owing to the confusing number of branch trails, which run in every direction, as a result of the Indians being continually on the move, opening up new trails and hunting new ground and following the moose about.* (cited in Minister of Lands 1929:17)

Judging by both oral and written historical accounts of trails, northeast BC was once a hub of a vast network of trails linking various cultures and places.

Bison that were reintroduced into the study area during the 1980s were a topic of discussion during our interview, as the participants noted that the bison are having a significant impact on vegetation patterns. Bison are disturbing new tree growth in previously impacted forest-fire regeneration areas, and using mature trees to rub against. This may be a management concern for CMTs, as bison rubbing against such objects could obscure the diagnostic scar face, and help in the decomposition of the tree. Bison may also be impacting other types of archaeological sites, as the participants have observed bison creating extensive areas of disturbance in their wallows. It is possible that these activities could unearth and possibly destroy buried cultural material remains. The reintroduction of the bison, however, was considered by the participants to be a positive event as there have been several bison hunts since their reintroduction; bison have not been hunted in this region since the late nineteenth century.

The participants were interested in initiating cultural programs involving children from the HRFN community at later stages of this project. Jasper Wokeley spoke of a trail

ride and campout this summer in the study area involving elders and students. It was proposed that such a program would assist elders to remember, offering the elders an on-site opportunity to point out their concerns and interests, and to provide a forum for teaching students about traditional lifeways. The participants mentioned that a pack trail maintenance program may be a relevant part of future cultural resource management plans in the M-KMA.

ARCHAEOLOGICAL RECORD

A number of archaeological investigations have been previously completed in and around the Sidenius Creek area, especially in the vicinity of the Sikanni Chief River. These areas have been the focus of archaeological impact assessments and mitigation as they relate to oil & gas and forestry developments (i.e., Farvacque 2000; Farvacque and Kinzie 2000a; Walde 1989, 1994, 1997). Recent research in the Tuchodi Lakes region of the Muskwa-Kechika Management Area, northwest of the study area, has resulted in the identification of numerous archaeological and resource procurement sites in the SWB and AT BGCZ's (Hill *et al*. 2001). These findings indicate that northeastern BC represents a common ground where northwestern (Yukon, NWT) and southern (Alberta plains) archaeological technologies may have coincided and influenced each other during the early Holocene.

Despite the recent amount of research and consulting activity taking placing in the region, the cultural history of the area remains poorly understood. Material remains identified from archaeological contexts within the study area include formed and expedient stone tools, lithic debitage, faunal remains, culturally modified trees (CMTs), and pack trails of some likely antiquity. Temporally diagnostic stone tools are rare, but cover all cultural time periods known for northeast British Columbia.

Human occupation of the study area has been continuous since *c*. 10,500 ybp, and is typified by the remains of stone tools and related tool manufacture processes (e.g., Driver *et al.* 1996; Walde and Handly 1993; Wilson 1989). It is probable that the majority of contemporaneous artifacts were of bone, antler, and wood, although organic remains have a poor survival rate in boreal environments (i.e., Farvacque 1997). As a result, the age of organic artifacts recovered from archaeological contexts in the region is limited, with some exceptions, to the last two centuries (e.g. Burley *et al.*1996:111-125). In such cases, cultural traditions thousands of years old may be represented in the modern archaeological record by only a few surviving examples. Trees exhibiting evidence of cambium stripping and segments of pack trails are such disappearing

vestiges of past lifeways. It should also be noted that other aspects of the archaeological record, such as the archaeobotanical and zooarchaeological components, are woefully under-represented in NE BC relative to other boreal regions.

Two archaeological potential/predictive models covering all of NE BC were in existence prior to the creation of the Sidenius Creek model. Walde (1996) created a relatively broad-based, low-resolution 1:250,000 model using general topographic attributes and biophysical characteristics. Mackie (1997) created a model with much finer resolution (1:20,000), using similar variables but incorporating TRIM data. While it provides greater detail than the Walde model, Mackie's potential polygons were created without visual reference to airphotos, other physical evidence of ground conditions, or field proofing. The resultant potential model, while properly rating the archaeological potential of areas relative *to each other*, generally appears to under-estimate the real potential of any given location. Some of the variables used, such as TRIM-derived aspect and slope, are either ill founded or unable to pick up subtleties in the terrain that readily show up on orthophotos.

The study area falls within Borden Blocks HgRv, HgRw, HgRx, HhRv, HhRw, and HhRx. In total, over 40 archaeological and traditional use/resource sites have been identified within these Borden Blocks. Four of these sites (HgRv-001 to 004) are located in the study area. A description of these sites is as follows.

HgRv-001

The site is located on a fluvial terrace on the south bank of a meander bend of Sidenius Creek, and was originally recorded in 1995 during a heritage inventory by Heritage North Consulting Ltd. HgRv-001 is a historic First Nation campsite (1930's to 1950's), characterized by blazed spruce trees. The site was not tested at the time. Site vegetation consists of poplar and Engelmann spruce, with an understory of willow and grasses.

HgRv-002

HgRv-002 is located on an abandoned fluvial terrace north of Sidenius Creek. This site was originally recorded in 1995 during a heritage resource assessment by Heritage North Consulting Ltd. It consists of a surficial lithic scatter of chert flakes and a core fragment. The artifacts were observed eroding along the terrace edge as a result of bison grazing and trail development. Site vegetation consists of poplar and lodgepole pine, with an understory of willow and grasses.

HgRv-003

Located on the edge of a remnant fluvial terrace between Sidenius Creek and the Sikanni Chief River, this site was originally recorded in 1995 during a heritage resource assessment by Heritage North Consulting Ltd. The site consists of a surficial lithic scatter of several chert flakes. Bison grazing on the terrace has resulted in some disturbance, leading to the exposure of these artifacts. Site vegetation consists of lodgepole pine, with an understory of willow and grasses.

HgRv-004

HgRv-004 is located on the edge of an abandoned fluvial terrace between Sidenius Creek and Sikanni Chief River. This site was originally recorded in 1995 during a heritage resource assessment by Heritage North Consulting Ltd. The site consists of a surface scatter of chert flakes, brought to light by bison grazing and disturbance to the site area. Site vegetation consists of lodgepole pine, with an understory of willow and grasses.

FACTORS OF ARCHAEOLOGICAL IMPACT

Within the study area, existing and potential impacts to archaeological sites are varied. These include disturbances arising from oil and gas prospection and development, forestry management, fluvial erosion, animal grazing and trampling, and forest fires. The study area is also located within the Upper Sikanni Management Zone of the Muskwa-Kechika Area, and as such is intensively utilized for recreational purposes by bison and elk hunters. Some of the more prevalent impacts that are occurring, or have the potential to occur, to recorded/unrecorded archaeological sites in the study area include:

- Geophysical programs. They cover large tracts of land, often intersecting terrain features with high potential to contain archaeological materials (i.e., well-drained knolls vegetated with mature stands of lodgepole pine and white spruce). In general, these programs can be unobtrusive given their small footprint, although the clearing of source lines by heavy machinery can lead to the exposure of artifact-bearing soils. The majority of previously identified archaeological sites in the study area were identified as a result of disturbances created by geophysical programs.
- Wellsite developments (i.e., wellsites, borrow pits, access roads). Developments associated with wellsites can result in significant impacts, as they are often located on topographic features which are well-drained and have a high potential to contain buried cultural material remains. Wellsites in particular can significantly impact the largest sites found in the region, given their large construction footprint.

- Pipeline developments. Although having a relatively small footprint, pipelines and their associated developments can traverse large expanses of land, intersecting areas of high archaeological potential and destroying small archaeological sites.
- Access road developments. Although frequently constructed along existing seismic lines, their development frequently causes extensive soil disturbance in areas of high archaeological potential.
- Forestry developments. They cover large tracts of terrain, and concentrate on mature stands of timber. CMT sites are typically most heavily impacted by forestry developments, given the non-linear nature of harvest areas.
- The use of all-terrain vehicles to survey & access the above developments.
- Recreational use (i.e., ATV use, pack horses, etc.). The use of existing pack trails by recreational users can cause extensive erosion and trampling, resulting in the exposure of soils and subsequent archaeological materials. Cutting down trees or the use of deadfall for fire wood can result in inadvertent impacts to CMTs, blazes, etc.
- Bison and elk grazing. Impacts largely result in soil exposures (i.e., game trails, wallows, grazing areas, salt licks). In addition, bison rub trees, which may result in impact to CMTs, blazes, etc.

The increasingly invasive effects of industry and recreational use of the Sidenius Creek area is resulting in elevated odds that archaeological sites will be impacted. As the rate of industry interest and recreational use in the subject area is projected to increase, a greater number of impacts to archaeological sites can be expected. As such, an inventory of archaeological sites in the area is necessary, so as to allow for the advanced planning of industrial and recreational activities in the Upper Sikanni Management Zone, Muskwa-Kechika Management Area.

POTENTIAL MODEL

IDENTIFICATION of POTENTIAL VARIABLES

It is difficult to identify archaeological sites in any region without having an understanding of those past relationships between the land and those people living off it. Landscape features, in conjunction with vegetation cover and faunal resources, determined in large part where – and when – people could use an area for subsistence (i.e., hunting, plant gathering), resource extraction (i.e., rock quarries, plant fibers), shelter (i.e., campsites), and travel (i.e., trails, rivers). While vegetation patterns and the distribution of fauna vary with time, terrain features tend to be more stable and therefore more useful in identifying possible areas of preferred past cultural use or significance. For instance, knolls in muskeg remain well drained and suitable for human occupation, despite a vegetation cover that can change often over short periods of time. However,

vegetation cover is a useful variable because certain types of plants and plant communities prefer certain types of environments and geomorphic features, and will consistently re-appear in these environments over time (see DeLong *et al.* 1991). In general, those archaeological sites presently recorded from the upper Sikanni Chief River drainage are associated with one or more of the following geomorphic, vegetation, or location attributes:

- On a defined topographical rise on level terrain and/or is surrounded by a wetland (i.e. knolls, eskers, whalebacks);
- Is adjacent to a significant change in slope (i.e., terrace edges, valley tops, ridges);
- It is well drained and relatively level;
- A source of (potable) water lies in close proximity (i.e., lake, stream, mineral seep, seasonal water run, wetland complex);
- It lies on a preferred path of travel between or adjacent to landscape features (i.e., edges of wetlands and terraces, ridge-tops, cols/passes);
- It offers a view of wetlands and/or natural game corridors (i.e., gullies, valleys, ridges);
- If any of the above conditions may have existed in the past (i.e., abandoned terraces, paleo-drainages), but are not present today, and;
- Mature stands of lodgepole pine.

These attributes have also been successfully used by archaeologists in the study area to identify the location of sub-surface archaeological remains and CMT sites within areas of homogenous old growth timber (i.e., Farvacque and Kinzie 2000a,b; Walde 1998a,b,c).

VARIABLES

Given available information from ethnographic sources, literature, and existing data sets, it was determined that there are three fundamental variables which control where, and when, a location on the landscape is used. These are terrain (geomorphology), vegetation cover, and proximity to water/wetlands. While there are numerous other lesser variables, the former three were used to create the archaeological potential model generated for this report. Admittedly, the level of significance given to the internal components of these variables is arbitrary, which led to the creation of a simple, effective grading system for the attributes of variables: no/very low, low, moderate, and high potential. Numerical values were not assigned to these levels, as the relationships between attributes and/or variables are not quantifiable given

present information. Mapped results of the attribute variable analyses are presented in Figures 2-30.

GEOMORPHOLOGY

Two key factors that appear to determine whether a location on the landscape is used or not are quality of drainage (particularly when there is no snow cover), and proximity to diverse environments / ecotones. As such, levels of archaeological potential based on geomorphic terrain features were based on the following criteria:

- *Low potential* Level areas greater than 500 m from a break in slope, basins, slopes > 20˚;
- *Moderate potential* Central sections of linear, well-drained features (i.e., eskers), slopes 6˚ > 3˚, hummocky terrain, level areas between 250-500 m from a break in slope, and;
- *High potential* Individual knolls/hummocks, level areas less than 250 m from the top of a break in slope, abandoned fluvial terraces, ends of linear well-drained features (i.e., eskers, drumlinoids, moraines, glacio-fluvial megaripples), cols/passes.

These attributes are illustrated on Sheet 'A' of Figures 2-13.

VEGETATION

Vegetation attributes as they relate to archaeological potential appear to be indirectly related to drainage and biophysical resource availability. As such, forest class polygons on Ministry of Forest forest cover maps were assigned a relative archaeological potential value based on the content of that polygon, and are as follows (by forest cover type – see MoF Inventory Type Group for definitions):

- *Low potential* B, BS, S, SB, L (muskeg, riparian habitats, pure stands of white or black spruce, pure stands of poplar);
- *Moderate potential* SPl, SDecid, PlS, PlDecid, AcConif, AcDecid, DrDecid, E, AtConif, AtDecid (combinations of two or more of the following: white spruce, poplar/aspen, alder, aspen/birch/lodgepole pine);
- *High potential* Pl, PlDecid (pure and mixed stands of lodgepole pine, aspen/birch, open dry meadows), and;
- *Unknown* NcBr, NpBr, NsR.

These attributes are illustrated on Sheet 'B' of Figures 2-13.

WATER / WETLANDS

From discussions with DTTKFN elders and our knowledge of archaeological sites in the Sidenius Creek / upper Sikanni Chief River drainages, the presence or proximity of open water and/or wetlands appears to be a crucial variable. Although difficult to quantify, the selection of relative potential attributes for this variable is similar to other potential models (i.e., Mackie 1997). However, this variable should be used with caution, as archaeological sites can be situated close to small, difficult to identify water bodies such as springs. The relative archaeological potential of water bodies/wetlands was determined as follows:

- *No / very low potential* Open water, wetlands;
- *Low potential* Areas greater than 1000 m from a wetland or minor stream (see below), or greater than 2000 m from a major river or water body (i.e., Sikanni Chief River, Sidenius, Embree, Bartle Creeks);
- *Moderate potential* Areas between 500-1000 m from a wetland or minor stream, or 1000-2000 m from a major river or water body, and;
- *High potential* Areas less than 500 m from a wetland or minor stream, or less than 1000 m from a major river or water body.

These attributes are illustrated on Sheet 'C' of Figures 2-13.

DISCUSSION & RECOMMENDATIONS

The potential model generated for this report resulted in the creation of 6939 polygons showing five orders and four special classes of relative archaeological potential. These are distributed as follows: 1st Order, 171 polygons (total area 59.83 km^2, max. 7.92 km^2, mean 0.34 km^2); 2nd Order, 2112 polygons (total area 16.85 km^2, max. 0.92 km^2, mean 0.007 km^2); 3rd Order, 2721 polygons (total area 7.08 km^2, max. 0.012 km^2, mean 0.0026 km^2); 4th Order, 1527 polygons (total area 1.73 km^2, max. 0.016 km^2, mean 0.0011 km^2); 5th Order, 181 polygons (total area 0.084 km^2, max. 0.003 km^2, mean 0.0005 km^2); knolls, 5 polygons (total area 0.037 km^2, max. 0.0157 km^2, mean 0.0075 km^2); lodgepole pine >100 years, 8 polygons (total area 8.08 km^2, max. 3.34 km^2, mean 1.01 km^2); wetlands, 171 polygons (total area 4.75 km^2, max. 1.27 km^2, mean 0.028 km^2), and; lakes / open water, 48 polygons (total area 2.84 km^2, max. 1.86 km^2, mean 0.060 km^2). The majority of polygons displaying attributes related to high levels of archaeological potential (4th & 5th Order, knolls, lodgepole pine >100 years) tend to be distributed in valley bottoms and adjacent to water bodies in the SWB BCGZ. However, scattered areas of high potential for archaeological remains were identified in the AT

BCGZ around lakes, bodies of open water, and in areas of relatively low slope. Archaeological potential in the latter BCGZ likely consists of potential lithic reduction stations and specialized resource procurement sites. Archaeological potential at lower elevations in the SWB BCGZ consists of possible CMTs, trails, burials, villages / aggregation loci, campsites, and non-lithic resource procurement sites. Lithic procurement sites in the SWB BCGZ are likely concentrated around creeks and rivers, where quality raw materials for the manufacture of stone tools are most accessible.

Anthropogenic impacts were recognized in our initial project proposal as a known concern to the physical integrity of archaeological sites in the M-KMA, and especially in the Upper Sikanni Management Zone. Anthropogenic factors influencing erosion events and rates were identified at the time as potentially stemming from oil & gas exploration and extraction activities, the harvest of mature timber, or recreational activities. Significant natural impacts were also noted, rising from fluvial erosion of river banks and ungulate trampling & grazing. Although it is recognized that anthropogenic and natural impacts can and do occur simultaneously and / or accentuate the effects of the other (see Hill *et al.* 2001), the model presented here can be used to manage active concerns (i.e., bison herd sizes, ungulate over-grazing) and plan for future impacts (i.e., energy resource extraction activities).

At this time, there is an insufficient data base of known archaeological sites within the study area to cross-check our model with real-life situations. One immediate observation is that Forest Cover information can be inaccurate. Archaeological sites HgRv-003 and 004 are known to lie in or adjacent to a large, well-drained grassland maintained as such by repeated bison use, while Forest Cover information classifies this area as a wetland. Inconsistencies such as this support the need for random field verification of the data base used to generate the Sidenius Creek archaeological potential model, to enable informed & accurate management decisions.

RECOMMENDATIONS

The forecast goal of the Sidenius Creek Archaeological Inventory Project was to produce an archaeological potential model based on ethnohistoric, oral history, physiographic, and ecological information. It is believed that this objective was effectively and successfully met, and that the product presented here is representative of the possibilities archaeological potential models have as Heritage management tools for the M-KMA. It is also believed the cultural & archaeological richness of the region is accurately represented in our model.

The following two segments of this section provide recommendations related to the verification of accuracy of the Sidenius Creek model ('*Future Research*'), and its use as a tool for the management of Heritage remains in the M-KMA ('Uses'). These recommendations could be extended to encompass Heritage concerns elsewhere in the M-KMA, and/or modified to incorporate other concerns (i.e., identification of prime / potential ungulate habitat).

FUTURE RESEARCH

As discussed previously in this report, the Sidenius Creek archaeological potential model must be field-check to ensure accuracy. This is best accomplished through a stratified random archaeological inventory survey, whereby certain portions of the study area are surveyed *in-situ* for archaeological remains, and results compared to expected values. The addition of time-sensitive variables such as paleo-vegetation cover, abandoned lake shoreline, and reconstructed river courses would complement the model, as the archaeological potential of a locus on the landscape will fluctuate with time and the evolution of terrain in geomorphologically unstable areas (i.e., river valley bottoms). This type of information could be extrapolated from Quaternary paleoecological & paleoenvironmental histories of the subject area, as gathered from the study of lake-bed sediment cores.

Given the results of this project, it is recommended that the model area be extended to that studied under M-KMA trust fund project # M-K 2000-01-58 (see Hill *et al.* 2001). Such an extension would incorporate a much larger archaeological site database, allowing for increased model accuracy.

USES – apropos the M-KMA Management Plan

With the hope of better managing anthropogenic and large-scale natural impacts to archaeological and other heritage sites in the Sidenius Creek study area, it is within the scope of this project to provide relevant management recommendations to the M-KMA advisory board. As projections call for increased recreational and industrial use of the study area, the following recommendations are particularly applicable to what we believe will be the main use of the model and principal future concerns – managing impacts rising from the establishment of an access network into the study area and associated developments (i.e., an oil & gas infrastructure, creation or maintenance of high-impact ungulate grazing / browsing grounds, creation of pack trail spurs).

- Use of the Sidenius Creek archaeological potential model to pre-plan development lay-outs to reduce preventable impacts to archaeological and other Heritage remains;
- Establishment of a survey / monitoring program to evaluate ongoing impacts in areas of high archaeological potential / concern as identified in the model;
- Continued restriction of the use of all-terrain vehicles in areas identified as possessing high archaeological potential;
- Assessing the impacts of excessive animal grazing and trampling in areas identified as possessing high archaeological potential, and;
- Establishment of 'low Heritage concern' backcountry camp locations away from areas exhibiting high archaeological potential and/or known archaeological sites.

This report strongly supports public education of the concerns and issued raised here. However, it is well documented that increased public awareness of archaeological concerns can lead to destructive looting and vandalism. To avoid this, it is further recommended that exact archaeological site locations not be identified in documents destined for public release.

The recommendations provided here are presented in an effort to promote stewardship of the human history of the project area, and to maintain the visual and physical integrity of the region. These goals are believed to be in agreement with those of the Muskwa-Kechika Management Plan, without impeding the rights and privileges of relevant stakeholder groups who have interests in the use of the Sidenius Creek study area for business and recreation.

We believe that this project has very effectively met its goals, and demonstrated the practicality and efficacy of modeling archaeological potential in the M-KMA. Such models are quite useful in identifying areas where potential conflicts between Heritage remains and development plans may occur, all the while assisting in problem resolution. Given purported future increases in recreational and industrial activities in the M-KMA, the need for a region-wide management tool for Heritage issues has been identified and established.

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