TUCHODI-GATHTO-KLUACHESI TRAIL ARCHAEOLOGICAL INVENTORY SURVEY: PHASE 1

MUSKWA KECHIKA MANAGEMENT AREA

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Frontispiece: View of archaeological site IbSd-t002, Upper Tuchodi Lake.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

In the southern Muskwa-Kechika Management Area (M-KMA), pack trails represent one of the few ways to gain access to back-country areas. An expanded inventory of archaeological and heritage sites along these trails is believed necessary at this time, given the nature of documented impacts present recreational activities are creating, and the projected intensification of use of these trails. Phase 1 of this project, the results of which are represented here, gathered substantial information on the possible antiquity and history of these trails, and the effects present recreational use of the trails is having on archaeological and other heritage remains.

BACKGROUND

Prior to this project, the levels of impact recreational activities were having on archaeological and heritage sites in the M-KMA had not been actively addressed. Results from the preliminary field work clearly show that numerous archaeological and heritage sites are being negatively impacted as a result of diverse anthropogenic and natural events, mainly through compounded erosion (i.e. trails, hoofed animals, fluvial activity, aeolian activity, waves and boat wash on lakes). Anthropogenic and natural impacts are projected to increase, disturbing or destroying an unknown but likely significant portion of the finite number of heritage remains present along trail corridors. Major issues raised by our initial work in the area include the implementation of management objectives related to the conservation/mitigation of known heritage remains, and the urgent need for additional inventory work given the elevated number of heritage sites identified as being presently affected by significant impacts.

Initial archaeological fieldwork for this project was undertaken in August and September, 2000. Personnel included three archaeologists (Rémi Farvacque, Melanie Hill, and Ken Schwab), and three assistants (Richard Chipesia, Willow McDonald, and Eugene Tsakoza). Attention was focused on trail corridors around the Tuchodi Lakes, Dead Dog Creek, Gathto Creek, and Kluachesi Lake.

The initial survey resulted in a total of 48 previously unrecorded archaeological sites being identified (see Figures 1-4). Although the survey was biased towards examining natural and anthropogenic exposures, it is interesting to note that 31% of the sites identified were immediately adjacent to erosional exposures arising directly or enhanced by anthropogenic events (i.e. pack trails, airstrips, fence lines, etc.). Forty-five

percent of the identified sites were located along the shores of Lower Tuchodi Lake (39%) and Kluachesi Lake (6%). The remaining 24% of sites were identified in exposures resulting from wind erosion or game animal use.

PRIMARY OBJECTIVES

The primary objectives of this project are as follows:

- to produce a preliminary archaeological inventory of impacted sites in trail corridors (this is the primary focus of Year 1 and the results are presented here);
- to identify sites with significant research potential for interpreting human history of the project area;
- to support planning initiatives regarding recreation;
- to provide enhanced technical and scientific training to assistants in heritage site identification and management; and,
- to accumulate database and materials which will promote awareness of the cultural history of the southern Muskwa-Kechika Management Area.

As previously mentioned, our initial survey of the project area within M-KMA was biased towards examining exposures created or enhanced by the use of existing pack trail beds. As a result, numerous archaeological sites were identified as inadvertently impacted by the continued present-day use of these trails. Although these same trials are considered valuable heritage resources under the scope of this project, the continued and compounded impacts caused to archaeological resources adjacent to trail beds must be considered. As such, the need for an expanded archaeological inventory in the subject area is required, so that informed management options may be recommended 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 recreation and impacts to archaeological resources can be found in the Discussion section of this report. Further research in regards to the findings presented in this report is invaluable in defining a cultural history of the M-KMA, and establishing its regional importance in northeastern British Columbia.

LOCATION & PRESENT ENVIRONMENT

The subject portion of the Muskwa-Kechika Management Area lies in the Spruce – Willow – Birch (SWB) and Alpine Tundra (AT) Biogeoclimatic zones (BGCZ) (Figure 1). Terrain in the study area is mountainous, and is characterized by rocky steep-sided

slopes separated by high and wide valleys. Soil development is poor to non-existent in the more elevated alpine areas, while valley bottoms frequently have well-developed and well-drained soils. Well-defined abandoned fluvial features (i.e. meanders, terraces) are also found along the Tuchodi River, Dead Dog Creek, and Gathto Creek, and are described in greater detail in the *Past Environments* section of this report.

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 (Pojar and Stewart 1991a). An intermittent to closed forest cover of white spruce (*Picea glauca*), lodgepole pine *(Pinus contorta* var. *latifolia)*, and aspen (*Populus tremuloides)* dominates in the 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, Atemisia norvegica ssp.,* among others). Where drainage is not well developed, willow and scrub brush wetlands can be found along the creeks.

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. Dolly Varden (*Salvelinus malma walbaum*), Lake Trout (*Salvelinus namaycush*), Whitefish (*Prosopium williamsoni*), and Longnose sucker (*Catostomus catostomus*) are known from the Tuchodi Lakes, while Arctic Grayling (*Thymallus arcticus*), Burbot (*Lota lota*), Dolly Varden, Longnose Sucker, and White Sucker (*Catostomus commersoni*) have been captured in Kluachesi Lake (Government of British Columbia Ministry of Agriculture, Food, and Fisheries, 2001). Plates 1-4, 6C-D illustrate the SWB-BGCZ in the study area.

The Alpine Tundra zone occurs at elevations between 1400 and 2700 m 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. Plates 5 & 6A,B illustrate the AT-BGCZ in the study area. Glaciers and perennial ice patches are known from the immediate vicinity of the study area, and occur at elevation exceeding 2400 m (Plate 10).

PAST ENVIRONMENT

Detailed paleoenvironmental information for the study area is poor to non-existent, as noted in previous reports and works (i.e. Farvacque 1999a, Farvacque and Kinzie 2000; Wilson 1989). As a result, this information must be extrapolated from paleoecological and Quaternary geology studies conducted elsewhere in NE BC, the southern Territories, 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) had advanced over the study area by *c*. 18,000 ybp. Deglaciation started *c*. 14,000 ybp, and although swift, appears to have been asynchronous. Most of the region was ice-free by 12,000 to 11,500 ybp, although small ice masses may have stagnated in the project area for some time thereafter as a result of elevation and sheltered northern exposures.

Deglaciation was a geologically tumultuous time, as rapid erosion occurred and drainage systems began to coalesce in an initially treeless, steppe-like environment. Extinct animals known to have inhabited NE BC at this time include *Mammuthus primigenius* (mammoth), various species of *Equus* (horse), several species of large *Bison* (bison), and a species of *Camelops* (camel). Extant species included elk, bison, 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 many wetlands in NE BC began to form between 7700 and 5000 ybp, as a result of wetter climatic conditions (MacDonald 1987). There appears to have been little major ecological change since then, although recent small-scale events such as forest fires have played a role in the distribution and presence of current patterns in the forest cover of valley bottoms. 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 hemispheric, 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).

Relict glacial terrain features are not readily apparent today in the study area, possibly because of erosion or the rugged nature of the immediate terrain. Well-developed fluvial & lacustrine terraces and colluvial/alluvial fans along the Tuchodi River, Gathto Creek, and shorelines of the Tuchodi and Kluachesi Lakes cover ground and lateral moraine tills, as well as glacio-lacustrine deposits (Plates 7, 8A-C, 9A). 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 (Plates 9B-C, 10). Although not adequately documented here, the authors believe many of the now stable aeolian deposits present along the shores of the Tuchodi Lakes (Plate 8D, 24D) are of some antiquity, and likely represent a colder climatic regime.

ETHNOGRAPHIC RECORD

The research in this section is based on historical documents and ethnographic texts, and is included because many of the documented skills and lifeways are rooted in the ancient past and often reflected in the archaeological record. The information provided here was largely uncovered through literature reviews of materials in the Treaty and Aboriginal Rights Research archives at Treaty 8 (Fort St. John), archives in the Fort St. John North Peace Museum, and documents at Big Pine Heritage Consulting & Research Ltd. (Fort St. John).

Although there exists a wealth of historical and ethnographic texts regarding the native inhabitants of northern British Columbia, ethnohistoric information for the study area is scarce. The paucity of ethnohistoric data for this area can be attributed to the following three factors. First, a great deal of confusion exists in the written historical record as to the identities and cultural affiliations of the native peoples whom various Eurocanadian explorers, traders and surveyors encountered in northern B.C. This confusion was exacerbated by the fact that throughout the historical period the territories occupied and utilized by First Nations peoples shifted, initially due to the fur trade and then to the movement of people onto Reservations. Second, written historical accounts of native peoples are limited by the extent of Eurocanadian travel in northern B.C. If an area was not accessed by Eurocanadians, or was accessed when native people were not present, there is no written ethnohistoric record for that area. Finally, First Nations populations in northern B.C. were devastated by a vicious cycle of disease and starvation, leading to the centralization of people near trade centers and occasionally a breakdown in oral histories linking people and place.

Despite the lack of specific textual ethnohistoric information referring to the Tuchodi-Gathto-Kluachesi area, a general ethnography for it can be pieced together from the wide range of ethnographic sources available for northeastern B.C. In general, northeastern B.C. was the home of people belonging to the Na-Dene language group. The written record suggests that three Na-Dene groups may have utilized the study area in protohistoric to historic times: the Sekani, the Slavey, and the Beaver. In addition, the Kaska-Dene utilized regions bordering the study area. The territories attributed to these peoples in anthropological ethnographies and references to them in historic documents show that their ranges bordered upon, if not penetrated into, the study area.

The protohistoric (the period defined as the initial introduction of European trade items into Native lifeways) range of the Slavey has been the source of some controversy to early ethnographers. Osgood (1936) maintained that the territory of the Slavey at the time of first European contact was restricted to the Slave River basin, Great Slave Lake and some distance along the Mackenzie River, with the western extent of their range at approximately 121 degrees east Longitude. On the other hand, Jenness estimated their western extent to 125 degrees east Longitude (Hongimann 1946). It has further been postulated that their original homeland extended further south than the Slave River basin, and that they were driven northwards by harassment from Cree and possibly the Chipewyan people. Taking this information into consideration, it is plausible that the protohistoric distribution of the Slavey may have reached the study area (Figure 5).

The southern boundary of the historical range of the Slavey seems to have been slightly northeast of the study area. As of 1942, Hongimann (1946:23) says:

> People calling themselves Slave are distributed as far north along the Fort Nelson River as Nelson Forks and the Liard, thence east to Forts Liard and Simpson and for a distance down the Mackenzi.e. South and southeast of Fort Nelson the Slave do not extend farther than the southern drainages of the Hay and Fontas Rivers… West of the Fort Nelson River there are no Slave, although occasional hunters may travel up the Muskwa and Prophet Rivers.

Jenness (1931) also mentions a group of people whom the Sekani called *Tsokoni*, which he says, made their home in the Nelson River Basin. E.B. Hart, a surveyor for the Department of Lands, Hudson's Bay Company, mentions a group of "Indians who hunt on the Prophet R. and upper waters of the Musquah" but does not say whether they are "Sikanni" or "Slavi," both of which he mentions in an earlier document (Hart, 1914a and 1914b). Today, the asserted traditional territory of the Fort Nelson First Nation, which includes people of Slavey, Beaver and Cree backgrounds, includes the Tuchodi River. Based on the historic and ethnographic evidence, it is possible that the Slavey of historic times utilized not only regions bounding the study area to the north but perhaps penetrated the Tuchodi Lakes area itself (Figure 5).

The Kaska-Dene were also traditionally active in portions of M-KMA. Based on the written record it is difficult to assess whether they frequented the study area. The Kaska-Dene call the Gataga-Kwadacha-Frog watershed, a portion of which immediately borders the study area to the west, *Dene Keyih*, meaning "the people's land" (Figure 5) (British

Columbia Ministry of Environment, Lands and Parks Division 1999). This implies a relationship between the Kaska-Dene and the lands bordering the Tuchodi Lakes area to the west. Although the documents consulted for this report do not necessarily place the range of the Kaska-Dene in the study area, further ethnographic, traditional use and place names research would no doubt redress many inaccuracies in the written record. It is possible, then, that the Kaska-Dene also forayed into the Tuchodi-Gathto-Kluachesi region. The Sekani also have a name for the Gataga-Kwadacha-Frog watershed, *Dune Za Keyih* ("the land of the original people").

The protohistoric area postulated for the Sekani has been characterized by Osgood (1936:16) as "the drainage of Peace River and its tributaries above Hudson's Hope". According to Jenness (1937) the term "Sekani", from *Tsekani* meaning "rock or mountain people" was first applied in the early 19th century to the natives living on the Parsnip, Finlay, and Upper Peace rivers. Harmon's journal, dating to 1820, mentions that although the Sikanni wintered east of the Rocky Mountains, they withdrew in the summer to the Finlay and Parsnip River basins to avoid the Beaver and Cree with whom they had hostile relations (Jenness 1937). Sir Alexander Mackenzie applied the name "Rocky Mountain Indians" to the Sekani as well as to a southwestern branch of Beaver. Jenness also notes that the Sekani, during the time of Mackenzie's travels (the late 18th century), claimed that their original territory included the Peace River above its junction with the Smoky, and that the other group of "Rocky Mountain Indians" (i.e. Beaver) were intruders to their territory. If the archival descriptions are correct and the Sekani occupied a territory defined by the Finlay and Parsnip rivers to the west and the edge of the Rockies to the east, it is plausible that their protohistoric territory extended into the study area (Figure 5).

Throughout the historic period, the Sekani were pushed further west and north by the Beaver and Cree into the Liard River basin and the Rocky Mountain Trench. As late as the 1930s, however, the Sekani may have still frequented the mountains near the Tetsa River, a tributary of the Muskwa River, just north of Tuchodi Lakes. According to Mary Gibson Henry (1935:271), a botanist who explored the Rocky Mountains and foothills during the 1930s, they encountered "an encampment of Sikanni Indians" near the Tetsa River. They took along "Charlie, the "old chief's son, who was familiar with the country and knew where the hot valleys were and where we could find grass for our horses" (Henry 1935:271). Charlie led the Henry expedition to a site on the Racing River where they would camp and which Mary Henry noted was "an old and much used Indian

encampment" (Henry 1935:273). As well, Charlie showed them a graveyard on a hill on the west side of the Toad River and told them of the five men buried there. From Mary Henry's description, it can be determined that either family groups of Sekani still penetrated the eastern slopes of the Rocky Mountains in the 1930s, or that she misidentified the people she met. E.B. Hart (1914a) also mentioned people that he called "Sikanni" who lived near Fort Nelson in the early twentieth century. It's likely that both Henry and Hart misidentified northern groups of Beaver as "Sikanni," as the eastern range of the Sekani was becoming increasingly constricted during the historic era, and discrepancies between the names that were applied to cultural groups defined by Eurocanadians and the names that native people used in reference to themselves were not uncommon.

Jenness (1931, 1937) noted that the cultural group defined as Sekani by Europeans had no common name to cover all of their internal divisions, only names for separate bands. It seems that "Sikanni / Sekani" became the common terms applied to native people encountered in the northeastern Rocky Mountain ranges. For example, Robin Ridington (1988) noted that white traders called several family bands of Beaver who occupied regions around the Prophet River area "Sekani Indians". It should be noted that based on linguistic evidence, the Beaver and Sekani are believed by ethnographies to have been a single group at one time. The fur trade led to changes in group affiliation, and hostilities between the Sekani and Beaver (Jenness 1937). Perhaps the similarities between the Beaver and Sekani languages confused the traders or, they may have grouped all "Rocky Mountain Indians" together as did Mackenzie in the 1790s. Another explanation is that the Beaver who hunted above the Sikanni Chief River became associated with that river's name. Whatever the case, the best argument, based on ethnographic sources, can be made for Beaver occupancy in the study area during historic times.

As the fur trade expanded westward, it is believed that the Cree pushed the Beaver north and west from the western end of Lake Athabasca and the drainage of the Peace River below Peace River canyon (Osgood, 1936). Again, there is some controversy in the written ethnographic record as to the historic locations of the Beaver. Jenness (1931) subdivided the Beaver into three groups who ranged from the falls below Fort Vermillion, A.B. to Hudson's Hope. It should be noted that the map Jenness (1931) generated to show the territories of the Athapaskan peoples reveals large gaps in his

knowledge of the extent of native occupation of northeast B.C., with the area north of Finlay Forks and east of the Finlay River largely illustrated as having no cultural affiliation (see Figure 5). Goddard (1916), on the other hand, extends their range northwest noting a band of the Beaver, known as the Rocky Mountain Indians, whose northern range was the headwaters of the Liard River and their southeastern range the confluence of the North Pine and Peace rivers.

A large problem with early ethnographic works concerning the Beaver is that ethnographers concentrated on the Peace River area, which had many references to the Beaver in the historical record. The best textual ethnographic information for bands of Beaver who hunted to the north and west of the ranges noted by Jenness (1931, 1937) can be found in the works of Robin Ridington (1968, 1988, 1990).

The Dene Tsaa Tse K'Nai (DTTKFN), or the Prophet River First Nation, claim as their traditional territory a large area encompassing the Tuchodi-Gathto-Kluachesi region (Figure 5). Godsell (1942:11,13) mentions their progenitors, calling them the "Prophet River Indians", the "Sickannie tribesman" of "Chief Bellyfull" whose "southern frontier" was the "Sickannie Chief River". Within historic times the study area was an integral component of their seasonal round. According to Ridington (1988:23):

> Jumbie's people used to hunt up the Muskwa River and the Prophet River toward where these waters gathered themselves up out of the mountains…People moved in a circle from mountain to muskeg. Some of them wintered at Fish Lake. *Others, the Tuchodi people, stayed closer to the mountains*. They hunted as far south as the Sikanni Chief River…(emphasis added).

Jumbie was a Prophet River elder and dreamer who provided Ridington with rich accounts of the history of his people and their way of life. Based on Jumbie's oral history, it is obvious that certain family groups of the Prophet River Beaver frequented the study area. They were called the Chisode people, and prior to the 1930s they hunted in the mountains and wintered at Tuchodi Lake, which is named after them (Ridington 1968). It is interesting to note that according to Jumbie, the Chisode dialect was hard for the Beaver of the Peace River to understand and, as mentioned before, Ridington observed that white traders called them "Sekani". This is reflected in Godsell's application of the term "Sickannie" to the Beaver who hunted in the Prophet River area.

The mountains were depopulated as a result of disease and starvation among the native people who had made them their home. Most of the Chisode people died of

disease and ceased to exist as a distinct group after 1928, although some Chichodi people had married into Decutla's band, which hunted from the mountains north to Fort Nelson (Ridington 1968). That the Chisode people also suffered from starvation, probably associated with the loss of hunters from disease, was recorded by Ridington (1990:80-81) in a story told by Jumbie: "One time some Chichodi people came to see Decutla. 'Decutla, we're hungry'…Those Chichodi men were just skinny. All their dogs had died." Decutla, a prophet, dreamed for them and helped them on their hunt and they obtained meat to take home.

On the basis of the above information, it can be deduced that although not much is known historically about the original occupants of the study region, the area was at the center of a vast movement, associated with the fur trade, of Athapaskan peoples north and west. Throughout the protohistoric era the Slavey, Sekani and Beaver people may have utilized this area. By the early 20th century, however, only the Beaver can be definitely associated with the region, although the Slavey may have also penetrated it. As disease and starvation decimated native populations, forcing native people to redefine group affiliations based on kinship ties and eventually to become more centralized, the mountains of the Tuchodi-Gahtho-Kluachesi region were depopulated. In the words of Ridington (1988:25), "after the flu, this beautiful country lay almost empty of people."

The Na-Dene peoples who utilized this country to make a living for themselves, whether Slavey, Sekani, or Beaver, were nomadic hunting people who lived in small family groups. These people did not group themselves into larger cultural affiliations based on language or social characteristics (note the discussion on the Sekani above), although they did come together into larger groups during the summer. For example, for generations the Beaver people camp together with their relatives in the summer for singing and dancing at Where Happiness Dwells, the present-day Montney area (Ridington 1988). Kinship was the glue that held such groups together and defined the social universe. Small family groups were characterized by flexibility and resiliency in their relationship with their environment (Ridington 1990). According to Ridington (1990:82): "the fundamental and underlying principle of their adaptation was a reliance on artifice rather than artifact. They valued knowledge and information as the fundamental instruments of a successful adjustment to the demands of the nomadic hunting way of life." Although material culture was important for survival, knowledge was the basis for technology.

RESOURCE USE & SEASONAL CYCLE

Traditionally, a diversity of plants and animals were used by the Na-Dene for various purposes, ranging from foods 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, bunchberries, raspberries, beaver root/rat root, mosses, muskrat root, moose-stick, puffballs, fungi, poplar/aspen, cottonwood, white & black spruce, birch, willow, and lodgepole pine. Minerals and stone were also important resources. Elders at the DTTKFN have mentioned to the author that *their* elders collected black rocks from outcrops in Prophet River drainage for the manufacture of stone tools (Farvacque and Bowyer 1999).

SEASONAL CYCLE

The following description of the Na-Dene season round has been extracted from Farvacque and Bowyer (1999:4-5), with modifications. Much of their information was gathered from interviews with DTTKFN elders, and it is suggested that the reader refer to this source for more detailed information.

Summer/Fall: Activities that took place in the summer and fall months included the hunting of large and small game, fishing, plant collecting, and the preparation of food for long-term storage for the upcoming winter months. Groups aggregated at traditional camping sites, and social activities such as singing, gambling, and courting were important during the summer months. Goddard (1916) reports one semi-annual community gathering in which a large dance ground is fenced off and a central fire is prepared. Such large campgrounds are readily distinguished in the archaeological record, and it is thought that several of the sites identified in this report are such gathering grounds.

Animals hunted in the summer included moose, goats, sheep, elk, deer, rabbit, grouse, and porcupine. According to ethnographic and ethnohistoric accounts, bison were also once abundant in the region, and it is generally thought that woods bison were much more common prior to the introduction of firearms (Francis and Payne 1993; Jenness 1937;

Ridington 1979). Fish, although somewhat less important, were caught in the summer. Summer months were also an important plant-collecting time. Berry picking took place during the summer months, and white spruce were felled to be used later in the fall when dead and dry.

An important activity during the fall months was to accumulate stores of meat and berries. As autumn approached, small groups dispersed into small camps to hunt moose, deer, bear, and goose (Burley et al 1996; Ridington 1979). Rabbits were also snared in the fall. Meat such as moose was flaked or "jerked" on a scaffold of poles in the sun. Meat was also smoked, with rotten wood used to create a thick smoke to ward off insects and flavor the product (Godsell 1938). Berry picking continued to be an important activity during the early fall, and freshly picked berries would be spread out – fresh or boiled – on large cottonwood leaves to dry for later use. Berries dried fresh would later be reconstituted by soaking them in water.

Winter/Spring: People broke up into smaller bush communities in the wintertime (Ridington 1968). Animals hunted during the winter were primarily large mammals, including bison, elk, caribou, and moose, with rabbit and grouse when snared (Jenness 1960; Ridington 1996). According to DTTKFN elders, rabbits, marten, and weasel were also trapped at this time. When food supplies were scarce, fish were taken with a line and hook let down through a hole cut in lake ice. Bears found in their dens in winter were also used on occasion as starvation food. Beaver, muskrat, otter, and waterfowl were sought, and eggs were also collected (Burley *et al* 1996; Ridington 1979), although goose appear to have been taboo hunting in the spring when they were nesting. Fish were snared and ducks were hunted in the spring, although fishing also ceased when the fish began to spawn. The roots of aquatic plants were collected in the early spring, when they were believed to be most potent. Other activities in the spring included making canoes out of spruce bark, our creating dugouts from cottonwoods.

The timing and availability of plant and animal resources was critical to the success of Na-Dene life. Certain plants, for instance, could only be collected in specific locations, either because of their medicinal strengths or their rarity in the landscape. Some host-specific parasitic fungi, for example, were collected in the winter to burn for their smell, and as a mosquito repellent later in the year (Farvacque and Bowyer 1999).

TECHNOLOGY

The ability of the Na-Dene to cope in the Northern Rocky Mountains of northeastern British Columbia before European contact required not only an intricate knowledge of resources and geography, but also an efficient technology. Wood, bone, hide and stone were the raw materials used to create the things needed for survival in the extreme environments. It is interesting to note, on the basis of the ethnographic record, that bone was used in place of stone for many implements. For example, Honigmann (1946) notes that 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. Jenness (1937) also mentions a similar style of flesher used by the Sekani made either with caribou antler or the shoulder bone of a moose.

Hunting implements and methods showed a reliance on organic materials rather than on stone, except for arrows, which were tipped with stone, or iron in the post-contact era (see Jenness 1937). For example, in the works of Honigmann (1946), Jenness (1937) and Goddard (1916), references to hunting technologies consisting of deadfalls, snares, brush fences, and other traps used to capture a wide range of prey can be found. Beaver were hunted by setting up a fence near the entrance of a lodge, cutting a hole into the lodge, and then spearing the animal. Larger animals such as bears were hunted using deadfalls (Goddard 1916). Fences, corrals, and pounds were also important in hunting animals such as bison (Ives 1990; Goddard 1916). However, snares appear to have been the trap of choice. Small animals such as rabbits, grouse, porcupine, and squirrels were hunted using a snare with a slip noose attached to a spring pole (Goddard 1916). According to Moses Wokeley, a Halfway elder who was interviewed in Dickson *et. al.* (1991:3):

> In the old days the moose were snared. Ten strips of moose hide [babiche], each one inch wide, were twisted a lot to make the snare….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!….Sheep were really hard to get. You couldn't get close enough to the sheep to use a bow and arrow, so they were snared too….Some days they would get three in snares on those narrow paths. Marmots were snared with a little stick in the ground.

Snaring was a popular hunting method before guns were obtained through the fur trade. In fact, communal hunting methods, under the direction of a dreamer hunt chief, were the common and preferred means of hunting among the Beaver prior to the use of the gun, which emphasized individualism in hunting (Ridington 1968).

Ridington (1988:23) provides a description of the Beaver way of life in "a time long before the Alaska Highway" based on what was told to him by Jumbie:

> People went to the mountain for sheep and goats. They hunted whistlers for their meat and their fat. They made sleeping robes and winter jackets out of sheepskins. There were lots of elk in the mountains. Elkhide was good for summertime clothing because it was waterproof. They made shirts and pants and moccasins out of it. They tanned hides to sell to the Hudson's Bay Company post at Fort Nelson. Then, they made canoes out of spruce bark, loaded them with people and hides and clothing and drymeat and guns and tools, and ran down the Prophet River's impetuous course from rapid to rapid like leaves in a torrent. This was before there were horses in the Prophet River country. People traveled on foot, on snowshoes, and by canoe. They used their dogs to pack their belongings in the summer. In winter, they used them to pull toboggans.

This excerpt emphasizes the importance of the animal resources obtained in the mountains. Jumbie's people were dependent on the resources that the mountains and foothills provided them, and their way of life was largely centered on the land.

Despite the apparent emphasis on terrestrial food resources noted above, fish were sought to supplement diets when hunting proved less productive. A number of techniques were used to capture fish. When certain species were migrating, walls of stone were built out from each shore of small streams, converging in the center where a trap was placed made of poles placed across the stream (Goddard 1916; also see Jenness 1937 for a similar description). The water falling through between the poles left the fish helpless. Fish were also taken in seines stretched in the larger rivers where there was an eddy. Stakes driven in the river were used for attaching the two ends of the net, and the bottom of the net was weighted with stones and the top supported the floats (Goddard 1916). In Farvacque and Bowyer (1999), a DTTKFN elder describes the use of a trap very similar to the one illustrated by Goddard (1916), where branches are bent into

others to create a barrier for fish. In wintertime, fish were taken with a line and hook let down through a hole cut in the ice.

STRUCTURES

Good short-term camp locations were chosen based on the animals and plants in the area, and tended to be placed near creeks and on dry ground (Farvacque and Bowyer 1999). Godsell (1938), for instance, notes Dene camps along the terraces and clearings in the Peace River Valley near Fort St. John, while other groups of Dene were camped on hills near creeks. Godsell (1938) also observed that sufficient open prairie provided a good camp location.

As a consequence of the hunter-gatherer lifestyle enjoyed by the Na-Dene, their shelters consisted of expedient yet versatile structures. The conical tipi was the most commonly used dwelling by the Na-Dene, and consisted of a three-pole foundation that was either forked or had projecting limbs so that they interlocked (Goddard 1916; Jenness 1932). When the structure was abandoned, the tipi poles were typically stacked, and suitable poles were not normally moved, but were left standing. Old campgrounds are marked by these poles, which can stand for almost a century in sheltered locations. Caribou or moose hide was used for the tipi cover, with a considerable opening at the top acting as a smoke-hole (Goddard 1916). In summer, temporary camps were made by throwing together trees with the leaves on them so that they rest upon a tripod foundation. Windbreaks of brush or lean-tos were also used as temporary shelters (Goddard 1916). DTTKFN elders have also described the construction of log cabins using white spruce logs (Farvacque and Bowyer 1999).

Aside from shelters, the Na-Dene appear to have built few other structures as part of their life-style. Caches consisted of stacks of large timber over items, or occasionally on a platform supported by four or more posts (Goddard 1916). The dead were commonly placed on platforms, or on the ground with a small log house built over them. Some burials consisted of hollow logs elevated between two tree trunks (Goddard 1916; Godsell 1938). Single poles and poles in the forms of crosses were also erected for ceremonial purposes (Goddard 1916). Burial grounds are known, but poorly documented in the M-KMA.

The complexity of Athapaskan hunting cultures is not fully portrayed in this section. For more detailed accounts of the early culture and religion of the Slavey, Sekani and Beaver see Goddard (1916), Honigmann (1946), Jenness (1931, 1937), Osgood (1936), and Ridington (1968, 1988, 1990). Also note that written texts are not necessarily accurate, and so must not be taken as authoritative – not all aspects of traditional culture have been recorded in the written record. The oral histories and stories held by contemporary First Nations are important in remedying misunderstandings and mistakes propagated in past written records, and in understanding their elaborate histories and cultures.

HISTORY of TRAILS

Large spans of territory were covered in pre-contact times, and long-distance travel made up a significant component of Na-Dene life. Overland trails were important transportation routes (Ridington 1968, 1979), focusing on valleys where mountainous terrain was encountered (Farvacque and Bowyer 1999; Hooper 1999). Game trails were extensively used, especially to intercept animals. Where land trails infrequently proved impractical, water travel was also carried out by canoe in the late spring to early fall months (Goddard 1916). Unfortunately, very little is known of these early trail networks, and the following section deals specifically with the modern pack trails now encountered in the region.

The first person officially recorded as having traveled in or near the study area was R. G. McConnell of the Geological Survey of Canada, who in 1893 traveled along the Kwadacha River (Smythe 1947). Smythe's accounts of his own travels (via flight) through the area include descriptions of the Tuchodi Lakes and Mount Lloyd George (1947:164,167). Smythe makes no references to pack trails in the area, although he did note axe marks at least 20 years old on trees along Haworth Lake (in the Lloyd George Range) (1947:165). Interestingly, he comments on the view from the summit of Mount Lloyd George "in all this vast agglomeration of mountains, extending over 100 miles in all directions, not a single major peak has been trodden" (1947:167). These types of comments are common among the early explorers of this region, who believed that the area was pristine and unexplored before they came along.

The Bedeaux expedition through Northern British Columbia followed an old pack trail from Chowade to the Sikanni Chief River, past Redfern Lake, over the Prophet, and north to the Muskwa River where it turns west through the Lloyd George range through the Bedeaux Pass to the Kwadacha (Lamarque 1934). During the journey, the expedition travelled along the Warneford River, which drains into the Kwadacha River. Lamarque commented,

> The region of the Warneford is, except for a few natives and possibly a white trapper or so, quite uninhabited…It took us nearly two hours to reach the summit, following game trails that frequently were so deep and well beaten that the tree roots crossing them were often a foot or fifteen inches above the ground (Lamarque, n.d.).

During the same expedition, Lamarque (1934:63, 64, 66, 69, 145) makes several references to blazed, well-marked trails. For example, while travelling alongside the Kechika River he notes “down on these lower lands we were able to use many well beaten game trails that, from numerous blazes nearby, had evidently been frequented by natives” (Lamarque 1934:145).

The accounts mentioned above suggest extensive use of the area, although they often claim that the region seemed uninhabited and inaccessible. While surveying the Tuchodi-Gathto-Kluachesi trial (see Figures 1-4), we noted various markings such as blazes, cut branches, CMTs, and traps, indicative of the antiquity of the trail (Plates 11A,B, 21B). In most cases, especially in the Tuchodi Lakes, Dead Dog Creek, and Gathto Creek regions, all trails are so deeply incised that it is difficult to distinguish between old pack trails and game trails, if such a distinction need (or can) be made. Plates 11C to 13A illustrate typical pack trail use along the Dead Dog Creek section of trail between the Tuchodi River and Gathto Creek. Archaeological and CMT sites identified in close association with these trails attests to the antiquity and consistency of human occupation in the study area.

Trail use intensity varies greatly over the study area. In the Tuchodi Lakes basin, pack trails are deeply incised, constrained by a heavy cover of vegetation and terrain features often limiting the areal spread of erosion. Where erosion has spread beyond the trail bed, archaeological remains were readily identified. In the Dead Dog Creek area, trails did not aid in the identification of archaeological sites as the main pack trail is generally confined to the valley floor. In high-elevation areas, past (archaeological) activities would have been limited to resource procurement and hunting, and to a lesser degree habitations. As a result, site densities are lower and sites are smaller at higher elevations, particularly in the alpine zone. In the Gathto Creek valley, trails are well-defined and readily identified on the north side of the creek, where vegetation cover is minimal and animal traffic high. Intensive past use of the Gathto valley is demonstrated by the density of archaeological remains observed in and adjacent to trail beds. Reduced pack trail use intensity in the Kluachesi Lake Basin can account for the fewer instances of exposed soil and low densities of identified archaeological remains.

ARCHAEOLOGY

ARCHAEOLOGICAL POTENTIAL

It is difficult to identify archaeological sites in any region without having an understanding of those past relationships between the land and those people exploiting 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, fishing), 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. As such, a location or area within the proposed development can be determined to have archaeological potential if it displays a combination of the following attributes:

- It is a defined topographical rise on level terrain and/or is surrounded within 250 m 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;
- It is located on the same landscape feature as a known archaeological site.

Our study area within the M-KMA possesses numerous locations with moderate to high potential to contain archaeological and heritage remains. Main areas of potential for subsurface remains include (paleo-) lacustrine terraces, dune fields, fluvial terraces, bluff tops overlooking the lakes, rivers, and wetlands, and the well-drained portions of valley bottoms. With respect to CMTs, present indications suggest that trees suitable for cambium stripping are primarily located within the confines of valleys, where mature lodgepole pine, aspen, and white spruce abound. Trees in the uplands are believed to be too stunted to have been useful in the procurement of cambium, although their use for

blazes and other expedient needs (i.e. trap setting, tool making) were noted. In general, pack trails, which tend to be associated with CMT sites, traverse valley bottoms and cols, thereby avoiding steep slope changes and the harsher climate of the uplands. Use of the uplands in the past would have been restricted to short-term hunting expeditions to procure large game, and possibly botanical resources such as crowberries, kinnickinnick, rose hips, blueberries, and wetland plants such as rat root (Farvacque 1999b). Traditional use sites are common throughout the region, but with the exception of burials these commonly do not fall under the jurisdiction of the Heritage Conservation Act of British Columbia, and are not considered archaeological sites.

CULTURAL HISTORY

There has been a relative lack of synthesis of cultural information in northeastern B.C. As a result, no well-defined cultural sequences have been developed for the region, and classifications made in this report are based on comparisons with materials from adjacent regions. Table 1 provides a brief generalized cultural sequence for northwestern North America.

By 14,000 years before present (ybp), deglaciation of the conjoined Cordilleran and Laurentian ice sheet margins had begun. Two routes of north-to-south travel by the First Peoples in North America would have been accessible at that time – the ice-free corridor route to the interior of North America, and the maritime route along the West Coast (Fladmark 1979). The interior corridor migration theory suggests that big-game hunters moved from north to south as the ice retreated. Although the ice-free corridor route has been widely accepted in the past, the distribution of early post-glacial (pre-12,000 ybp) sites does not conform to this theory. Numerous pre-12,000 ypb sites are found far south of this region (*i.e.* Monte Verde, Chile), suggesting either a very quick migration, or a longer period of settlement poorly represented in the archaeological record (Fladmark 1979). The nature of the archaeological evidence suggests that a latter movement from south (interior N. America) to north (the Arctic) through this corridor is more likely, rather than big game hunting cultures providing the base for all later cultural adaptations in North America (Fladmark 1979:64). The coastal route of migration along the Pacific coast is a more acceptable theory, with convincing geological, biogeographical, paleoenvironmental, and linguistic evidence (Fladmark 1979, Gruhn 1988). However there is limited definitive archaeological evidence supporting this. Recently, excavations led by Daryl Fedje off of southern Haida Gwaii, Queen Charlotte

Islands, have recovered artifacts from paleo-shorelines dating from 13 000 to 9 500 ybp (Fedje and Christensen 1999). Modeling of these paleo-shorelines has led to the further identification and investigation of several early Holocene archaeological sites, possibly attesting to the

<table>
<tr><th>Years before present (ybp)</th><th>Period</th><th>Yukon</th><th>Northern B.C./N.W.T</th><th>Alaska</th><th>Northern Alberta</th><th>Plains</th></tr>
<tr><td>0</td><td>Protohistoric</td><td rowspan="2">Bennet Phase / and intro of European trade items</td><td rowspan="2">Karpinsky / Timber Point / Taltheilei (Frank Channel, Hennessey)</td><td colspan="2" rowspan="2">Ancestral Athapaskans</td><td rowspan="2">Plains/Prairie side-notched</td></tr>
<tr><td>1000</td><td rowspan="3">Late Pre-contact (arrow points)</td></tr>
<tr><td>2000</td><td>Avonlea</td></tr>
<tr><td>3000</td><td></td><td>Aishihik Phase</td><td rowspan="3">Intro of side-notched points

i.e. Salmon River side-notched / Acasta Lake Phase / Pointed Mountain Complex / Oxbow</td><td rowspan="2">Northern Archaic dart points</td><td>Taltheilei</td><td rowspan="3">Besant

Pelican Lake</td></tr>
<tr><td>4000</td><td rowspan="3">Middle Pre-contact/ Archaic (atlatl dart points)</td><td>Taye Lake Phase</td><td>ASTt Paleo-Eskimo</td></tr>
<tr><td>5000</td><td rowspan="2">Northern Archaic / i.e. Annie Lake Complex</td><td rowspan="2">Upper limit of microblades/ intro of notched points</td><td rowspan="2">Persistent Plano styles as well as undifferentiated archaic dart points</td><td rowspan="2">McKean Complex (Duncan, Hanna, McKean)</td></tr>
<tr><td>6000</td><td>Oxbow</td></tr>
<tr><td>7000</td><td rowspan="4">Early Pre-contact/ Paleo-Indian Period (spear points)</td><td rowspan="4">Paleo-Indian microlithic technology/ i.e. Little Arm Phase</td><td rowspan="4">Fluted point styles/ Paleo-Indians</td><td rowspan="2">Paleo-Arctic/ Denali/ Intro of microblade technology</td><td rowspan="4">Plano-Paleo-Indians
Fluted point styles</td><td>Gowen</td></tr>
<tr><td>8000</td><td rowspan="3">Cody Complex (Scottsbluff, Eden)</td></tr>
<tr><td>9000</td><td rowspan="2">Hell Gap/ Agate Basin</td></tr>
<tr><td>10 000</td><td rowspan="2">Fluted point styles/ Paleo-Indians</td></tr>
<tr><td>11 000</td><td>Alberta
Plainview
Folsom</td></tr>
<tr><td>12 000</td><td></td><td></td><td></td><td></td><td></td><td>Clovis</td></tr>
</table>

Table 1 Schematic hypothesized cultural horizons in northwestern North America. (Adapted from Clark 1983; Dyck 1983; Hare 1995; and Handly 1993).

coastal migration route theory. Gruhn (1988:77) suggests that language divergence is directly proportionate to time depth of human occupation of an area; the greatest diversification of aboriginal languages is observed on the Pacific Northwest coast, California, the northern Gulf of Mexico Coast, Middle America, and South America, supporting the coastal route as the route of earliest migration into North America. Fladmark (1979:64) advocates a coastal migration route based on a chain of sea-level refugia which would have been more environmentally suitable for human occupation than the interior ice-free corridor, and that marine resources would have provided an abundant living for cultures possessing simple watercraft.

The archaeological context of North America can be generally subdivided into four major periods: the Early Pre-contact Period (Paleo-Indian Period), the Middle Pre-contact Period (Archaic Period), the Late Pre-contact Period, and the Proto-historic Period. The Early Pre-contact Period, or Paleo-Indian period, dates from approximately 12,000 ybp to 7500 ybp The period is typified by large lanceolate fluted or stemmed spear points traditionally thought to have been utilized by big game (i.e. mammoth, camel, etc.) hunters. The Clovis complex is the earliest securely dated archaeological complex in North America. Dating to approximately 12,000 ybp, the complex is represented by lanceolate spear points with long channel flakes running from the base on one or both sides. Clovis sites have been identified across much of North America, in areas deglaciated by 12 000 ybp. As of yet, no antecedent to the Clovis complex has been positively identified. Other later Paleo-Indian complexes are represented by Folsom, Plainview, Agate Basin, and Cody Complexes on the North American plains, and the microlithic technologies of the Little Arm phase in the Yukon and the Paleo-Arctic / Denali cultures in Alaska. Paleo-Indian remains consisting of fluted projectiles and macroblades, have been identified in close proximity to the study area (Farvacque and Kinzie 2001).

The Middle Pre-contact Period dates from approximately 7500 ybp to 3000 ybp, typified by side and corner-notched dart points used with an atlatl. On plains, the Oxbow, Mckean, and Pelican Lake complexes exemplify this period. In Northern Alberta, there is the appearance of the Arctic Small Tool tradition and the Taltheilei complex (Ives 1993). Elsewhere, the period is represented by microblade technologies and the Denbigh Flint Complex in Alaska, the Salmon River, Ac asta Lake, Pointed Mountain, Pelican Lake, and Oxbow complexes in northern B.C. & the Northwest Territories, and the Annie Lake Complex and Taye Lake Phase in the Yukon.

The Late Pre-contact Period dates from approximately 3000 ybp to the arrival of European traders in North America. The period is manifested by the appearance of smaller side-notched projectile points, along with the introduction of bow-and-arrow technology. On the plains, this period is represented by the Besant, Avonlea, and Prairie side-notched phases. Elsewhere, the Aishihik Phase in the Yukon and the Taltheilei, Karpinsky, and Timber Point complexes in Northern B.C. & the southwestern N.W.T. are indicative of the period.

The Proto-historic Period is typified by the mixed appearance of European trade items along side traditional native items, relative to each region in question. On the plains, this period is represented by small Plains side-notched points and Old Women's and Mortlach pottery. This period is also exemplified by the Bennet Phase in the Yukon. In northeastern B.C., this period is marked by the appearance of metal, cloth, copper kettles, firearms, alcohol, and tobacco, as Cree Fur Traders gradually introduced items that would forever change traditional lifeways of the Beaver and Sekani peoples (Burley *et. al*. 1996:13).

METHODOLOGY

The initial objective of this archaeological project was to produce a preliminary archaeological inventory of sites in trail corridors. This was to be accomplished through background archival research, interpretation of air photos, interviews with individuals from local communities (i.e. First Nations, guides, outfitters) who have used the trail and its immediate area, and an archaeological field survey to identify and record archaeological and heritage resources.

Between August 17th and September 4th, 2000, a preliminary archaeological field survey was conducted within the Muskwa-Kechika Management Area. An over-flight via fixed-wing of the project area was undertaken prior to the field survey, to conduct a preliminary reconnaissance as well as to transport supplies, personnel, and equipment. The archaeological field survey focused on the area of the trail corridor, defined here as those areas within ±1 km of either side of a present trail bed. This initial phase of the project focused on trail corridors within the Tuchodi Lakes, upper Dead Dog Creek, upper Gathto Creek, and Kluachesi Lake regions. Good ground surface visibility throughout much of this area, due to a general lack of vegetation, made this intensive survey

approach feasible and appropriate. Survey of the trail was conducted by horse and on foot, with the assistance of two members of the Dene Tsaa Tse K'Nai First Nation.

Foot traverses consisted of 2-5 crew members walking parallel to each other spaced in a manner that enabled maximum coverage of the area. Survey extent was delineated as being within ±1 km of either side of the trail corridor, lake and river shores, and high alpine zones (Plates 13B-D) (see Figures 2–4 for approximate extent of survey). Horses and motorboats were used to travel through areas of low archaeological potential to avoid further impact to sites (Plate 14A). These inspections (foot and horse) had the principal purpose of identifying areas with potential to contain features (i.e. cache & roasting pits, burials), sub-surface cultural material remains, rock art, or to identify culturally-modified trees (CMTs). The extent of areas visually inspected were recorded and mapped. The survey focused on areas where rapid erosion (both natural and anthropogenic) and exposed soils were to be encountered (i.e. trail beds, lake and river shorelines, windswept terraces, lacustrine and fluvial erosion), so as to maximize the potential of identifying surface remains without having to further disturb the soils through subsurface testing.

Sub-surface testing was not carried out during the field survey, as excellent surface visibility allowed for the expedient identification of archaeological materials. Once identified, a detailed map and a photographic record were produced for each site. CMTs were recorded according to Level 1 standards established in the BC CMT Handbook (Stryd 1998) and modified by the author for NE BC sites (cf. Farvacque 1999a). The elimination of subsurface testing allowed us to minimize environmental impacts, and promote and preserve site integrity.

ARCHAEOLOGICAL RECORD

The study area lies within Borden Blocks IaSa, IaSb, IaSc, IbSa, IbSb, IbSc, IaSd, IbSd, and HlRx. In total, only two archaeological sites had been recorded in these Borden Blocks prior to our study (IbSc-001 and IaSa-001). This is not an indication of low occupation density, but instead representative of the lack of archaeological research previously completed in the M-KMA. A description of previously recorded archaeological sites and newly identified sites in the subject area is presented below.

PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES

IaSa-001

IaSa-001 is a lithic reduction station / campsite, located on a prominent knoll northeast of Gathto Creek (Figure 6). Big Pine Heritage Consulting & Research Ltd. originally identified the site in 1999, during a reconnaissance flight into the MKMA. Significant artifacts observed at the site include a thumbnail scraper, large utilized flakes, and a large quantity of chert debitage. Site vegetation consists of juniper, crowberry, mosses, lichens, and grasses. IaSa-001 was not revisited during our survey of the upper Gathto Creek valley.

IbSc-001

IbSc-001, also known as the Tuchodi Village Site, is reported as lying on the terraces on either side of the Tuchodi River between the Lower and Upper Tuchodi Lakes (Figure 7). The site was originally recorded in 1990 by Heritage North Consulting Ltd., when documenting an oral history. According to members of the DTTKFN, this locale was a seasonal campsite and meeting place of the families of Decutla (The Prophet) (Ridington 1990). Elders of the Halfway River First Nations reported that teepee frames were still present at this location when they last visited the site during the 1930's (Archaeological Site Form 1990). Unfortunately, the site was not physically visited during its initial recording in 1990, and our attempts to relocate the village in 2000 proved unsuccessful.

NEWLY RECORDED ARCHAEOLOGICAL SITES

HlRx-t001

HlRx-t001 is located on a lacustrine terrace on the west side of a peninsula jutting into Kluachesi Lake (Figure 8, Plate 14B,C). The site consists of a lithic scatter of six black chert flakes, and is located alongside the pack/game trail which overlooks Kluachesi Lake to the west. The site extends approximately 50 metres north to south, and extends west onto the shoreline below the terrace. There were numerous exposures along the terrace edge due to a combination of animal grazing and lacustrine erosion. Soils consisted of grey silty sand. There is high archaeological potential for the site to contain *in-situ* buried, stratified remains. Site vegetation consists of immature spruce, saskatoon bushes (*Amelanchier alnifolia*), alder (*Alnus spp.*), and grasses.

HlRx-t002

HlRx-t002 is located on the west shore of a peninsula jutting into Kluachesi Lake (Figure 9, Plate 14C). The site consists of a lithic scatter of nine black chert tools and flakes. Among the artifacts at the site, a biface fragment and four utilized flakes were observed on the pebbly sand beach, all of which displayed calcium carbonate deposits. The significance of these deposits is unknown at this time, although they may be an indication of site formation processes. Site vegetation consists of immature spruce, saskatoon bushes, alder, and grasses. The artifacts were found within 100 m^2 on the edge of the shoreline, and were likely deposited there as a result of lacustrine erosion of the terrace behind the site. A high potential for the site to contain intact, stratified *in-situ* remains exists in this terrace.

HlRx-t003

HlRx-t003 was identified on an abandoned lacustrine terrace along the northwestern shore of a peninsula jutting out into Kluachesi Lake (Figure 10, Plate 14C). The site consists of a lithic scatter of five chert flakes. The site is located adjacent to a northeast-southwest trending game trail, and extends for approximately 40 metres along the trail. There were numerous exposures along the terrace edge caused by animal grazing and lacustrine erosion. Soils consisted of grey silty sand. A high likelihood exists for the presence of buried, *in-situ* stratified remains at HlRx-t003. Site vegetation consists of immature spruce, highbush cranberry (*Viburnum edule*), alder, and grasses.

HlRx-t004

HlRx-t004 was identified on a lacustrine terrace above the northeastern shore of a peninsula extending into Kluachesi Lake (Figure 11, Plate 14C). The site consists of an isolated chert flake found along side a game trail. Soils consisted of grey silty sand. The potential for the presence of additional buried, stratified remains is very high at this site. Site vegetation consists of immature spruce, alder, willow, and grasses.

HlRx-t005

HlRx-t005 was identified at the southern end of an airstrip north of Kluachesi Lake (Figure 12, Plate 14D). The main pack trail was observed west and perpendicular to the airstrip. The site consists of a lithic scatter of 14 black chert flakes and tools. Among the artifacts observed were two scrapers (Plate 30D) and six utilized flakes, all of which displayed calcium carbonate deposits. The site extends along the airstrip right-of-way for approximately 35 metres. Soils consisted of a grey silty loam. Site vegetation consists of

immature spruce and grasses. HlRx-t005 most likely represents a campsite, which has been heavily disturbed due to the bulldozing/leveling of the terrace.

HlRx-t006

HlRx-t006 was identified at the northern end of an airstrip north of Kluachesi Lake (Figure 13, Plate 14D). The site consists of a lithic scatter of four black chert flakes, including a single chert core rejuvenation flake. The site extends along the airstrip right-of-way for approximately 20 metres, and has been heavily disturbed due to aircraft traffic. Three of the artifacts were observed in the drainage ditch adjacent to the airstrip. Soils consisted of a grey silty loam. Site vegetation consists of immature spruce and grasses. The potential for the presence of additional subsurface remains is high.

HlRx-t007

HlRx-t007 was identified on a paleo-lacustrine terrace north of Kluachesi Lake (Figure 14, Plate 14D). The site consists of a lithic scatter of 15 black chert tools and flakes, all of which display calcium carbonate deposits, and extends along the pack/game trail. A concentration of artifacts was also observed at the intersection of two game trails. Exposed soils consisted of a grey silty loam. Site vegetation consists of immature spruce, cranberry, willow, alder, soopolallie (*Shepherdia canadensis*), and grasses.

HlRx-t008

HlRx-t008 is located on the north shore of Kluachesi Lake (Figure 15, Plate 14D, 15A). The site consists of a lithic scatter of two conjoining black chert core fragments, observed out of context on the pebbly sand beach. Identified just beneath a lacustrine terrace, the site is suffering from shoreline erosion, and the artifacts likely eroded out of the terrace edge. A game/pack trail lies adjacent to the terrace edge, and the site extends for approximately 10 metres along the shoreline. The presence of subsurface remains is highly probably on the terrace behind the location of the original finds. Site vegetation consists of immature spruce, willow, alder, and grasses.

HlRx-t009

HlRx-t009 was identified on a lacustrine terrace south of Kluachesi Lake (Figure 16, Plate 15B). The site consists of at least 50 chert flakes in secondary contexts, scattered over an area 40 x 40 metres. HlRx-t009 extends onto the pebbly sand shoreline below the terrace, indicating that lacustrine erosion is an important factor at this site. A small seasonal drainage flows into Kluachesi Lake approximately 40 metres northeast of

HlRx-t009. It is highly probable that the site contains stratified, buried remains on the terrace. Exposed soils consisted of grey silty sand. Site vegetation consists of immature spruce, willow, alder, and grasses.

IaSa-t002

IaSa-t002 is located on the airstrip at the Big Nine Outfitters' lodge, north of Gathto Creek (Figure 17, Plate 15C). Artifacts were observed along the top of an abandoned fluvial terrace overlooking an abandoned channel of Gathto Creek to the southeast, in clusters extending approximately 200 m along the terrace edge. The terrace has been heavily impacted by livestock grazing and grading. Site vegetation consists primarily of grasses, and exposed silty sand soils were noted to contain few gravels. Artifacts observed at the site likely represent the remains of a major campsite, or at the least repeated use of the site. These include four chert scrapers (Plate 29A-D), two retouched flakes, one core (possibly a microblade core fragment), and 12 utilized flakes. In addition, in excess of 100 pieces of chert debitage were observed scattered over this area. A few of the artifacts display calcium carbonate deposits, the significance of which should be explored in the future. The core fragment is of a grey-black waxy chert dissimilar to most of the material in the remainder of the observed assemblage. Except for the core, much of the artifact assemblage consists of a dull, dense black chert. The artifacts noted suggest that IaSa-t002 is a fairly significant site, and possibly contains intact, subsurface remains. Subsurface testing would verify the richness of IaSa-t002. The trampling of artifacts by horses is a significant taphonomic factor, although portions of the site have likely been destroyed by bulldozer activity.

IaSa-t003

IaSa-t002 is located approximately 600 metres northeast of the Big Nine Outfitters' lodge, north of Gathto Creek (Figure 18). Two large clusters of artifacts were identified along the northeastern fence line designating the Big Nine Outfitters property boundary (D.L. #669). The artifacts were observed in a secondary context due to the recent use of a cat to clear the area and construct the fence line. Soils in the exposures consisted of a black loam. Site vegetation consists of immature spruce, saskatoon bushes, alder, and grasses. The artifacts noted suggest that IaSa-t002 is a fairly significant site, and possibly extends to the south, north, and east. Subsurface testing would verify the richness of IaSa-t002, as it is highly likely that buried, stratified remains are present at the site.

IaSb-t001

IaSb-t001 is located on a game trail north of Gathto Creek (Figure 19). Identified on a fluvial terrace above Gathto Creek, the site was identified in exposures extending approximately 25 metres along the trail. Remains consist of a lithic scatter of four artifacts, including a non-diagnostic, triangular, un-notched, dark grey chert preform, and a retouched obsidian flake (Plate 28B). The triangular preform appears to have been broken at the tip and base during manufacture. Soils consist of a black-brown to grey silty sand. There is a high likelihood for the presence of intact subsurface remains. Site vegetation consists of cranberry bushes, alder, and grasses.

IaSb-t002

IaSb-t002 was identified on a fluvial terrace north of Gathto Creek (Figure 20). The site consists of a lithic scatter of three chert flakes, including one utilized flake. The site was identified in the exposures of several adjacent and intersecting game trails, where animal trampling has created severe disturbance. Soils consist of a black-brown to grey silty sand. Site vegetation consists of immature spruce, aspen, alder, willow, and grasses. There is a high probability for the presence of intact subsurface remains.

IaSb-t003

IaSb-t003 was identified on a fluvial terrace northwest of Gathto Creek (Figure 21). The site was identified within the exposures of a tree throw and consists of a lithic scatter of over 30 black chert flakes and tools. Soils consist of dark brown silty sand. The principal pack trail lies approximately 10 metres south of the site. There is a high probability for the presence of intact subsurface remains. Site vegetation consists of immature spruce, aspen, alder, and grasses.

IaSb-t004

IaSb-t004 is located on a small ridge overlooking Gathto Creek, which lies approximately 200 m to the south (Figure 22, Plate 15D, 16A). The site consists of an isolated black chert flake located within the principal pack trail bed. Soils consist of grey-brown silty sand. There is a high probability for the presence of intact subsurface remains. Site vegetation consists of scattered pine, aspen, alder, and grasses.

IaSb-t005

IaSb-t005 was identified on a paleo-fluvial terrace north of Gathto Creek, which lies approximately 100m to the south (Figure 23, Plate 16B). The site consists of an

isolated black chert flake. The site lies within the exposures of the principal pack trail. Soils consist of dark grey-brown silty sand. There is a high probability for the presence of intact subsurface remains. Site vegetation consists of immature spruce, aspen, scattered pine, and grasses.

IaSb-t006

IaSb-t006 is located on the edge of a bank north of Gathto Creek (Figure 24, Plate 16C,D). The site consists of an isolated chert flake. At this point, the creek narrows to approximately 10 – 15 m in width, just south of which lies a stable gravel bar. The pack trail lies on the edge of a fluvial terrace above the site. Soils consist of dark brown silty sand. There is a high probability for the presence of intact subsurface remains on the terrace above the surface find. Site vegetation consists of scattered pine, aspen, and grasses, while the gravel bar is vegetated with alder, highbush cranberry, and grasses.

IaSb-t007

IaSb-t007 was identified on the principal pack trail on an abandoned stabilized fluvial sand bar north of Gathto Creek (Figure 25, Plate 17A,B). The terrain feature is the relict remain of a paleo-Gathto Creek bed, with soils consisting of dark, reddish-brown sand. The site consists of a lithic scatter of over 50 chert flakes, including the basal half of a corner-notched point, a biface fragment, and a large side scraper (Plates 28C, 30A). Some of the artifacts contained calcium carbonate deposits (see Plate 30A). As stated above, the significance of these deposits is presently unascertained, although they may be an indication of site formation processes and artifact taphonomy. Site vegetation consists of immature spruce, willow, alder, and grasses. The site extends along the pack trail for approximately 10 metres. The corner-notched specimen is manufactured from a waxy black chert, and has similarities to Pelican Lake types from northern Alberta. Noble (1971:107) notes that several southerly Saskatchewan and Alberta plains complexes (i.e. Pelican Lake, Oxbow) have weak intrusions as far north as Artillery Lake in the Northwest Territories. He also suggests that the Pelican Lake complex (2000 – 1800 ybp) temporarily coincides with the earliest phases of the Taltheilei Shale Tradition (Noble 1971:107). However, a more appropriate regional comparison can be made to Noble's (1971) unclassified Juncture Site projectile point (pers. comm., Raymond Le Blanc, February 20, 2001), or artifacts found at Farrell Creek dating to 2500 B.P. (Spurling 1980) and at Charlie Lake Cave from deposits dating to 5000 ybp (Fladmark *et al*. 1988). Another viable comparison can be made to corner-notched points from the Eaglenest

Portage Site in northeastern Alberta (Ives 1993). There is a high likelihood for the presence of intact, subsurface remains at this location, which may further lend to the understanding of cultural affiliations of the site.

IaSb-t008

IaSb-t008 is located on a large elongated glacio-fluvial terrace overlooking Dead Dog Creek to the east, and a tributary of the latter to the south (Figure 26, Plate 17C-D, 18A). The site consists of a lithic scatter of seven black chert artifacts observed in two clusters, including one biface. Site vegetation consists of Engelmann spruce, willow, juniper, and grasses. One cluster of artifacts (including the biface) was observed on the south edge of the terrace, while the second cluster of flakes was observed approximately 60 metres north. The site may be very large, and possibly contains intact and stratified subsurface remains. Site vegetation consists of Engelmann spruce, willow, juniper, and grasses. The site may be of significance as it is the only decent campsite in the upper reaches of Dead Dog Creek, with running water year-round.

IaSb-t009

IaSb-t009 was identified on a high, wind swept ridge overlooking an unnamed tributary of Dead Dog Creek (Figure 27, Plate 17D, 18A). The site consists of a lithic scatter of over 100 chert flakes covering a 50 x 35 metre area. A single retouched chert flake was also noted. The south edge of the ridge is suffering extensive wind erosion, and as a result ground visibility was excellent. Immediate site vegetation consists of scattered lichens and grasses, with a compact sandy gravel substrate (likely weathered till over bedrock). The site may represent a hunting look-out, as its location is not a prime camping spot.

IaSb-t010

IaSb-t010 was identified on a small (10 x 5 metres) hummock on the east valley wall of Dead Dog Creek (Figure 28, Plate 18B-D). The site consists of an isolated chert flake, and it is suggested that additional, but scattered, remains are present. The site is believed to be a bok-out, as the location offers a great vantage point over Dead Dog Creek. Site vegetation consists of stunted Engelmann spruce, sage, lichen, and grasses.

IaSb-t011

IaSb-t011 was identified above the tree line on a southwest-facing slope, east of Dead Dog Creek (Figure 29, Plate 19A,B). The site consists of a wooden spear-like

artifact that appears to have been extensively worked. The tool is approximately 7.5 cm in circumference, and 2.05 m in length. The distal end of the artifact has 4 facets forming a point, each facet measuring approximately 20-25 cm long. The base exhibits hack marks where the piece of wood was cut, likely when the tree was green. Extensive lichen growth and dry decay indicates that the artifact may be in excess of 150 years old when compared to more recent (*c*. early 1970's) survey stakes found at the top of the same mountain. In Diamond Jenness' accounts of his encounters with the Sekani Indians, he mentions the use of such items as trail markers for hunting parties or to convey urgent messages (Jenness 1937:61). Lamarque (1934:31) also notes the use of "sticks or pickets propped up by rocks to mark where traps had been set for whistlers." The appearance of the artifact generally suggests that it might represent a makeshift spear shaft, but none of the other stated uses can be discounted. Site vegetation consists of lichens and grasses.

IaSb-t012

IaSb-t012 was identified on a pack trail on a wide paleo-fluvial terrace approximately 300 metres northwest of Gathto Creek (Figure 30). The site consists of a lithic scatter of three black chert secondary flakes and one tertiary flake observed in the soil exposures of the pack trail and a tree throw. Intact, subsurface remains are likely present at the site. Soils consist of brown sand. Site vegetation consists of pine, spruce, aspen, alder, and grasses.

IaSb-t013

IaSb-t013 is located on a flat fluvial terrace north of Gathto Creek (Figure 31, Plate 19C). The site consists of a lithic scatter of >10 chert flakes, and is located within the exposures of the main pack trail approximately 30 metres southwest of a well-used campsite. A corral and several hitching posts are present in the area, as outfitters commonly use the camp. There is a likely chance of the presence of intact subsurface remains. Soils consist of brown sand. Site vegetation consists of pine, spruce, aspen, willow, alder, and grasses.

IaSb-t014

IaSb-t014 is located on a wide fluvial terrace approximately 250 metres northwest of Gathto Creek (Figure 32). The site consists of a lithic scatter of three conjoining black chert fragments of a complete chopper (Plate 31). The remains were identified on the surface of the principal pack trail, which at this point crosses a gentle southerly slope.

The chopper fragments may have been used as an axe-like tool; heavy use-wear is exhibited on either of the working ends of the tool. There is a high probability of the presence of intact subsurface remains. Soils consist of brown sand. Site vegetation consists of aspen, willow, alder, wild rose (*Rosa acicularis*), and grasses.

IaSb-t015

Remains at IaSb-t015 were identified within the soil exposures of the principal pack trail on a fluvial terrace north of Gathto Creek (Figure 33, Plate 19D, 20A). The site consists of a lithic scatter of one chert flake and a grey chert core fragment. There is a high probability of the presence of intact subsurface remains as the trail provides the only soil exposures. Soils consist of brown sand. Site vegetation consists of aspen, willow, alder, and grasses.

IaSb-t016

IaSb-t016 is located in the principal pack trail on a fluvial terrace north of Gathto Creek (Figure 34, Plate 20C,D). The site consists of an isolated chert flake. Intact, subsurface remains are likely present at the site as the pack trail provides the only soil exposures. Soils consist of brown sand. Site vegetation consists of burn area thickly vegetated with immature spruce, lodgepole pine, aspen, willow, alder, and grasses.

IaSc-t001

IaSc-t001 was identified a fluvial terrace overlooking a dry creek bed to the south, north of Gathto Creek (Figure 35, Plate 20B, 22A). The site location offers an excellent view of the Gathto Creek valley to the south, and remains consist of a lithic scatter of over 20 chert flakes, including a retouched flake and a utilized flake. The site is located along a game trail, and the pack trail lies approximately 20 m east of the scatter. Exposed soils consist of a grey to brown silty sand matrix. Site vegetation consists of an old burn area of immature spruce and pine, aspen, alder, willow, and grasses.

IaSd-t001

IaSd-t001 is located north of the Tuchodi River, and southwest of Upper Tuchodi Lake (Figure 36, Plate 21A, 22B). The site consists of 5 lodgepole pine CMTs lying adjacent to the main pack trail. All of the scars appear to be cambium strippings, and are on dead trees. The area possesses very high archaeological potential for subsurface remains, although none were observed. A stick trap of unknown age was also found

approximately 80 m to the west of the CMT cluster. Site vegetation consists of spruce, pine, willow, and grasses.

IaSd-t002

IaSd-t002 was identified on a small high terrace, approximately 1 km northwest of the Tuchodi River and southwest of Upper Tuchodi Lake, at the entrance to a tributary canyon of the Tuchodi River (Figure 37, Plate 22C,D). The site consists of a lithic scatter of four black chert flakes eroding out of the bluff top, which lies approximately 15 m above the alluvial fan of the said tributary. Site vegetation consists of dense pine, spruce and grasses.

IbSb-t001

IbSb-t001 is located on the south shore of Lower Tuchodi Lake (Figure 38, Plate 23A-D). The observed remains consist of a lithic scatter of eight black chert tools and flakes found on the beach at this location, and eroded out of stabilized paleo-dunes behind the beach. Among the artifacts at the site, a triangular chalcedony "fluted" projectile point of high quality and an incomplete side-notched black chert point base were observed (Plate 28E). Other tools observed include two utilized chert flakes. Site vegetation consists of aspen, white spruce, willow, and grasses. The "fluted" chalcedony point exhibits a long flake scar across the one surface extending almost to the tip. The scar likely originates from the original preparing of the preform, rather than a purposeful channel flake as seen on the earliest Paleo-Indian projectile points in North America (i.e. Clovis, Folsom). On the opposite surface, three small flake scars demonstrate basal thinning, resulting in a slightly concave base. The point is somewhat comparable to Annie Lake complex specimens from southeastern Yukon (see Hare, 1995), although it is not nearly as well made (pers. comm., Raymond LeBlanc, February 20, 2001). It may represent a preform for an Annie Lake-style point. Hare (1995) notes that while this point type has been previously confined to the southern Yukon, recent research has expanded the range of this technology to central and northern Yukon. As these points have rarely been found in buried contexts in the Yukon, it seems fair to suggest that the technology might extend southward.

The incomplete chert side-notched point is likely fairly recent in age, and is comparable to Early side-notched specimens in Saskatchewan (pers. comm., David Meyer, February 19, 2001) and, more closely, points recovered in northeastern B.C. and

northeastern Alberta (see Handly 1993; Farvacque 2000b; Ives 1993) (Plate 28E). The specimen represents the presence of Late Precontact cultures dating to the last 2000-3000 years. The association of these two projectile points on the surface of the shore is not indicative of a direct temporal correlation, as their appearance is likely the result of shoreline erosion. Subsurface testing would be of extreme importance in clarifying the stratigraphy and cultural occupation(s) of IbSb-t001. This is likely a significant and stratified site, with possible good preservation for bone and other organic remains.

IbSb-t002

IbSb-t002 was identified on the north shore of Lower Tuchodi Lake, just west of where the lake drains into the Tuchodi River (Figure 39, Plate 23C,D, 25C, 26C). The site consists of a lithic scatter of five black chert flakes, including one utilized flake, all of which were found on the beach. Vegetation behind the beach consists of white spruce, cottonwood, willow, and grasses growing on stabilized paleo-dunes.

IbSb-t003

IbSb-t003 is located on the north shore of Lower Tuchodi Lake (Figure 40, Plate 25C, 26C). The site consists of a lithic scatter of eight black chert tools and flakes, all noted eroding out of context onto the gravel beach. Among the artifacts at the site, a biface fragment, spokeshave and four utilized flakes were observed. Vegetation behind the beach consists of white spruce, cottonwood, and grasses growing on stabilized paleo-dunes.

IbSc-t001

IbSc-t001 was identified on the northern shore of Lower Tuchodi Lake (Figure 41, Plate 24A). The site consists of a lithic scatter of one black chert utilized flake and one piece of chert debitage observed on the gravel beach. Vegetation behind the beach consists of white spruce, cottonwood, aspen, and grasses growing on an abandoned alluvial fan.

IbSc-t002

IbSc-t002 was identified on a small high knoll overlooking the western half of Lower Tuchodi Lake (Figure 42, Plate 24B-D, 25B). The site consists of a lithic scatter of over 10 chert flakes, and is located along a game trail which intersects the topographic feature it lies on, approximately 150 m north of the lake shore. Site vegetation consists of scattered white spruce, lodgepole pine, soopolallie, and grasses.

IbSc-t003

IbSc-t003 is located on the north shore of Lower Tuchodi Lake (Figure 43, Plate 24A, 25A). The site consists of a lithic scatter of three chert artifacts recovered from the gravel beach. Among these artifacts a large black chert, lanceolate-shaped, stemmed projectile point was observed. A level flat bench, likely an abandoned lacustrine terrace, lies behind the segment of beach where the remains were identified, and is vegetated with scattered mature white spruce, pine, and grasses. The lanceolate projectile point had been manufactured from a dense grainy black chert (Plate 28A). The artifact bears some resemblance to Scottsbluff-type examples from western Alberta, although a comparison to the Taltheilei Complex (2000 – 1700 ybp) or the Frank Channel Complex (700 – 500 ybp) of the Taltheilei Shale Tradition as defined by Noble (1971) is likely more appropriate and applicable to the region. The specimen also shows similarities to examples from the Fisherman's Lake Complex from the Pointed Mountain Site in the southern N.W.T. (see MacNeish 1954). The artifact exhibits straight sides with slight shoulders, and an edge-ground thinned base. The tool has been extensively water worn, suggesting that it has been displaced on the shoreline for quite some time. Paleosols were observed in erosion-induced exposures along the shoreline. The antiquity and possible stratified context of remains at this location suggests that IbSc-t003 is a multi-component site and of high scientific significance.

IbSc-t004

IbSc-t004 was identified on the north shore of Lower Tuchodi Lake (Figure 44, Plate 25C). The site consists of a lithic scatter of one chert core rejuvenation flake and one piece of chert debitage, observed in secondary contexts on the gravel beach. A level, flat lacustrine terrace lies behind the shoreline, and is vegetated with white spruce, aspen, cottonwood, and grasses. There is a high probability that intact, subsurface remains are present at or near this site on the terrace.

IbSc-t005

IbSc-t005 was identified on the north shore of Lower Tuchodi Lake (Figure 45, Plate 24A, 25B). The site consists of a lithic scatter of three black chert flakes and tools, identified in a secondary context on the gravel beach. A biface fragment (Plate 30B) and a utilized flake were noted among the artifacts. A level, flat lacustrine terrace lies behind the shoreline, and is vegetated with mature, scattered white spruce, moss, and grasses. This terrace has high archaeological potential to contain intact, *in-situ* stratified remains.

IbSc-t006

IbSc-t006 was identified on the north shore of Lower Tuchodi Lake (Figure 46, Plate 25C). The site consists of an isolated chert flake, identified in a secondary context on the gravel beach. A level, flat lacustrine terrace lies behind the shoreline, and is vegetated with mature, scattered white spruce, moss, and grasses. There is a high probability that intact, *in-situ* subsurface remains are present at or near this location on the terrace.

IbSc-t007

IbSc-t007 is located on the north shore of Lower Tuchodi Lake (Figure 47, Plate 25C). The site consists of a lithic scatter of five black chert and obsidian flakes, observed on the gravel beach out of primary context. A level, flat lacustrine terrace lies behind the shoreline, and is vegetated with mature white spruce, moss, and grasses.

IbSc-t008

IbSc-t008 was identified on a southwest facing bank of a presqu'ile in Lower Tuchodi Lake (Figure 48, Plate 24A, 25D, 26A,B). The site consists of three concentrations of cultural remains. An isolated chalcedony utilized flake of high quality was identified on a lacustrine terrace of the presqu'ile. There is evidence that this terrace was recently (*c*. 1970's to present) used as a campsite, so some disturbance may have occurred. Also associated with the site are the foundation of a log cabin, cultural depressions, and a possible burial (pers. comm., R. Peck, Outfitter, Fort St. John, B.C., August 18th, 2000). The latter historic features date to the 1930's and 1940's. The third cluster of artifacts was identified on the north shore of a narrow, grassy tombolo connecting the presqu'ile to the mainland. This concentration consists of two utilized chert flakes identified in secondary contexts on the gravel beach. Site vegetation on the terrace consists of mature white spruce, lodgepole pine, and grasses. Shoreline erosion is a great concern at this site, and the presence of paleosols along the southeast shore at the site indicates the possibility of multiple buried components.

IbSc-t009

IbSc-t009 was identified on the north shore of Lower Tuchodi Lake (Figure 49, Plate 25C, 26C). The site consists of a lithic scatter of two black chert tools, observed out of context on the gravel beach. Observed were a side-scraper (Plate 30C) and a fragment of a biface. A level, flat lacustrine terrace lies behind the shoreline, and is

vegetated with scattered, mature white spruce, cottonwood, and grasses. There is high archaeological potential for the site to contain intact, *in-situ* stratified cultural remains.

IbSc-t010

IbSc-t010 is located on the north shore of Lower Tuchodi Lake (Figure 50, Plate 25C, 26C). The site consists of an isolated utilized chert flake, observed in a secondary context on the gravel beach. A level, flat lacustrine terrace lies behind the shoreline, and is vegetated with mature white spruce, lodegpole pine, rose, and grasses. There is high potential for the site to contain intact, subsurface cultural remains.

IbSc-t011

IbSc-t011 is located the north shore of Lower Tuchodi Lake (Figure 51, Plate 25C, 26C). The site consists of a lithic scatter of two black chert artifacts, a side-scraper and a utilized flake, identified out of context on the gravel beach. A level, flat lacustrine terrace lies behind the shoreline, and is vegetated with mature, scattered white spruce, lodgepole pine, rose, and grasses. There is high archaeological potential for the site to contain intact, subsurface cultural remains.

IbSc-t012

IbSc-t012 was identified on the north shore of Lower Tuchodi Lake (Figure 52, Plate 25C, 26C). The site consists of an isolated chert flake, likely eroded from the lacustrine terrace along the shoreline. The present lake terrace is vegetated with mature white spruce, lodgepole pine, rose, and grasses. There is a high probability that the site contains intact, stratified remains.

IbSc-t013

IbSc-t013 lies on a level portion of an inactive alluvial fan, immediately south of the main pack trail, approximately 200 m east of one of Ross Peck's outfitting cabins (D.L. #2622)(Figure 53, Plate 21C). Remains consist of one solitary mature lodgepole pine CMT, exhibiting a cambium-stripping scar. Vegetation at the site consists of a very open, mature lodgepole pine and aspen forest, with an understory of grass.

IbSd-t001

IbSd-t001 was identified on the main pack trail on a high, abandoned lacustrine terrace north of Upper Tuchodi Lake (Figure 54, Plate 26D, 27A). The site consists of a lithic scatter of two black chert flakes observed in slumped paleosol strata on the southwest edge of the terrace. While the whole terrace is believed to represent a site,

erosion is most prevalent along the southern bluff edge where down-valley winds and grazing by animals have reduced the cover of vegetation, which consists of scattered, young white spruce, scrub birch, and grasses.

IbSd-t002

IbSd-t002 was identified on the main pack trail on an abandoned lacustrine terrace 30 m above Upper Tuchodi Lake (Figure 55, Plate 27B,C). The site consists of stratified faunal remains, including two butchered ungulate rib fragments identified *in-situ* and eroding out of the bank. These remains were found coming out of two paleosols at depths of 30 cm and 65 cm depth below surface (dbs). Aeolian silts cap each of these paleosols, which also contain extensive wood charcoal and other possible archaeobotanical remains. At least four additional paleosols were noted between the surface of the site and underlying (glacio)-lacustrine silts at approximately 85 cm dbs. This site is regionally unique because of the excellent verified preservation of *in-situ* faunal remains, and the relatively significant depth cultural remains have been observed eroding from. Site vegetation consists of scattered white spruce, willow, and grasses, although the edges of the terrace are suffering from significant wind and grazing-enhanced erosion.

ARCAHEOLOGICAL SITE SIGNIFICANCE

Archaeological sites are evaluated in this report following the standards outlined in the "British Columbia Archaeological Impact Assessment Guidelines" (Apland and Kenny 1998). This is an evaluation in terms of the site's scientific, ethnic, public, historic, and economic significance:

- Scientific significance is based upon the potential of an archaeological site to answer questions that would enhance our understanding of human history in British Columbia;
- Ethnic significance is the level of importance the archaeological site has to a particular community;
- Public significance refers to the potential of an archaeological site as an interpretive, educational, or recreational area;
- Historic significance relates to individuals or events that made an important, lasting contribution to the development of a particular locality or the province; and

?? Economic significance rates the potential financial benefits from public use of the site as a recreational or educational area.

The level of significance for each category is rated as low, moderate, or high. All of the significance factors are applicable in regards to planning for the archaeological sites identified in the MKMA, as the area is relatively heavily travelled by outfitters, hunters, and other recreational users. The DTTKFN and Fort Nelson First Nations rate any archaeological site within their traditional territories as having a high cultural significance, therefore all sites listed in this report are considered to have high ethnic significance. Scientific significance for all sites was determined based on the quantity and quality of the observed remains, the site's location, and its potential to produce further information. As no subsurface testing was conducted to identify the extent of each site, a low scientific significance rating was not applied to these archaeological sites. Public and economic significance factors were determined on a regional basis, and the potential to incorporate the finds of this project into the Muskwa-Kechika Management Plan. Sites may not be economically or publicly significant on an individual basis, although the overall association of archaeological sites in a small area (i.e. the Tuchodi Lakes sites) could be assimilated into tour information. Potentially larger sites such as IbSc-001 and IbSb-t001 should be considered apart from others, as they are located in areas of heavy pack animal traffic or intensive elk grazing. Tables 2 and 3 provide ratings for each significance factor for each site mentioned in this report.

Previously recorded sites	Scientific	Ethnic	Public	Historic	Economic	Comments
IbSc-001	High	High	Moderate to high	High	Moderate to high	Associated with Decutla, The Prophet. Location not yet verified.
IaSa-001	High	High	Moderate	Low	Moderate	Large lithic workstation, of interest to archaeologist analyzing lithic remains

Table 2 Significance factors for previously recorded sites discussed in report.

Newly recorded sites	Scientific	Ethnic	Public	Historic	Economic	Comments
HlRx-t001	Moderate	High	Moderate to high as a whole for developing an interpretive program along the trails	Low	Moderate to high as a group for developing a historic/cultural tour of the Kluachesi area	Individually, each site may not seem significant as no diagnostic items were noted, however as a whole they provide important regional information
HlRx-t002	Moderate	High		Low		
HlRx-t003	Moderate	High		Low		
HlRx-t004	Moderate	High		Low		
HlRx-t005	High	High		Low		
HlRx-t006	Moderate	High		Low		
HlRx-t007	High	High		Low		
HlRx-t008	High	High		Low		
HlRx-t009	High	High		Low		

Table 3 Significance factors for newly recorded sites discussed in report.

Newly recorded sites	Scientific	Ethnic	Public	Historic	Economic	Comments
IaSa-t002	High	High	High, area is accessible by public	Low	High, area visited frequently by recreational users	relatively abundant site, may undergo looting due to its location
IaSa-t003	High	High	High, area is accessible by public	Low	High, area visited frequently by recreational users	relatively abundant site, may undergo looting due to its location
IaSb-t001	High	High	Moderate to high as a whole for developing an interpretive program along Gathto Creek and trails	Low	Moderate to high as a group for developing a historic/cultural tour of the Gathto Creek area	
IaSb-t002	High	High		Low		
IaSb-t003	Moderate	High		Low		
IaSb-t004	High	High		Low		
IaSb-t005	Moderate	High		Low		
IaSb-t006	Moderate	High		Low		
IaSb-t007	High	High		Low		Diagnostic artifacts observed
IaSb-t008	Moderate	High		Low		
IaSb-t009	Moderate	High	Moderate to high for development of interpretive program for Dead Dog area	Low	Moderate to high as a group for developing a historic/cultural tour of the upper Dead Dog drainage	
IaSb-t010	High	High		Low		
IaSb-t011	High	High		Low		Culturally modified organic artifacts observed above tree line
IaSb-t012	Moderate	High		Low		
IaSb-t013	Moderate	High	Moderate to high for development	Low	Moderate to high for	
IaSb-t014	Moderate	High		Low		
IaSb-t015	High	High		Low		

IaSb-t016	Moderate	High	of interpretive program along Gathto Creek, Dead Dog Pass and trails	Low	developing a historic/cultural tour of the Gathto Creek and upper Dead Dog drainage	
IaSc-t001	High	High		Low		
IaSd-t001	High	High	Moderate to high for development of interpretive program along Tuchodi Lake shores	Low	Moderate to high for development of an historic/cultural tour of Tuchodi Lakes area	Significant based on the relatively small # of CMT sites id'ed in the region
IaSd-t002	Moderate	High		Low		
IbSb-t001	Very High	High		Moderate		Diagnostic artifacts observed, at mouth of Tuchodi River
IbSb-t002	Moderate	High		Low		
IbSb-t003	Moderate	High		Low		

Table 3 (Cont'd…)

Newly recorded sites	Scientific	Ethnic	Public	Historic	Economic	Comments
IbSc-t001	Moderate	High	Moderate to high as a whole for developing an interpretive program along the Tuchodi Lake shores and the trails	Low	Moderate to high as a group for developing a historic/cultural tour of the Tuchodi Lakes area	
IbSc-t002	Moderate	High		Low		
IbSc-t003	High	High		Low		Diagnostic artifacts observed of interest in establishing cultural chronology for region
IbSc-t004	Moderate	High		Low		
IbSc-t005	High	High		Low		
IbSc-t006	Moderate	High		Low		
IbSc-t007	Moderate	High		Low		
IbSc-t008	High	High		Moderate		Associated with a trapper's cabin and possible burial. Demonstrates early use of Tuchodi Lakes
IbSc-t009	High	High		Low		
IbSc-t010	Moderate	High		Low		
IbSc-t011	High	High		Low		
IbSc-t012	Moderate	High		Low		
IbSc-t013	Moderate	High		Moderate		Significant, based on the relatively small # of CMT sites id'ed in the region and historic context relative to the pack trail
IbSd-t001	Moderate	High		Low		
IbSd-t002	High	High		Low		Stratified faunal remains observed

Table 3 (Cont'd…)

DISCUSSION AND RECOMMENDATIONS

As a result of this initial survey, a total of 48 archaeological sites were identified. The majority of these sites consist of lithic reduction stations, although campsites and resource procurement sites were also recorded. Two sites with culturally diagnostic remains were identified along the shores of Lower Tuchodi Lake, which suggest a lengthy occupation of the area. All sites identified consist of surface scatters of cultural remains presently suffering impact from either recreational (anthropogenic) activities (i.e. campsites, horse trampling) or from natural erosion (i.e. water, wind, game trampling). Once subsurface testing has been completed at these sites, a representative sample of cultural remains could be obtained, resulting in a more qualified evaluation. The following provides a brief synthesis of the artifact assemblage observed to date.

ARCHAEOLOGICAL ASSEMBLAGE – A Regional Synthesis

This section provides a general discussion of the entire assemblage recovered/observed during the 2000 survey of the Tuchodi-Gathto-Kluachesi Trail. Specific details about site assemblages can be found in the "Archaeological Record" section.

TOOL TYPES

Projectile Points (Table 4)

In total, three diagnostic projectile points were recovered from three archaeological sites along the Tuchodi-Gathto-Kluachesi Trail (IaSb-t007, IbSb-t001, and IbSc-t003). The term projectile point refers collectively to bifaces (tools worked on both surfaces) interpreted as spear points, dart tips, or arrow heads.

The corner-notched chert point recovered from IaSb-t007 is a dart point, which would have been used with an atlatl (Plate 28C). The incomplete black chert projectile point was recovered from the surface of the pack trail in the Gathto Creek area, and as such its original context is uncertain. The specimen is similar to Pelican Lake Complex points, which occur on the Plains between 3300 and 2000 ybp, gradually extending into the southern N.W.T. by 2000-1800 ybp; yet it also shows similarities to corner notched specimens from Charlie Lake Cave (Handly 1993) and Farrell Creek (Spurling 1980). Hare (1995) and Greer (1993) point out that links between the southern Yukon, the Canadian Plateau, and the Plains regions resulting in the exchange of information may explain the localized appearance of certain assemblage characteristics which would

suggest these broad regional relationships. The specimen likely represents the presence of Middle Precontact (8000 to 3000 ybp) cultures within the Gathto region.

The projectile point recovered from IbSb-t001 is a black chert side-notched arrow point (for use with bow-and-arrow technology) recovered from the surface of the south shore of Lower Tuchodi Lake (Plate 28D). The point was recovered alongside a chalcedony specimen classified as a possible preform for an Annie Lake point (see below). The point is likely relatively recent in age and is very similar to Early side-notched specimens in Saskatchewan, and similar forms in northeastern B.C and northeastern Alberta (see Handly 1993; Farvacque 2000b; Ives 1993). The specimen represents the presence of Late Precontact cultures dating within the last 2000 to 3000 years.

The stemmed, lanceolate projectile point recovered from IbSc-t003 appears similar to Noble's (1971) classification of the Taltheilei Complex point styles from the late Middle Precontact and Late Precontact periods in the southern N.W.T. (Plate 28A). The specimen also shows some similarities to examples of Fisherman's Lake/Pointed Mountain types from the Pointed Mountain Site in the southern N.W.T. (see MacNeish 1954). The artifact exhibits straight sides with slight shoulders, and an edge-ground thinned base. The tool has been extensively water worn, suggesting that it has been displaced on the shoreline for quite some time. The black chert projectile point was recovered in an eroded context on the north shore of Lower Tuchodi Lake.

Catalogue no.	Max. length	Max. width	Max. thickness	Weight	Tool edge	Plate no.
IaSb-007:1A	26.9	25.9	6.9	4.9	15.8	28C
IbSb-001:1B	17.2	16.6	2.9	1.0	8.1	28D
IbSc-003:1A	75.9	24.8	6.9	15.6	61.8	28A

Table 4 Metric attributes of projectile points (mm, g).

Preforms (Table 5)

A total of two preforms were recovered from archaeological sites IaSb-t001 and IbSb-t001. Preforms are bifacially reduced flakes which have not reached the finishing stages of a specific tool type. They can frequently resemble specific cultural typological styles, although most are non-diagnostic. The specimen from IaSb-t001 (Plate 28B) is an incomplete, triangular non-diagnostic specimen of dark grey/black chert, and was recovered off of the surface of a game trail north of Gathto Creek.

The specimen recovered alongside the side-notched projectile point from IbSb-t001 is manufactured from an exotic grey-green chalcedony (Plate 28E). The preform is lanceolate in shape with a slightly concave base, and resembles projectile points from the Annie Lake Complex (4900–2000 ybp) in the southern Yukon (Greer, 1993). It is not as finely retouched, but may represent a preform for an Annie Lake style point.

Catalogue no.	Max. length	Max. width	Max. thickness	Weight	Tool edge	Plate no.
IaSb-001:1A	21.3	19.9	5.9	2.7	19.6	28E
IbSb-001:1A	33.7	14.6	3.1	1.8	31.9	28B

Table 5 Metric attributes of preforms (mm, g).

Scrapers (Table 6)

In total, nine scrapers were recovered from five archaeological sites (HlRx-t005 (Plate 30D), IaSa-t002 (Plate 29), IaSb-t007 (Plate 30A), IbSc-t009 (Plate 30C), and IbSc-t011) in the study area. Scrapers are defined as unifacially worked tools (flaked on one surface), commonly used to scrape animal hides, de-flesh bone, or whittle wood. The presence of such tools at a site is suggestive of a campsite, kill site, or hunting stand, although additional remains need to be recovered from these sites to determine this conclusively. All scrapers were manufactured from dark grey to black mottled cherts.

Catalogue no.	Max. length	Max. width	Max. thickness	Weight	Tool edge length	Comments
HlRx-t005:1A	36.1	23.6	4.7	5.3	31.6	Side-scraper
HlRx-t005:1B	29.7	24.1	1.9	2.3	9.1	End-scraper
IaSa-t002:1A	66.3	35.2	10.9	32.0	62.2	Side-scraper
IaSa-t002:1B	40.5	36.7	8.5	14.8	38.3	End/side scraper
IaSa-t002:1C	23.8	27.3	7.9	4.5	27.5	End-scraper
IaSa-t002:1D	25.4	37.8	10.4	6.4	16.2	End-scraper
IaSb-t007:1F	88.3	33.2	10.9	42.0	77.7	Side-scraper
IbSc-t009:1A	54.9	32.2	6.5	12.2	34.0	Side-scraper
IbSc-t011:1A	84.2	75.3	26.1	148.1	83.7	Side-scraper

Table 6 Metric attributes of scrapers (mm, g).

Cores (Table 7)

A total of six cores, core fragments, and core rejuvenation flakes were identified from five archaeological sites (HlRx-t006 and t008, IaSa-t002, IaSb-t015, and IbSc-t004). Cores are defined as blocks of lithic stone from which flakes have been removed. This usually requires that the material has an elevated silica content, is fairly brittle, and

without structural flaws which might impede effective reduction process. All observed cores utilized dark grey to black cherts.

Catalogue no.	Max. length	Max. width	Max. thickness	Weight	Comments
HlRx-t006:1A	70.9	82.3	18.9	119.4	Core rejuvenation flake
HlRx-t008:1A	64.5	55.6	22.3	94.4	Core fragment, conjoins to HlRx-t008:1B
HlRx-t008:1B	45.2	14.1	17.2	8.2	Core fragment, conjoins to HlRx-t008:1A
IaSa-t002:1G	29.6	38.5	14.9	14.3	Microblade core
IaSb-t015:1A	32.6	31.4	11.7	15.3	Core fragment
IbSc-t004:1A	56.9	73.8	12.8	55.6	Core rejuvenation flake

Table 7 Metric attributes of cores (mm, g).

Choppers (Table 8)

A total of three conjoining chopper fragments were observed at IaSb-t014 (Plate 31). The bifacially reduced fragments were manufactured from a glossy black chert. These artifacts may be used as axes for chopping wood or for crushing bone. The chopper identified at IaSb-t014 was found in three fragments on the pack trail. This might have been the result of trampling (by pack horses and game animals) or cryoturbation (cycle of freeze and thaw).

Catalogue no.	Max. length	Max. width	Max. thickness	Weight	Tool edge
IaSb-t014:1A	97.1	79.9	31.7	233.3	97.2
IaSb-t014:1B	56.3	84.6	27.7	176.9	53.8
IaSb-t014:1C	26.2	54.6	18.2	19.4	45.3

Table 8 Metric attributes of choppers (mm, g).

Bifaces (Table 9)

A total of six bifaces and biface fragments were recovered from archaeological sites HlRx-t002, IaSb-t007 & t008, IbSb-t003, IbSc-t005 (Plate 30B), and IbSc-t009. Bifaces are tools that have both surfaces entirely flaked, and are often interpreted either as knives or, if coarsely reduced, preforms. Of the bifaces observed, all were either flaked on both lateral edges, or they were too fragmentary to indicate whether backing (dulling of one lateral edge) was applied. All of the bifaces and biface fragments were manufactured from dark grey to black cherts.

Biface	Max. Length	Max. width	Max. Thickness	Weight	Tool edge
HlRx-t002:1A	32.8	19.6	8.6	5.6	30.5
IaSb-t007:1B	19.5	13.5	5.5	1.7	14.1
IaSb-t008:1A	40.5	18.1	7.9	6.7	40.4
IbSb-t003:1A	32.6	37.6	7.9	12.6	34.1
IbSc-t005:1A	43.1	39.3	7.6	14.5	39.6
IbSc-t009:1B	35.7	36.9	10.2	14.7	36.5

Table 9 Metric attributes of bifaces (mm, g).

Spokeshaves (Table 10)

A single spokeshave was observed from IbSb-t003. The unifacially reduced fragment was manufactured from a glossy black chert, and the working edge exhibits moderate use-wear. Spokeshaves tend to be associated with the working of wood, such as in the manufacture of arrow shafts. The presence of this tool suggests organic matter was being processed or utilized at IbSb-t003.

Catalogue no.	Max. length	Max. width	Max. thickness	Weight	Tool edge
IbSb-t003:1B	43.7	27.1	16.2	20.6	31.9

Table 10 Metric attributes of spokeshaves (mm, g).

Retouched Flakes (*Table 11*)

A total of five retouched flakes were recovered from four archaeological sites (IaSa-t002, IaSb-t001, t009, and IaSc-t001. These flakes exhibit retouching along one or more edges, and one or both surfaces, to produce an expedient but durable working edge. The artifacts were manufactured from various raw materials, including black and grey cherts and obsidian.

Catalogue no.	Max. length	Max. width	Max. thickness	Weight	Tool edge	Comments
IaSa-t002:1E	68.7	32.1	13.7	27.4	38.9	Bifacially retouched
IaSa-t002:1F	25.4	21.2	5.9	2.7	22.7	
IaSb-t001:1B	12.5	17.4	3.8	1.0	6.7	Obsidian
IaSb-t009:1A	38.5	30.7	5.1	6.3	28.5	
IaSc-t001	36.3	20.4	4.1	3.6	37.9	

Table 11 Metric attributes of retouched flakes (mm, g).

Utilized Flakes (*Table 12*)

A total of 39 utilized flakes were recovered from fourteen archaeological sites along the Tuchodi-Gathto-Kluachesi Trail (HlRx-t002, t005, t007, IaSa-t002, IaSb-t002,

IaSc-t001, IbSb-t001, t002, t003, IbSc-t001, t005, t008, t011, and t014). Utilized flakes are expedient tools that have unintentionally manufactured sharpened edges, but have one or more edges that exhibit use wear. Flakes of varied grey to black cherts and light grey chalcedony were used as expedient cutting, scraping, or sawing tools. A detailed use-wear analysis would provide additional information on tool and site functions. The relatively high number of utilized flakes at HlRx-t002 & t005, IaSa-t002, and IbSb-t003 indicates that the primary functions of these sites may include extensive processing of animal and plant materials.

Catalogue no.	Max. length	Max. width	Max. thickness	Weight	Tool edge	Material
HlRx-t002:1B	22.6	17.5	5.7	2.4	16.6	Black chert
HlRx-t002:1C	12.5	26.3	4.8	1.4	19.7	Black chert
HlRx-t002:1D	32.6	30.7	9.5	4.3	33.6	Black chert
HlRx-t002:1E	28.8	33.9	6.2	7.3	23.9	Black chert
HlRx-t005:1C	35.4	34.3	9.6	12.3	30.4	Black-grey chert
HlRx-t005:1D	35.6	29.8	7.3	7.2	17.3	Black chert
HlRx-t005:1E	26.6	38.9	3.5	2.5	22.2	Black chert
HlRx-t005:1F	43.9	44.9	5.8	11.4	42.1	Black chert
HlRx-t005:1G	19.9	32.9	19.9	3.2	13.3	Black chert
HlRx-t005:1H	23.5	39.1	3.8	3.7	16.9	Black chert
HlRx-t007:1A	32.6	24.2	6.1	6.4	21.8	Dark grey chert
HlRx-t007:1B	28.4	19.9	4.4	3.5	13.4	Black chert
HlRx-t007:1C	28.3	18.9	6.2	2.4	13.6	Black chert
IaSa-t002:1H	56.1	61.4	16.7	55.5	32.8	Dark grey chert
IaSa-t002:1I	46.2	42.1	10.5	20.9	36.7	Dark grey chert
IaSa-t002:1J	42.3	49.9	10.4	19.5	50.7	Dark grey chert
IaSa-t002:1K	46.8	39.3	9.2	11.8	35.9	Black chert
IaSa-t002:1L	65.7	57.9	6.6	20.8	58.1	Black chert
IaSa-t002:1M	40.2	23.1	8.8	8.3	38.8	Black-grey chert
IaSa-t002:1N	30.8	44.4	11.3	18.7	30.5	Black chert
IaSa-t002:1O	56.8	35.4	10.1	15.8	33.7	Black chert
IaSa-t002:1P	29.2	22.8	6.8	3.7	19.5	Black chert
IaSa-t002:1Q	35.1	28.6	4.1	20.6	3.8	Black chert
IaSa-t002:1R	23.1	33.3	6.2	4.4	20.4	Black-grey chert
IaSa-t002:1S	24.2	28.9	4.1	3.1	25.5	Black-grey chert
IaSb-t002:1A	36.5	37.3	9.1	14.3	23.9	Black chert
IaSc-t001:1B	83.8	29.8	5.3	11.1	27.6	Dark grey chert
IbSb-t001:1C	30.5	21.1	3.3	2.4	25.5	Black chert
IbSb-t001:1H	17.9	18.6	2.5	0.7	13.6	Brown chalcedony
IbSb-t002:1B	20.9	28.7	2.8	1.8	16.3	Black chert
IbSb-t003:1C	34.4	35.6	8.4	10.8	29.4	Black chert
IbSb-t003:1D	56.9	23.2	8.0	12.5	48.7	Dark grey chert
IbSb-t003:1E	28.8	46.7	9.1	11.9	20.1	Black chert
IbSc-t001:1B	22.6	21.9	5.6	2.0	20.1	Light grey chalcedony
IbSc-t005:1B	33.4	23.2	3.8	3.2	12.6	Black chert
IbSc-t008:1A	15.9	10.4	1.7	0.3	13.1	Dark grey chalcedony
IbSc-t011:1B	29.5	39.8	9.7	9.9	27.6	Black chert
IbSc-t014:1A	42.0	18.9	6.1	4.4	4.2	Black chert
IbSc-t014:1B	32.7	18.9	7.5	4.2	16.9	Black chert

Table 12 Metric attributes of utilized flakes (mm, g).

DEBITAGE

The term debitage refers to the by-products of stone tool manufacture, which may be discarded or used as expediency tools (i.e. utilized flakes, spokeshaves). Classification of debitage is useful when trying to determine the specific function of an

archaeological site. There are five main categories which were used in classifying the artifacts recovered from the project area: *primary flakes, secondary flakes, tertiary flakes, micro flakes,* and *shatter*. A sixth classification, *flake fragments,* is used for flakes missing features which would indicate their stage in reduction. These designations are determined primarily by the size and shape of a flake, although other features can also be considered. For example, primary flakes are relatively larger (>2 cm), representing the initial stage of reduction and preparation of a core, and are the result of percussion flaking (Magne 1989). They may also display a cortex, the outer weathered rind of a rock, which is often too fragile or chemically altered to produce useful tools. The presence of cortex in any amount is indicative of the early reduction stages of a core (Magne 1989). Secondary flakes are usually smaller than primary flakes (1–2 cm), lack cortex, and exhibit scars from previous flake removal. Tertiary flakes are smaller than secondary flakes (>1 cm). Micro-flakes are the finest, smallest flakes, and measure less than 0.5 cm. Latter reduction stages, represented by tertiary and micro-flakes, are often the result of pressure flaking (Magne 1989). Shatter is the classification of blocky, amorphous, and asymmetrical debitage. When a high concentration of tertiary and micro-flakes are present in a site, this is usually indicative of tool manufacture, retouch, and/or sharpening. A higher concentration of primary flakes, secondary flakes, and shatter indicates initial core preparation and the forming of flakes suitable for eventual tool manufacture.

Classifying debitage is useful when dealing with large samples of lithic remains that have been collected during the controlled excavation of a site. Under this type of circumstance, when artifacts are recovered *in-situ,* with less of a bias towards size, and recorded properly, spatial analysis of the information can be very insightful. Unfortunately, because the artifacts observed at the above sites were visually identified in secondary contexts, it is assumed that a biased surface collection was conducted. Smaller artifacts, such as tertiary flakes and micro-flakes, are easily overlooked in such circumstances, and as such a representative sample is likely not to have been obtained from each site. A detailed catalogue of debitage recorded at each site is provided in Appendix C.

LITHIC (RAW) MATERIAL

Lithic (raw) material refers to the type of rock procured for the manufacture of stone tools. Of the artifact assemblage collected from archaeological sites along the Tuchodi-Gathto-Kluachesi Trail, 96.7% of the material consisted of local grey to black

cherts. Chalcedony (1.5%), and obsidian (1.1%) lithics account for the remainder of the assemblage, with the remaining 0.7% representing faunal remains. While difficult to source, the chalcedony on which the Annie Lake-style projectile point from site IbSb-t001 was manufactured appears to the authors to be exotic to northeastern British Columbia.

Of particular interest are the obsidian artifacts collected from IaSb-t001, IaSb-t010, and IbSc-t007. While most of the chert and chalcedony artifacts recovered were likely manufactured from locally-acquired stones, obsidian is foreign to the region. It is well documented that obsidian was extensively traded into NE BC, the NWT, and northern Alberta from coastal sources in British Columbia (i.e. Farvacque and Kinzie 2000b; Handly 1994). To verify the precise source, the obsidian artifacts recovered here were subjected to non-destructive X-ray fluorescence (XRF) analyses at Simon Fraser University. Results (Appendix E) strongly suggest that all three pieces of obsidian recovered during this project are derived from Source 'C' in the Mount Edziza volcanic complex, coastal northwestern British Columbia (written. comm., Malcolm A. James, March 2nd, 2001). This source lies approximately 380 km due west of the study area, although prehistoric trade systems would have greatly extended the true travel distance of the obsidian. Source 'C' was one of the most widely traded Mt. Edziza sources of obsidian, and can not be used to age the artifacts.

FAUNAL and ORGANIC REMAINS

Preserved *in-situ* archaeological faunal remains were positively identified from archaeological site IbSd-t002. These remains consist of two ungulate rib fragments observed in stratified contexts at depths of 30 cm and 65 cm below surface, with both pieces exhibiting butcher/cut marks. The presence of these remains is regionally very significant, as datable organic remains are rarely found on archaeological sites in northeastern BC.

Archaeobotanical remains were observed but not collected at IaSb-t011. These remains consist of a 205 cm-long, 5 cm diameter tree trunk with four facets chopped at one (distal) end, and overall resembling a spear shaft. The artifact was found ~200-300 m above tree-line, on a steep rocky *arrête* connecting a mountain-top to a Little Ice Age cirque just above the treeline. Due to the fragile nature of the artifact, it was not collected and as a result the composing wood was not identified, although it is suspected that the trunk was obtained locally. The artifact appears to be of some antiquity (>150 years old),

based on lichen growth and its state of dry decay. The presence of this artifact at such a high elevation supports the notion that alpine areas in the Tuchodi Lakes region were used.

As discussed previously, our survey technique was purposefully biased towards identifying sites in eroding contexts. As no subsurface testing, screening of dirt, or flotation of soils was conducted, the artifact types observed and discussed here tend to be relatively large pieces of lithic remains. As a result, minute archaeobotanical remains such as seeds and pollen were not collected, although the future analysis of such remains in archaeological contexts would greatly expand our interpretation of human occupations & activities in the study area.

SITE DISTRIBUTION & FUNCTION

The limited nature of archaeological remains recorded at each site described here renders it difficult to determine which specific activities took place at those locations. As a result, the site function classifications discussed in this section are generalized, and likely under-estimate site use & intensity. A generalized comparison of posited site function versus their spatial distribution is presented below (Table 13). Assigned functions are based on observed artifact types & assemblage compositions, density of artifacts observed / exposed, geomorphological association, and ecological associations.

A relatively high percentage (± 47 %) of sites is classified here as lithic reduction stations, where the artifact assemblage & nature of the site location suggest a relatively short-term, non-occupation event. This is a reflection of our survey methodology, which favored the identification of (large) stone artifacts and other remains easily seen on exposed soil and or other sedimentary surfaces (i.e., trail beds, beaches). Tool manufacturing / lithic reduction stations / hunting stands comprise ± 30 % of interpreted sites, as indicated by the presence of finished tools and debitage. A significant percentage of sites (± 12 %) are classified as campsites / hunting stands, based on the types of tools collected, site physiography & location, and / or evidence of long term use (i.e., industrious quantities of artifacts, stratified occupational events). These sites tend to contain multiple & diverse specialized tools (i.e. scrapers, knives, projectile points), indicating the procurement and processing of game and plant resources for subsistence, technological needs, or other.

Three (± 6 %) of the 48 archaeological sites recorded in this report are categorized here as culturally diagnostic sites. This distinction was generated to account for the relative paucity of cultural chronology information in the region. Given our methodology, which did not directly seek culturally diagnostic artifacts, this percentage is a relatively significant portion of all the reported sites. Two (± 4 %) additional sites are identified here as specialized resource procurement sites, and consist of culturally

Site	Type	Elevation (m)	Disturbance factors
HlRx-t001	Lithic reduction station	1120	Ungulate grazing + lacustrine
HlRx-t002	Tool manufacture	1120	Lacustrine
HlRx-t003	Lithic reduction station	1140	Ungulate grazing + lacustrine
HlRx-t004	Lithic reduction station	1120	Ungulate grazing + lacustrine
HlRx-t005	Tool manufacture / campsite/ hunting stand	1120	Anthropogenic
HlRx-t006	Lithic reduction station	1120	Anthropogenic
HlRx-t007	Lithic reduction station / tool manufacture	1140	Ungulate grazing + lacustrine
HlRx-t008	Lithic reduction station	1120	Ungulate grazing + lacustrine
HlRx-t009	Lithic reduction station	1120	Lacustrine
IaSa-001	Tool manufacture / campsite / hunting stand	1070	Ungulate grazing
IaSa-t002	Tool manufacture / Campsite / hunting stand	1068	Anthropogenic + livestock grazing
IaSa-t003	Tool manufacture	1070	Anthropogenic
IaSb-t001	Tool manufacture	1098	Ungulate grazing
IaSb-t002	Lithic reduction station	1131	Ungulate grazing
IaSb-t003	Lithic reduction station	1131	Fluvial + ungulate grazing
IaSb-t004	Lithic reduction station	1131	Ungulate grazing + anthropogenic
IaSb-t005	Lithic reduction station	1131	Ungulate grazing + anthropogenic
IaSb-t006	Lithic reduction station	1131	Fluvial + anthropogenic
IaSb-t007	Tool manufacture / hunting stand / culturally diagnostic	1131	Anthropogenic + ungulate grazing
IaSb-t008	Tool manufacture / lithic reduction station	1525	Slope instability + animal grazing
IaSb-t009	Tool manufacture / lithic reduction station / hunting stand	1680	Slope instability + animal grazing + wind erosion
IaSb-t010	Lithic reduction station	1595	Cryoturbation + animal grazing
IaSb-t011	organic remains	2135	Cryoturbation + decay
IaSb-t012	Lithic reduction station	1500	Anthropogenic + ungulate grazing

Table 13 Archaeological site distribution and function.

Site	Type	Elevation (m)	Erosion factors
IaSb-t013	Lithic reduction station	1120	Anthropogenic + ungulate grazing
IaSb-t014	Tool manufacture / lithic reduction station	1120	Anthropogenic + ungulate grazing
IaSb-t015	Lithic reduction station	1120	Anthropogenic + ungulate grazing
IaSb-t016	Lithic reduction station	1110	Anthropogenic + ungulate grazing
IaSc-t001	Tool manufacture / lithic reduction station	1130	Fluvial + animal grazing
IaSd-t001	CMT / resource procurement site	900	Anthropogenic + natural decay
IaSd-t002	Lithic reduction station	900	Animal grazing + slope instability
IbSb-t001	Lithic reduction station / culturally diagnostic / tool manufacture	880	Lacustrine
IbSb-t002	Lithic reduction station	880	Lacustrine
IbSb-t003	Lithic reduction station / tool manufacture	880	Lacustrine
IbSc-001	Village/ gathering site	880	Lacustrine
IbSc-t001	Lithic reduction station / tool manufacture	880	Lacustrine
IbSc-t002	Lithic reduction station	975	Animal grazing + slope instability
IbSc-t003	Tool manufacture / culturally diagnostic	880	Lacustrine
IbSc-t004	Lithic reduction station	880	Lacustrine
IbSc-t005	Lithic reduction station / tool manufacture	880	Lacustrine
IbSc-t006	Lithic reduction station / tool manufacture	880	Lacustrine
IbSc-t007	Lithic reduction station	880	Lacustrine
IbSc-t008	Lithic reduction station / tool manufacture	880	Lacustrine
IbSc-t009	Tool manufacture / campsite / hunting stand	880	Lacustrine
IbSc-t010	Lithic reduction station / tool manufacture	880	Lacustrine
IbSc-t011	Tool manufacture / campsite / hunting stand	880	Lacustrine
IbSc-t012	Lithic reduction station	880	Lacustrine
IbSc-t013	CMT / resource procurement site	880	Anthropogenic + natural decay
IbSd-t001	Lithic reduction station	920	wind + animal grazing + slope instability
IbSd-t002	stratified faunal remains	920	wind + animal grazing + slope instability

Table 13 (Cont'd…)

modified trees where cambium stripping occurred. Both sites are located immediately adjacent to existing and active pack trails, and represent an excellent indication of long-term trail bed use & general path stability. A function for site IaSb-t011 has not been determined, given the uncertainty of the artifact type identified at that location.

Archaeological remains recorded on the presqu'ile at Kluachesi Lake (HlRx-t001-t004, and t009), and the assemblages observed on the northern shore of Lower Tuchodi Lake (IbSc-t001, t003 – t013) likely represent larger, possibly stratified sites. Although there is a substantial distance between each site on the Kluachesi presqu'ile, it is likely that the entire 1.8 km^2 feature was used at one time or another as a campsite. Likewise, the close proximity of sites north of the mouth of the Tuchodi River on Lower Tuchodi Lake, and the known history of the use of the Tuchodi Lakes as a gathering site (Ridington 1988, 1990) it would be reasonable to assume these sites are also spatially associated. Subsurface testing is required at all locations to verify these associations, which would add considerably to our knowledge and understanding of regional cultural history.

EROSION

Erosion was identified in our initial project proposal as a known concern to the physical integrity of archaeological sites in the M-KMA. Factors influencing erosion events and rates were identified at the time as stemming from either anthropogenic (human) or natural sources, with our interest focusing on human-induced site degradation. Although it is recognized that anthropogenic and natural factors of erosion can occur simultaneously and / or accentuate the effects of the other, they are discussed separately below to emphasize later recommendations.

NATURAL FACTORS

Natural erosion factors include, but are not limited to, such effects as wind (aeolian) (Plates 32A,B), lake waves (lacustrine) (Plate 25A), river currents (fluvial) (Plate 8A), bioturbation (disturbance by animals, especially ungulates) (Plates 32C,D, 33A,B,C), freeze-thaw cycles (cryoturbation & solifluction) (Plate 33D), slope instability (soil saturation, structural failure of geological features), and gravity erosion (sheet wash).

Soils stripped of their vegetation cover, either through over-grazing by animals, forest-fire, or trampling, are particularly vulnerable to erosion by wind, freeze-thaw cycles, and slope instability. Observed impacts due to these natural factors are often

compounded by sheet-wash, where a thin veneer of exposed sediments is removed by rain or melting snow, and aggravated by micro-gullying. This type of erosion was observed on all sites, and was most pronounced where pack & game trails traverse areas of high ungulate use on south-facing slopes. High-elevation (i.e. alpine) sites were noted to be most prone to irreversible erosion, once their protective cover of mosses, lichens and shrubs is removed by animal grazing or (game) trail use. The short-term result of these kinds of erosion is the concentration of same-event remains in a confined area (resulting in the loss of spatial information), with the long-term concentration of temporally distinct occupation events on one surface.

Whereas the previous paragraph discussed surficial, horizontal erosion, waves and river currents along lakeshores and riverbanks result in lateral erosion. This may have a greater detrimental effect on archaeological sites & their cultural material-bearing sediments, given the high-energy, continual nature of lacustrine and fluvial forces. Although waves and currents affect a small portion of a shoreline or bank, the short-term result is often the collapse of a vertical exposure and the mixing of temporally distinct archaeological components. Over a longer period of time, an entire site can be concentrated on a beach and artifacts subject to differential transport (heavier artifact will stay closer to their point of origin). Lacustrine erosion was evident on all shoreline sites identified immediately adjacent to Kluachesi & the Tuchodi Lakes (Plate 25A), and most pronounced where wave fetch was greatest. Fluvial erosion was quiet evident along the Gathto River, accentuated by intense ungulate grazing and high-energy seasonal (spring) water flows in otherwise dry tributaries of the latter.

A common trait observed in all instances of surficial and lateral erosion noted in this study was the significant contribution animal grazing and trampling had in instigating or compounding erosion to archaeological sites. Erosion from animal sources was particularly acute where ungulates congregate (around sources of water [Plate 13C], salt licks [Plate 33B], river crossings [Plate 12A], and open grassy areas). Although all of the natural erosion factors discussed above mobilize soils and strip protective covers of vegetation – thereby exposing buried archaeological remains and eventually resulting in the loss of contextual information – trambling & grazing by ungulates, and shoreline erosion by waves appear to be *the* most harmful factors affecting the integrity of archaeological sites.

ANTHROPOGENIC FACTORS

A significant source of impact to archaeological sites in the M-KMA is people. Anthropogenic disturbances such as jet boating, float plane landing & take-off, horseback riding, and camping initiate and/or aggravate pre-existing erosion events directly and indirectly. Thirty-eight of the 48 archaeological sites discussed in this study displayed evidence of anthropogenic events enhancing or initiating erosion. Of the 38 affected sites, 14 sites were identified within or immediately adjacent to a pack trail bed or active campsite, 20 sites were in areas exposed to wave wash from jet boats and float planes, and four sites were being impacted by land *and* water-based activities. Although erosion by waves can be buffered by stranded driftwood, shoreline erosion was noted to increase adjacent to active campgrounds where driftwood had been extensively collected as firewood.

The use of existing pack trails allows for the containment of areas of erosion over time. In contrast, the creation of new pack trails can initiate erosion, particularly where trails become a preferred travel corridor for game or where erosion-sensitive areas become subject to intensive grazing or trampling. Erosion due to lake and river-based activities can also be aggravated through intensive use, although proximity to land and object speed were noted as significant variables in the formation of waves capable of causing shoreline damage. While floatplane activity is believed to be too infrequent to caused much impact, our crews observed significant shoreline damage as a result of high-speed driving by jets boat near land (particularly in sheltered bays), and in several instances purposeful near-shore wave generation by jet boat drivers.

RECOMMENDATIONS

The projected goal of the Tuchodi-Gathto-Kluachesi Trail Archaeological Inventory Survey was to produce a preliminary archaeological inventory of archaeological sites impacted by recreational users in a selected portion of the M-KMA (see Figure 1). A total of 48 previously unidentified, impacted archaeological sites were recorded as a result of our initial survey. It is believed that these sites provide a representational sample of erosion events and factors affecting archaeological and heritage remains in the study area, and possibly across the M-KMA. It is also believed that this sample of sites is highly indicative of the cultural & archaeological richness of the region; a richness which greatly exceeded our initial expectations. This section is broken up into two segments: *Future Research* which focuses on the academic aspect of our findings, and *Maintenance of*

Site Integrity, which provides recommendations for the management and preservation of archaeological remains identified here. These recommendations could also be readily extended to encompass management concerns elsewhere in the M-KMA.

FUTURE RESEARCH

Several of the newly recorded archaeological sites identified in the course of this project possess a potential to provide important scientific information about the cultural and Quaternary paleoecological & paleoenvironmental histories of the eastern M-KMA area. Sites such as IaSa-t002, IbSc-t003, and IbSd-t002 warrant further detailed scientific investigation, given their apparent complex archaeological assemblages and possible long depositional histories. For the smaller, less complex sites noted in this report, sub-surface testing is recommended to determine the stratigraphic context of eroding & disturbed artifacts, their antiquity, and areal extent of the site. As the level of impact to these smaller sites is largely unknown, subsurface testing would allow the recovery of detailed spatial, temporal, and artifact taphonomy information prior to the likely eventual destruction of all contextual information. Given the result of this project, it is recommended that the study area be expanded for additional preliminary reconnaissance surveys, and that the detailed excavations of selected sites commence. Initiation of the latter is needed to identify the quality and type of archaeological, geological, and (paleo-) ecological information present in the more important sites, to eventually understand in detail the natural history of the M-KMA.

MAINTENANCE OF SITE INTEGRITY – apropos the M-KMA Management Plan

With the hope of reducing continued anthropogenic impacts to archaeological and other heritage sites while supporting the continued use of pack trails in their present role, it is within the scope of this project to provide relevant management recommendations to the M-KMA advisory board. As a result, the following summarizes the management needs of archaeological and heritage concerns recognized in this report, and in particular those concerns resulting from human activity. As projections call for increased recreational use of the study area, the following recommendations are particularly applicable to what we believe will be two areas susceptible to erosion induced or compounded by anthropogenic events: the Tuchodi Lakes basin, and the Gathto River valley. However, they can be used to address concerns elsewhere in the M-KMA.

- Education of recreational jet boat users to reduce amount and frequency of boat wash along shorelines;
- Establishment of an erosion-monitoring program to identify areas of concern and provide the M-KMA advisory board with solutions to reduce preventable impacts;
- Continued restriction of the use of all-terrain vehicles in the area;
- Increase public awareness of the human and natural history of the region through booklets, informational brochures; and volunteerism on scientific projects (i.e., archaeological excavations);
- The placement of discreet, educational trail markers and/or plaques at locations of high erosion concern to illustrate the problem & advise trail / jet boat users;
- Reduction of excessive animal grazing and trampling over archaeological sites through the placement of natural barriers (i.e., tree trunks);
- Maintenance & signage of pack trails to avoid accidental creation of new trail spurs, particularly in areas susceptible to erosion;
- Relocation of existing pack trails away from archaeological sites where the former is adversely impacting the latter, and
- Discourage backcountry users from collecting driftwood for fires in (pre-identified) locations susceptible to wave erosion.

These recommendations are presented in an effort to promote stewardship of the human and natural history of the project area, and to maintain the visual and physical integrity of the region. These goals are believed to be 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 pack trails and water bodies for business and recreation.

Effective long-term management of heritage remains and sound, detailed scientific studies of archaeological sites have some economic benefits. Projects such as this one involve local researchers, Guides and Outfitters, members of First Nations, and the public, while providing an economic return to businesses in the region. Archaeology can also be a very popular and effective way to promote the M-KMA. Our experience clearly shows that the general public is typically receptive and fascinated by archaeological projects, particularly if experienced first hand.

This report strongly supports public education of the concerns and issued raised here. However, it is well documented that increased public awareness of archaeological site locations 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. Exceptions may be considered for sites undergoing scientific excavation where public involvement is desirable, or to where an exemplary instance of site erosion is revealed to convey M-KMA heritage management issues and concerns.

The number of archaeological sites identified in the course of the 2000 field season, as mentioned previously, was greater than originally anticipated. Combined with the discovery of exceptional archaeological deposits of significant regional scientific, cultural, and recreational importance, we believe that this project has very effectively meet its goals, and demonstrated a need for continued archaeology-related projects in the M-KMA. Large-scale surveys are very useful in identifying management needs and concerns, while detailed investigations of specific sites are more suitable to scientific investigation. Projected results of the latter type of studies include the definition of cultural chronologies in the Northern Rocky Mountains, detailing paleoenvironmental conditions under which people lived in the region after deglaciation, and providing data on the history & possible future trends of ecosystems in M-KMA.

REFERENCES CITED

APLAND, B. and R. KENNY
1998 British Columbia Archaeological Impact Assessment Guidelines. Ministry of Small Business, Tourism and Culture, Archaeology Branch, Victoria, B.C.

GOVERNMENT of B.C. MINISTRY OF AGRICULTURE, FOOD, and FISHERIES
2001 Fisheries Data Warehouse. www.bcfisheries,gov.bc.ca/fishinv/db/default.

GOVERNMENT of B.C. MINISTRY OF ENVIRONMENT, LAND & PARKS, PARKS DIVISION
2001 Protected Areas of the Muskwa-Kechika Management Area, Background document. www.parks-muskwa-kecika.com/pdf/mkma.pdf.

BURLEY, D., J. S. HAMILTON, and K. FLADMARK
1996 Prophecy of the Swan: The Upper Peace River Fur Trade of 1794-1823. Vancouver: University of British Columbia Press.

CAMPBELL, I.D, C. CAMPBELL, M.J. APPS, N.W. RUTTER and A.B.G. BUSH
1998 Late Holocene ~1500 YR Climatic Periodicities and Their Implications., *Geology* 26:471-473

CHURCHER, C.S., and M. WILSON
1979 Quaternary Mammals From the Eastern Peace River District, Alberta. *Journal of Paleontology* 53:71-76

CLAGUE, J. and G. MACDONALD
1989 Paleoecology and Paleoclimatology (Quaternary Stratigraphy and History, Canadian Cordillera); In *Quaternary Geology of Canada and Greenland*. R. Fulton, ed., Geological Survey of Canada, Geology of Canada Vol. 1, Ottawa, Ontario, pp. 70-74

CLARK, J.
1983 Is There a Northern Cordilleran Tradition? *Canadian Journal Of Archaeology* 7(1):23-48

DICKSON, M., V. DAHL, and B. SCOBIE
1991 Pack Horses and Pick Up Trucks: A History of the Pink Mountain Area.

DRIVER, J.C., and K.A. HOBSON
1992 A 10500-Year Sequence of Bird Remains from the Southern Boreal Forest Region of Western Canada. *Arctic* 45:105-110

DYCK, I.
1983 The Prehistory of Southern Saskatchewan. In *Tracking Ancient Hunters: Prehistoric Archaeology in Saskatchewan,* eds. Epp and Dyck. Saskatchewan Archaeology Society.

FALL, P.L.
1997 Timberline Fluctuations and Late Quaternary Peleoclimates in the Southern Rocky Mountains, Colorado. *GSA Bulletin* 109:1306-1320

FARVACQUE, R.N.R.
1999 Archaeological Impact Assessment of Forestry Developments CP 628, 629, 630 & 802 Proposed by Canadian Forest Products Ltd., Fort St. John Forest District – BC AIA Permit 1999-245. Report on file with the Archaeology Branch, Victoria, BC

2000 Archaeological Impact Assessment of Eight Proposed Ministry of Forests Small Business Forest Enterprise Program Cutblocks, Fort Nelson Forest District, NE BC – BC AIA Permit 1999-356. Report on file with the Archaeology Branch, Victoria, BC

FARVACQUE, R.N.R., and V.E. BOWYER
1997 Tommy Lakes Archaeological Inventory Survey: Phase I. .Report on file with Forest Renewal British Columbia, Victoria, BC.

FARVACQUE, R.N.R., and J. KINZIE
2000a Archaeological Impact Assessment of Oil & Gas Developments in the Asserted Traditional Territory of the Dene Tsaa Tse K'Nai First Nation, NE BC – BC AIA Permit 1999-264. Report on file with the Archaeology Branch, Victoria, BC
2000b Archaeological Impact Assessment of 14 Proposed Ministry of Forests Small Business Forest Enterprise Program Cutblocks, Western Fort St. John Forest District, NE BC – BC AIA Permit 1999-163. Report on file with the Archaeology Branch, Victoria, BC
2001 Post Construction Archaeological Impact Assessment of the Berkley Petroleum Corporation Adsett 3D Geophysical Program – B.C. AIA Permit 1999-151. Report on file with the Archaeology Branch, Victoria, BC

FEDJE, D. W. and T. CHRISTENSEN
1998 Paleoshorelines and Locating Early Holocene Coastal Sites in Haida Gwaii. *American Antiquity* 64(4)

FLADMARK, K. R.
1979 Routes: Alternative Migration Corridors for Early Man in North America. *American Antiquity* 44:55-69

FLADMARK, K. R., J. C. DRIVER, and D. ALEXANDER
1988 The Paleoindian component at Charlie Lake Cave (HbRf-39), British Columbia. *American Antiquity* 53(2):371-384

FRANCIS, D. and M. PAYNE
1993 A Narrative History of Fort Dunvegan. Fort Dunvegan Historical Society. Alberta.

GODDARD, P. E.
1916 *The Beaver Indians. Anthropological Papers of the American Museum of Natural History vol. IX*. New York: Published by Orders of the Trustees.

GODSELL, P. H.
1938 *Red Hunters of the Snows.* Robert Hale Limited. London.
1942 I Forged the First Link in the Alaska Highway. The Shoulder Strap, Summer Edition, pp. 11-18.

GREER, S. C.
1993 Annie Lake: A Southern Yukon Mid-Holocene Cultural Complex. *Canadian Journal of Archaeology* 17:26-42

GRUHN, R.
1988 Linguistic Evidence in Support of the Coastal Route of Earliest Entry into the New World. *Man* 23:77-100

HANDLY, M. J.
1999 Lithic Assemblage Variability at Charlie Lake Cave (HbRf-39): A Stratified Rockshelter in Northeastern British Columbia. Peterborough: Unpublished M.A. Thesis, Trent University

HARE, P. G.
1995 *Holocene Occupations in the Southern Yukon: New Perspectives from the Annie Lake Site*. Yukon Heritage Branch Hude Hudan Series Occasional Papers in Archaeology No. 5.

HART, E.B.
1914a Correspondence in the Survey's Branch – Department of Lands, the Hudson's Bay Company, Ft. Nelson, Post, 3,1,1914. Document on file at the Fort St. John North Peace Museum Archives, Fort St. John, B.C.
1914b Correspondence in the Survey's Branch – Department of Lands, the Hudson's Bay Company, the Liard River, 21st June, 1914. Document on file at the Fort St. John North Peace Museum Archives, Fort St. John, B.C.

HENRY, M. G.
1935 Collecting Plants Beyond the Frontier in Northern British Columbia. *in The Natural Horticultural Magazine*, April 1935. Document on file at the Fort St. John North Peace Museum Archives, Fort St. John, B.C.

HONIGMANN, J. J.
1946 *Ethnography and Acculturation of the Fort Nelson Slave.* Yale University Publications in Anthropology No. 33. New Haven: Yale University Press.

HOOPER, C.
1999 In the Footsteps of their Ancestors: Aboriginal Trails as a Cultural Heritage Resource. Paper presented at the 1999 Canadian Archaeological Association Annual Conference, Whitehorse, YK. Manuscript on file with Big Pine Heritage Consulting & Research Ltd.

IVES, J. W.
1993 The Ten Thousand Years Before the Fur Trade in Northeastern Alberta. In P. A. McCormmack and R.G. Ironside, eds., *The Uncovered Past: Roots of Northern Alberta Societies*. Edmonton: Canadian Circumpolar Institue, University of Alberta. pp 5-31
1990 *A Theory of Northern Athapaskan Prehistory.* The University of Calgary Press. Calgary, Alberta.

JACKSON, L., Jr., N. RUTLER, O. HUGHES, and J. CLAGUE
1998 Glaciated Fringe (Quaternary Stratigraphy and History, Canadian Cordillera); In *Quaternary Geology of Canada and Greenland*. R. Fulton, ed., Geological Survey of Canada, Geology of Canada Vol. 1, Ottawa, Ontario, pp. 63-68

JAMES, M.
2001 Personal communication. Department of Chemistry, Simon Fraser University, Burnaby, British Columbia.

JENNESS, D.
1931 *The Sekani Indians of British Columbia*. Proceedings and Transactions of the Royal Society of Canada, Meeting of May, Third Series, Volume XXV. Ottawa: the Royal Society of Canada.
1932 *The Indians of Canada*. Toronto: University of Toronto Press.
1937 *The Sekani Indians of British Columbia*. National Museum of Canada Bulletin, #84, Ottawa
1960 *The Indians of Canada.* National Museum of Canada Bulletin 65, Anthropological Series 15. Ottawa.

LAMARQUE, F. L. C.
1938 Travels and Explorations in Northern British Columbia, 1934. Document on file at the Fort St. John North Peace Museum Archives, Fort St. John, B.C.

LAMARQUE, E. C. W.
n.d. Across the Warneford. Archives of the Canadian Rockies, Banff, Alberta. M81, file 5. Document on file at the Fort St. John North Peace Museum Archives, Fort St. John, B.C.

Le BLANC, R. J.
2001 Personal communication. Department of Anthropology, University of Alberta, Edmonton, Alberta.

MACDONALD, G.
1999 Postglacial Development of the Subalpine-Boreal Transition Forest of Western Canada; *Journal of Ecology* 75:303-320

MACNEISH, R. S.
1994 The Pointed Mountain Site Near Fort Liard, Northwest Territories, Canada. *American Antiquity* 3:234-253

MAGNE, M. P. R.
1989 Lithic Reduction Stages and Assemblage Formation Processes. In *Experiments in Lithic Technology,* D. S. Amick and R. P. Maudlin eds., BAR International Series #528, Oxford, England. pp.15-31

MEYER, D.
2001 Personal communication. Department of Anthropology and Archaeology, University of Saskatchewan, Saskatoon, Saskatchewan.

NOBLE, W. C.
1989 Archaeological Surveys and Sequences in Central District of Mackenzie, N.W.T. *Arctic Anthropology* 8(1):102-135

OSGOOD, C.
1936 The Distribution of the Northern Athapaskan Indians. Yale University Publications in Anthropology No. 7. New Haven: Yale Unversity Press.

POJAR, J. and A.C. STEWART
1991a Spruce – Willow – Birch Zone, in *Ecosystems of British Columbia*, D. Meidinger and J. Pojar, eds., British Columbia Ministry of Forests , Victoria, BC: Special Report Series No.6:251-262
1991b Alpine Tundra Zone, in *Ecosystems of British Columbia*, D. Meidinger and J. Pojar, eds., British Columbia Ministry of Forests , Victoria, BC: Special Report Series No.6:263-274

RIDINGTON, R.
1968 The Environmental Context of Beaver Indian Behavior. Thesis submitted in partial fulfillment of requirements for the degree of Doctor of Philosophy, Department of Anthropology, Harvard University.
1979 *Swan People: A Study of the Dunne-Za Prophet Dance*. National Museum of Man Mercury Series. Canadian Ethnology Service Paper No. 38. Ottawa.
1988 *Trail to Heaven: Knowledge and Narrative in a Northern Native Community*. Iowa City: University of Iowa Press.

1990 *Little Bit Know Something: Stories in a Language of Anthropology*. Iowa City: University of Iowa Press.

RYDER, J.M.
1989 Holocene Glacier Fluctuations (Canadian Cordillera), in *Quaternary Geology of Canada and Greenland*, R.J. Fulton, ed., Geological Survey of Canada, Geology of Canada, Vol. 1

SMYTHE, F. S.
1947 An Expedition to the Lloyd George Mountains, North-East British Columbia. Evening Meeting of the Society, 15 December 1947. Document on file at the Fort St. John North Peace Museum Archives, Fort St. John, B.C.

SPURLING, B. E.
1980 The Site C Heritage Resource Inventory and Assessment Final Report: Substantive Results. Report on file, Archaeology Branch, Victoria, B.C.

STRYD, A. H.
1998 *Culturally Modified Trees of British Columbia: A Handbook for the Identification and Recording of Culturally Modified Trees.* British Columbia Ministry of Forests, Vancouver, B.C.

VANCE, R.E., R.W. MATHEWS, and J.J. CLAGUE
1992 7000 Year Record of Lake Level Change on the Northern Great Plains: A High-Resolution Proxy for Past Climate. *Geology* 20:879-882

WILSON, I.R.
1989 The Pink Mountain Site (HhRr-1): An Early Prehistoric Campsite in Northeastern BC. *Canadian Journal of Archaeology* 13:51-68