Archaeological Potential Mapping in the Dawson Creek Forest District

Report Accompanying 1:20,000 Potential Maps

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TABLE OF CONTENTS

Introduction To Archaeological Potential Mapping 1

Modelling The Potential for Archaeological Sites 2

Archaeological Potential Mapping in the Dawson Creek Forest District 4

Conclusions 11

Table 1: Comparison of Actual and Random Site Locations for Archaeological Potential 12

Figure 1. Known and Random Site Locations by Potential Categories 13

References 14

Appendix A: Review of Trails in the Dawson Creek Forest District 15

INTRODUCTION TO ARCHAEOLOGICAL POTENTIAL MAPPING

Archaeological sites are the material remains of past human activity. Not all human activity leaves durable material remains, but, where it does, human life in the past can be known through archaeological investigation. Examples of archaeological sites include habitation sites (e.g., villages, camps), resource procurement sites (e.g., kill/butchery sites, caches, lookouts, quarries, culturally modified trees, fishtraps), ritual/spiritual sites (e.g., rock art), and human burial sites.

Any of these sites will be in a location appropriate to the needs of the activity carried out. For example, camp sites will likely be on flat, well drained land with a source of fresh water and a favourable exposure. While many of the environmental criteria which past people used to select such locations may seem obvious, others may be culturally-specific and thus not as obvious. So, while it might appear that immediate proximity to water constitutes the foremost criteria of where to locate a campsite, it may be only one of many choices which people make within their culturally specific view as to what constitutes an appropriate camping spot. Other resources, topographic features, views, and spiritual or religious beliefs may also come into play.

Archaeological potential mapping is an attempt categorize the landscape according to its suitability for human activity of the kind which leaves archaeological remains. A central challenge of potential mapping is how to use existing environmental data in order to predict archaeological resources which are the cumulative result of millennia of diverse, culturally-specific behaviours, occurring within a changing social and natural environment. This topic is well reviewed by Moon (1995) and Wansleeben and Verhart (1997).

MODELLING THE POTENTIAL FOR ARCHAEOLOGICAL SITES

Generally, archaeological potential mapping has occurred within the framework of cultural resource management. Government and other regulatory agencies often possess a legal obligation and moral duty to manage and protect cultural resources, including archaeological sites. First Nations normally have a strong and abiding interest in cultural resources, including archaeological sites. Potential mapping has been particularly widespread in North America where a strong regulatory environment, large land areas, high quality environmental data, and interested First Nations make it both desirable and possible to map large areas for their archaeological potential.

Any experienced archaeologist carries a mental model of site location. These typically include a combination of landform, environmental history, seasonality, specific ethnographic information, and cross-cultural generalization. When performing archaeological inventory, these variables are judgmentally combined and applied, and field decisions of where to look for sites are made. Similar decisions may also be made by looking at a map and outlining areas considered to have greater or lesser archaeological potential. Such *intuitive potential maps* may seem very useful in practical applications, but the decision-making process by which potential polygons are defined is complex, subtle, and not amenable to automation. Furthermore, these intuitive maps may be subject to considerable, yet indefinable, bias stemming from the archaeologists experience, school of thought, as well as the other sources of bias common to automated potential maps discussed below.

There are two main kinds of automated archaeological potential models (Dalla Bona 1994).

Inductive models work from known site locations outwards to the landscape of unknown sites. In other words, a set of known sites is examined for knowable environmental correlates. A model is created which can describe the location of these sites. The model is then applied to an area with unknown archaeological resources. This second area is then subdivided according to the presence, absence, or co-occurrence of the environmental variables which were found to describe site location, in the expectation that such a description will have some predictive value for site location.

Deductive models start from generalized principles of human behaviour, and the sorts of environmental variables favourable to human activity. These include basic parameters such as access or proximity to fresh water, relatively flat and well drained terrain, proximity to food and other resources, and other factors, such as prevailing wind, and exposure. The landscape is then subdivided according to the presence, absence, and co-occurrence of these supposedly relevant factors.

Each approach has its strengths and weaknesses. Inductive models do not require the application of generalized, and perhaps culturally-inappropriate, models of human behaviour. Rather, the site locations are taken as an expression of culturally specific behaviour, and useful correlated variables are then sought in order to extrapolate the known set of site locations into a larger area of potential for such sites. However, for

such an approach to be valid, it requires a representative sample of the site universe, i.e., archaeological sites of all different types and ages, and from all different environmental zones, must be included. Such representative samples are not available in the Dawson Creek Forest District, and, indeed, are not normally available unless systematic archaeological survey has been conducted.

Deductive models are easier to apply in areas with little previous archaeological research. Using generalized principles of human adaptation, large areas of terrain can be categorized according to their suitability for human activity. The drawback of this approach is that, in the absence of a representative sample of archaeological sites in the region, it is difficult to assess the validity of the model. Supposing a sample were to be available, it is then preferable to apply or incorporate elements of an inductive model into the deductive one, perhaps through defensible weighting of the environmental variables.

In summary, an ideal program of archaeological potential mapping is an iterative model-building procedure, in which the model is adjusted until the best fit between the potential map and the known site locations is obtained.

ARCHAEOLOGICAL POTENTIAL MAPPING IN THE DAWSON CREEK FOREST DISTRICT

I. Outline

The Dawson Creek Forest district is a large, environmentally diverse area, which is poorly-known archaeologically. As there is not a useful sample of archaeological sites (i.e., a statistically representative sample of site locations based on random or systematic sampling of the region), a deductive modelling program was selected as the most appropriate to implement. The model is built with the following procedure:

1. A set of seven environmental variables with relevance for the location of archaeological sites was chosen. These variables are discussed below. Apart from relevance, all variables were required to be known for the forest district as a whole, in order to ensure that all mapsheets were consistently categorized for potential. For example, use of data that might only be present for one sub-region would result in unrealistically higher potential scores in that sub-region.
2. Where present, each variable was assigned a score of 1. The model develops additively, as mapsheets with polygons defining each variable are overlaid with each other. Cumulative polygons representing the overlaps are created, and scored by simply adding up their scores. This produces a composite map of cumulative potential scores. All variables were assumed to have equal weight. This point is discussed further below.
3. Water bodies and swamp were considered to have no potential for archaeological sites and were coded as null, or zero potential.
4. The result is a set of maps categorized on an eight point scale: zero potential, and 1-7 categories of increasing potential based on co-occurrence of environmental variables.

II. Variables Used to Model Archaeological Potential

The following variables were used to create the potential maps.

1. Vegetation

All terrain with vegetation coded as leading pine/leading aspen forest cover was given a score of 1, as was terrain coded as Open Range or as Meadow.

a) Rationale: This vegetation cover indicates a well-drained ground cover, and was included on the strength of Walde's (n.d.) comments on its utility as a useful predictor of moderate archaeological potential in this area.

b) Discussion: A similar procedure was used to define "moderate potential" in the Strategic Model for the NE LRMPs (Walde's 1:250,000 model). As per Walde's model, we have included areas harvested in the last 20 years, on the assumption that these areas were mainly pine and aspen. The relevant vegetation pattern is that which

existed while the archaeological record was being created over the past millennia, not the currently existing vegetation.

2. Aspect

Flat terrain, and terrain with slope less than 11% (see below) was coded for its aspect. Aspects from east through south to west (90 - 270 degrees) were scored as 1. Remaining exposures were scored as 0.

a) Rationale: In northern latitudes, a southerly exposure is often considered to be more favourable at many times of the year for human activity because it affords greater warmth and light.

b) Discussion: Flat areas, which have no single aspect, were scored as 1. The aspect field was conservatively defined to include not only southerly, but also westerly and easterly exposures. The use of solar aspect is only one sort of aspect which might have cultural relevance. For example, orientation to prevailing wind is another likely influence on site location, but data on this variable does not currently exist.

3. Slope

All terrain with less than 11% slope was given a score of 1.

a) Rationale: human activity is more likely to be carried out on areas which are flat or gently sloping than on those which are steep.

b) Discussion: As absolute flatness is not necessary for human activity, a conservative break-point of 10% slope and less was chosen. There are intrinsic problems in dividing a continuous variable, such as slope, into discrete categories. In the absence of external information to define what constitutes a culturally-relevant degree of flatness, a conservative definition was used. There are limits to the precision with which one can model slope from the Digital Elevation model, which itself is derived from survey and photogrammetric data. In particular, what may be truly important are very small flat areas within more sloping ones: small terraces, linear ridges, and other breaks in slope. At the resolution of existing data, there is no way to model these landforms accurately, and so they are not specifically categorized within the model. However, those of sufficient size and elevation to be captured by the Digital Elevation Model are included.

4. Wide Rivers

Rivers wider than 20 metres were buffered by a zone 100 metres wide to either side. This zone was given a score of 1.

a) Rationale: Transportation corridors are more likely to attract human activity by facilitating trade and access to resources.

b) Discussion: The use of an existing categorization of "large" rivers was pragmatic. In practice, some smaller rivers may also have been navigable, and stretches of some larger ones may have been impassable. Nevertheless, this categorization encapsulates an important source of environmental variability. The choice of 100 metres was

judgmental. Much of the direct activity may have centered on the immediate riverbank area, and on bars, small islands, and other unstable riverine features. However, there would also have been considerable activity on terraces and better-drained land set some distance back. The problematic need to make continuous variables discrete applies to most of the environmental variables in the model.

5. Large Lakes

All lakes with an area greater than one hectare were selected. A buffer zone 100 metres wide around these lakes was created, and assigned a value of 1.

a) Rationale: Lakes are sources of fresh water as well as sources of special resources, and thus tend to attract human activity.

b) Discussion: The choice of a 100 metre buffer was made for much the same reasons as it was for Wide Rivers, above. The choice of a one hectare break point was made judgmentally, based on experience and qualitative assessment of the existing site inventory. Human-made water features, such as reservoirs, were not buffered as their shoreline is arbitrary in relation to past human activity.

6. Stream Proximity

All streams were buffered by 100 metres along each bank, and this buffer zone was assigned a value of 1.

a) Rationale: Access to fresh water is a crucial resource for humans, as well as for animal resources exploited by humans.

b) Discussion: The buffer size of 100 metres was arrived at judgmentally, based on experience and judgmental assessment of known site locations. In practice, proximity to water might better be conceived of as a continuous variable: the importance of the water source diminishes as the distance from water increases. However, data and processing constraints prevent the use of a continuous variable. In any case, there is no known culturally relevant thresholds at which to make breakpoints. Thus, as with the other variables, conservative buffer zones were selected, in the expectation that the model will continue to develop over time as a formal or informal process of ground-truthing is implemented.

7. Geological Features

Three classes of geological feature for which good data exist were added to the model. These are caves, hotsprings, and eskers. Caves and hotsprings are derived from the NE Tourism Inventory. They were buffered by a zone 30 metres in diameter, and assigned a value of 1. Eskers, mapped as linear features in TRIM, were buffered by a zone 15 metres wide to either side, and this zone was coded as 1.

a) Rationale: these geological features may have attracted human activity in the past. Caves may be a source of shelter, may have ritual or spiritual significance, or may provide animal habitat. Similarly, hotsprings may have had economic or spiritual

values. Eskers are well-drained linear features which provide transportation and views through swampy areas, which may be rich in resources such as moose and beaver.

b) Discussion. Eskers and other micro-topographic features are important predictors of archaeological potential (Walde n.d.). Yet, as these may only be one to several metres in height they are not normally represented in elevation models, and thus cannot be identified from existing data. Eskers are one such micro-topographic feature which is specially coded, hence this information was used. A fifteen metre wide buffer was selected to approximate the width of a typical esker. The choice of a thirty metre (rather than 100 metre) buffer for caves and hotsprings was made because these features are expected to be more discrete attractants of human activity.

8. Waterbodies

Lake and river surfaces, and land coded as "swamp," were scored as null. Null scores took priority over any other scores these features may have received for slope, aspect, etc., and so all these features were set as zero potential in the model.

a) Rationale: Waterbodies are not likely to support the sorts of human activity which leave material remains. Swamps may support such activities, especially in winter, but the remains are exceptionally unlikely to ever be found.

b) Discussion: Considerable activity would have taken place on the surface of lakes and rivers, but such activity will not normally leave identifiable material remains. Swamps are generally unattractive from the point of view of human activity. While they may attract activity because of their special suite of resources, such activity is unlikely to occur within the swamp itself. Even if activity does occur within the swamp (for example, during winter when such areas may be frozen over) the resulting material evidence is unlikely to be found during archaeological survey. It should be noted, however, that in other parts of the world, swamp and bog sites have furnished extremely valuable evidence of past human society because of special preservational factors. Also, dam reservoir areas are coded as null. Nevertheless, there is considerable potential for finding archaeological sites in bare areas exposed during draw-downs.

III. Notes On The Model Building Process

The model as presented constitutes a pragmatic model of general activity in the environment as it exists today. The implications of this are:

As a pragmatic model, the use of existing data is maximized, and use of inappropriate or incomplete data is avoided. Thus, such data sources as the derived wildlife model (biophysical mapping) for the area were not incorporated because of the inaccuracies introduced by re-projecting this 1:250,000 data at a 1:20,000 scale.

As a model of general activity, only everyday practical activity in the world is accounted for. The implications of this are that there are some classes of archaeological sites which are not modelled for. In particular, rock art sites, quarry sites, alpine sites, fishtrap and fish weir sites, culturally modified trees, and historic sites are not specifically modelled,

although there may well be correlation between these special-purpose sites and the environmental variables used. Thus, the mapped potential categories do not represent all possible kinds of archaeological data.

The use of modern environmental data to model the accumulation of many millennia of human activity means that the model may be biased to the recent past, or, at least, to periods in the past when the environment is similar to today. The implication is that archaeological sites produced during periods when the environment was different may not be aptly modelled by the potential maps. This is a significant problem with no ready solution, made more serious by the fact that these older sites may be of more cultural and scientific interest.

IV. Assessment Of The Model

Several steps were taken to assess the validity of the model, and several further steps are suggested.

1. Known sites were compared to their modelled potential.

A sample of 9 map sheets with known archaeological sites were chosen. The potential model was run on environmental data for these sheets. Known site locations were then evaluated against their predicted potential.

It is important to recognize that this sample of CHIN sites could have one of three characteristics: it could be representative of all sites within the region; it could be biased towards sites from high potential areas; or, it could be biased towards sites from low potential areas. It is impossible to know how this site sample is biased. Nevertheless, it is a useful form of exploratory data analysis to look at the potential map in terms of these known site locations, so long as unwarranted inferences about the efficacy of the potential maps are not drawn.

One way of determining whether the site sample in this area is biased is to compare the characteristics of known site locations to a set of random points. A set of 65 random points were generated, to compare to the 80 known prehistoric sites within these 9 mapsheets. Each random and actual location was buffered by a 100 metre radius, and all polygons of potential within these buffer zones were considered. Buffers were used because (a) site location may be somewhat uncertain, (b) many sites are actually polygons, even if they are represented by points, and (c) the immediate area of a site may be as important a determinant of site location as the actual location of the site itself.

Actual site locations score higher on average potential than the random sites, regardless of how that average is calculated. This is most effectively shown in **Figure 1**, (page 13) which graphs the distribution of polygons of potential within the random and the actual site zones. Note the much higher proportion of Category 4 polygons within the actual site zones, and the complete absence of Category 5 polygons within the randomly located zones. This is suggestive of some agreement between the potential model and known site locations. It should also be noted that there were no category seven polygons on any of

the maps sheets, reflecting the absence of the variable "geological features." The effective scale of potential is therefore 0-6.

Further summary data are presented in **Table 1** (page 12). Note that despite the relative closeness of the average potential, the median and the range are higher for the actual site locations. Not too much should be read into the relative closeness of the averages, since there is no way of knowing whether the actual site locations are biased towards areas of lower potential, areas of higher potential, or are representative of all areas. Thus, these summary data should not be over-interpreted, but seen as data exploration.

2. Recommendations for assessing and improving the model

As outlined in the preceding, archaeological potential mapping involves a complex assessment of environmental and archaeological data as to their relevance for understanding general and culturally-specific human behaviour over the long term. As such, it is not a procedure that leads to quick or absolute answers. Logical and practical steps which could be taken to improve or assess the current model are discussed below.

A) The most effective means of assessing the model would be to conduct validating archaeological fieldwork. A random, stratified random, or systematic survey design should be implemented which would provide an unbiased and representative sample of sites against which to test the model. If such a research program were implemented, it would then also be possible to inductively fit the environmental data to site location. For example, it would be possible, through factor analysis, logistic regression, or some other statistical technique, to weight the input variables. This would greatly strengthen the reliability of the modelled potential, and would, in effect, calibrate the model: the meaning of the resultant potential categories could be quantified. For example, one might be able to say, within Category 4 there will be, on average, 1 site per square kilometre, while within Category 1 there will be only be 1 site per 10 square kilometres.

   Some probablilistic field inventory in the Northeast has been carried out. Of particular interest are the Peace River Site "C" reservoir surveys (Alexander 1982), a small probabilistic survey associated with the Northeast Coal Project (Ball 1978), and the Liard River Survey (Mitchell & Loy 1981). None of these, singly or together, constitutes a representative sample for the region as a whole, as they are spatially constrained and unrepresentative of all major environmental divisions. It might be possible to incorporate some effectively random surveys, such as those associated with well-head impact assessments and transmission corridors, in order to quickly and cheaply increase useful survey coverage.

   A key point is that *null data* for site location is needed. One must be able to model non-site locations, or low/no potential areas, rather than leave this as a remainder after site location is modelled. Areas where no sites were found are not normally systematically mapped, nor is this data kept by the Archaeology Branch (Eldridge and Mackie 1992). However, some such data may be derivable through analysis of project

reports. A promising source would be well-head or drilling platform archaeological impact assessments, because they are of a standard size and may be distributed arbitrarily in relation to archaeologically relevant environmental variables. Such a study would require time and resources outside the scope of the current project.

B) As noted, the existing model is for sites which are the result of general-purpose activity in the landscape. Some special purpose models might also be considered, such as seasonal models; alpine models; rock-art models; and models for historic sites. Further, potential for sites of a certain age could be modelled. Of particular interest would be potential for sites from the earliest period of the peopling of the Americas, a process which is believed to have occurred along a corridor partly within the Forest District. Such sites have very high cultural and scientific significance. A set of targeted models aimed at subsets of sites would likely be of greater accuracy than a single model for all site types and site ages.

C) For reasons discussed above, the potential model only includes currently available data at a consistent resolution. Should further data become available, such as finer-grained wildlife or more consistent fisheries data, it could be incorporated with the aim of improving the precision of the model. Incorporation of this data would not necessarily be a complex process, but, as it would require the recalculation and production of a modified set of potential map sheets, the process would be expensive.

D) Finally, other data sources should be consulted. For example, there are considerable sources of highly relevant information available in Traditional Use Studies, Ethnographic Information, Ethnohistoric Sources, and in First Nations communities. Additionally, judgmental assessments of archaeological potential (intuitive mapping by experts) are also of considerable value. These data would be difficult to incorporate within the potential model itself as they have a very different character, derivation, scope; and scale; and are of variable consistency across the study area. Nevertheless, when available, these data are of considerable utility in the assessment of archaeological potential. Such sources of data should be consulted when cultural resource management decisions are being made. In particular, Walde's 1:250,000 scale intuitive model retains utility as an assessment (albeit at a coarse scale) of archaeological potential by a locally experienced and knowledgeable archaeologist. See Wansleeben and Verhart (1997) for a general discussion of the relationship between holistic cultural models and ones driven by Cultural Resource Management needs.

Conclusions

Archaeological potential maps at 1:20,000 scale based on general principles of human behaviour have been created within the Dawson Creek Forest District. These maps have the following characteristics:

- they are based on reliably derived, consistently available, fine-grained environmental variables.
- these variables each make an unweighted contribution to the model.
- these variables are considered to be relevant for the positioning of *general* human activity in the landscape.
- polygons defined by the intersection of these environmental variables are coded according to their potential for general human activity, and, therefore, for the presence of general activity archaeological sites.
- these polygons are categorized as either having no potential, or on a seven-point ordinal scale of increasing potential, based on the cumulative overlay of the environmental variables.
- the potential maps do not include culturally-specific information from local First Nations people, nor from ethnographic or ethnohistoric sources.
- interpretation of these maps should acknowledge their inherent conservatism and the current inability to validate them through fieldwork or statistical analysis. The maps should therefore be treated as an untested hypothesis.
- cultural and archaeological resource management decisions made on the basis of these maps needs to be in accordance with the normal cultural resource management process. In particular, the Archaeology Branch will need to develop a management protocol for their interpretation.
- potential mapping should be seen as an ongoing process and the utility of these maps should be periodically reviewed, and the model adjusted if necessary. Suggestions are made regarding ways to improve the potential mapping process.
- these maps are of *archaeological* potential only, and do not bear any necessary relationship to areas of Aboriginal Rights.

Table 1:
Comparison of Actual and Random Site Locations for Archaeological Potential

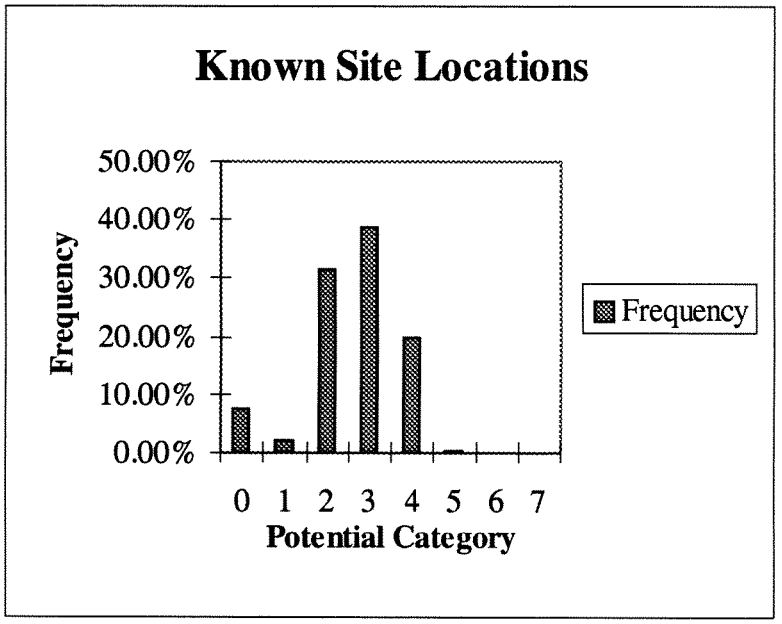
	Actual Site Locations	Random Locations
Number of Sites	80	65
# of Potential Polygons	1855	835
Avg. Polygons/Site	23	13
Average Potential	2.67	2.41
Weighted Average	2.15	1.78
Median	3	2
Range	0-5	0-4

Key:

# of Potential Polygons: the cumulative number of separately coded polygons within each site buffer zone

Average Potential: the sum of all potential polygon scores, divided by the number of polygons, regardless of size.

Weighted Average: the sum of each potential polygon weighted for its size, so that large polygons contribute proportionally more.



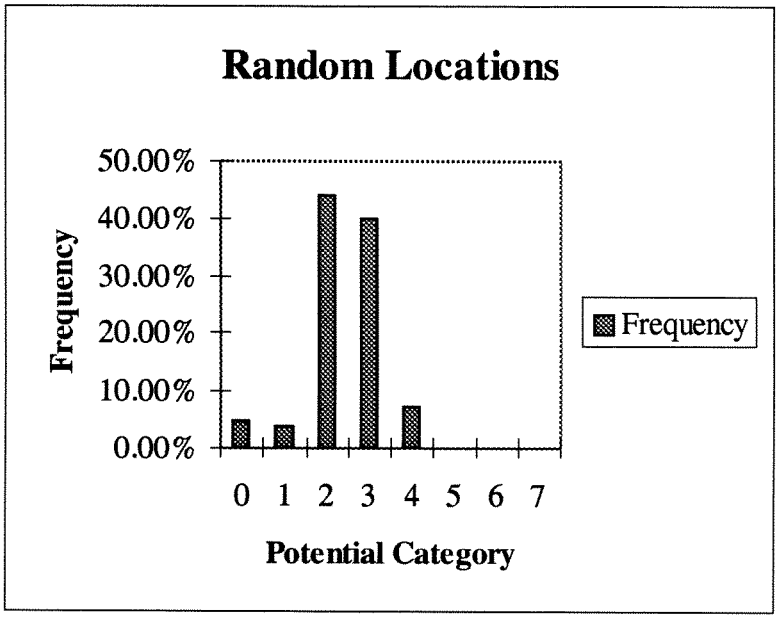


Figure 1. Known and Random Site Locations by Potential Categories

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Appendix A: Review of Trails in the Dawson Creek Forest District

Cairn Crockford, M.A.

Introduction

The purpose of this review is to identify the location of historic/prehistoric trails in the study area. The initial intent was to plot these trails onto 1:50,000 maps of the area, compiled from TRIM base mapping.

The study area includes the Peace River and its major tributaries east, to the Alberta border and south, to the area just north of McLeod Lake. The study area is generally bounded on the west by Williston Lake (near Finlay Forks, now under water), and on the north by the area of the community of Fort St. John.

The study area is within the traditional territory of the Sekani and the Beaver First Nations. The Beaver First Nation were resident in British Columbia in the foothills of the Rocky Mountains and along the Peace River to just west of Hudson Hope, and south along the Pine River.

The term Sekani is used by anthropologists to describe Athapaskan speaking inhabitants of the mountainous areas of British Columbia drained by the Finlay and Parsnip branches of the Peace River. It has been suggested, however, that Sekani speakers traditionally also utilized the eastern foothills north of the Peace River prior to the expansion of the Beaver First Nations into the region.

A number of Cree speaking people are also historically resident in the general area. The Cree group resident at Moberly Lake, for example, may represent the descendants of an extended family or a local hunting group that moved into Sekani territory during the protohistoric or historic period.

Contemporary First Nations who claim the territory within the study area include, but are not limited to, the Tsay Keh Dene Band, the McLeod Lake Band, the Hudson Hope Band and the Fort St. John Band.

The primary historic sources for this review are published and unpublished documents located at British Columbia Archives and Records Services (BCARS). In addition several maps were located at BCARS which indicate the location of historic/prehistoric trails in the Dawson Creek/Pouce Coupe region of study area.

Three primary types of trails were identified within the study area: footpaths and game trails, trade routes and general transportation corridors. For the most part, however, references to the location of historic/prehistoric trails were of a general nature. Moreover, the limited nature of available sources did not allow for the detailed identification of trail locations necessary for plotting such trails at the scale required. Thus, only the following general observations can be made:

First, the nature of the prehistoric/historic resource use of the area was characterized by a dependence on migratory mammals and necessitated frequent movement throughout a

broad area. Second, trade between neighbouring First Nations was an economic necessity. Third, the presence of non-Native trading posts disrupted the traditional Native economy and established new patterns of movement. Finally, the Peace River and its tributaries provided an important east/west link through the Rocky Mountains.

Footpaths and Game Trails

The Beaver and Sekani people depended almost entirely upon migratory animals for food. Thus, Beaver and Sekani people occupied and exploited a vast territory and were obliged to move often to maintain a steady supply of meat, often covering as much as 400 kilometres during the course of a year. Beaver economic activity was concentrated in the foothills and adjacent forests; the Sekani were expert at the use of mountain resources.

Large game animals were the most important source of food for the Beaver people, especially the moose which was widely dispersed throughout the region. Bison, until their extinction in the 19th century and woodland caribou were also available in certain areas.

Sekani speakers were primarily mountain dwelling hunters; they lived migratory lives, hunting moose, woodland caribou, and mountain sheep and goats. Lake fishing for trout, whitefish and grayling was also undertaken in both summer and winter.

Sekani hunting patterns included the use of mountain hunting camps in late summer. Winter camps were made at fish lakes. Access to such camps was generally made by the use of trails beside creeks and streams. Travel was primarily on foot. The Sekani used snowshoes for winter travel. After spring breakup, spruce bark canoes were used along major rivers. Because the local aboriginal canoe was a comparatively flimsy craft, however, traditional river travel tended to be restricted to down river travel only. Riverside trails were used for upriver travel.

For the most part, ethnographic and historic documents consulted contain only general patterns of movement within the study area. Some detailed information was located on the specific location of creek-side trails to mountain hunting camps utilized by the Tsay Keh Dene First Nation on the eastern shore of the Finlay River. This area, however, is now under the waters of Williston Lake.[1]

Trade

Trade between neighbouring groups was an essential economic activity within the region. Trading camps were often established at the confluences of major trails or travel routes. Many of these camps, however, are outside the study area. The Sekani, for example, traded with the Kaska Dene at the head of the Kechika River, with the Tahltan in the headwaters of the Stikine and upper Finlay Rivers and, with the Carrier and Gitksan at

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[1] This document was prepared by a member of the Tsay Keh Dene Band for internal use. Because the locations are now underwater, permission to use this data was not sought, nor is the document listed in the bibliography.

Bear Lake. The trade route between the Sekani and the Beaver on the east side of the Rocky Mountains is located along the Peace River within the study area.

The first fur trade post in British Columbia ("Rocky Mountain Fort") was established in 1797 on the Peace River six miles west of present site of Fort St. John. In 1806, Simon Fraser establish Fort McLeod (McLeod Lake) and the first fort at Hudson Hope (Peace River). Other trading posts of note which were established in the general area through the mid 19th century include Fort St. John (Peace River) and Fort Grahame (Finlay River, now under Williston Lake).

The 19th century fur trade had a profound effect on all First Nations within the study area. The migratory family existence was all but abandoned as families settled permanently outside the various trading posts within the region, with adult male hunters making period treks into the mountains to check traplines.

Transportation Corridors

Two general patterns of movement along major transportation corridors have been identified for the study area. The principal east/west corridor followed the Peace River through the Rocky Mountains and beyond to Alberta. There were two north/south routes: one along the Pine River south to McLeod Lake, the second route utilized the Finlay and Parsnip Rivers.

The Peace River is part of an historic and prehistoric east/west transportation corridor from Alberta to British Columbia through the Rocky Mountains. The Peace River corridor was part of the historic route of Alexander McKenzie (1793), John Finlay (1797), David Thompson (1803) and Simon Fraser (1806) to the region which became known as the Pouce Coupe Prairie.

The "Rocky Mountain Portage Trail" that skirted the Peace River Canyon provided the main overland communication and supply route for non-Natives until the growth of Saskatchewan and Columbia River routes in the mid 1810s. "Indian footpaths" provided the historic link between the Hudson's Bay Company posts of Fort St. John, British Columbia and Saskatoon Lake and Spirit River, Alberta (an Hudson's Bay Company ranch from 1830).

Thus by the mid 19th century there was an established network of Native, fur trade and missionary trails from Edmonton northwest, through Grande Prairie and the Pouce Coupe Prairie to Fort St. John and north, up the Finlay River. This network of trails was used by the Geological Survey of Canada treks into the Peace River region and the track was surveyed in 1877 and 1879.

The network of trails via Spirit River, Alberta to the Pouce Coupe Prairie was also used as part of the route from Edmonton to Alaska during the period of the Klondike gold rush in the late 1890s. Northerly travel continued up the Halfway River west through Laurier Pass to Fort Grahame and north along the Finlay River.

There was also an important north/south transportation corridor between the Dawson Creek/Pouce Coupe region and Fort McLeod. The Pine River (a tributary of the Peace

River), was used as the principal north/south route. The Finlay and Parsnip Rivers, were also a natural north/south transportation corridor.

Mention is also made of a "Indian" trail leading from Hudson Hope to Moberly Lake (likely along Halfway River).

Development of Modern Roads

The study area was opened up to non-Native settlement after 1905 with the Dominion survey of the Peace River Block. Existing trails were essentially footpaths and game trails and thus too narrow for use as pack trails. (A width of three to four feet was generally adequate for early pack trails). After 1905, a local settler cut pack trails to Fort St. John from the Pouce Coupe Prairie and beyond to the HBC ranch at Spirit River. These trails were too rough for wagons, but could accommodate a pack horse or oxen (wagons require a standard width of twelve to sixteen feet).

After 1912 the standard route into the Dawson Creek/Pouce Coupe region was by boat to Rolla Landing, then by trail to Fort St. John. Wagons were used over summer trails; in winter, sleighs were standard on the frozen rivers.

By 1911-1912 the route across the Rocky Mountains to the Pouce Coupe Prairie had been widened and improved in anticipation of incoming non-Native settlers to the region. Soon after 1912 the British Columbia Department of Public Works sent surveyors and engineers to develop the interior route to the Peace River Block.

By this time the standard road right of way was sixty-six feet. By the 1920s the width of the travelled portion of road grew with the various improvements required to accommodate the increase in automobile traffic.

A detailed comparison of the present transportation routes with the routes of the historic transportation corridors has not been made. Nonetheless, experience with similar development of historic trails in other regions of the Province suggests that the majority of the historic Peace River network of trails is buried under the present network of regional roads and highways.

Conclusion

The study area contains a known network of trails which were important in both the historic period and prior to contact. The desired result of plotting of these trails on the TRIM base maps was not achieved. The most that could be accomplished was to identify, with some certainty, where trails were **not** located (for example, in mountainous areas without creeks or streams for access). The historic context for roads marked on the TRIM maps might also be gleaned through the process of elimination. If modern forestry and forest service roads can be confidently identified and eliminated, the remaining existing roads are likely of historic/prehistoric origin. Similarly, those modern highways which clearly do not follow natural topographic features might also be eliminated.

Recommendations

The limited time frame available for this study allowed for little more than a general ethnographic overview of the economic activities of the resident First Nations and a cursory examination of available historic documents.

Detailed traditional land use studies would undoubtedly identify the specific locations of traditional footpaths and game trails. In addition, identification of contemporary traplines might suggest the location of other traditional and historic trails.

Further research of historic documents, including maps might provide more detailed information concerning the location of the major trade routes within the study area. Likely sources include the Hudson's Bay Company Archives, Winnipeg. In addition, the Dawson map of 1879-1880 (CM/C2047, sheet 1) indicates the east/west transportation corridor through the Peace River country. The scale of this map, however, does not lend itself to an accurate translation onto the TRIM maps. If the original Geological Survey track surveys, from which this map was made, still exist, they might provide sufficient detail to execute such a translation.

Additional sources include the files of the Ministry of Transportation and Highways. In the course of documenting the development of roads and highways these files often indicate a specific correlation between historic trails and existing roadways.[2]

Other sources of the location of historic/prehistoric trails include the preliminary and official surveys of Indian Reserves which are held at the Provincial Ministry of Lands, Surveyor Generals Branch. In addition, maps which indicate trails on or near Indian Reserves are often located within the Department of Indian Affairs records (RG 10, Black Series), held on microfilm by BCARS.[3]

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[2] These files come under the Freedom of Information Act and were not consulted for this review.

[3] The issue of reserves in the study area is complicated by the issue of Federal ownership of the Peace River Block. Further, the study area is within Treaty 8, and thus the area was considered by the Department of Indian Affairs to be under Alberta administration.

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