

**ARCHAEOLOGICAL OVERVIEW
OF THE VANDERHOOF
LAND AND RESOURCE MANAGEMENT
PLANNING SUBREGION**

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1.0 INTRODUCTION

This report summarizes the results of the Archaeological Overview Assessment of the Vanderhoof Land and Resource Management Planning (LRMP) subregion. The Archaeological Overview Assessment (or simply Overview) was prepared in accordance with the guidelines for an Archaeological Overview Assessment in the *British Columbia Archaeological Impact Assessment Guidelines* (Apland and Kenny 1992), issued by the Archaeology Branch, Ministry of Small Business, Tourism and Culture.

1.1 Definitions

It is important to note that this Overview is exclusively concerned with archaeology. It is not intended to provide a complete synthesis of information on all types of “Heritage Sites” in the Vanderhoof LRMP subregion. Traditional Use Sites (defined below) are not dealt with in this study. Furthermore, this Overview does not provide a thorough review of the history or ethnography of the subregion, though considerable historical and ethnographic information has been incorporated into the study.

In order to predict archaeological potential, the Overview relied on ethnographic, archaeological, and historical information. *Ethnography* is the description of the culture of particular social groups through participatory observation and interviews with the members of that group. *Archaeology* seeks to understand the human past through the examination of material remains. Lastly, *History* may be defined as the study of the human past through the examination of documents and other written records.

In this Overview, the term “archaeological resources” is synonymous with “archaeological remains,” that is, physical materials resulting from past human activity. *Archaeological sites* are places containing such material evidence, often in the form of artifacts (objects made or used by people) and alterations to the landscape (such as discarded shell accumulations, or bark-stripped trees), so that a single archaeological site may contain one or more types of archaeological resources. *Traditional use sites* are places that have been used by one or more groups of people for some type of traditional activity, often lacking physical evidence for past human use, but nevertheless of historical or cultural meaning to a living community or group.

1.2 Objectives

The primary purpose of the study was to provide a synthesis of information about the distribution of archaeological sites in the Vanderhoof LRMP subregion, for assistance in land-use and development planning. This Overview was part of a larger study that included the Robson Valley, Prince George, Fort St. James and Lakes LRMP subregions. The objectives of this larger study were to:

- (1) produce a Study Report which provides background information, outlines methodology, and summarizes the results of the archaeological overview for each of the five LRMP subregions;
- (2) produce a Summary Report (this document) for each LRMP subregion which describes the methodology used to conduct the study, and includes: (i) a summary of previous archaeological research in the LRMP subregion; (ii) discussion of the nature and distribution of archaeological resources in the subregion; (iii) identification of gaps in the current archaeological inventory for the subregion; and (iv) recommendations for further archaeological assessment studies;
- (3) draft a set of digitized maps at a scale of 1:250,000 showing the distribution of known archaeological sites, and “archaeological potential polygons” identifying areas of low, moderate, high, and unknown archaeological potential; and
- (4) construct two databases, electronically linked to the digitized map set, one containing detailed information about known archaeological sites, the second containing information about predicted archaeological resource types for each archaeological

1.3 Study Area

The study area for this Overview consists of the Vanderhoof LRMP subregion (Figure 1). The boundary of the subregion is irregular, sometimes following political boundaries, and at other times following natural divisions, such as rivers; it coincides with the boundary of the Vanderhoof Forest District.

2.0 METHODOLOGY

The Overview involved:

- (1) background research consisting of a review of the relevant archaeological, ethnographic and palaeoenvironmental literature to (i) collect information on the nature and findings of previous archaeological studies; (ii) collect information on traditional use and to identify traditional patterns of settlement; and (iii) assess past environmental conditions and their possible influence on past human adaptation;
- (2) background research consisting of an examination of biophysical information, including topographic and wildlife capability maps, to assist in assessing archaeological potential;
- (3) a review and evaluation of existing archaeological site information using (i) the archaeological site inventory records in the Canadian Heritage Inventory Network (CHIN); (ii) 1:50,000-scale topographic maps from the Archaeology Branch showing

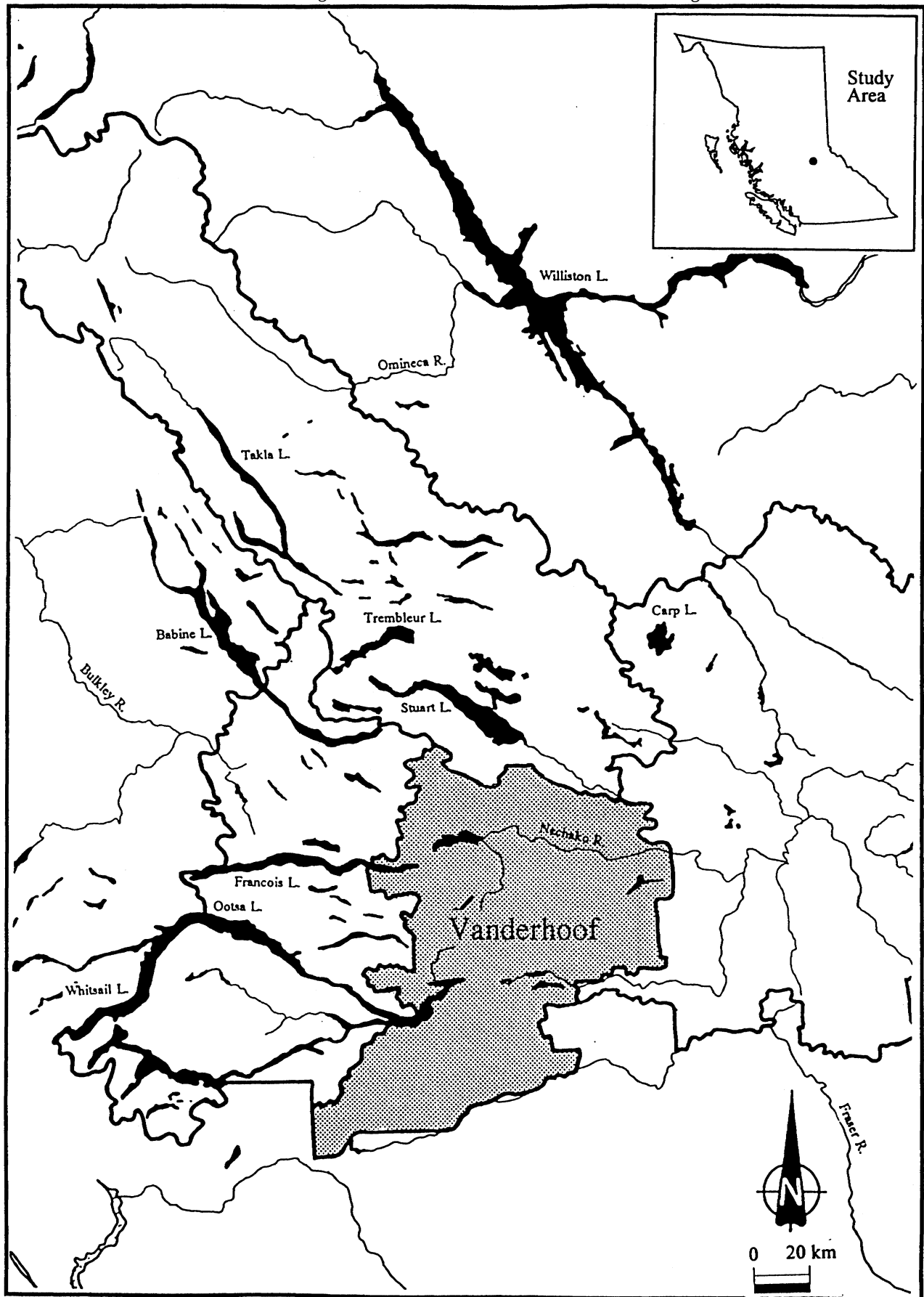


Figure 1. Location of the Vanderhoof LRMP subregion.

recorded site locations; and (iii) digitized site location information as prepared by the Archaeology Branch;

- (4) consultations with individuals and organizations, including local First Nations, with knowledge of archaeological resources;
- (5) digital mapping of known archaeological sites as well as predicted archaeological potential based on information obtained during the investigations above;
- (6) reporting.

2.1 Background Research

Background research for the Overview included a review of relevant archaeological, ethnographic, palaeoenvironmental, and biophysical publications, professional reports, and archival records in the possession of Arcas and Archeo Tech Associates, and from the Archaeology Branch, Department of Indian Affairs, B.C. Archives and Records Service, Royal British Columbia Museum, and other sources. Ethnographic information was compiled and reviewed by John Dewhirst (Archeo Tech Associates), while Richard Brolly and Mary Quirolo (Arcas) examined literature pertaining to regional archaeology and natural history. Information regarding recorded archaeological sites in the study area was obtained from CHIN and the Archaeology Branch by Karen Preckel (Arcas).

2.2 First Nations Consultation

Consultation with First Nations communities in the Vanderhoof LRMP subregion consisted of letter, fax, and telephone correspondence. The Nadleh Whut'en Indian Band, the Cheslatta-Carrier Nation, the Stellaquo Indian Band, the Stoney Creek Indian Band, the Nak'azdli Indian Band, the Nazko Indian Band, the Kluskus Indian Band, the Ulkatcho Indian Band, the Fort George Indian Band, and the Lake Babine Indian Band were first informed by fax of the nature and scope of the study. This fax correspondence included a request for any information about archaeological sites which the First Nation would be willing to contribute. This inquiry was followed by a telephone call to ensure that the fax was received and that our request was understood. A letter copy of the fax followed by mail. None of the First Nations expressed interest in participating in the LRMP study, and no further correspondence was held.

2.3 Other Consultation

Initial telephone discussions about the Overview were held with Sam Campese, Operations Manager for the Vanderhoof Forest District. Additional telephone liaison was held with Dave Borth (Resource Planner), Allan Cunningham (Aboriginal Liaison), Jeanine Elo (Planning Officer), and Craig Hooper (Recreational Resource Officer), all of the

Vanderhoof Forest District. In late February 1995, following the initial results of the overview, Arnoud Stryd and Mary Quirolo made a trip to the study area, during which a meeting was held with Sam Campese, Allan Cunningham, and Dave Borth.

2.4 Review of Known Archaeological Sites

One of the primary goals of the Overview was to produce written and mapped information about the recorded archaeological sites in the study area.

2.4.1 Archaeological Typology

The archaeological site typology utilized by the Archaeology Branch for recording archaeological sites was used to classify the kinds of archaeological sites already known in the Vanderhoof LRMP subregion. Generally speaking, sites are divided into two classes: prehistoric and historic. For the purposes of this study, “prehistoric” refers to remains resulting from traditional aboriginal activities, whereas “historic” refers to remains resulting from non-aboriginal settlement and land use, or non-traditional aboriginal activities. Most of the prehistoric sites in the study area were occupied before first contact with Europeans early in the 19th century, but it is possible that some sites classified as “prehistoric” may post-date this initial contact because they represent traditional activities.

Eight prehistoric archaeological site types were used in this study. All but one of these types have been previously recorded in the study area, and each is considered to be a potential site type within the Vanderhoof LRMP subregion. Following the typology used by the Archaeology Branch, they are defined as follows:

- . Cultural Materials: These sites include such archaeological remains as stone artifacts and the waste products of stone tool manufacture, fire-altered rocks, and bones representing animals consumed by prehistoric First Nations people. A given site may contain one or more of these materials. Most sites of this type contain only surface scatters of stone artifacts, and are usually considered to represent short term, seasonal camps.
- . Earthworks: These sites include features such as earthen ridges and mounds constructed by prehistoric First Nations people for various purposes. Prehistoric earthworks are extremely rare.
- . Habitation: These sites include the remains and surficial features normally associated with places used for semi-permanent seasonal [usually winter] habitation. These sites usually consist of clusters of features such as pithouse depressions or platforms for matlodges, and pits used for food preparation and storage, post holes, and fire hearths. Associated archaeological remains frequently include faunal remains, fire-altered rocks, charcoal, waste products from stone tool manufacture, and artifacts.

- . **Human Remains:** These sites are places where First Nations people interred their dead.
- . **Petroform:** These sites include constructed stone features such as cairns, and geometric, zoomorphic, or anthropomorphic alignments.
- . **Pictographs:** These sites are red ochre paintings produced by First Nations artisans, and are generally found on vertical exposures of smooth, fine-grained bedrock or on very large boulders.
- o **Subsistence Features:** These sites include surficial features as animal drives, food preparation and storage pits, stone fishtraps and wooden fish weirs, and meat/fish drying racks.
- . **Trail:** This site type refers to overland travel routes traditionally utilized by First Nations people. Transportation routes utilized by Euro-canadian traders and prospectors were usually congruent with the routes of aboriginal trails.

Fourteen historic archaeological site types were used in this study. Eleven of these types have been previously recorded in the study area, and each is considered to be a potential site type within the Vanderhoof LRMP subregion. They are defined as follows:

- . **Commercial:** This category includes commercial enterprises such as fur trading posts and forts, banks, or general stores.
- . **Communications:** This category includes such communication-related structures as post offices, telegraph line shacks, newspaper offices, and telephone exchanges.
- . **Cultural Materials:** These sites include scatters and deposits of manufactured goods and household refuse.
- . **Education:** These sites include school buildings, colleges, etc.
- . **Farming, Ranching:** This category of site includes structural features associated with agricultural activities, such as farmhouses, outbuildings, barns, and “tether stakes”.
- . **Government:** Police stations, forest ranger stations, or court houses are examples of this type of site.
- . **Habitation:** These sites include physical remains and surficial features associated with historic settlement by First Nations and Euro-canadian people. Cabins, house depressions, foundations and earthworks, and entire historic townsites are examples of historic habitation sites.

- . Human Remains: Sites of this type include historic cemeteries, isolated graves, and traditional grave houses.
- . Industrial: This category of site is associated with historical manufacturing or resource extraction industries, such as placer and lode mining workings, sawmills, fisheries, and hydroelectric plants.
- . Medical: Hospitals, sanatoria, and clinics are examples of medical sites.
- . Religious: Churches, missions, monasteries, or shrines are examples of religious sites.
- . Social: This category includes structures such as community halls and lodge buildings, and objects such as a “message tree”, a stone cairn, or a monument.
- . Subsistence Feature: This category includes structures and features utilized for hunting and fishing, as well as for vegetable and meat storage.
- . Transportation: This category includes structures and objects such as ferry cable towers, wagon roads, individual canoes, trails, railway buildings and rolling stock, tunnels and bridges, and wharves.

2.5 Archaeological Potential Assessment

One of the goals of the Overview was to produce written and mapped information about archaeological potential in the study area.

Although historic archaeological sites were included in the known sites database and were plotted on the digitized maps, information about post-1846 Euro-canadian archaeological sites was, at the instruction of the Archaeology Branch, not included in the archaeological potential assessment.

2.5.1 Archaeological Potential Assessment Approach

Assessment of archaeological potential was based on: (i) consideration of the locations and distributions of previously recorded archaeological sites; (ii) information on traditional land and resource use patterns and traditional use sites locations; and (iii) topographical and biophysical characteristics. Potential mapping was conducted under the premise that archaeological site locations are often correlated with certain micro-environmental characteristics, and that the presence or absence of these variables can be used to predict the likelihood of sites.

The results of previous archaeological inventory studies conducted in the study area and ethnographic information on traditional resource use and settlement patterns have been used to model the relationships between archaeological resource distributions and biophysical

characteristics (see section 6.0 below). Unfortunately, many appropriate micro-environmental attributes cannot be accurately mapped at a scale of 1:250,000, and some of these are particularly important for assessing archaeological potential. For example, specific landform types with high potential for containing archaeological remains (e.g., fluvial terraces), will not usually be identifiable on maps where the contour interval ranges between 100 and 150 m as they do on 1:250,000 scale maps. Again, areas of wetland normally cannot be plotted on maps with such a small scale. On the other hand, all kinds of permanent water bodies, from tertiary streams to very small lakes, have high visibility on 1:250,000 scale maps.

2.5.2 Archaeological Potential Assessment Variables

Nine variables were selected as being both significant for predicting archaeological potential in the Vanderhoof LRMP subdistrict, as well as being mappable at a scale of 1:250,000. The nine variables are:

- (1) **Aspect:** This refers to the direction of slope, where it is considered that locations with a western or southern exposure would receive greater solar exposure and therefore be more congenial for residency. Conversely, locations with a northern or eastern exposure receive less solar exposure would normally be regarded as unfavourable habitation sites (for example, remaining snowbound longer in spring). At the scale of the present study, archaeological potential polygons that encompass all possible aspects proved to be the rule, rather than the exception, so that for the most part this variable was rarely more than of moderate significance for predicting archaeological potential.
- (2) **Potable Water:** This refers to proximity to a fresh water source, which has implications both for subsistence and transportation. Potable water is a prime consideration for the location of habitations, and is also necessary for some types of resource processing activities. Certain types of freshwater fisheries are also subsumed under this variable, but anadromous salmonid fisheries justify a separate variable. Also, watercourses are often prime locations for trade and travel routes, particularly in montane environments. At the scale of the present study, freshwater sources are extremely abundant, and furthermore, their quality cannot be evaluated. For this reason, this variable was not usually of more than moderate significance for predicting archaeological potential.
- (3) **Salmonids:** This variable refers to rivers, streams, and lakes in which anadromous salmon runs occur. For the purposes of this study, all rivers and second-order streams in the Nechako drainage are considered to support salmon runs. Lakes must be directly connected to rivers, or connected to rivers second-order streams at least, to be considered to have salmonid potential. Where present, salmonid-bearing waters are considered to be of moderate or high significance for predicting archaeological potential.

- (4) **Ungulate Capability:** This information is acquired from Canada Land Inventory (C.L.I.) maps, and refers to the ability of lands to support ungulates. Ungulates in this study include elk, deer, moose, caribou, bighorn sheep, and mountain goats. For the purposes of this study, lands of Class 3 or better are normally considered to influence archaeological resource potential, and in the Vanderhoof LRMP subregion, ungulate capabilities rated as Class 3 or better are considered to be of moderate to high significance for predicting archaeological resource potential.
- (5) **Waterfowl Capability:** This information is also acquired from C.L.I. maps, and refers to the ability of lands to support waterfowl. Waterfowl in this study include geese, ducks, and swans. Highly-productive waterfowl lands are very scarce in the study area, so lands of Class 5 or better are considered to influence archaeological potential assessment. C.L.I. maps for the Vanderhoof subregion indicate lands of Class 5 - 7 throughout, excepting only the immediate vicinity of the town of Vanderhoof, where waterfowl capability is Class 1. The variable is of low significance for predicting archaeological site potential within the study area.
- (6) **Montane/Alpine Topography:** This refers to steep, mountainous terrain where few types of traditional activities were carried out, or where traditional activities were carried out which left few recognizable archaeological remains. This terrain is dominated by mountains, and includes extensive areas of alpine tundra and glaciers. Such terrain does not occur in the Vanderhoof LRMP subregion, but in study areas where it is present, this variable is of moderate to high significance for predicting low or unproven archaeological resource potential.
- (7) **Lakes:** This variable is separated from the undifferentiated “freshwater” variable. Archaeological studies in the study area (e.g. at Finger Lake, Tatuk Lake) indicate that lakeshores and islands in lakes frequently have high archaeological site densities. Where lakes are present, they are of moderate or high significance for assessing archaeological potential. Small lakes or clusters of small lakes in montane or alpine environments represent a special case, but are usually assessed as being of at least moderate significance for predicting archaeological potential in such locations.
- (8) **Transportation Corridor:** This variable refers to locations which are or could be utilized by First Nations people as convenient travel routes. Known aboriginal trails as recorded in historic and ethnographic sources were identified and included in the mapping whenever possible. The corridors typically include river valleys and lakes, but also montane and alpine passes, including stream valleys leading up to passes. Travel routes are usually considered to be of moderate importance for predicting archaeological potential.

- (9) **Lithic Raw Resources:** This refers to sources of stone which were used by First Nations people for tool manufacture. Occurrences of lithic raw resources are generally scattered throughout the southern part of the Vanderhoof subregion, and where thought to be present, are at least of moderate significance for predicting archaeological potential.

2.6 Mapping

Two sets of archaeological maps were prepared for the Vanderhoof LRMP subregion. One set of maps, prepared at a scale of 1:250,000, contains as many map sheets as required to cover the entire subregion. The second set consists of a single map sheet showing the entire LRMP. In both map sets, each map shows known archaeological sites and archaeological potential.

Known archaeological sites are shown on the maps as black triangles. Site numbers (Borden numbers) are not shown; these can be obtained only from the database attached to the digital version of the maps.

Each area of archaeological potential is mapped as a polygon. The polygons vary in size and shape. A different colour is used for each potential value (that is, High, Moderate, Low, and Unproven). Polygon numbers are not shown; these can be obtained only from the database attached to the digital version of the maps.

3.0 PHYSICAL SETTING

The Vanderhoof LRMP subregion is in the Nechako Plateau district of the Interior Plateau.

3.1 Palaeoenvironment

Much of the characteristic landscape of the Interior Plateau is the result of Pleistocene glaciation, modified by Holocene warming and later neoglacial episodes (Tipper 1971; Clague *et al.* 1987; Ryder 1975). Climate warming occurred quickly, either just before or during deglaciation, about 10,000 years ago. Following deglaciation, a relatively warm, dry interval corresponding to the Hypsithermal occurred from approximately 8000 - 6000 BP, with the postglacial thermal maximum occurring at about 6000 years ago (Ryder 1975; Hansen 1955). Three relatively cooler, moister neoglacial episodes followed the Hypsithermal, at 5800 - 4900 BP, 3300 - 2300 BP, and 1000 BP to the present.

Vegetation of newly exposed surfaces proceeded rapidly. Studies of postglacial vegetation sequences are incomplete in the Vanderhoof LRMP subregion. However, where studies have been made, trees were immediate postglacial flora, with no indication of an intervening tundra stage (Ryder 1975).

3.2 Modern Environment

The Vanderhoof LRMP subregion is comprised of generally flat to rolling terrain at elevations of 750 - 1000 m, with uplands and peaks rising above 1200 m. It lies in the rainshadow of the Coast and Cascade Mountains, and is dry relative to the coastal and mountainous parts of British Columbia. Open valleys may receive between 400 - 600 mm of precipitation per year, while precipitation in the uplands may reach 750 mm per year (Schaefer 1975). Mean annual temperature is 3° C, reflecting short, warm summers and long, cold winters, when frost penetration may reach or more 50 cm below the ground surface.

The Vanderhoof LRMP subregion is primarily within the Sub-boreal Spruce Zone, while vegetation typical of the Englemann Spruce - Subalpine Fir Zone is present at higher elevations.

Animal species in the study area include moose, mule and blacktail deer, coyote, wolf, bear, and freshwater fish and anadromous salmonids (Cowan and Guiguet 1965). Ungulate capability throughout the study area generally ranges from moderate to high, and is high in larger river valleys. Climate poses severe limitations to waterfowl throughout the Vanderhoof LRMP subregion (Environment Canada Lands Directorate 1975). Major sockeye and chinook salmon runs are on the Nechako River, and freshwater fisheries values are also high.

4.0 ETHNOGRAPHIC SUMMARY

All of Vanderhoof LRMP is contained within the traditional territories of several Carrier First Nations. Three modern Carrier First Nations are established in Vanderhoof LRMP: Nadleh Whut'en, Stellaquo, and Stoney Creek. The southern portions of the LRMP contain traditional territories of the Kluskus and Ulkatcho First Nations, whose main villages are just outside of the LRMP boundary.

The literature contains considerable information on Carrier land use. Salmon fisheries were the rationale for the location of summer villages, which were located at the outlets of lakes and mouths of salmon rivers. Salmon were taken mainly in weirs and traps; dip nets and spears were used on fast flowing rivers. Non-anadromous fishes, such as lake trout, whitefish, kokanee, ling, carp and suckers were also important and taken in lake and river fisheries. The Carrier also relied on a wide range of game: caribou, moose, elk, deer, sheep, goats, grizzly bear, black bear, beaver, muskrat, marmot, groundhogs, and rabbit. Since the early 19th century, trapping of fur bearers has been important to the Carrier: beaver, muskrat, mink, marten, lynx, wolverine, wolf, and bear. The Carriers also used many plant species for food and medicines: virtually all edible berries, pine bark, and bulbs, leaves and shoots of numerous other species.

The Carrier cultural landscape is characterized by camps and villages at the outlets of lakes, mouths of rivers, and at lakeside places with a good southern exposure. Extensive

trail networks linked Carrier settlements to each other and to resource collection locations. Trails are especially found at portages between lake and river systems, along streams, and over mountain passes.

5.0 PREVIOUS ARCHAEOLOGY

Archaeological investigations in the Vanderhoof LRMP subregion have been concentrated around river drainages and lakes. The majority of studies were undertaken in response to proposed development projects. Areas investigated include the Nechako River, including the Chinlac area; Nechako River tributaries and Cluculz Lake; Eulatezella Lake; Tachi and Nulki Lakes; Fraser Lake and the Stellako River; the Nautley River bridge at the east end of Fraser Lake; the Endako River; and the localities of Chutanki Lake, Suscha Lake, Chedakuz Creek and Tatelkuz Lake (Apland 1980; Warner and Wilson 1982; ARESCO 1982, 1983; Wilson 1984; Cranny 1984; Sewell 1950; Warner 1983; Carlson and Bussey 1990; Carlson 1993a, 1993b; Bernick 1975).

Although subsurface testing accompanied some survey investigations, full-scale archaeological excavations have been conducted at only one site in the Vanderhoof LRMP subregion. Algatcho (also spelled Ulgatcho, Ulkatcho, and Alkatcho) is an old village site near the northeast end of Gatcho Lake (Donahue 1970); the village was occupied until about 1945. Evidence of occupation during the fur trade period is abundant, and the opinion of the excavator is that the village of Algatcho dates from the mid-19th century to 1945 (Donahue 1970: 15). However, there is evidence of earlier use of the site prior to the contact period, and this earlier use may have a time depth of up to 4500 years (Donahue 1977).

The majority of recorded prehistoric archaeological sites are comprised of scattered cultural materials, generally representing short term camps. Subsistence features, particularly cache pits (small cultural depressions), and habitation sites, represented by large cultural depressions and platforms, are recorded. Pictographs, a petroform, and several burials have also been recorded. The majority of historic archaeological sites are habitations. Commercial sites (forts, trading posts, bank, store, hotel), an industrial site (mill), an educational and social site (school/meeting hall), and other historic sites are also recorded. Detailed information about specific sites is provided in the electronic database (Database I) linked to the map set.

Of the 366 recorded archaeological sites in the Vanderhoof LRMP subregion, 337 are prehistoric, 15 are historic, and 13 sites have both prehistoric and historic components. Table 1 presents the range of archaeological resources recorded in the Vanderhoof LRMP subregion. Note that more than one archaeological resource may be present in a single archaeological site (Section 1.0).

TABLE 1. Vanderhoof LRMP subregion: documented archaeological resources			
Prehistoric Resource Types	N	Historic Archaeological Resource Types	N
Cultural Material	193	Commercial	7
Earthwork	0	Communications	0
Habitation	46	Cultural Materials	3
Human Remains	6	Education	1
Petroform	1	Farming, Ranching	2
Pictograph	4	Government	1
Subsistence Feature	186	Habitation	10
Trail	3	Human Remains	2
		Industrial	2
		Medical	0
		Religious	0
		Social	1
		Subsistence Feature	3
		Transportation	3
TOTAL PREHISTORIC	439	TOTAL HISTORIC	34

6.0 A MODEL OF ARCHAEOLOGICAL RESOURCE DISTRIBUTION

Results of the ethnographic overviews provided in Section 4.0 and what is known about the nature and distribution of archaeological sites in the Vanderhoof LRMP subregion (Section 5.0) were incorporated into a general model of archaeological resource distribution. The model is based on the locations and nature of biophysical resources, and our understanding of the kinds of past uses of such resources that would also have left archaeological remains.

A generalized model of archaeological resource distribution in the Vanderhoof LRMP subregion is presented in Table 2. Environmental units in this subregion include: the lands surrounding major lakes and rivers; plateaus with small lakes; plateaus without small lakes; and montane areas. Examples of each kind of environmental unit, and important natural resources within each unit are shown. Documented and predicted archaeological resources, and the range of potential assessments within each environmental unit are presented.

Table 2. Generalized model of archaeological resource distribution in Vanderhoof LRMP sub-region

Environmental Setting	Location (Examples)	Important Natural Resources	Documented or Predicted Archaeological Resources	Potential Assessment
Major Lakes and Rivers	Fraser, Tachick, Nulki, Clukulz, Francois, Natalkuz, Knewstubb, Hallett, Tahultzu, Tatalkuz, Kuyakuz, Tatuk, Naltesby, Finger, Batnuni, and Tsacha Lakes; Stuart, Nechaco, Chilako, Euchiniko, Blackwater, and Entiako Rivers	High to moderate productivity salmon fishery; moderate to high productivity freshwater fisheries; high to moderate ungulate productivity (moose, deer); potable water common; transportation routes; lithic raw materials (Blackwater River drainage)	Habitation; subsistence feature; cultural materials; trail; pictograph; human remains	High - Moderate
Plateaus with Small Lakes	Between Entiako and Blackwater Rivers; between Entiako River and Johnny - Laidman Lakes; E of Laidman Lake; S and N of Chedacut Creek; between Tatalkuz Lake and Blackwater River; between Nechaco Reservoir and Finger - Tatuk Lakes; between Tachick - Nulki Lakes and Naltesby Lake; between Tahultzu - Hallett Lakes and Fraser Lake; NW of Oona Lake; SW of Stuart River	Moderate to high productivity salmon fisheries; moderate to high productivity freshwater fisheries; moderate ungulate productivity (moose, deer); potable water common; some transportation routes; lithic raw materials (Blackwater River drainage)	Subsistence feature; cultural materials; habitation; trail; human remains; pictograph	Moderate - High
Plateaus without Small Lakes	N of Blackwater River; E of Tatalkuz Lake; N and NE of Finger - Tatuk Lakes; SE of Nulki Lake; NW of Naltesby Lake; NW and N of Fraser Lake and Nechaco River; NW and NE of Clukulz Lake	Low productivity salmon fisheries; low to moderate productivity freshwater fisheries; low to moderate ungulate productivity (moose, deer); some potable water; some transportation routes; some lithic raw material sources (Blackwater River drainage)	Subsistence feature; cultural materials; trail	Unproven - Moderate
Montane	Between Johnny - Laidman Lakes and Natalkuz Lake; E of Knewstubb Lake; between Kuyakuz and Tatalkuz Lakes; S of Francois Lake; Nation Rivers; between Takla and Nation Lakes; S of Nation Lakes	Some transportation routes; no salmon or freshwater fisheries; low productivity for ungulates (moose, deer); some potable water	Trail; cultural materials	Unproven - Low

7.0 DATA GAPS

To facilitate resources management and land use decision making, it is important to be able to predict potential archaeological site locations with reasonable certainty. Critical to the development of a robust predictive model is the availability of information about sites in a wide range of locations and types. The information used to build the predictive model should come from all parts of the study area, should represent all geographic settings within the area, and should not be biased towards certain types of archaeological data. Furthermore, the information that is available should be complete, accurate, and current.

Our review of the current state of knowledge about the geographic distribution of archaeological resources in the study area identified four gaps thought to be significant in the development of a robust predictive model. These are: (1) incomplete geographic coverage in the existing archaeological site inventory, (2) emphasis on particular types of sites in the inventory, (3) the existence of limited information on past environments, and how these might have affected human adaptation, and (4) the lack of participation by First Nations in the study. Each of these gaps is briefly discussed below.

7.1 Geographic Coverage

The majority of archaeological investigations in the Vanderhoof LRMP subregion have taken place in response to development projects, and river valleys and lakes have received the most attention (e.g. Bernick 1975; Blacklaws 1979, 1984; Borden 1951; Bussey 1981; Carlson 1993; Carlson and Bussey 1990; Cranny 1984; Helmer and Wilson 1975; Irvine 1979; Sewell 1950; Warner 1982, 1983; Warner and Wilson 1982; Wilson 1984, 1986; 1991). Upland areas, particularly the montane alpine, remain largely uninvestigated.

7.2 Site Type Coverage

Many of the archaeological investigations carried out in the study area have focused either on specific archaeological site types such as pithouse villages (e.g. Bussey 1993; Donahue 1970; Wilson 1991), or, in the case of linear and valley surveys, have taken place in localities where the range of potential archaeological site types is somewhat restricted. As a result, some types of archaeological resources are not well represented in the current site inventory. These include pictographs; petroglyphs; stone quarries; earthworks (fortifications); culturally modified trees (primarily lodgepole pine and other trees stripped for cambium); burial sites of various kinds; wooden weirs in creeks and lakes; trails; camps and resource sites away from major rivers and lakes; very old sites associated with ancient landforms such as glacial lake beaches; upland ungulate hunting sites; and most types of historic archaeological sites.

7.3 Past Environmental Information

While not directly a gap in archaeological information, the scarcity of information about past environments in the study area represents a major barrier to the understanding how people lived on the land in the distant past. This, in turn, limits our ability to predict site locations and to assess site potential for those periods in the past when environmental conditions were substantially different than in the last few centuries. Studies in the Kootenays and elsewhere in British Columbia suggest that in response to different environmental conditions, human adaptations in the distant past may have been unlike those observed at the time of first contact with Europeans. The extent to which early prehistoric human adaptations in the study area may have differed from those recorded historically remains to be determined, and represents a major gap in archaeological knowledge.

7.4 First Nations Participation

All First Nations with an interest in the Prince George LRMP subregion were, to the best of our knowledge, contacted at the start of this study. None indicated a wish to consult or participate in the study. In the course of LRMP studies in other subregions, representatives of several First Nations expressed concern that consultation and participation would prejudice their land claims and treaty negotiations. The lack of consultation and participation was a significant limitation to the present overview because it prevented access not only to archaeological site locations known to First Nation people, but also to traditional use site information not in the public record and potentially important to archaeological model building.

8.0 RECOMMENDATIONS FOR FUTURE RESEARCH

One of the objectives of this study is the preparation of recommendations for further archaeological assessment studies. The purpose of such assessment studies would be to improve our ability to predict archaeological site locations and distributions in the study areas, and to improve our ability to accurately assess archaeological potential. These recommendations are intended to facilitate resource management and land use decision making, and are not designed to expand the archaeological inventory of the study area for its own sake.

To address the gaps in geographic and site type coverage in the existing site inventory as defined in Section 7.0, we recommend that:

- (1) Future inventory related research in the study area be oriented toward improving geographic coverage to include: montane uplands in general, including passes and alpine parkland; and terraces and plateaus without small lakes.
- (2) Future site investigations be oriented toward improving our understanding of (i) traditional travel routes; (ii) utilization of upland areas; (iii) past environments and

their effect on human adaptation; and (iv) the initial settlement of the study area by Native people in the immediate post-Glacial period.

To address the lack of participation by First Nation groups in these overview studies and similar studies, we recommend that:

- (3) First Nations and the BC Government establish a protocol that will permit First Nations to participate in future LRMP studies and similar planning studies without prejudicing First Nation land claims or treaty negotiations.

9.0 CONCLUDING REMARKS

In conclusion, we would like to offer a few brief closing comment on the study.

Firstly, because of the gaps that exist in the information that is currently available about the archaeological resources of the study area, the present digitized maps and associated datasets represent *initial* rather than final statements of known and predicted archaeological resources in the study area. As the inventory of known archaeological sites is expanded, and a more robust predictive model is developed, it will become particularly important to update both the maps and the datasets. However, as with most studies of this kind, there will be a tendency to treat the results of the Overview, particularly the potential mapping, as definitive.

Secondly, this study is an archaeological and not a traditional use site overview. Although traditional use information and site locations in the public record were used to develop a model of archaeological site potential, this overview does not attempt to map the location of known traditional use sites, or to show the potential for such sites in different parts of the study area. The digital maps and linked databases do not include information on traditional use sites. Some traditional activities such as berry picking, medicine collecting and spiritual practices leave little or no archaeological evidence. Because some kinds of activity do not leave archaeological evidence, a low archaeological potential rating for an area should not be interpreted to mean that the area was not used traditionally. Traditional Use Studies are intended to address the nature and location of traditional use in an area.

Thirdly, low archaeological potential is not the same as nil potential. All parts of the subregion, except for totally disturbed areas such as open pit mines, have at least some potential for archaeological sites. Also, unproven potential is not the same as low potential. Future research could reveal these poorly understood areas to be of high, medium or low archaeological potential.

Lastly, the maps associated with this study were prepared at a scale of 1:250,000. These maps are intended for strategic level planning and should not be used for operational decision making. Archaeological potential maps at scales of 1:50,000 and 1:20,000 are better suited for such purposes.

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