ACKNOWLEDGMENTS

Kutenai West Heritage Consulting would like to thank the Arrow Forest District (AFD) for retaining us to conduct this study. Mr. Ted Evans (Planning/Range Officer) was the contract officer for the Arrow Forest District. We thank Ted for providing us with information concerning the AFD, and for his assistance and comments regarding the study.

We would also like to thank the Ktunaxa - Kinbasket Tribal Council, the Okanagan Indian Band, the Shuswap Nation Tribal Council, the Sinixt - Arrow Lakes First Nation, and the Westbank First Nation for their support and interest in this project. A number of researchers provided data on the study area, including Dr. Robert Fulton (Geological Survey of Canada, Ottawa), Dr. Dale Stradling (Eastern Washington State University, Cheney), Dr. Peter Mehringer (Washington State University, Pullman), Ms. Diana French (Okanagan University College, Kelowna, B. C.), Ms. Lesley Anderton and Mr. Robert Dooley (Selkirk College, Castlegar, B. C.), Dr. William Rember (University of Idaho, Boise, Idaho), and Dr. Richard Hebda (Royal British Columbia Museum, Victoria, B. C.). Mr. Ted Evans (AFD) and Mr. John Bell (Ministry of Environment, Nelson Region) also provided background information regarding the AFD. Ms. Romi Caspar, at the Cultural Department Library, Archaeology Branch, Victoria, B. C., was also instrumental in allowing KWHC access to unpublished archaeological research reports of relevance to this study.

Martin Handly, Robert Lackowicz, and Doris Zibauer prepared the final AFD~AOA,report.

SYNOPSIS

Arrow Forest District - Archaeological Overview Assessment (1995-1999)

Purpose and Methodology

Specific objectives of the Archaeological Overview Assessment (AOA) conducted for the AFD Forest Development Plan (1995-1999) included: reviewing and evaluating the relevant archaeological, ethnographic, and palaeoenvironmental literature; compiling a database with descriptors for all known archaeological sites within the AFD; plotting the location of all previously recorded archaeological sites within the AFD on 1:50,000 NTS mapsheets; assessing the potential archaeological site resources within the AFD by delineating zones of High, Medium, and Low archaeological site potential on the corresponding NTS maps; assessing the effects of land-altering developments (i.e., timber harvesting activities and access road construction) within or adjacent to site-specific areas that will be affected and/or impacted by the proposed AFD Forest Development Plan (1995-1999); and preparing a detailed "archaeological overview assessment report" (Archaeology Branch 1995:20-22) that provides a general summary of past and present environments, aboriginal community cultural history, previous local and regional archaeological studies, and the nature and distribution of potential archaeological sites within the study area. This report also presents recommendations concerning any future archaeological impact assessment (AIA) studies that may be required with regard to specific land altering developments (i.e., timber harvesting activities and access road construction) associated with the AFD Forest Development Plan (1995-1999).

Known Archaeological Site Density and Archaeological Potentials, AFD

Recorded archaeological sites in the AFD were tallied for each 100 ha block identified by UTM grids on each NTS mapsheet. These figures were used to produce a histogram of the number of archaeological sites I 1 00 ha, representing the known archaeological site density. The number of 100 ha blocks with similar numbers of previously recorded archaeological sites were clustered into discrete categories. Means and standard deviations were then defined for the previously recorded archaeological site sample:

Mean = 1.3 sites I 100 ha (1 km2)　　　　SD = 0.7 sites I 1 00 ha (1 km2)

High archaeological site density for the AFD~AOA has been assessed at > 2.0 archaeological sites I 100 ha (km). Physiographic characteristics and inferred cultural practices which may be useful indicators of high archaeological site potential locations include: alluvial, glaciolacustrine, glaciofluvial, and kame terraces, particularly those terraces where the confluence of two or more large fluvial or palaeo-fluvial systems meet; and, concentrations of previously recorded archaeological sites, transportation corridors and/or inferred movement corridors, and landforms associated with known aboriginal use.

Medium archaeological site density estimates have been assessed between 0.6 to 2.0 archaeological sites I 100 ha (km2). Physiographic characteristics and inferred cultural practices which may be useful indicators of medium archaeological site potential locations include: strandlines, deltas, and beaches associated with proglacial and periglacial lake levels; alluvial, glaciolacustrine, glaciofluvial, and kame terraces; other flat to gently sloping landforms, especially those in close proximity to extinct and/or extant streams, rivers, ponds, marshes, and lakes, contemporary or inferred pre-contact ungulate grazing and/or browsing areas (i.e., grasslands, marshes, alpine and subalpine meadows), and contemporary flora exploitation areas; and elevated landforms (e.g., knolls, ridges, etc.), especially those 'overlooking' extinct and/or extant streams, rivers, ponds, marshes, and lakes, and/or contemporary or inferred pre-contact ungulate grazing areas (i.e., grasslands, marshes, subalpine meadows), and/or movement corridors.

Low archaeological site density estimates are assessed at < 0.6 archaeological sites I 100 ha (km2). This does not mean that archaeological sites will not be encountered in these areas, but rather that these areas do not appear to have been conducive to precontact aboriginal site placement, particularly in terms of activities that would leave behind archaeological evidence.

Archaeological Potential Assessments

The information contained in this archaeological overview assessment study *was* designed to provide a useful land resource management tool for the AFD by indicating which areas within the district may require future archaeological impact assessment studies. This study has assessed a medium or greater potential for archaeological site locations to a number of areas within the AFD. Site specific assessments have been generated relating to proposed land-altering timber harvesting activities and associated access road construction in the AFD. The table below presents the approximate number of cutbiocks assessed a medium or greater potential for containing archaeological sites by Licensee and by year within the AFD.

Approximate %age of AFD Cutbiocks Assessed a Medium or Greater Archaeological Site Potential

Licensee / Year	95 n	95 %	96 n	96 %	97 n	97 %	98 n	98 %	99 n	99 %
ATCOlumber	43	68	36	55	30	52	17	40	24	59
BeilPole	10	43	00	00	01	20	00	00	02	100
Kalesnikoff Lumber	06	60	05	50	04	67	04	67	02	40
PopeandTalbot	86	60	79	47	95	52	96	55	102	64
Riverside Forest Products	10	59	04	40	04	57	05	62	08	100
Slocan Forest Products	27	33	18	28	29	43	33	71	23	38
Small Business	25	60	12	63	03	30	6	60	11	58

Recommendations

We recommend that those areas assessed a medium or greater archaeological site potential be subjected to a detailed archaeological impact assessment study (Archaeology Branch 1995:1 0-14) prior to the initiation of any land-altering timber harvesting activities and associated access road construction. The impact assessment study results will allow for any archaeological sites identIfied within the proposed impact zones to be properly managed, prior to commencement of land-altering developments.

Any changes to proposed Licensee and AFD land-altering developments, as presently outlined within the AFD Forest Developmenl Plan (1995-1999), will require re-evaluation of archaeological site potentials. We recommend that changes to the AFD Forest Development Plan be reviewed in 1997 and in subsequent years, to define archaeological site potentials within revised impact zones prior to the initiation of any land-altering developments.

We recommend that the AFD and/or Licensees within the AFD operational area consult those aboriginal communities who have asserted a political and/or traditional interest in the AFD study area to discuss their proposed land-altering developments within the AFD prior to the letting of archaeological impact assessment contracts.

As the Terms of Reference for the AFD-AOA covered the period from 1995 to 1999, we recommend that a stratified sample of those cutbiocks and access roads associated with the I995 harvesting period which were assessed a medium or greater archaeological site potential rating be subjected to a post-harvesting archaeological impact assessment.

We recommend that the AFD and/or Licensees consider including archaeological resource assessment methods within their initial Silviculture Prescription process, strictly as a proactive measure. This would decrease the probability of adverse impacts occurring to archaeological resources, since archaeological concerns would be incorporated within development of the Silviculture Prescription, rather than being evaluated after submission of the Silviculture Prescription.

Given the incompatible nature of the 1:50,000 scale archaeological potential mapping to the I:20,000 scale operationaHevel mapping of the AFD and Licensees Forest Development Plans, we recommend that future archaeological overview assessments use I:20,000 scale TRIM maps, in conjunction with in-field ground-truthing, for the determination of archaeological site potential within the AFD.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

AFD-AOA

AN ARCHAEOLOGICAL OVERVIEW ASSESSMENT OF THE ARROW FOREST DISTRICT, SOUTHEASTERN BRITISH COLUMBIA

•1.0 INTRODUCTION AND BACKGROUND

I .1 Location of the Arrow Forest Distrid

The Arrow Forest District (AFD) is situated within the Nelson Forest Region, southeastern B. C., between Latitude 49°OO"(International Border) to 51 OØ5IF and Longitude I 1 7°35"and 1 18° 25" (Figure 1 .1). The AFD is centred around the Upper and Lower Arrow Lakes and Slocan Lake, within the Selkirk Trench, drained by the Columbia, Inonoaklin, Slocan, and Kootenay Rivers. The Selkirk and Monashee Mountain Ranges are located on the east and west boundaries of the **AFD,** respectively (see Section 3.2, below). Cities and villages located within the **AFD** include Castlegar, Fruitvale, Nakusp, New Denver, Rossland, Salmo, Silverton, Slocan City, Trail, and Ymir.

1 .2 Purpose of the Present Study

The purpose of the Archaeological Overview Assessment **(AOA)** condusted for the **AFD Forest** Development Plan (1995-1 999) by Kutenai West Heritage Consulting (KWHC) is to evaluate the **AFD** in terms of its potential to contain archaeological sites and to map these High, Medium, and Low archaeological site potentials areas at a I :50,000 scale (Section 8.1 , Schedule "A", and Section 2.0, below). Following completion of the **AFD** archaeological site potential mapping, proposed Licensee and **AFD** Land-altering developments, as outlined within the **AFD Forest Development** Plan (1 995-1 999), were then individually evaluated. Archaeological site potential assessments for all timber harvesting blocks and access roads described within the **AFD Forest Development Plan** (1 995-1 999) were determined, and each development was ranked according to its probability of negatively impacting archaeological resources. Recommendations concerning the need for future archaeological impact assessment (AIA) studies, related to these specific land-altering developments as described within the **AFD Forest Development Plan (1 995-1 999),** were then drafted.

These recommendations were presented to the **AFD, major** licensees within the **AFD** operational area (i.e., ATCO Lumber Ltd., Bell Pole Company Ltd., Kalesnikoff Lumber Company Ltd., Pope and Talbot Ltd., Riverside Forest Products Ltd., Slocan Forest Products Ltd., and Small Business Forest Enterprise Program [AFDJfor comment and review.

I .3 Personnel Involved

Three archaeologists from KWHC were involved with production of the **AFD-AOA:** Martin Handly (M. A.; Project Supervisor), Doris Zibauer (M. A.; Research Assistant), and Robert Lackowicz (M. A.; Research Assistant).

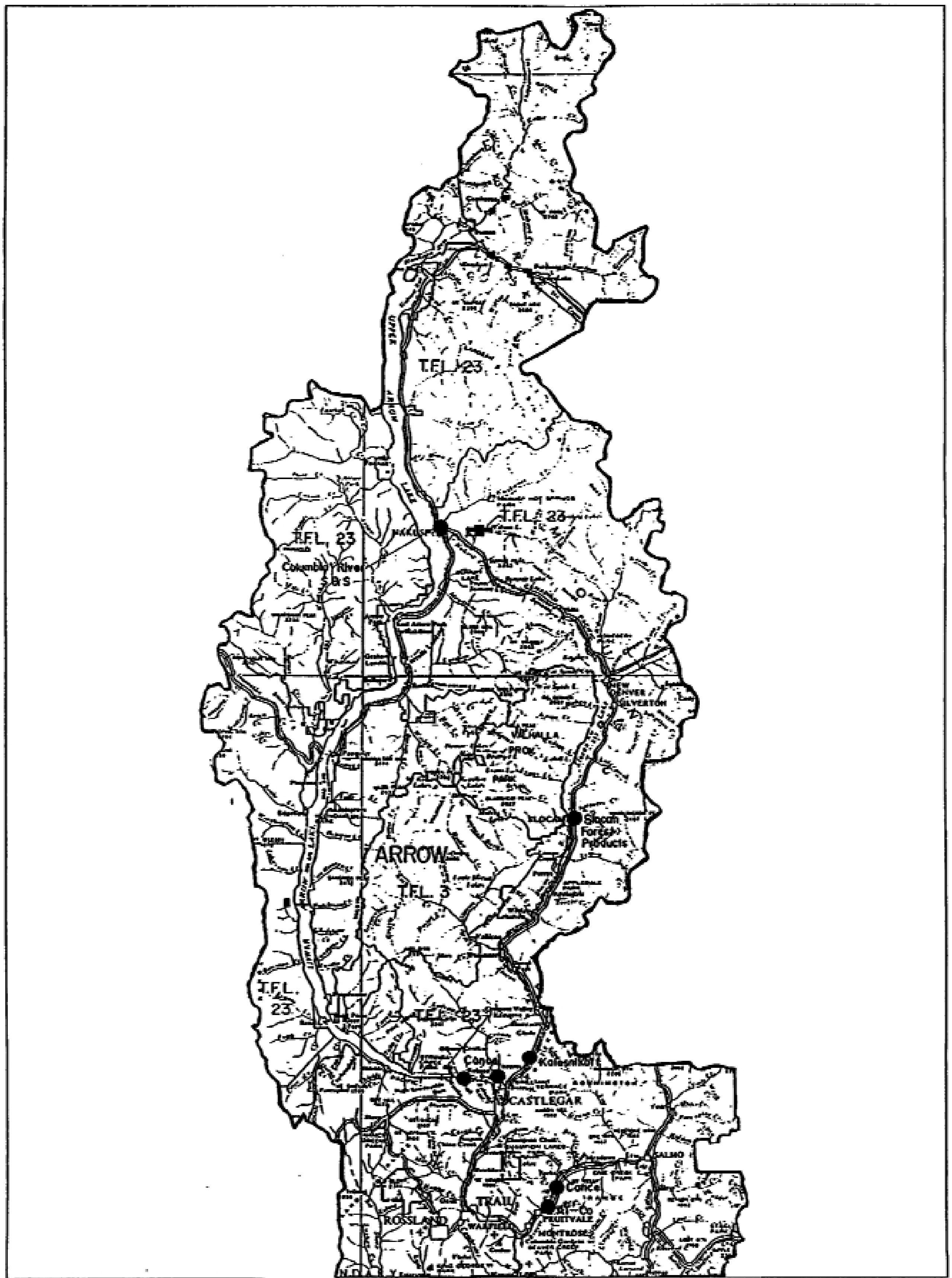


Figure 1.1 : Location of Arrow Forest District, southeastern B. C. (Scale 1:1,265,000).

2.0 STUDY OBJECTIVES AND METHODOLOGY

2.1 Study Objedives

Specific objectives of the **AOA conducted for the AFD Forest Development Plan (1995-1999)** included (Archaeology Branch 1995:8-10,20-22):

(1) reviewing and evaluating the archaeological, ethnographic, and palaeoenvironmental literature relevant to the proposed **AFD Forest Development Plan (1995-1999)** study area;

(2) compiling a database with descriptors for all known archaeological sites within the AFD;

(3) plotting the location of all previously recorded archaeological sites within the AFD on 1:50,000 NTS mapsheets;

(4) assessing the potential archaeological site resources within the **AFD, and preparing maps at** a scale of 1:50,000 on the corresponding NTS maps, delineating these zones of relative High, Medium, and Low archaeological site potential within the AFD;

(5) assessing the effects of land-altering developments (i.e., timber harvesting activities and access road construction) within or adjacent to site-specific areas that will be affected and/or impacted by the proposed **AFD Forest Development Plan (1995-1999); and,**

(6) preparing an "archaeological overview assessment report" (Archaeology Branch 1995:20-22) that provides a general summary of past and present environments, aboriginal cultural history, previous local and regional archaeological studies, and the nature and distribution of potential archaeological sites within the study area. This report also presents recommendations concerning any future **AIA studies that may be required** in regard to land altering activities (i.e., timber harvesting activities and access road construction) associated with the **AFD** Forest Development **Plan (1995-1999).**

2.2 Methodology

The following two sections discuss methods used by **KWHC to gather information considered** useful in delineating areas of High, Medium, or Low archaeological site potential within the **AFD.**

2.2.1 First Nation Consultation

According to the Terms of Reference for the **AFD-AOA, KWHC was asked to** "liase with First Nations who have an interest in the Arrow Forest District. This liason may include interviews to determine important areas of past use, and ongoing communication regarding the status of the project" (see Section 8.1, Schedule A). Five aboriginal communities have expressed interest in the **AFD: a) the Ktunaxa** - Kinbasket Tribal Council; b) the Okanagan Indian Band; c) the Shuswap Nation Tribal Council; d) Sinixt - Arrow Lakes First Nation; and e) the Westhank First Nation.

The Ktunaxa - Kinbasket Tribal Council and the Westbank First Nation have formally claimed portions of the **AFD as traditional** territory, as outlined in their Statements of Intent to the B. C. Treaty Commission (1994). The study area lies within the ethnolinguistic and ethnographic terntory of the Interior Salish/Lakes peoples (Archaeology Branch I989:1 5). It must be stressed that the **AFD-AOA** outlined above does not attempt to identify and/or define Traditional Land Use areas within the **AFD. This** report deals only with archaeological resources, i.e., those cultural materials dating before A.D. 1846 (Archaeology Branch 1995:51-54). It is the opinion of the authors that if such research had been conducted prior to the **AFD~AOA study, information concerning protohis-**tonic and historic aboriginal use of the study area could have been used to augment predictions of archaeological site potential for the later period.

These First Nation groups were contacted on January 15, 1996, by facsimile, and on January 22, 1996, by telephone. Meetings to discuss the **AFD-AOA were held with** their representatives in February of 1996, with two days scheduled for each aboriginal community. A copy of the draft **AFD-AOA was forwarded to the Ktunaxa** - Kinbasket Tribal Council, Okanagan Indian Band, Shuswap Nation Tribal Council, Sinixt - Arrow Lakes First Nation, and Westbank First Nation for review prior to the final submission of the report to the **AFD and Archaeology Branch.**

2.2.2 Documentary Research

KWHC conducted a literature review of: (a) previously published and unpublished geological, geomorphological, environmental, and palaeoenvironmental material (see Section 3.0, below); (b) ethnographic and historic references related to aboriginal communities use of the area (see Section 4.0, below); and, (c) previous archaeological research conducted in the **AFD study area (see Sec-**tion 5.0, below). Various researchers, including Dr. Robert Fulton (Geological Survey of Canada, Ottawa), Dr. Dale Stnadling (Eastern Washington State University, Cheney), Dr. Peter Mehringer (Washington State University, Pullman), Ms. Diana French (Okanagan University College, Kelowna, B. C.), Ms. Lesley Anderton and Mr. Robert Dooley (Selkirk College, Castlegar, B. C.), Dr. William Rember (University of Idaho, Boise, Idaho), and Dr. Richard Hebda (Royal British Columbia Museum, Victoria, were contacted to provide information relevant to the **AFD-AOA** study. Mr. Ted Evans **-AFD) and Mr. John Bell (Ministry of Environment, Nelson Region) also pro-**vided background information regarding the **AFD. Ms. Romi Caspar, at the Cultural Department** Library, Archaeology Branch, Victoria, B. C., was also instrumental in allowing KWHC access to unpublished archaeological research reports of relevance to this study.

2.3 Documentation of **Known Archaeological Resources**

As noted in Section 2.1, above, two main objectives for this study were to compile a database of all known archaeological (i.e., pre-A.D. 1846) sites within the AFD, and to subsequently plot these known archaeological sites on NTS 1:50,000 scale maps.

2.3.1 Database Recording of Known Archaeological Resources in **the AFD**

Information on a total of 298 previously known archaeological sites within, or immediately adjacent to, the AFD was entered into a Microsoft EXCEL 5.0© spreadsheet (Section 8.4, below). This spreadsheet was constructed from information obtained from the Archaeology Branch and the Canadian Heritage Information Network (CHIN). Each record within the database contains a se ries of attribute fields concerning the geographical coordinates and type of recorded archaeological sites within the AFD (Table 2.1). A complete listing of all database fields utilized by the Archaeology Branch can be found in the "British Columbia Archaeological Site Inventory Form **Guide" (Archaeology Branch I 989).**

Table 2.1: **Known Archaeological Site Database Descriptors, AFD-AOA**

FIELD NAME	DESCRIPTION
TRIM	Denotes I:20,000 TRIM mapsheet where the archaeological site is located.
NTS	Denotes 1:50,000 NTS mapsheet where the archaeological site is located.
tAT	Denotes archaeological site location to the nearest second of Latitude.
LONG	Denotes archaeological site location to the nearest second of Longitude.
UTM	Denotes archaeological site location to the appropriate Universal Transverse Mercator Grid Number.
E	Denotes three number UTM 'easting' coordinate.
N	Denotes three number UTM 'northing' coordinate.
Borden	Denotes a sequence offour (4) letters (e.g., DiQi) which identify the geographical locaton of the archaeological site within Canada.
NO.	Denotes sequentially assigned number within Borden Block.
TYPE	Denotes type of prehistoric (i.e., precontact) archaedlogical site: 1) Lithic scatter; 2) Pictograph and/or petroglyph; 3) Cultural depression (pithouse, cache pit, root-roasting pit); 4) Human burial; 5) Fire-broken rock, charcoal, ash; 6) Rock cairns and/or petroforms; and, 7) Other (i.e., trails, quarries, etc.)
AREA	Denotes areal size of the archaeological site in square metres.
MASt	Denotes the elevation of the archaeological site in metres above sea level.

2.3.2 Mapping **of Known Archaeological Resources within the AFD**

All of the previously recorded archaeological sites in the AFD were plotted on NTS 1:50,000 scale maps. Latitude and longitude, UTM, written descriptions of the site location contained on the CHIN printout, and unpublished site reports from the Cultural Department Library, Archaeology Branch, were all used to (re)locate recorded archaeological sites in the **AFD as accurately as** possible. The Borden Block designations were situated in the northwest or northeast corner of each Borden Block on their respective 1:50,000 NTS Mapsheets. Each archaeological site was then identified by a 2mm black circle and the associated Borden Number.

2.4 Determination of Archaeological Potential(s) for the AFD

One purpose of this archaeological overview assessment was to evaluate the AFD's archaeological potential in order to identify areas that may require detailed AIA studies prior to the commencement of future land-altering developments. Medium and high archaeological potential assessments were assigned after considering a number of criteria associated with the study area: physiographic location and environmental context (Section 3.0); relevant ethnographic subsistence and settlement patterns (Section 4.0); and recorded archaeological site placement (Section 5.0).

Physiographic characteristics and inferred cultural practices which may be useful indicators of medium archaeological site potential locations in the AFD include:

I) strandlines, deltas, and beaches associated with proglacial and periglacial lake levels;

II) alluvial terraces, glaciolacustrine terraces, glaciofluvial terraces, and kame terraces;

III) other flat to gently sloping landforms, especially those in close proximity to:
- i) extinct and/or extant streams, rivers, ponds, marshes, and lakes;
- ii) contemporary ungulate grazing and/or browsing areas (i.e., grasslands, marshes, alpine and subalpine meadows);
- iii) inferred pre-contact ungulate grazing and/or browsing areas (i.e., grasslands, marshes, and subalpine and alpine meadows);
- iv) contemporary floral exploitation areas; and

IV) elevated landforms (e.g., knolls, ridges, etc.), especially those 'overlooking':
- i) extinct and/or extant streams, rivers, ponds, marshes, and lakes;
- ii) contemporary or inferred pre-contact ungulate grazing and/or browsing areas (i.e., grasslands, marshes, subalpine meadows);
- iii) ungulate migration corridors.

Physiographic characteristics and inferred cultural practices which may be useful indicators of high archaeological site potential locations in the AFD include:

I) alluvial, glaciolacustrine, glaciofluvial, and kame terraces, particularly those terraces where the confluences oftwo or more large fluvial systems meet;

II) concentrations of previously recorded archaeological sites, contemporary aboriginal transportation corridors, and landforms associated with known aboriginal use.

The above list of physiographic characteristics and inferred cultural practices is not considered exhaustive by the authors. These characteristics may be subject to future revision following more detailed AIA and inventory studies within the AFD (see Section 2.7, below).

2.5 Mapping of Archaeological Potential Assessments, AFD (1995-1999)

Polygons have been used to delineate areas of medium or greater archaeological resource potential on the 1:50,000 NTS mapsheets. Aerial photographs (1:40,000 and/or 1:15,000 scales) of the AFD were also consulted when required. Only those specific areas considered to have medium or high archaeological site potential have been denoted on the AFD-AOA maps. Areas of low archaeological site potential have not been similarly denoted. Areas of medium archaeological site potential are indicated by a thin black line polygon with a capital "M". Areas of high archaeological site potential are indicated by a thin red line polygon and a capital "H".

2.6 Database of Archaeological Potential Assessments; Land-Altering Developments Associated with the AFD Forest Development Plan (1995-1999)

The second database utilized in this report was designed to assess and document the archaeological site potential associated with future timber harvesting activities and access road construction as proposed in the AFD Forest Development Plan (1995-1999). Assessments for all timber harvesting blocks and access roads have been entered into a Microsoft EXCEL 5.00 spreadsheet (Section 8.5 to 8.12). Each record within the spreadsheet contains a number of attribute fields that identify, locate, and date the proposed land-altering activity, and the presence and location of medium or greater archaeological resource potential within the proposed development (Table 2.2).

Table 2.2: Proposed Land-Altering Developments Descriptors, AFD-AOA

FIELD NAME	DESCRIPTION
CP	Denotes Timber Sale License / Cutting Permit number
Block	Denotes Timber Sale License / Cutting Permit block number.
TRIM	Denotes appropriate 1:20,000 TRIM mapsheet within which the proposed land-altering developments are located.
Archaeological Potential	Denotes Low, Medium, or High, archaeological site potential.
Archaeological Potential Location	Denotes location of Low, Medium, or High, archaeological site potential.
Recommendation	Denotes KWHC recommendation as to whether or not the proposed land-altering development will require a future AIA study.

When determining archaeological site potential assessments for each individually proposed land-altering development (i.e., cuthlock and/or road), the 1:50,000 NTS maps denoting low, medium, or high archaeological site potential were used in conjunction with 1:20,000 TRIM contour maps and 1:20,000 AFD and Licensee Forest Development Plan operational maps. The 1:20,000 AFD and Licensee Forest Development Plan operational maps, containing graphical information concerning the location and size of proposed land-altering developments, were laid over the 1:20,000 TRIM contour maps on a light table. Areas of overlap between the individually proposed land-altering development (i.e., cutblock and/or road) and medium or high archaeological site potential polygons noted on the 1:50,000 NTS maps were then entered in the appropriate Archaeological Potential, Archaeological Potential Location, and Recommendation database fields of the second database (Table 2.2, Section 8.5 to 8.12).

2.7 Limitations of the Present Study

The Terms of Reference agreed to between the AFD and KWHC for the AFD-AOA, and the time of year in which the contract was let (i.e., winter), precluded any form of preliminary field reconnaissance (e.g., ground-truthing) to be undertaken in the study area. It should also be stressed that the plotted archaeological site distribution and densities are likely distorted by the bias of previous research towards valley bottoms and large fluvial systems, to the detriment of archaeological sites associated with mid-altitude and upland adaptations (see Section 5.0, below). Thus, presently apparent concentrations of archaeological sites and inferred archaeological site density figures may simply be a reflection of these research biases, and not truly reflect past aboriginal site usage.

3.0 ENVIRONMENTAL CHARACTERISTICS OF THE ARROW FOREST DISTRICT

3.1 Palaeoenvironmental Reconstrudion

Significant climatic and geomorphological variations have occurred in the study area since the end of the Wisconsinan glaciation ca. 13,000 years ago. These variations in environment substantially affected the types of faunal and floral resources available to precontact peoples. From an archaeological standpoint, these fluctuating resources are also inferred to have an impact on archaeological site distribution. While the available data are insufficient to precisely detail these environmental alterations within the forest district itself, the broad climatic trends that likely influenced the placement and composition of archaeological resources are examined in the following discussion. A visual summary ofthe review is presented in Figure 3.1.

3.1.1 Period I: Postglacial Environment and Geomorphology (ca. 13-10,000 B.P.)

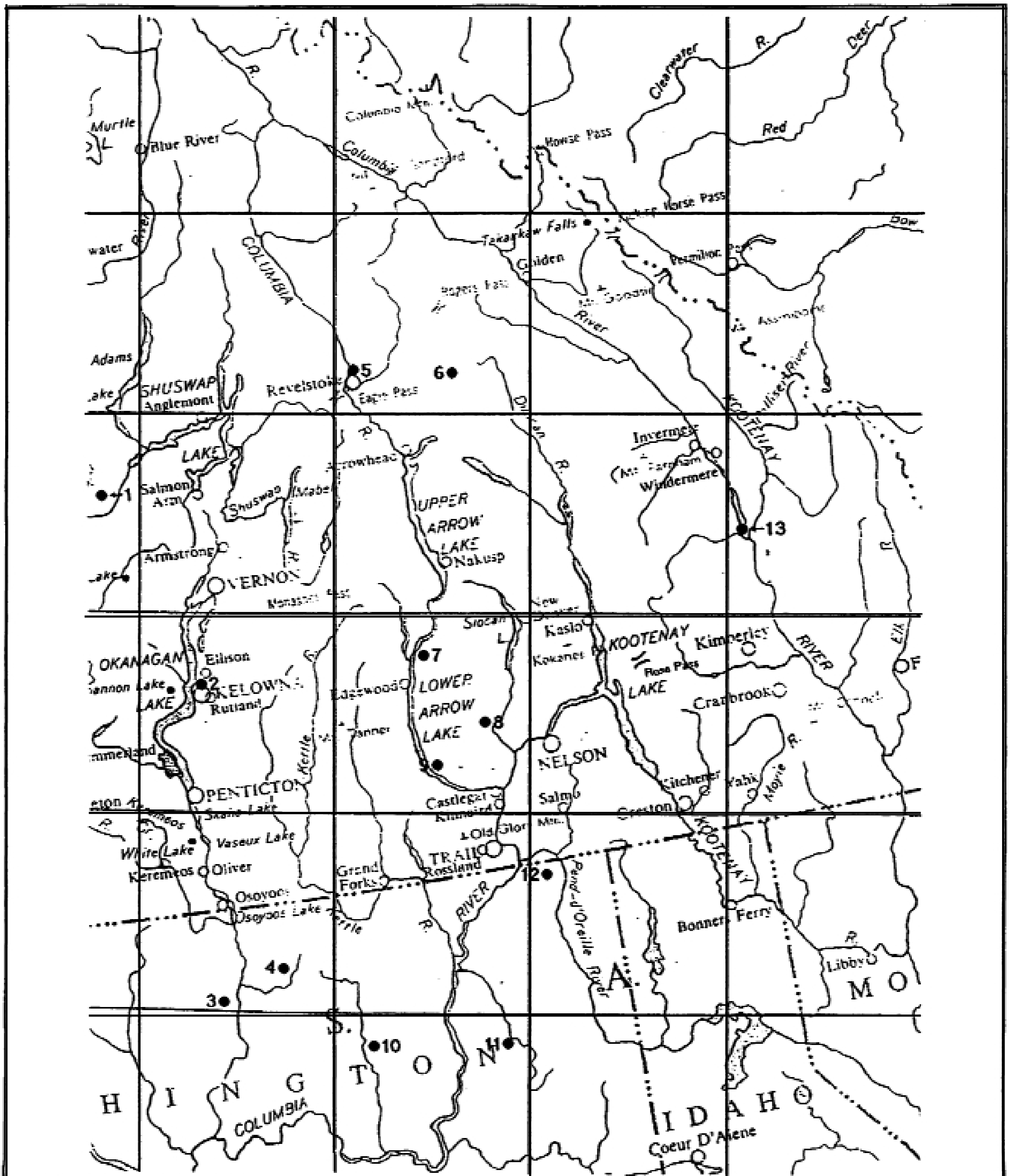
Along with the Rocky Mountain and Cascade glacier systems, the Cordilleran ice-sheet of the Wisconsinan glaciation covered most of British Columbia at its last maximum (ca. 15,000 B.P.), and extended into the northern portions of Washington, Idaho and Montana (Clague, Armstrong and Mathews 1980). Human habitation of southern B. C. was not possible for some time after the terminal Pleistocene (ca. 13,000 B.P.), when ice began to retreat, and ve'getation and associated fauna entered the area. However, the geomorphological effects that occurduring deglaciation are considerable, involving complex inter-relationships between the retreat (and occasional re-advance) of individual glaciers, aeolian, glaciofluvial and glaciolacustrine aggradation and erosion processes, localized climatic variations, underlying geology, and resultant contemporary watershed systems and landforms (Ryder 1971, 1982; Clague 1975, 1986; Holland 1976). These can, in effect, differ from valley to valley and from upland to upland. Thus, in order to be directly applicable to archaeological models, detailed microenvironmentat data are required. The current lack of such information within theAFD requires generalizations of postglacial developments, derived mainly from pollen samples and studies in surrounding areas (see Figure 3.2).

The general geomorphological effects of the Pleistocene glaciers on the mountain ranges in the area are summarized by Holland (1976:77-82; also Clague 1989). The depth of the ice sheet was approximately 2,400 m asi at the northern section of the Monashee, Selkirk and Purcell Ranges, and thinned to ca. 2,150 m towards the International Boundary. Generally, higher mountains lie in the northern areas of each range, and are typified by sharp peaks and deep, steep-sided connecting valleys. Many of these, protruding above the ice sheet, escaped the intensive scouring effects of the Wisconsinan glaciation. In contrast, the southern mountain peaks are usually more rounded and have valleys that are considerably broader, with extensive drift and downwasting deposits in their bottoms and along the sides. This is especially true forthose valleys that run parallel to the predominantly north-south direction of glacier movement.

Deglaciation occurs by the exposure of upland areas before valley bottoms (Ryder 1982; Clague 1989). Unfortunately, there is a distinct lack of pollen cores from upland zones, which affects specific temporal placement of their initial exposure and vegetation history. Several authors have presented dates suggesting a significantly early time for deglaciation in southern B. C. valleys, e.g., Fergusson and Osborn (1981) for the Upper Elk Valley (ca. 13,500 B.P.) and Lowdon and Blake (1976) for the Fauquier area (ca. 12,250 B.P.). However, these dates come from gastropod shells, which consistently generate deceptively early results (Clague 1982), and do not conform to

Years BP	Environmental Period (Hebda 1995)	Palaeo-Climatic Reconstruction (Hebda 1995)				
		Temperature	Precipitation	Forests	Grasslands	Possible Neo-glacial Stades
0 1,000 2,000 3,000 4,000	Modern	Modern	Modern	Modern	Modern	advance? advance?
5,000 6,000 7,000	Mesothermic	1 to 2^{0}C above Modern	Modern	Lowlands - parklands with increasing forest closure Uplands - ?	Slightly more extensive than Modern	advance?
8,000 9,000 10,000	Xerothermic	> 2^{0}C above Modern	Below Modern	Lowlands - open forest and parkland Uplands - ?	Maximum grassland extent	
11,000	Deglaciation ? ? ?	Below Modern	Above Modern	No Modern analogue; sages, grasses, lodgepole pine		
12,000 13,000	Glaciated	Glaciated		Lowlands - glaciated Uplands - ?		

Figure 3.1: Summary of palaeoenvironmental data discussed in Section 3.1



1	Pemberton Hill Lake(Hebda 1995)	6	Dunbar Valley (Hazell 1979; Hebda 1995)		
2	Kelowna Bog (Alley 1976)	7	Fauquier (Fulton et al. 1989)		
3	Mud Lake (Mack et al. 1979)	8	Lower Little Slocan Lake (Hebda 1995)	11	Waits Lake (Mack et al. 1978b)
4	Bonaparte Meadow (Mack et al. 1979)	9	Lower Arrow Lakes (Fulton et al. 1989)	12	Big Meadow (Mack et al. 1978a)
5	Revelstoke (Fulton and Achard 1985)	10	Simpsons Flats (Mack et al. 1978)	13	Bluebird Lake (Hebda 1982, 1995)

Figure 3.2: Location of pollen cores and radiocarbon samples discussed in Section 3.1 (Scale 1:2,500,000).

other dates from the region. Also, despite Ryder's assertion that deglaciation began ca. 15,000 B.P. in the East Kootenay area (1981a:11), the Lake Pend Oreille lobe extended ~100 km almost directly south of the study area at the International Boundary, and persisted until ca. 13,000 B.P. (Richmond, Fryxell, Neff and Weis 1965:235; Mullineaux, Wilcox, Edaugh, Fryxell and Rubin 1978; Clague et al. 1980:323; see also Carrara 1995).

Glacial retreat in the AFD therefore probably began after this time, and progressed quite rapidly, as valley cores show complete deglaciation by at least 10,000 B.P. (see Fulton 1971, 1984:43; Fulton and Smith 1978; Clague et al. 1980; Clague 1981; Carrara and Trimble 1992). In northern Washington, cores from Big Meadow and the Colville, Okanagan, and Sanpoil River Valleys show the entrance of vegetation between 11,500-10,000 years ago (Mack, Rutter, Bryant and Valastro 1978a, 1978b; Mack, Rutter and Valastro 1978, 1979). Lowdon and Blake (1970) report a sample of marl dating to ca. 11,000 B.P. for Lower Arrow Lake at 49°30'N, while several samples date to ca. 10,000 B.P. at Fauquier (50°N; Lowdon and Blake 1976; Fulton, Warner, Kubiw and Achard 1989), and at 51°N in the Columbia River Valley north of Revelstoke (Lowdon and Blake 1976:12, 1979; Nelson and Hobson 1982:350; Fulton and Achard 1985:10). The 11,000 B.P. date for Lower Arrow Lake may be somewhat early, considering the presence of considerable kame deposits on upper terraces in the Trail - Castlegar area which suggest a glacial standstill during the last stages of retreat (Fulton 1984:43). In addition, other nearby peat and wood samples date to ~10,000 B.P. (Lowdon and Blake 1970; Fulton et al. 1989). That the anomalous reading was based on marl may be significant, as it has been demonstrated that inorganic materials also err toward early dates (Brown et al. 1989).

Glacial meltwaters resulted in the formation of numerous glacial and proglacial lakes above current water levels, as evidenced by the presence of raised well-developed terraces and deltas at the mouths of tributary valleys (Fulton and Achard 1989:258). These lakes could have formed from numerous factors (see Ryder 1982:69-72; Clague and Evans 1994), but the dominant means is by blockage of trunk or tributary valleys by insufficiently diminished glacial extensions. Glacial Lakes Kootenai and Columbia were extensive glaciolacustrine systems during the early postglacial period. Glacial Lake Kootenai, extending from Creston to Spokane, had an initial stand of 760 m and drained southward through the Purcell Trench (Mierendorf 1984; see also Choquette 1996:45-47). Drainage into the Upper Columbia system was likely blocked by an ice plug at the western arm of Kootenay Lake until some time after 11,000 B.P. (Anderton n.d.:16-17), when the initial stages of the xerothermic warming interval sped the melting process.

The southward drainage of Glacial Lake Kootenai ended at an elevation of ~655 m (Alden 1953) and quickly reached a stand of 595 m for Glacial Lake Columbia, which occupied much of the same basin, though the extent of Glacial Lake Columbia in the study area remains in question. Terraces of appropriate altitude exist at Revelstoke (Fulton and Achard 1985:10-11) and Nelson (Anderton n.d.:17), but the high kame deposits and lack of well-sorted sediments below Castlegar and at Warfield Flats suggest that Glacial Lake Columbia was discontinuous in some areas (Fulton 1984:43; Fulton et al. 1989:258-259; Anderton 1996 pers. comm.; cf. MacDonald 1996:19). Instead, the area could have had several discrete glacial and proglacial lakes dependent upon the retreat of individual glaciers.

Subsequent terraces along the Columbia drainage resulted from a series of proglacial lake formations with riverine downcutting through glacial till and previous alluvial fans (Fulton 1996 pers. comm.). Specific temporal associations for these terraces remains uncertain, though an ongoing study by Anderton and Ryder may eventually provide a better understanding (Anderton 1996 pers.

comm.). However, recent cores from Fauquier indicate glacial lakes had receded and were replaced by non-glacial lakes with near-modern levels by 10,000 B.P. The Arrow Lakes at that time comprised a large (250 km by 5 km) postglacial lake with an elevation of 450 m, only twenty-five metres above the pre-Hugh Keenleyside dam stand (Fulton et al. 1989). This data suggests the time between ca. 11,000 and 10,000 B.P. was a period of extensive geomorphological change, with proglacial lakes along the Columbia River downcutting through over 100 m of glacial till and downwastage. The authors (Fulton et al. 1989:259) summarize the evidence at Fauquier as follows:

> High delta terraces have relatively large vertical separations, whereas lower ones are closely spaced. This difference probably is due to rapid tilting immediately following deglaciation, causing a rapid fall in lake level but slower tilting, in combination with incision of the Columbia River downstream from Castlegar, causing slow dropping of lake level at a later time.

After 10,000 B.P., the rate of geomorphological change is greatly reduced. The presence of a Mazama ash stratum near the modern Columbia River level shows the river took approximately 3,000 years to downcut through the final 25m of glacial sediments (Anderton n.d.:17). This scenario of rapid fluvial change ca. 11,000 to 10,000 B.P. followed by a slower period of erosion after 10,000 B.P. is corroborated by elevational differences between the Great and Osoyoos Terraces in Washington (Chatters and Hoover 1992:47-48). Effectively, this evidence suggests precontact peoples had access to all but the lowest terraces along the Columbia River by 10,000 B.P., which is the apparent time that vegetation was entering the area and stabilizing the postglacial landforms.

The initial postglacial climate (ca. 13-10,000 years ago) was significantly colder and moister than present, with unstable landforms subjected to extensive aggradation in river valleys and aeolian erosional processes until vegetation stabilized the exposed surfaces (Mack et al. 1978a, 1978b; Mack et al. 1978, 1979; Hebda 1982, 1995; Baker 1983:112-114). The habitability of the upland areas before 11,000 B.P. within the AFD is questionable, given the suggestion of a late glacial standstill from the presence of kame terraces in the Trail-Castlegar-Warfield area, and the lack of reliable valley pollen cores prior to 10,000 B.P. (Anderton 1996 pers. comm.; also Fulton and Smith 1978:980; Fulton et al. 1989:259). Future palynological testing specifically directed at uplands or the recovery of secure-context artifacts remains necessary to demonstrate the time of initial colonization. Estimations for biotic environments prior to 10,000 B.P. have been made at several sites in southeastern and southcentral B. C. for pollen recovered below dated strata, though it must be noted that these dates are predominantly based upon inorganic materials (specifically gyttja), which suggests these evaluations may be somewhat in error (Brown et al. 1989).

In the immediate period before 10,000 B.P., the initial vegetation at Dunbar Valley northeast of the Arrow Lakes is described as a forest tundra environment with no modern analogue (Hazell 1979; Hebda 1995:69-70). A similar pollen diagram is described for a "mid-elevation" terrace at Bluebird Lake in the Rocky Mountain Trench south of Canal Flats (Hebda 1995:70), and for Waits Lake near Colville, northeastern Washington (Mack et al. 1978b), both of which may date to –11,500 B.P. This is typical of initial postglacial environments elsewhere (Mack et al. 1978, 1978a, 1979; Baker 1983:112), and consists mainly of open areas of sages (Artemesia) and grasses (Graminae) with increasing amounts of lodgepole pine (Finus contorta). At Pemberton Hill Lake east of Kamloops, the lowest pollen zone, estimated to range from 10,500 to 9,800 B.P., describes a somewhat different pioneering environment. There is little in the way of tundra grasslands present; instead, lodgepole pine forest or parkland occupied the region immediately after glacial retreat (Hebda 1995:67). These differences suggest the study area underwent somewhat different processes in biotic evolution than the Okanagan Valley. Though not conclusively demonstrated, it is likely a transitional zone between the moister, maritime influences found west of the Columbia and Cascade Mountains and the drier, continental regions to the east and south (Whitney 1983:34-36; Hebda 1996 pers. comm.).

3.1.2 Period II: Xerothermic Environment (ca. 10-7,000 B.P.)

Around 10,500 years ago, the climate began to warm rapidly, speeding the final stages of deglaciation and altering the vegetative landscape (Mathewes 1985). The period after the full retreat of the glaciers, ca. 10,000 B.P., is variously called the Altithermal, Hypsithermal, or Xerothermic interval. The system adopted by Hebda (1995), discriminating between an earlier, dryer "xerothermic" and later, wetter "mesothermic" period, is used here. The xerothermic was considerably warmer and drier than the present climate, especially during its maximum ca. 7,500 B.P. (Mathewes 1985:419; Hebda 1995). The tree-line advanced in latitude and grasslands, comprised mainly of sages as well as grass species, reached their greatest extensions (Hebda 1982). It is possible that grasslands also existed in relatively high latitudes of the study area (up to 1,300 m elevalions) during this episode, though pollen cores are again necessary to substantiate this speculation (Hebda 1995:65, 1996 pers. comm.). Lake levels likely lowered significantly from the previous period due to the increased aridity, but river downcutting through deposited glacial tills and downwash continued, for the Columbia River reached near modern levels by 6,700 B.P. (Anderton n.d.). Between 8,000 and 7,000 years ago, the climate became moister and began to cool, inaugurating the mesothermic period.

The cores from Dunbar Valley (Hazell 1979; Hebda 1995:69-70) show that much of the landscape from 10,000 B.P. until a short time after 8,000 B.P. was open and dominated by shrubs such as juniper (Juniperus), soopolallie (Shepherdia), and willow (Salix), as well as birch (Betula) and alder (Alnus). Lodgepole pine was common in sheltered and well-developed soil areas, while the relatively high percentage of sage pollens show that significant open grasslands existed. After 8,000 B.P., the forest canopy began to close, with increases in the amount of pine, birch, Douglas-fir (Pseudotaga and larch (thrix) pollen, and a corresponding decrease in juniper, consistent with the beginnihgs of the moister mesothermic interval. The Bluebird Lake data, near Canal Flats in the Rocky Mountain Trench, also follows this pattern (Hebda 1995). The transference to a more mesic climate by 7,000 B.P. is supported by a core at Lower Little Slocan Lake (Hebda 1995:71-72). This sample shows the presence at 8,000 B.P. of an open mixed pine, spruce (Picea), fir (Abies), larch and Douglas-fir conifer forest with extensive grasslands in south-facing bluffs; after 6,800 B.P., this transformed into a denser mixed-forest cover with a notable decrease in sage and grass pollen types. However, at Fauquier, the presence of a mixed lodgepole pine, spruce, fir, and Douglas-fir forest and a complete lack of evidence for grasslands suggests that the Lower Arrow Lakes were at modern or cooler temperatures between 10,000 and 9,000 years ago (Fulton et al. 1989). The Fauquier cores appear to indicate microenvironmental variation is considerable, and suggest the xerothermic effect was not uniformly present throughout the AFD.

For comparison, the Okanagan Valley data shows a somewhat different biotic environment than found in the Columbia Mountain region during this time period. At Kelowna Bog, the time of deglaciation remains uncertain, with the draining of Glacial Lake Penticton placed at an unknown time before 8,900 B.P. (Alley 1976). The initial vegetation comprises a predominantly ponderosa pine (P. ponderosa) and spruce forest with fir, western hemlock (Tsuga heterophylla) and Douglas-fir components. Evidence of a xeric effect is not evident until after 8,400 B.P., when grassland pollens (Artemesia) increase dramatically within the core. The commencement of the moister mesothermic environment is also delayed until sometime after 6,600 B.P. (Alley 1976).

The effect of the xerothermic climate upon aquatic resources could have been significant. Several researchers have postulated the connection between fluvial discharge variations and anadromous fish populations (e.g. Schalk 1977; Chance and Chance 1982:404-409; Choquette 1985:2-16). The prediction is that in ttmes of higher temperature and lower discharge rates, anadromous fish would have had a more limited range and population density. While conclusive evidence demonstrating its validity for the precontact period is not available due to a lack of preserved salmonid remains, studies have shown that these factors do influence the anadromous fish resource (e.g. Hoar 1953; Baxter 1961). Given the warm, dry environment of the xerothermic, it would be expected that both water temperature would rise and river discharge rates would drop. In any stream where the autumnal water temperature was above 20°C for an extended time, it is likely that few eggs would survive and that mature fish would experience considerable difficulty in reaching the spawning site (Dooley 1996 pers. comm.). This would be particularly true for salmon spawning in smaller streams, which would experience a disproportionally hostile environment than larger rivers (Choquette 1985:12). However, directly determining the temperature threshold for specific fluvial systems in the area lies beyond current palaeoenvironmental means.

In addition, the review by Chatters and Hoover (1992:45) of the evidence for aggradation and erosional episodes in the Lower Columbia River system of north-central Washington state demonstrates the difficulty in reconstructing discharge effects within the localized range of the study area. At the Wells Reservoir area, which includes the confluence of the Okanagan, Methow and Columbia Rivers, a total of four aggradation episodes were distinguished (ca. 9-8,000, 7,000-6,500, 4,400-3,900 and 2,400-1,800 B.P.). However, approximately 40 km up the Columbia River at Chief Joseph Reach, the data indicate continuous erosion with no major aggradation episodes (Campbell 1985), and 30 km downstream at Rocky Reach (Mierendorf 1983), four periods of alluviation, different from the Wells Reservoir, are described (starting ca. 7,900, 3,000, 1,400 and 500 B.P.). Chatters and Hoover (1992:42-43) make the following caution:

> The responses of a fluvial system to modifications in the amount and distribution of its Water and sediment supply are complex. For instance, different reaches of the river may be out of phase with one another; aggradation in one reach may be a result of degradation in an upstream reach. Similar causes, such as a simple increase in overall precipitation, may yield widely different effects in different reaches or at different times. On the other hand, the same response may be engendered by very different phenomena. Finally, changes may not occur at all, depending on the sensitivity of the system.

One difficulty in providing general predictions of discharge is that in addition to precipitation rates, sedimentation rates for fluvial systems are dependent upon surrounding vegetation, with aeolian and runoff erosion being higher for grassland-areas than forests (Knox 1977:27-29). The apparent increased distribution of grasslands within the forest district during the xerothermic would suggest that the riverine sedimentation loads would be higher and that aggradation would be likely, even without a reduced flow resulting from increased climatic aridity. However, the localized variations in alluviation for the Columbia River in north-central Washington demonstrate the need for specific data on individual fluvial systems before predictions of anadromous fish availability can be presented.

3.1.3 Period III: Mesothermic Environment (ca. 7,000-4,500 B.P.)

Cores from Lower Little Slocan Lake and Dunbar Valley describe an environment for this period that is estimated as being 1-2°C warmer than modern times, but with essentially modern precipitation values (Hazell 1979; Hebda 1995). During this interval, the extent of grasslands retreated south and likely became limited to lower elevations (Hebda 1982). The tree-line also reduced in latitude from the maximum range it achieved during the warmer xerothermic period. Lake levels rose in response to the increased levels of precipitation (Hebda 1995), and undoubtedly inundated any sites that had been located along the previous shorelines.

The forest cover gradually approached that found at the present time. At Lower Little Slocan Lake, a mixed conifer forest, dominated by pine but with substantial amounts of spruce, fir, larch and Douglas-fir existed in the lowlands between 7,000 and 5,000 B.P. The trend toward an increasing closure of the forest cover continued from the preceding period, with dry openings dropping in number. Around 4,500 B.P., western hemlock and possibly red cedar (Thuja piicata) enter the pollen record, suggesting a cooling of the climate to modern levels (Hebda 1995:71). Northeast of the Arrow Lakes, at Dunbar Valley, the environment is similar, though there are minor variations in composition. The forest cover described in the preceding section (i.e., pine/Douglas-fir/birch/larch/spruce forest) continued throughout the mesothermic, with increased values of fir and spruce ca. 4,700 B.P. the only indicators of a slight cooling in climate (Hazell 1979; Hebda 1995:69).

The contrast between the study area and the Okanagan Valley noted in the preceding section is lessened within the mesothermic interval. After 6,600 B.P., moister conditions and a cooling from the xerothermic high are evident from the decrease in sages and a general increase of arboreal types of pollen, particularly hazel (Coiytus), alder, and birch (Alley 1976:1140-1141). However, Alley associates this increased moisture level to a neoglacial advance, ending with a dryer period ca. 4,000 B.P. This evidence is discussed in more detail within the following section.

3.1.4 Period IV: Modern Environment (ca. 4,500 B.P. to Present)

A detailed description of the modern climate, vegetative cover and faunal resources is presented within Section 3.2 of this report. The limited palynological data available for the study area suggests that the time period from 4,500 B.P. onward was essentially of this nature, though with two possible short-term cooling intervals. The pollen record for Kelowna Bog shows three major peaks for birch, associated with raised levels of alder and hazelnut and extremely diminished levels of pine. The first of these, as described above, occurs shortly after the period of Mazama ash deposition (ca. 6,700 to 4000 B.P., the second ranges from ca. 3,200-2000 B.P. and the third from ca. 1,500 years ago to the present (Alley 1976). These peaks may be associated with neoglacial stades (i.e., glacial advances) where a cooler and moister environment would be expected, interrupted by slightly warmer and dryer conditions. The Okanagan evidence is controversial, however, for evidence of these recent glacial advances is lacking from the coast (Mathewes 1985:419), Pemberton Hill Lake north of Kelowna Bog (Hebda 1995), and Big Meadow in the northeastern corner of Washington (Mack et al. 1978a). It is possible these spikes may be the result of fire-clearing in the immediate area or drainage changes of the bog (Alley 1976:1141). However, supportive evidence is found at Bluebird Lake in the southern Rocky Mountain Trench (Hebda 1995:71), Elk Valley (Fergusson and Hills 1985), and other areas (Porter and Denton 1967; Denton and Karlen 1973), though these sites do not show the extremely dramatic variations in pine and birch seen in the Kelowna Bog profile. The neoglacial dates given by Alley for the Kelowna Bog core are also broader in extent than generally described elsewhere (e.g. Heusser 1956; Denton and Karlen 1973), which place neoglacial events between 5800-4900 , 3300-2300 and post-1000 B.P.

The best evidence for a pronounced recent glacial stade is in the period from ca. 600 B.P. to 100 B.P., when several glacial advances are recorded for the surrounding area (see Heusser 1956; Choquette 1985:9-11). This period has been labeled the 'Little Ice Age', and appears to mark the maximum extent of glaciation since the end of the Pleistocene. Given that this stade essentially corresponds to modern biotic zones and they do not substantially differ from most pollen profiles of the past 4,000 years, it can be inferred that any neoglacial advances would have had limited or localized effects on biotic and faunal resource procurement for precontact peoples. A possible exception is Choquette's (1985:8-16) suggestion that neoglacial advances would have resulted in decreased riverine discharge and a corresponding reduced anadromous fish availability. He (1985:16) places these periods of inferred decreased discharge at ca. 3000-2000 B.P. and ca. 450 to present. However, as discussed in Section 3.1.2 above, the variability expressed in fluvial aggradation and erosional episodes (Chatters and Hoover 1992) and lack of preserved fish bones from archaeological sites suggests that generalizations cannot be made at the present time for the study area.

3.1.5 Faunal Resources

Outside a brief discussion of anadromous fish resources, the possible faunal resources available to precontact peoples have been segregated into this section because the precise composition cannot be determined for each time period. The inter-relationship between vegetation and wildlife is complex (e.g. Patton 1992) and a knowledge of local biotic variations is necessary; this is something that the current pollen cores cannot provide, particularly for upland areas. Therefore, only general expectations of resources within the defined periods are listed here. Potentially available species and their associated environments are more specifically discussed within Section 3.2.3, below (see also Cowan 1965; Nagorsen 1990).

The open lodgepole pine and tundra grassland environment of the immediate postglacial penod has no modern analogue, and the fauna associated with that ecology is predominantly speculative. It is possible that now-extinct 'megafauna' species, e.g., mastodon or mammoth (Choquette 1993:11), amongst many others (see Kurtén and Anderson 1980) could have occupied the study area, in addition to the diverse ungulates and other mammals listed in Section 3.2.3. The fact that kokanee are found within Kootenay Lake indicates salmon once reached a greater range than at present during their spawning runs. Before the construction of the Hugh Keenleyside Dam in the 1960s, Bonnington Falls created the major barrier for salmon into Kootenay Lake. During early postglacial times, the falls would have been inundated by glacial and proglacial lakes, but access to Kootenay Lake would have likely still been blocked by the presence of an ice plug at the western arm until ca. 11,000 B.P. and a glacial standstill in the Trail-Castlegar area (Anderton n.d.:17; Fulton 1984:43). Salmon may have entered Kootenay Lake from the southern drainage through the Purcell Trench during Glacial Lake Kootenai times, though the water temperature was probably too cold to allow for salmonid breeding and survival (Anderton n.d.:17). With the current evidence, it is hypothesized here that salmon entered the AFD area ca. 10,500-10,000 years ago after the final retreat of glaciers from the area and non-glacial lakes of slightly higher levels were in existance (Fulton et al. 1989), and were able to cross Bonnington Falls until some time before 7,000 B.P., when the Columbia River reached essentially modern levels (Anderton n.d.:17).

The drier and warmer climate of the xerothermic interval extended the range of grasslands and raised the tree-level, suggesting that faunal types adapted to grasslands would have had a much wider range than present, and that the sub-alpine and alpine adapted species would have been located at a higher latitude. The mesothermic period essentially marks a transitional change to modern vegetation zones, and while specific localities would vary, the types of faunal resources available to precontact peoples were likely analogous to those found in Section 3.2.3.

3.1.6 Limitations of the Proposed Palaeoenvironmental Reconstructions

The general nature of the preceding discussion demonstrates that the primary limitation for palaeoenvironmental discussions lies in the scarcity of available pollen cores within the study area. The situation has considerably improved over the past two decades with samples from Fauquier, Lower Little Slocan Lake and Dunbar Valley, as well as at Kelowna Bog and those from northeastern Washington. However, these are almost exclusively limited to valley bottom areas, and still provide an insufficient number for microenvironmental variations to be clearly defined, given that individual cores can reflect site-specific environmental adjustments (Wright 1976:27). As is the case for modern times, vegetation would have varied with altitude, and these differences have important implications to the development of time-specific archaeological prediction models. Knowledge of the climate and biotic composition of sub-alpine and alpine zones in particular remains negligible and within the realm of speculation, yet these areas provide a high percentage of the total study area, and likely provided a very important resource base for precontact peoples.

A second limitation is found within the data itself. The common usage of inorganic materials for dating pollen cores is problematic, given recent findings that demonstrate such samples often give erroneously early readings (Brown et al. 1989). This is also true for another common sample material, i.e., shell (Clague 1982; Fulton et al. 1989:261). The implications of this factor are that incompatible dates are being used within a common framework. Connected to this problem is the lag-time between climatic changes and vegetational adaptations. From variations in Holocene pollen percentages, Bryson, Baerreis, and Wendland (1970) suggest that vegetation patterns in Minnesota and Wisconsin lagged 50-200 years behind climatic changes. Other researchers have found that desert plants adapt almost immediately to climatic change, while long-lived trees can have lags on the order of centuries (Brubaker 1986; Ritchie 1986; also Webb 1986). These variations could also be occurring with regards to biotic adaptations in the study area. However, without increased palynological and geomorphological research within the boundaries of the forest district, there is little that can be done to remedy either of these difficulties.

3.2 Contemporary Natural Setting

As stated in Section 1.1, above, the AFD is situated between the Monashee Mountain Range to the west and the Selkirk Mountain Range to the east. Major water bodies include the Upper Arrow and Lower Arrow Lakes, Slocan Lake, Whatshan Lake, and the northern half of Trout Lake. The Arrow Lakes reservoir, created by the 1967 construction of the Hugh Keenleyside Dam, inundated 16,000 ha of land from north of Castlegar to Revelstoke, including stream deltas, a flat area of land at the head of Upper Arrow Lake, bottom lands between the two lakes, and a strip of shoreline along the lake margins (Peterson and Withler 1965:4). The AFD is drained by the Slocan, Kootenay, and Columbia Rivers and their tributaries.

3.2.1 Physiographic and Geological Setting

The AFD lies within two subdivisions of the Columbia Mountains physiographic region of the Interior Plateau, the Monashee Mountains and the Selkirk Mountains (Holland 1964:76). The Monashees and Selkirks are parallel mountain belts, with northeasterly to northerly to northwesterly trending mountains (Holland 1964:77,79; Valentine, Sprout, Baker, and Lavkulich 1978:28). Elevations within the AFD range from 410 m asl on the Columbia at Waneta to 2827 m asl at Gladsheim Peak within the Selkirk Mountains. In general, the highest elevations are located in the northern ranges of both physiographic subdivisions, and are characterized by sharp, serrated, matterhorn-like peaks. Middle elevations are characterized by rugged sharp peaks and sawtooth ridges, while the lower summits in the southern ranges are rounded or moderately pointed (Holland 1964:78-80; Jungen 1980:3). Horns, glaciers, cirques and tarns are common within these mountains. The Monashee and Selkirk Mountains are underlain by a variety of sedimentary, metamorphic, and volcanic rocks, by batholiths and stocks (Holland 1964:78-79; Jungen 1980:3). Specific rock types occurring in the Monashees within the AFD include gneiss, schist, gneissic granite, granodiorite, basalt, quartz diorite, diorite, quartzite, monzonite, andesite, and argillite. Within the Selkirk Mountains of the AFD, schist, granitics, granodiorite, quartz diorite, quartzite, limestone, shale, argillite, slate, sandstone, phyllite, syenite, and conglomerates are noted (Holland 1964:78-79; Braumandl et al. 1992:113,114,146,148,158,176).

To the east, the Selkirk Mountains are bordered by the Purcell Mountains, separated by the long, north-south valley occupied by Duncan River, Duncan Lake, and Kootenay Lake. To the west, the Monashee Mountains are bordered by the highlands of the Interior Plateau, with the boundary between these two physiographic units arbitrarily selected due to the transitional nature of the highlands (Holland 1964:76). The boundary between the Monashee and Selkirk Mountains is demarcated by a glacially-enlarged trench, presently occupied by the Upper and Lower Arrow Lakes and part of the Columbia RIver. Surficial deposits within the AFD include widespread glacial drift, particularly till and glaciofluvial gravels, on the floors and lower flatter slopes of valleys, and alluvial terraces along the rivers. Steeper slopes are characterized by shallow, rubbly colluvial deposits over bedrock (Valentine et al. 1978:28).

3.2.2 Ecosedions and Biogeoclimatic Zonations

Within the AFD, four ecosections are distinguished: the Northern Columbia Mountains, from Trout Lake and the Northeast Arm of Upper Arrow Lake in the south to the northern boundary of the district; the Central Columbia Mountains, from Trout Lake and the Northeast Arm of Upper Arrow Lake south to Kootenay River; the Southern Columbia Mountains, situated in the northeast corner of the district south of the West Arm of Kootenay Lake; and the Selkirk Bitterroot Foothills, south from Lower Arrow Lake the to southern boundary of the district (Commission on Resources and Environment [CORE] 1994:32).

Wet, moist, and dry climatic regions are represented in the district (Curran, Braumandi, and DeLong 1992:30). The wet region occurs in the northern Selkirks, north from Trout Lake and the Northeast Arm of Upper Arrow Lake to the northern boundary of the AFD. The dry region has a limited geography within the AFD, occurring only on the lower slopes of the east side of Lower Arrow Lake from Syringa Creek to Broadwater. The remainder of the AFD is within the moist climatic region. Four biogeoclimatic zones occur within these three climatic regions. In general, the Interior Cedar - Hemlock (ICH) zone occurs in valley bottoms and at lower slopes, the Englemann Spruce - Subalpine Fir (ESSF) zone occurs above the ICH, and the Alpine Tundra (AT) zone is found at elevations above the tree line. The Interior Douglas-Fir **(IDF)** zone occurs only within the dry climatic region on Lower Arrow Lake (Curran, Braumandl, and DeLong 1992:30-31; **CORE** 1994:32). Within the moist climatic region, the **ICH** zone is represented by four subzones **/** vanants: ICHxw (Very Dry Warm Interior Cedar - Hemlock), ICHdw (Dry Warm Interior Cedar - Hemlock), ICHmw2 (Columbia - Shuswap Moist Warm Interior Cedar - Hemlock), and ICHmw3 (Thompson Moist Warm Interior Cedar - Hemlock); and the ESSF by two variants: ESSFwc1 (Columbia Wet Cold Engelmann Spruce - Subalpine Fir) and ESSFwc4 (Selkirk Wet Cold Engelmann Spruce - Subalpine Fir). One variant occurs in the wet climatic region, iCHwkl (Wells Gray Wet Cool Interior Cedar - Hemlock), and one unit occurs within the dry climatic region, ID-Fun (Undifferentiated Interior Douglas-fir [Arrow Lake]).

In the AFD, the IDFun unit of the dry climatic region is defined within the lower south-and west-facing slopes on the east side of Lower Arrow Lake from Syringa Creek Park north to Broadwater, and may include locations along Deer, Little Cayuse, Cayuse, Tulip, and Syringa Creeks, at elevations between 450 m to 1000 m asl (Braumandl et al. 1992:63; **CORE** 1995:32). This unit is characterized by dry rocky sites. Vegetation includes open mature climax stands of ponderosa pine and Douglas-fir; understory species include bluebunch wheatgrass, ocean-spray, mock-orange, and mallow ninebark (Braumandl et al. 1992:63).

The ICH zone of the moist climatic region occurs in the Pend d'Oreille Valley, in the Lower Arrow Lake Valley north to Farquier, and in the Columbia River Valley and Slocan River Valley north to New Denver, in valley bottoms and lower to mid slopes of Upper Arrow Lake and Trout Lake, and around Galena Bay on the Northeast Arm of Upper Arrow Lake. Elevation of the ICH zone ranges between 400 m and 1450 m asl, depending on latitude and aspect (Braumandl et al. 1992:113,114,138,146). Climate is typically very hot and dry to moist in summers, very mild in winters with little snowfall. Due to frequent fires and the impact that logging and mining have had on the present forest, climax vegetation is rare, although climax stands of western hemlock and western red-cedar are noted in ICHdw and ICHmw2, with scattered old-growth stands of ponderosa pine noted in ICI-tdw (Braumandl et al. 1992:115,138). Typical vegetation includes mixed seral stands of westerç red-cedar, western hemlock, Douglas-fir and western larch; ponderosa pine, grand fir, lodgepole pine, hybrid white spruce, paper birch, and western white pine are less common seral species. Shrubs, herbs, and mosses may include falsebox, Douglas maple, black huckleberry, baldhip rose, ocean-spray, mock-orange, saskatoon, hazelnut, fairybells, redstem ceanothus, tall Oregon-grape, birch-leaved spirea, bluebunch wheatgrass, yarrow, pinegrass, western fescue, devil's club, western yew, twinflower, prince's pine, queen's cup, one-leaved foamflower, wild sarsaparilla, red-stemmed feathermoss, pipecleaner moss, and step moss (Braumandl et al. 1992:113,115,138).

The ESSF zone is located in the AFD on the upper slopes of the Monashee and Selkirk Mountains, at elevations of 1450 m to 1950 m asl, depending on latitude and aspect. The ESSFwc1 variant represents the transition between the **ICH** and the [5SF zones; at ±1900 m asl, a transition to the parkland may be evident in ESSFwc4, indicated by mountain-heathers and tree islands, and by very slow tree growth (Braumandl et al. 1992:148-149,158-159; Curran et al. 1992:43). Climatic data is limited for this zone; the ESSF zone is likely colder and wetter with more snow than the **ICH** zone (Braumandl et al. 1992:148,158). Vegetation includes climax stands of Englemann spruce and subalpine fir, in the understory or as intermediate stands are western red-cedar and western hemlock; white-flowered rhododendron, black huckleberry, gooseberry or Utah honeysuckle are common shrubs; five-leaved bramble, queen's cup, oak fern, Sitka valerian, and one-leaved foamfiower are common herbs (Braumandl et al. 1992:148,158).

In the wet climatic region, the ICHwki variant occurs in the AFD from valley bottoms to mid slopes along the Incomappleux River, at elevations of 400 m to 1400 m asl (Braumandl et al. 1992:176). Climate in this variant is characterized by warm wet summers, and cool winters with moderate snowfall. Due to the rarity of fires, extensive old-growth stands of western red-cedar and western hemlock are present, with seral stands of hybrid white spruce (Braumandl et al. 1992:176-77). Common shrubs include falsebox and oval-leaved blueberry; herbs include oak fern, one-leaved foamflower, and queen's cup. Mosses include red-stemmed feathermoss, pipecleaner moss, and step moss.

The AT (Alpine Tundra) Zone occurs at elevations above the ESSF in the moist and wet climatic regions, where bedrock dominates the landscape. In the moist climatic region it begins at 2400 m asl; in the wet climatic region it starts at lower elevations, 2300 m asl, and is more widespread (Curran et al. 1992:30,36). The AT is defined by rock, talus, snow, and ice, but also may include stunted krummholz conifers, willows, buttercups, saxifrages, pussytoes, sedges, grasses, Sitka valenan, mountain-avens, and mountain-heathers (Curran et al. 1992:43).

3.2.3 Faunal Resources

Contemporary ungulate populations within the AFD include bighorn sheep, mountain goat, mule deer, white-tailed deer, elk, moose, and caribou (Figure 3.3). Bighorn sheep are noted in biogeoclimatic subzones ICHxw, ICHdw, and ESSFwc1, with winter ranges recorded at lower elevations on the north side of Lower Arrow Lake upstream from Castlegar and along the South Salmo River near the confluence with Stagleap Creek (Steeger and Fenger 1992:207-208; Ministry of Environment [MOE] 1995b:i).

Mountain goat occur in biogeoclimatic subzones ICHmw2, ICHmw3 and ESSFwc1, in all areas in the AFD from Bowman and Sunshine Creeks and Slocan River at Vallican north to the district boundary, and including upper elevation forests and alpine habitats in the Northern Columbia Mountains Ecosection, alpine habitats in the Central Columbia Mountains Ecosection, and rugged warm aspects of parkland areas in the Southern Columbia Mountains Ecosection (Cowan and Guiguet 1965:391; Steeger and Fenger 1992:207-208; CORE 1994:33-34).

The six AFD biogeoclimatic subzones, ICHxw, ICHdw, ICHmw2, ICHmw3, ICHwkl, and ESSFwc1, support mule deer and white-tailed deer, and include upper elevation forests in the Northern Columbia Mountains and the Central Columbia Mountains Ecosections, low to high elevation forests in the Southern Columbia Mountains Ecosection, and drier areas on low to mid-elevations in the Selkirk Bitterroot Foothills Ecosection (Cowan and Guiguet 1965:371,375; Braumandl et al. 1992:113,115,139,177; Steeger and Fenger 1992:207-208; CORE 1994:33-34). Mule and white-tailed deer winter ranges are noted at lower elevations along sections of Upper Arrow Lake, Lower Arrow Lake and the lower sections of many of its tributaries including Mosquito and Inonoaklin Creeks, Summit Lake, the north side of Bonanza Creek, Slocan Lake, Little Slocan and Slocan Rivers, Kootenay River, Pass Creek, Columbia River, lower sections of Blueberry, Beaver, Big Sheep and Little Sheep Creeks, Pend d'Oreille River, Salmo River, and lower sections of South Salmo River and Sheep Creek (MOE 1995b:1).

Elk distributions occur in all AFD biogeoclimatic subzones, including low elevations within the Northern Columbia Mountains Ecosection, low to mid-elevations within the Central Columbia Mountains Ecosection, mid- to high elevations within the Southern Columbia Mountains Ecosection, and low to high elevations within the Selkirk Bitterroot Foothills Ecosection (Braumandl et al. I 992:1 13,1 15,1 39,1 77; Steeger and Fenger 1992:207-208; CORE I 994:33-34). Existing winter range is noted within the valleys associated with sections of Upper Arrow Lake, Mosquito and Inonoaklin Creeks, the west side of Lower Arrow Lake north of Eagle Creek, the east side of Lower Arrow Lake south of Twobit Creek, Summit Lake, the north side of Bonanza Creek and of Slocan Lake to Wilson Creek, Little Slocan and Slocan Rivers, Kootenay River, Pass Creek, Columbia River south of and including Beaver Creek, lower sections of Big Sheep and Little Sheep Creeks, Pend d'Oreille River, Salmo River, and lower sections of South Salmo River and Sheep Creek (Steeger and Fenger 1992:207-208; MOE 1995b:1).

Cowan and Guiguet (1 965:379) and Steeger and Fenger (1 992:207-208) note that distributions of moose include the seven AFD biogeoclimatic subzones (see also Braumandl et al. 1992:1 39,1 77). However, CORE (1 994:33-34) notes moose in low elevations of the Northern Columbia Mountain Ecosection and low to high elevations of the Central Columbia Mountains Ecosection, while winter range is noted only along sections of Upper Arrow Lake, Pingston Creek, the lower section of Mosquito and Inonoaklin Creeks, and the west side of Lower Arrow Lake south to Eagle Creek (MOE 1995b:1).

Biogeoclimatic subzones ICHmw2, ICHmw3, ICHwkl, and ESSFwcl support caribou populations, including low to high elevations in the Northern Columbia Mountain Ecosection, and high elevations in the Central Columbia Mountains, the Southern Columbia Mountains and the Selkirk Bitterroot Foothills Ecosections sUpport caribou populations (Steeger and Fenger 1992:207-208; CORE 1 994:33-34; see also Cowan and Guiguet 1965:385). Critical habitats with regular observed use of caribou include the upper elevations of the Slocan Range, from the northern tributaries of Bonanza Creek north to Pool Creek; less critical habitats with observed caribou use include upper elevations from Cranberry Mountain and Pingston Creek north to the district boundary; present-day potential areas for use include upper elevations from Cranberry Mountain, Gates Peak, Cariboo Mountain, and Mount Fosthall east to the upper sections of Pingston, Odin, Ledge, and Fosthall Creeks, and lower elevations from Upper Arrow Lake east to from Beaton Arm south to the height of land east of the drainages of McDonald and Caribou Creeks (Stevenson and Hatler 1985:1 16; MOE 1995a:1).

Other large mammals observed in the seven biogeoclimatic zones and/or the four ecosections of the AFD include black and grizzly bears, bobcat, lynx, cougar, grey wolf, coyote, and wolverme. Selected smaller mammals include badger, fisher (absent from ICHxw and ICHdw), marten, short- and long-tailed weasel, porcupine, beaver, river otter, several species of squirrel, chipmunk, vole, mouse, and bat (Cowan and Guiguet 1965:1 33,1 51,1 72,31 2,318; Nagorsen 1990; Braumandl et al. I 992:1 13,1 15,1 39,1 77; Steeger and Fenger 1992:207-208; Ministry of Envlronment, Lands and Parks 1995 :29).

A variety of avian species are found throughout the AFD. Of note, bald eagle and osprey occur in low elevation areas, grouse occur at low to high elevations, and ptarmigan are found in parkland or alpine tundra locations (BEAK Consultants I 983:1 4; Steeger and Fenger I 992:209-21 2; **CORE** 1994:33-34). The Arrow Lakes reservoir is an important breeding and migration habitat for many waterfowl (Peterson and Withler 1965:14).

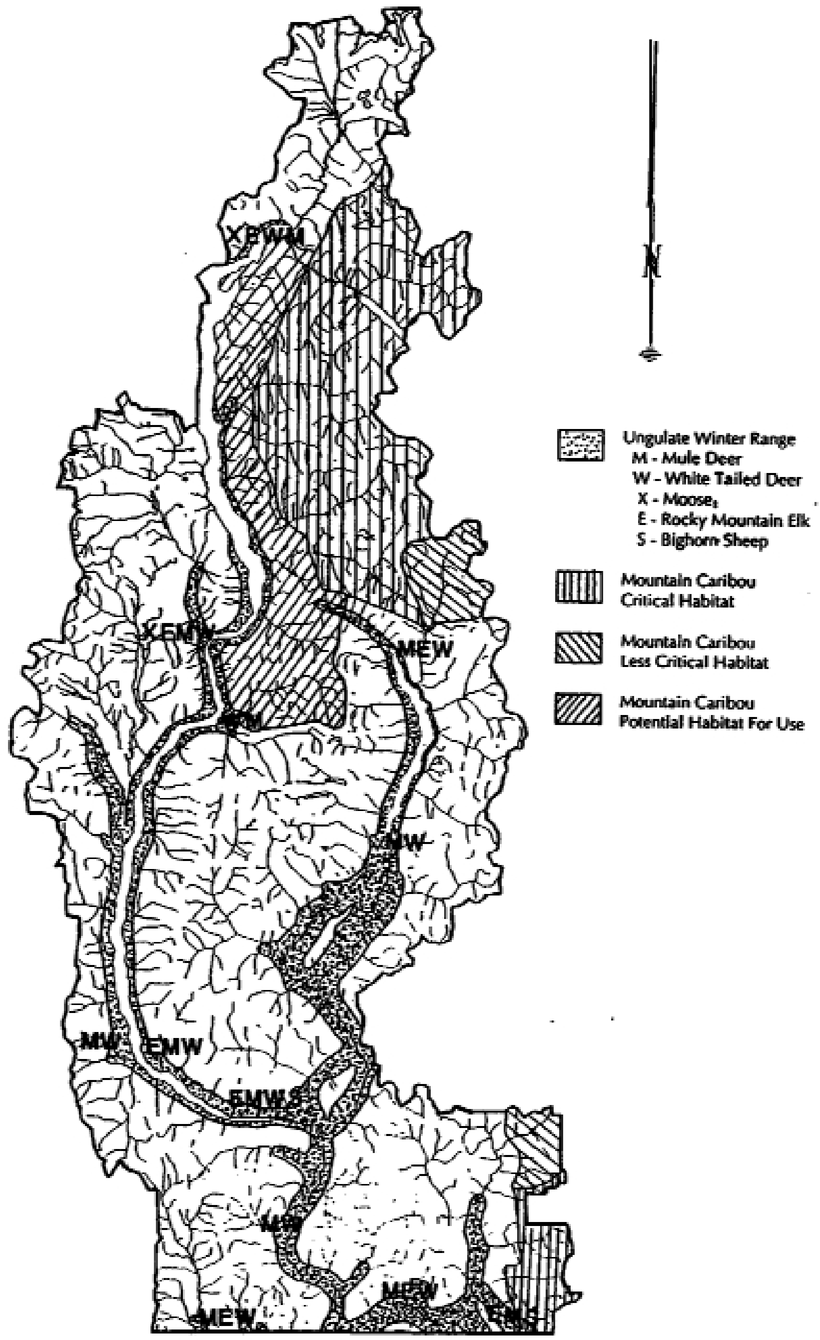


Figure 3.3: Ungulate winter range in the AFD (Scale 1:1,265,000).

Contemporary fish species in the AFD include dolly varden char, rainbow trout, cutthroat trout, kokanee, burbot, whitefish, sucker, squawfish, and sturgeon. Although their distributions are restricted by physical barriers such as hydro-electric dams, present-day populations have been bolstered by stocking programs. Selected fish-bearing streams include sections of Wilson Creek, Koch Creek, Little Slocan and Slocan Rivers, Incomappleux River, Halfway River, Fosthall Creek, Pingston Creek, Kuskanax Creek, Mosquito Creek, Burton Creek, Whatshan River, Barnes Creek, Inonoaklin Creek, Norns Creek, Erie Creek, Salmo River, Beaver Creek, Columbia River, Big Sheep and Little Sheep Creeks, and lower sections of associated tributaries (MOE 1995c:1)

4.0 ETHNOGRAPHIC OVERVIEW OF THE ARROW FOREST DISTRICT

4.1 Contemporary First Nations Groups

A number of aboriginal communities have expressed an interest in the **AFD,** including the Ktunaxa-Kinbasket Tribal Council, the Okanagan Indian Band, the Shuswap Nation Tribal Council, the Sinixt-Arrow Lakes First Nation, and the Westbank First Nation. The Ktunaxa linguistic family includes the Upper Ktunaxa in the Rocky Mountain Trench and the Lower Ktunaxa in the Purcell Trench. The Kinbasket and the Shuswap Nation Tribal Council are linguistically affiliated with the Shuswap language group of the Interior Salish linguistic division of the Salishan linguistic family (Archaeology Branch 1989:15). Ethnolinguistically, the Okanagan Indian Band and the Westhank First Nation are affiliated with the Okanagan language group, and the Sinixt-Arrow Lakes First Nation are affiliated with the Lakes language group. Both language groups are part of the Interior Salish linguistic division of the Salishan linguistic family (Archaeology Branch 1989:15). Another aboriginal community ethnographically known to have included the **AFD** within their seasonal round, the Kalispel, are also linked to the Interior Salish division of the Salishan linguistic family.

Postcontact use of the **AFD** by the Ktunaxa, the Interior Salish/Lakes, and the Kalispel has been documented in ethnographic and historic records. Although distinctions between the Upper and Lower Ktunaxa were often not recognized ethnographically, sources for the Ktunaxa include Chamberlain (1892), Ray (1939), Schaffer (1940), Turney-High (1941), Walker (1973), Lindberg (1962), Yerbury (1975), and Smith (1984). References for the Interior Salish/Lakes include Work (1829), Dawson (1890,1892), Boas (1891, 1900, 1928), Elmendorf (1935-36), Ray (1936, 1939, 1975), Teit (1909, 1975a, 1975b), Turner, Bouchard, and Kennedy (1980), Bouchard and Kennedy (1985), and Pryce (1995). Kalispel sources include Chalfant (1974), Fahey (1986), Ruby and Brown (1970), Teit (1975b), and Walker (1973).

4.2 Ethnography of the Lower Ktunaxa

As the Upper Ktunaxa were situated on the upper drainages of the Kootenay River and oriented their subsistence strategies towards the Great Plains, the following ethnographic summary focuses on the Lower Ktunaxa. The Lower Ktunaxa occupied drainage areas around the lower Kootenay River and were more riverine-oriented than their Upper Ktunaxa kin (Chamberlain 1892:550; Turney-High 1941:9,10; Walker 1973:45).

4.2.1 General Subsistence Strategy

The Lower Ktunaxa had a semi-sedentary settlement pattern. Temporary seasonal campsites were established near resource procurement areas in all seasons, though during the winter semi-permanent village locations were also utilized. The conical tipi was the type of housing structure used at temporary campsites (Walker 1973:54). The wooden pole frame of the tipi was covered with dogbane stalks that had been sewn together (Turney-High 1941:62-63). In winter, a long house, or lodge, was shared by several families. This structure, also made using a pole frame, was formed from two lean-tos that were joined, and then covered with the same vegetable covering used for the summer tipi (Turney-High 1941:63-64). The semi-subterranean pithouse, used by Interior Salish peoples to the west, was not used by the Lower or Upper Ktunaxa (Turney-High 1941:64). The sweat lodge was a small round structure, with a wooden frame and covered with sod and earth. Heated stones were placed in a shallow, circular pit dug in the centre of the lodge (Chamberlain 1892:567; Turney-High 1941:64; Walker 1973:54).

In general, the Lower Ktunaxa's subsistence pattern followed a regular seasonal round that included fishing in the early spring, plant gathering and hunting individual game in the late spring through to late autumn, the joining together of bands for hunting in autumn, particularly for deer and for ducks, and a return to hunting individual game and fishing in winter, (Chamberlain 1892:565; Turney-High 1941 :33-55; Provincial Archives 1952:1 3-20; Walker I 973:45).

Fish was a main focus of the Lower Ktunaxa's diet (Chamberlain 1892:565; Turney-High 1941 :39), particularly sturgeon, due to its size, and salmon, due to its abundance when spawning. Hooks, lines, and spears were usually used to capture sturgeon, while salmon were caught using weirs and traps. Other methods included driving the fish into shallow water, clubbing, and gaffing (Chamberlain 1 892:564-565; Turney-High 1941 :346; Walker I 973:45). Other fish species utilized by the Lower Ktunaxa included trout, whitefish, suckers, redfish, and squawfish (Turney-High 1941 :45; Provincial Archives 1952:1 9). If not caught for immediate use, fish were sun and/or fire-dried, and then cached in cedar boxes for winter use (Turney-High 1 941 :45; Walker 1973:4S).

The most important faunal species to the Lower Ktunaxa was deer, communally hunted via deer drives (Turney-High 1941 :39; Walker 1 973:48). Other ungulates that were sought included elk, caribou, and occassionally mountain goat and moose. Lynx, bear, ground squirrel, and muskrat were also hunted (Chamberlain 1 892:563; Turney-High 1941 :39-41 ; Provincial Archives 1952:1 6). Ducks were the most frequently hunted game bird among the Lower Ktunaxa. These waterfowl were captured using blinds and nets, and were then eaten or dried and stored in cedar boxes (Chamberlain 1892:564; Turney-High I 941 : 42-43).

Floral species were used by the Lower Ktunaxa for food, medicine, and technology. Camas was likely the most important root crop, and was prepared by pit-cooking, similar to the method used by the Interior Salish/Lakes, described below (Turney-High 1941 :34). Turney-High (1941:34) notes that bitteroot, an important Upper Ktunaxa root crop, was not available to the Lower Ktunaxa. Berries that were gathered included serviceberry, huckleberry, chokecherry, soapberry, cranberry, oregon grape, and rose-hip. Many types of berries were sun-dried, made into cakes, and cached. Kinnikinrlick berries were gathered in winter only if necessary. Also gathered were black tree lichen, cambium, and moss (Chamberlain 1 892:571 -73; Turney-High I 941:33-34).

4.2.2 Non-Subsistence Site Types

Three methods of Lower Ktunaxa burial are recorded ethnographically: wrapping the dead in a robe and burying them in a shallow unlined grave without ceremony, often on talus slopes or in ground that was below high water; placing them on the ground surface, covered with many robes and small logs, and capped with a stone cairn; or leaving them exposed. Both extended and flexed positions were used for interments (Chamberlain 1 892:560; Turney-High 1941:120).

4.3 Ethnography of the Interior Salish/Lakes

Adapting to the physiographic and biogeoclimatic environment of the Arrow Lakes region, the Interior Salish/Lakes, or sngaytskstx ('Dolly Varden people'; Turnbull I 977:1 1 2; Bouchard and Kennedy 1985:6) developed a subsistence and settlement strategy in many ways distinct to that of their neighbours (Mohs 1982:47; Bouchard and Kennedy 1 985:29). In contrast to their southern neighbours, the Colville, the Lakes were more mobile, more canoe-oriented than horse or foot-oriented, and Were organized into smaller village groups (Bouchard and Kennedy 1 985:29).

4.3.1 General Subsistence Strategy

Ethnographic and historic Interior Salish/Lakes accounts describe a semi-sedentary settlement pattern, with winter residency in semi-permanent riverine villages, and the remainder of the year spent at a succession of temporary hunting, fishing, and plant gathering locations, primarily in upland areas (Mohs 1982:48; Turnbull 1977:128,134-35; see Section 8.2). Hunting and fishing occurred year round, with the most intensive hunts in the fall, while the majority of fishing occurred between early spring and late autumn (Turnbull 1977:127; Mohs 1982:53,57). Plants were gathered from early spring to late fall (Bouchard and Kennedy 1985:29,36,48).

The semi-permanent village sites were generally winter locations, and were situated at lower elevations in riverine environments (Mohs 1982:48). Two main habitation structures were employed by the Lakes peoples at village locations: the semi-subterranean pithouse and the mat lodge. The pithouse, used exclusively in winter (Ray 1939:136), was constructed by first digging a circular pit 1 m to 2 m deep, in dry sandy soil, and covering it with layers of boughs, grasses, or rush mats (Teit 1975a:227-229). The roof consisted of a pole frame initially covered with pine needles or dry grass, and then earth. Entrance to the pithouse was gained from the roof (Ray 1939:135; Teit 1975a:226-27, 1975b:192-94). Ethnographic records suggest that use of winter pithouses by the Lakes decreased prior to contact, and was replaced by mat lodges as winter habitation structures (Ray 1939:136; Teit 1975a:226). Mat lodges, which used year-round, continued to be employed during the post-contact period (Work 1829; Mohs 1982:61,64). This circular or slightly square structure was similar in construction to the pithouse, yet built above ground and with lighter materials, such as reed mats (Teit 1975a:227; Bouchard and Kennedy 1985:49). In winter, heavier materials could be used, including a combination of hides, reeds, bark, and earth (Mohs 1982:65). Features of the mat lodge which may be archaeologically visible include an excavated floor (30 to 60 cm in depth), backdirt from the floor piled up against the outer wall for added protection from the elements, and post moulds along the inside wall where the ends of the poles were buried in the ground (Elmendorf 1935-36:4-5; Teit 1975a:227-228; Mohs 1982:64-65; Bouchard and Kennedy 1985:49). Sweat lodges, built in a similar manner to the mat lodge, yet of a smaller size, were used year-round at both semi-permanent village sites and at auxiliary sites such as hunting or fishing camps (Teit 1975a:229; Bouchard and Kennedy 1985:51).

Temporary basecamps were usually located in upland settings, away from the riverine settings of the winter village sites, and were occupied by several family groups (Mohs 1982:53). Hunting basecamps were established in productive game locations, with berrying and/or root collecting often conducted nearby (Section 8.2). Temporary housing structures erected at short-term sites include rectangular or oblong lean-tos, and conical pole frame structures. Coverings include mats, bark, brush, or grass (Teit 1975a:227-229; Mohs 1982:65; Bouchard and Kennedy 1985:50). Faunal species hunted within the **AFD,** their range, and the method(s) of procurement (where noted), are summarized in Section 8.3.

A wide variety of plants were utilized for food, technology, and medicine by the Lakes peoples, including black tree lichen; mushrooms; green shoots (e.g., cow parsnip, chocolate tips, cactus, balsamroot, stinging nettle); tree cambium (e.g., ponderosa, lodgepole); roots (e.g., bitterroot, wild onion, black camas bulbs, yellow avalanche lily corms, tiger lily bulbs, biscuit root, wild caraway, balsamroot, spring beauty), and other underground parts; seeds; nuts (e.g., pinenut, hazelnut); and berries (e.g., huckleberry, blueberry, wild gooseberry, chokecherry, strawberry, thimbleberry, wild raspberry, black caps, thornberry, soapberry) (Turner, Bouchard, and Kennedy 1980:146-147; Bouchard and Kennedy 1985:45-46). Turner et al. (1980:146; see also Teit 1975a:237) note that the huckleberry was probably the most important plant resource for the Lakes.

Several plants, including tree lichen, camas, onion bulbs, and other roots, and many animal foods, were prepared by steam cooking in circular earth ovens or pits. These pits may have been up to 1.2m deep, 1.5m wide, and 3m long (Teit 1975a:240; Turner et al. 1980:38; Mohs 1982:61). The pit was lined with round volcanic rocks, which were heated and then covered with a number of layers: a layer of dirt under a layer of fern fronds, skunk cabbage leaves, damp pine needles, sedges, or other vegetation; a layer of the food to be cooked (often different foods were combined to increase their flavour); another layer of vegetation; and a final layer of dirt. Steam was made by pouring water down several passages in the pit. Cooking time ranged from overnight to up to three days (Turner et al. 1980:38,44,147-148).

Major fishing basecamps in the AFD have been recorded along the Columbia, Slocan, and lower Kootenay Rivers in areas where salmon were plentiful (Bouchard and Kennedy 1985:36,37). These major sites had a large summer/early fall Interior Salish/Lakes population (Turnbull 1977:127-28). Smaller fishing stations were situated throughout the Arrow Lakes region, at locations where individual species were abundant. Specific reference to species used by the Lakes within the **AFD** include: salmon from upper Columbia, Seymour Creek, Arrow Lakes region, Sbcan River, mouth of the Slocan River, lower Kootenay River, Bonnington Falls, mouth of Kootenay River, and Shields Creek; kokanee from Hill Creek, below Burton, West Arm of Kootenay Lake, and a creek at Trail; dolly varden char from around Burton, Trout Lake, Three Valley Lake, the upper end of Lower Arrow Lake, above the mouth of Slocan River, and along Kootenay River; sucker and whitefish from the upper end of Lower Arrow Lake; and sturgeon from the Arrow Lakes region (Bouchard and Kennedy 1985:29-35). Harvesting methods included gill, dip, and drag netting, spearing, set line fishing with floats and sinkers, trolling, poisoning, and trapping with stone weirs or box-type or funnel-shaped baskets (Mohs I 982:58; Bouchard and Kennedy 1985:38-40,44). The fish were either cooked for immediate use or preserved by air or smoke drying on racks, and then stored in elevated or underground caches (Mohs 1982:58,60).

A number of routes used by the Lakes peoples in the **AFD study area have been recorded eth**nographically (Bouchard and Kennedy 1985:79-107), and include:

(a) from Upper Arrow Lake along Beaton Creek, past Armstrong and Staubert Lakes and along Wilkie Creek to the northwestern end of Trout Lake, along Lardeau River to the northern end of Kootenay Lake;
(b) from Nakusp Creek to Summit Lake to Bonanza Creek to the northwest end of Slocan Lake;
(c) from Fosthall Creek to Shuswap River south of Mabel Lake;
(d) from Whatshan Lake to Sugar Lake and Fosthall;
(e) from Inonoaklin Creek on Lower Arrow Lake to Shuswap River near Cherryville;
(f) from Burton via Koch Creek to Little Slocan River, or from Burton to Slocan City;
(g) from Slocan City, via Lemon Creek and Six Mile Lakes, or via Lasca Creek, to the West Arm of Kootenay Lake;
(h) from the Slocan River to Deer Park on Lower Arrow Lake

4.3.2 Non-Subsistence Site Types

Teit (1975a:288; see also Ray 1939:61-67) observed two methods of burial for the Interior Salish/Lakes. Individuals were buried in a flexed position in either a sandy bench, terrace, or mound location, or on a talus slope where rock slides occurred. Shallow graves were sometimes covered with rocks, while deeper graves were surrounded by a circle of rocks. Mohs (1982:71) notes that Lakes peoples were often buried their dead in gravel beds along river banks, without ceremony.

Pictographs (i.e., rock paintings representing dreams or events, applied with red ochre), were often recorded by boys and girls during puberty, and less frequently by adults (Teit 1975a:283). Both Elmendorf (1935-36:4) and Ray (1939:81-91) note that only boys went on spirit quests.

4.4 Etlinography of the Kalispel

The Kalispel are known ethnographically to have used a small portion of the AFD during their traditional seasonal round. This area, triangular in shape, is limited to that surrounding the confluence of the Pend d'Oreille and Salmo Rivers (Teit 1975a:308; Bussey 1981:12; Fahey 1986:4-5). The majority of their territory was focused along the Pend d'Oreille River and Lake Pend Oreille, and extended in a southeasterly direction through northeastern Washington, northern Idaho, and northwestern Montana (Walker 1973:19; Teit 1975a:308). They practiced 'a semi-sedentary settlement pattern, with permanent winter villages and temporary camps during the remaining seasons (Teit 1930:295-303; Fahey 1986:26, 30-31).

4.4.1 General Subsistence Strategy

The portion of land within the AFD ethnographically ascribed to the Kalispel represents the northernmost limit of their traditional territory, and appears to have been used during the fall and possibly summer and winter seasons. Subsistence practices focused on the taking of salmon, particularly during early fall, and hunting ungulates and other large and small game (Walker 1973:55; Chalfant 1974:218-222; Teit 1975a:344-349; Fahey 1986:33-35).

During the spring and early summer months, the Kalispel would travel from their large winter camps south of the International Border to gather roots, particularly camas, from extensive beds around Calispell Lake, Washington (Chalfant 1974:219; Teit 1975a:341; Fahey 1986:32-33). Often this was done in co-operatiion with surrounding groups such as the Colville, Coeur d'Alene and Spokane peoples, who would reciprocate by allowing the Kalispel to use their territories in later months for gathering bitterroot and catching salmon (Ruby and Brown 1970:16,21; Fahey 1986:29). The Kalispel would then disperse into small (usually familial) bands to gather other plant foods, fish, and hunt in various parts of their territory (Teit 1975a:341-345; Fahey 1986:32). In addition to camas, important root and berry foods included bitterroot, balsamroot, currants, black and red gooseberry, blueberries, huckleberry, hazelnut, wild onion, parsnip, wild carrot, cattail, and Spring Beauty (Teit 1975a:343; Fahey 1986:32-33). Freshwater fish taken during the spring and summer included trout, chub, whitefish, squawfish and suckers, and were caught by a Variety of methods including hook and line, leisters, bark traps and weirs (Walker 1973:56; Teit 1975a:349; Fahey 1986:33-34).

Fahey (1986:33) relates that the Kalispel would travel into their northern territory for salmon in mid-summer, after the camas roots had been gathered, but intensive gathering of salmon did not occur until the spawning runs began in early autumn. Groups of Kalispel would travel down the Pend d'Oreille by canoe (with portages) into British Columbia to fish them from the Salmo River (Teit 1975a:349; Fahey 1986:33). However, Teit (1975a:349) states that "the salmon at this place were generally spent and poor, and in some years there were not many", so the availability of other faunal resources in the area may have provided the Kalispel with more important reasons for traveling north. Most of the salmon obtained by the Kalispel appears to have come from sources to the west and southwest, either directly through fishing in adjacent groups' territories (e.g., at Kettle Falls), or indirectly through trade (Ruby and Brown 1970:16; Teit 1975a:349; Fahey 1986:29).

For the Kalispel, autumn was a season of intensive resource gathering in preparation for winter. Some groups would travel into Ktunaxa territory to join those people in the bison hunt, particularly during the protohistoric period when horses were adopted into their bifeways (Walker 1973:56; Teit 1975a:344-352; Fahey 1986:38-39). Others, as noted above, traveled to Spokane or Cobville lands to procure salmon by fishing or trade. In addition to catching the limited numbers of salmon along the Salmo River, Kalispel groups arriving in their area included within the **AFD would have** engaged in concentrated hunting activities. Deer are the most frequently noted game animal, and were captured by driving them off cliffs or through narrow passages, spearing or shooting them during river crossings, or enclosing them within a gradually constricting circle of hunters (Walker 1973:56; Chalfant 1974:189; Fahey 1986:35). Many other species were also taken, however, including caribou, elk, moose, mountain goat, mountain sheep, bear, rabbit, beaver, duck and geese (Walker 1973:55; Chalfant 1974:222; Teit 1975a:345-346; Fahey 1986:34-35). The smaller game were often captured using snares or deadfall traps, though larger game (such as young bears) were also occasionally taken in this manner (Fahey 1986:34). Larger species were usually killed with spears or arrows that may have been coated with rattlesnake poison (Teit 1975a:344).

In the late fall, after the first snow had fallen, the dispersed Kalispel groups would return to their winter camps. Historically, these were geographically fixed, and could reach a population of up to 800 residents (Fahey 1986:30). Most of these villages were located along the Pend d'Oreille River, and none are known to have been located within the territory of the **AFD. It** is possible that smaller winter camps occurred within the AFD during the precontact period, as dietary sources relied upon during the winter months included ungulates hunted with snowshoes, small game captured with snares or traps, and fish caught from ice-covered lakes (Walker 1973:56; Chalfant 1974:189; Fahey 1986:30); each of these resources is available within the **AFD** boundaries.

The Kalispel are ethnographically known to have constructed several types of dwellings. During the winter months, some Kalispel lived in semi-subterranean earthen lodges with entrances at the sides or top, while others dwelt in mat lodges (Teit 1975a:331 ; Fahey 1986:31). Both of these dwellings are similar in design to those described for the Interior Salish/Lakes peoples in Section 4.3.1, above, and may have represented temporal changes in house constructing methods, comparable to the Interior Salish/Lakes. The structures used in temporary camps during other seasons are also similar to those discussed for the Interior Salish/Lakes peoples, and include conical tents with three support beams that were covered with woven tule mats or bark, a rectangular or oblong structure that was also covered with bark (Teit 1975a:332-333; Fahey 1986:31), and dome-shaped sweat lodges covered with grass and earth (Teit 1975a:333).

4.4.2 Non-Subsistence Site Types

Kalispel who died within the boundaries of their territory were sewn or tied into mats, skins or robes, and placed in a scaffold or tree branch until the kin of the deceased could be gathered for the burial (Walker 1973:1 21 ; Teit I 975a:382). Interment was not in an organized cemetery, but at any convenient spot where the soil was of adequate depth. Sandy knolls and talus slopes were particularly preferred (Teit 1975a:382). The dead were placed on their back and the grave coy-ered over and marked with the pole used to carry the deceased, or with a rock cairn (Walker 1973:1 21 ; Teit I 975a:382). If a Kalispel died outside of their territory, the grave was not marked and all traces of the burial were obliterated, or the person was buried within the camp, and a firepit placed above the grave to make it appear that the burial spot is nothing more than one of the common cooking hearths within the campsite (Teit 1 975a:382).

5.0 ARCHAEOLOGICAL OVERVIEW OF ARROW FOREST DISTRICT

The following subsections of the report provide a review of regional archaeological cultural-historical frameworks within and adjacent to the **AFD,** as well as an in-depth and critical evaluation of previous archaeological research in the study area. The number and types of previously recorded archaeological sites are then summarized and incorporated into the formation of estimates that differentiate archaeological potential into High, Medium, and Low categories.

5.1 Postglacial Period

5.1.1 Pre-10,500/10,000 B.P. - Fluted Point Tradition?

It would appear that occupation of the study area was not likely to have occured prior to 10,500 B.P., due to the lack of conclusive evidence for valley and/or upland deglaciation at this time, as presented in Section 3.1, above. With regard to archaeological constructs, the Fluted Point Tradition, characterized by bifacial flaked spear points that have been basally thinned through the removal of one or more basal flakes, has been proposed for the time period between 11,200 and 10,000 B.P. in areas surrounding the AFD (see Carlson 1983; Gryba 1983, 1985; Fedje 1986, 1996; Fladmark, Driver, and Alexander 1988; Wilson 1989, 1996; Rousseau 1993; Carlson 1996; Driver 1996; Fladmark 1996; Stryd and Rousseau 1996). The nearest probable evidence for morphologically similar fluted point forms are noted from surface collections in the Thompson River drainage to the northwest (Rousseau 1993:146; Stryd and Rousseau 1996:180-181) and in excavations near Wenatchee, Washington (Mehringer 1988; Mehringer and Foit 1990). No similar artifact forms have been illustrated for the study area (cf. Choquette 1982).

5.2 Early Period (10,500 to 7,000 B.P.)

5.2.1 Canadian Plateau - Early Stemmed Point Tradition

The Early Stemmed Point Tradition is suggested to have originated in the Great Basin by approximately 10,500 B.P. and continued until 8,000 B.P. (see Carlson 1983:73-86, 1996:7-8; Rousseau 1993:148-150; Stryd and Rousseau 1996:180-181). Large parallel to expanding stemmed projectile points with weakly to strongly developed shoulders are characteristic of this complex. These artifact forms have been surface collected within or immediately adjacent to the AFD study on the Arrow Lakes at DlQm-33, EaQl-13, EaQl-14, EcQm-2 (Mohs 1977:76,78), and in a mid-altitude context near Vanstone Creek (EaQl-2), north of Whatshan Lake.

5.2.2 Southern Purcell Mountains - Goatfell Complex

A regional variant of the Early Stemmed Point Tradition, the Goatfell Complex, is situated within the southern Purcell Mountains and adjacent areas. Choquette (1993b:25-26,1996:47-48; also Choquette 1982,1984; Gough 1984) suggests a slightly earlier initiation for the Goatfell Complex, at approximately 11,000 B.P. The Goatfell Complex derives its name from the Goatfell Quarry (DgQb-3), associated with several lithic reduction workshops, all located between the Moyie and Goat River drainages in the southern Purcell Mountains. The Goatfell Quarry is a major source for tourmalinite and/or tourmaline chert (Choquette 1996:47). Other lithic raw materials associated with Goatfell Complex assemblages, specifically the diagnostic large stemmed projectile points, include Kootenay argillite, quartzite, and obsidian.

Excavated and surface collected Goatlell Complex assemblages appear to be associated with proglacial lake stands, early postglacial landforms, and other upland contexts (Choquette 1993b,1 996). Lithic artifacts associated with this complex include large discoidal unifaces, large side scrapers, large marginally retouched flake-based tools, and large stemmed, weakly-shouldered, projectile points (Choquette 1996:47). No firm radiocarbon dates are associated with Goatfell Complex assemblages (Choquette 1996:47); however, Choquette (1 996:47) notes that Goatfell Complex material was found in the basal stratigraphic deposits at DgQa-6, on the highest postglacial terrace of the Moyie River valley (see Choquette 1984). Unfortunately, no diagnostic artifacts directly attributable to the Goatfell Complex are illustrated in the report.

5.2.3 Kettle Falls Locality - Shonitkwu **Period**

Through implied stratigraphic and palynological correlations, the Shonitkwu Period at the Kettle Falls locality has been estimated to date between ca. 9,800 and 8,800 B.P. (Chance and Chance 1 981 :405-406,421 -423). Artifacts characteristic of the Shonitkwu Period include microblades and keeled microblade cores, large notched-cobble net weights, and leaf-shaped and lanceolate projectile points (Chance and Chance 1981 :421 -423; Choquette 1996:48). Activities assumed to be occurring at this time involve salmonid fishing, as reflected by the use of net weights, varied faunal resource procurement (e.g., turtle, wild fowl, grizzly bear), as well as limited floral exploitation (Chance and Chance 1 981 :422). Recently, Choquette (1 993:27;i 996:48-49) has discussed the presence of Shonitkwu Period assemblages within the **AFD study area at DhQj-**14 and DiQi-1. DhQj-14 is located on a high glaciofluvial terrace above the confluence of the Kootenay and Columbia Rivers, and is associated with a possible "unused keeled or wedge-shaped microblade core" (Choquette I996:48,50), as well as four surface collected large leaf-shaped, lanceolate, and side-notched projectile points which appear analagous to Shonitkwu Period assemblages. Choquette (1 996:48) suggests that the earliest assemblage excavated at DiQi-i (French 1 973) contained five bifaces and four microblades, which he attributes to the Shonitkwu Period. As discussed more fully in Section 5.5.3, below, both Components 2 and 3 contained microblades (French I 973:1 4). As well, Components 1, 2, and 4 were recorded from the eastern portion of DIQi-1, while Component 3 was found in isolation in the northern portion of the site. Therefore, neither Component 2 dr 3 represent the basal occupations at DiQi-1. Projectile points recovered in Component 3 suggest a temporal association between ca. 2,1 00 and 3,000 B.P. (French 1 973:1 4; 1996 pers. comm.; also Rousseau 1 982:41 ,46; Richards and Rousseau 1 987:26,35). Given the above, it would appear that the microblade assemblages in Components 2 and 3 at DiQi-1 are probably not attributable to the Shonitkwu Period (cf. Choquette 1996:48).

5.3 **Middle Period (7,000 to 4,500 BP.)**

5.3.1 Southern Purcell Mountains - **Bristow Complex**

Along the slopes of the southeastern Purcell Mountains, Choquette (1993b:28) has identified archaeological assemblages on high glaciofluvial terraces, that he has assigned to the Bristow Complex (ca. 8,000 to 5,000 B.P.). Choquette (1993b:28) sees a continuity in lithic technology, lithic raw material utilization, and archaeological site placement between earlier Goatfell Complex assemblages and the later Bristow Complex. Artifacts characteristic of the Bristow Complex can include large stemmed and shouldered projectile points, and less commonly, side and corner-notched projectile points (Choquette 1993b:28). Tourmalinite is still the dominant lithic raw material utilized at this time, though gravel quartzite sources were also used (Choquette 1993b:28).

5.3.2 Canadian Plateau

Within the Middle Period (ca. 7,000 to 3,500 B.P.), two cultural-historical entities have been proposed: the Early Nesikep Tradition (associated with the subsequent Lehman Phase); and the Locknore Phase (Stryd and Rousseau 1996:185-197). Proposed environmental conditions during the Middle Period suggest cooler and wetter conditions than those from the preceding Early Pe-nod, characterized by extensive mid and low elevation grasslands and the establishment of Doug-las fir and ponderosa pine forests at higher elevations (Stryd and Rousseau 1996:186; also see Sec-tion 3.1, above, for comparable palaeoenvironmental conditions for the study area). Terrestrial fauna (e.g., deer, elk, rabbits, and rodents), plant resources, and freshwater molluscs and fish are also suggested to have been more integral to Middle Period adaptation, especially with regard to the Early Nesikep Tradition and Lehman Phase peoples, than salmon was in the Locknore Phase and subsequent Late Period (Hebda 1983:251; Arcas 1985:93; Stryd and Rousseau 1996:187,191).

5.3.2.1 Early Nesikep Tradition

Excavated Early Nesikep Tradition (ca. 7,000 to 4,500 B.P.) sites are restricted at present to the Mid-Thompson and Fraser River Valleys in south-central British Columbia (Sanger 1969; Stryd and Rousseau 1996:187-189). Diagnostic artifacts associated with the Early Nesikep Tradition include: large lanceolate, corner-notched, and barbed projectile points displaying ‘straight or recurved lat-eral blade element outlines, deep, v-shaped corner-notches, straight to cohvex basal margins, ba-sal-lateral and basal margin edge grinding, and occasional multiple basal thinning flakes; high fre-quencies of formed unifaces; wedge-shaped .microblade core technology; and small oval scrapers with occasional bilateral side-notches (Stryd and Rousseau 1996:188-189,192). No diagnostic arti-fact forms characteristic of Early Nesikep Tradition projectile point types were noted during the review of previous archaeology conducted in this study.

5.3.2.2 Lehman Phase

The Lehman Phase (ca. 6,000 to 4,500 B.P.) is suggested to have developed directly out of the Early Nesikep Tradition, specifically with regards to a perceived continuity in technological attrib-utes associated with projectile point, scraper, and knife production (Stiyd and Rousseau 1996:189,191). Diagnostic traits associated with Lehman Phase occupations include: thin, pen-tagonal, projectile points with obliquely v-shaped corner to side-notches, displaying heavy basal margin grinding and abrasion; lanceolate and leaf-shaped knives; leaf-shaped knives with basally located striking platforms; tabular circular scrapers with continuous unifacial retouch; ‘horseshoe-shaped’ convex endscrapers; and, an absence of microblade technology (Stiyd and Rousseau 1996:189-191,194; Figure 15). An ungulate hunting orientation in the Southern Canadian Plateau upland is also suggested for both the Early Nesikep Tradition and Lehman Phase (Stryd and Rous-seau 1996:191,198). As with the Early Nesikep Tradition projectile point types, no diagnostic arti-facts associated with Lehman Phase occupations have been noted in the study area.

5.3.2.3 Locknore Phase

The Locknore Phase (ca. 5,500 to 3,500 BY.) is suggested to be the earliest manifestation of the Plateau Pithouse Tradition **(PPT) on the Canadian Plateau (Stryd and Rousseau** 1996:191-197). Based upon housepit excavations and associated radiocarbon dating from archaeological sites EdQx-41, 42, and 43, near Monte Creek in the South Thompson River Valley (Wilson, Smart, Heap, Warner, Ryals, Woods, and MacNab 1992), the commencement date for the **PPT** has been revised to ca. 4,500 B.P. (Stryd and Rousseau I996:1 98). Within the Locknore Phase, the following diagnostic artifacts are noted: thick, leaf-shaped to lanceolate projectile points, biconvex to diamond shaped cross-sections, with wide, shallow side-notches, and pointed to convex basal margin outlines which display heavy basal margin grinding and abrasion (i.e., Locknore side-notched point); bipointed leaf-shaped to lanceolate projectile points (preforms); round to oval scrapers with continuous retouch; occasional macroblade and microblade technology; notched pebbles (possible net-sinkers); and leaf-shaped knives with basally located striking platforms (Stryd and Rousseau I996:1 93,1 95). The introduction of small (3.0 to 4.5 m diameter, 0.35 to 0.50 m depth), oval, semi-subterranean pithouses or mat lodges and circular to oval interior food storage pits, in the latter half of the Locknore Phase (ca. 4,500 B.P.), is also strongly supported (Wilson et. al. 1992; Stryd and Rousseau 1996:1 93,195-1 96). Bone, antler, and shell artifact forms (e.g., bone unipoints, awls, needles, wedges, unilaterally barbed points, and animal tooth and eagle claw pendants) have also been recovered from recent Locknore Phase assemblages (Wilson 1991 a; Wilson et. af. I992; Stryd and Rousseau I 996:1 93). Extensive use of terrestrial fauna, birds, salmonid and non-salmonid fish species, and freshwater mollusc has been recorded (Stryd and Rousseau 1 996:1 96), though evidence for plant collecting and processing is absent.

The **PPT** is suggested to be an archaeological manifestation of ethnographically known Interior Salishan peoples (Richards and Rousseau I 987:49,52; Stryd and Rousseau 1 996:1 96,1 98), characterized by the use of semi-subterranean pithouses for winter dwellings, a logistically organized (Binford I980), semi-sedentary subsistence and settlement pattern, a hunter-gatherer subsistence focus on salmon procurement, and the use of cache-pits for food storage. This basic adaptive pattern is suggested to have begun in the Locknore Phase (5,500 B.P.) and continued through to the Protohistoric Period (i.e., 200 B.P.; Stryd and Rousseau 1 996:1 96,1 98,200; see Section 5.1.3.3, below). These traits suggest to Stryd and Rousseau (1 996:1 97) that the "Locknore Phase is ancestral to the Late Period", and specifically to the PPT. At the confluence of the Inonoaklin River and Lower Arrow Lake, a single complete projectile point identical in form to the Locknore side-notched projectile point was recovered from a surface collection at EaQl-3 (Mohs I977:78,91).

5.4 Late Period(4,500 to 200 B.P.)

5.4.1 Southern Purcell Mountains - **The Inissimi Complex**

The Inissimi Complex occurs between ca. 5,000 to 2,500 B.P. (Choquette 1 993b:30). These assemblages are situated along the Kootenay River and its tributaries from northwestern Montana north to Kootenay Lake. A distinctive riverine orientation to the Inissimi Complex is suggested by archaeological site placement in association with glaciofluvial and fluvial terraces and colluvial fans at the confluence of fluvial systems, eddies, and rapids (Choquette I 993b:30), possibly indicative of a greater aboriginal focus on fish procurement. Typical artifacts and features associated with Inissimi assemblages include notched pebble sinkers, Inissimi projectile points (characterized by an expanding stem, ground convex basal margin, and acute to right-angled shoulders), and the presence of hearths and fire-broken rock concentrations (Choquette 1993b:30). Kootenay argillite appears to be the dominant lithic raw material utilized during this period (Choquette I 993b:30).

5.4.2 Southern Purcell Mountains - Unnamed Complex

An as yet poorly documented archaeological complex (ca. 2,5OO-2OO B.P.) has been described along the alluvial terraces of the Creston Flats locality in the southern Purcell Trench (see Choquette 1993b:32). As with the lnissimi Complex, this unnamed complex appears to display a strong focus on the procurement of freshwater fish species and waterfowl within the Kootenay River and Creston Flats floodplain, respectively (see Choquette 1993b:32). Choquette (1 993b:32) suggests that this pattern is representative of the ethnographic Lower Kutenai subsistence, settlement, and social system. Unfortunately, no specific artifact types and/or features for this unnamed complex are stated by Choquene (1993b).

5.4.3 Kettle Falls Locality

5.4.3.1 Ksunku Period

Chance and Chance (1985) note that the Ksunku Period at the Kettle Falls locality began ca. 5,000 to 4,200 B.P. They suggest that this period represents a more generalized economy than that seen in the Shonitkwu Period, characterized by high frequencies of fractured mammal bone (probably ungulate), turtle shells, and salmonid remains in the archaeological deposits. Artifacts and features associated with the Ksunku Period may include: lanceolate an'd leaf-shaped projectile points; increased percentages of black argillite lithic raw materials (possibly indicative of increased use of the Kettle River drainage); numerous unlined firepits and boiling stones; and archaeological sites situated on islands and/or promontories (Chance and Chance I985).

5.4.3.2 Pre-Takumakst Period

The Pre-Takumakst Period at Kettle Falls occurred between ca. 3,200 to 2,800 B.P., following a decrease in use of the Kettle Falls locality from ca. 4,200 to 3,200 B.P. (Chance and Chance I982:423-424). In comparison to the Ksunku Period, cryptocrystalline, rather than black argillite, lithic raw materials dominate pre-Takumakst Period assemblages (Chance and Chance 1982:423). Chance and Chance (1 982:423) also note that the occupations during this period seem to be of fairly low intensity. Contracting and square-stemmed projectile points, and low numbers of cobble cutting tools, are also recorded as being diagnostic of this period (Chance and Chance I 982:423).

5.4.3.3 Takumakst Period

Chance and Chance (1 982:424) note that the Takumakst Period (ca. 2,800 - 1,700 B.P.) is a time of moderately high population density and the first apparent use of the Kettle Falls locality as a major fishery site. Task specialization, probably related to intensive fish procurement and processing activities, have also been suggested (Chance and Chance 1982:425). Brown argillite, rather than the cryptocrystalline silicates seen in the Pre-Takumakst Period, dominate the lithic assemblages at this time, with quartzite choppers (i.e., the “Takumakst Chopper”) also being present (Chance and Chance I982:425). It has been further posited by Chance and Chance (1982:425) that this period reflects the initial intensive use of the Kettle Falls locality by Interior Salish aboriginat peoples.

5.4.3.4 Sinaikst Period

Chance and Chance (1982: 428) note that the Sinaikst Period (ca. 1,700 to 500 B.P.) may represent the period of highest population density at the Kettle Falls locality. The large number and diversity of projectile point morphological types, in conjunction with very high frequencies of 'exotic' lithic raw material types, have been used by Chance and Chance (1982:426) to infer that the Kettle Falls locality was a major aboriginal trading centre. Increased sedentism may also be occurring during the Sinaikst Period, as evidenced by large, deep, pithouse structures possibly being used throughout the year, rather than just as winter dwellings (Chance and Chance 1982:426).

5.4.3.5 Shwayip Period

During the Shwayip Period (ca. 500 to 200 B.P.), Chance and Chance (1982:428) see a decrease in population density from the preceding Sinaikst Period. Chance and Chance (1982:428) also suggest that possible social and/or economic stratification may have occurred with aboriginal peoples during the Shwayip Period. Small, side-notched projectile and small quartzite knives dominate lithic assemblages during this period (Chance and Chance 1982:427-428).

5.4.4 Canadian Plateau

Richards and Rousseau (1987:49-52; also Stryd and Rousseau 1996:198) have defined the Late Period (3,500 to 200 B.P.) on the Canadian Plateau as being represented by the **PPT** (see Section 5.3.2.3). As noted above, the **PPT** is suggested to represent an ethnographic Interior Salish cultural pattern. The three temporal divisions distinguished within the **PPT** are the Shuswap Horizon (3,500 to 2,400. B.P.), Plateau Horizon (2,400 to 1,200 B.P.) and Kamloops Horizon (1,200 to 200 B.P.; Richards and Rousseau 1987). Common material culture patterns throughout these three horizons include: the use of semi-subterranean winter pithouses; the use of subterranean cooking and cache pits both within and outside of the winter pithouse; a semi-sedentary settlement and subsistence pattern, with winter sedentism at pithouse villages; a reliance on anadromous fish (i.e., salmon) runs; the use of root-roasting pits and earth ovens for processing vegetal and root crops; the use of stone boiling for cooking; sophisticated woodworking and fishing technologies; and increased intra- and inter-regional trade (Richards and Rousseau 1987:50-51).

5.4.4.1 **Shuswap Horizon**

The Shuswap Horizon covers the period from 3,500 to 2,400 B.P. (Richards and Rousseau 1987:22; Stryd and Rousseau 1996:198). The typical feature found in association with these occupations include very large (10.7 m in average diameter) semi-subterranean pithouses that are circular to oval in planview. Infrequently, external storage and cooking hearths will be present (Richards and Rousseau 1987:25). Eight projectile point types, displaying a "relatively high degree of stylistic variability", characterize Shuswap Horizon lithic assemblages (Richards and Rousseau 1987:25; Fig. 16a-d'). Types 1, 3, 4, 5, and 8 are medium to large in size, lanceolate in outline, displaying markedly to slightly concave basal margins, shallow side to corner removed notching, basal-lateral ears (e.g., Type 1), and slightly expanding stems (e.g., Types 5 and 8) (Richards and Rousseau 1987:25-26). Type 2 is lanceolate in outline, with a markedly concave basal margin, which may be a projectile point preform for Types 1, 3, 4, and 8 (Richards and Rousseau 1987:25-26). Types 6 and 7 display rounded shoulders, parallel to contracting stems, and straight to slightly convex basal margins (Richards and Rousseau 1987:25-26). A preference for locally obtained tithic raw materials is also noted (Richards and Rousseau 1987:27).

5.4.4.2 Plateau Horizon

The period between 2,400 and 1,200 B.P. covers the Plateau Horizon on the Canadian Plateau (Richards and Rousseau 1987:32-41). Associated with Plateau Horizon occupations are medium-sized (6.1 m in average diameter) semi-subterranean pithouses that are circular to oval in plan view. These lack a raised rim but contain raised benches within the internal perimeter. Internal storage and cooking pits are common, as are centrally-located hearths. Pithouse cross-sections tend to be steep-walled with flat floors. The intensive use of root-roasting pits, both within the boundaries of housepit villages, as well as in mid-altitude and subalpine contexts (Richards and Rousseau 1987:34; Pokotylo and Froese 1983), appears to commence during the start of the Plateau Horizon, and continues until the postcontact period. Plateau Horizon projectile points display a marked degree of stylistic similarity, with bilaterally barbed, basal and/or corner oriented notching, and incurvate, parallel, and excurvate blade element outlines (Richards and Rousseau 1987:34). Two size classes of these projectile point types are noted. The larger size was probably for use with atlatl darts, while the smaller size may indicate the use of the bow and arrow. Key-shaped unifaces/bifaces and occasional microblade and microblade cores are also recovered from Plateau assemblages (Richards and Rousseau 1987:34). There is substantial evidence for the occurrence of extensive intra and inter-regional trading networks in the widespread dispersal of vanous lithic raw material types and Northwest Coast Olivella and Dentalium shell across the Rocky Mountains (Choquette 1980-1981:27,33; Richards and Rousseau 1987:39).'

5.4.4.3 Kamloops Horizon

The period from 1,200 to 200 B.P. on the Canadian Plateau has been defined as the Kamloops Phase (Richards and Rousseau 1987:41-49). Pithouses dated to the Kamloops Phase tend to be larger than their Plateau Horizon counterparts (8.7 m in average diameter), but smaller than Shuswap Horizon pithouses. They tend to be highly variable in shape, displaying oval to circular, and rectangular to square, outlines (Richards and Rousseau 1987:43). Prominently raised rims are usually present, and the rectangular pithouses are often associated with possible side entrances. Small-sized internal cooking and storage hearths, as well as central hearths are also observed. Large numbers of small-sized storage pits may also be situated in close proximity to large salmon fisheries (Richards and Rousseau 1987:43). The use of root-roasting pits appears to continue throughout the Kamloops Horizon (Richards and Rousseau 1987:48). Small to medium-sized, side-notched projectile points, characterized by deep side-notches, and straight or slightly convex or concave basal margins, predominate in the Kamloops Horizon lithic assemblages. Evidence for extensive trade networks also increases during this period (Richards and Rousseau 1987:48-49). As well, burial inclusions displaying extensive investments in both manufacture and transport may indicate that differential social status (i.e., ascribed status) had emerged in Canadian Plateau peopies (Richards and Rousseau 1987:47).

5.4.5 Slocan Valley and Arrow Lakes

The development of local cultural-historical sequences for the Slocan Valley and Arrow Lakes has been discussed by Turnbull (1977), Eldridge (1981,1984), McMurdo (1982), Mohs (1982), and Rousseau (1982). In 1984, Eldridge conducted a critical review and synthesis of existing archaeological sites within the Slocan Valley and Arrow Lakes. Therefore, for the purposes of this report, a review of Eldridge's (1984:42-46) three cultural-historical periods for this region are presented. These include the Deer Park Phase (3,200 to 2,400 B.P.), the Vallican Phase (2,400 to 1,300 B.P.); and the Slocan Phase (1,300 to 200 B.P.).

5.4.5.1 Deer Park Phase

Diagnostic features and artifacts associated with the Deer Park Phase (3,200 to 2,400 B.P.) in-dude: semi-subterranean pithouses; large and medium-sized foliate to lanceolate in outline, shouldered or stemmed, basally-eared projectile points, similar to Oxbow, McKean, Hanna, and Duncan projectile point types on the Plains (Rousseau 1982:46; Richards and Rousseau 1987:30-31); stemmed projectile points; medium to large corner-notched projectile points; ground conical pestles; ground nephrite adzes; and potentially, a more frequent use of locally procured lithic raw materials (Eldridge 1984:46). Contrary to Eldridge's (1984:46) assertion, microblades have been recovered in association with potential Deer Park Phase assemblages at DiQi-1, Component 3 (French 1973:19-20, 1996 pers. comm.). Excavated archaeological sites within the study area that may have components attributable to the Deer Park Phase include DiQi-1, Component 3 (French 1973:Fig. 61) and DiQi-2 (Galvin 1977; Fig. 5a). The Deer Park Phase appears to be contemporaneous with the Shuswap Horizon on the Canadian Plateau.

5.4.5.2 Vallican Phase

The Vallican Phase (Eldridge 1984:44-45; Rousseau 1982) follows the Deer Park Phase (2,400 to 1,250 B.P.) and appears analagous to the Plateau Horizon on the Canadian Plateau. Diagnostic features and artifacts associated with the Slocan Phase can include smaller housepits, medium to large-sized, corner and basally notched projectile points, stemmed projectile points, and key-shaped unifaces. Kootenay argillite and tourmalinite are the dominant lithic raw materials, with increasing frequencies of chalcedonies and micaceous quartz. Archaeological sites and excavated components which may be associated with Vallican Phase assemblages are noted at Component 3, DiQj-1 (Turnbull 1977:28) and Feature CD-D, DjQj-18 (Choquette 1985:79,87).

5.4.5.3 Slocan Phase

The period from 1;250 to 200 B.P. in the Arrow Lakes/Slocan Lake is considered the Slocan Phase by Eldridge (1984:43-44). Currently, Component I, DiQi-1 (French 1973:14), Component 2, DiQj-1 (Turnbull 1977), and numerous cultural depression features at DjQj-18 (Choquette 1985:73,79,87,92,95) are assignable to this period. Diagnostic artifacts and features associated with Slocan Phase assemblages include (Eldridge 1984:43): small, side and corner-notched projectile points; increased frequencies of chalcedony and tourmalinite and/or argillite (see Section 5.2.4, below); a variety of housepit forms (i.e., circular to rectangular [possible matlodges]); excavated hillside platforms; cache and hearth features located outside of housepits; and flexed burials interred in shallow depressions on the alluvial terraces. Eldridge (1984:43-44) notes that lithic raw material types and projectile point forms during the latter portion of the Slocan Phase appear comparable to those artifact types recorded at the Kettle Falls locality during this same time period (see Section 5.4.2.3, above). The Slocan Phase appears contemporaneous with the Kamloops Horizon.

5.5 Previous Archaeological Investigations Within the Arrow Forest Distrid

5.5.1 Arrow Lakes North of Castlegar

Harrison (1961) reports on the first archaeological survey project of the proposed pre-flood pondage behind the Hugh Keenleyside Dam. Many private collections were also viewed during this study. A total of seventy-seven archaeological sites were recorded (Harrison 1961:9): Lower Arrow Lake (49); Narrows (10); and Upper Arrow Lake (18). Artifacts that were recovered during these investigations included hand mauls and pestles (of elongate, constricted head, conical, flat, double flange, incipient nipple, zoomorphic forms; Harrison 1961:50) and projectile points (contracting stem, parallel stem, expanding stem, leaf-shaped, triangular with straight base and side-notches or concave base with side notches; Harrison 1961:56).

The following five publications (i.e., Mitchell and Turnbull 1968, 1969; Turnbull 1969, 1974, 1977) present the results of salvage excavations undertaken between 1966 and 1969 within the Arrow Reservoir during the construction of Hugh Keenleyside Dam. Mitchell and Turnbull (1968, 1969) and Turnbull (1969) are interim reports, while Turnbull's publications (1974,1977) are versions of his doctoral dissertation. Mitchell and Turnbull (1968:7) report on a series of excavations at DIQm-1 (Cayuse Creek) and shovel testing and surface collecting at DiQl-6, DiQl-7, D1Ql-8, DiQm-2, DiQm-4, DiQm-13, DiQm-17, DiQm-18, and EbQl-1, on Lower and Upper Arrow Lake, which were conducted as a result of the flooding of the Hugh Keenleyside Dam pondage. At DiQm-1, 9 of the 11 cultural depressions were excavated by trenching, while CD4 was excavated areally (Mitchell and Turnbull 1968:8,10). Quartzite scrapers, produced from ribbon quartzite/micaceous schist appear to have dominated all of the excavated assemblages.

Mitchell and Turnbull (1969) discuss the investigation of two sites on the Upper and Lower Arrow Lakes (DkQm-5 and EbQl-1). Cultural depressions at both sites were trenched during these investigations. They note that the majority of pithouse villages appear to be located "south from Renata and Deer Park. Both the number of sites and the number of [pit]houses per site decrease northward to their extinction at mid-Upper Arrow Lake" (Mitchell and Turnbull 1969:28; also Turnbull 1969:6). Turnbull (1969) also provides a summary of archaeological fieldwork conducted between 1966 and 1968 on the Hugh Keenleyside Dam pondage. The distribution of known pithouse villages suggested to Turnbull that there were three distinct pithouse village size clusters: (a) 1 to 2 pithouses; (b) 5 pithouses; and (c) greater than 11 pithouses (1969:6).

A total of 120 archaeological sites were recorded within the Hugh Keenleyside Dam pondage by Turnbull (1974:1), from which he discriminated five archaeological site types: pithouse; non-pithouse (i.e., lithic scatters); sweat lodge; pictographs; and burials. Excavations within the Arrow Reservoir were concentrated specifically on pithouse sites DiQI-6, DiQm-1, DiQm-4, DiQm-14, DiQm-18, DkQm-2, DkQm-5, and EbQl-1 (Turnbull 1974:24-33,224-225). Surface collections and shovel testing programs were also conducted at DiQl-6, DiQI-7, DiQl-8, DiQm-2, DiQm-4, DIQm-13, DiQm-17, DiQm-18, EaQl-8, and EbQl-1 (Mitchell and Turnbull 1968, 1969; Turnbull 1974:24). This indicates that 14.5% of all pithouse sites, and 18.2% of all lithic scatter sites were systematically evaluated within the Hugh Keenleyside Dam pondage, either through excavation or a combination of surficial inspection and shovel testing by Turnbull (1974,1977). However, Mohs (1977:5) further suggested that only five of the pithouse sites were tested adequately (e.g., DiQm-1, DiQm-4, DiQI-6, DkQm-2, and DkQm-5).

brief description of an archaeological impact assessment conducted in regard to several borrow pits, generation plant and camp construction, and coffer dam construction associated with the proposed Keenleyside Generation Project. Baker (1982) strongly suggests that if cultural resources were situated within the immediate vicinity of the proposed Keenleyside Generation Project, they would have likely been severely impacted and/or destroyed by previous land-altering activities.

Baker (1983) conducted an impact assessment of proposed impoundment areas associated with BC Hydro's Murphy Creek Dam Project. Evaluative testing of 16 archaeological sites was undertaken (Baker 1983:1-1). Test units were placed along lineal grid lines at variable distances between tests and backhoe trenching (n=3) was also conducted at DhQj-1 (Baker 1983:4-1). The results of evaluative testing at DhQj-1 (Brilliant) were "extremely productive" (Baker 1983:5-3). Baker (1983) also makes reference to the "Murphy Creek Projed Heritage Resources Study - Stage 1" project conducted for BC Hydro. This **AOA is not catalogued at the Archaeology** Branch, Victoria, and was not reviewed for this study. The **AOA used a 50% stratified random** sampling strategy and "subsurface testing was minimal" (Baker 1983:4-2). Four burials, comprised of five individuals, were also recorded from DhQj-1 (Baker 1983; see Harrison 1961:30). Baker (1983) suggests that this terrace at the confluence of the Kootenay and Columbia Rivers may have been used extensively as an interment area: "The discovery of these burials, together with local residents accounts of extensive collecting of skeletal material and associated artifacts over the years indicate that this area was used extensively as a burial ground by native people." All of the individuals examined appear to have been fairly young (i.e., 15 to 21 years of age), with three of the five being males.

Simonsen (1984) reviews the shovel testing program conducted at Waldie's Island (DhQj-2) by Baker (1983). Baker (1983) concluded that numerous surface depressions present on the island were not archaeological in nature. Of the 70 shovel tests, 11 contained cultural material (Simonsen 1984:3). Thirteen lithic artifacts, burnt bone, and abundant quantities of charcoal and fire broken rock were recorded (Simonsen 1984:4). Simonsen (1984:4) further suggests that these cultural depressions may represent food processing activities (i.e., root roasting pits). These cultural depressions appear to range between 2.5 and 5.0 m in diameter. If so, these cultural depressions are comparable in size to root roasting pit sizes recorded by Pokotylo and Froese (1983) for the Mid-Fraser-Thompson Valley.

Land-altering activities associated with subdivision developments at Goloff Point, near Castlegar, uncovered precontact First Nations burials in 1988 (Choquette 1989; also see McKendry and Skinner 1981). **A human cranium, several post-cranial elements, and a stone pestle were recovered from the slope below an alluvial terrace following leveling of the terrace surface by heavy,** earth-moving machinery during site preparation for house construction (Choquette 1989:5). This sandy terrace near Goloff Point appears to have been a major locus for precontact aboriginal burials, with at least four individuals recorded from subdivision Lots 21 and 22 (Choquette 1989; McKendry and Skinner 1981). Interment in excavated depressions on sandy alluvial terraces and/or knolls appears to be a pattern in the Castlegar region (i.e., DhQj-14 and DhQj-16; Choquette 1977).

Stryd and Brolly (1990) describe the results of an impact assessment conducted for the Celgar Pulp Expansion Project, near Castlegar. No subsurface testing (i.e., shovel testing) was conducted as the ground was still frozen and covered by 15 to 20 cm of snow (Stryd and Brolly 1990:15). The observation of Mazama ash deposits during the impact assessment process indicated to Stryd and Brolly (1990:19-20) that stable land surfaces were present in the study area ca. 6,600 B.P., and that deeply-buried archaeological deposits might be located at similar geomorphological settings near the study area. Stryd and Brolly (1990) recommended that archaeological monitoring occur with respect to the buried palaeosol. Brolly (1991a) presents the subsequent report on the results of an archaeological impact assessment and monitoring study of the Celgar Pulp Expansion Project. No precontact archaeological sites were recorded in association with the deeply buried palaeosol during that study. Brolly (1991b) also presents the results of an impact assessment conducted over a two-day period with regard to six proposed aggregate pits for the Celgar Pulp Expansion Project, near Castlegar, all located on flat to gently-sloping kame or alluvial terraces. Visual ground surface inspection, shovel testing, and the evaluation of several backhoe trenches was conducted during the study (Brolly 1991b:6-10). No archaeological sites were recorded.

Choquette (1995) provides an archaeoLogical overview assessment of the Tincup Rapids area of the Columbia River, near Castlegar. A total of four archaeological sites (DhQj-1, 2, 7, and 95T1) and three heritage concerns may be impacted through channel modification activities (Choquette 1995:12-14). Once development plans are finalized, Choquette (1995:16) suggests that further archaeological impact assessment studies may be required.

5.5.2 Columbia River South of Castlegar

May and Bussey (1974) provide a brief summary of archaeological impact assessment studies conducted with regards to proposed MoTH developments in the Nelson Highways Region. The areas evaluated had no heritage concerns noted within the study area of Champion Creek and Genelle Bluffs. Archaeological sites which were considered to be in potential conflict included DgQj-10, DgQj-11, DiQi-1, and DiQi-2.

Choquette (1974) provides the results of an archaeological and historic survey of the Inland Natural Gas transmission Line Link between Salmo and Rossland. The necessity for salvage excavations and/or monitoring of DgQj-12 and 13 are discussed near the Columbia River crossing of the pipeline at Beaver Creek Provincial Park (Choquette 1974:26).

Chariton (1974) dis'cusses the results of salvage excavations at DgQj-1, localities 12 and 13, near Columbia Gardens at the confluence of Beaver Creek and the Columbia River, as a result of Inland Natural Gas Co. Ltd. proposed natural gas pipeline extension from Yahk to Rossland. A stratified random sampling strategy was applied to the pipeline corridor with a total of 56, 2x2m squares and five features excavated (Charlton 1974:3). Fifteen lithic artifacts (one core tool, four unifacially retouched tools, one bifacially retouched tool, and nine pieces of debitage) were recovered from the above units and features (Charlton 1974:3-4), which included basalt, chert, quartzite, jasper, and obsidian lithic types.

Haugen and Galvin (1977) present a brief summary of archaeological impact assessments conducted for proposed MoTH developments within the study area. Road sections, or portions thereof, which were evaluated included Nakusp Hot Springs, Kaslo-New Denver, Lower China Creek Road, and the Trail-Tadanac Relocation (Haugen and Galvin 1977). No archaeological concerns were recorded.

Duff and Rousseau (1978) discuss the results of impact assessments conducted on areas proposed for development by BC Provincial Parks Branch, specifically Beaver Creek and Champion Lake Parks (Duff and Rousseau 1978:21-23). No cultural remains were noted at Beaver Creek. The presently existing day-use area at Champion Lakes was evaluated; however, since "the area to be upgraded has already been developed...any existing site would probably have been previously disturbed" (Duff and Rousseau 1978:23).

Zacharias (1990,1992) reports on two archaeological impact assessments conducted for BC Hydro regarding alternative routings for the Barnes Creek hydro-electric diversion at Whatshan Lake. During the initial impact assessment, site DiQm-28 was relocated, but no new archaeological sites were recorded. No archaeological resources were recorded during the subsequent archaeological impact assessment of alternative route #3 (Zacharias 1992). In both reports, Zacharias (1990,1992) does note that if the level of the Whatshan Lake pondage fluctuates in the future, a systematic shoreline survey and impact assessment should be conducted.

Rousseau and Muir (1991) present a summary of an archaeological impact assessment study conducted at Sproat's Landing, near Castlegar, for construction of a new bridge by the MoTH. Sparse concentrations of lithic detritus were observed during the surface collection and shovel testing program at site DhQj-30, on the east shore bridge approach.

The purpose of Choquette's (1993a:1) report was to conduct an overview assessment of the archaeological and historic potential of five system route options proposed for the Columbia Power Corporation's 230 kV transmission line. Both helicopter overflights and detailed aerial photograph analysis were used to identify landforms which might contain medium or greater archaeological site potential. According to Choquette (1993a:2), inferred large precontact habitation and resource utilization areas and spatially constrained transportation corridors display high archaeological site potential, while medium archaeological site potential areas are those adjacent to high archaeological site potential areas, including tributary valley bottoms and sides, travel corridors, and flat to gently sloping portions of the landscape adjacent to glacial lake level margins. Low archaeological site potential areas are therefore outside of these stated parameters. Specific landforms associated with medium or greater archaeological site potential are noted throughout the body of the report, including alluvial and glaciofluvial terraces, fluvial crossings, alluvial fans and floodplains, colluvial aprons, ridges, knolls, benches, saddles and/or divides, south-facing basins, and a "plateau-like" area within the Bonnington Range (Choquette 1993a:3-11). Choquette (1993a:15) notes that the western system route options are preferred over the eastern route options, since the western route options cross fewer areas of high archaeological site potential.

Brolly (1994) reports on an archaeological impact assessment conducted for MoTH, associated with the proposed Brilliant Interchange east of Castlegar. A total of twenty-one rock cairn features were located within, or adjacent to, the Brilliant Interchange right-of-way. A number of these cairn features had been previously disturbed and/or destroyed through other land-altering activities. These cairn features overlook the confluence of the Kootenay and Columbia Rivers.

Balcolm (1995) reports on an impact assessment conducted for several residential subdivisions within and adjacent to the municipality of Castlegar. Archaeological site DhQj-21 was revisited and the four cultural depressions at the site were shovel tested; however, no archaeological concerns were noted during the one-day field inspection.

5.5.3 Slocan River, Kootenay River, and Slocan Lake

A brief letter report by French (1 972) discusses the results of a one-day boat survey of the lower portions of Slocan Lake (south of New Denver). Ten pictograph sites, two precontact lithic scattens, and one pithouse village were recorded. All but one of these sites were located on the west shone of Slocan Lake.

French (1973) reports on salvage excavations at DiQi-l. a deeply stratified site located on a small island in the middle of the Kootenay Riven, approximately eight km downstream from Nelson. Prior to salvage excavations commencing, a number of private collections with various projectile point types and several microblade cores from the immediate vicinity were examined. Seven 1x2 m squares and one 1xl m square were excavated in 10 cm levels, with all matrix screened through 1/4" mesh (French 1973:7). Ungulate skeletal remains (long bones, vertebra, ribs, and a sternum) were recovered in levels I and 2 (0-20 cm) (French 1 973:9). Two possible hearths were recorded, associated with fire-broken rock and calcined bone (French 1973:9).

Four cultural components were identified at DiQi-1 (French 1 973:1 1). Components 1, 2, and 4 were recorded from the eastern portion of site, with Component 3 found in isolation in the northern section. Component 1 projectile points indicate small to medium-sized side notched projectile points and small to medium-sized stemmed and shouldered projectile points (i.e., Kamloops affiliation; Richards and Rousseau 1 987:44) while Fig. 6d and e suggest Plateau horizon associations (Rousseau I 982:41 ; Richards and Rousseau I 987:35). Component 2 contained unifacial and bifacial scrapers and one microblade. Component 3 held high concentrations of artifacts and debitage, including three microblades. Component 3 projectile points (French 1 973:1 4, Fig. 6h and 6i) indicate Shuswap affiliations, while Fig. 6j indicates a Plateau horizon association (Rousseau I 982:41 ,46; Richards and Rousseau 1987:26,35). French (1973:1 9-20) suggests a ternporal association of 2,1 00 to 3,000 B.P. for the Component 3 microblade assemblage. This is consistent with the projectile point affiliations noted by Rousseau (1982), Richards and Rousseau (1 987), and French (1 996 pers. comm.; cf. Choquette 1 996:48). Component 4 was poorly defined.

Galvin (1 977) provldes a summary of a salvage excavation at DiQi-2, conducted as a result of a proposed bridge realignment at Taghum, approximately 10 km west of Nelson. The site, consisting of three cultural depressions, had been previously impacted by reservoir inundation; the largest was still underwater during the field inspection (Galvin 1977:5). Excavations were conducted in 5 cm arbitrary levels by trowel and shovel, and all matrix was screened through 1/4" mesh. No profiles were drawn due to the rising reservoir pondage (Calvin 1 977:6). Lithic artifact classifications were morphological and metrical, though inferences concerning use and function are discussed (Calvin 1977:7-9). The assemblage included Formed Bifaces (n=7, projectile points, biface tips, and a biface preform); Unformed Bifaces (n=7, unilateral bifaces, chipped bifaces, bilateral bifaces); Unifaces (n=3, unilateral and trilateral); Cores (n=3); and Hammerstone (n=1). Dark charcoal staining and fire broken rock concentrations were noted in the centres of the two smaller cultural depressions; however, C14 samples were not collected due to possible contamination. Galvin (1977) associates DiQi-2 with the Deer Park Phase (ca. 3,200 to 2,400 B.P.).

Rousseau and Richards (1980) present a brief summary of archaeological impact assessment studies conducted for proposed developments associated with MoTH, Regional Districts, Parks and Outdoor Recreation, BC Forest Service, First Nations, and private clients throughout the province. Areas examined within the AFD included the Nakusp Hotsprings Road, Monashee Pass, and Red Mountain Road near Silverton, for which no archaeological sites were recorded.

Eldnidge (1981:1) reports on the 'Slocan Valley Land Use Study' which was designed to "facilitate land use planning and resource management decisions" regarding precontact and histonic sites in the Slocan Valley. The survey and testing methodology employed for precontact archaeological sites in the Slocan Valley was targeted at the valley bottom, using a simple random quadnat sample (500m x 500m x 303 quadnats) of which 19 were evaluated (i.e., 6.3%; Eldnidge 1981:33). A total of three precontact archaeological sites were recorded from the 19 surveyed quadnats, producing an estimate between 12 and 115 precontact archaeological sites within the Slocan Valley (mean=47.8; Eldnidge 1981:40). Three precontact pithouse village clusters were also identified at Vallican, Lemon Creek, and the Slocan River and Kootenay River confluence (Eldnidge 1981:42-43). Eldridge (1981 34,48) also conducted a judgmental survey of upland areas in Mulvey Basin and Shannon Lake, within the Valhalla Range. Two precontact archaeological sites were recorded in these alpine contexts associated with avalanche lily, large ground squirrel populations, and mountain goat habitat.

Mohs (1982) provides a detailed discussion of mitigative excavations at the Vallican site (see also Rousseau 1982; Sumpter I982; Williams 1982; Eldridge 1984). Oven an 18-week period, 43 1xlm units were excavated across the three terraces that comprise the site, at the confluence of Koch Creek and the Slocan River (Mohs 1982:10). Of 70 depressions identified during that field season, 14.3% were tested to varying degrees (Mohs I982: 15). Numerous diagnostic artifacts and twenty-two radiocarbon dates were used to establish a preliminary culturaL-historical sequence for the site: Winlaw Phase (i.e., Deer Park) (3,200 to 2,400 B.P.); Vallican Phase (2,400 to I,250 B.P.); and Slocan Phase (1,250 to 200 B.P.) (Mohs 1982:93-101; see Section 5.4.3, above). This schematic was later modified and refined by Eldnidge (1984). Mohs (1982:210) also notes a decrease in pithouse diameter between the Deer Park and Vallican Phases that may be indicative of changing residential settlement patterns. The most intensive use of the Vallican site appears to have occurred during the Slocan Phase (Mohs I982:213).

Rousseau (1982) discusses the results of an analysis on lithic tools and debitage recovered from DjQj-1 (Vallican). It is a thorough discussion of lithic tool types both within, and adjacent to, the study area (Rousseau I982:8-10). His approach, while essentially "descriptive and interpretive", provided a basis for the integrative cultural-historical scheme for the Vallican site (Rousseau 1982:1,1I-14), summarized in Section 5.1.4, above. A very detailed classification scheme for lithic tool types is provided from a morpho-technological perspective (Rousseau 1982:9-10); however, debitage is only classified according to lithic raw material type and average flake weight (Rousseau 1982:8). Lithic materials were classified according to pre-established types (see Choquette 1980-1981), as well as by colour and texture into the subcategories of Purcell Silicieous Siltstone (tourmalinite), schistose mica quartzite, Kootenay Argillaceous chert, multicolouned chalcedonies, lop of the World Chert, Golden Montana Chert, Etherington Chert, crystalline quartz, quartzite, and obsidian (cf. Choquette I984 pens. comm. in Eldnidge 1984:11-12).

Sumpter (1982) presents a summary of the human skeletal remains recovered from the Vallican site (DjQj-1). A total of six individuals in five burials were recorded from the upper terrace at Vallican (Sumpter I982:3,6). For the most part "the human osteological remains recovered were either disturbed, fragmentary or poorly preserved" (Sumpter I982:6). Three of the individuals were fetal or infant, two were of middle adulthood, and one was in late adulthood (Sumpter 1982:7). Burial I is of a young infant (3 years of age), facing south (Sumpter I982:7). Burial 2 represents two individuals: a two year old and a fetus (Sumpter I982:9). Both were flexed, with the infant on top of the fetus. Due to the inclusion of high frequencies of copper grave goods (and other associated grave goods) with the upper individual (2a), soft tissue preservation was excellent. Burial 2a displayed extensive green copper staining around the foramen magnum (from a copper tube pendant necklace [Sumpter1981:11), and on the majority of the post-cranial elements that were necovered. Burial inclusions recovered from Burial 2a included copper plates (n=4), brass buttons (n=9), brass rings (n=3), 138 copper tube pendants (necklace), 1953 historic glass trade beads (8 strands), 591 dentalia shell pendants, 59 elk incisor and canine tooth pendants, perishable exampies of cordage, plant fibre, hardwood stick fragments covered with red and yellow ochre (n=3), deer skin hide garments in which the individuals were buried, and marten skin on which the above artifacts were attached or placed (Sumpter I981:12,23-44). Human, horse, deer, and marten hair were also recovered (Sumpter 1981:43). Burial 2b was found directly beneath 2a. The body was originally wrapped in a deerskin, lying on its back in a flexed position, with the head oriented towards the north (Sumpter 1981:12-13). Moderate green staining originating from Burial 2a was noted. Artifacts associated with 2b included I49 small blue and white historic trade beads, and a wristlet of four dentalia shell beads (Sumpter 1981:16). Burial 3 was that of a middle-aged adult of indeterminate sex (Sumpter 1981:16-17). Two side-notched projectile points, produced from grey chert and siltstone, were recovered in association with Burial 3 (Sumpter I981:44). Burial 4 was an adult of indeterminable gender (Sumpter 1981:18). Two complete triangular side-notched projectile points and the proximal portion of a stemmed pnojectile point were recovered (Sumpter 1981:19,45). Burial 5 was an adult female (Sumpter 1981:19). Two small side-notched projectile points, produced from grey brown to grey black chert, were recovered (Sumpter 1981:21,45-46). Burial 3, Burial 4, and Burial 5 were all associated with shallow oval-shaped cavit[ies] extending into a sterile sandy glacial till matrix" (Sumpter I981:17-18).

Williams (1981) discusses the faunal materials recovered from DjQj-1 (Vallican). A total of 2295 vertebrate faunal fragments were recovered, including mammals (n=2279), birds (n=5), and fish (n=11). Within the mammal category, elements from snowshoe hare, beaver, wolf or domestic dog, and deer were determined. Bird elements were restricted to long bone shaft fragments (Williams 1981:9). Fish were represented by five salmonid centra and/or tooth fragments, two calcined non-salmonid centra and 4 unidentifiable salmonid elements (Williams 1981:6-9). Invertebnate remains consisted predominantly of <u>Margaritifera falcata</u> (freshwater mussel; wt=10,748.77g), with a minor contribution of <u>Gastropoda</u> (wt=0.03g). Williams (1981:12) states that "approximately 75% by number and 54% by weight of all bone showed some degree of charring and calcining", indicating either cooking or refuse disposal (see Choquette 1990a).

Eldridge (1984) presents a synthesis of archaeological investigations at DjQj-1 (Vallican). His synthesis and redefinition of the cultural-historical sequence for the Arrow Lakes/Slocan Valley can be found in Section 5.4.1, above. Eldnidge (1984:10) notes that the majority of cultural depressions tested during excavations at DjQj-1 were of large size. Eldnidge also includes a discussion of a difference in opinion concerning lithic raw material identification at DjQj-1 by Rousseau (1982) and Choquette (1984 pers. comm. in Eldridge 1984:11-12). Rousseau (1982:15) notes that Purcell silicieous siltstone (tourmalinite) was recorded in large frequencies in the lithic raw material assemblage at the site. Choquette, "who has ne-analysed a large portion of the Vallican lithics" (Eldridge I984:11-12), suggests that the raw material identified as tourmalinite by Rousseau is an argillite 'identical' to that recovered from Kettle Falls, Washington, and which he believes has its source in the Monashee Mountains. Unfortunately, no data is presented by Choquette (1984 pers. comm. in Eldridge 1984:11-12) to substantiate this statement.

Choquette (1985) presents the results of mitigative excavations at DiQj-18, a medium-sized pithouse village site located within a residential subdivision near the confluence of the Kootenay and Slocan Rivers, at Playmore Junction. Choquette (1985:2-16,37-56) presents a model of cultural adaptation on the upper Columbia River drainage system which correlates changes in fluvial discharge over the last 5,000 years with concomitant adjustments in aboriginal adaptation. Data from mitigative excavations conducted in seven cultural depressions provided a total of eight radiocanbon dates ranging from modern to 2,500 B.P. (Choquette 1985:69-101). The majority of dates appear to cluster around 400 to 500 B.P. This, in association with the very limited artifactual remains recovered during the excavations, suggests that the occupations at DiQj-18 were short-term in nature (Choquette 1985:117).

Wilson (1987:6) describes the results of an impact assessment conducted for Northair Mines' proposed gold mine and ancillary structures between Slocan City and Silverton. The majority of in-field investigations were restricted to the level terraces proposed for the tailings pond and mill site, as these were the areas identified as having greater archaeological site potential. However, "limited subsurface testing was conducted because of the generally low heritage potential of the study area" (Wilson 1987:6). No archaeological resources were noted during the field inspection.

Choquette (1989b) evaluated I.5 km of a new road connecting existing roads via a new bridge across the little Slocan River, south of the Vallican site (DjQj-1). One ,small lithic scatter site (DjQj-4), had been previously disturbed and will be additionally impacted by construction. Choquette (1989b) recommended that road construction at this site be monitored. Mitigative excavations associated with this project are discussed in Choquette (1990a). The impact assessment methodology employed involved following behind and/or being on a grader during road construction, and then halting road construction after features were encountered. Several features, including two 'root-roasting pits' and four fire broken rock clusters were noted during the study, as were several groundstone and flaked stone artifacts. The descriptions and photographs of the 'root-roasting' features do not appear to conform to those structural criteria defined by Pokotylo and Froese (1983; cf. Choquette I990a). These pit features appear to be hearths, probably used for heating boiling stones for food preparation, as is evidenced by the presence of numerous fire broken rock fragments. The presence of similar fire-broken rock clusters and hearths within the site boundary of DjQj-1 indicate intensive food preparation (i.e., cooking and/or heating hearths) occurred at Vallican (see Simonsen 1984); similar activities were possibly occurring at DjQj-4.

A brief review of an archaeological impact assessment study conducted for the MoTH Highway 6 realignment near Summit Lake, 20 km north of New Denver is presented by Choquette (1990b). Surficial ground surface inspection and subsurface testing were employed during the impact assessment (Choquette I990b:5), with a total ofeleven shovel tests excavated. No precontact archaeological concerns were noted.

Rousseau (1991) discusses the results of an inventory and impact assessment study conducted within DL 12300, containing the northern portion of DjQj-1 (the Vallican site). The study was mltiated by the Sinixt-Arnow Lakes First Nation since the landowner wanted to resume gravel quarrying activities at the site (Rousseau 1991:1). Metal detectors, visual ground surface reconnaissance, shovel testing, and evaluative testing programs were implemented (Rousseau I991:8,12). Ninety shovel tests and two evaluative tests were dug, with cultural material recovered from thirty-nine shovel tests and both evaluative tests (Rousseau 1991:12). A total of twenty-six cultural depressions of various sizes, representing housepits, cache-pits, and root-roasting pits, were also recorded (Rousseau 1991:13-14). Rousseau (1990) agrees with Choquette (1990a) that the eastern and northeastern boundary of the gravel quarry were little utilized, since cultural materials decrease farther back from the terrace margin (Rousseau 1991:16). The results indicate that DjQj-1 extends 400 m past the northern DL 12300 boundary, and 200 m further north than the site boundary estimated by Mohs (1982) and Choquette (1990). Cultural materials recovered appear to indicate Vallican (2,400 to 1,200 B.P.) and Slocan Phase (1,200 to 200 B.P.) occupations (Rousseau 1991:21). Rousseau (1991:25-26) also recommends that a restrictive covenant be placed on this portion of DjQj-1 within DL 12300, to restrict further gravel quarry development.

5.5.4 Pend d'Oreille and Salmo Valley

Murton (1973) reports on an impact assessment study conducted within the proposed pondage area behind the 7-Mile Dam, near the confluence of the Pend d'Oreille and Columbia Rivers. A visual ground surface inspection was conducted during the impact assessment; however, no references to subsurface shovel testing are noted. Four archaeological sites (DgQi-1, 2, 3, and 5), characterized by surface collections, were recorded.

Choquette (1976) provides a discussion of various archaeological impact assessments conducted for the Inland Natural Gas East Kootenay Pipeline project. Two sites (DgQh-1 and 2), were assessed as part of the study. lest excavations were conducted at DgQh-1, a cairn south of Salmo, with one piece of debitage recovered (Choquette 1976:3).

DqQi-1 and 3, were re-assessed by Choquette (1976) in the Pend d'Oreille Valley. Following this, Pike (1976) conducted preliminary mitigative excavations at DgQi-1 and 3 within the 7-Mile Dam pondage. DgQi-1 was surface collected but not excavated due to previous extensive disturbance related to placer and hand rock mining activities (Pike 1976:1-2). Several bone fragments, including possible human rib fragments and a distal portion of a humerus were recovered. Two Ix2m test units were excavated at DgQi-3, and small amounts of butchered bone and fire-broken rock were noted over 40 m by 90 m of the site area (Pike 1976:2). Within the excavated portion, "a total of ten prehistoric artifacts, plus detritus and faunal materials, were obtained from the site" (Pike 1976:4). Chert, chalcedony, obsidian, and ned-brown basalt lithic raw material types are present (Pike 1976:4-5Y.

Roberts (1976) provides a review of an archaeological impact assessment conducted for BC Hydro along a 500 kV hydro-electnic transmission line between the Nicola Valley and Nine Mile Creek (Pend d'Oreille Valley). One archaeological site (DgQj-3), located near Fort Shepherd on the west side of the Columbia Riven and slightly north of the International Border, was noted to be in conflict with the proposed transmission line. To the east, two archaeological sites (DgQj-5 and DgQj-13), were also observed to be in conflict with the placement of the final substation for this portion of the transmission line. Salvage excavation was recommended for DgQj-3, while the remaining two archaeological sites were noted for further, more intensive survey.

Bussey (1977,1981) presents the results of mitigative excavations at DgQi-2 and 3 in the Pend d'Oreille valley as a result of the proposed BC Hydro Seven Mile Dam project. Ham and Broderick (1981) also provide a detailed analysis of faunal remains collected during these excavations. DgQi-2 appears to have been heavily disturbed through previous road building and placen mining activities, though two 1xl m excavation units returned 257 lithic artifacts and 3,015 faunal remains (Bussey 1981:17). The results of the debitage analysis at DgQi-2 indicate that secondary and tertiary lithic reduction was the dominant lithic activity occurring at the site (Bussey 1981:54,64). Lithic raw material types recovered at the two sites (Kootenay argillite, jasper, and chalcedony) may indicate connections with the East Kootenay, Columbia Plateau, and Canadian Plateau (Bussey 1977:82). Faunal material recovered from DiQi-2 was calcined and from a large ungulate (Odocoileus spp.), probably juvenile deer (Ham and Broderick 1981 :82-86). The age of the deer and the high degree of fragmentation and calcination reflect intensive marrow extraction, and suggests that occupation of DgQi-2 probably occurred in early winter (also Bussey I 981:27). After taking the faunal analysis data into consideration, Bussey believes DgQi-2 represents a fall/winter deer hunting basecamp that was probably occupied Ca. 2,400 B.P. (1 981 :64,71).

Within the same survey, Bussey tested Areas A through C at DgQi-3 (Bussey I 981:22-23). Two hearths and quantities of fire-broken rock, calcined bone, and lithics were recovered from Area A (Bussey 1 981 :22-23). Faunal remains recovered at DgQi-3 included the mammals Leponi **dae,** Muridae, IJrsidae, Mijsteidae, and Cervidae), fish (Pisces), and birds (Aves) (Ham and Broden-ick 1981 :86-89). Several portions of the site were evaluated, with Areas B and C containing 88% of all the recovered faunal material. These two areas displayed much lower burnt bone frequen-des than found at DiQi-2, ranging between 27% and 35% (Ham and Broderick 1 981 :87-92). The presence of geese elements in the faunal assemblage suggests a late fall occupation at DgQi-3 (Ham and Broderick 1981 :96-98; Bussey I 981:27-28).

Wilson (1989) reports on the results of an impact assessment conducted for three alternate transmission lines through the Pend d'Oreille valley for Washington Water Power. From this ne-view, Wilson (1 989:1 0) suggests that sites in the area should be "very small and... very thinly scat-tered". No archaeological sites were recorded during the investigation.

5.5.5 Other Areas

Bates and McNath (1 976) report on a brief summary of archaeological impact assessment studies conducted in regards to proposed MoTH developments in the Nelson Highways Regions. Areas evaluated within the study area included the Nakusp-Hot Springs Road, Burton, South Fork to Salmo, and Salmo River to Tillicum Creek. No archaeological concerns were noted.

Choquette (1993b) conducted a preliminary archaeological overview assessment for the Nel-son Forest Region. This was the first attempt to evaluate the archaeological potential of the Nelson Forest Region at a broad, regional level (1:250,000 scale). Limited information concerning actual archaeological site distribution and/or site types within the AFD is presented during the discussion (Choquette 1993b:42). As well, the archaeological discussion, specifically the cultural-historical constructs used for describing precontact material culture appear focused on the eastern portions of the study area, i.e., the Rocky Mountains, Rocky Mountain Trench, and Purcell mountains, with discussions presented for the western portion of the area being more limited. However, as Cho-queUe (1 993b:62) notes, the level and depth of archaeological research also follows a similar east-west dine, with more archaeological research having been conducted in the eastern portions of the Nelson Forest Region. One major limitation associated with the Choquette (1 993b) overview assessment is that the 1:250,000 archaeological potential maps are lacking from the document. The results and recommendations related to this assessment (Choquette 1993b) are presented in Section 5.7.1, below.

5.5.6 Discussion

An evaluation of the majority of previous archaeological mitigative excavations, overview assessments, and impact assessment reports for the AFD study area indicate that archaeological resource management activities were, and continue to be, implemented mainly from implicitly defined methodological and/or theoretical penspectives (see Choquette 1993; 1996b for an intensive discussion of this problem). Except for Turnbull (1974,1 977), Mohs (1982), Eldnidge (1 984), and Choquette (1984, 1985, 1993), relevant geomorphology, biogeography, palaeoecology, ethnographic adaptive patterns, and previous archaeological constructs relevant to the study area have not been explicitly developed and/on incorporated to any substantial degree for useful archaeological site discovery and/or site interpretation purposes.

The lack of involvement and consultation with aboriginal communities who have asserted an interest in the study area (e.g., the Ktunaxa - Kinbasket Tribal Council and Sinixt - Arrow Lakes First Nation) was also noted in the majority of the mitigative excavations, overview assessments, and impact assessment reports under review (see Choquette 1993; cf. Rousseau 1991).

5.6 Types, Frequency, Size, and Distribution of Recorded Archaeological Sites

This subsection of the report provides a summary of archaeological site attributes within the AFD area. The types of known archaeological sites are discussed, as well as their frequency, size, and spatial distribution. A total of two hundred and ninety-eight (298) archaeological sites were recorded within the AFD. These archaeological sites were comprised of the following seven site types: surface and subsurface lithic scatter sites (45.0%); cultural depression sites (37.6%); pictograph sites (8.4%); burial sites (6.4%); fine-broken rock concentrations (1.0%); rock cairns and/or petroforms (1.0%); and other archaeological site types (0.7%; Table 5.1).

It should be stressed at this time that the discussions concerning spatial distribution and concentration of previously recorded archaeological site types within the AFD is skewed towards where archaeological research has been undertaken in the past. This has produced a bias towards large nivenine and fluvial-oriented archaeological site types (i.e., precontact cultural depression sites predominantly associated with winter adaptations), to the detriment of archaeological sites associated with mid-altitude and upland adaptations. Therefore, these current concentrations of archaeological sites may simply be a reflection of past research biases and not actually detail the full range of aboriginal site locations and usage.

5.6.1 Lithic Scatter Sites

One hundred and thirty-four subsurface and sunface lithic scatter sites were recorded within the study area. The mean size of these archaeological site types is 17,676 m^2 (17.7 ha). Clustering of lithic scatter sites are noted in the following areas:

a) DgQj (n=10 sites), confluence of Beaver Creek and Columbia River and confluence of Pend d'Oreille River and Columbia River;
b) DhQj (n=9 sites), confluence of Kootenay and Columbia Rivers at Castlegar;
c) DiQi (n=11 sites), West Arm of Kootenay Lake above Bonnington Falls;
d) DkQm (n=12 sites), confluence of Inonoaklin River and Lower Arrow Lake;

e) DIQm (n=20 sites); confluence of Whatshan River and Lower Arrow Lake and surrounding Whatshan Lake proper; and

0 EaQl (n=1 0 sites), confluence of Arrow Park Creek (i.e., Mosquito Creek) and Lower Arrow Lake (see Figure 5.1).

Table 5.1: Previously Recorded Archaeological Site Types and Locations, AFD-AOA

Borden Number	Lithic Scatter	Cultural Depression	Pictograph	Burial	Fire -Broken Rock	Cairn/ Petroform	Other	Total
DgQh	1	1						2
DgQi	6							6
DgQj	10	3				1		14
DgQk	3	1						4
DgQl	1							1
DhQj	9	10		5	3	1		28
DhQk	1	2		1				4
DhQl				1				1
DhQn	1	1					1	3
DiQh	1		2					3
DiQi	11	1		1				13
DiQj	7	11	2	2				22
DiQk	2	4	1			1		8
DiQl	8	5	1					14
DiQm	5	11						16
DjQh	3							3
DjQi		2						2
DjQj		4						4
DjQm	1	3	1					5
DkQi	1	11	6					18
DkQj	2							2
DkQm	12	11						23
DlQi	3	2	7					12
DlQl	4	2	1	1				8
DlQm	20	17		3				40
DlQn	1							1
EaQk	1	2		1				4
EaQl	10	2		1				13
EaQm	4							4
EaQo	1							1
EbQk		2		1				3
EbQl		1	1					2
EcQk		1						1
EcQl		1	1					2
EcQm	2							2
EdQi			1					1
EdQl			1				1	2
EeQl	3	1		2				6
	134	112	25	19	3	3	2	298
	45.0	37.6	8.4	6.4	1.0	1.0	0.7	100.0

Most sites consist of surface and subsurface deposits of lithic raw material scatters, as well as charcoal, burnt and unburnt bone, hearth features, and fire broken rock, probably indicative of a short term hunting, fishing, berrying, and/or root-collecting basecamp. The lithic types encountered in these assemblages are dominated by Kootenay Argillite, with lesser concentrations of schistose mica quartzite, and various 'exotic' (i.e., non-local) cherts, chalcedonies, vitreous basalts, quartz crystal, and obsidian. Tounmalinite (i.e., Purcell silicieous siltstone), common in the Kootenay Lake Forest District, does not appear to be prevalent in AFD archaeological assemblages (see Choquene 1980-1981:32; cf. Rousseau 1982). The majority of these sites have been recorded along glaciofluvial and alluvial terraces, elevated landforms adjacent to these terraces, or near the mouths of various streams, creeks, and rivers entering the Upper and Lower Arrow Lakes, Slocan Lake, Whatshan Lake, and the Columbia, Kootenay and Slocan Rivers. It should be noted that a number of lithic scatter sites and isolated lithic finds in the AFD have also been recorded outside of the riverine, valley bottom settings, in mid-altitude and alpine/subalpine settings: DgQl-1 (880 m asl), between Rossland and Patterson; EcQm-2 (1,090 m asl), north of Fosthall Creek; and DkQj-1 (2,120 m asl) and DkQj-2 (2,360 m asl), northwest of Vallican.

5.6.2 Cultural Depression Sites

Cultural depression sites comprise 37.6% (n=112) of the total archaeological sites recorded within the AFD. The mean size of these archaeological site types is 20,399 m^2 (20.4 ha). Distinct clusters of cultural depression sites (i.e., pithouse villages and associated ancillary structures, including, but not limited to, root-roasting pits, cache pits, and hillside platforms) are located in the following areas:

a) DhQj (n=10 sites), confluence of Kootenay and Columbia Rivers at Castlegar;
b) DiQj (n=11 sites), confluence of Kootenay and Slocan Rivers surrounding the Slocan Pool;
c) D1Qm (n=1I sites), confluence of Deer Park and Cayuse Creeks with Lower Arrow Lake on the east shore and confluence of Renata and Faith Creeks on the west shore;
d) DkQi (n=1I sites), north of the confluence of Lemon Creek and Slocan River;
e) DkQm (n=11 sites), confluence of Inonoaklin River and Lower Arrow Lake; and
0 DIQm (n=17 sites), confluence of Whatshan River and Lower Arrow Lake and surrounding Whatshan Lake proper.

Together these six concentrations account for 63.4% of cultural depression sites in the AFD. Smaller concentrations of cultural depression sites (n=13, 11.6%), averaging four to five sites per Borden Block, have also been recorded at the confluence of Koch Creek and the Slocan River, and between Robson and Cayuse Creek on the north shore of Lower Arrow Lake, west of Castlegar. The majority of these sites occur along glaciofluvial and alluvial terraces near the mouths of vanous streams, creeks, and rivers entering the Upper and Lower Arrow Lakes, Slocan Lake, Whatshan Lake, and the Columbia, Kootenay and Slocan Rivers. Mitchell and Tunnbull (1968:24-25) also suggest that pithouse villages appear to have been located predominantly on the upstream portion ofthe alluvial fans in the Arrow Lakes.

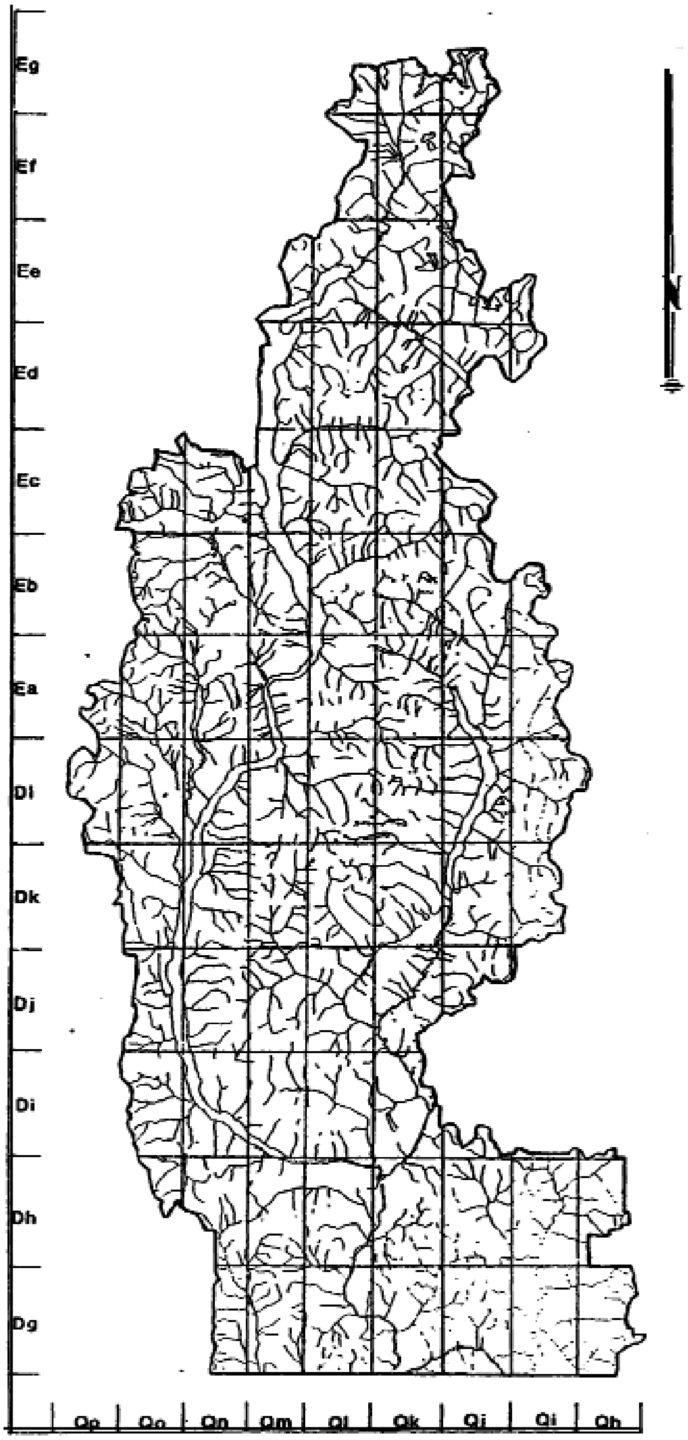


Figure 5.1 : Location of Borden Blocks in AFD, southeastern B. C.

Mohs (1982:226-233; also Rousseau 1991:13) presented an analysis of 696 cultural depressions recorded from 72 cultural depression sites in the AFD study area (average=9.7 cultural depressions/site; range from 1 to 95 cultural depressions/site). The smallest cultural depression sizes are the most numerous class of cultural depression recorded (42.5%; Table 5.2). These smaller cultural depressions (1-3 m in diameter) were probably root-roasting pits and cache pits. Those cultural depressions larger than 3 m in diameter, Mohs (1981:80) considered to be habitable; i.e., they could have been used as a semi-subterranean pithouse dwelling. The most frequently occurring size class of pithouse depressions is between 5 and 10 m in diameter, and are concentrated in the Siocan Valley and Arrow Lakes. The largest concentrations of cultural depressions greaten than 10 m in diameter also occur within the same areas. By far, the most common outline shape displayed by the cultural depressions is circular to ovate, with only 8.2% displaying a rectangular to square outline. During his analysis, Mohs (1981:81; **also Mitchell and Turnbull 1968:12;** 1969:28) also noted that two basic cultural depnession cross-section profiles were apparent: saucer-shaped and steep walled with a flat bottom.

Table 5.2: Size Distribution of Recorded Cultural Depression Site Types, AFD-AOA

Locale	Number ofCultural Depression Sites	Number of Cultural Depressions/ Site	Diameter				Outline Shape	
			1-3m	3-5 m	5-10m	>10m	Circular Ovate	Rectangular Square
Castlegar/Taghum	8	215	156	31	21	7	208	7
Slocan Valley	19	258	83	51	82	42	236	22
Arrow **Lakes**	35	149	10	12	86	41	142	7
Castlegar/Waneta	10	74	47	18	9	0	53	21
Total	72	696	296	112	198	90	639	57
		Percent	425	1&1	284	I29	91 8	82

5.6.3 Pictograph Sites

A total of 25 pictographs sites were recorded by Corner (1968), French (1972), and Baravalile (1977,1978,1979,1981) within the AFD. Of these, most are located along Slocan Lake (n=13, 52%), with the remainder distributed along the western arm of Kootenay Lake (n=2, 8.0%), the Slocan Pool at Bonnington (n=2, 8.0%), Upper and Lower Arrow Lake (n=7, 28%) and Trout Lake (n=1, 4.0%). On Slocan Lake, nine of the sites (i.e., 69.2%) were located on the west shore of the lake. With regards to pictographs located in the other areas noted above, their placement appears to indicate that northern (n=5, 41.7%) and eastenn (n=5, 41.7%) shores were prefenred. The reader is referred to Baravalle's (1977,1978,1979,1981) discussion on the identification of possible ethnicity of pictograph data in the Slocan and Kootenay Lake area.

5.6.4 Burial Sites

A total of 19 burial sites were noted within the AFD study area (see Harrison 1961; Choquette 1976;1989; McKendry and Skinner 1981; Sumpter 1982; Baker 1983). The majority of these sites are located either at the confluence of Kootenay and Columbia Rivers at Castlegar (n=7) or near the confluence of Whatshan River and Lower Arrow Lake (n=3). In addition, the location of the burial site concentration roughly corresponds to several areas displaying high frequencies of lithic **scatter and cultural depression** sites. With respect to the Brilliant area, near the confluence of the

Kootenay and Columbia Rivers, it has also been noted that human skeletal elements have been actively eroding and/or been disturbed through land-altering developments (see Choquette 1976). The majority of burial sites known in the AFD were placed as primary flexed inhumations, in shallow pits on level, sandy terrace margins on slightly elevated knolls along the terraces. A discussion of burial inclusions (i.e., 'grave goods') associated with specific sites can be found in Hannison (1 961), McKendny and Skinner (1 981), Sumpter (1982), Baker (1 983), and Choquette (1989).

5.6.5 Fire-Broken Rock Concentration Sites

Only three of these site types are recorded within the AFD study area, and all are located near the confluence of the Kootenay and Columbia Rivers. These concentrations of fire-broken rock, charcoal, and burnt and unburnt bone probably indicate that these sites were used for short term processing of floral and faunal resources associated with hunting, fishing, berrying, and/or root-collecting activities.

5.6.6 Cairn and/or Petroform Sites

Three cairn and/or petroform sites were noted within the study area. All are located near or adjacent to the confluence of the Kootenay and Columbia River in Borden blocks DgQj, DhQj, and DiQk.

5.6.7 Other Archaeological Site Types

Adjacent to the western boundary of the AFD, on the west shore of Christina Lake, is a possible red ochre quarry (DhQn-2). An aboriginal berry picking / resource area has also been recorded near the confluence of the Inonoakiin Riven and Lower Arrow Lake at EdQl-1.

5.7 Estimated Site Density Related to Archaeological Potential in the AFD

5.7.1 Previous Discussions of Archaeological Potential

Previous discussions related to defining archaeological potential for developments within the study area have, for the most part, been implicitly defined, without attempting to specifically identify the criteria used to make distinctions between low, medium, and high archaeological site potentials (Simonsen 1 92:6-8; Wilson 1987:6;1 991 a:8). This implicit 'definition' of archaeological potential appears to have been primarily derived through a combination of aerial photo interpretation, topographic selling, and inferred ethnographic adaptations (see Choquette 1974; Simonsen 1 982; Wilson 1989; 1992b; Brolly 1991).

Several researchers have used more site-specific criteria to define the relative archaeological potential of an area. Eldnidge (1 981 :242) noted for the Slocan Valley that moderate archaeological potential was associated with terraces within 1 5 m of the current river floodplain, while low anchaeological potential occurred anywhere above this elevation. Wilson (1992:1 5) suggested that distance from lakeshore might determine the archaeological potential of an area: "the shoreline and a zone encompassing the first 250 m inland might be considered as moderate heritage potential. Between 250 m and perhaps 750 m inland, potential for historic sites is moderate. Above 750 m from shone, heritage potential is considered low".

In a similar vein, general physiography and topography have also been used to define archaeological potential. Rousseau and Muir (1991:20) note that the presence of "tops and edges of tenraces, ridges, and knolls beside or near river and stream channel banks" within a development area may be indicative of medium or greater archaeological potential. Conversely, Stryd and Brolly (1990:12) identify two classes of terrain: "built-up and completely disturbed land with no potential for intact archaeological sites, and intact or less disturbed terrain with at least some potential for intact archaeological sites" (Stryd and Brolly 1990:14). Attempts at defining archaeological potential within the study area have been, for the most part, inherently static, since they have approached the landscape from a contemporary perspective, rather than perceiving the environment and human adaptation as a dynamic, inter-related process. These approaches may suffer from what Choquette (1993:81) has identified as the 'client-driven' archaeological overview assessment, impact assessment, and mitigation process, a process not usually associated with research-oriented archaeology.

Choquette (1993) recently conducted a AOA for the Nelson Forest Region (NFR) and the Commission on Resources and Environment (CORE), utilizing a more dynamic approach to visualizing archaeological site distribution within the NFR (Choquette 1980-1981:21; 1985:27; 1993:24-25). Choquette (1993:23-34) used several lines of evidence (e.g., physiography, geology, geomorphology, biogeography, palaeoecoiogy, ethnographic adaptive patterns, and previous archaeological constructs) to implicitly identify general areas of medium or greater archaeological potential during the Holocene for the entire NFR.

Landfonm-specific attributes associated with medium or greater archaeological site potential were also presented (Choquette 1993:39-40). Choquette's (1993) approach to precontact adaptation in the study area provides one of the bases upon which the present AFD-AOA has been built. Choquette (1993:36,78-79) correctly notes that archaeological site potential mapping at a 1:250,000 scale is too large of a scale for detailed archaeological site potential mapping and/or land use planning. Choquette further suggests that either I:50,000 and 1:20,000 scale mapping of archaeological site potential assessments (1993:36), in association with possible infield-testing (i.e., gnound-truthing), should be conducted in the future to more accurately delineate zones of medium or greaten archaeological site potential within the study area. The first part of this suggested approach (mapping of archaeological potential zones at a 1:50,000 scale and site-specific assessments of individual land-altering developments at a 1:20,000 scale) has been implemented in the present study (see Sections 2.3 to 2.6, above). The implementation of infield-testing (i.e., ground-truthing) of proposed archaeological site potential zones was beyond the Terms of Reference for this study and is wholly dependent upon the availability of future funding sources.

5.7.2 Discussions of Archaeological Site Density and Archaeological Site Potential

Only Choquette (1993b) has previously attempted to define potential archaeological site density for the AFD as part of the Nelson Forest Region - AOA. Using the archaeological potential assessments as identified in Section 5.4.1, above, in conjunction with previously recorded archaeological site distributions, Choquette (1993b:36,39-40) identified four categories of archaeological potential:

a) High archaeological site potential = 0.5 sites / km^2;
b) Moderate archaeological site potential = 0.2 to 0.5 sites / km2;
c) Low archaeological site potential = 0.1 or less sites / km2; and
d) Unproven archaeological site potential = 0.2 or more sites / km2.

However, as Choquette (1993b:38) notes, the numbers associated with each archaeological potential assessment were derived from regions within the NFR that had been subjected to varying levels of systematic archaeological investigation. Therefore, rather than being area specific, these figures are regional and general. Secondly, with specific regard to the AFD, no discussion of previous archaeological site spatial concentrations are presented, non is there any synthesis of archaeological site type distributions within the AFD.

With respect to Choquette's (1993b) "unproven" archaeological site potential assessment category, a brief comment is required. Choquette (1993b:36-37) describes the unproven archaeological site potential areas as:

> "[encompassing] those areas where the background information suggests that a given landscape might be assigned a higher archaeological potential classification than the immediately surrounding area, but there is not enough information to indicate what the site density could be. As such, unproven potential zones are those for which there is evidence for considering a moderate or high classification, but not enough to define it more specifically, either in terms of sites pen 1000 hectares or, in some but not all cases, in terms of exactly where zone boundaries should be placed."

This study fully acknowledges that the lack of systematic archaeological research conducted within the AFD has resulted in a fairly inadequate database for making extrapolations from the known archaeological sites to the probable potential of specific areas within the AFD to contain archaeological sites. However, according to the discussion by Choquette (1993b:36-37), it appears that those areas described as "unproven" also met the criteria for inclusion in his "moderate" or "high" category. From an archaeological resource management perspective, the assignment of "moderate" or "high" would indicate that future AIA studies would be necessary within these areas (see Archaeology Branch 1995), thereby ensuring that the potential archaeological resources within these anchaeologically "untested" areas would be appropriately protected. Those areas which Choquette (1993b) might have identified as "unproven" have probably been assessed a "medium" (i.e., moderate) archaeological potential assessment for the purposes of this study.

5.7.3 Estimated Site Density Related to Archaeological Potential in the AFD

For the AFD-AOA, it was determined that a region-specific approach to known and inferred archaeological site density should be employed. With this in mind, and given the 1:50,000 scale of mapping employed, recorded archaeological sites were tallied for each 100 ha blocks identified by UTM grids on each NTS mapsheet. These figures were used to produce a histogram of the number of archaeological sites / 100 ha (1 km^2), representing the known archaeological site density. The number of 100 ha blocks with similar numbers of recorded archaeological sites were clustered into discrete categories (Figure 5.1). We realize that these estimates are likely lower than the actual archaeological site density for any area; however, this process does provide a meaningfully-derived "number", indicative of known archaeological site distribution within the study area. Means and standard deviations were then defined for the recorded archaeological site sample and the archaeological site density figures discussed in the subsections below, generated:

Mean = 1.3 sites / 100 ha (km2) and SD = 0.7 sites / 100 ha (km2);

5.7.3.1 High Archaeological Site Density Estimates and Site Locations

High archaeological site density for the AFD-AOA has been assessed at > 2.0 archaeological sites / 100 ha (km^2). Physiographic characteristics and inferred cultural practices (see Sections 3.0, 4.0, and 5.0, above) which may be useful indicators of high archaeological site potential locations in the AFD include (see Sections 3.0, 4.0, and 5.0, above):

I) alluvial terraces, glaciolacustnine terraces, glaciofluvial terraces, and kame terraces, particularly those terraces where the confluence of two or more large fluvial or palaeo-fluvial systems meet;

II) concentrations of previously recorded archaeological sites, contemporary aboriginal transportation corridors, and landforms associated with known aboriginal use.

5.7.3.2 Medium Archaeological Site Density Estimates and Site Locations

Medium archaeological site density estimates for the AFD-AOA have been assessed between 0.6 to 2.0 archaeological sites / 100 ha (km2). Physiognaphic characteristics and inferred cultural practices which may be useful indicators of medium archaeological site potential locations in the AFD include (see Sections 3.0, 4.0, and 5.0, below):

I) strandlines, deltas, and beaches associated with proglacial and periglacial lake levels;

II) alluvial terraces, glaciolacustrine terraces, glaciofluvial terraces, and kame terraces;

III) other flat to gently sloping landforms, especially those in close proximity to:
- i) extinct and/or extant streams, rivers, ponds, marshes, and lakes;
- ii) contemporary ungulate grazing and/or browsing areas (i.e., grasslands, marshes, alpine and subalpine meadows);
- iii) inferred pne-contact ungulate grazing and/or browsing areas (i.e., grasslands, marshes, and subalpine and alpine meadows);
- iv) close proximity to contemporary floral exploitation areas; and

IV) elevated landforms (e.g., knolls, ridges, etc.), especially those “overlooking”:
- I) extinct and/or extant streams, rivers, ponds, marshes, and lakes;
- ii) contemporary or inferred pre-contact ungulate grazing and/or browsing areas (i.e., grasslands, marshes, subalpine meadows);
- iii) ungulate movement corridors.

5.7.3.3 Low Archaeological Site Density Estimates

Low archaeological site density estimates for the AFD-AOA are expected to be < 0.6 archaeological sites 1 100 ha (km2). This does not mean that archaeological sites will not be encountered in these areas. Rather, at this level of analysis, the landforms outside those described in Sections 5.7.3.1 . and 5.7.3.2, above, do not appear conducive to regular precontact aboriginal site placement, i.e., that activities within these areas that would leave behind archaeological evidence would be limited and sparse.

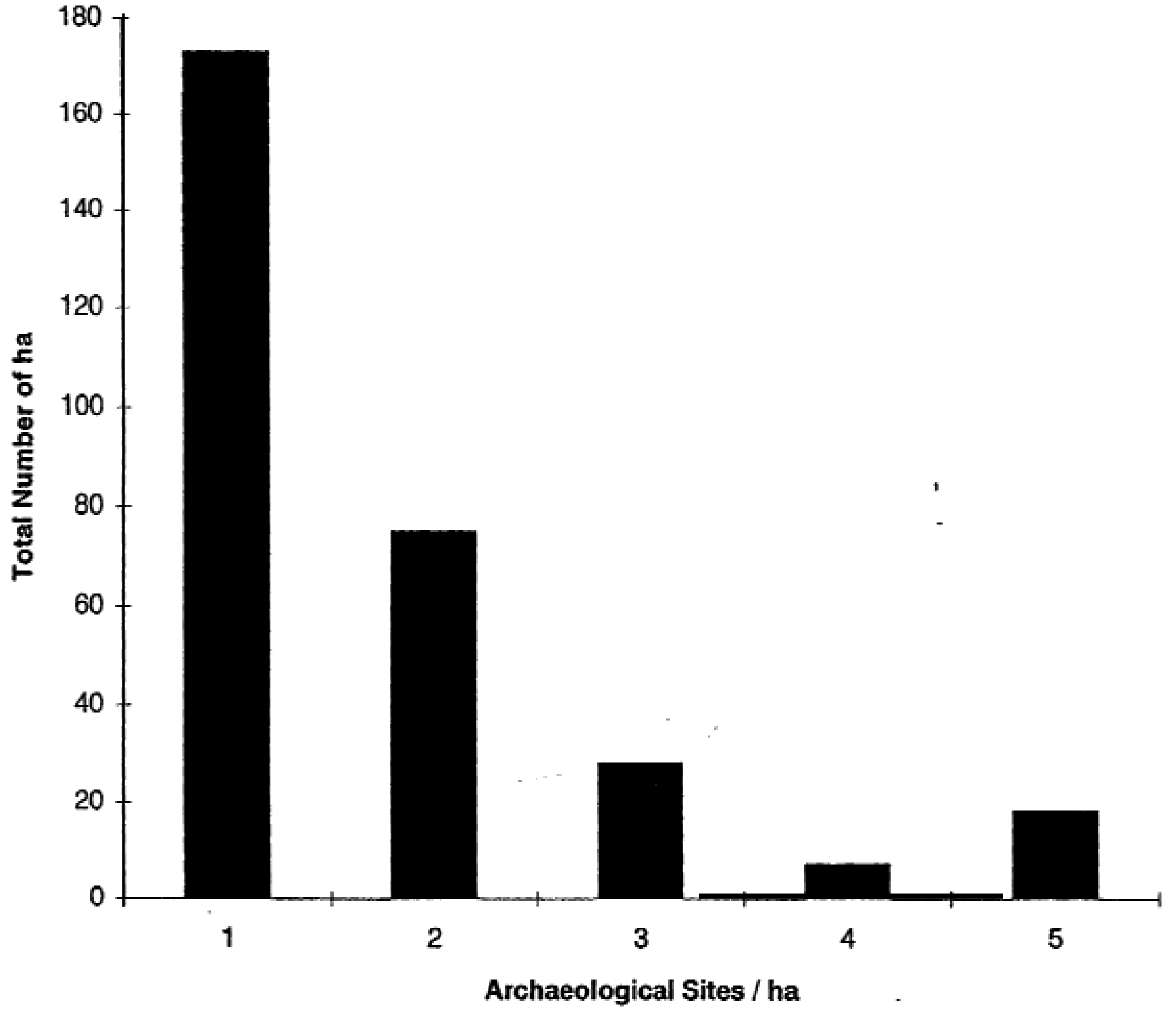


Figure 5.2: Known Archaeological Site Density, AFD.

6.0 RECOMMENDATIONS FOR THE AFD-AOA

The information contained in this archaeological overview assessment study is intended to provide a useful land resource management tool for the **AFD by** indicating which areas within the district will require future archaeological impact assessment studies. This study has attributed a medium or greaten potential for archaeological site locations to a number of areas within the AFD using the criteria defined in Section 2.4, above. Site specific assessments have been generated relating to proposed land-altering timber harvesting activities and associated access road construction in the AFD (Sections 8.5 to 8.12; Table 6.1). The remaining cuthlocks or associated access roads, or portions thereof, not discussed in the following sections have been assessed a low archaeological site potential (however, see Section 6.2, below). Sections 8.5 to 8.12 are arranged in ascending order by licensee and year of harvesting. Under the column "Archaeological Potential Location", the descriptions used indicate which boundary of the block requires assessment (i.e., east, west, north, south, central portion, all, and/or any combination of the above) on whether only the associated proposed access road(s) require evaluation.

Table 6.1: Approximate Percentage of Cutblocks Assessed a Medium or Greater Potential for Containing Archaeological Sites, AFD-AOA

Year / Licensee	95 n	95 %	96 n	96	97 n	97 %	98 n	98 %	99 n	99
ATCOLumber	43	68	36	55	30	52	17	40	24	59
BellPole	10	43	00	00	01	20	00	00	02	100
Kalesnikoff Lumber	06	60	05	50	04	67	04	67	02	40
Popeandlalbot	86	60	79	47	95	52	96	55	102	64
Riverside Forest Products	I0	59	04	40	04	57	05	62	08	100
SlocanForestProducts	27	33	18	28	29	43	33	71	23	38
Small Business	25	60	12	63	03	30	6	60	11	**58**

6.1 Recommendation No. 1

We **recommend** that those site-specific areas identified as medium or greater archaeological site potential, as noted in Sections 8.5 to 8.12, be subjected to a detailed archaeological impact assessment study (Archaeology Branch I995:10-14) prior to the initiation of any land-altering timber harvesting activities and associated access road construction. The impact assessment study results will allow for any archaeological sites identified within the proposed impact zones to be properly managed, prior to commencement of land-altering developments.

6.2 Recommendation No. 2

Any changes to proposed Licensee and **AFD** land-altering developments, as presently outlined within the **AFD Forest Development Plan (1995-1999), will require re-evaluation of the** archaeological site potentials identified in Sections 8.5 to 8.12. We recommend that changes to the **AFD Forest Development Plan be reviewed in** 1997 and in subsequent years, to define archaeological site potentials within revised impact zones prior to the initiation of any land-altering developments.

6.3 Recommendation No. 3

Until such time as a Traditional Land Use study is conducted for the AFD, future AIA and inventory studies should include consultation with aboriginal Elders about traditional land use practices. We recommend that the AFD and/or Licensees within the AFD openational area consult those aboriginal communities who have asserted a political and/or traditional interest in the AFD study area to discuss their proposed land-altering developments within the AFD, prior to the letting of archaeological impact assessment contracts.

6.4 Recommendation No.4

As the Terms of Reference for the AFD-AOA covered the period from 1995 to 1999, we recommend that a stratified sample of those cutblocks and access roads associated with the 1995 hanvesting period assessed a medium or greater archaeological site potential rating be subjected to a post-harvesting archaeological impact assessment.

6.5 Recommendation No. 5

We recommend that the AFD and/or Licensees consider including archaeological resource assessment methods within their initial Silviculture Prescription process, strictly as a proactive measure. This would decrease the probability of adverse impacts occurring to archaeological resources, since archaeological concerns would be incorporated within development of the Silvicultune Prescription, rather than being evaluated after submission ofthe Silvicultune Prescription.

6.6 Recommendation No.6

Given the incompatible nature of the I :50,000 scale archaeological potential mapping to the 1 :20,000 scale operational-level mapping of the AFD and Licensees Forest Development Plans, we recommend that future archaeological overview assessments use I :20,000 scale TRIM maps, in conjunction with in-field ground-truthing, for the determination of archaeological site potential within the AFD.

7.0 REFERENCES

Alden, W.C.
1953 Physiography and Glacial Geology of Western Montana and Adjacent Areas. U.S. Geological Survey Professional Paper 231.

Alley, N. F.
1976 The Palynology and Palaeoclimatic significance of a Dated Core of Holocene Peat, Okanagan valley, Southern British Columbia. Canadian Journal of Earth Sciences 13:1131-1144.

Ames, K., J. Green, and M. Pfoertner
1981 Hatwai (1ONP143): Interim Report. Boise State University Archaeological Report no. 9.

Anderton, 1. J.
n.d. The Geological History of Kootenay Lake. Unpublished Report on File, Selkirk College, Castlegar.

Archaeology Branch
1989 Form Guide: British Columbia Archaeological Site Inventory Form. Archaeology Branch, Ministry of Municipal Affairs, Recreation and Culture, Victoria.
1995 BritiSh Columbia Archaeological Impact Assessment Guidelines. Archaeology Branch, Ministry of Small Business, Tourism, and Culture, Victoria.

Arcas Associates
1965 Excavations at the Rattlesnake Hill Site (EeRh.61), Ashcroft, B. C. Report on File, Archaeology Branch, Victoria.

Baker, J.
1982 Keenleyside Generation Project Heritage Resource Detailed Impact Assessment. Report pn File, Archaeology Branch, Victoria.
1983 Murphy Creek Project Heritage Resources Detailed Impact Assessment. Report on File, Archaeology Branch, Victoria.

Balcolm, R.
1995 Impact Assessment of Residential Subdivisions in Castlegar. Report on File, Archaeology Branch, Victoria.

Baker, R. G.
1963 Holocene Vegetational History of the Western United States. In Late Quaternary Environments of the United Sates, Vol. 2, ed. by Hi.. Wright, Jr., pp. 109-127. University of Minnesota Press, Minneapolis.

Baravalle, V. E. R.
1977 Report on a Survey of Lower Kootenay Pictographs, Kootenay Lake, B. C. Report on File, Archaeology Branch, Victoria.
1978 Second Reporton a Survey of Lower Kootenay Pictographs, Kootenay Lake, B. C. Report on File, Archaeology Branch, Victoria.
1979 Third Report on a Survey of Lower Kootenay Pictographs, Kootenay Lake, B. C. Report on File, Archaeology Branch, Victoria.
1981 Final report on a Survey of Kootenay Lake Pictograph Sites. Report on File, Archaeology Branch, Victoria.

Bates, A., and S. McMath
1976 Department of Highways Archaeological Site Survey: Summary August 30, 1976. Report on File, Archaeology Branch, Victoria.

Baxter, G.
1961 River Utilization and the Preservation of Migratory Fish Life. Proceedings of the Institution of Civil Engineers 18:225-244.

BEAK Consultants
1983 Keenleyside Powerplant Project: Wildlife Studies. Report on File, B. C. Hydro, Vancouver.

Bell, J.
1979 The Pictographs of Slocan Lake. CRARA 77(8):23-28.

Binford, L R.
1980 Willow Smoke and Dog's Tails: Hunter-Gatherer Settlement Systems and Archaeological Site Formation. American Antiquity 45(1):4-20.

Boas, F.
1891 Linguistic Map of British Columbia, Accompanying the Sixth Report on the North-Western Tribes of the Dominion of Canada: The Shuswap. Report of the Meeting of the British Association for the Advancement of Science.

1900 Okanagan **Materials Circa I900. Boas Collection Sld. 1, American Philosophical Society Library, Philadelphia. Microfilm** A-248. Provincial Archives of British Columbia, Victoria.

1928 Map Showing Distribution of Salish Dialects, and **of Languages Spoken in the Adjoining Territory, Before 1800. Bureau of American Ethnology, 41st Annual** Report. Washington, D. C.

Bouchard, R. and D. Kennedy

1985 Lakes **Indian Ethnography** and History. Report on File, Archaeology Branch, Victoria.

Braumandi, T. F., M. P. Curran, G. O. Davis, H. J. Quesnel, G. P. Woods, O. 1. DeLong, and M. V. Ketcheson

1992 Biogeoclimatic Subzones and Variants of the Nelson Forest Region, **in A Field Guide for the Identification and Interpretation for the Nelson Forest Region, pp.** 44-199. Nelson Forest **Region, B. C. Ministry of Forests.**

British Columbia Treaty Commission

1994 Traditional Territories of British columbia First Nations. B. C. Treaty Commission, Vancouver.

Brolly, R. P.

1981 Report of the 1981 Southern Interior Survey Final Report **on Heritage Impact Assessment in the Thompson-Olcanagan and Kootenay Resource Management** Region **for the Heritage Conservation Branch.** Report on File, Archaeology Branch, Victoria.

1991a Archaeological Monitoring at Celgar Gravel Pit Near Castlegar, B.C. Report on file, Archaeology Branch, Victoria.

1991b Archaeological Impact Assessment of Six Proposed Aggregate Pits for the Celgar Pulp Mill Expansion Project. Report on File, Archaeology Branch, Victoria.

1994 Brilliant Interchange: Archaeological Impact Assessment Project. Report on File, Archaeology Branch, Victoria.

Brown, T. A., D. E. Nelson, R. W. Mathewes, J. S. Vogel and J. R. Southon

1989 Radiocarbon Dating of Pollen by Accelerator Mass Spectrometry. Quatemary Research 32: 205-212.

Brubaker, 1. B.

1986 Responses of Tree Populations to Climatic Change. Vegetatio 67:119-130.

Bryson, R. A., D. A. Baerreis and W. M. Wendland

1970 The Character of Late-Glacial and Post-Glacial Climatic Changes. In Pleistocene and Recent Environments of the Central **Great Plains, ed. by W. Dort, Jr.** and J. K. Jones, Jr., pp. 53-74. University of Kansas Press, Lawrence.

Bussey, J.

1977 Archaeological Investigations along the Pend D'Oreille River of South-Central B. C. Report on File, Archaeology Branch, Victoria.

1981 Archaeological Investigations along the Pend D'Oreille River of South-Central B. C. Heritage Conservation Branch Occasional Paper #7.

1992 Crawford Bay Bridge Project Archaeological Inventory and Impact Assessment. Report on File, Archaeology Branch, Victoria.

Campbell, S. K.

1985 Sedimentary Sequence at Excavated Sites and Regional Paleoenvironmental Reconstruction. In Summary of Results, ChiefJoseph Dam Cultural Resources Project, Washington, ed. by S. K. Campbell, pp. 149-178. Office of Public Archaeology, University of Washington, Seattle.

Carlson, R. 1.

1983 The Far West. In Early Man **in the New World, cci. by R. ShutlerJr., pp. 73-96. Sage Publications, Beverly Hills.**

1996 Introduction. In Early Human Occupation in British Columbia, eds. R. L Carlson and 1. Dalla Bona, pp. 3-10. University of British Columbia Press, Vancouver, B. C.

Carrara, P. E.

1995 A 12 000 Year Radiocarbon Date of Deglaciation From the Continental Divide of Northwestern Montana. Canadian Journal of Earth Sciences 32:1303-1307.

Carrara, P. E. and D. A. Trimble

1992 A Glacier Peak and Mount Saint Helens J Volcanic Ash Couplet and the Timing of Deglaciation in the Colville Valley Area, Washington. Canadian Journal **of** Earth **Sciences 29:2397.2405.**

Chalfant, S. A.

1974 Aboriginal Territory of the Kalispel Indians. In Interior Salish and Eastern Washington Indians, Vol. 3, ed. by D. A. Hoff. Garland Publishing, New York.

Chamberlain, A. F.
1892 Report on the Kootenay Indians of South-Eastern British Columbia. In Eighth Report on the North-Western Tribes of the Dominion of Canada. In Report of the Meeting of the British Association for the Advancement of Science, pp. 549-614.

Chance, D. H. and J. V. Chance
1977 Kettle Falls 1976, Salvage Archaeology in Lake Roosevelt. University of Idaho Anthropological Research Manuscript Series, no. 39.
1979 Kettle Falls 1977, salvage Archaeology in Lake Roosevelt. University of Idaho Anthropological Research Manuscript Series, no. 53.
1982 Kettle Falls: 1971 and 1974, Salvage Archaeology in Lake Roosevelt. University of Idaho Anthropological Research Manuscript Series, no. 69.

Chance, D. H. and J. V. Chance
1985 Kettle Falls: 1978, Further Archaeological Excavations in Lake Roosevelt. Universily ofIdaho Anthropological Research Manuscript Series, no. 84.

Chance, D. H., J. V. Chance, and J. Fagan
1977 Kettle Falls: 1972, Salvage Archaeology in Lake Roosevelt. University of Idaho Anthropological Research Manuscript Series, no. 31.

Charlton, A. S.
1974 Archaeological investigations at Columbia Gardens (DgQj 1). Report on File, Archaeology Branch, Victoria.

Chatters, J. C. and K. A. Hoover
1992 Response of the Columbia River Fluvial System to Holocene Climatic Change. Quaternary Research 37:42-59.

Choquette, W. T.
1972 Archaeological 5ite Survey in the Kootenay River Drainage Region. Report on File, Archaeology Branch, Victoria.
1974 Heritage Impact Assessment - Proposed Inland Natural Gas - East Kootenay Transmission Line Link - Salmo to Rossland Section (Mile Posts 69 - 101). Report on File, Archaeology Branch, Victoria.
1976 Archaeological Site Inventories in the East Kootenay Region Summer *1975.* Report on File, Archaeology Branch, Victona.
1977 Field Report, Kootenay Archaeological Survey, 1977 Season. Report on File, Archaeology Branch, Victoria.
1980-81 The Role of Lithic Raw Material Studies in Kootenay Archaeology. B. C. Studies 48:21-36.
1982 An Early Culture Complex in the Kootenay Region. Unpublished Paper Presented at the 40th Annual Plains Conference, Calgary.
1983 Results of Archaeological Salvage Excavations at the LeVesque Site, DgQa-6, Moyie Valley. Report on File, Archaeology Branch, Victoria.
1984 A Proposed Cultural Chronology For the Kootenay Region. In Cultural Resources Investigations of the Bonneville Power Administratlon's Libby Integration Project, Northern Idaho and Northwestern Montana, ed. by S. Gough, pp. 303- 316. Eastern Washington University Reports in Archaeology and History No. 100-29.
1985 Salvage Excavations at DiOj-18: A Test of a Model of Upper Columbia Basin Human Settlement Dynamics. Report on File, Archaeology Branch, Victoria..
1987 A Palaeoclimatic Model for the Upper Columbia River Drainage Basin. In Man and the Mid-Holocene Climatic Optimum, ed. by N. McKinnon and G. Stuart, pp. 31 1-344. The Students' Press, Calgary, Alta.
1989a Results of Reconnaissance of DhQj 5, Goloff Point Near Castlegar, B.C. Report on File, Archaeology Branch, Victoria, B. C.
1989b Heritage Resource Impact Assessment of Proposed Highway and Bridge Construction Near the Confluence of the 51ocan and Little Slocan Rivers, B. C. Report on File, Archaeology Branch, Victoria . B. C.
1990a Results of Archaeological Monitoring of Road Construction, Little Slocan River Crossing, B. C. Report on File, Archaeology Branch, Victoria.
1990b Archaeological Impact Assessment of Two Kootenay Region Highways Projects, 1990. Report on File, Archaeology Branch, Victoria.
1993a Heritage Resource Overview and Assessment of BC Hydro's Lower Columbia Development Transmission Line Routing Options. Draft Report on File, Archaeology Branch, Victoria.
1993b Archaeological Resource Overview for the Nelson Forest Region. Report on File, Archaeology Branch, Victoria.
1995 Heritage Resource Overview Assessment of BC Hydro's Proposed Tincup Rapids Channel Excavation, Columbia River, Southeastern British Columbia. Draft Report on File, Archaeology Branch, Victoria.
1996a Early Post-Glacial Habitation of the Upper Columbia Region. In Early Human Occupation in British Columbia, ed. by R. L. Carlson and L. Dalla Bona, pp. 45-50. University of British Columbia Press, Vancouver, B. C.
1996b Case Histories of Archaeological Projects Carried Out by I. R. Wilson and Associates in Ktunaxa Traditional Territory. Unpublished Manuscript in Possession of Author, KWHC.

Choquette, W. T. and C. Holstine
1982 A Cultural Resource Overview of the Bonneville Power Administration's Proposed Garrison - Spokane 500 kv Transmission Line. Bonneville Cultural Resources Group, Eastern Washington University Reports in Archaeology and **History No. 100** . 20.

Clague, j. J.
1975 Late Quatemary Sediments and Geomorphic History of the Southern Rocky Mountain Trench, British Columbia. Canadian Journal of Earth Sciences 12:595-605.
1981 Late Quaternary Geology and Geochronology of British Columbia Part 2: Summary and Discussion of Radiocarbon Dated Quaternary History. Geological Survey of Canada Paper 80 - 35.
1982 Minimum Age of Deglaciation of Upper Elk Valley, British Columbia: Discussion. Canadian Journal of Earth Sciences 19:1099-1100.

Clague, J. J.
1989 Cordilleran Ice Sheet. In Quatemary Geology of Canada and Greenland, ed. by R. J. Fulton, pp. 40-41 . Geological Survey of Canada, Geology of Canada No. 1.

Clague, J. J., J. E. Armstrong and W. H. Mathews
1980 Advance of the Late Wisconsin Cordilleran Ice Sheet in Southern British Columbia Since 22,000 Yr B.P. Quaternary Research 13:322-326.

Clague, J. j. and S. G. Evans
1994 Formation and Failure of Natural Dams in the Canadian Cordillera. Geological Survey of Canada Bulletin 464.

Commission on Resources and Environment
1994 West Kootenay-Boundary Land Use **Plan. Commission on Resources and Environment, Victoria.**

Cowen, I. M., and C. J. Guiguet
1965 The Mammals of British Columbia. Handbook No. 11. B. C. Provincial Museum, Victoria.

Curran, M. P., T. F. Braumandl, and O. L. DeLong
1992 Climatic Regions and Biogeoclimatic Zones of the Nelson Forest Region, in A Field Guide for the Identification and Interpretation for the Nelson Forest Region, pp. 29-43. Nelson Forest Region, B. C. Ministry of Forests.

Dawson, G. M.
1890 Geological and Natural History Survey of Canada, Annual Report 1888-1889. Vol. 4. William Foster Brown & Company, Montreal.
1892 Notes on the Shuswap People of British Columbia, in Proceedings and Transactions of the Royal Society of Canada for the Year 1891, Vol. 9:3-44, Montreal.

Denton, G. H. and W. Karlén
1973 Holocene Climatic,Variations – Their Pattern and Possible Cause. Quaternary Research 3:155-20g.

Driver, J. C.
1996 The Significance of the Fauna From the Charlie Lake Cave Site. In Early Human Occupation **in British Columbia, ed.** by R. 1. Carlson and L Dalla Bona, pp. 21-28. University of British Columbia Press, Vancouver, B. C.

Duff, T. and M. Rousseau
1978 A Cultural Heritage Inventory and Impact Assessment of Provincial Parks in the Southern **Interior of B.C.** Report on File, Archaeology Branch, Victoria.

Eldridge, M.
1981 The Heritage Resources of the Slocan Valley: An Inventory and Evaluation. Report on File, Archaeology Branch, Victoria.
1984 **Vallican Archaeological Site (DjQj-1): A** Synthesis and Management Report. Report on File, Archaeology Branch, Victoria.

Elmendorf, W. W.
1935-36 Lakes Salish Ethnographic Notes. Unpublished Manuscript, University of Wisconsin, Madison.

Fahey, J.
1986 The Kalispel Indians. University of Oklahoma Press, Norman.

Fedje, D. W.
1986 Banff Archaeology 1983-1985. In Eastern Slopes Prehistory Selected Papers, ed. by B. Ronaghan, pp. 25-62. **Archaeological Survey of** Alberta Occasional **Paper 30. Edmonton.**
1996 Early Human Presence in Banif National Park. In Early Human Occupation in British **Columbia, ed. by R. L Carlson and** L.. Dalfa Boria, pp. 29-34. University of British Columbia Press, Vancouver, B. C.

Fergusson, A. and L V. Hills
1985 Part 2: A Palynological Record, Upper Elk Valley, British Columbia. In Climatic Change in Canada 5, Critical Periods in the Quaternary **Climatic History of Northern North America, ed. by C. R. Harington. Syllogeus 55:355-369.**

Fergusson, A. and **C. A. Osbom**
1981 Minimum Age of Deglaciation of the Upper Elk Valley, British Columbia. Canadian Journal of Earth Sciences 18:1635-1636.

Fladmark, K. R.
1996 The Prehistory of **Charlie Lake Cave. In Early Human Occupation in** British **Columbia, ed. by R. L Carlson and L.** Dalla Bona, pp. 11-20. University of British Columbia Press, Vancouver.

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):371-84.

French, D. E.
1972 Survey of Slocan Lake. Report on File, Archaeology Branch, Victoria.
1973 Nelson Archaeological Project: Results of the Investigation of a Stratified Campsite, DiQi-1, Near Taghum, B. C. Report on File, Archaeology Branch, Victoria.

Fulton , R. J.
1971 Radiocarbon Geochronology of Southern B.C. Geological Survey of Canada Paper 71-37.
1984 Quaternary Glaciation, Canadian Cordillera. In Quatemary Stratigraphy of Canada - A Canadian Contribution to the IGCP Project 24, ed. by R. J. Fulton. Geological Survey of Canada Paper 84-10.

Fulton, R. J. and R. A. **Achard**
1985 Quatemary Sediments, Columbia River Valley, Revelstoke to the Rocky Mountain Trench, .British Columbia. Geological Survey of Canada Paper 84-13.

Fulton, R. J. and C. W. Smith
1978 Late Pleistocene Stratigraphy of South - Central British Columbia. Canadian **Journal of Earth Sciences 15(6):971 -980.**

Fulton, R. J., **B. G. Warner, H.** J. Kubiw and R. A. Achard
1989 Geology and Paleoecology of Early Holocene Lacustrine Deposits in the Columbia River Valley Near Fauquier, Southern British Columbia. Canadian Journal of Earth Sciences 26:257-265.

Galvin, E.
1977 Taghum Bridge Site (DiQi-2): Salvage Excavation and Preliminary Analysis. Report on File, Archaeology Branch, Victoria.

Gough, Stanley (ed.)
1984 **Cultural Resource Investigations of the Bonneville Power Administration's Libby Integration Project, Northern Idaho and Northwestern Montana. Archaeological and Historical Services, Eastern Washington University Reports,** Archaeology and History 100-29.

Gryba , E.
1983 Sibbald Creelc **I1,000** Years of **Human** Use **of the Alberta Foothills. Archaeological Survey of Alberta Occasional Paper** 22, Edmonton.
1985 Evidence of the Fluted Point Tradition in Alberta. In Contributions to Plains Prehistory: The 1984 Victoria Symposium, ed. by D. Burley, pp. 22-38. Archaeological Survey of Alberta Occasional Paper 26, Edmonton.

Ham, L., and M. Broclerick
1981 Appendix 1: Analysis of Faunal Remians from DgQi-2 and DgQi.3, Pend D'Oreille River, British Columbia. In Archaeological Investigations **Along the Pend D'Oreille River of South-Central B. C., ed. byi. Bussey, Heritage Conservation** Branch Occasional Paper #7.

Harrison, P. D.
1961 Report **on the Archaeological Survey of the High Arrow Reservoir. Report on File, Archaeology Branch, Victoria.**

Haugen, L., and E. Galvin
1**977** **Ministry of Highways Archaeological 5urvey: Southern Interior Highways Crew (June** 1 - August 31, 1**977) Final Report.** Report on File, Archaeology Branch, Victoria.

Hebcla, R. J.
1982 Postglacial History of Grasslands of Southern British Columbia and Adjacent Regions. In Grassland Ecology and Classification, Symposium Proceedings, **June 1982, ed. by A. C. Nicholson, A. McLean and T.E. Baker, pp. 157-194. B.C. Ministry of Forests Productions, Victoria.**
1983 Postglacial Environment History, Highland Valley and Surrounding Areas. In Bethlehem Copper Lake Zone Development **Heritage Mitigation Study, by A. H. Stryd and S. Lawhead, Appendix II. Report on File, Archaeology Branch, Victoria.**
1995 British Columbia Vegetation and Climate HistoryWith Focus on 6 KA B.P.. Géographie Physique et Quatemaire 49:55-79.

Heusser, C. J.
1956 Postglacial Environments in the Canadian Rocky Mountains. Ecological Monographs 26:263-302.

Hoar, W. S.
1953 Control and Timing of Fish Migration. Biological Review 28:437-452.

Holland, S. S.
1976 Landforms of B. C. B. C. Department of Mines and Petroleum Resources Bulletin 48, Victoria.

James, M.
1995 Unpublished Manuscript in possession of author, KWHC.

Jungen, J. R.
1980 Soil Resources of the Nelson Map Area (82 F). British Columbia Soil Survey No. 28, Resources Analysis Branch Bulletin No. 20. Ministry of Environment, Kelowna, B. **C.**

Knox, J. C.
1983 Responses of RiverSystems to Holocene Climates. In Late Quaternary Environments of the United Sates, **Vol. 2, ed.** by H.E. Wright, Jr., pp. 26-41. University of Minnesota Press, Minneapolis.

Kurtén, B. and E. Anderson
1980 Pleistocene Mammals of North America. Columbia University Press, New York.

Lindburg, D. G.
1962 Social Organization of the Kutenai. Unpublished Master's Thesis, Dept. of Anthropology, University of Chicago.

Lowdon, J. A. and W. Blake, Jr.
1970 Geological Survey of Canada Radiocarbon Dates IX. Radiocarbon 12:46-86.
1976 Geological Survey of Canada Radiocarbon Dates XVI. Geological Survey of Canada Paper 76-7.
1979 Geological Survey of Canada Radiocarbon Dates XIX. Geological Survey of Canada Paper 79-7.

Mack, R. N., N. W. Rutter, V. ***M.*** Bryant and S. Valastro
1978a Late Quaternary Pollen Record From Big Meadow, Pend Oreille County, Washington. Ecology 59(5):956-966.
1978b Late Quatemary Vegetation History at Waits Lake, Colville River Valley, Washington. Botanical Gazette 139(4):499-506.

Mack, R. N., N. W. Rutter and S. Valastro
1978 Late Quaternary Record From the Sanpoil River Valley, Washington. Canadian Journal of Botany 56:1642-16S0.
1979 Holocene Vegetation History of the Okanagan Valley, Washington. Quaternary Research 12:212-225.

Mathewes, R. W.
1985 Paleobotanical Evidence for Climatic Change in Southern British Columbia During Late-Glacial and Holocene Time. In Climatic Change in Canada 5, ed. by C. R. Harrington. Syllogeus 55:397-422.

May, J., and J. Bussey
1974 Dept. of Highways Archaeological Survey. Report on File, Archaeology Branch, Victoria.

McDonald, J. D.
1995 The Story in the Rocks: **The Geology of Rossland, British Columbia. Rossland Historical Museum Association.**

McKendry, J. and M. Skinner
1981 Archaeological **Skeletal Remains H. Robison Residence Goloff Point, Brilliant, B.C. Report on File, Archaeology Branch,** Victoria.

McMurdo, J. D.
1981 The Heritage Resources **of the Slocan Valley: A Summary Report.** Report on File, Archaeology Branch, Victoria.

Mehringer, P. T., Jr.
1988 Weapons Cache of Ancient Americans. National Geographic 174:500-503.

Mehringer, P. T., Jr. and F. FoitJr.
1990 Volcanic Ash Dating of the Clovis Cache at East Wenatchee, Washington. Natural Geographic Research 6:495-503.

Mierendorf, R. R.
1983 Fluvial Processes and Prehistoric Settlement Patterns Along the Rocky Reach of the Columbia River. In Cultural
Resources of the Rocky Reach of the Columbia River, Volume 2, ed. by R.F. Schalk and R.R. Mierendorf, pp. 663-647. Center for Northwest Anthropology, Project Report No. 1, Washington State University, Pullman.
1984 Landforms, Sediments, and Archaeological Deposits Along Libby Reservoir. In Environment, Archaeology, and **Land** Use Patterns in the Middle Kootenai River Valley, ed. by Alston Thorns, pp. 107-136. Washington State University, Center for Northwest Anthropology, Cultural Resources Investigations for Libby Reservoir, Lincoln County, Northwest
Montana, Project Report No. 2.

Ministry of Environment
1995a **Ungulate Winter Range: Southwestern Kootenays (map). Ministry of Environment, Nelson,** B.C
1995b Mountain Caribou Habitat Southwestern Kootenays **(map). Ministry of Environment, Nelson, B. C**
1995c Fisheries Stream Classes: Southwestern Kootenays (map). Ministry of Environment, Nelson, B.C

Ministry of Environment, Lands and Parks
1990 Conservation **of Grizzly Bears in British Columbia: Background** Report. Ministry of Environment, Land, and Parks, Victoria, B.C

Mitchell, D. H., and C. J.Turnbull
1968 Archaeological Investigations, **Summer, 1967. Report on file, Archaeology Branch, Victoria.**
1969 Archaeological Investigations, Summer 1968. Report on file, Archaeology Branch, Victorin.

Mohs, G.
1977 Arrow Lakes Reservoir Region Post **Inundation Studies of the Archaeological Resource. Report on file, Archaeology** Branch, Victoria.
1982 The Vallican Archaeological Project, Heritage Site DjQj-1 . Report on File, Archaeology Branch, Victoria.

Mobs, G., and B. Hoy
1974 B. C. Hydro Archaeological Survey. Report on File, Archaeology Branch, Victoria.

Mullineaux, D. R., R. E. Wilcox, W. F. Edaugh, R. Fryxell and M. Rubin
1978 Age of the Last Major Scabland Flood of the Columbia Plateau in Eastern Washington. Quaternary Research 10:1 71 -1 80.

Murton, P.
1973 Report of an Archaeological **Survey of Proposed B. C. Hydro Generating Sites at Seven Mile (Pend d'Oreille R.), High** Reveistoke (Columbia River) **and Site One (Peace River). Report on File, Archaeology Branch, Victoria.**

Nagorsen, D.
1990 The Mammals of British Columbia: A Taxonomic Catalogue. Royal British Columbia Museum Memoir No. 4. Royal
British Columbia Museum and Wildlife Branch, Ministry of Environment, Victoria, B.C

Patton, D. R.
1992 Wildlife Habitat Relationships in Forested Ecosystems. Timber Press, Portland.

Peterson G. R. and I. L Withler
1965 Effects **on** Fish and Game Species **of Development of Arrow Lakes Dam for HydroElectric** Purposes. Management Publication No. 9. British Columbia Fish and Wildlife Branch, Victoria.

Pike, J.
1976 The 1976 Pend D'Oreille Archaeological Project. Report on File, Archaeology Branch, Victoria.

Pokotylo, D. L and P. D. Froese
1983 Archaeological Evidence for Prehistoric Root Gathering on the Southern Interior Plateau of British Columbia: A Case Study From Upper Hat Creek Valley. Canadian Journal of Archaeology 7:127-157.

Porter, S. C. and G. H. Denton
1967 Chronology of Neoglaciation in the North American Cordillera. American Journal of Science 265:177-210.

Provincial Archives
1952 Kootenay. British Columbia Heritage Series 1(8), Victoria.

Pryce, P.
1995 Keeping the Lakes' Way: Reburial and the Re-creation of a Moral World among an Invisible People. Unpublished Manuscript, Department of Anthropology, University of Toronto, Toronto.

Ray, V. F.
1936 Native Villages and Groupings on the Columbia Basin. Pacific Northwest Quarterly 27:99-1 52.
1939 Cultural Relations of the **Plateau of Northwestern America. Publications of the Frederick Webb Hodge Anniversary** Publication Fund. Vol. 3, Los Angeles.
1975 Final Report Colville Interpretive Theme, Volume **Two. Prepared for the Colville Confederated Tribes, Nespelem,** Washington.

Richards, T. H., and M. K. Rousseau
1987 Late Prehistoric Cultural Horizons on the Canadian Plateau. Department of Archaeology, Simon Fraser University Publication **No. 16, Bumaby.**

Richmond, G. M., R. Fryxell, G. E. Neff, and P. L. Weis
1965 The Cordllleran Ice Sheet of the Northern Rocky Mountains and Related Quatemary History of the Columbia Plateau. In **The Quaternary of the United States: A Review Volume of the VII Congress of the International Association for** Quaternary Research, ed. by H.E. Wright, Jr. and G. Frey, pp. 231-242. Princeton University Press.

Ritchie, J. C.
1986 Climate Change and Vegetation Response. Vegetatio 67:65-74.

Roberts, G.
1976 Archaeological Reconnaissance of the Proposed Nicola - Selkirk - Cranbrook B. C. Hydro Transmission Line. Report on File, Archaeology Branch, Victoria.

Robinson, M. and P. St. Pierre
1973 Dept. of Highways Archaeological Survey - **Final Report Summer 1973. Report on File, Archaeology Branch, Victoria.**

Rousseau, M. K.
1982 An Interpretive and Descriptive Analysis of Lithic Artifacts from 5ite DJQj-1, Vallican, Slocan Valley, British **Columbia. Report on File, Archaeology Branch, Victoria.**
1991 An Inventory and Assessment of Heritage Resources Within Lot 1**2300, Vallican Locality, Slocan Valley, Southeastern** British **Columbia. Report on File, Archaeology Branch, Victoria.**
1993 Early Prehistoric Occupation of South Central British Columbia: A Review of Evidence and Recommendations. In Changing Times: British Columbia Archaeology in the 1980s. B. C. Studies 99:140-1 83.

Rousseau, M. and R. Muir
1991 A Heritage Resourize Inventory and Impact Assessment for Ten Ministry ofTransportation and Highways Projects (1991-1992) **in the Kootenay, Cariboo-Omineca-Peace and** Thompson Highways Regions. Report on File, Archaeology Branch, Victoria.

Rousseau, M. K. and T. H. Richards
1980 Thompson - **Okanagan** - Kootenay Impact Assessment 1980: Final Report. Report on File, Archaeology Branch, Victoria.

Ruby, R. H. and **J. A. Brown**
1970 The Spokane Indians: Children of the Sun. University of Oklahoma Press, Norman.

Ryder, J. M.
1971 The Stratigraphy and Morphology of Para-Glacial Alluvial Fans in South-Central British Columbia. Canadian Journal of **Earth Sciences 8:279-298.**
1981 a Biophysical Resources of the East Kootenay Area: Terrain. British Columbia Ministry of the Environment, APD Bulletin 7.
1981 b Geology, Landiorms and Surficial Materials. In The Soil Landscapes of British Columbia, ed. by K. W. G. Valentine et al., pp. 1 1-35. Ministry of the Environment, Victoria.
1982 Surficial Geology of the Grassland Areas of British Columbia and Adjacent Regions. In Grassland Ecology and Classification, Symposium Proceedings, **June 1982, ed. by A. C. Nicholson, A. McLean and T.E. Baker, pp. 63-87. B.C.** Ministry of Forests Productions, Victoria.

Sanger, D.
1969 Cultural Traditions in the Interior of British Columbia. Syesis 2:189-200.

Schaeffer, C. E.
n.d. Unpublished Field Notes. On file, Glenbow Alberta Institute, Calgary.
1940 The Subsistence Quest of the Kutenai. Unpublished Ph.D. Dissertation, University of Pennsylvania.

Schalk, R. F.
1977 The Structure of an Anadromous Fish Resource. In For Theory Building in Archaeology: Essayson Faunal Remains, Aquatic Resources, Spatial Analysis, and Systemic Modeling, ed. L.R. Binlord, pp. 207-249. Academic Press, New York.

Simonsen, B. O.
1982 Heritage Resources Overview Stud)r. Proposed Keenleyside Generation Projed. Report on File, Archaeology Branch, Victoria.

Smith, H. I.
1930 Unpublished Field Notes, Originals Held by the National Museum of Man in Ottawa.

Smith,A.H.
1984 Kutenai Indian Subsistence and Settlement Patterns, Northwest Montana. Seattle. U.S. Army Corps of Engineers.

Steeger, **C. and M. Fenger**
1992 Wildlife Diversity and Habitat Relationships, In A Field Guide for the Identification and Interpretation for the Nelson Forest Region, pp. 200-213. Nelson Forest Region, B. C. Ministry of Forests.

Stevenson, S. K. and D. F. Hatler
1985 Woodland CaribOU and **their Habitat in Southern and Central British Columbia, Vol 2. Land Management Report No. 2.** Ministry of Forests, Victoria.

Stryd, A. H., and R. Brolly
1990 Archaeological Impact Assessment Proposed Expansion Project Celgar Pulp Mill, Castlegar. Report on File, Archaeology Branch, Victoria.

Stryd, A. R. and M. K. Rousseau
1996 The Early Prehistory of the Mid-Fraser-Thompson River Area. In Early Human Occupation in British Columbia, eci. by R. L. Carlson and L. Dalla Bona, pp. 177-204. UBC Press, Vancouver.

Sumpter, I. D.
1982 Human Skeletal Remains and Associated Cultural Material from Site DjQj-1, Vallican, B. C. Report on File, Archaeology Branch, Victoria.

Teit, J.A.
1909 Lakes Ethnographic Fieldnotes **and Lefters to Franz Boas, May 20, 1909** and **July 17, 1909. Microfilm A-239 and A-262.** Provincial Archives of British Columbia, Victoria.
1975a The Salishan Tribes of the Western Plateau. Annual Reports of the Bureau of American Ethnology No. 45, 1927-1 928. Shorey Book Store, Seattle, Washington.
1975b The Shuswap. American Museum of Natural History Memoirs 2:7. AMS Press, New York.

Tolmie, W. P. and G. Dawson
1884 Map Showing the Distribution of Indian Tribes of British Columbia. Comparative Vocabularies of the Indian Tribes of British **Columbia. Dawson Brothers, Montreal.**

Tumbull, C. J.
1969 Recent Archaeological Fieldwork in the **Arrow** Lakes, **British Columbia. Manuscript on File, Selkirk College, Castlegar,** B. C.
1974 Archaeology and Ethnohistory in the Arrow Lakes, Southeastern British Columbia. Unpublished Ph.D. dissertation on File, Archaeology Branch, Victoria.
1977 **Archaeology** and Ethnohistory in the Arrow Lakes, Southeastern British Columbia. National Museum of Man, Archaeological Survey of Canada, Mercury Series Paper 65, Ottawa.

Turner, N. J., R. Bouchard, and O. Kennedy
1980 Ethnobotany of the Okanagan-Colville Indian of British Columbia and Washington. British Columbia Provincial Museum, Occasional Papers Series, No. 21 , Victoria.

Turney-High, H. H.
1941 Ethnography of the Kutenai. Memoirs of the American Anthropological Association. No. 56. Menasha, Wisconsin.

Valentine, K. W. G., P. N. Sprout, T. E. Baker, and L. M. Lavkulich
1978 The Soil Landscapes **of British Columbia. Resource Analysis Branch, Ministry of Environment, Victoria.**

Walker, D. E.
1973 American Indians of Idaho, Vol. 1. **Anthropological Monographs of the University of Idaho, No. 2, Moscow.**

Webb,T., III
1986 Is Vegetation in Equilibrium With Climate? Vegetatio 67:75-91.

Williams, J. H.
1982 Faunal Remains From the Vallican Site (DjQj-1) in Southeastern B.C. Report on File, Archaeology Branch, Victoria.

Wilson, I. R.
1987 Heritage Resource Inventory and Impact Assessment Proposed Willa Gold Project, Slocan **Lake, B.C. Report on File, Ar-**chaeology Branch, Victoria.
1989 Archaeological Inventory of Three Alternate 230 kV Transmission Lines, Selkirk Station - Washington Water Power. Report on File, Archaeology Branch, Victoria.
1991a Heritage Resource Assessment Four Proposed Haulroad Options Grohman Creek, West Arm, Kootenay Lake. Report on File, Archaeology Branch, Victoria.
1991 b Heritage Resource Inventory and Impact Assessment **of Proposed Harrop-Lasca Creek Logging Haulroad,** West **Arm,** Kootenay Lake. Report on File, Archaeology Branch, Victoria.
1992a Excavations at EdQx 41 and 42, and Site Evaluation at EdQx 43 Monte Creek, M. C. Permit 1990-140. I. R. Wilson Consultants Ltd. Report on File, Archaeology Branch, Victoria.
1992b Archaeological Overview and Impact Assessment **of Logging Plans - Pilot Point Forestry Program. Report on File,** Archaeology Branch, Victoria.
1992c Heritage Resource Overview, Lasca Creek Watershed. Report on File, Archaeology Branch, Victoria.
1996 Paleoindian Sites in the Vicinity of Pink Mountain. In Early Human Occupation in British Columbia, ed. by R. L. Carlson and 1. Dalla Bona, pp. 29-34. UBC Press, Vancouver.

Wilson, I. R., B. Smart, N. Heap, J. Warner, T. Ryals, S. Woods, and S. MacNab
1992 Excavations at Baker Site, EdQx **43, Monte Creek, Permit 91-107. Report on File, Archaeology Branch, Victoria.**

Wilson, J. T., V. K. Prest, W. H. Mathews and G. Falconer
1958 Glacial Map of Canada. Geological Association of Canada, Toronto.

Work,J.
1829 Letter to George Simpson, Colvile, 1 March 1829. D.4/1 22/34-35. H. B. C. Archives, Winnipeg.

Wright, H. E., Jr.
1976 The Dynamic Nature of Holocene Vegetation: A Problem in Paleoclimatology, Biogeography, and Stratigraphic Nomenclature. Quaternary Research 6:581 -596.

Yerbury, C.
1975 Ninteentb Century Kootenay Settlement Patterns. Western Canada **Journal of Anthropology 4(4).**

Zacharias, S. K.
1990 Archaeological Resource Inventory and Impact Assessment of the Proposed Barnes Creek Division, Near Arrow Lakes, **B. C. Report on File, Archaeology Branch, Victoria.**
1992 Archaeological Inventory and Impact Assessment **of Barnes Creek Division Alternative Route 3, Near Arrow Lakes, B. C. Reporton File, Archaeology Branch, Victoria.**

8.0 APPENDICES

8.1 Terms of Reference, AFD-AOA

SCHEDULE A

Services

Attachment to the Major Service Contract dated November 22, 1995 for Archaeological Overview Assessment.

1.0 PROJECT SCOPE

The purpose ofthis project is to focus on archaeological sites and site potential.

1.1 The Contractor shall provide the following services:

Phasel

- Evaluate the Arrow Forest District in terms ofits potential (i.e. High, Medium, Low) to contain archaeological sites.
- Liaise with First Nations who have an interest in the Arrow Forest District. This liaison may include interviews to determine important areas Ofpast use and ongoing communication regarding the status ofthe project.

Phase II

- Evaluate Licensee Five-Year Development Plans *(1995-1999)* to determine where forest development proposals are most likely to have an impact on archaeological sites.
- Update the existing archaeological inventory maps using a scale of 1:50,000 I
- Construct a database from identified archaeological sites to support predictive modelling and ranking for archaeological potential.
- Rank proposed developments (i.e. Road Permits, Cutting Permits) by archaeological potential and timing.
- Meet with Forest Licensees and Small Business Forest Enterprise Program (SBFEP) to discuss priorities and scheduling for more detailed Archaeological Impact Assessments (AlA's).

1.2 The Contractor shall retain the services oftwo archaeologists.

Contractor Contract Officer

File: 12015-2OIMA96DARO3TE
Contract Control No.: 34696

1.3 The Contract Officer shall provide the Contractor with the following:

- I:250,000 maps delineating:
  - the operating areas for the major licensees and the SBFEP,
  - Biogeoclimatic subzones and variants, and
  - licensee and SBFEP proposed timber harvesting and road construction (1995-1999);
- I:20,000 TRiM contour maps as required; and
- air photos as required.

2.0 DELIVERABLES

2.1 The Contractor shall provide the Contract Officer with the following deliverables:

Phase I

- a 1:250,000 map showing archaeological potential for the Arrow Forest District;
- a summary identifying the factors and describing the methodology used to delineate the different areas ofarchaeological potential.

Phase II

- the 1:50,000 contour maps showing locations ofknown archaeological sites and archaeological potential within the Arrow Forest District;
- the databasecontaining site descriptions ofthese known sites;
- the 1:20,000 TRIM maps evaluating locations ofarchaeological potential associated with specific developments in the Five-Year Forest Development Plan;
- a report containing ranking (and the rationale for the ranking) ofdevelopments proposed in the Five-Year Development Plans.

3.0 SCHEDULE FOR DELWERABLES

3.I All deliverables must be submitted to:
Ted Evans
Ministry of Forests
845 Columbia Avenue
Castlegar, BC
V1N 1H3

Contractor Contract Officer

File: 12015-2OIMA96DARO3TE
Contract Control No.: 34696

3.2 Phase I ofthis project (1:250,000 map showing the archaeological potential for the Arrow Forest District) will be submitted on or before January 7, 1996.

3.3 Phase II ofthis project (1:50,000 contour maps and 1:20,000 TRIM-based maps and the accompanying report) will be submitted on or before March 15, 1996 for review by the Contract Officer.

3.4 The Contract Officer will provide comments on or before March 24, 1996.

3.5 Final maps and final report must be received in the Arrow Forest District on or before March 31, 1996.

4.0 MISCELLANEOUS

4.1 All documents submitted to the Ministry ofForests become the property ofthe province, and as such will be subject to the disclosure provisions ofthe Freedom oflnformation and Protection ofPrivacy Act.

Contractor Contract Officer

8.2 Interior Salish/Lakes Village Sites and Resource Procurement Basecamps in the AFD (After Dawson 1890; Boas 1900; Elmendorf 1935-36; Ray 1936; Teit I 975a; Mohs 1982:49-52; Bouchard and Kennedy 1985:75-132)

Location	PlaceName		Activity
Upper Arrow Lake:			
Near Incomappleuz River mouth	*nk℩ma'p℩l℩ks*	'base or bottom end, with reference to the end of the lake'	fishing, hunting, berrying(huckleberry), root collecting, large village population
	nk'uma'puluks	'end of the water'	
	nk' m∝'p l ks	'other end of the lake'	
	nk'mápeleks	'head end of Iakel*	
At Arrowhead	*kospi'tsa*	'buffalo robe'	fishing (salmon), root collecting (tiger lily), burial grounds
At Cottonwood Island	no place name given	n/a	sweat lodges
At Hill Creek	no place name given	n/a	fishing (kokanee, trout), hunting
At Mackenzie Creek	no place name given	Wa	berrying (saskatoon, oregon grape)
Halcyon Hot Springs	no place name given	n/a	fishing
At Kuskanax Creek	*koos-ka-nax*	'long point'	
	kwusxenáks	'point of land sticking out; longpoint'*	
At Nakusp	*neqo'sp*	'having buffalo'	fishing (salmon, lake trout),hunting, burial g(ounds, sweat lodges
	nkwusp	'come together'*	
Below Nakusp	no place name given	n/a	hunting (caribou)
Trout Lake City	*sinp tt'me∝'p*	'upper end of lake'	
Whatshan Lake:	*n℩mi? ℩lt℩m*	'having whitefish'	hunting (caribou)
	n mi∝'m lt m	no trans. given	
Lower Arrow Lake:			
Belleview	*snexai? tsk ts m*	no trans. given	berrying (huckleberry)
	snexai? tsk℩ts℩m	no trans. given	
At Burton Creek	*xaie'k℩n*	no trans. given	fishing (kokanee) . sweat lodges
	xae'k n	no *trans.* given	
	niaken	no trans. given	
Oatscott (Needles)	no place name given	n/a	
Near Deer Park	*plu'me'*	no trans. given	hunting, fishing
On Lower Arrow	*m matsi? nt n*	'log leaning outside a cave'	hunting (mountain goat)
At Pup Creek	no place name given	n/a	
At Shields	no place name given	n/a	fishing (salmon)
At Lower Arrow outlet	*sm∝a'ᶦp'*	'large log leaning against a tree'	
	smoiss	no trans. given	
Slocan take:			
At upper end	*snk℩mi? p*	'base, root, or bottom, with reference to the head of the lake'	
	snk mi? p	'base, root, or bottom'	
Below upper end	*tak℩l℩xaitc℩kst*	'trout ascend'	
At lower end	*sihwi? l℩x*	no trans. given	

8.2 Interior Salish/Lakes Village Sites and Resource Procurement Basecamps in the AFD (continued)

Location		Translation	Activity
Slocan River			
Below Slocan Lake (at Mulvey Creek or Lemon Creek?)	*ka' ntca' k*	no trans. given	
Below previous)ocation (near VaJJican?)	*nkweio' xt↘n*	no trans. given	
Below previous location (above Kooteriay River?)	*sk↘tu' ke^clox*	no trans. given	winter village
Below previous location (near confluence of Slocan and Kootenay Rivers?)	*nt^ckulʔ tk^w↘*	'much river food'	winter village
	snt↘k↘lʔ t.k^w	no trans. given	
Columbia River:			
Confluence of Kootenay and Columbia Rivers	*kupi'tlks*	'rubbing the chest'	fishing (salmon), root collecting, hunting, winter village, burial grounds, sweat lodges
	q↘piʔ tles	no trans. given	
	kpiʔ t'ls	no trans. given	
	k↘pittes	no trans. given	
	kapeetles	no trans. given	
	kp'itl'els	no trans. glven	
East side to Ootischenia	no place name given	n/a	—
West side at Trail	*tsagwlxʔ lhts'a*	'wash body's	hunting (deer)
	tc↘aul↘xxʔ xtsa	no trans. given	
	tc^w lxiʔ' t'sá	no trans. given	
At creek on west side near Trail	*snsk↘k↘le' um*	no trans. given	berrying (saskatoon), fishing (kokanee)
	snskekelʔ um	no trans. given	
East side across from Trail	no place name given	n/a	
At Rossland	*k↘luxʔ sst*	no trans. given	berrying (huckleberry)
At Red Mountain	*kmarkn*	'smooth topl*	berrying (huckleberry)
Near Pend d'OreiHe River at Fort Shepard	no place name given	n/a	old village, burial grounds
Near Waneta	*nkw'lʔ la7*	'burned area'*	fishing (salmon), berrying, old village, burial grounds
	nkolʔ la	no trans. given	
	nqulʔ la'	no trans. given	
	nkulilu	no trans. given	

* Translation by Bouchard and Kennedy's (1 985) Lakes informants (c. 1978-1984)

8.3 Faunal Species Utilized by the Interior Salish/Lakes in the AFD (After Teit 1975a:245-246; Bouchard and Kennedy I 985:29-35)

Faunal Species	Location	Procurement Method
Deer	Arrow Lakes; Deer Park; fllecillewaet River mouth; some distance back of the Columbia; west to Three Valley Lake; Trail; between Columbia and Pend d'Oreille	tracking dogs; bow andarrows; disguises; ambushes; snares; nets; corrals; driving overcliffs or deadfafls, and through narrow passageways
Caribou	the 'plains' around Arrow Lakes; Nakusp; east side of Lower Arrow Lake; Whatshan Lake; lower end of Trout Lake; area north of Kooteriay River	bow and arrow; snares; corrals
Mountain Goat	in the mountains around Arrow Lakes; Lower Arrow Lake	
Mountain Sheep	in the mountains around Arrow Lakes	driving over cliffs
Grizzly/Black Bear	mountainous regions above lakes, Syringa Creek	drag hibernating bears out of den by hand or with rope; deadfalls
Elk	occasionally in area	called with a whistle
Moose	occasionally in area	called with a whistle
Beaver	Lakes country; Blueberry Creek; Champion Lakes	snares; deadfalls
Marmot		drowning out
Muskrat	Blueberry Creek; Champion Lakes	
Marten	Blueberry Creek; Champion Lakes	
Porcupine		clubbed
Rabbit		snares; dragged from holes
Fowl		snares,gather eggs

8.4 Archaeological Site Database, AFD-AOA

TRIM	NTS	LAT	LONG	UTM	E	N	Borden	NO.	TYPE	AREA	MASL
82F014	8213	490720	1171502	flUME	817	408	DgQh		1	480	637
82F004	82F3	490345	1171745				DgQh	9	3	16	579
;82F004	82F3	490102	1172215				DgQi		1	n/a	518
82F003	82F3	490235	1172450				DgQi	2	1	570	533
82F004	82F3	490218	1172400				DgQi	4	1	n/a	506
82F004	82F3	490136	1172254				DgQi	5	I	1600	509
82F004	82F3	490132	1172254				DgQi	6	1	30	509
82F003	82F3	490242	1172755	flUME	660	325	DgQi	7	I	8000	488
i82F002	82F4	490415	1173650				DgQj		I	111264	421
i82F002	82F4	490040	1173652	11UME	551	286	DgQj	3	1	800	426
82F002	82F4	490320	1173620				DgQj	4	3	30000	419
'!8203	82F4	490228	1173020	11UME	630	320	DgQj	5	I	n/a	655
82F002	82F4	490300	1173620				DgQj	6	1	16000	457
82F002	82F4	490240	1173620				DgQj	7	1	40000	415
82F002	82F4	490230	1173700				DgQj	8	1	10000	418
82F002	82F4	490220	1173700				DgQj	9	I	600	421
82F002	82F4	490015	1173653				DgQj	11	3	9	488
82F002	82F4	490410	1173700	flUME	551	354	DgQj	12	1	750	434
'82F003	82F4	490330	1173023	11UME	629	338	DgQj	13	1-	n/a	747
82F002	82F4	490057	1173621	flUME	556	293	DgQj	14	3	6000	426
182F002	82F4	490045	1173643	11UME	552	288	DgQj	16	1	112	426
82F002	82F4	490042	1173644	flUME	552	287	DgQj	17	1	1200	426
82F012	82F4	490752	1174420	11UME	462	423	DgQk		1	2500	430
82F012	82F4	490800	1174440	flUME	468	446	DgQk	3	1	2500	418
82F012	82F4	490925	1174240	11UME	463	434	DgQk	4	3	300	448
82F012	82F4	490829	1174411	IIUME	463	434	DgQk	5	1	12	425
82F001	82F4	490335	1175048	11UME	382	342	DgQI		I	4	940
82F032	82F5	491905	1173836	IIUME	533	627	DhQj		5	500000	411
82F032	82F5	491952	1172907	11UME	526	642	DhQj	2	5	1600	411
82F032	82F5	491900	1173900				DhQj	3	5	n/a	n/a
82F022	82F5	491520	1173900	11UME	257	558	DhQj	4	3	5625	424
82F032	82F5	491944	1173842	1IUME	529	639	DhQj	5	5	30000	487
82F032	82F5	491906	1173748	11UME	542	632	DhQj	6	1	n/a	518
82F032	82F5	491915	1173907	flUME	526	632	DhQj	7	1	n/a	396
82F032	82F5	491814	1173809	IIUME	537	614	DhQj	8	1	18750	457
82F032	82F5	491855	1173923	11UME	523	627	DhQj	9	I	1000	424
82F032	82F5	491806	1173829	11UME	534	612	DhQj	10	1	7000	433
82F032	82F5	491757	1173830	1ILJME	533	611	DhQj	11	3	625	433
82F032	82F5	491813	1173840	11UME	530	614	DhQj	12	3	200000	424
82F032	82F5	491840	1173912	flUME	525	623	DhQJ	13	5	n/a	426
82F032	82F5	491920	1173820	IIUME	535	635	DhQj	14	1	600	488
82F032	82F5	491840	1173808	11UME	538	623	DhQj	15	6	450	424
82F032	82F5	491850	1173752	11UME	541	625	DhQj	16	6	2000	424
*2F032	82F5	491850	1173808	flUME	538	625	DhQJ	17	6	32000	421
2F032	82F5	491902	1173752	11UME	540	628	DhQj	18	1	24000	426
2F022	82F4	491416	1173928	flUME	522	539	DhQj	19	3	125	430
2F022	82F4	491426	1173916	11UME	524	541	DhQj	20	3	12	430
2F022	82F5	491537	1173847	1JUME	530	533	DhQj	21	3	4500	424
2F032	8215	491852	1173920	11UME	523	625	DhQj	22	3	4500	411
2F032	82F5	491856	1173915	11UME	524	626	DhQj	23	3	900	411

TRIM	NTS	LAT	LONG	UTM	E	N	Borden	NO.	TYPE	AREA	MASL
82F022	82F5	491538	1173827	IIUME	533	564	DhQj	25	3	6	419
82F022	82F4	491343	1173959	11UME	515	528	DhQj	27	1	5625	417
82F022	82F4	491300	1173912	11UME	519	514	DhQj	28	3	600	417
82F032	82F5	491955	1173950	11UME			DhQJ	30	1	30000	n/a
	82F5						DhQk	I	4	n/a	n/a
&2F01 2	82F4	491 058	1174250	11 UME	479	478	DhQk	2	3	150	411
82F012	82F4	491150	1174208	11UME	488	493	DhQk	4	3	1650	417
82F032	82F5	491958	1174047	flUME	506	644	DhQk	5	1	400	396
82F021	82F4	491436	1175950	flUME	274	548	DhQI	1	5	12	1311
&2E019	82E1	491157	1181710	11UME	62	502	DhQn	1	1	3000	440
&2E019	82E1	491035	1181800	1IUME	54	477	DhQn	2	4	375	456
82E019	82E1	491042	1181800	11UME	154	478	DhQn	3	3	450	456
82F044	82F6	492935	1171905				DiQh	1	1	1500	549
82F044	82F6	492930	1171820		774	819	DiQh	2	2	2	539
82F044	82F6	492931	1171836	IIUME	*775*	819	DiQh	3	2	28	536
82F044	82F6	492940	1172240				DiQi	1	1	800	543
82F044	82F6	492925	1172330	11UME	717	819	DiQi	2	3	n/a	518
82F044	82F6	492925	1172245	11UME	725	817	DiQi	3	1	n/a	549
82F044	82F6	492958	1172250	11UME	730	829	DiQi	4	1	5000	533
82F044	82F6	492950	1172245	I1UME	725	828	DiQi	6	1	n/a	549
82F044	82F6	492925	1172320	11UME	718	819	DiQi	7	1	455	518
82F043	82F6	492745	1172945	11UME	649	789	DiQi	8	1	n/a	610
82F044	82F6	492950	1172220	1IUME	734	829	DiQi	10	1	n/a	549
82F044	82F6	492910	1172445	1IUME	702	814	DiQi	11	1	n/a	549
82F043	82F6	492905	1172650	flUME	677	814	DiQI	12	5	450	549
821043	8216	492848	1172720	1IUME	670	808	DiQi	13	1	150	549
82F043	82F6	492905	1172645	flUME	676	812	D1Qi	14	1	n/a	549
82F043	82F6	492855	1172700	1IUME	675	808	DiQ1	15	1	n/a	549
82F043	82F5	492450	1173140	11UME	615	733	DiQj	1	3	n/a	457
82F043	82F5	492515	1173130	11UME	619	741	DiQj	2	3	3200	450
82F043	82F5	492633	1173120	11UME	622	765	DiQj	3	3	9000	450
82F043	82F5	492703	1173110	11UME	623	*775*	D1Qj	4	1	n/a	434
821043	82F5	492505	1173133	11UME	619	738	DIQj	5	3	750	450
82F043	82F5	49261 5	11731 03	11 UME	624	761	DiQj	6	3	2275	450
82F043	82F5	492624	1173238	I1UME	605	764	DiQj	7	1	3500	500
82F043	82F5	492635	1173238	I1UME	606	766	DiQj	8	3	1	500
82F043	82F5	492639	1173341	I1UME	593	767	DiQj	9	3	30000	475
82F043	82F5	492645	1173100	I1UME	625	769	DiQj	10	5	2400	450
82F043	82F5	492641	1173107	I1UME	723	767	DiQj	11	1	26600	450
82F043	82F5	492633	1173101	flUME	625	766	DiQj	12	3	1200	450
821043	82F5	492655	1173100	flUME	625	771	DiQj	13	1	5000	457
82F043	82F5	492700	1173040				D1Qj	14	5	600	549
82F043	82F5	492545	1173025				DiQj	15	2	n/a	460
82F043	82F5	492545	1173020				DiQj	16	2	n/a	460
82F032	82F5	492006	1173928	I1UME	522	647	D1Qj	17	1	11250	436
82F043	82F5	492632	1173218	flUME	609	765	DiQj	18	3	90000	500
82F043	82F5	492555	1173216	11UME	611	753	DiQj	19	3	3575	500
82F043	82F5	492611	1173215	flUME	610	768	D1Qj	20	3	n/a	500
82F032	82F5	492002	11 73950	11 UME	61 7	745	DiQj	21	1	100	424
82F032	82F5	492030	1173954	I1UME	518	654	DiQj	22	1	100	424
82F032	82F5	492040	1174645	11UME	428	***654***	DiQk	1	3	n/a	448

TRIM	NTS	tAT	LONG	UTM	E	N	Borden	NO.	TYPE	AREA	MASI
82F032	82F5	492040	1174520	flUME	452	657	DiQk	2	1	n/a	433
82F03t	82F5	492030	1174830	flUME	412	655	DiQk	3	3	48	434
82F03l	82F5	492030	1174845	flUME	409	655	DiQk	4	3	2	436
82F032	82F5	492002	1174150	flUME	495	645	DiQk	5	1	n/a	457
82F032	82F5	492035	1174450	flUME	467	656	DIQk	6	1	50142	426
82F032	82F5	492001	1174035	11UME	508	646	DiQk	7	3	15	457
82F032	82F5	492002	1174042	11UME	507	648	DiQk	8	2	n/a	518
82F031	82F6	492038	1175047	11UME	385	658	DIQI	1	3	49	500
82F031	82F5	492150	1175552	flUME	324	682	DiQi	2	3	5000	434
82F031	82F5	492254	1175755	flUME	298	699	DIQ1	3	2	n/a	436
82F031	82F5	492115	1175555	11UME	323	670	D1Q1	4	1	n/a	426
82F031	82F5	492025	1175310	flUME	356	655	DiQI	5	1	n/a	426
82F031	82F5	492225	1175710	11UME	308	693	D1QI	6	1	n/a	426
82F031	82F6	492028	1175220	flUME	366	656	DIQ1	7	3	3750	441
82F031	82F5	492035	1175125	flUME	378	657	DIQI	8	1	4560	426
82F041	82F5	492205	1175940	flUME			DIQI	9	3	n/a	442
82F031	82F5	492031	1175250	11UME			DiQI	10	1	n/a	426
82F031	82F5	492040	1175240	flUME			DiQI	ii	I	n/a	426
82F031	82F5	492049	1175034	11UME			DiQI	. 12	1 ·	n/a	426
82F031	82F5	492037	1175012	IIUME	392	658	DiQI	13	1 -	n/a	427
82F031	82F5	492109	1175338	flUME	350	668	D1QI	14	3	600	430
2E050	82E8	492420	1180015	1IUME			DiQm	I	3	11552	426
2E050	82E8	492455	1180155	11UME	253	738	DiQm	2	3	912	449
2E050	82E8	492507	1180214	flUME	248	743	DiQm	3	3	2275	457
2E050	82E8	492458	1180222	flUME	245	740	DiQm	4	3	80000	430
2E050	82E8	492505	1180305	I1UME	238	743	D1Qm	5	3	900	431
2E050	82E8	492456	1180143	flUME	255	739	DiQm	6	3	21000	430
2E050	82E8	492620	1180600	flUME			DiQm	8	1	n/a	426
2E050	82E8	492830	1180530	I1UME	200	805	DiQm	9	1	1000	431
2E050	82E8	492815	1180510	1IUME	213	801	DiQm	10	3	n/a	454
2E050	82E8	492600	1180510	I1UME	212	759	DiQm	13	1	n/a	433
2E050	82E8	492430	1180045	11UME	268	731	DiQm	14	3	n/a	426
2E050	82E8	492805	1180503	flUME	214	797	DiQm	15	3	100	443
2E040	82E8	492330	1180007	11UME	261	175	DIQm	16	1	n/a	426
2E050	82E8	492608	1180445	11UME			DiQm	17	1	8281	426
2E040	82E8	492255	1180020	1IUME	272	703	DiQm	18	3	n/a	430
2E050	82E8	492535	1180530	1IUME	208	750	DiQm	19	3	2500	457
2F054	82F11	493412	1171330	I1UME	848	906	DJQh	1	1	n/a	530
2F054	82F11	493300	1171410	flUME	827	885	DjQh	2	1	n/a	533
2F054	82F11	493130	1171610	11UME	860	807	DjQh	3	1	900	853
1F054	82F11	493010	1172125				DjQi	1	3	n/a	1600
82F054	82F11	493003	1172215	flUME	931	830	DjQi	2	3	n/a	549
82F052	82F12	493323	1173915	flUME	***526***	893	DjQj	1	3	240000	522
82F052	82F12	493220	1173915	flUME	526	892	DjQj	2	3	n/a	518
82F052	82F12	493317	1173915	1IUME	527	892	DjQj	3	3	400	500
8 F052	82F12	493323	1173917	11UME	525	893	DJQJ	4	3	12800	502
8 E060	82E9	493110	1180720	11UME	191	873	DjQm	1	3	n/a	460
8 E060	82E9	493450	1180725	11UME	187	923	DjQm	2	3	n/a	460
8 E060	82E9	493700	1180740	11UME	I83	962	DjQm	3	3	n/a	440
8 E060	82E9	493105	1180640	11UME	194	853	DjQm	4	2	n/a	460
8 E060	82E9	493530	1180950				DjQm	5	1	n/a	460

TRIM	NTS	LAT	LONGUTM		E	N	Borden	NO.	TYPE	AREA	MASL
82F073	82F11	494256	1172850	1IUMF	653	67	DkQi	I	3	7000	520
82F073	82F11	494300	1172848	I1UMF	654	69	DkQi	2	3	1750	520
82F073	82F11	494309	1172820	11UMF	659	73	DkQi	3	3	4000	520
82F073	82F1 I	494315	1172815	I1UMF	661	74	DkQi	4	3	5950	540
82F073	82F14	494635	1172847	IIUMF	655	137	DkQi	5	2	25	540
82F073	82F14	494732	1172915	I1UMF	649	154	DkQi	6	2	n/a	540
82F073	82F1 4	494736	1172918	11UMF	648	156	DkQi	7	2	n/a	540
82F073	82F14	494752	1172920	1IUMF	648	161	DkQi	8	2	n/a	540
82F073	82F14	494800	1172920	1IUMF	649	163	DkQi	9	3	1750	540
82F083	82F14	494940	1172842	1IUMF	656	194	DkQi	11	2	n/a	540
82F073	82F14	494711	1172815	11UMF	661	148	DkQi	12	2	n/a	540
82F073	82F14	494546	1172820	11UMF	658	122	DkQ1	13	1	1	537
82F073	82F1 1	494320	1172808	11UMF	662	76	DkQi	14	3	*1750*	540
82F073	82111	494300	1172825	I1UMF	657	70	DkQi	15	3	2400	520
82F073	82F11	494256	1172840	11UMF	656	69	DkQi	16	3	49	520
82F073	82F11	494300	1172855	11UMF	645	70	DkQi	17	3	40000	552
82F073	82F11	494303	1172930	11UMF	646	71	DkQi	18	3	4950	580
82F073	82F11	494416	1172827	11UMF	658	93	DkQi	19	3	30000	545
82F072	82F13	*494627*	1173807	I1UMF	543	135	DkQj	I	1	n/a	2150
82F072	82F12	494436	1173717	I1UMF	552	101	DkQj	2	1	n/a	2350
82E090	82E16	494945	1180640	I1UMF	199	200	DkQm	1	3	7500	445
82E080	82E16	494722	1180705	I1UMF	195	156	DkQm	2	3	n/a	430
82E080	82E16	494705	1180730	11UMF	191	151	DkQm	3	1	n/a	435
82E080	82E16	494700	1180730	11UMF	191	449	DkQm	4	3	20000	435
82E080	82E16	494613	1180755	1ILJMF	185	135	DkQm	5	3	72	435
82E080	82E16	494502	1180640	1IUMF	199	113	DkQm	6	3	n/a	435
82E080	82E16	494645	1180603	1IUMF	207	144	DkQm	7	1	40000	435
82E080	82E16	494655	1180555	IIUMF	208	148	DkQm	8	1	5000	430
82E080	82E16	494750	1180635	IIUMF	201	165	DkQm	9	3	7500	445
82E080	82E16	494630	1180818	1IUMF	181	139	DkQm	10	1	•IOO	448
82E080	82E16	494559	1180808	I1UMF	183	130	DkQm	12	1	210000	430
82E080	82E16	494630	1180820	I1UMF	181	141	DkQm	13	3	10000	445
82E080	82E16	494730	1180530	11UMF	215	158	DkQm	14	3	25000	430
82E080	82E16	494655	1180837	11UMF	177	149	DkQm	15	3	5000	460
82E080	82E16	494630	1180830	11UMF	179	140	DkQm	16	3	375	465
82E090	82E16	494840	1180907	11UMF	172	180	DkQm	17	3	144	472
82E090	82E16	494913	1180918	11UMF	169	192	DkQm	18	1	n/a	473
82E090	82E16	494820	1180825	1IUMF	179	174	DkQm	19	I	180	473
82E090	82E16	494840	1180638	11UMF	201	179	DkQm	20	1	1200	430
82E080	82E16	494640	1180745	11UMF	187	144	DkQm	21	1	5000	435
82E080	82E16	494800	1180520	1ILJMF	216	168	DkQm	22	1	135000	445
82E080	82E16	494650	1180737	I1UMF	188	146	DkQm	23	I	2500	460
82E080	82E16	494808	1180640	I1UMF	200	170	DkQm	24	1	15000	445
82F094	82F14	495804	1172404	I1UMF	713	350	DIQ1	1	2	n/a	540
82F083	82114	495151	1172705	I1UMF	675	235	DIQi	2	2	n/a	540
82F093	82F14	495352	1172540	I1UMF	692	269	DIQi	3	2	9	540
82F093	82F14	495400	1172535	11UMF	694	272	DIQi	4	2	200	540
82F093	82F14	495417	1172518				DIQ1	5.	1	n/a	540
82F083	82F14	495011	1172800	1IUMF	664	204	DIQi	6	3	6600	540
82F083	82F1 4	495113	1172717	IJUMF	668	223	DIQi	7	1	1	540
82F083	82F14	495319	1172624	11UMF	684	259	DIQI	8	1	1	540

TRIM	NTS	LAT	LONG	UTM	E	N	Borden	NO.	TYPE	AREA	MASI
82F094	82F14	495422	1172330	11UMF	720	278	DIQ1	11	2	n/a	540
82F084	82F14	495355	1172340	IIUMF	717	269	DIQ1	12	2	n/a	540
82F083	82F14	495322	1172423	11UMF	706	260	DIQi	13	2	n/a	540
82F094	82F14	495648	1172343	11UMF	717	326	DIQ1	15	3	15750	540
82F091	82F13	495815	1175430	I1UMF	348	356	DIQI	1	1	1500	430
82F09I	82F13	495905	1175320	11UMF	363	370	DIQI	2	3	n/a	430
82F091	82F13	495735	1175710	I1UMF	317	343	DIQI	3	2	16	520
82F091	82F13	495900	1175420	11UMF	350	368	DIQI	4	3	210000	428
82F091	82F13	495935	1175345	1IUMF	357	381	DIQI	5	1	80000	430
82F091	82F13	495820	1175405	11UMF	353	359	DIQI	6	1	13500	445
82F091	82F13	495800	1175630	11UMF	324	352	DIQI	7	1	n/a	430
82F091	82F13	495930	1175310	l1UMF	364	378	DIQI	8	5	100000	440
82E090	82E16	495055	1180635	11UMF	203	222	DIQm	1	7	30000	430
82E090	82E16	495202	1180510	11UMF	219	242	DIQm	2	1	975	430
82E090	82E16	495116	1180520	11UMF	216	228	DIQm	3	1	20000	445
82E090	82E16	495155	1180540	I1UMF	213	240	DIQm	4	1	2375	430
82E090	82E16	495209	1180547	11UMF	212	244	DIQm	5	3	n/a	430
82E090	82E16	495220	1180610	IIUMF	210	246	DIQrn	6	5	n/a	431
82E100	82E16	495218	1180605	1'IUMF	208	247	DIQm	7	3	8750	460
82E090	82E16	495225	1180540	11UMF	213	250	DIQm	8	1	n/a	427
82E100	82E16	495435	1180420	IIUMF	232	288	DIQm	9	5	16653	427
82E090	82E16	495230	1180450	11UMF	223	251	DIQm	10	1	2500	430
82E090	82E16	495235	1180415	11UMF	230	253	DIQm	11	1	5000	430
82E090	82E16	495005	1180640	11UMF	201	206	DIQm	12	1	15000	430
82E090	82E16	495150	1180640				DIQm	13	1	n/a	457
82E090	82E16	495855	1180400				D1Qm	14	3	n/a	427
82E100	82E16	495630	1180145	I1UMF	262	325	DIQm	15	5	400000	455
82E100	82E16	495735	1180055				DIQm	16	1	n/a	427
32E090	82E16	495220	1180455				DIQm	17	3	n/a	427
82E090	82E1 6	495400	I1 80320				DIQm	18	3	n/a	426
82E100	82E16	495500	1180230				DIQm	19	3	180000	434
2E090	82E16	495050	1180510				DIQm	20	3	50000	428
2E100	82E16	495503	1180700				DIQm	21	3	n/a	671
2E100	82E16	495740	1180625				DIQm	22	3	n/a	671
2E100	82E16	495805	1180530				DIQm	23	3	5	640
2EI00	82E16	495810	1180528	I1UMF	219	356	DIQm	24	3	n/a	640
2E100	82E16	495903	1180512				DIQm	25	1	n/a	640
2E100	82E16	495535	1180711				DIQm	26	3	n/a	640
2E100	82E16	495542	1180710				DIQm	27	3	n/a	640
2E100	82E16	495620	1180708				DIQm	28	3	n/a	640
2E100	82E16	495522	1180655				DIQm	29	3	n/a	640
2E090	82E16	495140	1180518	IIUMF	218	236	DIQm	30	1	5000	440
2E090	82E1 6	4951 18	11 80630	11 UMF	203	229	DIQm	31	1	5000	445
2E100	82E16	495413	1180757	IIUMF	187	283	DIQm	32	3	150	660
2E100	82E16	495800	1180550	1IUMF	213	353	D1Qm	33	1	30000	660
2E090	82E16	495300	1180355	11UMF	235	260	DIQm	34	1	15000	445
2E100	82E16	495425	1180310	IIUMF	244	286	DIQm	35	3	45000	445
2E090	82E16	495252	1180545	I1UMF	214	258	DIQm	36	1	3000	445
2E090	82E16	495300	1180530	11UMF	215	261	DIQm	37	1	625	445
2E090	82E16	495312	1180530	IIUMF	216	264	DIQm	38	1	3750	445
2E090	82E16	495148	1180540	1IUMF	213	238	DIQm	39	1	375	430

TRIM	NTS	LAT	LONG	UTM	E	N	Borden	NO.	TYPE	AREA	MASL
82E100	82E16	495440	1180300	I1UMF	246	290	DIQm	40	1	22500	426
82E090	82E16	495152	1180819	11UME	182	239	DIQm	41	3	20000	503
82E100	82E16	495427	1181125	11UMF	145	288	DIQn	1	1	n/a	587
82K012	82K4	500949	1174728	11UMI	435	569	EaQk	1	3	n/a	433
82K012	82K4	500915	1174802	1IUMF	428	559	EaQk	2	1	12000	426
82K011	82K4	500815	1174850	1IUMF	418	540	EaQk	3	5	n/a	433
82K011	82K4	500748	1174838	11UMF	421	534	EaQk	4	3	2000	442
82K011	82K4	500650	1175440	1IUMF	349	500	EaQI	1	1	59400	433
82K001	82K4	500535	1175530	1IUMF	338	490	EaQI	2	1	n/a	430
82K001	82K4	500545	1175530	I1UMF	335	495	EaQI	3	1	240	430
82K001	82K4	500500	1175545	IIUME	334	481	EaQI	4	3	n/a	430
82K001	82K4	500420	1175540	1IUMF	337	470	EaQI	5	3	n/a	430
82K001	82K4	500325	1175520	11UMF	339	451	EaQI	6	5	n/a	431
82K001	82K4	500225	1175430	11UMF	349	433	EaQI	7	1	207900	426
82K001	82K4	500600	1175505	11UMF	343	498	EaQI	8	1	60000	430
82K011	82K4	500642	1175308	11UMF	367	513	EaQI	9	1	112500	440
82K001	82K4	500040	1175345				EaQ1	10	1	475	427
82K001	82K4	500150	1175508				EaQI	12	1	n/a	436
82K001	82K4	500109	1175336				EaQI	13	1	n/a	441
82K001	82K4	500310	1175430	1IUMF	349	443	EaQI	14	1	30000	432
821010	8211	500034	1180608	1IUMF	210	401	EaQm	I	1	5000	645
821010	82L1	500500	1180525	I1UMF	221	481	EaQm	2	1	2450	675
82L010	82L1	500410	1180510	11UMF	224	466	EaQm	3	1	900	675
82L010	82L1	500155	1180542	11UMF	215	426	EaQm	4	1	600	675
82L009	82L1	500120	1182130	I1UMF	27	417	EaQo	1	1	n/a	1190
82K022	82K4	501430	1174750	I1UMF	439	655	EbQk	1	5	n/a	434
82K022	82K4	501330	1174732	I1UMF	435	637	EbQk	2	3	n/a	426
82K021	82K5	501503	1174840	11UMF	421	666	EbQk	3	3	n/a	441
82K021	82K5	501757	1175107	I1UMF	393	721	EbQI	1	3	40000	426
82K021	82K5	501905	1175150	I1UMF	383	741	EbQI	2	2	n/a	457
	82K5	.					EcQk	1	3	n/a	n/a
82K021	82K5	502018	1175300	1IUMF	371	764	EcQl	1	3	690	426
82K021	82K5	502033	1175322	11UMF	366	771	EcQI	2	2	15	448
82L040	8218	502003	1180355				EcQm	1	1	1800	671
82L050	8218	502735	1180055	1IUMF	279	901	EcQm	2	1	n/a	328
82K063	82K11	503655	1172810				EdQi	I	2	1	434
82K061	82K12	503820	1175138	1IUMG	392	98	EdQI	1	3	80000	426
82K061	82K12	503745	1175528				EdQI	2	2	n/a	426
82K061	82K12	504002	1175049	I1UMG	401	129	EeQI	1	1	16000	442
82K061	82K12	504130	1175405				EeQI	2	5	n/a	427
82K061	82K12	504143	1175520				EeQI	3	1	n/a	433
82K061	82K12	504143	1175455				EeQI	4	5	n/a	430
82K061	82K12	504110	1175520				EeQI	5	3	n/a	427
82K071	82K12	504243	1175733				EeQI	6	1	n/a	428

83 **ATCO** Lumber **Ltd.**

CP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1995 Cutbiocks					
53	6A	82F003	Medium	East,South	AIA
65	4	82F01 3	Medium	Centre	AIA
65	9C	82F01 3	Medium	All	AIA
66	1	82F003	Medium	Centre	AIA
66	I4	82F003	Medium	East	AIA
66	2A	82F003	Medium	All	AIA
66	2B	82F003	Medium	South	AIA
66	2C	82F003	Medium	All	AIA
72	2	82E030	Medium	Centre,West	AIA
72	3	82E030	Medium	Centre	AlA
76	1	82F021	Medium	Southeast	AIA
76	2	82F021	Medium	Southeast	AIA
76	3	82F021	Medium	South	AIA
76	5	82F01 1	Medium	Centre	AIA
76	5	82F021	Medium	All	AIA
76	6	82F01 1	Medium	North	AlA
76	6	82F021	Medium	All	AIA
77	1	82F022	Medium	South	AIA
77	2	82F022	Medium	Centre	AIA
77	3	82F022	Medium	Northeast	AlA
77	4	82F022	Medium	West	AIA
79	1	82F012	Medium	All	AIA
79	2	82F012	Medium	AU	AlA
79	3	82F012	Medium	All	AIA
79	4	82F0I 2	Medium	East	AIA
79	5	82F01 2	Medium	East,South	AIA
79	6	82F01 2	Medium	All	AIA
82	5	82F021	Medium	All	AIA
82	7	82F021	Medium	South	AIA
91	1	82F035	Medium	East,South,West	AIA
91	2	82F035	Medium	East	AIA
92	8	82F01 4	Medium	South	AIA
92	9	82F01 4	Medium	Northeast	AIA
92	I 1	82F0I 4	Medium	South,Centre	AIA
94	I 5	82E030	Medium	South	AIA
94	7B	82F021	Medium	All	AIA
94	9B	82F02I	Medium	All	AIA
98	1	82F021	Medium	All	AlA
98	2	82F021	Medium	South	AIA
98	3	82F021	Medium	Northeast	AIA
98	4	82F021	Medium	All	AIA
98	16	82F021	Medium	Centre	AIA
199	AG	82F012	Medium	All	AIA

8.5 **ATCO Lumber Ltd. (continued)**

CP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1995 Roads					
41	R-1	821033	Medium		AIA
68	R-1	82F002	Medium		AIA
68	R-2	82F002	Medium		AIA
75	R-1	82F003	Medium		AIA
75	R-2	82F003	Medium		AIA
77	R-1	82F022	Medium		AIA
77	R-2	82F022	Medium		AIA
86	R-1	82F021	Medium		AIA
90	R-1	82F003	Medium		AIA
97	R-1	82F041	Medium		AIA
97	R-1	82F051	Medium		AIA
98	R-1	82F021	Medium		AIA
98	R-2	82F021	Medium		AIA
1996 Cutblocks					
35	2	82F031	Medium	Centre	AIA
41	3	82F033	Medium	South,Centre	AIA
41	5	82F033	Medium	South,West	AIA
41	6	82F033	Medium	Centre	AIA
41	2A	82F033	Medium	All	AIA
64	2	82F01 4	Medium	Centre	AIA
66	5	82F003	Medium	North	AIA
66	11	82F003	Medium	All	AIA
68	1	82F002	Medium	All	AIA
68	2	82F002	Medium	East	AIA
68	3	82F002	Medium	West,Centre	AIA
68	4	82F002	Medium	East,Centre	AIA
68	11	82F002	Medium	South,West	AIA
68	12	82F002	Medium	All	AIA
68	13	82F002	Medium	Northeast	AIA
68	14	82F002	Medium	Northeast	AIA
71	8	82E030	Medium	Centre,West	AIA
71	9	82E030	Medium	Northwest	AIA
71	10	82E020	Medium	West,Southeast	AIA
75	1	82F003	Medium	South	AIA
75	7	82F003	Medium	Southwest	AIA
76	9	82F01 1	Medium	South	AIA
87	1	82F023	Medium	South,West	AIA
87	3	82F023	Medium	West	AIA
87	5A	82F023	Medium	Centre	AIA
90	3	82F003	Medium	Centre	AIA
90	5	82F003	Medium	AU	AIA
90	9	82F003	Medium	East	AIA
90	8A	82F003	Medium	West	AIA
92	10•	82F014	Medium	West	AIA

8.5 **ATCO Lumber Ltd. (continued)**

CP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1996 Cutblocks					
99	4	82F021	Medium	All	AIA
99	5	82F021	Medium	All	AIA
99	6	82F021	Medium	All	AIA
99	7	82F021	Medium	All	AIA
99	13	82F021	Medium	All	AIA
101	3	82F041	Medium	North	AIA
1996 Roads					
36	R-1	82F031	Medium		AIA
71	R-1	82EO30	Medium		AIA
73	R-1	82F023	Medium		AIA
87	R-1	82F023	Medium		AIA
87	R-2	82F023	Medium		AIA
87	R-3	82F023	Medium		AIA
101	R-1	82F041	Medium		AIA
1997 Cutblocks					
41	1	82F033	Medium	East	AIA
41	2	82F033	Medium	East	AIA
64	6	82F014	Medium	East	AIA
66	3	82F003	Medium	All	AIA
68	6	82F002	Medium	East	AIA
68	8	82F002	Medium	All	AIA
68	10	82F002	Medium	North	AIA
68	15	82F002	Medium	Centre	AIA
71	1	82EO30	Medium	North	AIA
71	2	82EO30	Medium	North,East	AIA
71	3	82EO30	Medium	East,West	AIA
71	7	82EO30	Medium	East	AIA
75	8A	82F003	Medium	West	AIA
78	1	82F003	Medium	Southwest	AIA
80	1	82EO30	Medium	Southwest	AIA
80	3	82EO30	Medium	West	AIA
80	4	82EO30	Medium	North	AIA
80	4	82F031	Medium	East,North	AIA
85	7	82F021	Medium	All	AIA
86	1	82F021	Medium	Centre	AIA
86	2	82F021	Medium	West	AIA
86	3	82F021	Medium	East	AIA
87	2	82F023	Medium	South	AIA
87	4A	82F023	Medium	Centre	AIA
88	3	82F023	Medium	East,West	AIA
90	4	82F003	Medium	Southwest	AIA
90	7	82F003	Medium	Centre	AIA
90	8B	82F003	Medium	East	AIA
97	2	82F051	Medium	Southwest	AIA

8.5 **ATCO Lumber Ltd. (continued)**

cP	Block	TRIM	Archaeological fofential	Archaeological PotentlaiJocation	Recommendation
1997 Cuthlocks					
97	3	82F051	Medium	West	AIA
1997 Roads					
71	**R-2**	82E030	Medium		AIA
78	R-1	82F003	Medium		AIA
85	R-1	82F021	Medium		AIA
85	R-2	82F021	Medium		AlA
1998 Cutblocks					
36	3	82F031	Medium	Centre	AIA
69	8	82F013	Medium	All	AIA
71	**4**	82E030	Medium	All	AIA
71	**5**	82E030	Medium	East	AIA
71	**6**	82E030	Medium	All	AlA
78	**3**	82F003	Medium	Centre,East	AIA
78	**6**	82F003	Medium	Ceritre,West	AlA
78	**7**	82F003	Medium	North	AlA
80	6	82E030	Medium	Centre	AlA
85	4	82F021	Medium	East	AlA
85	6	82F021	Medium	East	AIA
88	5	82F023	Medium	East	AIA
97	1	82F051	Medium	West	AIA
102	4	82F003	Medium	Southeast	AIA
104	2	82F024	Medium	North	AIA
104	3	82F024	Medium	North	AIA
106	4	82F013	Medium	Centre,East	AIA
1998 Roads					
69	R-1	82FO13	Medium		AIA
102	R-1	82F003	Medium		AIA
104	R-1	82F024	Medium		AIA
106	R-1	82F013	Medium		AIA
1999 Cutblocks					
36	5	82F031	Medium	East	AIA
36	6	82F031	Medium	Centre	AIA
67	1	82F033	High	East	AIA
67	2	82F033	Medium	All	AIA
67	3	82F033	Medium	West	AlA
69	**7**	82F013	Medium	South	AIA
70	**I**	82F003	Medium	Centre	AlA
70	**4**	82F003	Medium	All	AIA
83	1	82F002	Medium	West	AIA
83	2	82F002	Medium	West	AlA
83	3	82F002	Medium	South	AIA
83	4	82F002	Medium	All	AIA
83	**7**	82F002	Medium	North	AIA
85	9	82F021	Medium	East	AIA

8.5 **ATCO Lumber Ltd. (continued)**

cP	Block	TRiM	Archaeological Potential	Archaeological PntPnt.21 LnrMinn	
1999 Cutblocks					
103	1	82F002	Medium	All	AIA
103	2	82F002	Medium	Centre	AIA
103	3	82F002	Medium	South	AIA
103	5	82F002	Medium	East	AIA
103	6	82F002	Medium	East	AIA
105	2	82F021	Medium	Southeast	AIA
105	3	82F022	Medium	South	AIA
107	1	82F013	Medium	All	AlA
108	2	82F01 3	Medium	Centre	AIA
I08	4	82F004	Medium	Southeast	AIA
2000 Cutblocks					
36	7	82F031	Medium	Centre,West	AIA

8.6 Bell Pole Company Ltd.

cP	Block	TRIM	Archaeological Potential	Archaeological Potential location	Recommendation
1995 Cutblocks					
6	8	82K001	Medium	East	AIA
12	8	82K001	Medium	All	AIA
12	10	82K001	Medium	Southeast	AIA
15	14	82K001	Medium	East	AIA
15	15	82K001	Medium	All	AIA
15	16	82K001	Medium	All	AIA
15	17	82F091	Medium	All	AIA
15	17	82K001	Medium	East	AIA
15	18	82F091	Medium	All	AIA
	1	82F092	Medium	All	AIA
1996 Roads					
9	R-1	82K001	Medium		AIA
1997 Cutblocks					
9	1	82K00I	Medium	Northwest	AIA
1999 Cutblocks					
9	5A	82K001	Medium	All	AIA
9	5B	82K001	Medium	West,North	AIA

8.7 Kalesnikoff Lumber Company Ltd.

cP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1995 Cutblocks					
21	1	82F032	Medium	Centre	AIA
28	1	82E050	Medium	East	AIA
28	1	82E060	Medium	East	AIA
28	2	82E060	Medium	South	AIA
28	4	82E050	Medium	Centre	AIA
31	8	82E050	Medium	All	AIA
1996 Cutblocks					
28	3	82E060	Medium	All	AIA
31	5	82E050	Medium	Southeast	AIA
31	6	82E050	Medium	East	AIA
31	7	82E050	Medium	Northeast	AIA
34	1	82E050	Medium	Northwest,Southwest	AIA
1997 Cutblocks					
16	3	82F022	Medium	West	AIA
25	1	82F032	Medium	South	AIA
25	2	82F032	Medium	All	AIA
31	1	82E050	Medium	East,Southwest	AIA
1997 Roads					
25	R-1	82F032	Medium		AIA
1998 Cutblocks					
16	1	82F032	Medium	East	AIA
25	3	82F032	Medium	West	AIA
25	6	82F032	Medium	Southwest	AIA
31	3	82E050	Medium	Southeast	AIA
1999 Cutblocks					
31	2	82E050	Medium	North,Southeast	AIA
31	9	82E050	Medium	All	AIA

88 **Pope and Talbot Ltd.**

CP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1995 Cutblocks					
1	94P	82F082	Medium	All	AlA
1	94Q	82F082	Medium	All	AlA
1	945	82F082	Medium	West	AIA
1	94T	82F082	Medium	All	AIA
I	B93M	82K041	Medium	All	AlA
8	105	82K083	Medium	Northwest	AIA
77	5	82F052	Medium	Centre,East	AIA
148	3	82L050	Medium	Northeast	AIA
I48	4	82L050	Medium	Southwest	AIA
148	5	82L050	Medium	South,Northeast	AIA
I48	8	82L050	Medium	West	AIA
150	2	82K041	Medium	West	AIA
151	8	82L050	Medium	South	AlA
151	13	82K041	Medium	East	AIA
'161	1	82K031	Medium	All	AIA
161	**2**	**82K031**	**Medium**	**All**	**AIA**
161	2	821040	Medium	All	AlA
161	3	82L040	Medium	All	AIA
161	4	82K03I	Medium	All	AIA
161	9	82K031	Medium	South	AIA
161	11	82K031	Medium	North	AIA
161	I4	82K031	Medium	West	AIA
178	4	82L040	Medium	All	AIA
178	**44**	**82L040**	**High**	**All**	**AIA**
178	45	82L040	Medium	All	AIA
178	46	82L040	Medium	All	AIA
180	6	82L030	Medium	West	AlA
I81	14	82L030	Medium	Northeast	AIA
196	52	82L010	Medium	South	AIA
196	56	82E1OO	Medium	North	AIA
200	1OOA	82K011	Medium	All	AIA
203	30	82K011	Medium	South	AlA
203	33	82L020	Medium	Centre	AIA
203	35	82L020	Medium	Northeast	AIA
203	37	82L020	Medium	West	AIA
206	22	82K011	Medium	Northeast	AIA
211	23	82K021	Medium	Centre	AIA
211	24	82K021	Medium	East	AIA
218	14	82K031	Medium	Centre	AIA
219	24	82K021	Medium	All	AIA
219	102	82K031	Medium	Northwest	AIA
219	24A	82K021	Medium	All	AIA
265	1	82L009	Medium	East	AIA
265	2	82L009	Medium	North	AlA

8.8 Pope and Talbot Ltd. (continued)

cP	Block	TRIM	Archaeological Potential	Archaeological Potential location	Recommendation
1995 Cutblocks					
265	3	82L009	Medium	South,North	AIA
265	4	82L009	Medium	Centre	AIA
265	5	82L009	Medium	North	AIA
269	3	82L009	Medium	Centre,North	AIA
269	4	82L009	Medium	South,North	AIA
269	5	82L009	Medium	Southeast	AIA
281	2	82E079	Medium	Southwest	AIA
281	4	82E069	Medium	Southeast	AIA
281	5	82E069	Medium	West	AIA
281	6	82E069	Medium	North	AIA
281	7	82E069	Medium	All	AIA
281	8	82E069	Medium	Southwest	AIA
281	10	82E069	Medium	East	AIA
281	11	82E069	Medium	Northwest	AIA
286	19	82E069	Medium	Southeast	AIA
294	11	82E049	Medium	Southeast	AIA
296	1	82E049	Medium	North	AIA
296	3	82E049	Medium	Centre,North	AIA
296	4	82E049	Medium	Centre	AIA
296	5	82E049	Medium	North	AIA
359	1	82F041	Medium	West	AIA
359	6	82F041	Medium	North	AIA
381	11	82E090	Medium	West	AIA
420	20A	82K031	Medium	West	AIA
424	20	82K072	Medium	South,West	AIA
424	21	82K072	Medium	All	AIA
424	22	82K072	Medium	All	AIA
424	23	82K072	Medium	North	AIA
424	25	82K072	Medium	North	AIA
424	27	82K072	Medium	West	AIA
424	29	82K072	Medium	West	AIA
424	30	82K072	Medium	West,Centre	AIA
485	16	82K031	Medium	Centre	AIA
500	11A	82K042	Medium	West	AIA
524	4A	82K062	Medium	All	AIA
546	7A	82K093	Medium	East	AIA
554	IÀ	82K093	Medium	West	AIA
566	5	82K063	Medium	North	AIA
574	14	82K064	Medium	West,Centre	AIA
574	15	82K064	Medium	Southwest	AIA
1H	93C	82K042	Medium	All	AIA
1H	93E	82K042	Medium	All	AIA

8.8 Pope and Talbot Ltd. (continued)

cP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1995 Roads					
148	R-i	821050	Medium		AIA
152	R-1	82L040	Medium		AlA
163	R-1	82K031	Medium		AIA
198	R-1	82F091	Medium		AIA
204	R-2	82L020	Medium		AIA
358	R-1	82E050	Medium		AIA
381	R-1	82E090	Medium		AIA
387	R-1	82E1OO	Medium		AIA
422	R-1	82F081	Medium		AIA
491	R-1	82K042	Medium		AIA
574	R-1	82K064	Medium		AIA
1996 Cutblocks					
1	101	82K042	Medium	Southwest	AIA
1	102	82K042	Medium	Southwest	AIA
1	103	82K042	Medium	West	AlA
I	106	82K042	Medium	Southwest	AIA
1	107	82K042	Medium	Southeast	AIA
1	109	82K042	Medium	East	AIA
72	2	82F052	Medium	West	AlA
86	1C	82F052	Medium	All	AIA
148	2	82L050	Medium	North	AIA
I48	7	82L050	Medium	North	AIA
151	7	82L050	Medium	South	AIA
152	1	82L050	Medium	South	AIA
I52	2	82L050	Medium	Northeast	AIA
152	28	82L040	Medium	East	AIA
163	IA	82K031	Medium	All	AlA
163	lB	82K031	Medium	West	AlA
163	1C	82K031	Medium	North	AIA
163	1D	82K031	Medium	West	AIA
163	1E	82K031	Medium	Northwest	AIA
I63	2A	82K031	Medium	Southwest	AIA
163	2C	82K031	Medium	North	AlA
163	4B	82K03I	Medium	All	AlA
163	4C	82K031	Medium	West	AIA
163	5A	82K031	Medium	All	AIA
163	7B	82K031	Medium	Northeast	AIA
179	106	82L030	Medium	South	AIA
179	107	82L030	Medium	Northeast	AIA
198	1	82F091	Medium	Southeast	AIA
198	2	82F091	Medium	Northeast	AIA
198	5	82E100	Medium	All	AIA
198	7	82E100	Medium	West	AIA
198	10	82E1OO	Medium	East	AIA

8.8 Pope and Talbot Ltd. (continued)

Cr	Block	TRIM	Archaeological Potential	Archaeological Potential	Recommendation
1996 Cutblocks					
203	36	82L020	Medium	Southeast	AIA
204	5	82L020	Medium	Northeast	AIA
204	14	82L020	Medium	South	AIA
204	24	82L020	Medium	All	AIA
224	2	82L030	Medium	North	AIA
276	1	82E070	Medium	All	AIA
276	2	82E070	Medium	West	AIA
283	1	82E070	Medium	North	AIA
283	2	82E070	Medium	All	AIA
283	7	82E070	Medium	East	AIA
283	8	82E070	Medium	All	AIA
297	1	82E049	Medium	Northwest	AIA
348	1	82F041	Medium	All	AIA
348	2	82F041	Medium	Southwest	AIA
350	2	82F041	Medium	West	AIA
350	3	82F031	Medium	All	AIA
350	3	82F041	Medium	East	AIA
358	1	82E050	Medium	Northwest	AIA
358	4	82E050	Medium	All	AIA
358	5	82E060	Medium	All	AIA
358	7	82E060	Medium	East	AIA
370	1	82E070	Medium	North	AIA
370	6	82E070	Medium	East	AIA
370	8	82E070	Medium	North	AIA
379	2	82F071	Medium	North	AIA
379	3	82F071	Medium	North,East	AIA
379	4	82F071	Medium	South	AIA
409	1	82K073	Medium	Southeast	AIA
420	21	82K031	Medium	North	AIA
491	11	82K042	Medium	West	AIA
491	11A	82K042	Medium	West	AIA
498	1	82K042	Medium	West	AIA
498	6	82K042	Medium	West	AIA
498	15	82K042	Medium	South	AIA
498	15	82K042	Medium	South	AIA
498	19	82K042	Medium	West	ALA
498	12A	82K042	Medium	All	AIA
498	128	82K042	Medium	East	AIA
498	12C	82K042	Medium	Northeast	AIA
509	4	82K052	Medium	Southeast	AIA
509	10	82K052	Medium	East	AIA
511	7	82K043	Medium	Southeast	ALA
511	8	82K043	Medium	South	AIA
524	1OA	82K061	Medium	Northeast	AIA

8.8 Pope and Talbot Ltd. (continued)

CP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1996 Cutblocks					
574	10	82K064	Medium	Northwest	AlA
574	11	82K064	Medium	Northeast	AIA
574	18	82K064	Medium	North,East	AIA
1996 Roads					
168	R-1	82L040	Medium		AlA
199	R-1	82K001	Medium		AIA
1 99	Ri	82L010	Medium		AIA
199	R-2	82L010	Medium		AIA
204	R-1	82L020	Medium		AIA
204	R-3	82L020	Medium		AIA
204	R-4	82L020	Medium		AlA
204	R-5	82L020	Medium		AIA
21 7	Ri	82K01 I	Medium		AIA
21 7	R-1	82L030	Medium		AIA
217	R-2	82L030	Medium		AlA
224	R-1	82K021	Medium		AlA
244	R-1	82K021	Medium		AlA
263	R-1	82L009	Medium		AIA
276	R-2	82E070	Medium		AIA
278	R-1	82E080	Medium		AIA
283	R-1	82E070	Medium		AIA
297	R-1	82E049	Medium		AIA
350	R-1	82F031	Medium		AIA
350	R-1	82F041	Medium		AIA
383	R-1	82E090	Medium		AIA
404	Ri	82E090	Medium		AIA
493	R-1	82K032	Medium		AIA
517	R-1	82K051	Medium		AIA
564	R-1	82K072	Medium		AIA
574	Ri	82K064	Medium		AIA
575	R-1	82K064	Medium		AIA
	R-1	82K073	Medium		AIA
	R-1	82L040	Medium		AIA
1997 Cutblocks					
2	100	82K043	Medium	Southwest	AIA
6	100	82K064	Medium	West	AIA
6	102	82K074	Medium	South	AIA
7	110	82K064	Medium	Northwest	AIA
163	68	82K041	Medium	All	AlA
163	6C	82K041	Medium	East	AIA
163	8C	82K041	Medium	West	AlA
163	9A	82K041	Medium	West	AIA
168	25	82L040	Medium	South	AIA
I68	27	82L040	Medium	Southwest	AIA

8.8 Pope and Talbot Ltd. (continued)

cP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1997 Cutblocks					
189	1	82L020	Medium	Southwest	AIA
189	2	82L020	Medium	East	AIA
189	12	82L020	Medium	Southeast	AIA
199	6	82L010	Medium	Southeast	AIA
199	23	82L010	Medium	South	AIA
199	24	82L010	Medium	East,West	AIA
199	33	82L010	Medium	All	AIA
199	34	82L010	Medium	East	AIA
199	38	82K001	Medium	Southwest	AIA
204	2	82K011	Medium	South	AIA
204	4	82L020	Medium	South	AIA
204	8	82L020	Medium	Centre	AIA
204	10	82L020	Medium	All	AIA
204	13	82L020	Medium	Northeast,Southwest	AIA
204	27	82L020	Medium	Centre	AIA
217	2	82L030	Medium	All	AIA
217	4	82L030	Medium	Southeast	AIA
222	2	82F061	Medium	All	AIA
222	**106**	**82L030**	Medium	Southwest	AIA
224	1	82K021	Medium	All	AIA
244	1	82K021	Medium	East,West	AIA
244	4	82K021	Medium	East	AIA
244	5	82K021	Medium	Centre	AIA
244	8	82K021	Medium	West	AIA
244	10	82K021	Medium	East	AIA
263	8	82LOO9	Medium	North	AIA
263	10	82L009	Medium	Centre,North	AIA
263	11	82L009	Medium	North	AIA
263	19	82L009	Medium	North,East	AIA
263	21	82L009	Medium	South,East	AIA
263	23	82L009	Medium	Northeast	AIA
263	24	82L009	Medium	East	AIA
276	8	82E070	Medium	All	AIA
276	9	82E070	Medium	All	AIA
276	10	82E070	Medium	All	AIA
278	1	82E080	Medium	East,Centre	AIA
278	2	82E080	Medium	West	AIA
278	3	82E070	Medium	All	AIA
278	7	82E080	Medium	East	AIA
304	1	82E050	Medium	West	AIA
350	8	82F041	Medium	Northwest,East	AIA
350	9	82F041	Medium	East	AIA
350	10.	82F041	Medium	North	AIA
350	11.	82F031	Medium	East	AIA

8.8 Pope and Talbot Ltd. (continued)

cP	Block	TRIM	Archaeological	Archaeological	Recommendation
1997 Cutblocks					
358	2	82E050	Medium	All	AIA
358	3	82E050	Medium	East	AIA
358	8	82E050	Medium	Northeast,Southeast	AIA
383	1	82E090	Medium	Southwest	AIA
383	2	82E090	Medium	East	AIA
383	5	82E1 OO	Medium	North	AIA
387	4	82[1 OO	Medium	Northwest	AIA
404	2	82E090	Medium	West	AIA
404	3	82E090	Medium	West,North	AIA
404	4	82E090	Medium	West	AIA
405	20	82K041	Medium	Centre	AIA
421	29	82K031	Medium	West	AIA
421	31	82K031	Medium	Centre	AIA
422	3	82F081	Medium	North	AIA
422	6	82F081	Medium	East	AIA
423	1	82K052	Medium	West	AIA
423	2	82K052	Medium	Northwest,South	AIA
423	5	82K052	Medium	West	AIA
491	3	82K032	Medium	Centre	AIA
491	5	82K032	Medium	West	AIA
491	7	82K032	Medium	West	AIA
491	8	82K032	Medium	West	AIA
493	1	82K032	Medium	East	AIA
493	2	82K032	Medium	East	AIA
493	3	82K032	Medium	Northeast	AIA
493	4	82K032	Medium	West	AIA
517	5	82K051	Medium	All	AIA
517	6	82K051	Medium	West,South	AIA
534	155	82K053	Medium	North	AIA
534	154A	82K053	Medium	North	AIA
534	154B	82K053	Medium	North	AIA
561	2	82K073	Medium	East	AIA
564	2	82K072	Medium	South,East	AIA
568	1	82K073	Medium	North,West	AIA
568	2	82K073	Medium	South	AIA
574	19	82K064	Medium	East	AIA
574	20	82K064	Medium	South	AIA
574	21	82K064	Medium	South	AIA
575	2	82K074	Medium	East	AIA
575	3	821<074	Medium	Southwest	AIA
575	5	82K064	Medium	Southeast	AIA
1997 Roads					
164	R-1	82K031	Medium		AIA
164	R-1	82K041	Medium		AIA

88 Pope and Talbot Ltd. (continued)

Cr	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1997 Roads					
164	R-2	82K031	Medium		AIA
167	R-1	82L039	Medium		AIA
168	R-2	82L040	Medium		AIA
199	R-3	82L010	Medium		AIA
222	R-1	82L030	Medium		AIA
244	R-2	82K021	Medium		AIA
275	R-1	82L010	Medium		AIA
276	R-1	82E070	Medium		AIA
276	R-3	82E070	Medium		AIA
302	R-1	82E030	Medium		AIA
302	R-1	82E039	Medium		AlA
303	R-1	82E030	Medium		AIA
361	R-1	82E050	Medium		AIA
385	R-1	82E090	Medium		AIA
405	R-1	82K041	Medium		AlA
405	R-2	82K041	Medium		AIA
406	R-1	82K041	Medium		AIA
408	R-1	82K021	Medium		AlA
418	R-1	82E080	Medium		AIA
418	R-2	82E080	Medium		AIA
486	Ri	82K032	Medium		AIA
521	R-1	82K052	Medium		AlA
570	R-1	82K073	Medium		AlA
	R-2	82L040	Medium		AIA
1998 Cutblocks					
5	104	t32K073	Medium	South	AlA
5	108	82K073	Medium	All	AIA
9	101	82K032	Medium	Southeast	AIA
9	102	82K032	Medium	Northwest	AIA
159	23	82L040	Medium	South	AIA
164	15	82K031	Medium	North	AlA
I64	16	82K031	Medium	Southwest	AIA
164	16	82K041	High	All	AIA
164	17	82K031	Medium	All	AIA
164	25	82K041	Medium	East,West	AIA
I66	6	82L040	Medium	West	AIA
166	7	82L040	Medium	West	AIA
167	3	82L039	Medium	All	AlA
167	6	82L039	Medium	East	AlA
167	12	82L040	Medium	All	AIA
168	26	82L040	Medium	West	AIA
199	39	82L010	Medium	Centre	AlA
222	113	82L030	Medium	Southwest	AIA
236	2 .	82E060	Medium	West	AIA

8.8 Pope and Talbot Ltd. (continued)

CP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1998 Cutblocks					
244	2	82F061	Medium	Centre	AIA
244	2	82K021	Medium	South	AIA
244	3	82K021	Medium	East	AIA
244	6	82K021	Medium	North	AIA
244	7	82K021	Medium	East,West	AIA
263	3	82F061	Medium	Southeast	AIA
263	12	82L009	Medium	South	AIA
263	20	82L009	Medium	Northeast	AIA
266	12	82L009	Medium	Northeast	AIA
275	1	82L010	Medium	West	AIA
275	2	82L010	Medium	North	AIA
275	4	82L010	Medium	West	AIA
275	5	82L010	Medium	All	AIA
275	6	82L010	Medium	South,West	AIA
276	6	82E070	Medium	West	AIA
276	7	82E070	Medium	All	AIA
282	2	82E079	Medium	Southeast	AIA
282	3	82E079	Medium	Northwest	AIA
282	4	82E079	Medium	Southeast	AIA
287	9	82E060	Medium	All	AIA
287	10	82E060	Medium	East,Northeast	AIA
302	1	82E030	Medium	North	AIA
302	2	82E030	Medium	North	AIA
302	3	82E030	Medium	North	AIA
302	4	82E039	Medium	Northwest	AIA
302	6	82E030	Medium	North,South	AIA
302	8	82E030	Medium	North	AIA
302	8	82E039	Medium	North	AIA
303	2	82E030	Medium	East	AIA
303	3	82E030	Medium	All	AIA
350	7	82F041	Medium	All	AIA
355	1	82F041	Medium	North	AIA
361	4	82E050	Medium	Southeast	AIA
361	7	82E050	Medium	East	AIA
361	8	82E050	Medium	Northeast	AIA
363	1	82E060	Medium	Southeast	AIA
383	3	82E090	Medium	North	AIA
383	4	82E090	Medium	Centre	AIA
383	6	82E090	Medium	Southwest	AIA
383	13	82F081	Medium	Southeast	AIA
405	1	82K041	Medium	All	AIA
405	2	82K041	Medium	South	AIA
405	5	82K041	Medium	Southwest	AIA
405	13	82K041	Medium	West	AIA

8.8 Pope and Talbot Ltd. (continued)

cP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1998 Cutblocks					
405	21	82K031	Medium	Centre	AIA
405	28	82L040	Medium	South	AIA
405	32	82K031	Medium	Southeast	AIA
406	6	82K041	Medium	All	AIA
408	8	82K021	Medium	West	AIA
418	5	82E080	Medium	Southwest	AIA
418	6	82E080	Medium	South	AIA
418	8	82E080	Medium	Northeast	AIA
418	9	82E080	Medium	Centre	AIA
418	11	82E080	S,W		AIA
422	7	82F081	Medium	West,Centre,East	AIA
422	14	82F081	Medium	West,South	AIA
423	3	82K052	Medium	West	AIA
423	4	82K052	Medium	West	AIA
483	1	82K031	Medium	North	AIA
486	5	82K031	Medium	Centre	AIA
486	6	82K031	Medium	Centre	AIA
486	7	82K032	Medium	South	AIA
486	10	82K032	Medium	Centre	AIA
531	1	82K062	Medium	Centre	AIA
531	2	82K062	Medium	Northwest	AIA
531	3	82K062	Medium	Centre	AIA
534	159	82K052	Medium	West	AIA
534	159	&2K053	Medium	West	AIA
534	160	82K052	Medium	West	AIA
534	160	82K053	Medium	West	AIA
534	196	82K052	Medium	West	AIA
534	196	82K053	Medium	West	AIA
534	197	82K053	Medium	West	AIA
534	167B	82K053	Medium	East	AIA
561	4	82K073	Medium	East,South	AIA
568	4	82K073	Medium	All	AIA
587	10	82K072	Medium	South	AIA
1998 Roads					
167	R-2	82L039	Medium		AIA
169	R-1	82L039	Medium		AIA
169	R-1	82L040	Medium		AIA
169	R-2	82L039	Medium		AIA
249	R-1	82F061	Medium		AIA
261	R-1	82L019	Medium		AIA
287	R-1	82E059	Medium		AIA
287	R-1	82E060	Medium		AIA
287	R-2	82E059	Medium		AIA
301	R-1	82E030	Medium		AIA

8.8 Pope and Talbot Ltd. (continued)

cP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
I 998 Roads					
301	R-1	82E039	Medium		AIA
355	R-1	82F041	Medium		AIA
358	R-1	82E060	Medium		AIA
360	R-1	82E060	Medium		AIA
360	R-2	82E060	Medium		AIA
362	R-1	82E060	Medium		AlA
362	R-1	82E070	Medium		AlA
363	R-1	82E060	Medium		AIA
385	R-1	82F081	Medium		AIA
407	R-1	82K041	Medium		AlA
417	R-1	82F081	Medium		AIA
547	R-1	82K093	Medium		AIA
550	R-1	82K093	Medium		AIA
	RI	**82F071**	Medium		AIA
	R-2	82F071	Medium	‘	AIA
1 999 Cutblocks					
3	100	82E070	Medium	North	AIA
3	107	82E070	Medium	South	AIA
3	108	82E070	Medium	South	AIA
3	109	82E070	Medium	West	AIA
3	110	82E070	Medium	Southwest	AIA
3	111	82E070	Medium	West	AIA
4	100	82K072	Medium	South,Centre	AIA
153	5	82L039	Medium	Southeast	AIA
164	6	82L040	Medium	All	AIA
164	7	82L040	Medium	All	AlA
167	1	82L039	Medium	Southwest	AIA
1 67	2	82L039	Medium	Southwest,Southeast	AIA
I 67	4	82L039	Medium	South	AIA
1 67	8	82L039	Medium	Southeast	AIA
1 69	1	82L039	Medium	South	AIA
1 69	2	82L039	Medium	Northwest,Southeast	AIA
1 69	3	82L039	Medium	East	AIA
169	5	82L039	Medium	All	AIA
1 69	6	82L039	Medium	South	AIA
1 69	1 6	82L040	Medium	South	AIA
249	1	82F061	Medium	East	AIA
249	2	82F061	Medium	Centre	AIA
261	1	82101 9	Medium	Southwest	AIA
261	2	82L019	Medium	West	AIA
261	3	82L019	Medium	East	AIA
261	4	82L01 9	Medium	Northwest	AIA
266	1	82L009	Medium	Southeast	AIA
266	2	82L009	Medium	Southwest	AIA

8.8 Pope and Talbot Ltd. (continued)

Cr	Block	TRIM	Archaeological Potential	Archaeological Potential location	Recommendation
1999 Cutblocks					
266	3	82L009	Medium	South	AlA
275	7	82L010	Medium	All	AlA
275	8	82L010	Medium	Southwest	AlA
287	2	82E059	Medium	West, Southeast	AlA
287	3	82E059	Medium	South	AlA
287	4	82E059	Medium	North	AlA
287	5	82E059	Medium	North	AlA
287	6	82E059	Medium	Northeast	AlA
287	7	82E059	Medium	All	AlA
301	1	82E030	Medium	North	AlA
301	3	82E039	Medium	North	AlA
302	9	82E039	Medium	North	AlA
302	11	82E039	Medium	Centre	AlA
303	1	82E030	Medium	Centre	AlA
355	2	82F041	Medium	North, Southeast	AlA
355	3	82F041	Medium	Northeast	AlA
360	3	82E060	Medium	West	AlA
360	4	82E060	Medium	Southwest, Northeast	AIA
360	5	82E060	Medium	All	AlA
360	6	82E060	Medium	Southwest, Northeast	AlA
362	4	82E070	Medium	Centre	AlA
362	7	82E070	Medium	Centre	AlA
363	4	82E060	Medium	All	AlA
363	5	82E060	Medium	Northwest	AlA
363	6	82E060	Medium	West	AlA
376	1	82EO8O	Medium	West	AlA
376	2	82E080	Medium	North	AlA
376	3	82E080	Medium	North	AIA
376	4	82E080	Medium	North	AlA
376	5	82F071	Medium	North	AlA
376	6	82F071	Medium	Centre	AlA
376	7	82F071	Medium	North	AlA
376	8	82F071	Medium	North, East	AlA
385	9	82F081	Medium	South	AlA
385	10	82F081	Medium	South	AlA
405	3	82K041	Medium	West	AlA
405	12	82K041	Medium	Centre	AlA
405	15	82K041	Medium	North	AlA
405	18	82K041	Medium	North	AlA
405	19	82K041	Medium	South	AIA
407	1	82K041	Medium	East	AlA
407	2	82K041	Medium	East	AlA
407	3	82K041	Medium	West	AlA
407	4 .	82K041	Medium	Southeast	AlA

8.8 Pope and Talbot Ltd. (continued)

cP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1999 Cutblocks					
407	5	82K041	Medium	East	AIA
407	9	82K041	Medium	East	AIA
407	12	82K041	Medium	West	AIA
407	13	82K041	Medium	All	AIA
407	20	82K041	Medium	East	AIA
407	22	82K041	Medium	All	AIA
417	1	82F081	Medium	All	AIA
41 7	2	82F081	Medium	South,East	AIA
422	11	82F081	Medium	West	AIA
422	12	82F081	Medium	Centre	AIA
483	6	82K031	Medium	South	AIA
483	7	82K031	Medium	All	AIA
486	8	82K032	Medium	All	AIA
496	2	82K042	Medium	West	AIA
496	3	82K042	Medium	West	AIA
521	1	82K062	Medium	West	AIA
521	2	82K062	Medium	West	AIA
521	3	82K052	Medium	West	AIA
521	4	82K052	Medium	Northwest	AIA
521	5	82K052	Medium	East	AIA
521	6	82K052	Medium	East	AIA
521	7	82K052	Medium	Northwest	AIA
547	1	82K093	Medium	East	AIA
547	2	82N003	Medium	East	AIA
547	7	82K093	Medium	Northeast	AIA
550	4	82K093	Medium	North	AIA
570	3	82K073	Medium	North	AIA
570	4	82K073	Medium	South	AIA
900	3	82E070	Medium	West	AIA
900	4	82E070	Medium	West	AIA

8.9 Riverside Forest Products Ltd.

CP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1995 Cutblocks					
12	A	82E089	Medium	Southwest	AIA
17	9600	82E089	High	Northwest	AIA
27	1	82E089	Medium	All	AIA
30	9613	82E099	Medium	South	AIA
30	9615	82E089	Medium	East	AIA
31	9802	82E089	Medium	All	AIA
31	9803	82E089	Medium	All	AIA
31	9806	82E089	Medium	AU	AIA
32	2	82E099	Medium	East	AIA
33	9400	82E099	Medium	South	AIA
1995 Roads					
27	R-1	82E089	Medium		AIA
30	R-1	82E099	Medium		AIA
31	R-1	82E089	Medium		AlA
1996 Cutblocks					
16	7	82E089	Medium	Northeast	AIA
25	3	82E099	Medium	Centre	AlA
26	2	82E099	Medium	Centre	AIA
34	1	82L009	Medium	Southeast	AIA
1996 Roads					
16	R-1	82E089	High		AIA
34	R-1	82L009	Medium		AIA
36	R-1	82E099	Medium		AIA
1997 Cutblocks					
16	2	82E089	Medium	All	AIA
16	3	82EO89	Medium	East	AIA
16	6	82E089	Medium	East	AIA
36	1	82E099	Medium	South	AIA
1997 Roads					
34	R-2	82L009	Medium		AlA
1998 Cutblocks					
27	2	82E089	Medium	Northeast	AIA
34	2	82L009	Medium	Southeast	AIA
34	4	82L009	Medium	West	AIA
34	6	82L009	Medium	All	AIA
37	1	82E089	High	All	AIA
1998 Roads					
35	R-1	82E099	Medium		AIA
1999 Cutblocks					
35	1	82L009	Medium	All	AIA
35	2	82L009	Medium	West	AlA
35	3	82E099	Medium	Southeast	AIA
35	4	82E099	Medium	North	AIA
35	5	82E099	Medium	Northwest	AIA

8.9 Riverside Forest Products Ltd. (continued)

cP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1999 Cutblocks					
35	6	82E099	Medium	All	AIA
35	7	82E099	Medium	Centre	AIA
38	1	82E089	Medium	All	AIA
2000 Cutblocks					
40	1	82E089	Medium	All	AIA
40	2	82E089	High	All	AIA

8.1 0 Slocan Forest Produds Ltd.

cP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
I 995 Cutblocks					
74	**20**	**82F062**	**Medium**	**West**	**AIA**
74	22	82F062	Medium	North	AIA
75	17	82F062	Medium	West	AlA
79	2	82F072	Medium	East	AIA
81	1	82F051	Medium	West	AlA
81	2	82F051	Medium	West	AIA
82	1	82F071	Medium	North	AIA
82	5	82F071	Medium	South	AIA
118	2	82F073	Medium	West	AIA
121	3	82F094	Medium	South	AIA
122	2	82F064	Medium	North	AlA
122	6	82F094	Medium	Southwest	AIA
I 22	8	82F064	Medium	West	AIA
122	9	82F064	Medium	West	AIA
123	1	82F094	Medium	West	AIA
123	3	82F094	Medium	West	AIA
126	1	82K004	Medium	North	AIA
I 26	2	82K004	Medium	All	AIA
130	21	82F094	Medium	All	AlA
130	23	82F094	Medium	North,West	AIA
130	24	82F094	Medium	Southwest	AIA
130	28	82F094	Medium	All	AIA
130	29	82F094	Medium	All	AlA
134	3	82F084	Medium	North,East	AIA
I 34	4	82F084	Medium	North	AIA
134	7	82FO84	Medium	All	AIA
1995 Roads					
79	R-1	82F072	Medium		AlA
82	R-1	82F071	Medium		AIA
82	R-2	82F071	Medium		AIA
I 18	R-1	82F073	Medium		AlA
	R-1	82F071	Medium		AIA
1996 Cutblocks					
12	2	82F063	Medium	All	AIA
20	2	82F073	Medium	East	AIA
52	2	82F094	Medium	All	AIA
71	1	82K003	Medium	South,East	AIA
71	3	82K003	Medium	Southeast	AIA
71	4	82K013	Medium	All	AlA
74	19	82F062	Medium	North	AIA
79	*4*	82F072	Medium	West	AIA
100	3	82K003	Medium	West	AIA
124	6	82F084	Medium	East	AIA
129	3	82K002	Medium	North	AIA

8.10 Slocan Forest Products Ltd. (continued)

Cr	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1996 Cutblocks					
130	22	82F094	Medium	West	AIA
134	1	82F084	Medium	East	AIA
134	9	82F084	Medium	South	AIA
247	2	82F071	Medium	East	AIA
247	3	82F071	Medium	East, South	AIA
271	5	82F053	Medium	West	AIA
369	1	82K005	Medium	Northeast	AIA
1996 Roads					
12	R-1	82F063	Medium		AIA
71	R-1	82K003	Medium		AIA
130	R-1	82F094	Medium		AIA
241	R-1	82F062	Medium		AIA
285	R-1	82K001	Medium		AIA
301	R-1	82F063	Medium		AIA
302	R-1	82F064	Medium		AIA
306	R-1	82K013	High		AIA
354	R-1	82K022	Medium		AIA
355	R-1	82K033	Medium		AIA
356	R-1	82K033	Medium		AIA
358	R-1	82K033	Medium		AIA
1997 Cutblocks					
12	3	82F063	Medium	Alt	AIA
52	4	82F094	Medium	Northeast	AIA
100	5	82K003	Medium	All	AIA
129	4	82F092	Medium	West	AIA
130	2	82F094	Medium	All	AIA
130	3	82F094	Medium	All	AIA
204	4	82F063	Medium	East, Northeast	AIA
241	3	82F062	Medium	Southeast	AIA
241	4	82F062	Medium	West	AIA
261	1	82F084	Medium	East, South	AIA
261	2	82F084	Medium	Southeast	AIA
282	3	82K003	Medium	East	AIA
282	4	82K003	Medium	All	AIA
301	1	82F063	Medium	All	AIA
301	3	82F073	Medium	North	AIA
302	2	82F064	Medium	Northeast	AIA
302	4	82F064	Medium	East	AIA
302	9	82F064	Medium	West	AIA
304	2	82F064	Medium	West	AIA
306	1	82K013	Medium	West	AIA
306	2	82K013	Medium	West	AIA
306	5	82K013	High	All	AIA
306	8	82K014	Medium	Southwest	AIA

8.10 Slocan Forest **Produds Ltd. (continued)**

cP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1997 Cutblocks					
352	2	82K022	Medium	Northwest	AIA
352	8	82K022	Medium	East	AIA
356	1	82K033	Medium	West	AIA
356	2	82K033	Medium	East	AIA
356	3	82K033	Medium	East	AIA
362	1	82K003	Medium	Southeast	AIA
1997 **Roads**					
71	Ri	82K013	Medium		AlA
236	R-1	82F051	Medium		AIA
268	R-1	82F074	Medium		AIA
352	R-1	82K022	Medium		AlA
358	R-1	82K032	Medium		AIA
400	Ri	82F073	Medium		AIA
400	R-2	82F073	Medium		AIA
1998 Cutblocks					
20	4	82F073	Medium	Southwest	AIA
52	5	82F094	Medium	All	AIA
71	5	82K013	High	All	AIA
71	6	82K013	Medium	All	AIA
130	4	82F094	Medium	All	AIA
130	5	82F094	Medium	All	AIA
130	8	82F094	Medium	All	AIA
130	9	82F094	Medium	All	AIA
130	13	82F094	Medium	All	AlA
130	**14**	**82F094**	**Medium**	**East**	**AIA**
130	15	82F094	Medium	All	AlA
130	16	82F094	Medium	All	AlA
232	3	82F062	Medium	North	AIA
232	4	82F062	Medium	East	AIA
235	2	82F062	Medium	East	AIA
236	2	82F051	Medium	East	AIA
248	2	82F071	Medium	Southeast	AIA
248	3	82F071	Medium	North	AIA
268	1	82F074	Medium	South	AIA
268	3	82F074	Medium	East,West	AIA
271	8	82F053	Medium	North,West	AIA
280	1	82K003	Medium	All	AIA
280	4	82K003	Medium	Centre	AIA
302	3	82F064	Medium	All	AIA
307	7	82F064	Medium	West	AIA
350	1	82F083	Medium	North	AIA
352	4	82K022	High	Centre	AIA
357	3	82K033	Medium	Northeast	AIA
358	1 .	82K032	Medium	North,East	AIA

8.10 Slocan **Forest Products Ltd. (continued)**

cP	Block	TRIM	Archaeological Potential	Archaeological Potential	Recommendation
1998 **Cutblocks**					
358	5	82K033	Medium	Northwest	AIA
364	1	82F074	Medium	North	AIA
364	2	82F074	Medium	West	AIA
400	1	82F073	Medium	Southwest	AIA
1998 Roads					
130	R-2	82F094	Medium		AIA
242	**R-1**	**82F062**	**Medium**		**AIA**
246	R-1	82F071	Medium		AIA
287	**R~1**	**82F095**	**Medium**		**AIA**
400	R-1	82F083	Medium		AIA
411	R-1	82K012	Medium		AIA
411	R-2	82K012	Medium		AIA
415	R-1	82K023	Medium		AIA
415	R-1	82K033	Medium		AIA
1999 Cutblocks					
130	**7**	**82F094**	Medium	All	AIA
130	12	82F094	Medium	West	AIA
130	**18**	**82F094**	Medium	West, North	AIA
204	3	82F063	Medium	North	AIA
208	5	82F072	Medium	Southwest	AIA
242	2	82F062	Medium	All	AIA
400	2	82F073	Medium	East	AIA
400	2	82F083	Medium	**East**	AIA
400	3	82F083	Medium	West	AIA
403	1	82F074	Medium	West	AIA
405	4	82F094	Medium	West	AIA
408	5	82K002	Medium	Centre	AIA
409	1	82K003	Medium	Centre	AIA
409	2	82K003	Medium	South	AIA
411	2	82K012	Medium	All	AIA
412	I	82K023	Medium	South, West	AIA
414	1	82K032	Medium	Northeast	AIA
414	2	82K032	Medium	Southwest	AIA
415	2	82K033	Medium	Northeast	AIA
415	4	82K023	Medium	Northeast	AIA
415	5	82K023	Medium	Northeast	AIA
415	9	82K033	Medium	Northeast	AIA
416	1	82K032	Medium	West	AIA
2000 Cutblocks					
83	4	82F061	Medium	South	AIA

8.11 Small Business Forest Enterprise Program, MOF-AFD

CP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1995 Cutblocks					
	8	82E100	High	All	AIA
	1	82F01 5	Medium	South	AIA
	5	82F021	Medium	West,North	AlA
	6	82F021	Medium	All	AIA
	7	82F021	Medium	West	AIA
	4	82F031	Medium	West	AIA
	5	82F031	Medium	West,East	AIA
53922		82E079	Medium	South	AIA
53924		82E079	Medium	East	AlA
A-5		82F004	Medium	West	AlA
A341 85		82K053	Medium	North,East,West	AIA
A34284		82F091	Medium	East	AIA
A3821 6		82F023	Medium	North,Centre	AIA
A38268		82E080	Medium	East	AIA
A38268		82K072	Medium	Centre	AIA
A38271	I	82E1 OO	Medium	Northwest	AIA
A38271	6	82E100	Medium	All	AIA
A38282		82E1 OO	Medium	West	AIA
A38288	1	82E1 OO	Medium	All	AIA
A38288	2	82E1 OO	Medium	All	AIA
A38292		82F024	Medium	West	AIA
A38295		82F021	Medium	South	AlA
B2		82E080	Medium	Northwest	AIA
B9		82E080	Medium	North	AIA
MPBI3	3	82F021	Medium	West	AlA
1995 Roads					
	R-1	82F005	Medium		AlA
1 996 Cutblocks					
	1	82F022	Medium	Centre	AIA
	10	82E100	High	All	AIA
53921		82E079	Medium	Southwest	AIA
A-I		82F004	Medium	South	AlA
A38283		82E1 OO	High	All	AIA
A38285		82K072	Medium	Centre	AIA
A38293		82F005	Medium	East,North	AIA
A53927		82E1 OO	Medium	Northeast	AIA
Bi		82K012	Medium	All	AlA
B6		82E080	Medium	Southwest	AIA
C38208		82F024	Medium	Northwest	AIA
C38287		82E030	Medium	Southwest	AIA
1 997 Cutblocks					
	7	82E100	High	All	AlA
A38271	2	82E100	Medium	West	AIA
B5	.	82E080	Medium	All	AIA

8.11 Small Business Forest Enterprise Program, **MOF~AFD (continued)**

cP	Block	TRIM	Archaeological Potential	Archaeological Potential Lgcation	Recommendation
1997 Roads					
	R-2	82F005	Medium		AIA
I 998 Cutblocks					
	3	82E1 OO	Medium	East	AIA
	10	82E1 OO	Medium	East	AIA
	1	82F01 5	Medium	Northwest	AIA
B4		**82E080**	**Medium**	**All**	**AIA**
C38215		82F023	Medium	North	AIA
Ix		82F024	Medium	South,Centre	AIA
1998 Roads					
413	**R-1**	**82K023**	**Medium**		**AIA**
I 999 Cutblocks					
	11	82E100	Medium	All	AlA
	4	82F004	Medium	West	AIA
	7	82F031	Medium	East	AIA
	1	82F035	Medium	West	AIA
406	4	2F063	Medium	All	AIA
411	3	82K012	Medium	Southwest	AlA
413	3	82K023	Medium	Centre	AIA
A341 54	2	82F023	Medium	East	AIA
A34154	3	82F023	Medium	All	AIA
B3		82E080	Medium	East	AIA
XI		82F024	Medium	Southwest	AIA
1999 Roads					
B-1O	R-I	82E100	Medium		AIA

8.12 Cuthlocks With No Company Assignation

CP	Block	TRIM	Archaeological Potential	Archaeological Potential Location	Recommendation
1995					
M-30		82F004	Medium	All	AIA
WL-5		82F022	Medium	Northeast	AIA
WL-M		82F004	Medium	All	AIA