

Cultural Heritage Resource Identification and Management in Forestry Developments: A Supplement to the FREP Protocol

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Introduction

This hand-out is designed to accompany Cultural Heritage Resource (CHR) value field monitoring training under the Forest and Range Evaluation Program (FREP). The purpose of this training is to provide Ministry of Forests and Range (MFR) staff and select individuals with the background and field-based skills to effectively deliver the FREP Protocol for Cultural Heritage Resources Stewardship Monitoring (the “CHR Protocol”).

The CHR Protocol provides background and instructions for field data collection for cutblock level Cultural Heritage Resource (CHR) stewardship monitoring activities under the FREP. Cultural Heritage Resource value field monitoring training will 1) provide the background required to compile CHR data from documented sources for forestry developments; 2) recognize CHR resources in the field; and, 3) assess whether CHRs have been effectively managed within forestry developments.

Cultural Heritage Resources (CHRs)

The Forest Act defines **cultural heritage resource** (CHR) as an object, a site, or location of a traditional societal practice that is of historical, cultural, or archaeological significance to British Columbia, a community or an aboriginal people. Cultural heritage resources include *archaeological sites* and *traditional use sites* as well other heritage sites including historic buildings and artifacts, shipwrecks, and heritage trails. The *HCA* (Section 13b) defines heritage sites as “land, including land covered by water, which has heritage value to British Columbia, a community, or an aboriginal people.”

An **archaeological site** is a CHR. An archaeological site is defined as any locality that exhibits physical evidence of the past activities of a person or group of people, for which the application of scientific methods of inquiry (e.g. survey, excavation, data analysis, etc.) are the main source of inquiry information. Archaeological sites are protected by the *Heritage Conservation Act*. All archaeological sites that pre-date 1846 receive automatic protection under the *Act*. Examples of archaeological sites include culturally modified trees, traditional trails, cache pits, house pits and campsites. The key distinctions which set archaeological sites apart from other heritage sites are the presence of physical cultural remains, and the application of archaeological techniques of inquiry.

Traditional use sites (TUS) refer to any geographically defined site (on land or water) that has been traditionally used by one or more groups of people for certain types of activities. These sites often lack the physical evidence of human-made artifacts or structures, however, do maintain cultural significance to a living community of people. Traditional use sites are documented with the assistance of oral, historical and archival sources. Examples of traditional use sites include sacred sites, resource gathering sites, and sites of legendary or past event of cultural significance.

Value of Cultural Heritage Resources

The following are several reasons for protecting and managing cultural heritage resources:

- Cultural heritage resources provide evidence regarding the practice of an aboriginal right.

- Archaeological sites contain the material history of aboriginal people, and therefore are resources of great cultural, historical, and spiritual significance to First Nations peoples.
- The majority of British Columbia’s human history is represented by archaeological sites.
- Archaeological sites are non-renewable resources, and once disturbed or destroyed the knowledge we can gain from them is lost forever.

Archaeological sites are non-renewable resources because most of their value lies in the integrity of the original formation or deposition of materials at the site. The basic geological principal of *stratification* – that layers of sediment are laid down consecutively on top of each other so that the uppermost layers are the youngest – also applies to archaeological sites. The principle of stratification is illustrated in the figure below. Cultural material within an archaeological site accumulates in this manner. The depth of the soil strata or layers depends on the type and duration of use of the site. For example a shell midden or garbage dump will have much greater accumulation and as a result, deeper stratigraphy than a campsite used only once. If the layers of an archaeological site are disturbed through cultural disturbance (e.g. logging, road construction, and building) or natural processes (e.g. erosion, tree blow down) then valuable information about the site may be lost.

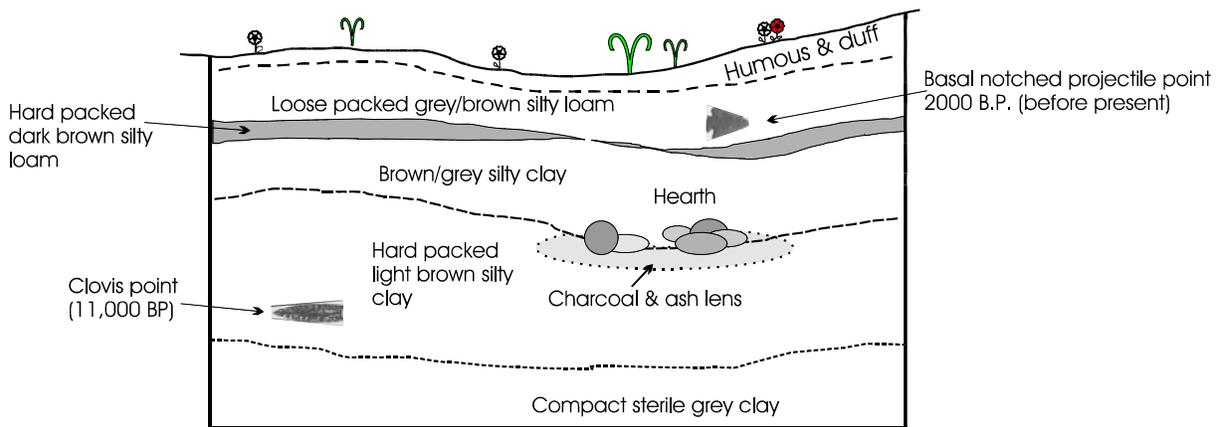


Figure 1: Basal notched projectile point predates (i.e. is younger than) hearth and Clovis point.

Legislation & Policy

The acts and regulations of *Forest Planning and Practices Regulation* regulate the management of cultural heritage resources that may be impacted during forestry operations. The legal responsibility of government, industry and the public to avoid damaging *archaeological sites* is administered by the *Heritage Conservation Act*. Finally, archaeological sites of aboriginal origin that are not automatically

protected by the *HCA* may be subject to legal decisions stemming from *Delgamuukw vs. British Columbia* (1997) made by the British Columbia Court of Appeal. This case addresses fiduciary duties regarding the infringement of aboriginal rights & title through resource development.

Forest Planning and Practices Regulation (FPPR)

The Forest Act defines a cultural heritage resource as "an object, a site or the location of a traditional societal practice that is of historical, cultural or archaeological significance to British Columbia, a community or an aboriginal people."

Section 10 of the Forest Planning and Practices Regulation (FPPR) further refines the definition of a cultural heritage resource under the Forest and Range Practices Act (FRPA). The FPPR states the following objective set by government: "to conserve, or, if necessary, protect cultural heritage resources that are:

- a) the focus of a traditional use, by an aboriginal people, and that are of continuing importance to that people; and
- b) not regulated under the *Heritage Conservation Act*."

In other words, the FRPA does not consider archaeological resources as cultural heritage resources being managed by the Ministry of Forests and Range. Management of impacts to and the protection of archaeological sites are regulated by the Heritage Conservation Act. FREP does recognize, however, that many First Nations may see cultural heritage resources and archaeological sites as different dimensions of one type of information - information that contributes to the broader understanding of how First Nations people lived, and continue to live, on the land.

Traditional use sites are localities identified by Aboriginal peoples as important areas of traditional practice. There may be a correspondence between archaeological and traditional use sites as some areas of traditional practice contain physical remains of past activity. However, traditional use often does not leave any detectable, physical evidence. Traditional use sites are not protected under the Heritage Conservation Act, but can be managed under FRPA.

Forest managers must propose results and strategies to meet the above objective of conserving and protecting cultural heritage resources. Several factors apply to these results and strategies (Schedule 4 to the FPPR):

- a) the **relative value or importance** to a traditional use by an aboriginal people,
- b) the **relative abundance or scarcity** of a cultural heritage resource,
- c) the **historical extent of a traditional use** by an aboriginal people,
- d) the **impact on government granted timber harvesting rights** of conserving or protecting the resource, and
- e) **options available for mitigating the impact that a forest practice might have** on a cultural heritage resource.

Heritage Conservation Act (HCA)

The *Heritage Conservation Act* provides the legal framework for archaeological site protection and archaeological assessments in British Columbia. The *HCA* is designed “to encourage and facilitate the protection and conservation of heritage property in the Province,” (*H.C.A.* Sec. 2). Originally, the *Archaeological and Historic Sites Protection Act* (AHSPA) was passed in 1960 in response to public concern over damage to archaeological sites. This Act protected archaeological sites on Crown land, and designated sites on private land. The AHSPA was replaced by the *Heritage Conservation Act* in 1977, which extended the protection of archaeological sites onto private land, without requiring formal designation. Archaeological sites are protected from damage, desecration, alteration, or excavation under the *Heritage Conservation Act* (RSBC 1996, Chap. 187).

The Archaeology Branch of the Ministry of Tourism, Culture and the Arts, administers the *HCA*. Sites are protected whether located on public or private land through designation as Provincial Heritage Sites under Section 9 of the *HCA*, or through automatic protection under Section 13 of the *HCA* by virtue of being of particular historical or archaeological value. Protected archaeological sites may not be altered or disturbed in any manner without a permit issued under Sections 12 or 14 of the *HCA*. Sites automatically protected include:

- archaeological sites (including CMT sites) occupied or used before A.D. 1846,
- aboriginal rock art with historical or archaeological value,
- burial places with historical or archaeological value,
- heritage wrecks, and
- heritage sites of unknown age with a reasonable possibility of having been occupied or used before A.D. 1846.

Culturally modified trees and other evidence of aboriginal use not automatically protected under the *HCA* may constitute evidence of the practice of an aboriginal right. These non-protected sites may be subject to legal decisions stemming from *Delgamuukw vs. British Columbia* (1997) regarding fiduciary duties. Proposals to remove or impact this evidence should be reviewed with the First Nations in whose traditional territories the evidence is located. Consultation with First Nations should be made in order to determine if a proposed development constitutes an infringement of an aboriginal right. Consultation should follow the Ministry of Forests Protection of Aboriginal Rights Policy.

HCA Offences & Penalties

Section 36 (1) of the *HCA* states that a person commits an offense if they contravene Sections 13 (6), 14 (1) or 14 (8). Under Section 36 (3) a person convicted of an offense under subsection 1(d) is liable:

- a) If the person is an individual, to a fine of not more than **\$50, 000.00** or to imprisonment
- b) for a term of more than two years or both, or
- c) If the person is a corporation, to a fine of not more than **\$1,000, 000.00**

The Archaeology Branch

The role of the Archaeology Branch, Ministry of Tourism, Culture and the Arts is “to assist the Provincial Government in making decisions that will ensure optimal land use” (Apland & Kenny 1998: 6). The Archaeology Branch is responsible for issuing archaeological permits to qualified parties to complete archaeological assessments and research (Section 14 Heritage Inspection Permit), as well as granting permits allowing industry or individuals to modify or alter an archaeological site (Section 12 Site Alteration Permit). Responsibilities of the Archaeology Branch as defined by Apland & Kenny 1998: 8 include:

- Establishing impact assessment and management guidelines, study standards, and reporting requirements;
- Reviewing development proposals to determine the proponent’s level of involvement in the archaeological resource assessment process;
- Preparation of orders and permits pursuant to the *HCA*;
- Providing guidance to the proponent throughout the archaeological assessment process;
- Ensuring that First Nations possibly affected by decisions are given opportunity to voice their concerns;
- Maintaining the provincial heritage registry;
- Providing consultants with access to archaeological site files, maps and documentary materials maintained in the Ministry;
- Reviewing reports and research proposals; and,
- Establishing terms and conditions for project approval.

In order to assist with the management of archaeological sites, AP&A has issued the *British Columbia Archaeological Impact Assessment Guidelines* (Apland & Kenny 1998). These *Guidelines* identify several kinds of archaeological assessments that can be undertaken in response to proposed developments. The type of assessment conducted depends on the stage of development design and the types of archaeological information required. The assessment types usually used by consulting archaeologists working in forestry related developments include preliminary field reconnaissance (PFR) and archaeological impact assessments (AIA). Additional information on the *Heritage Conservation Act* and Archaeological Planning and Assessment, Registries Department and a list of their publications can be found at www.tbc.gov.bc.ca/archaeology/

Consulting Archaeology & the Forest Industry

Archaeology is the study of past human ways of life from material remains and cultural features. Archaeologists have a desire to piece together the past from the archaeological record, as well as sharing an obligation to protect archaeological sites from disturbance and destruction. As a result, archaeologists are dedicated to preserving the knowledge contained in the archaeological record. Archaeologists work in conjunction with the MFR and licensees at the planning stage in order to manage

for potential impacts to archaeological sites due to timber harvest, and related activities such as road construction, site preparation, and silviculture.

Archaeological Assessment Selection Basis

Forest resource development areas such as logging blocks or roads are normally selected for AIA or PFR by an Archaeological Potential Model (Figure 1), or as the result of an Archaeological Overview Assessment (AOA) (Figure 2). An archaeological potential model or archaeological predictive model is used as a basic tool in archaeological resource management to assess whether a specified area has *High*, *Moderate* or *Low* potential for archaeological sites. An AOA is “intended to identify and assess archaeological resource potential or sensitivity within a proposed study area” (Apland & Kenny 1998: 8). Lands identified as having moderate or high archaeological potential as a result of either an archaeological potential model or AOA study would be recommended for PFR or AIA.

Archaeological Assessments

The assessments conducted by consulting archaeologists investigating proposed forest resource developments include archaeological impact assessments (AIAs) (Figure 3); and preliminary field reconnaissance (PFRs). The type of assessment conducted depends on the stage of the development design and the types of archaeological information required.

The objectives of an AIA are to:

- identify and evaluate the significance of any archaeological remains located within the development area,
- identify and evaluate possible impacts by the proposed development to these archaeological sites, and recommend appropriate **impact management** action.

The objectives of a PFR are to:

- assess the archaeological potential of a development, and
- identify archaeological sites within the development area.

If archaeological sites that require additional documentation (*i.e.* protected sites or unprotected sites of high scientific or historic significance) are identified during a PFR, then an AIA is conducted and the archaeological sites are recorded under that assessment.

Impact management strategies specified during an AIA may require *mitigation* if adverse impacts to an archaeological site within a development area are unavoidable. Mitigative measures are actions designed to reduce or prevent destructive effects on archaeological sites. Mitigation usually involves systematic data recovery, analysis and interpretation of a site (e.g. archaeological excavations, CMT inventory).

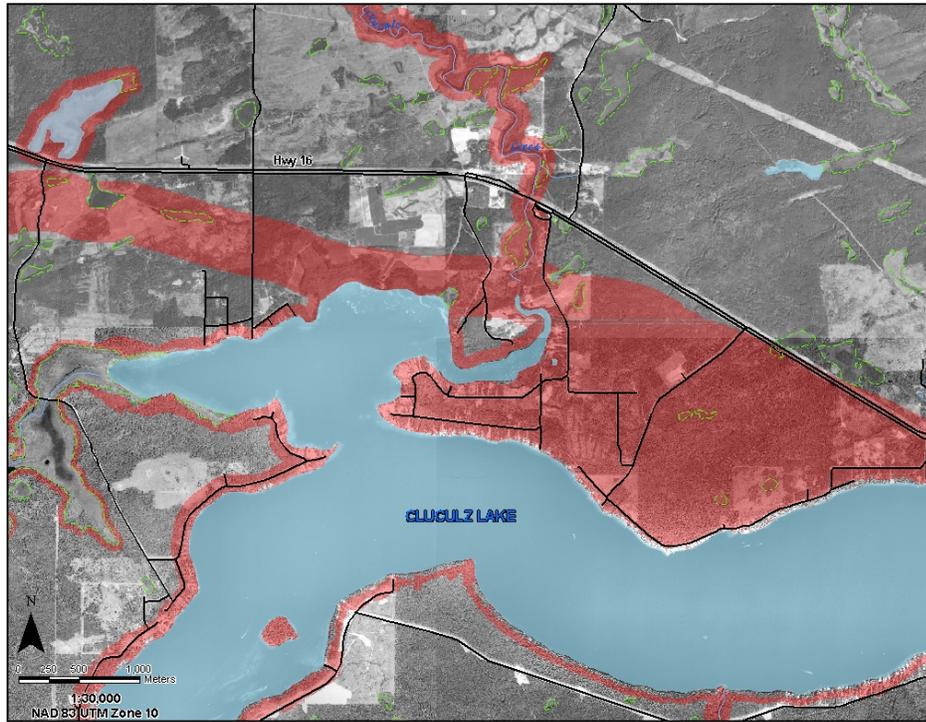


FIGURE 2: ARCHAEOLOGICAL POTENTIAL MODEL

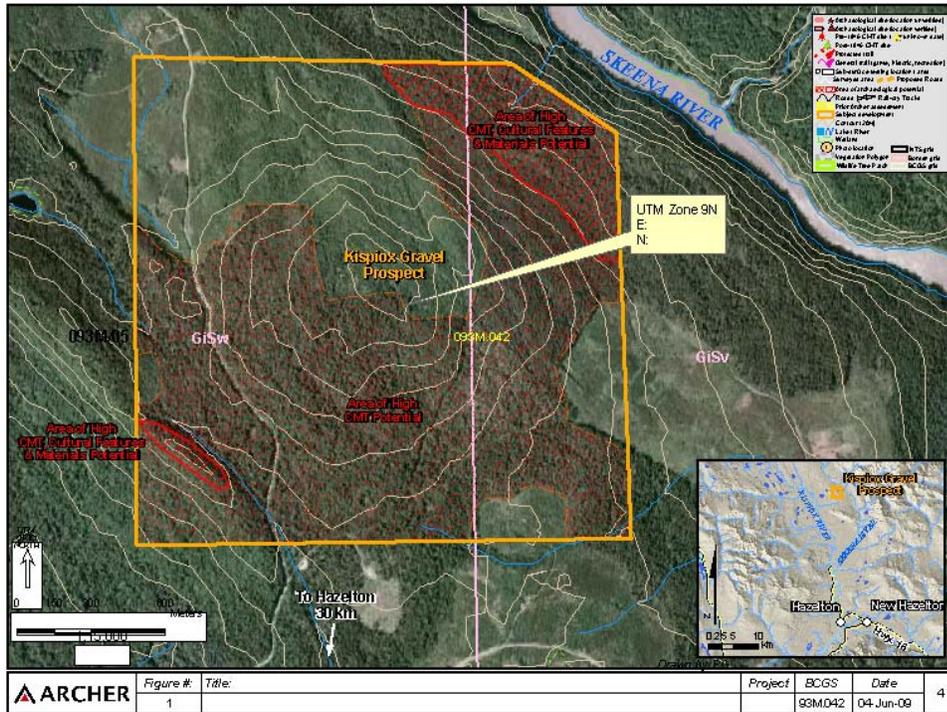


FIGURE 3: ARCHAEOLOGICAL OVERVIEW ASSESSMENT

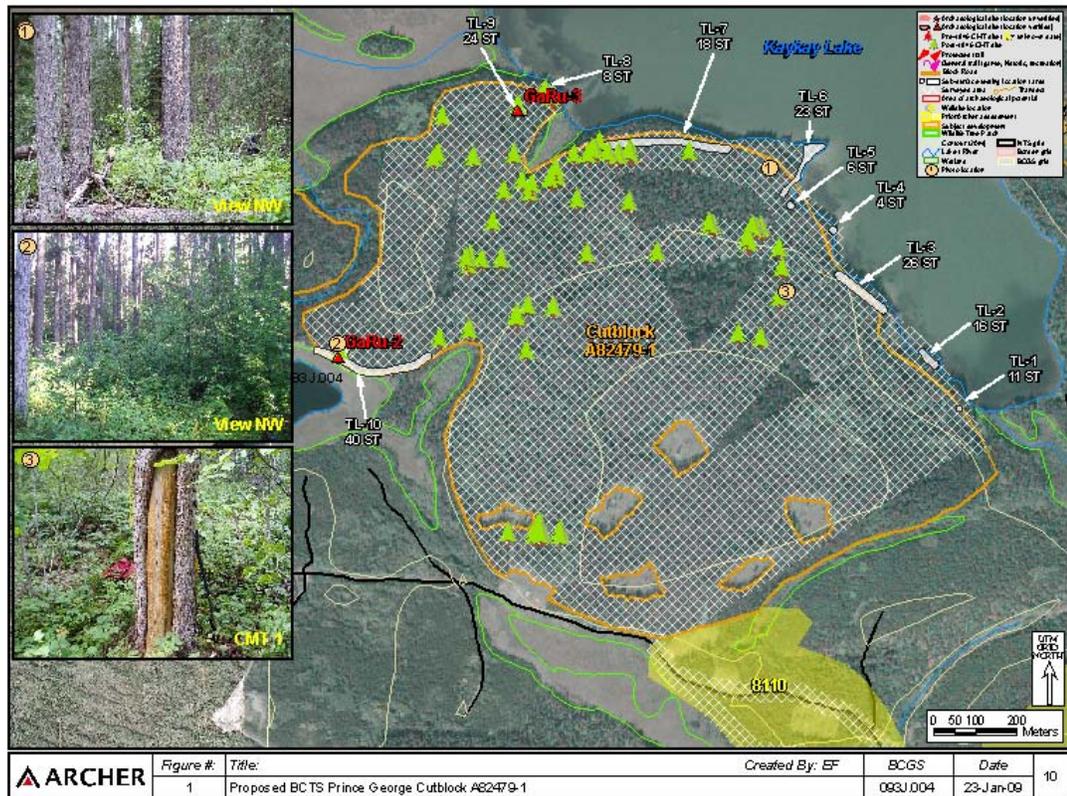


FIGURE 4: ARCHAEOLOGICAL IMPACT ASSESSMENT

References

Apland, B. and R. Kenny

1998 *British Columbia Archaeological Impact Assessment Guidelines*. Revised edition. Ministry of Small Business, Tourism and Culture, Archaeology and Forests Branch, Victoria.

Cultural Heritage Resource Identification

For 98 percent of the time people have lived in British Columbia no written records were made. Archaeological sites, along with oral traditions, are the only remnants of a rich history extending back at least 12,000 years. People have left physical evidence of their presence and activities across the landscape over the course of this long span of time. We find these remains today as *cultural material* or *cultural features*, and record them as archaeological sites.

Cultural material and artifacts includes human-made or modified objects, for example stone and bone tools, and fire-altered rock. *Features* are modifications to the landscape or objects which cannot be easily moved without altering them (e.g. CMTs, cache pits, house pits). This resource is of great value to First Nations, local communities and the general public of BC.

The cultural heritage resources archaeologists and forestry workers most commonly deal with in development areas in British Columbia are culturally modified trees (CMT), cultural depressions (CD), and cultural material. This section addresses the identification, recording, and management for these individual site types.

Culturally Modified Trees (CMTs)

A CMT is a tree that has been altered by native people as part of their traditional use of the forest. Non-native people also have altered trees, and it is sometimes difficult to determine if an alteration (modification) is of native or non-native origin. There are no reasons why the term "CMT" could not be applied to a tree altered by non-native people. However, the term is commonly used to refer to trees modified by native people in the course of traditional tree utilization, and is used as such in this document.

There are many kinds of CMTs in British Columbia. A CMT identified in the BC interior is usually a bark-stripped tree modified for cambium collection, medicine collection (sap or pitch), bark collection (usually birch & spruce), trail marking, arborgraphs (message trees), arborglyphs, cottonwood canoe construction.

Examples of coastal CMTs include trees with bark removed, stumps and felled logs, trees tested for soundness, trees chopped for pitch, trees with scars from plank removal, arborglyphs, and trees delimbed for wood.



FIGURE 5: BARK-STRIPPED PINE – INTERIOR



FIGURE 6: BARK-STRIPPED CEDAR – COASTAL

Recording CMTs

Two recording forms are available from the Archaeology Branch to assist with recording archaeological sites, the *Level I CMT Site Recording Form*, and the *British Columbia Archaeological Site Recording Form*. Forms may be obtained at www.archaeology.gov.bc.ca. Level I recording requires information on location, type, and frequency of CMTs. The purpose of this level of recording is initial assessment of a CMT site. If a CMT site is threatened by development it will likely require a more detailed level of recording (i.e. recording and dating individual CMT features).

Estimating maximum age of features

Data should be gathered which will allow for a reasonable estimate of the maximum age of the site. This may include obtaining a datable sample from judgmentally selected features which appear to represent the earliest site use. However, reasonable maximum age estimates may be deduced through other means (e.g., through consideration of stand age, presence of stone toolmarks, maturity of nursing trees, and sometimes scar depth/ thickness).

Level I CMT Site Recording

Level I CMT site recording is intended to provide basic information on the presence of CMTs, notably location, type, and frequency. It should be used if detailed information about individual CMTs is not needed, or cannot be recorded within the time available. Level I recording is appropriate for both preliminary archaeological studies and broad-area inventories where documenting the spatial distribution of CMTs is the main concern.

CMT sites

There are many CMTs in British Columbia. It is not practical to manage, study and protect these CMTs if they are recorded only as individual trees. These undertakings are more manageable when

CMTs are recorded and mapped in larger groups called sites. The recording of CMT sites does not preclude the recording, study, and protection of individual CMTs.

Level I recording emphasizes information about CMT sites rather than the individual CMTs that make up a site. A CMT site can vary considerably in area, can consist of any number of CMTs, and can include CMTs of one or more types. Other types of archaeological remains (e.g., artifacts, village sites) can be associated with the CMTs. Determining the boundaries of a CMT site, and the number of CMT sites in an area, can pose problems, particularly when CMTs are scattered more or less continuously over a large area. Boundaries are often self evident if sufficient time is taken to establish CMT distribution. In other cases, site boundaries can be arbitrary.

Level I CMT site recording form

Basic information about CMT sites should be recorded on Level I CMT Site Recording Forms. Complete one form per site. The form is in landscape format so that it occupies just one sheet of 4½×7 inch notebook paper. The form can be photocopied as needed, and inserted into a field notebook. A summary of the most common CMT classes and types follows the recording form insert, and can be photocopied onto the back of the form for reference in the field. An example of a completed Level I CMT Site Recording Form is included.

Fields: The form contains 12 fields to be completed by recorder plus one field at top of form to be completed by the Archaeology Branch; if uncertain, follow your entry with a question mark:

1. Register Site Number — Leave blank for Archaeology Branch.
2. Temp. Site Number — Enter any unique number of your design that can serve as a temporary site number. This same number should be on any maps attached to the form.
3. Map Sheet — Enter Terrain Resource Information Management (TRIM) 1:20,000-scale map sheet number.
4. Location — Describe location of site, from general to specific.
5. Location (Grid) — Provide UTM or longitude and latitude of site centre. Circle either 27 or 83 to indicate if grid location is based on North American Datum 1927 or 1983.
6. Tenure/Legal — Enter forest tenure, cutting permit and block, or brief legal description of property, on which site is located, if applicable.
7. Site Dimensions — Estimate maximum length and width of site in metres. Place cardinal directions (true) after length and width. For example: 150 m NE–SW × 25 m NW–SE.
8. No. of CMTs — Enter number of CMTs counted or estimated (if estimated, follow number with an upper case E).
9. CMT Species — Enter CMT tree species, with most frequent species first. Use Ministry of Forest cover map species abbreviations. See above for abbreviations.
10. CMT Class/Type — Enter class and type of CMTs present. Check boxes of each class present. Follow each checked box with a single letter code for each type present for that class. See above for single letter codes.
11. Recorder — Provide your name and a means of contacting you: affiliation (if any), address, telephone and fax numbers.
12. Date — Enter date of recording/observation.

13. Comments — Enter any other observations, for example, access to site, potential impacts from proposed development, presence of rare features, information from aboriginal persons on site use, etc. Mention if you have photographs of the site. Note if any other kinds of archaeological remains are obviously present and, if so, type of remains (for example, trail, artifacts, village site).

RECORDING CMTS

LEVEL I CMT RECORDING FORM		1. Register Site Number: _____
2. Temp. Site Number:		3. Map Sheet: NTS TRIM
4. Location:		
		5. Location (Grid): 27 83
6. Tenure/Legal:		
7. Site Dimensions:		8. No. of CMTS:
9. CMT Species:	10. CMT Class/Type(s): <input type="checkbox"/> BS _____ <input type="checkbox"/> AL _____ <input type="checkbox"/> OM _____	
11. Recorder:		
12. Date:	13. Comments: (include permit # and/or reference, if applicable)	
Following maps are attached: <input type="checkbox"/> NTS map <input type="checkbox"/> TRIM map <input type="checkbox"/> Development map at scale of:		

Please provide as much information as possible. Use back to draw site map or provide additional comments.

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FIGURE 7: LEVEL 1 CMT RECORDING FORM

ABBREVIATIONS TO USE WHEN RECORDING CMTS	
CLASSES AND TYPES OF CMTS	
BS Bark-stripped Tree	OM Other Modified Tree (Continued)
T Tree with Tapered Bark-Strip Scar(s)	M Message Tree
R Tree with Large Rectangular Bark-Strip Scar(s)	A Arboglyph Tree
G Tree with Girdled Bark-Strip Scar(s)	G Arborgraph Tree
O Tree with Other Bark-Strip Scar(s)	B Blazed Tree
	S Sap Collection Tree
	O Other
AL Aboriginally-Logged Tree	
T Tested Tree	
U Undercut Tree	
F Felled Tree	
S Sectioned Tree	
N Notched Tree	
P Planked Tree	
C Canoe Tree	
OM Other Modified Tree	
P Pitch Collection Tree	
K Kindling Collection Tree	
D Delimbed Tree	
	TREE SPECIES ABBREVIATIONS
	C = western red cedar
	YC = yellow cedar (cypress)
	H = hemlock
	S = spruce
	PI = lodgepole pine
	At = aspen
	Py = yellow pine
	E = birch
	Pa = whitebark pine
	B = balsam

FIGURE 8: CMT RECORDING GUIDE

LEVEL I CMT RECORDING FORM		1. Register Site Number: _____
2. Temp. Site Number: <u>ML-1</u>	3. Map Sheet: <u>NTS (TRIM) 92C.093</u>	
4. Location: <u>W. Vancouver Island, approx. 5 km NE of Ucluelet, 400 m S. of Maggie Lake</u>		5. Location (Grid): <u>27 (83) 323000/5429200</u>
6. Tenure/Legal: <u>NW Forest Products, CP 402, Block R-12</u>		
7. Site Dimensions: <u>100 m N-S x 75 m W-E</u>	8. No. of CMTs: <u>3</u>	
9. CMT Species: <u>C</u>	10. CMT Class/Type(s): <input checked="" type="checkbox"/> BS T <input checked="" type="checkbox"/> AL P <input type="checkbox"/> OM _____	
11. Recorder: <u>V. Feddema/H. Pratt, 55A Fawcett Rd, Coquitlam</u> Tel: 604-526-2456 Fax: 604-526-2438		
12. Date: <u>Oct. 16/96</u>	13. Comments: (include permit # and/or reference, if applicable)	
<u>CMTs are located in N. portion</u>		
<u>of proposed timber harvesting block, near N. talling boundary.</u>		
<u>(Photos 12-17, Roll 4, Arcas project # 96835)</u>		
Following maps are attached: <input type="checkbox"/> NTS map <input checked="" type="checkbox"/> TRIM map <input type="checkbox"/> Development map at scale of: <u>1:5,000</u>		
Please provide as much information as possible. Use back to draw site map or provide additional comments.		

FIGURE 9: LEVEL 1 CMT RECORDING FORM COMPLETED

Dating CMTs

Dating a CMT can determine the year a tree was modified, and dating a stand of CMTs can recreate the traditional use of that harvest area over time. Additionally, dating CMTs establishes whether they pre or post date 1846, and whether the site is protected by the *Heritage Conservation Act*. **Modifying a protected CMT, even for dating purposes, requires either a *Section 14 Heritage Inspection Permit* or a *Section 12 Site Alteration Permit* from the Archaeology Branch, Victoria.** There are several ways to date bark stripped CMTs. The most common methods are increment boring and stem-round samples (SRS).

Increment Boring

Increment boring is a relatively quick and easy way of establishing the year a CMT was modified and has little impact on the tree. A 5 mm diameter borer is drilled into the scar face through the middle of the tree to the opposite bark side of the trunk. If the healing lobes of the scar are thick, or the scar wood is dry and dense, it may be easier to drill the opposite way from the bark side through to the scar. In order to age the tree, or find out how old the tree was when stripped the core must penetrate the pith at the center of the tree. To find the age of the scar modification alone, it is not necessary to drill through the pith as the number of rings missed on each side of the core cancel each other out. If the tree is too large for the increment borer to penetrate completely through the tree two cores are taken - one from the scar face to the middle, and one through the unmodified side of the tree to the middle.

Increment cores are carefully extracted from the tree and if rings segments separate they must be kept in the proper order as they are taken from the tree. The core is collected in straws, which are labeled with the following:

- development name
- site number
- CMT number
- current date
- fieldworker's initials
- no. of samples if more than one core collected from a single CMT (i.e. straw 1 of 2).

Increment Boring

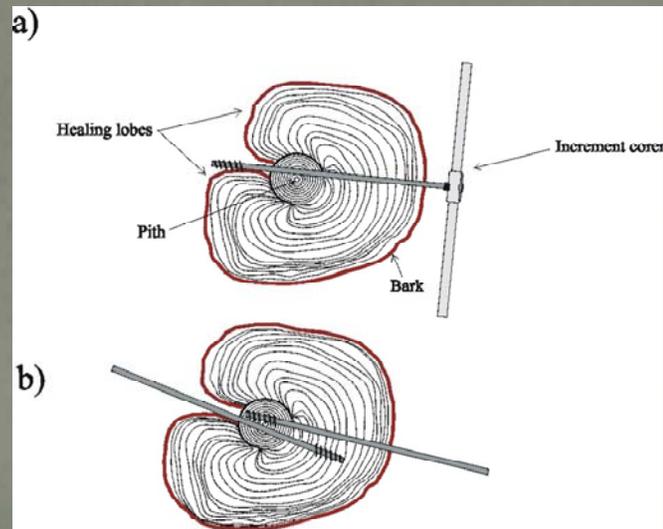
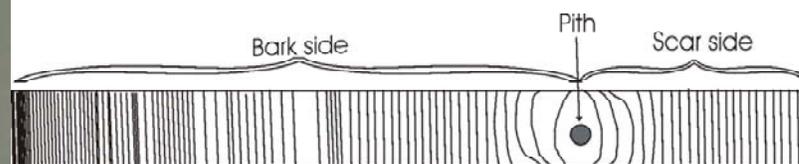


FIGURE 10: DATING CMTs INCREMENT BORING

Dating CMTs with Increment Cores

INCREMENT CORE DATING METHOD



Number rings on bark side - number rings on scar side
= number years ago tree was modified

Current year - number years ago tree was modified
= year tree was modified

FIGURE 11: DATING CMTs - CORE

Estimating CMT dates without a Section 12 or Section 14 Permit

To determine if CMTs were modified prior to or after 1846, the age of the tree must be determined. To ensure that pre-1846 CMTs are not modified, adjacent trees without any cultural scarring should be sampled to determine a representative age. A minimum of three trees should be aged to determine a reasonable accuracy. If the stand is uneven aged, ensure that all age classes are sampled. This does not provide an accurate age of the CMTs but should be sufficient to determine if the CMTs are pre or post-1846.

Take the current year and subtract 1846. The resulting number is the key age for determining pre or post CMTs. If the trees are older* than the key age, the CMTs may pre-date 1846**. **Do not bore CMTs that may pre-date 1846.** The recording forms, including a GPS location and excluding CMT ages, should be completed and the information must be reported. If the trees are younger* than the key age, the CMTs are post-1846. Record the post-1846 CMTs, including their ages by boring the tree. Provide the report. If the stand has pre and post-1846 CMTs, complete the recording forms, including a GPS location, and report the information.

The trees selected to estimate the age of CMTs must be the same species, of similar diameter, height, growing conditions and in close proximity to the CMT. The trees must be bored at 1.3 meters above high side. The pith must be included in at least half of the sample tree cores for each site. Count the growth rings between the cambium and the pith. Count the pith as one ring. This is the counted age.

*Use the corrected ages for the sample trees. The corrected ages should be from 7 to 14 years older than the counted ages, as per the site index tables.

** The date of cultural modification is at least 20 years younger than the tree, therefore using the key age to determine pre or post-1846 CMTs is very conservative.

References

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2001 *Cruising Manual*.

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Cultural Depressions

Cultural depressions are the remnants of circular or rectangular pits excavated by people into natural sediments. Cultural depressions may have been excavated for houses (pit house, house pit), food storage (cache pit), food cooking (roasting pit), burials, animal pitfalls, and side hill platforms. Some of the most commonly identified types of cultural depressions are *cache pits* and *house pits*. Cache pits and house pits are also classified as *features* - non-portable artifacts of human workmanship. Other commonly recognized types of cultural depressions include fire pits or roasting pits, ceremonial pits for sweat lodges, pitfall traps, and cremations. If a suspected cultural depression is identified in a development area by a person other than an archaeologist holding an appropriate permit, it should be measured (diameter & depth), photographed, and brought to the immediate attention of the licensee, District Office, and a consulting archaeologists.

Under the HCA, only a qualified person with a Section 14 Heritage Inspection Permit may investigate a cultural depression by subsurface testing or any other analytical measure that may disturb the site or soil matrix.

Cache Pits

Cache pits are surface features that were used for food storage. These pits were dug into the ground, usually sandy well-drained soils, to keep food fresh, cool and protected from animals. Cache pits were used to store food resources such as dried berries and fish throughout the lean winter months.

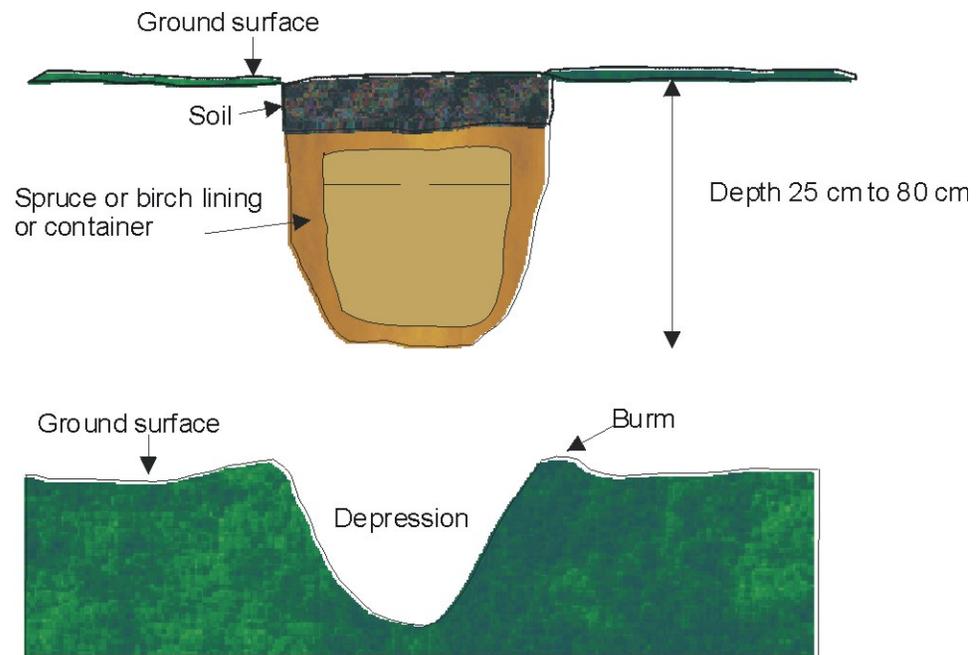
The structure of a cache pit is shown in the figure below. The sides of the pit would be lined with spruce or birch bark, and/or goods may have been placed into a bark basket before burial/storage in the pit. Father Morice reported that cache pits were in use into the contact period (1893: 197). Raised caches were also used frequently in the historic period. A raised cache consists of an elevated wooden box structure fashioned from small logs, used to protect food from the elements and animals.

Cache pits may be identified alone, in pairs, or in clusters. They may be found in association with cultural material (artifacts) or other cultural features (CMTs, house pits). Campsite-type areas along lakes, rivers, streams, or stream sites where weirs or traps could be used are likely locations for cache pits. Cache pits are also identified along trail routes, on meadows or swamp hunting sites, at stream mouths or intakes, salt licks, etc. They are generally situated in south and west facing locations. Pits may also be placed away from camp areas to take advantage of shade or sandy ridges for easy digging. They may also be situated in concealed areas such as an island to protect them from enemies or to facilitate easy re-location.

Cache pits vary in size from approximately 1 to 4 meters in diameter, and can measure from typically 25 cm to 100 cm deep. Physical characteristics of cache pits that are visible today include:

- relatively round in appearance
- a berm or rim may be present around the outer edge
- a rounded or bowled bottom as opposed to a flat one
- lots of moss growth in the pit which indicates it was not recently formed

- location – high, well drained area
- soil – relatively easy to dig



Cache pit profile as it looked in use 100 to 5000 years ago (top); and how it looks today (bottom).

FIGURE 12: STRUCTURE OF A CACHE PIT

House Pits

A second type of cultural depression that may be encountered in development areas is the house pit. House pits are the remains of semi-subterranean earth lodge dwellings called pit houses or kekulis. These structures are believed to have been used primarily as winter dwellings, measuring approximately 30 to 100 cm deep, and 4 to 10 m in diameter.

Pit houses are normally constructed using an earth-covered log framework roof over a circular to rectangular hole. They generally consisted of a conical framework of beams and roof supports erected over the hole and covered with spruce bark, moss, and a layer of soil. The entrance was located at the top of the structure and doubled as a smoke vent. Pit houses were reportedly in use as dwellings in the southern interior up to 1882.

The figure below demonstrates the structure of a semi-subterranean lodge as it looked 100-2500 years ago, and the resulting depression of the surface feature after the roof has caved in and the structure area has been covered with moss and forest floor growth. Pit house depressions may be distinct or very subtle. Common locations for pit houses include south and southwest facing lakeshores, riverbanks and stream outlets. House pits representing winter dwellings may be situated farther from

water bodies than spring, summer or fall dwellings, as snow would have been a source of potable water, and fuel would have been more readily available from within the forest. Locations away from large water bodies would provide better protection from the elements. As a result house pits can be found up to 500 m or more from hydrology features, and **consequently may be missed by archaeological predictive modeling, archaeological potential assessments, AOAs, AIAs, or PFRs.**

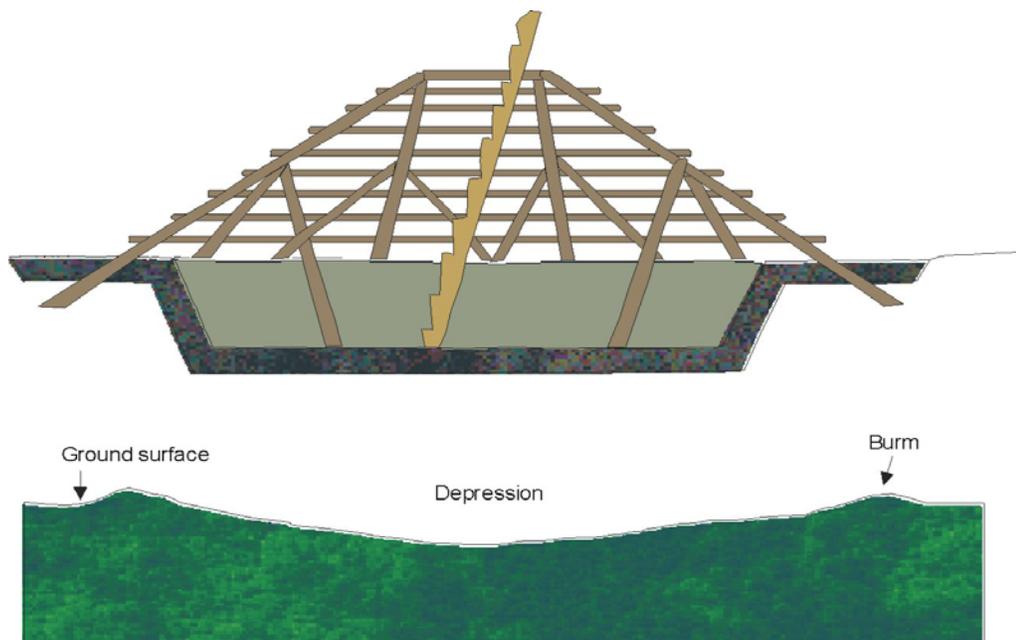


FIGURE 13: CULTURAL DEPRESSION STRUCTURE

In addition to pit houses four other types of lodges were generally used in the region. These include winter lodges, ceremonial lodges, summer lodges, and fishing lodges. Winter lodges were erected above ground. These lodges leave only a slight depression created by use, and would contain associated cultural material. Winter lodges were not generally dug deep into the ground. Large ceremonial lodges were large structures usually situated in villages, and were used as trading centers for potlatches and other important social events. Summer houses were structures that were used throughout spring, summer, and fall while following natural resources which became available at those times, also known as the seasonal round. The permanence of summer house structure is directly linked to the type and abundance of the resource being used. Summer lodges were normally rectangular in shape and constructed above ground with poles and spruce bark roofing. It is rare to find visible depressions today created by construction of this type of dwelling unless the locale was consistently used over a long period of time. Fishing lodges would be similar in structure to summer lodges. Because fishing lodges probably accommodated a large number of families who gathered together in the fall to fish, it is expected they would be larger and locations would be repeatedly used over the long term. As a result a considerable amount of cultural material is expected to accumulate around fishing lodges.

Cultural Material

Cultural material is any object that has been made or modified by humans. Stone and bone tools, and fire-altered rock are examples of cultural material commonly associated with archaeological sites. Cultural material sites identified in development areas most often consist of small scatters of stone material created as a by-product of manufacturing or maintaining chipped stone tools or artifacts. The waste created from making/maintaining stone tools is called *flakes*, *debitage* or *detritus*. Cultural material may (or may not) be associated with archaeological features (CDs, CMTs). Cultural material sites can range from *isolated finds*, that is a single or few flakes located across a limited area, or may be up to a kilometer long.

In addition to stone, less common types of cultural material we identify in the field are bone, antler, calcine bone, fire-cracked rock, glass and metal. *Calcine bone* is burnt bone which is reduced to its mineral elements so it is able to survive in acidic soil. *Fire-cracked rock* is rock that has been broken by the heat of a fire, and is commonly found associated with ancient hearths and campsites. Fire-cracked rock alone is not usually indicative of an archaeological site and should be found in conjunction with archaeological material, stratigraphy, or features that are interpreted as cultural. Glass and metal are usually found in association with sites from the post-contact period, although copper was mined by aboriginal people and used in pre-contact times throughout BC.

Cultural material may be situated below or on top of the ground. In order to locate and identify cultural materials below the soil surface archaeologists conduct subsurface investigations using shovel tests. Shovel tests are 30 cm² holes excavated approximately 30 cm below the surface of the soil or until a sterile matrix is identified. These small shovel tests are designed to minimally impact the stratification of an archaeological site while identifying the extent of the cultural material. The soil from every shovel test pit is screened through mesh and examined for cultural material.

Archaeological material found above ground or a *surface find* has probably been displaced from its original position in the soil. The disturbance factor may be natural such as tree throws, bank erosion, and game trails, or it may result from cultural or human activities such as road building, timber skidding, site preparation, etc. Cultural material not in its originally discarded position is *out of context* and if moved significantly from its original place it loses much of its scientific value to the archaeologist (Section 1).

Under the HCA, only a qualified person with a Section 14 Heritage Inspection Permit may investigate a cultural material site by subsurface testing or any other analytical measure that may disturb the site or soil matrix. Furthermore, collection of any suspected cultural material pre-dating 1846 is strictly prohibited as defined by the HCA. If a suspected cultural material site is identified in a development area by a person other than an archaeologist.

Raw Materials

Chipped stone artifacts can be made from a number of different types of lithic material. Basalt and vitreous basalt are commonly identified lithic raw materials found in BC. Basalt is igneous

originating from hardened lava. Chert, a sedimentary form of quartz, is also common and is found in many different colours and textures including black, brown, red, orange, caramel, white, pink, grey, and banded. Chalcedony is a light colored or translucent chert and is also commonly identified. Mudstone is a fine-grained sedimentary rock and is found in varying shades of brown or gray. Obsidian was a highly valued raw material in pre-contact times. It is also referred to as volcanic glass because it is igneous in origin and has a dense, glassy appearance. Obsidian may be solid or translucent, black, grey, smoke grey, brown, green or almost colorless. Obsidian is so fine grained that it is used today to make surgical instruments because it can create an edge many times sharper than steel. There are two known obsidian sources in BC, Mount Edziza and Anahim Mountain.

Softer stones like slate, sandstone, and siltstone were also used to make tools using pecking and grinding techniques. Sometimes tools made from bone and antler are recovered from the archaeological record, but not as often as stone since these materials will eventually decompose in relatively acidic soil conditions.

Chipped Stone Artifact Types

The most common chipped stone artifact types are flakes, retouched flakes, choppers, scrapers, microblades & blades, cores, projectile points, drills, and burins. A flake tool is a tool created by modifying a flake with retouch by removing small flakes from the margin of the flake in order to alter or sharpen the edge. A flake tool may also be a utilized flake or a flake with wear resulting from use.

A chopper is a fist-sized stone chunk that has been modified or sharpened on one surface, or that has evidence of use wear on its edges. Scrapers are flake tools that have been modified on several surfaces to create a steep angle (60-90°) for scraping. Scrapers come in many different shapes and sizes. Cores are lithic raw material nodes where flakes or blades have been removed. A core tool is used as a tool on its own for cutting or chopping, not just for the pieces removed from it. Blades and microblades are thin pieces with parallel sides detached from a core, and are at least twice as long as wide. Microblades are common in northern Canada and the arctic. They are usually set on edge or end in wood. Bifaces or knives are tools flaked on both sides and are used for sawing or slicing. A uniface is a tool only flaked on a single surface (e.g. many scrapers are unifaces). Projectile points (often referred to as arrow heads) are also bifaces, normally flaked on both sides. Projectile points also exhibit a haft or mounting area for setting in wood or bone. They are roughly symmetrical and thin in form. Projectile points include arrowheads, spear points, and dart tips. Awls or drills or are flaked hand tools used for perforating wood, bone and soft stone. And lastly, burins are spalls or needlelike flakes used for carving or engraving.

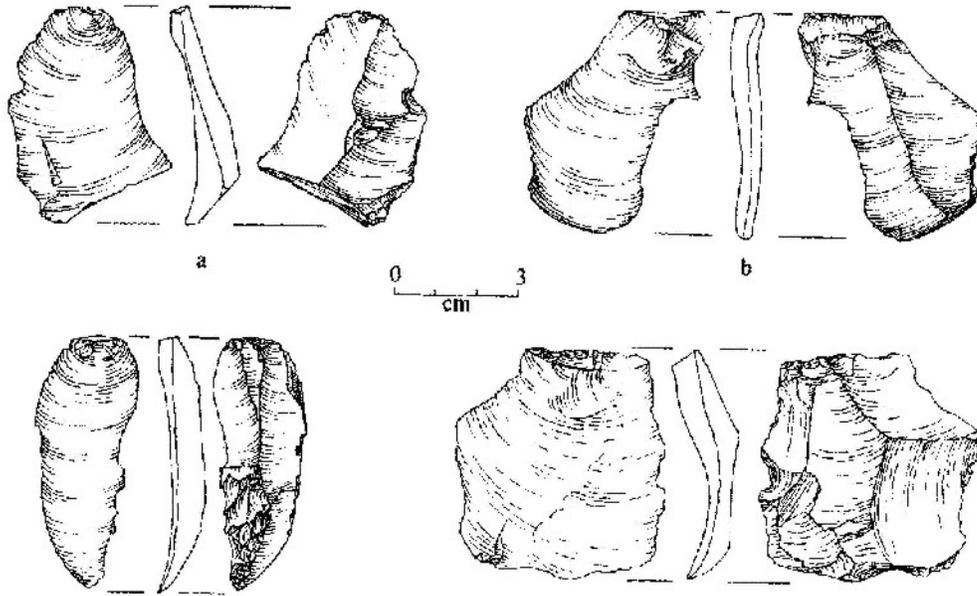


FIGURE 14: LITHIC DEBITAGE OR FLAKES (ANDREFSKY 1998: 16)

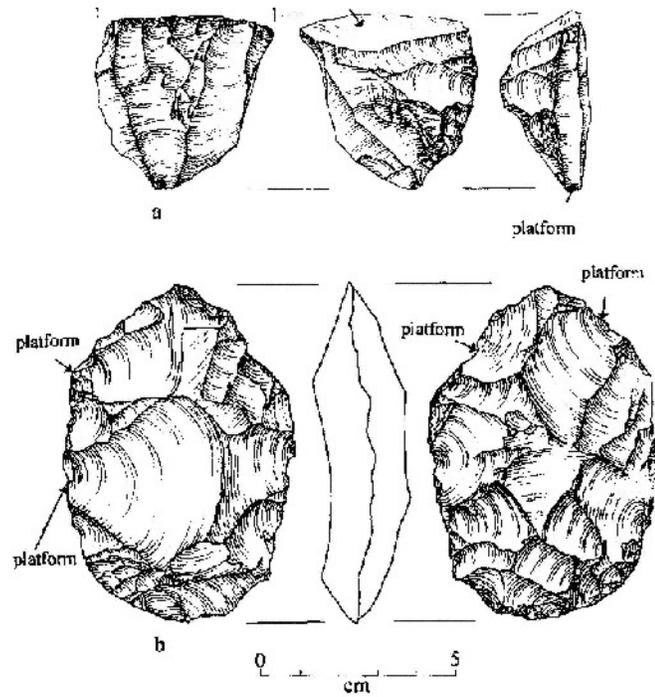


FIGURE 15: STONE CORES (ANDREFSKY 1998: 14)

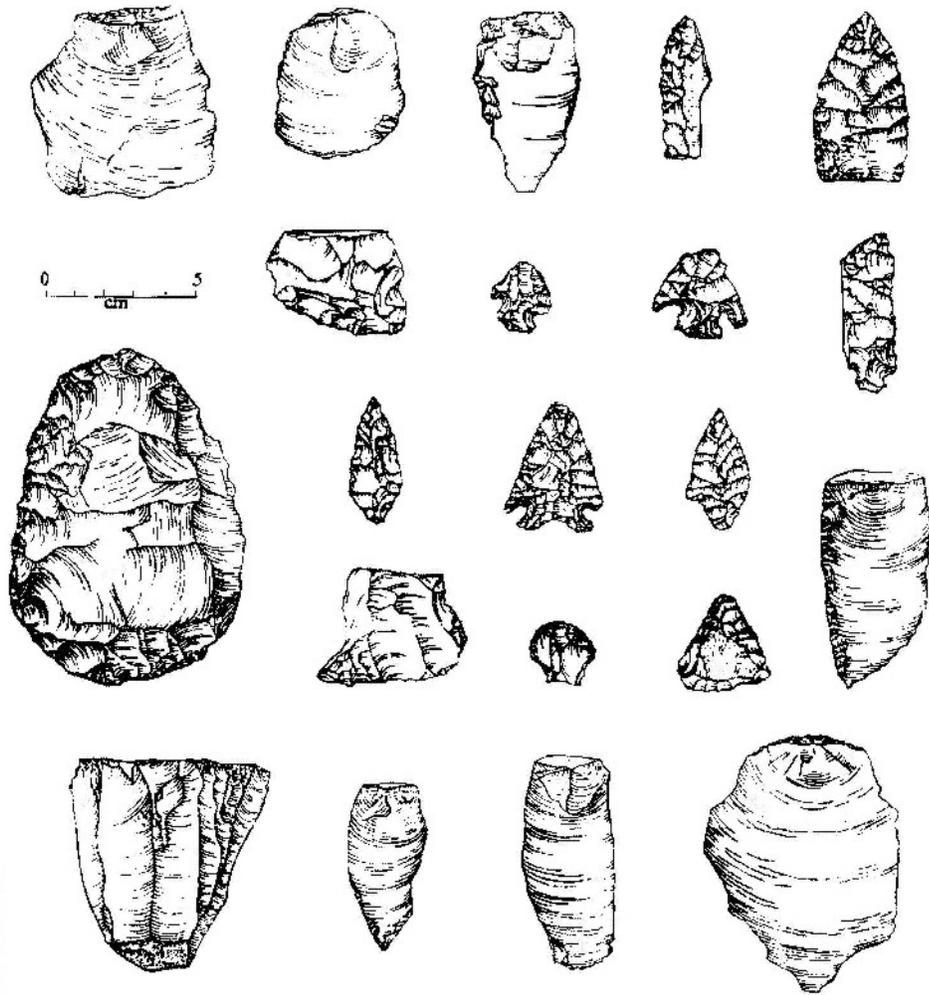


FIGURE 16: AN ASSORTMENT OF CHIPPED STONE ARTIFACTS(ANDREFSKY 1998: 61)

Ground Stone Artifacts

Softer stones like slate, sandstone, and siltstone were also used to make tools using a pecking or grinding technique. Ground stone tools from this region are comparatively rare next to chipped stone tools. In coastal BC ground stone tools represent a relatively recent technology and later time periods. Ground stone artifact forms include hand mauls, adzes, mortars & pestles. Hand mauls were used as hammers and are found in a variety shapes and sizes. Adzes are ground and polished artifacts, rectangular in shape with a beveled edge. They were used in conjunction with hand mauls to split materials like wood and bone. Mortars and pestles are used for preparing plant and animal foods and medicines by grinding. Finally, ground stone clubs are found throughout BC, however their function remains unclear. They are generally thought to be ceremonial objects as their weight prohibits them from being functional, for instance in combat.

Bone & Antler Artifacts

Bone and antler artifacts may also be recovered from archaeological sites. These materials can be preserved in the archaeological record if they have been burnt, frozen, are deposited in water (wet sites) or low acidity soils. Bones can be modified into many different tool forms. Large dense bones can be used for digging implements, awls or drills. Very small bones (e.g. bird bones) can be used as needles, and carved into barbed harpoons or hooks for fishing. Decorated beaver teeth used for carving have been recovered from archaeological sites. Bone tools are also used for making stone tools through percussion or pressure flaking. Bone scrapers are also used for many different purposes, including cleaning hides and collecting the inner cambium layer of pine trees.

Aboriginal Trails

In the pre-contact and early historic periods most travel in the BC interior was conducted via an extensive network of trails. These trails connected to other trail networks, as well as to the lake and river systems that ultimately spanned the entire province. It is this early transportation system that shaped exploration and settlement in British Columbia. As a result trails hold considerable historic value as well as recreational opportunities for the people of the province.

Most aboriginal trails went out of use over the last 100-150 years. The documented trails we know of are probably only a fraction of the trails that once existed and were regularly used by pre-contact peoples of BC. Some have become current road and highway right-of-ways. However, as a result of extensive documentary and traditional use research on trails we have a relatively comprehensive knowledge of the general trail routes throughout parts of the province.

Early surveyors also provide some of the most useful information on trails in the region. One of the most well-known trails of BC is the Nuxalk-Carrier Grease Trail (Alexander Mackenzie Heritage Trail) that winds its way more or less along the Blackwater River drainage system. This trail is a Designated Heritage Trail under the authority of Section 9 of the Heritage Conservation Act. Heritage trail designation prohibits all forestry or other development activity that may alter the trail feature without an appropriate permit from the Minister responsible for the Act. A Heritage Trail refers to trails of historic significance whether they are designated or not.



FIGURE 17: THE NUXALK-CARRIER GREASE (ALEXANDER MACKENZIE) TRAIL

Other Types of CHRS

Additional types of cultural heritage sites may be identified in forestry developments. These sites have varying degrees of archaeological, ethnic and historical significance, and may or may not be protected under the Heritage Conservation Act. Some of these additional types of CHRs are discussed below, but it should be noted that this list is not complete.

Rock Art

Petroglyphs are a form of rock art that consist of pictures, symbols, or other art work pecked, carved or incised on natural rock surfaces. Pictographs are also a form of rock art. They consist of aboriginally painted designs on natural rock surfaces. Red ochre is the most frequently used pigment for rock art. Natural or abstract motifs are often represented in petroglyphs such as fertility figures, clan symbols, fish, and wild game.

Petroforms are rock alignments or designs of aboriginal cultural origin. Petroforms are some of the most commonly recognized forms of archaeological sites, and include famous sites such as Inuit Innuksaks in the arctic, ceremonial medicine wheels on the Plains, and Stonehenge or druid circles in Britain. Petroforms also include more subtle sites like fish weirs or pens, where rocks are piled in streambeds in order to constrict the flow of a stream and consequently narrow a channel for fishing purposes.

Human Burials

Although uncommon, the possibility of encountering human remains within forestry developments in the central interior does exist. Burial sites may consist of rock cairns, and include elaborate decorative or ceremonial artifacts. Bone does not survive well in the acidic soils of the north-

central interior. If a suspected human burial is encountered three parties must be contacted - the district manager, local First Nations, and the RCMP. **Do not investigate human remains. Immediately report the find to the appropriate authorities.**

CHRs Post-dating European Contact

Although some cultural heritage sites encountered may date after the period of European arrival, they could have considerable cultural significance if they are linked to an important historical event, and may be designated as protected sites. For example trap houses and historic cabins may be features of trail routes or belong to persons who helped to shape the history of the region.

Cultural Plants

Refer to FREP p. 9

Traditional Use, Spiritual or Ceremonial Area, Sites or Features

Refer to FREP p. 10

Ecological Features with Cultural Significance

Refer to FREP p. 10

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Documentation of CHRs by Forestry Personnel

Filling Out the Field Checklist: Forms A & B

Refer to FREP pp. 22-33

Recording New CHRs

Refer to FREP p. 34

Documentation of unexpected CHRs by Ministry of Forests and Range personnel encountered in forestry developments should include good quality photographs and accurate spatial information. The following is a checklist of what to do when encountering undocumented CHRs: 1) Add additional features to Form A, Section 2; 2) fill out Form B for each newly encountered CHR feature including GPS & photographs; 3) use Form C for additional info. and sketch.

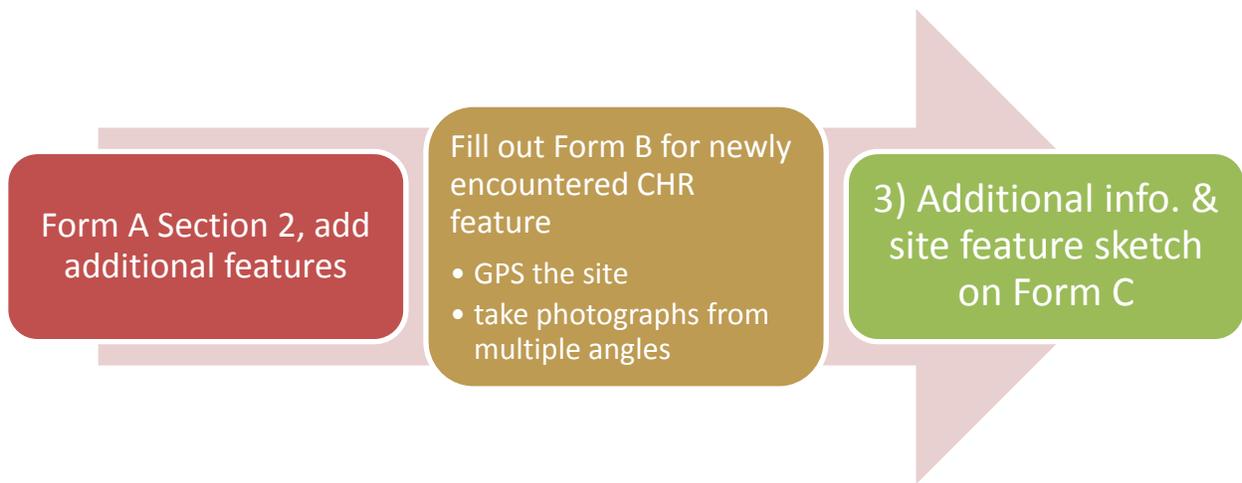


FIGURE 18: PROCESS FOR ENCOUNTERING UNDOCUMENTED CHRS