

BCAPA Standards of Practice Committee

FIELD COLLECTION OF SAMPLES FOR MITIGATIVE DATING OF CULTURALLY MODIFIED TREES

Ratified at the

Annual General Meeting, 5 March 2011

In consideration of our mandate as Professional Archaeologists, our members will implement the following standards of practice during the CMT sample-collection process.

BC Association of Professional Archaeologists

Standards for Field Collection of Samples for Mitigative Dating of Culturally Modified Trees

PREAMBLE

The following document presents a Standard of Practice for Professional Archaeologists engaged in work completed under Section 14 (S14) Heritage Inspection (AIAs) and Section 12 (S12) Site Alteration Permits (SAPs), associated with sites containing Culturally Modified Trees (CMTs). It has been noted by the membership that problems have arisen with the collection and dating of CMT samples, whereby third party licensees/developers have in some cases failed to satisfy the conditions of a S12 permit. These failed conditions have manifested in several forms:

- Samples not properly collected in the field by forestry personnel;
- Samples not being collected at all;
- The mixing of samples and improper labelling during collection and transport resulting in the loss of provenience;
- Samples disappearing following transport;
- The dating of samples being conducted by unqualified personnel; and finally,
- The improper reporting of sample collection and dating methods.

Professional Archaeologists are not usually the individuals responsible for CMT sample-collection actions required as conditions of S12 Permits, so it is in the interest of our profession and stakeholders to positively influence the outcome of these Permits through active involvement at all stages of the process.

1. Role of the Professional Archaeologist

It is the responsibility of the Professional Archaeologist to advocate for the nature and scope of a reasonable and responsible role in S12 CMT sample-collection work.

It is also the archaeologist's responsibility to include detailed recommendations, in S14 reports prepared for our clients, to be implemented under S12 permits. These recommendations should specifically advocate for the role of a Professional Archaeologist in further S12 sample collection work, and should also advocate for a "CMT sample management plan" to be followed by the client (see Quality of Sample collection bullet below). In order to meet these goals, a Professional Archaeologist and client should co-jointly hold S12 permits.

Professional archaeologists are obligated to include a "CMT sample management plan" in the S12 permits they prepare and hold, and we strongly recommend that this condition is also included in S12 permits prepared by non-professionals.

2. Sampling Strategies/Statistics

CMT samples are collected to acquire temporal and spatial information on past landscape & resource use practices. The recommendations provided in a S14 AIA report must explicitly describe a sample collection strategy that emphasizes identification of temporal and spatial patterning within a site across the landscape, recognizing that a site proposed for harvesting may not be wholly impacted. Management recommendations should also recognize that sites rated as having high scientific significance may require a higher level of mitigative effort than the procedures prescribed in Muir and Moon (2000). CMT sample selection should not necessarily be restricted to the impact zone within a site or to individual CMT features that are directly impacted. Consideration should be given to sample features within the entire area of a site in order to acquire replicable temporal and spatial data. This is particularly critical in instances where adequate representative samples may only be obtainable beyond the boundaries of the anticipated impacted CMTs. When determining sampling strategies, it should be acknowledged that not all samples will provide a date (due to damage, mishandling, etc.) and thus an estimate of the 'success rate' (i.e. number of collected samples that may provide a date in the lab) should be provided.

3. Qualifications/training of crew

With the support of regulatory authorities, Professional Archaeologists should advocate that only appropriately trained individuals should be involved in the harvest, collection, transport and analysis of CMT stem round samples. However, when planning for an onsite Archaeologist, the safety of the crew is paramount and should be considered first and foremost in any harvesting/sample collection situation.

4. Standards for Field Sampling Collection and Transport

The following sampling procedures for collecting disc (or “stem round”) samples from CMTs are adapted from the CMT Handbook (Archaeology Branch 2001):

- a) The collection of wedge and disc samples is dangerous and should only be conducted by skilled fallers.
- b) The selection of a sample should not be limited to the area of the scar or feature. In the event there is extensive rot associated with the feature (e.g. rotted face of bark strip) samples should be taken from above the scar to access intact tree ring sections. In all cases, a sample from the scar feature area should also be collected. As bark can slough off of a bark strip feature after the cultural event, care should be taken to ensure samples are taken from the cultural scar and not through wood exposed after stripping by bark sloughing off below or above the scar. Samples from undercut or test-hole trees should be taken directly across (transverse cut) the modified portion of the CMT.
- c) If a tree is too large and appears rotten in the centre, the tree should be cut through the cultural modification, and left high stumped to allow for a disc to be collected from the stump after the tree has been felled. Alternatively, a wedge sample may be taken from the lobe, if the possibility of internal ‘hidden’ scars is low or the information isn’t considered necessary to obtain. The safety of the crew, including the faller and the archaeologist should help to determine the most appropriate method of sample collection.
- d) Discs cut from nursing trees should be taken from as low on the tree as possible.
- e) Discs should be cut as thin as possible while still permitting transport without breakage.
- f) The provenience of the sample (e.g. height above ground, location on feature/stem) must be noted and photos taken of the sampled feature and sample itself.
- g) A tag or other means of identification must be firmly attached to each sample noting:
 - The block number or development name;
 - CMT number (indicated on the tree with spray paint and/or surveyor’s ribbon);
 - Collection date; and,
 - Which side of the sample is top.
- h) Individual pieces should also be marked with the same information, duplicated on each piece, or at a minimum the CMT number. If possible, draw a line across the sample to mark where the pieces fit together. A supply of large sample bags should be kept onsite, and broken sample pieces should be transported together in separate bags.
- i) Samples should be transported immediately following collection, and should not be left exposed to harsh weather (e.g., left in full sunlight or exposed to the rain).
- j) Samples should be carefully transported to ensure minimal damage or breakage, and should be wrapped in packing material or tape in case the sample breaks during transport.
- k) Following transport any packing material should be immediately removed to allow the samples to ‘breathe’ and dry. Samples should be stored carefully so as to maintain provenience, and to prevent breakage or damage (for example, avoid stacking heavy samples on top of lighter, more delicate ones).

5. Quality of sample collection/disposition/analysis

An archaeologist employed on-site during CMT harvesting activities must ensure appropriate sample collection methods and manage subsequent sample custody.

Following collection, samples should be allowed to dry for several days prior to sample preparation for analysis. A dried sample will allow for proper sanding and preparation using progressively finer grits of sandpaper. Once the sample has been sanded, a light dusting of liquid black tea or coffee may be brushed over the area to be counted. This aids in the visual appearance of the early and latewood rings, as well as any finer details such as resin canals indicating post injury trauma.

During sample preparation and analysis, additional care should be taken to ensure the provenience and integrity of each sample.

Only qualified individuals should undertake the sample preparation and analysis of CMT samples. We also strongly encourage that non-professionals undertaking this role should be supervised by a suitably qualified individual, with a follow-up *Quality Review* provided by a Professional Archaeologist.

6. Reporting/Record Keeping -

Reporting of S12 CMT compliance and analysis results will include an evaluation that accurately reflect both the strengths and weaknesses in the methods used for data collection, sample transport, and sample preparation/analysis. This should include discussion of the target success rate as indicated in the S12 permit and of the actual success rate obtained. Applicable reporting standards and guidelines required by the Archaeology Branch (2009, 2010a, 2010b) must also be followed.

REFERENCES CITED

Archaeology Branch

2001 Culturally Modified Trees of British Columbia: A Handbook for the Identification and Recording of Culturally Modified Trees [Version 2]. Prepared by the Archaeology Branch, the BC Ministry of Small Business Tourism and Culture.

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http://www.tsa.gov.bc.ca/archaeology/bulletins/bulletin7_standards_for_electronic_submission_of_permit_reports.htm.

2010a Information Bulletin 18, Site Alteration Permit Reports, found at:
http://www.tca.gov.bc.ca/archaeology/bulletins/bulletin18_site_alteration_permit_reports.htm

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