



Field Methods Guide

Characteristics of Wiigwaasi-mitig (Paper Birch, *Betula papyrifera* Marsh.)

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Overview

The Anishinaabe (also referred to as the Ojibwe and Chippewa) use the outer bark of the paper birch (*Betula papyrifera*) for many different purposes. Tribal members who use or have used birch bark (referenced in Appendix B) have said that the different characteristics of birch bark determine its eventual use (baskets, canoes, shelter, etc.).

This document describes a protocol to assess and document birch bark characteristics and to evaluate past birch bark harvest activities. The development and implementation of this protocol is authorized under Section IV.D of the *Memorandum of understanding regarding Tribal-USDA Forest Service relations on national forest lands within the territories ceded in treaties 1836, 1837, and 1842* (1999).

Scope and Application

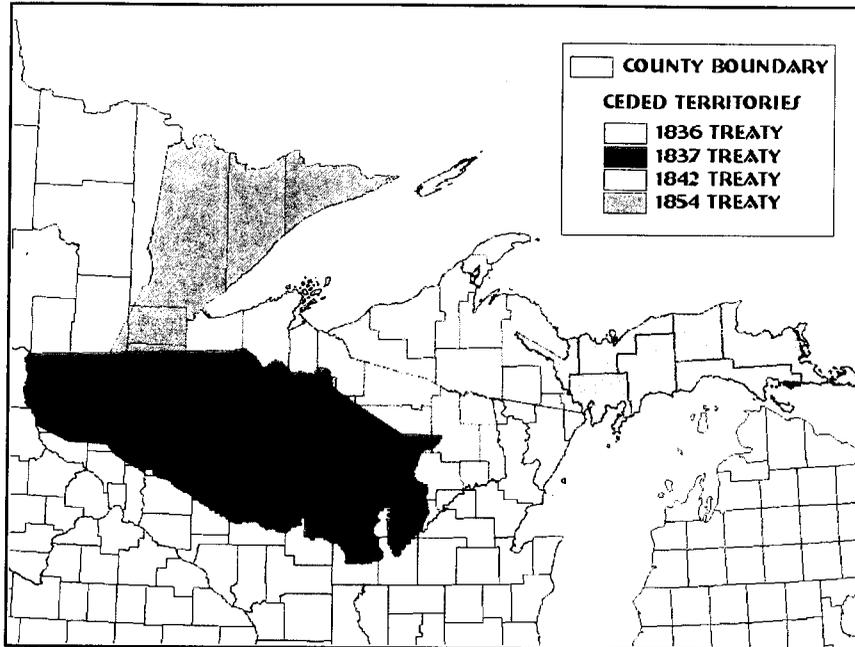
The primary objective of this protocol is to acquire information on the status, abundance, and distribution of an important special forest product, birch bark, harvested by tribal members and non-Indians alike. As the stature of special forest products continues to increase, inventory and monitoring of these products may become necessary to promote sustainable harvest.

The scope of this protocol covers northern Minnesota, Wisconsin, and Michigan, within the ceded territories of Treaties 1836, 1837, 1842 and 1854 (Figure 1). This protocol was developed with the following considerations:

1. Maximize usefulness by consulting with tribal harvesters. Six tribal members were interviewed on twenty separate occasions to identify the birch characteristics used most often to select the bark to be harvested. The tribal members are members of different Ojibwe bands and gather birch bark for a variety of purposes.
2. Maximize objectivity of birch bark assessments. Identified birch characteristics had to be described and categorized to ensure that the developed assessment methodology could be easily replicated by new field technicians with minimal training.
3. Maximize integration with previously established Forest Inventory and Analysis (FIA) protocols. The birch assessment was designed to be easily incorporated into existing methodology to minimize additional labor and time.

Figure 1. The ceded territories of Treaties 1836, 1837, 1842 and 1854.

(This is a representation of the boundaries of the ceded territories and may not be legally binding)



Summary of Methods

Data collection for birch characteristics is implemented in conjunction with existing FIA protocol. Characteristics assessed and documented include trunk curvature, evidence of past harvest, bark texture, and specific bark features (e.g., wounds and fungus). Codes, used to define categories for each assessed characteristics, are recorded on data sheets.

Data Collection

The field team locates or relocates a predetermined plot and center pin for sub-plots. All paper birch (*Betula papyrifera*) trunks measuring five inches or larger at diameter breast height (dbh) within each sub-plot are assessed for specified characteristics. The dbh requirement corresponds to existing FIA protocol. Characteristics are assessed separately within two areas on the tree trunk. The first area measures four to eight feet above the ground. The second area measures eight to sixteen feet above the ground. Following are the codes and definitions to be used for each assessed characteristic.

1. Trunk Curvature Characteristics

Trunk curvature refers to the relative straightness of the tree trunk.

<u>Code</u>	<u>Definition</u>
0	no curvature
1	moderate curvature
2	extreme curvature

Moderate Curvature



Extreme Curvature



2. Branching Characteristics

Branching refers to the presence of lateral stems, regardless if the stems are alive or dead.

<u>Code</u>	<u>Definition</u>
0	absent
1	present

Branching Present



Branching Absent



3. Bark Characteristics

3.1 Past Harvest

Trees from which bark has been harvested are recorded by using codes defining a range of years since past harvest. For the area on the trunk (lower and/or upper) where past harvest has occurred complete only this section. Do not proceed to section 3.2.

<u>Code</u>	<u>Definition</u>
0	no bark harvest
1	< 1 year
2	1 year and < 3 years
3	3 years and < 6 years
4	6 years and < 10 years
5	> 10 years

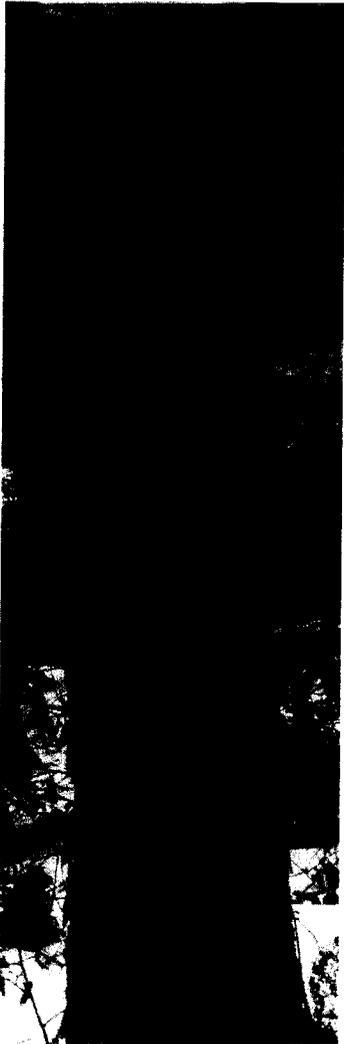
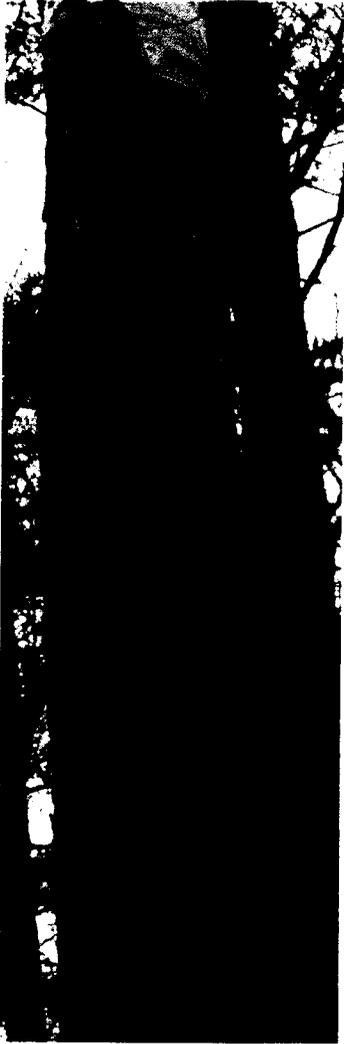
Less than one year since harvest: The color of the outermost layer of the second growth bark (*L1 bark*) varies from tan on a freshly peeled tree, aging to a dark brown. Cracks begin to form on the dark brown *L1 bark*.



One year to less than three years since harvest: *L1 bark* color is dark brown to blackish. Cracks deepen, with some *L1 bark* pieces beginning to fall off exposing the next layer of the second growth bark (*L2 bark*)



Three years to less than six years since harvest: *L1 bark* color is dark brown to blackish. More *L1 bark* pieces falling off with over 25% and less than 75% of *L2 bark* exposed.



Six years to less than ten years since harvest: Over 75% of *L2 bark* exposed. *L2 bark* color is brownish-grey to light grey.



Ten years and over since harvest: *L1 bark* no longer or minimally present. *L2 bark* color is dark grey to light grey, often cracked and sometimes exfoliating.



3.2 Bark Texture

Bark texture ranges from smooth to rough. Roughness is caused by various bark characteristics including lenticels, branch scars and wounds. Lichens and moss are not considered as part of bark texture. Bark texture is recorded using codes defining the percentage of rough bark around the trunk circumference.

<u>Code</u>	<u>Definition</u>
1	0-25% rough bark
2	26-50% rough bark
3	51-75% rough bark
4	76-100% rough bark

Smoothness



Roughness

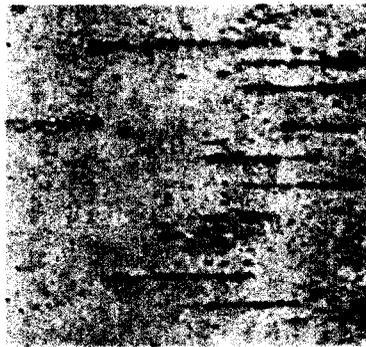


3.2.1 Lenticels

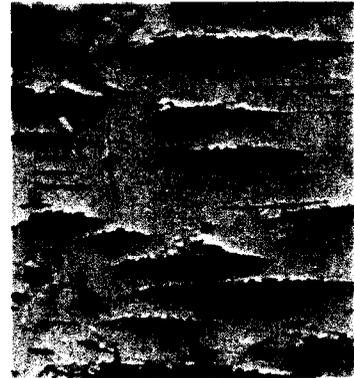
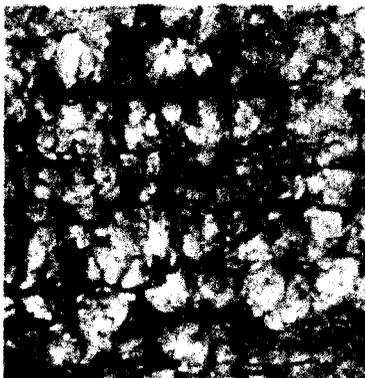
Lenticels are structurally different portions of the bark where gaseous exchange occurs. Dominant lenticel characteristics are determined for those lenticels that comprise the area of rough texture on the bark.

<u>Code</u>	<u>Definition</u>
1	Fine
2	Coarse

Fine Lenticels



Coarse Lenticels



3.2.2 Branch Scars

Branch scars refers to the presence of any characteristic bark texture indicating the former location of branching stems.

<u>Code</u>	<u>Definition</u>
0	absent
1	present



3.2.3 Exfoliating Bark

Exfoliating bark refers the presence of peeling or shedding bark characteristic to paper birch around the entire trunk circumference

<u>Code</u>	<u>Definition</u>
0	absent
1	< 50 % exfoliating bark
2	>50 % exfoliating bark



3.2.4 Blemishes

Blemishes include any compromises to the integrity of the bark. The blemishes can be formed by the tree itself, animals, attempted bark harvest, or vandalism. Vandalism is any wound that appears to be caused by human, that is not attempted bark harvest.

<u>Code</u>	<u>Definition</u>
0	absent
1	present



3.2.5 Fungus

Fungus includes all species of stem cankers and conks.

<u>Code</u>	<u>Definition</u>
0	absent
1	present



3.3 Lichens and Moss

Currently, tribal harvesters rarely use the absence or presence of lichens and moss as a characteristic for determining the suitability of bark gathering. Nonetheless, this characteristic should be recorded for potential future interest.

<u>Code</u>	<u>Definition</u>
0	absent
1	present



Appendix A: Sample Data Sheet

Birch Characteristics	Tree 1		Tree 2		Tree 3		Tree 4		Tree 5	
	Lower	Upper								
1. Trunk Curvature										
2. Branching										
3. Bark Characteristics										
3.1 Past Harvest										
3.2 Bark Texture										
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3.2.3 Exfoliating Bark										
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3.3 Lichen and Moss										

Appendix B: Traditional Ecological Knowledge Interviews

- Bisonette, Mark A. 2002. Lac Courte Oreilles Band. July 10.
- Bisonette, Mark A. 2003. Lac Courte Oreilles Band. January 30.
- Boyd, Russell. 2002. Mille Lacs Band of Ojibwe. October 11.
- Boyd, Russell. 2002. Mille Lacs Band of Ojibwe. October 18.
- Defoe, Marvin Jr. 2002. Red Cliff Band. November 8.
- Defoe, Marvin Jr. 2002. Red Cliff Band. December 12.
- Sander, Robert J. 2002. Lac Courte Oreilles Band. July 10.
- Savage, Jeff. 2002. Fond du Lac Band. June 29.
- Savage, Jeff. 2002. Fond du Lac Band. July 3.
- Savage, Jeff. 2002. Fond du Lac Band. October 2.
- Savage, Jeff. 2002. Fond du Lac Band. October 9.
- Savage, Jeff. 2002. Fond du Lac Band. November 21.
- Savage, Jeff. 2003. Fond du Lac Band. January 29.
- Valliere, Leon C. 2002. Lac du Flambeau Band. July 2.
- Valliere, Leon C. 2002. Lac du Flambeau Band. November 13.
- Valliere, Leon C. 2002. Lac du Flambeau Band. December 11.
- Valliere, Leon C. 2003. Lac du Flambeau Band. January 31.
- Valliere, Wayne M. 2002. Lac du Flambeau Band. July 2.
- White, Donald G. 2002. Lac Courte Oreilles Band. December 4.
- White, Donald G. 2002. Lac Courte Oreilles Band. December 21.