



Montana
Office of Public Instruction
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Indian Education for All
Montana State Parks Lesson Plan
Wild Horse Island State Park
January 2010 (revised)

Title

Scarred Trees Tell a Story

Content Areas

Social Studies (History, Geography, Cultural Archaeology); Science

Grade Level

7th - 8th (suitable for grades 9-10 with corresponding benchmarks)

Duration

Two 50-minute class periods and one homework assignment. (Optional: 2 class periods and 2 homework assignments)

Overview and Objectives

On Flathead Lake's Wild Horse Island on and throughout northwestern Montana, ancient pine trees with large scars show the evidence of centuries of use by indigenous peoples in this area. In fact, such trees exist all over the West, testimony to the wide-spread indigenous practice of utilization of this resource for something other than the wood itself. In the last 150 years, states and the federal government have inhibited the actions that caused these scars, logged most of these ancient trees and changed the forest ecosystems through years of fire suppression. In this lesson students will explore some of the thousands of years-old history of the Salish, Pend d'Oreille and Kootenai tribes now headquartered on the Flathead Indian Reservation in northwestern Montana. Students will understand the relationship between indigenous methods of food procurement and natural environmental sustainability, with specific attention to culturally modified trees (CMTs, also called "culturally scarred trees"). Students will discover how archaeologists and forest scientists of today are "re-discovering" these trees and the potential value of these trees for what they teach about forest stewardship, cultural archaeology and cultural resource preservation. This lesson will enhance students' critical thinking skills.

Suggested Related Curricula—both of these are highly recommended.

“Logging in the High Lonesome” Chapter 12 of *Montana, Stories of the Land*, by Krys Holmes, Montana Historical Society Press, 2008. Book, related worksheets and testing materials are available online at: www.mhs.mt.gov Click on the textbook's icon to go to the textbook site. You will need a password to access teacher materials, and the website has a form for this purpose. This chapter provides an excellent historical context for “Scarred Trees Tell A Story.”

Fire On the Land (interactive DVD) available at all Montana school libraries courtesy of the Montana Office of Public Instruction. (7th-8th grades)

Montana Education Standards and Benchmarks

Indian Education for All

Essential Understanding 1: There is great diversity among the 12 tribal Nations of Montana in their languages, cultures, histories and governments. Each Nation has a distinct and unique cultural heritage that contributes to modern Montana.

Essential Understanding 3: The ideologies of Native traditional beliefs and spirituality persist into modern day life as tribal cultures, traditions and languages are still practiced by many American Indian people and are incorporated into how tribes govern and manage their affairs. Additionally, each tribe has its own oral history beginning with their origins that are as valid as written histories. These histories pre-date the “discovery” of North America.

Montana Content Standards

Social Studies Content Standard 1: Students access, synthesize, and evaluate information to communicate and apply social studies knowledge to real world situations. *Rationale: Every discipline has a process by which knowledge is gained or inquiry made. In the social studies, the information inquiry process is applied to locate and evaluate a variety of primary and secondary sources of information [which is then used] to draw conclusions in order to make decisions, solve problems and negotiate conflicts. Finally, as individuals who participate in self-governance, the decision-making process needs to be understood and practiced by students as they prepare to take on civic responsibilities.*

Benchmark 1.2 Students will assess the quality of information (e.g., primary of secondary sources, point of view and embedded values of the author).

Social Studies Content Standard 3: Students apply geographic knowledge and skills (e.g., location, place, human/environment interactions, movement, and regions). *Rationale: Students gain geographical perspectives on Montana and the world by studying the Earth and how people interact with places. Knowledge of geography helps students address cultural, economic, social and civic implications of living in various environments.*

Benchmark 3.3 Students will analyze diverse land use [practices] and explain the historical and contemporary effects of this use on the environment, with emphasis on Montana.

Benchmark 3.7 Students will describe major changes in a local area that have been caused by human beings and will analyze the probable effects on the community and environment.

Social Studies Content Standard 5: Students make informed decisions based on an understanding of the economic principles of production, distribution, exchange and consumption. *Note: In this lesson, students will need to consider the impacts of opposing cultural belief systems—including worldview and scientific philosophy—on economics, access to resources and natural resource management.*

Benchmark 5.4 Students will analyze how various personal and cultural points of view influence economic decisions (e.g., land ownership, etc.)

Science Content Standard 3: Students demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment. *Rationale: Students gain a better understanding of the world around them if they study a variety of organisms, microscopic as well as macroscopic... The understanding of diversity helps students understand biological evolution and life’s natural processes.... The study of living systems provides students important information about how humans critically impact Earth’s biomes.*

Benchmark 3.4 Students will investigate and explain the interdependent nature of biological systems in the environment and how they are affected by human interaction.

Materials and Resources Needed

(Article) “Culturally Scarred Trees” from previous OPI lesson plans (Attachment C).

(Report) “Culturally Scarred Trees in the Bob Marshall Wilderness...” by Ostlund, Keane, Arno and Andersson, for the USFS Rocky Mountain Region. Retrieved on July 27, 2009, from <http://www.treesearch.fs.fed.us/pubs/26809> Article originally published in *Natural Areas Journal* 25(4):315-325. Specific pages to be read are listed later in this lesson.

(Article) “What Indians Ate” by David Reese, in *Montana Living*, Fall 2000. Archived on 07/25/2008 on www.montanaliving.com (Searchable by typing in “Wild Horse Island Indians Reese” on the Montana Living website’s search box. It will appear in a list, but not necessarily at the top. You can also do a Google search to find this article.)

(Web article--Background information on the Kootenai in Montana)

http://www.montanatribes.org/links_and_resources/tribes/Flathead_Reservation.pdf

Montana Native Plants and Early Peoples, by Jeff Hart. Montana Historical Society Press, 1992. (Later edition has been published, and this would also suffice.) You will need the section on the Ponderosa Pine (pages 50-51 in the first edition) for this lesson.

The Salish People and the Lewis and Clark Expedition, *Salish-Pend d’Oreille Culture Committee, et al., Salish Kootenai College Press, 2005.* You will need pages 7-9, 19-23, and 32-34 for this lesson.

Montana, Stories of the Land, by Krys Holmes, Montana Historical Society Press, 2008. You will need Chapter 12, “Logging in the High Lonesome.” Available online at:

<http://www.mhs.mt.gov/education/textbook/Chapter12/Chapter12.pdf>

Attachments included in this lesson.

Attachment A: Description of Wild Horse Island

Attachment B: Excerpt from “Millennia Research Significance Assessment, Final Report of Culturally Modified Trees,” by Morley Eldridge, Millennia Research Ltd., Jan., 1997.

Attachment C: “Culturally Scarred Trees” from previous OPI lesson plans.

Activities and Procedures

Teacher Preparation: Teachers should take time to become familiar with all of the reading materials for this lesson, most especially the background readings on the Kootenai and Salish & Pend d'Oreille tribes (listed in Class Period 1). It is recommended that you access and print all of the reading assignments for this lesson prior to class so that you will save time during class and so that students are able to take notes on the articles themselves (and use in discussion), rather than reading them on-line.

Class Period 1: Introduction to Wild Horse Island and the Salish and Kootenai tribes

The readings for this class period can be done in class or assigned prior to class as homework. If students will be reading in class, please access, print and copy the articles beforehand to save class time. Total reading time is approximately 15-20 minutes. For this class period, students will need:

- ✓ **Attachment A** (Description of Wild Horse Island)
- ✓ **“What Indians Ate”** by David Reese, in *Montana Living*, Fall 2000. Archived on 07/25/2008 on www.montanaliving.com (Searchable by typing in “wild horse island Indians reese” at the Montana Living website. It will appear in a list, but not necessarily at the top.)
- ✓ **Background information on the Kootenai in Montana:** (Read online or print entirely) http://www.montanatribes.org/links_&_resources/tribes/Flathead_Reservation.pdf
- ✓ **The Salish People and the Lewis and Clark Expedition:** *Read the following selections:* “Coyote and the Ice Age...” on p.7-9, “This Land was good” p.19-23, and p.30-32 (regarding traditional uses of fire).

- 1) Give a brief introduction to the lesson, using the Overview if necessary. Be sure to mention that the tribes in this lesson are the Kootenai, Salish and Pend d'Oreille and that they have inhabited Western Montana (and beyond) for at least 12,000 years (or longer). (>5 min.)
- 2) Distribute and read the reading materials listed above. (Reading time: 15-20 min.)
- 3) Lead a class discussion on the Kootenai, Salish and Pend d'Oreille tribes. Direct this discussion around the following topics. During this discussion, encourage students to back-up their statements with examples from the readings or (in the case of the last topic) real examples from Montana and U.S history. Try not to let students make unsubstantiated generalizations (like “They were in harmony with nature”) which contribute to stereotypes and do not facilitate actual understanding or appreciation for the complex and detailed understanding indigenous peoples had for their home and world. (30 minutes)
 - a) Kootenai origin story: When did the Kootenai “arrive” in this region? (Ans: Their cosmogony says they were made here and did not “arrive” from anywhere else.)
 - b) What is the Kootenai relationship to the other aspects of the natural world? Who gave the Kootenai all they needed to survive?
 - c) Describe the Salish and Pend d'Oreille’s traditional view of their relationship with the natural world. What are some of the key characteristics of this relationship?
 - d) What examples from their histories can you point to that illustrate these tribes’ (1) observation and knowledge of multiple aspects and components of their environment, (2) understanding of the inter-relatedness of living and non-living things (an ecosystem); (3) land-use practices based on the understanding of the need for all aspects of nature to regenerate and renew themselves; (4) respect for the natural “resources” they used?
 - e) Contrast these values, understandings and land-use practices with those of the Western culture. (Consider, for example: settlers, explorers, prospectors, farmers and ranchers, the colonizers of the West and their theory of the right of human domination over nature and nature as a vault of resources to be exploited.)

- 4) Assign and distribute the three readings for Class Period 2. (See Class Period 2) These should be done as homework before the beginning of Class Period 2. Remind students to bring these essays with them for discussion in the next class. Reading time is: about 45 min.

Class Period 2: Traditional Uses of Trees by Tribes of Western Montana

For this period, students should already have read the following assigned readings. (You will also need to make copies of Attachment B for each student to read during this class period.)

- ✓ **Montana Native Plants and Early People**, by Jeff Hart—Read the section on Ponderosa Pine. (pages 50-51 in the 1992 edition.)
- ✓ **“Culturally Scarred Trees”** from previous OPI lesson plan (Attachment C).
- ✓ **“Culturally Scarred Trees in the Bob Marshall Wilderness...”** (Ostlund, et al.) Read: pages 315-317 (begin at the bottom of p.315 with the paragraph starting “The inner bark...” and end when you get to the sub-heading “Methods and Materials” on p.317) and read all of pages 321-323. Also view the graph on page 319 to see dates when trees were peeled.

- 1) Start the class with a discussion of the three readings assigned as homework at the end of Class Period 1 (listed above). (Keep this activity to about 15 minutes)

Discussion questions:

- (a) What were some of the indigenous uses for Ponderosa Pine trees (and other pines)?
 - (b) Did the trees from which the inner cambium had been harvested die from this “peeling”? Why not?
 - (c) How did the newcomers (American settlers) react to the practice of harvesting cambium from trees? Why did they react this way? What do you think the impacts of logging by settlers and Montana’s early citizens was on the old-growth forests, thus on the culturally scarred trees now available for research?
 - (d) What are scientists discovering over the last few years about culturally scarred trees and the indigenous peoples who left these marks? (What are some of the indications of culturally scarred trees and what other information do the people studying them today cross-reference these trees with?)
 - (e) Thought Question: Ostlund’s report on the peeled trees of the Bob Marshall Wilderness area, the scientists found that although the dates of the peeling of the trees they found were between 1665 and 1938, the majority of these trees were peeled between 1851-1875. Other than the decline of cambium harvesting *after* 1875 and in spite of the loss of older trees due to wildfires, disease, etc., what is one possible reason why harvest of inner cambium might have spiked during this time? Consider what is changing in this region at this time and also what resources are becoming scarce or harder for tribes to access beginning in this time period. (Ans: It is *possible* that cambium harvest increased between 1851-1875 because the white population rapidly increased in this region during these years with the Montana gold rush and thousands of settlers moving west. Also, buffalo population plummeted at this time and tribes were greatly impoverished. Treaties, especially those in 1851 and 1855, reduced tribal lands to smaller areas than traditionally used for subsistence, while white settlements tended to occupy valleys formerly used for plant-food harvesting.)
- 2) Distribute Attachment B (Eldridge) to your students. Read it aloud in class or have students read it in small groups or pairs. (Reading time: 5-10 minutes)
- 3) After reading this assignment, students should write a thoughtful 1-page impromptu essay regarding their own thoughts on: the importance of cultural artifact preservation (trees as) and learning from cultural knowledge for forest/land/natural resource management today and how “science” is also affected by cultural knowledge now. (25 min. or remainder of class)

Assessment and Evaluation

Evaluate students based on participation in class discussion, oral responses, and written work.

Attachments

Attachment A: Description of Wild Horse Island

Attachment B: Excerpt from “Millennia Research Significance Assessment, Final Report of Culturally Modified Trees,” by Morley Eldridge, Millennia Research Ltd., Jan., 1997.

Attachment C: “Culturally Scarred Trees” from previous OPI lesson plans

Attachment A: Description of Wild Horse Island

“The island is surprisingly diverse. Big-horn sheep roam the high country, and ospreys nest in the trees. Black bears swim out from the mainland to roam the shady forests and yellow fields of arrowleaf balsamroot. Coyotes stalk rodents and the occasional young or aged mule deer, keeping the deer population in check. And the island’s four wild horses—one black, one buckskin, one paint, and one brown—graze on a prairie of owl clover, larkspur, yarrow, and nodding onion.

The prairie first fed horses roughly 300 years ago. Early European explorers wrote that Indians told them the first herds arrived as refugees from ongoing raids between the Blackfeet and Kootenai Tribes in the early 1700s. The Kootenai tried to outfox the rival tribe by swimming their best horses from island to island, hopscotch fashion, before finally hiding them on Wild Horse.

The horses established a wild population, but they were removed after settlers homesteaded the island in the early 1900s. Thereafter, visitors would occasionally see a free-roaming horse or two, likely fugitives from an island rancher’s corral.

In the early 1980s, FWP decided to officially restore wild horses to the island and adopted several from a feral herd on federal Bureau of Land Management property in eastern Oregon. The horses were set free on this 2,163-acre mound of glacially formed cliffs and rolling Palouse prairie, a type of native grassland once common to this region.”

Excerpted from: Madison, David. “Water, Water Everywhere,” *Montana Outdoors*, May/June 2003. Retrieved July 30, 2009 from:

<http://fwp.mt.gov/mtoutdoors/HTML/articles/2003/flathead.htm>

Attachment B—the Significance of Culturally Modified Trees (2 pages)

This is an excerpt from “Millennia Research Significance Assessment, Final Report of Culturally Modified Trees,” pages 9-11, by Morley Eldridge, Millennia Research Ltd., Jan., 1997.

This report was written for a Canadian audience, so they will use the term CMT to refer to what Americans call culturally scarred or peeled trees. It also uses the term “aboriginal” in the same manner that we in the U.S. refer to Indigenous Peoples. Otherwise, all of the points herein are true for the U.S. as well and the data on which these points are based was collected from western Canada, where Canadian Kootenai and other tribes related to Montana tribes live.

CMT SIGNIFICANCE

The following section moves on to the discussion of significance. CMT management by foresters must address three forms of significance: scientific or archaeological values; cultural values; and Aboriginal Rights.

Some general statements concerning the scientific significance of CMTs are followed by operational assessment criteria for particular trees or clusters of trees (sites). Cultural significance and public significance are also discussed in separate sections. Scientific significance is considered most important by the Archaeology Branch when managing CMTs as archaeological features. However, for the purposes of **managing forests**, cultural significance and the Aboriginal Rights that may be linked to CMT presence, is equally or more important.

General Statements Regarding Scientific Significance of CMTs

CMTs are significant because:

- CMTs permit rapid, large scale assessments of traditional land use patterns that are less destructive and costly than other forms of archaeology;
- By providing science with accurate and easily accessible data, CMTs permit archaeologists to make inferences about aspects of First Nation’s resource utilization, settlement patterns, technological developments, population concentration, and in some cases ritual events (Mobley and Eldridge 1992);
- CMTs are easily recognizable and sometimes associated with the co-occurrence of other buried archaeological resources (Mobley & Eldridge 1992: 105);
- CMTs can be viewed as a resource with a high interpretive value and economic potential, of inherent interest to archaeologists, First Nations individuals, and the general public (Mobley & Eldridge 1992: 105)
- CMTs contain a wide range of evidence regarding the application of technical procedures of great interest and application to the increasing numbers of indigenous peoples actively exercising traditional skills, such as the building of large canoes;
- CMTs can verify oral histories, trail locations, and early historic documentation;

- □ CMTs have the potential to shed light on (at present) poorly understood methods of traditional forest utilization and management, and this could have further implications for current reforestation science.

CMTs are limited in their scientific significance because:

- They do not have the time depth of other archaeological sites, being mostly limited to the late pre-contact through historic period;
- They often cannot be preserved in the long-term because of the life span of the trees on which they occur. This is not as great a factor for western red cedar, yellow cedar, and Douglas-fir as for other species (since a 400 year old tree could potentially live another thousand years);
- Apart from their form, tool-marks, location, and ability to be dated to calendar year, CMTs have limited additional scientific data. The few subsurface excavations around CMTs have met with mixed success. There are potential avenues of research into the effect of aboriginal logging and bark-stripping on micro-environments and adjacent tree growth, although the possible effects would be extremely difficult to separate from natural causes; and,
- The link between CMTs and conventional archaeological sites needs further study.

Most original CMT research has been conducted by consulting, student, or government archaeologists, rather than faculty-member academics. This could lead to a perception that CMTs are not significant enough for academics to be interested in them. This is not the case. The academic community has directed graduate student work, participated in CMT inventory, and provided peer review for journal articles dealing with CMTs. It seems likely that academics will soon use their research capabilities and interdisciplinary networks to devise fresh approaches to CMT research.

(Retrieved on 07/27/09 from website:

http://www.tca.gov.bc.ca/archaeology/docs/culturally_modified_trees_significance_management.pdf)

Attachment C—“Culturally Scarred Trees” article

The Salish, Pend d’Oreille and Kootenai tribes generally have occupied Wild Horse Island State Park—Kwelkani Mi in the Kootenai language—and the Flathead Lake region for at least 5,000 years (Travel Montana). The Salish- Pend d’Oreille Culture Committee says the time span is 9,000 to 15,000 years ago (S-PCC 2005, p. 8). Horses were probably kept on the island from the time of their introduction to the Northern Rockies in the early 1700s until the early 1880s, when the tribes were forced onto the reservation, now called the Flathead Indian Reservation. In the early 1900s the Allotment Act, or the Dawes Act, for the most part, took the island out of Salish-Pend d’Oreille and Kootenai tribal hands for the settlement of whites.

The Salish, Pend d’Oreille and Kootenai tribes also used Wild Horse Island and the Flathead Lake area generally for the harvesting of cambium, a nutritious food product found just under the bark of the Ponderosa pine and other conifer trees (S-PCC 2005, p. 26-27). The cambium is obtained by peeling away the outer bark to obtain the tree’s sweet cambium layer. Strips of cambium were rolled into balls and stored in green leaves to prevent drying, or were tied into knots to be eaten more easily.

Sometimes mistaken for scars resulting from forest fires, these peeled-cambium scars generally are found on mature Ponderosa pine trees, beginning about 3 feet from the base of the tree. Even though some scars are very large--up to 8 feet long and 2 feet wide, they do not harm the tree. Presently, there are 12 “culturally scarred” or peeled trees at or near the Skeeko Bay Landing site at Wild Horse Island State Park. These trees range in age from 90-200 years old.

Culturally scarred, or peeled, trees are found throughout the Flathead Lake area, generally. Fifty have been located within Glacier National Park (Whitacre). Today these trees are living guardians of an ancient story. They provide valuable information about travel routes and food resources during the time period when native tribes occupied this area. Culturally scarred, or peeled, trees are protected under the National Historic Preservation Act (Bitterroot National Forest).

The Journals of the Lewis and Clark Expedition include several references to peeled trees:

...saw where the natives had pealed the bark off the pine trees about this same season. This the indian woman with us informs that they do to obtain the sap and soft part of the wood and bark for food.

July 19, 1805, near the “gates of the Rocky Mountains” on the Missouri River,
near Helena, Montana

I mad camp at 8 on this roade & particularly on this Creek the Indians have pealed a number of Pine for the under bark which they eate at certain Season of the year, I am told in the Spring they make use of his bark.

September 12, 1805, on Lolo Creek, in western Montana
Christine Whitacre



Photo: NPS & RMCESU

Ponderosa Pine (*Pinus ponderosa*). Scars are often visible on the trunks of large, centuries old Ponderosa pine trees. In the Bitterroot Valley and its surrounding mountains, such trees stand as living testimony to the presence of Salish, Pend d'Oreille and Kootenai tribes, and other American Indians in the Flathead Lake area of northwest Montana more than a hundred years ago.

US Forest Service, Bitterroot National Forest,
"Plants of Historic Significance"

(Copied from the 2006 OPI Wild Horse Island State Park Indian Education For All Lesson Plan.)