CULTURAL RESOURCE PLAN FOR THE DENALI HIGHWAY LANDS, CENTRAL ALASKA

Richard VanderHoek

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Division of Parks and Outdoor Recreation

Alaska Department of NATURAL RESOURCES

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Cover: Landmark Gap Lake and western Landmark Gap, Denali Block I. The view is looking north, with the Alaska Range in the distance. Photo by B. Wygal, July 28, 2004.

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Office of History and Archaeology
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ABSTRACT

In 2003 the Bureau of Land Management began the process of conveying 200,000 acres of land in several blocks to the State in areas north of the Denali Highway in central Alaska, as part of statehood land selections. One of these, termed Denali Block I, contains the northern fifth of the Tangle Lakes Archaeological District (TLAD), a 226,660 acre unit listed in the National Register of Historic Places. This document is intended to provide guidance in the management of the cultural resources on state lands in the TLAD, and on other state lands in the Denali Highway region. It provides internal guidance to staff within OHA as well as management recommendations and guidelines for state agencies and developers within the planning area.

The Alaska Department of Natural Resources, Division of Mining, Land and Water (DMLW) is the state agency with the authority and responsibility for managing resources on general state lands. It is the responsibility of Division of Parks and Outdoor Recreation/Office of History and Archaeology (OHA) to advise DMLW on the management of cultural resources on state lands. Most of the Denali Highway lands are considered multiple use, with the exception of a special use area that encloses the northern section of the TLAD.

This report sets out cultural resource protection guidelines for OHA and guidance for DMLW on managing the cultural resources in the TLAD and Denali Highway region. It also gives guidance for agencies and commercial interests to follow, enabling them to comply with laws and regulations protecting cultural resources.

Resource extraction, road and trail development and modification, and other human activities all have potential to impact cultural resources. The primary mechanism of disturbance for archaeological sites in the TLAD has been Off Highway Vehicles (OHVs). Recommendations in this plan on trail management are based in part on OHA's experience managing cultural resources on Denali lands since 2003.

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AAC - Alaska Administrative Code
ACHP - Advisory Council on Historic Preservation
AHPA - Alaska Historic Preservation Act
AHRS - Alaska Heritage Resources Survey
APE - Area of Potential Effect
AS - Alaska Statute
BLIP - Basalt Lake Ice Patch
BLM - Bureau of Land Management
COE - U.S. Corps of Engineers
CRM - Cultural Resource Management
DNR - State of Alaska Department of Natural Resources
DMLW - Division of Mining, Land and Water, DNR
DPOR - Division of Parks and Outdoor Recreation, DNR
DRIP - Delta River Ice Patch
EIS - Environmental Impact Statement
EPA - Environmental Protection Agency
GAU - Generally Allowed Use
MOA - Memorandum of Agreement
MOU - Memorandum of Understanding
NEPA - National Environmental Policy Act
NPS - National Park Service
NHPA - National Historic Preservation Act
NRHP - National Register of Historic Places
OHA - Office of History and Archaeology, DNR, DPOR
OHV - Off Highway Vehicle
RST - Revised Statute Trail
SCRO - South Central Regional Office, DNR, DMLW
SHPO - State Historic Preservation Office
TCP - Traditional Cultural Property
TLAD - Tangle Lakes Archaeological District
TLAD/SUA - Tangle Lakes Archaeological District/Special Use Area

PLAN OVERVIEW

Chapter One sets out the purpose of the plan and defines the area the plan covers. It discusses the management of cultural resources on state land, and gives state and federal statutes covering the preservation of cultural resources.

Chapter Two provides an overview of which management plans cover sections of the Denali Highway, describes land designations and generally allowed uses on state land, and discusses the special use area restrictions put on the state's section of the Tangle Lakes Archaeological District. It also provides a discussion of the Division of Mining, Land and Water permitting process for activities on state lands, as well as collaboration and existing memoranda of agreement with the Bureau of Land Management (BLM).

Chapter Three describes the current recreational and commercial uses that take place on Denali Highway lands, how these uses are considered by BLM, and what uses can be projected for Denali Highway lands.

Chapter Four provides an overview of the cultural resource management activities, including site monitoring and archaeological survey, which have taken place on the Denali Highway, focusing on the lands in the Tangle Lakes Archaeological District. It also discusses human occupation of the region over time, particular types of archaeological sites and the locations where they are often found, and appropriate methodologies to use when planning archaeological surveys.

Chapter Five enumerates the many human and natural disturbance factors that affect archaeological sites in the Denali Highway region.

Chapter Six lays out a series of factors that need to be considered when planning a project on state land in the Denali Highway region.

Chapter Seven puts forth a series of activities that the Office of History and Archaeology should undertake to appropriately manage and protect cultural resources in the Denali Highway region.

Chapter Eight prioritizes the Office of History and Archaeology activities put forth in Chapter Seven into short, medium, and long term categories.

Chapter Nine lists the references cited in the text.

Chapter Ten offers definitions for terms in the text that either are not in common usage or have definitions specific to management contexts.

The Appendix lays out a short, step-by-step process for agencies and cultural resource specialists to follow when considering the impact of their project on the cultural resources in the area.

I. INTRODUCTION

A. Purpose of the Plan

In early 2003, the Bureau of Land Management (BLM) conveyed to the State of Alaska a 235,000 acre block in the Tangle Lakes region (Denali Block I: Figures 1 and 2). Denali Block I contains part of the Tangle Lakes Archaeological District (TLAD), listed in the National Register of Historic Places. Additional lands near the Susitna River (Denali Block II West and parts of Denali Block II East) were later conveyed to the State as part of statehood land selection (Figures 1 and 3). Denali Block II contains the historic Valdez Creek Mining District and other significant historic and prehistoric resources. The purpose of this plan is to develop guidelines for the management of cultural resources on State of Alaska lands in this region. This plan sets forth land management and land use information, cultural resource history, areas of concern, and cultural resource management recommendations.

The region's cultural record, scenery, wildlife, and mineral potential make it an important area for a variety of interest groups in the State. This land is important to the residents of the State of Alaska, particularly regional Native groups, as well as Alaska's tourist and mining industries. Proper management of the cultural resources on this land is essential if the State is to fulfill its legal obligations to preserve these resources for future generations.

B. Planning Area

The Denali Blocks are located in interior Alaska south of the Alaska Range and north and south of the Denali Highway. Denali Block I was conveyed from the BLM to the State of Alaska in early 2003. It is located north of the Denali Highway between Milepost 12 and 41, and stretches north from the highway over 18 miles to the crests of the first series of peaks in the Alaska Range. Denali Block I contains approximately 235,000 acres of land, including the northern fifth of the Tangle Lakes Archaeological District (TLAD). The TLAD is 226,660 acres in size, and lies on both state land, north of the Denali Highway, and on BLM land south of the highway. Under state control, the northern portion of the TLAD (41,339 acres) is enclosed in a substantially larger area called the Tangle Lakes Archaeological District/Special Use Area (TLAD/SUA) (63,620 acres – see Figures 2 and 4).

In January 2004 the State of Alaska announced which additional lands along the Denali Highway it wanted conveyed that year from BLM. Blocks of land totaling 117,337 acres were selected as Denali Block II. These lands are located east and west of the Susitna River, with the eastern block (Denali Block II East) north of the highway and the western block (Denali Block II West) south of the highway (Figure 3). The eastern block is larger, and contains the historic Valdez Creek Mining District. Some of these lands have been conveyed to the State, and some are in the process of conveyance.

In November 2004 the State of Alaska circulated its State Selection Prioritization, which prioritized the remaining lands to be conveyed from BLM to the State. These selections include large blocks of land north and south of the Denali Highway. The conveyance process is ongoing. After these lands are conveyed, the State of Alaska will be the landowner of the majority of lands along the Denali Highway.

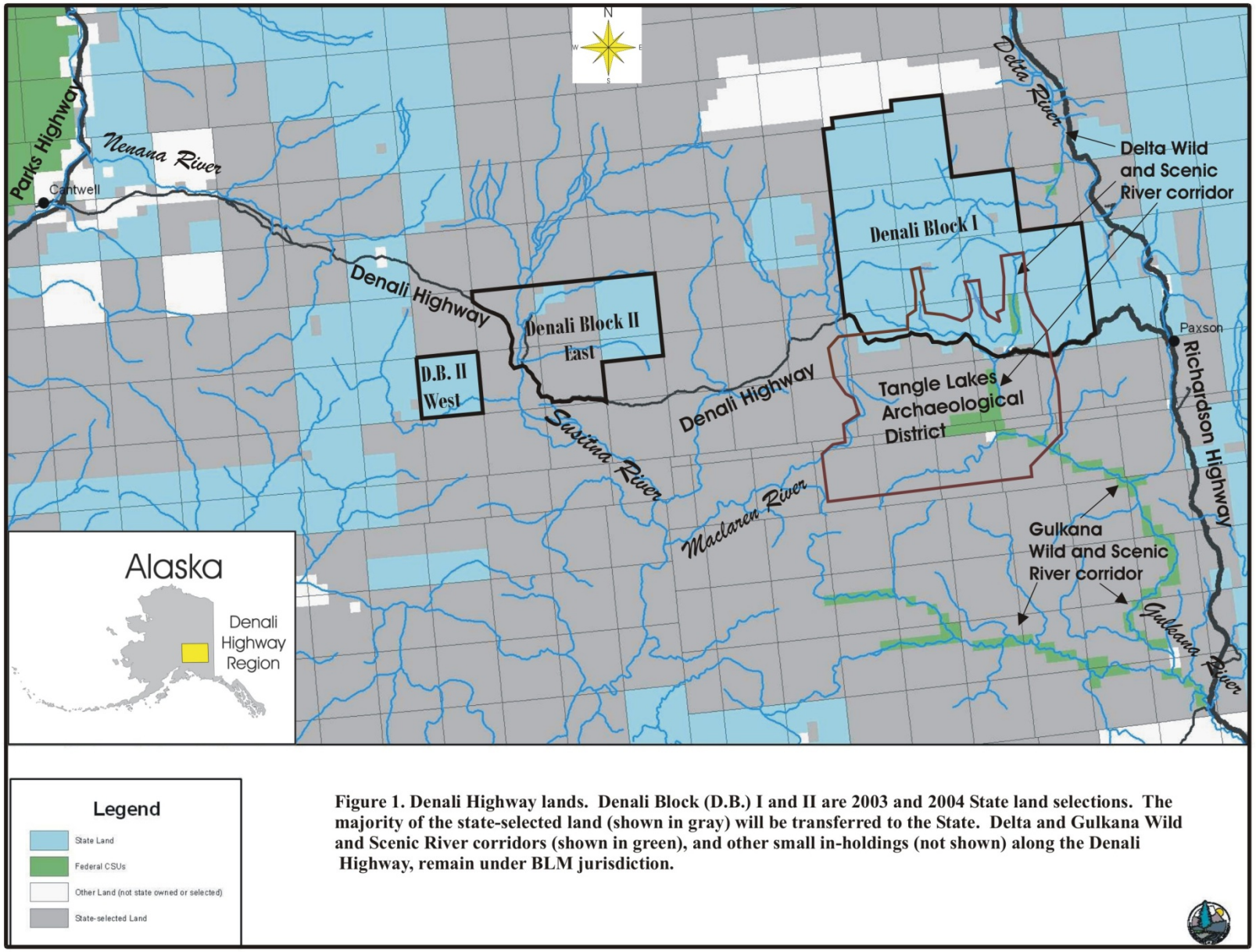


Figure 1. Denali Highway lands. Denali Block (D.B.) I and II are 2003 and 2004 State land selections. The majority of the state-selected land (shown in gray) will be transferred to the State. Delta and Gulkana Wild and Scenic River corridors (shown in green), and other small in-holdings (not shown) along the Denali Highway, remain under BLM jurisdiction.

C. Plan Development

The administration of Denali Highway lands is of concern to many Alaskans. Members of Ahtna Incorporated, miners, hunters, fishermen, bird watchers and other recreational users have all expressed interest and concern about how the State of Alaska administers the lands being transferred to it along the Denali Highway. Public meetings held the year before the initial transfer were attended by many individuals who wanted the State to have enough information about the region to make informed management decisions. The Tangle Lakes region has natural and cultural resources important to the public, yet is a multi-use region which allows a variety of activities including placer and hard-rock mining. State funding for Department of Natural Resources/Division of Mining, Land and Water (DMLW) and Division of Parks and Outdoor Recreation/Office of History and Archaeology (OHA) positions was provided to address land and resource management concerns.

D. Management Authority and Responsibility

The Alaska Department of Natural Resources has statutory authority and responsibility for managing resources on state lands. The DMLW is the state division responsible for managing state lands along the Denali Highway. It is charged with making the region available to the public for a variety of uses while protecting aspects of the region that have been deemed important to preserve, including the cultural resources. The Alaska Historic Preservation Act (AHPA) establishes state policy to "preserve and protect the historic, prehistoric and archaeological resources in Alaska from desecration and destruction so that the scientific, historic and cultural heritage embodied in these resources may pass undiminished to future generations" (Alaska Statutes 41.35.010). The Denali Highway lands managed by the State contain significant cultural resources.

The OHA advises DMLW on the management of cultural resources on state land. OHA also consults with other state agencies regarding impacts their actions may have on cultural resources, and helps them comply with state and federal Cultural Resource Management (CRM) laws and regulations. OHA administers the Alaska Historic Preservation Act program, issues archaeological permits, maintains an inventory of cultural resource site locations, and conducts survey and data recovery projects. OHA also serves as State Historic Preservation Office (SHPO), authorized in the National Historic Preservation Act (NHPA), Section 101, and administers federal historic preservation programs in Alaska. Under Section 106 of the NHPA, federal agencies must consult with the SHPO for any undertaking which uses federal funds, permits or licenses.

Significant cultural resources are located in Denali Block I, since it contains a large part of the TLAD. The TLAD is located in a high alpine region that is topographically striking because of the frequency of Pleistocene glacial landforms: eskers and moraines, glacially carved valleys, and vast regions of kettle and kame topography. This same topography provided Holocene hunters with travel routes and hunting locations for caribou and other game animals. The archaeological remains left by these and later people were studied by researchers in the 1960s and 1970s, when the region was managed by BLM. These studies resulted in the designation of the area as an Archaeological District in 1971, and listing of the district in the National Register of Historic Places. These actions were taken because of the important information the area

has yielded, and has the potential to yield, to understanding the prehistory and early history of central Alaska.

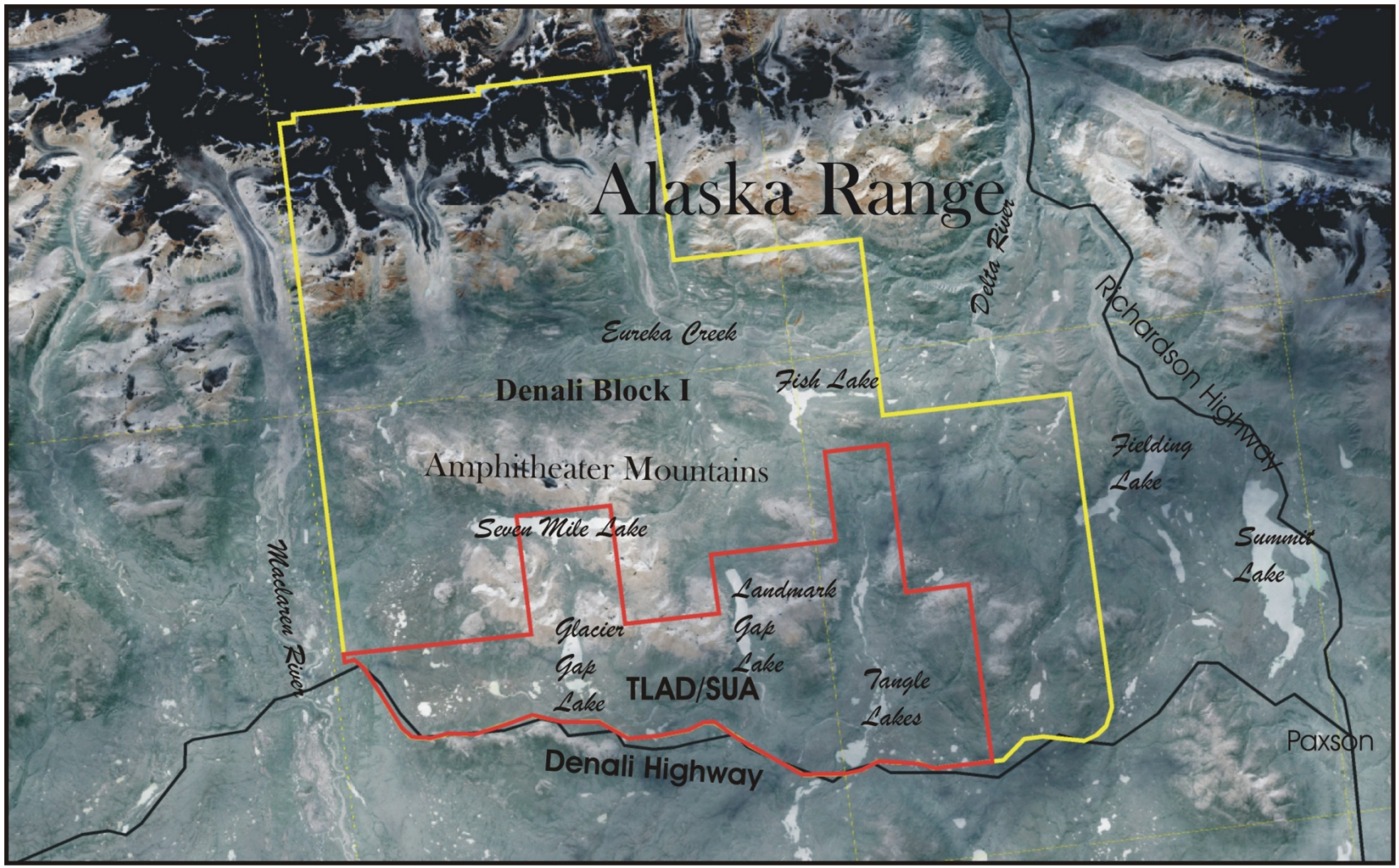


Figure 2. Landsat 7 false-color satellite photo of Denali Block I and Tangle Lake Archaeological District/Special Use Area (TLAD/SUA), central Alaska. Black in upper part of image is glacial ice.

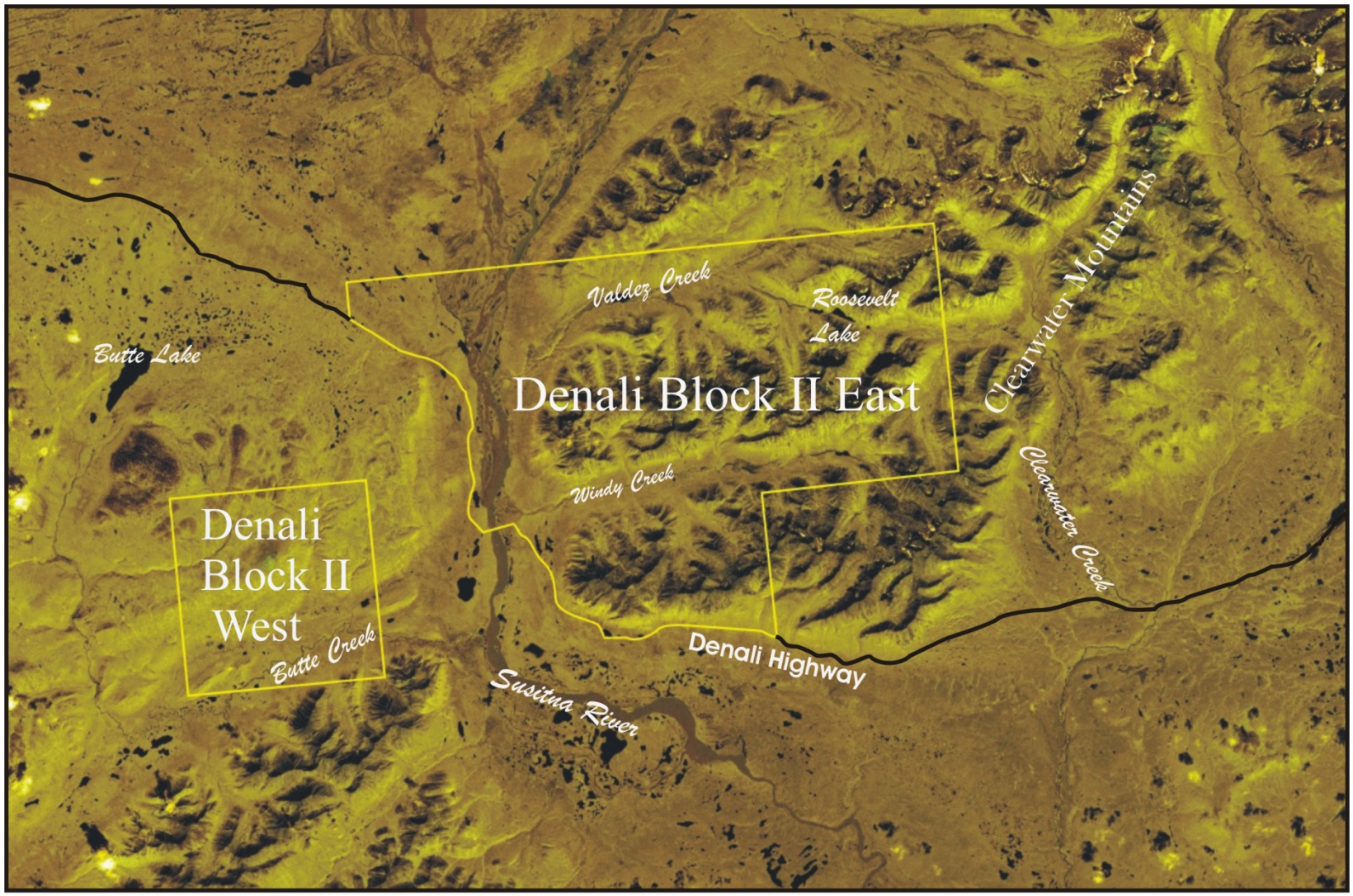


Figure 3. Landsat 7 false-color satellite photo of Denali Block II East and West. The Denali Block II East contains much of the historic Valdez Creek Mining District.

II. REGIONAL LAND MANAGEMENT

A. Management Plans for Denali Highway Lands

DNR management policies for the Denali Highway region are included in three management plans, corresponding with the three river drainages in the region. The Copper River Basin Area Plan includes a relatively small section of land on the eastern end of the Denali Highway that includes the land around Swede Lake and Paxson Mountain (DNR and Alaska Department of Fish & Game 1986). The Tanana Basin Area Plan includes the Delta River drainage section of the Denali Highway, from just east of the Tangle Lakes almost to the Maclaren River (Subregion 5), and the western end of the highway (Subregion 4) that is drained by the Nenana River (DNR 1991). The Tanana Basin Area Plan is in the process of being revised. When revisions are complete, this plan will be divided into the Yukon-Tanana Area Plan and the Eastern Tanana Area Plan. The central section of the Denali Highway from the Maclaren River west to Brushkana Creek is included in the Susitna Area Plan (DNR et al., 1985). The Denali Highway may receive its own area plan as well. This is expected in the next two to three years, or after land conveyances have been completed.

B. Land Designations for Denali Highway Lands

State of Alaska lands are multiple use (also called multi-use) lands unless otherwise restricted. Denali Highway lands are multi-use lands, with the exception of the TLAD/SUA, a 63,620 acre block of land on the south side of Denali Block I, designated a "special use area" for the protection of cultural resources (Figure 4). The TLAD/SUA is a state designation for land which encloses the northern section of the TLAD, a 226,660 acre block found both north and south of the Denali Highway (Figure 1).

C. Subsistence Hunting on State Lands

The Commissioner of Alaska Department of Fish and Game, the Board of Fisheries, and the Board of Game, are responsible for the management of fish and game resources and public use of fish and wildlife within the state.

D. Generally Allowed Uses on State Lands

Most state land (land and water) is managed consistent with generally allowed uses at 11AAC96.020 and conditions at 11AAC96.025. Generally allowed uses on most Denali Highway lands managed by DMLW include hunting, fishing, berry picking, hiking, backpacking, skiing, climbing, bicycling, travel by horse or dogsled, or with pack animals or livestock. Other generally allowed off-road uses include using a powerboat, raft or canoe, landing an aircraft, using a highway vehicle with a curb weight of up to 10,000 pounds, or an Off Highway Vehicle (OHV) like snowmobile or four-wheeler with a curb weight of up to 1,500 pounds, if the off-road use does not cause water quality degradation, alteration of drainage systems, significant rutting, ground disturbance or thermal erosion (DNR 2004).

Generally allowed uses do not apply to legislatively designated areas that have been removed from the public domain, such as state parks. Generally allowed uses may be restricted in some areas by the state through a Special Use Area designation. The

TLAD/SUA is an example of this. Specific restrictions to generally allowed uses (GAU's) in the TLAD/SUA are discussed below.

E. Tangle Lakes Archaeological District/Special Use Area Restrictions

The 63,620 acres of the TLAD/SUA have more use restrictions than most other Denali Highway lands. Between May 18 and October 18 motorized vehicles in the TLAD/SUA are restricted to the main trails (Landmark Gap, Glacier Gap to Sevenmile Lake, Maclaren Summit, and the first one-third mile of Sevenmile Lake) that have been approved for OHV and other vehicle use. Between October 19 and May 17, OHVs are legal to use in the TLAD/SUA provided there is at least one foot of snow or six inches of ground frost. These restrictions serve to protect fragile, near-surface archaeological resources.

Leasehold Location Order No. 23, which established the TLAD/SUA, mandates that there "will be a restriction on mineral rights to protect cultural resources." Thus the TLAD/SUA is open to staking for mining claims, but the leasehold location order requires that a lease be put in place before any mining takes place on TLAD/SUA lands. The lease provides DNR greater management flexibility than a traditional mining claim on general state lands.

F. DMLW Permits, Leases, Easements and Mining Claims

The State of Alaska makes a distinction between recreational and commercial use of state lands. Recreational use of the Denali Highway lands is open to the generally allowed uses of state land stated above. Commercial use of these lands is subject to permitting or leasing processes. The DMLW issues land use permits and leases for DNR. Within the Division, the Lands section issues permits and leases pertaining to non-mining commercial use on state lands, and the Mining section issues leases pertaining to mining activities.

1. Lands Section

The Lands section (under Alaska Statute 38.050.850 authority) issues permits for temporary, short-term commercial activities, and leases for long-term, permanent installations. Permits issued are either very short term "commercial recreation permits," for activities like guided hunting spike camps, that last 14 days or less, or "land use permits," for longer term activities like guided hunting and fishing base camps, that may last longer than 14 days. Activities associated with the land use permits might have some ground disturbance activities associated with them, like the digging of an outhouse hole or the leveling of an area for the erection of a weatherport. Land use permits, unlike commercial recreation permits, require an application, insurance and bonding.

Leases issued by DNR grant land rights that, unlike permits, are not readily revocable. They are generally from 10 to 30 years in duration, and may be transferred or sold to others. Leases are issued for commercial establishments like lodges that are on permanent foundations.

An easement administered by DNR can also be issued under 38.050.850 authority. It entitles its holder to a specific use, such as crossing over property or putting up power lines but does not create a property right. Unlike a lease or license, an easement may last forever, but it does not give the holder the right to possess, take from, improve, or sell the land (Garner 2004). Easements issued on state land include platted

rights of way established through a platting process, easements created under 38.05.850 and 11 AAC 51.015 authority and easements for public highways (such as section line easements and RS 2477 routes) accepted by operation of law under 19.10.010 authority.

2. Mining Section

The Mining section of DMLW administers mining claims and issues mineral leases on state land. This can include the shorter term "prospecting sites" as well as mining claims and mining leases. Mining leases are issued for larger scale, longer term operations, and give operators legal rights that can be sold. Upland mining leases are issued for the ore body area, and mill site leases are issued for infrastructure areas (e.g. buildings, waste rock piles, tailing ponds).

Large mine developments trigger the State's Large Mine Permitting Process. Mining operations that result in water discharge or impact wetlands require a National Environmental Policy Act (NEPA) Environmental Impact Statement or an Environmental Assessment because of federal permitting requirements from the U.S. Corps of Engineers (COE) and/or the Environmental Protection Agency (EPA) before the start of mining activities. The participation of these federal agencies initiates Section 106 NHPA consultation with the SHPO as set forth in 36 CFR 800.

G. Collaboration with Bureau of Land Management

DNR and BLM are working jointly on management and resource protection issues in the Denali Highway region. The two agencies have collaborated on interpretive materials including panels along the Denali Highway and a pamphlet. BLM Cultural Resources provided OHA background information on TLAD management issues. The two agencies have worked closely on site monitoring and survey modeling for archaeological sites in the region and are considering several future joint monitoring and interpretation projects.

H. Existing Memoranda of Agreement with Bureau of Land Management

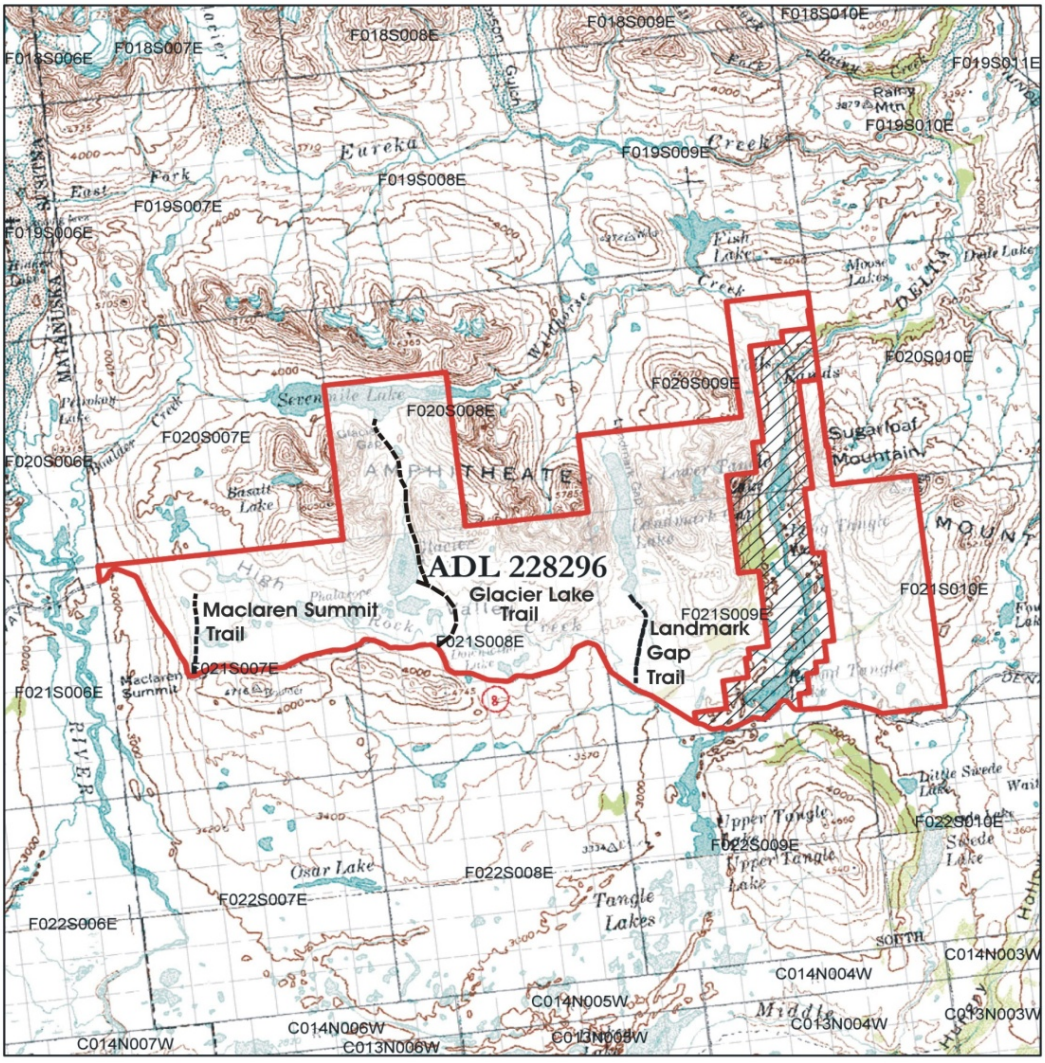
The Alaska SHPO has entered into two memoranda of agreement (MOA) with BLM regarding the management of the TLAD. BLM is still guided by these MOA when managing their TLAD lands.

In 1980 BLM signed a memorandum of agreement with the Alaska SHPO and the Advisory Council on Historic Preservation (ACHP) to regulate OHV use in the TLAD. This MOA is still in effect but should be amended to update definitions and differences in application of the OHV restrictions between BLM and OHA. The 1980 definition of archaeological sites as "major" and "minor" should be updated to more modern usage (i.e., "contributing" and "non-contributing"). In addition, the starting and ending dates for limiting OHV use in the TLAD should better correspond between the two agencies.

A second MOA was reviewed and signed in 1987. This document proposed BLM actions to alleviate threats to cultural resources in the TLAD. These activities have been completed or were rendered unnecessary when the boundaries of the TLAD were redrawn in 1993 (McCoy and Dodson 1994: 11), thus the 1987 MOA should be closed.

DNR enacted land use provisions comparable to the 1980 MOA in its TLAD/SUA, which enclosed the section of the TLAD that lies on state land north of the Denali Highway. These restrictions are discussed under the heading "Tangle Lakes Archaeological District/Special Use Area Restrictions," page 8.

Tangle Lakes Archaeological District
Special Use Area



Legend

- Tangle Lakes Archaeological District SUA
- Federally Managed Delta Wild & Scenic River Corridor
- Designated Trails

Alaska Department of Natural Resources
Division of Mining, Land & Water

Figure 4

III. REGIONAL LAND USE

A. Current Use of State Denali Highway Lands

A wide variety of recreational uses are allowed on Denali Highway lands (see Generally Allowed Uses, Section II), and are reflected in the activities seen in the region. Throughout the summer tourists from outside Alaska and state residents use the area. The Tangle Lakes and the streams flowing into and out of them attract fishermen, canoeists, rafters and motor boat users. Mountain bikers and OHV riders utilize regional trails, while hikers, berry pickers, nature/bird watchers and photographers hike the trails or strike out across country. Campers use the campgrounds found along the highway as well as camp near highway pullouts. Hunters become the dominant user group in late summer and fall, focusing largely on the caribou migrating through the region, but hunting moose and bear as well. Winter use is reduced, in part because the highway is not plowed for vehicular traffic, but trappers, hunters, and others access the area by snowmachines and dog sleds.

Current commercial uses of Denali Highway lands include guiding (hunting, fishing and birding) and mining operations. Placer mining operations are currently underway in the Eureka and Rainy Creek drainages of Denali Block I, and the Valdez and Windy Creek drainages of Denali Block II. Valdez and Windy Creeks also have small hard rock mining operations.

B. Land Use on Bureau of Land Management Denali Highway Lands

BLM, like the State of Alaska, differentiates between recreational and commercial use. Recreationalists are allowed to use BLM lands similarly to state lands. Commercial use requires a special "recreation use permit" to cross the Delta Wild and Scenic River Corridor as well as other BLM land. Commercial activities on federal lands also need to take the NEPA and the NHPA into account when considering possible impacts to the natural and cultural environment.

C. Projected Regional Land Use

Recreational and hunting use of Denali Highway lands can be expected to grow steadily in the near and intermediate future, presuming conditions remain the same. A change in ease of access, such as paving the Denali Highway, will alter this situation. Tourism and in-state visitation would both experience a rapid increase (BUCY associates 1999).

Exploration is being conducted by mining interests in the Denali Blocks to determine if any commercially viable mineral deposits exist. Remote sensing and geophysical data have been recorded by the State of Alaska, BLM and mining interests. These findings indicate the potential existence of one or more large ultramafic intrusive bodies running roughly east-southeast and west-northwest across much of the region (Division of Geological and Geophysical Surveys/Bureau of Land Management 2003). The region may see a large mine project if a large ore body is found that is economically viable to extract.

IV. CULTURAL RESOURCE PROGRAM FOR THE DENALI HIGHWAY LANDS

OHA is responsible for monitoring cultural resources in the state's Denali Highway lands. OHA works with state, federal and private organizations in efforts to avoid or minimize impacts to these resources. OHA works under federal authority (as the SHPO) and state authority (as the office that administers the State's history and archaeology programs) to provide information and guidance on cultural resource issues to DNR, BLM, and other management and regulatory agencies responsible for the Denali Highway lands. OHA's goal is to minimize the effect development and recreation activities might have on cultural resources.

A. History of Cultural Resource Management

In the 1950s the Denali Highway was built between Paxson and Cantwell, opening up the Tangle Lakes area to a variety of users. Archaeological research in the region began in the 1950s, and in 1971 a large section of the region (over 455,000 acres) was designated an archaeological district and listed in the National Register of Historic Places. Frederick Hadleigh West led this work while at the University of Alaska, Alaska Methodist University, the University of Wisconsin and Williams College (West 1967, 1972, 1973a, 1973b, 1974, 1975, 1981, 1984, 1996).

In 1974 the Advisory Council on Historic Preservation (ACHP), a federal oversight agency, was made aware of damage to archaeological sites in the district due to the unrestricted use of OHVs. The ACHP requested that BLM, the land management agency in the region, reduce the size of the district and develop measures to protect the cultural resources (Bowers 1989 I-20). This changed the focus of archaeological work in the region from strictly academic research to one of management of the cultural resources. Over the next decade, BLM conducted a series of archaeological surveys to locate archaeological sites in the region and assess OHV impacts to archaeological sites (Chase 1982, Mobley and Morris 1981, Zinck and Zinck 1976). An Interim Management Plan (Beck 1979) mapped out strategies for dealing with conflicts between protection of cultural resources and other uses of the area.

In 1980 BLM entered into a MOA with the Alaska SHPO and the ACHP, under the authorities of Section 106 of the NHPA and its implementing regulations. This agreement set standardized archaeological testing and reporting procedures, personnel qualifications, and a two-level determination of archaeological site significance ('major' site/'minor' site) (Bowers 1989 I-22). This MOA is still in effect, though it was amended in 1987 to add archaeological mitigation of the Round Tangle Lake Campground and a section of the Yost Trail to BLM's responsibilities (Bowers 1989: Appendix C). In 1984, BLM published their decision in the Federal Register to formally limit vehicle travel in the TLAD to specific roads and trails, as per the ACHP's request ten years earlier (Federal Register 1984, in Bowers 1989: Appendix D). In 1993 revised documentation was submitted to the Keeper of the National Register of Historic Places, reducing the size of the TLAD from 455,034 acres to 226, 660 acres (McCoy and Dodson 1993:4).

The later 1980s and early 1990s saw BLM archaeological surveys in trail project development areas, including the Yost Trail, the Round Tangle Lake Campground, and the Landmark Gap (North) Trail (Bowers 1989, Gillispie 1990, 1992). Much of the

subsequent survey has focused on sections of the TLAD away from the Tangle Lakes and Landmark Gap areas that had received little previous survey, as well as developing a database of global positioning system (GPS) data of known sites and trails (Jangala 2001, 2002).

The 2003 conveyance of Denali Block I transferred 235,000 acres north of the Denali Highway from federal to state ownership. This conveyance included the northern section of the 1993 Tangle Lakes Archaeological District. Under state control, this section is now enclosed in an area slightly larger than the 1993 archaeological district boundary called the TLAD/SUA (Figures 2 and 4). In 2003 OHA began the evaluation of cultural resources and monitoring of some of the OHV trails in Denali Block I. In 2004, an additional 117, 337 acres of land were partially conveyed from federal to state ownership in the central Denali Highway region (Denali Block II). Land transfers have continued from BLM to the State along the Denali Highway, and are still ongoing.

B. History of Cultural Resource Monitoring and Survey

Archaeological survey on the Denali Highway in the 1950s and 1960s focused on locations near the highway and the Tangle Lakes corridor. Frederick Hadleigh West, the main academic archaeological researcher of the region in the 1960s and 1970s, focused on the areas around the upper and lower Tangle Lakes and Landmark Gap Lake.

In the mid-1970s, the focus changed from archaeological research to cultural resources management. BLM and other agencies began surveying existing OHV trails, campgrounds and road right-of-ways, attempting to understand and document the resources and find ways to minimize impact from increased human use of the region. During this time archaeological surveys were conducted on the Landmark Gap, Glacier Gap, Maclaren, and Sevenmile Lake trails (Zinck and Zinck 1976). Multiple sites were found on these trails, with one important site impacted badly enough to force closing the north half of the Landmark Gap (North) trail (Mobley and Morris 1981). In 1977 a historic resource study was done of the Valdez Creek Mining District, which included an overview of the entire Denali Highway (Dessauer and Harvey 1980). In 1979, State of Alaska Division of Parks archaeologists conducted an archaeological survey along the highway (McKay 1981). Six sites were discovered in the TLAD by this survey, one of which produced the only known copper artifact from the area (Bowers 1989: I-21).

BLM's focus on cultural resource management continued through the 1980s and 1990s, with survey and monitoring of trails and the mitigation of impacts on cultural sites. BLM contracted with GDM Inc. in 1989 to conduct archaeological testing and mitigation of the Round Tangle Lakes Campground, and again in 1991 to conduct data recovery and mitigation of the Landmark Gap Trail Site (XMH-289), resulting in the reopening of the north half of the trail from the site to the lake for OHV use. The late 1980s also included a survey of the section of the historic Yost Trail that fell inside the 1971 TLAD boundary (Bowers 1989). BLM increased its trail monitoring in the late 1990s and into this decade, as well as surveying new trails (Jangala 2001, 2002).

This monitoring, mitigation and data gathering to better understand and protect the cultural resources has been continued by OHA. During 2003, OHA's work included monitoring and generating GPS maps for the four OHV trails in the TLAD/SUA (Landmark Gap [North] Trail, Glacier Gap Trail, Maclaren Summit Trail, and a section of Sevenmile Lake Trail). The work also included monitoring of ice patches in the region

for cultural materials (see Alpine Ice Patches, page 17). Substantial organic cultural materials were found (wooden arrows, antler points, and birch bark). The OHA 2004 field season included monitoring of the Denali Blocks' trails, including the historic Yost Trail, and additional mitigation of the Landmark Gap Trail Site. Other activities included relocating and GPS recording of 23 known archaeological sites southwest of Landmark Gap Lake, and discovering 10 new sites in the area. Monitoring of ice patches in the region recovered three lithic projectile points, an arrow or dart shaft fragment, and a stick used for setting marmot traps (VanderHoek 2007). Since that time OHA has continued its trail and ice patch monitoring, as well as working with DMLW on the survey of the Glacier Gap Trail alternatives, the Rusty Lake Trail, and the Glacier Gap-Sevenmile Lake Trail, and monitored the construction of the Glacier Gap reroute, and the Glacier Gap to Sevenmile Lake Trail construction. OHA has collaborated with BLM on several surveys of BLM and state land along the Tangle Lakes Corridor.

Almost all of the archaeological surveys in the Tangle Lakes region in the last 40 years were done near the Tangle Lakes, the Denali Highway, Landmark Gap Lake, or one of the OHV trails in the region. Few areas away from these features have been surveyed. Less than 10 % of Denali Block I has been archaeologically surveyed at a reconnaissance level. Less than 1% of the Denali Block II parcels have seen reconnaissance level survey.

Most of the remaining BLM acreage along the Denali Highway has been selected by the State of Alaska. Soon many hundreds of thousands of acres of additional land in this region are slated to come under state control, and almost none of this land has been archaeologically surveyed.

C. Curation of Cultural Resources

Artifacts from the Denali Highway have been recovered by university faculty and agency personnel since at least the 1950's. These cultural materials should go into a state approved repository. The land managing agency at the time of recovery is the agency responsible for the curation of the artifacts, and responsible for getting them into a state approved repository. Artifacts collected on state land are owned by the State (AS 41.35.20(a) and are curated in state museums.

1. BLM

The Bureau of Land Management was the land managing agency when archaeological research was conducted in the region in the 1960's and 1970's. Most of the cultural materials and associated documentation from that time were taken outside the state for analysis and were never returned, so are not available for study and viewing in-state. This situation should be addressed by BLM.

2. State of Alaska

The Office of History and Archaeology is the state agency responsible for the cultural materials recovered since 2003 from the TLAD/SUA. OHA policy is that all cultural materials and related documentation collected by OHA will be curated in the University of Alaska Museum of the North or other authorized state facility.

3. Curation by Other Groups

Alaska Statutes state that it is the policy of the State to loan artifacts to local cultural groups who have appropriate facilities for the curation of cultural materials (AS41.35.20(b). Consequently, Ahtna Heritage Foundation and other Native groups

could borrow and display items recovered in the region provided they had the appropriate building (AS41.35.20(b)(1), the items to be loaned would not unduly risk damage during transportation (AS41.35.20(b)(2), and the group requesting the items had the ability to care for them (AS41.35.20(b)(3).

D. Human Occupation of the Tangle Lakes Region

Researchers from Alaska Methodist University, the University of Alaska, and other institutions in the 1950s, 1960s and 1970s discovered over 10,000 years of human occupation in the Tangle Lakes region. Throughout this time people survived by hunting animals and harvesting plants in the region. Following are the names, time periods, and a brief description of the human groups that occupied the region.

Denali Complex (American Paleoarctic Tradition)	11,500 to 9,500 years ago
Transitional Northern Archaic?	9,500 to 6,000 years ago
Northern Archaic Tradition	6,000 to 3,500 years ago
---------- Hayes Tephra ----------	3,500 years ago
Regional Northern Archaic	3,500 to 1,500 years ago
Athabascan Tradition/Late Prehistoric Period	1,500 to 150 years ago
Historic Period	150 years ago to present

Table 1. Cultural groups in the Tangle Lakes Region, Denali Highway (modified from Holmes 2008).

The region was first occupied by a group whose technological tool kit is called the Denali Complex (~11,500-9,500 years ago). These people are believed to have hunted caribou in the region, using antler spear points inset with razor-blade like stone "microblades" struck off of small microblade cores. The period after the Denali Complex population (9,500-6,000 years ago) is poorly known in south-central Alaska, with some seeing this time as the development of the Northern Archaic Tradition (Holmes 2008). By 6,000 years ago the region was clearly occupied by the people of the Northern Archaic Tradition (~6,000-3,500 years ago) who, like the earlier occupants, hunted caribou with the atlatl and dart and flaked stone tools using material found in the Landmark Gap region. Around 3,500 years ago the region is covered by the Hayes Tephra, a fine volcanic ash (Riehle et al. 1990). This ash would have negatively impacted prey species like caribou and may have caused a hiatus in regional human occupation (Bowers and Thorson 1981; VanderHoek 2009). Cultural materials found above the Hayes Tephra may represent a regional variant of the earlier Northern Archaic Tradition (3500-1500 years ago). Use of the bow and arrow and native copper began in the Late Prehistoric Period (1,500-150 years ago) in the Copper River basin, along with the intensive use of Copper River salmon. Direct connection is seen between these latter people and the Ahtna Athabascans living in the region today. For information on traditional Ahtna lifeways see de Laguna and McClellan (1981) and Record (1982).

E. Cultural Site Locations and Types

There are 181 identified cultural sites in Denali Block I (in 2011) listed in the Alaska Heritage Resources Survey (AHRS). There are 20 cultural sites in Denali Block

II (in 2011) listed in the AHRS. These are the historic and prehistoric archaeological sites identified to date in these parcels. Archaeologists identified the sites by visually locating their remains on the landscape and by sub-surface testing.

1. Historic Sites

Written documentation of the Denali Highway region began when the Castner and Glenn parties from the U.S. Army traveled through the Tangle Lakes area in 1898 (Castner 1984). Mining exploration began early in the last century, and drove most of the western use of the region. Historic site types in the region include trails and roads, cabins, camps, mines, mining equipment, and mining-related landscape modification. Following are historic activities that took place in the Denali Highway region and whose evidence may still remain.

a. Exploration

Western explorers begin moving through the region at the end of the nineteenth century. These exploring parties, and others, may have left campsites or markers recording their presence.

b. Transportation Corridors

The Trans-Alaska Military Road from Valdez to Eagle City travelled through the Copper, Gulkana and Delta River valleys, with trails from it to the Valdez Creek mining district. These trails include the Yost and Paxson trails and the winter route utilizing the west fork of the Gulkana River and the Maclaren and Susitna rivers. Sections of these trails are still evident in some locations, either through visible trail sections or through changes in height or species of vegetation. Trail camp sites may be predicted at river crossings and other good camping locations. Evidence of aerial trams (sections of cable, tram support foundations) may also be found at river crossings. The remains of road houses, barns, or shelter cabins may be encountered along trails.

The Paxson Trail was developed into the Denali Highway in the 1950's. Some existing bridges on the highway may be historic. Remains of construction camps may still be discernable along the highway.

c. Mining

Mining exploration was a driving force in the exploration of much of the Denali Highway region. Valdez Creek and Eureka Creek were early mining destinations and still have active mining operations. Evidence of mining includes mining camps, mining sites, and prospect pits. Mining camps may be as transient as a tent frame or be more substantive and contain large wooden structures. Mining sites include mining equipment, tailing piles, hand-stacked rocks, open cuts, mine shafts, and ditches. Prospect pits can be as simple as shallow depressions dug into the soil.

d. Hunting and Trapping

Both Ahtna and Euro-American hunters and trappers built cabins, overnight shelters and hunting blinds in the Denali Highway region. Hunting and trapping camps may also include meat racks, caches and traps.

e. Settlements

The only known historic settlement along the Denali Highway is the townsite of Denali, most of which was bulldozed in 1977 (Dessauer and Harvey 1980).

2. Prehistoric Sites

Prehistoric sites are more difficult to locate than historic sites. They generally contain only the stone tools used by past peoples, because the organic tools (wooden

spear and arrow shafts, bark bowls, skin clothing, and bone and antler tools) have decayed away. Some sites are quite hard to discern, containing only the flakes remaining from stone tool manufacture. Prehistoric sites in this region are generally only visible on the surface when some action (OHV use, wind or water erosion) has disturbed and removed the soil covering the artifacts. Prehistoric site locations in central Alaska are those places where hunting and gathering populations used the land to camp or harvest resources, and where they left evidence of their presence. Site types include lithic scatters, house pits and cache pits, lithic sources, hunting (ambush) sites, and campsites. Below are locations in south-central Alaska that current archaeological and ethnographic information suggest have a high probability to contain cultural sites.

a. Overlook Sites

The locations in central Alaska that are most likely to contain archaeological sites are overlooks: landforms that provide a view over the surrounding area. An overlook can be a point of land that projects into a valley, a high point on a ridge, or merely the highest point in a region. These landforms were generally used as outlooks for game, though some served as campsites. Hunters would sit on these high points, refurbishing their hunting equipment and making stone tools from material brought to the site. These are often visible as surface scatters of flakes that have been exposed because of erosion.

b. Transportation Corridors

Another likely location for archaeological sites in the Denali Highway region is along prehistoric transportation corridors. Some of these are identifiable from historic accounts or as native trails on early maps. Historic mining trails were sometimes based on native routes through the region. Summer trails were usually located where walking was easiest, commonly along game trails over well-drained soil. Trails in the TLAD and Delta River corridor were often along the tops of eskers and the edges of plateaus. Archaeological sites can be expected at good camping locations along trails. Sites are sometimes found along these corridors in or near mountain passes or other locations that are natural channels for the movement of people and animals. These sites may produce hearths and lithic scatters.

c. Lake and Stream Related Sites

Prehistoric people commonly used the lake shores and stream banks of the region. These sites could be short term hunting and fishing sites or longer term living sites, and include fire hearths and tools used for a variety of activities. Stream inlets or outlets, lake narrows, and river confluences are likely places for fishing and related fish processing and camping to have taken place. Large lakes also tend to channel game (either around the lake or across at narrows) and give human hunters a location (in the water) where large game is slower and easier to kill.

d. Alpine Ice Patches

In 1997, northern researchers discovered that ice patches occasionally preserve cultural materials from past human hunters (Kuzyk et. al., 1999). Prehistoric hunters found that caribou commonly spent the hot part of summers on alpine ice patches in the high country. They hunted the caribou there and occasionally lost their tools on these ice patches. Because of recent warmer temperatures across the Arctic, ice patches across the Arctic and Subarctic are melting, exposing arrows, darts (atlatl-thrown spears) and other items. These ice patches (or melted ice patches, that now only have a layer of caribou dung remaining) can produce important organic cultural materials not preserved in other

archaeological sites. These materials include worked animal hide, sinew, antler, wood and birch bark, as well as lithic tools (Dixon et al., 2005; Hare et al., 2004; VanderHoek 2007).

e. Lithic Procurement Sites

An important type of archaeological site in Denali Block I is the lithic source. Lithic sources are locations where people acquired stone that they would flake or grind into tools. Landmark Gap has one known bedrock source of flakeable stone, and another is located east of Long Tangle Lake. Geological data suggest that there are other lithic sources in the region. Archaeological sites near lithic sources usually have large quantities of waste flakes. The stone detritus near a lithic source commonly includes either flakes with cobble cortex or chunks of blocky stone, showing primary production from stream cobbles or a bedrock source.

f. Multiple-Resource Spike Camps

Multiple-resource spike camps were centrally located to seasonally utilize multiple resources found in the region, but were occupied for a relatively short period of time. These are known from the ethnographic literature, and are common of Athapaskan camps in high country. While usually near a lake or stream, they could be located on any piece of dry ground with water in the area. Developing a model showing likely locations for multiple-resource spike camps requires creating map layers showing past biological resources, and finding camping locations near clumped resources that allowed predictable and reliable harvesting.

F. Methodology, Survey Strategies and Landscape Histories

Archaeologists study the context of archaeological remains in a site, and the patterning of archaeological sites on the landscape. The interrelationship between the artifacts and other remains left at a site help explain what people were doing there and when they were there. The location of the site on the landscape provides evidence for how they were using the landscape throughout the year. It is not just the archaeological remains, but where they are found and their relation to each other that provide us evidence about the past.

When archaeologists excavate an archaeological site it is done carefully, recording the location of everything found for later analysis. This can be a time consuming and costly process. In the discipline of archaeology it is not considered ethical to dig up all of a site. Archaeologists know that technology and research questions are always improving and changing, so they try to excavate only enough to answer the questions they are asking. Thus, for both cost and ethical reasons, archaeologists do not attempt to excavate all the archaeological remains in a region. If negative impacts to an archaeological site cannot be avoided, then a significant portion of the site should be excavated and information recovered to mitigate the loss of the site and the information it contains.

Researchers are constantly learning more about how people used past landscapes. Archaeological survey in the Denali Highway region requires a strategy delineating areas that have a high probability for sites and areas that do not. Bowers (1989:II-15) attempted to do this by creating a map that blocked out higher elevation areas (above 4000 feet) in the TLAD as not needing to be surveyed. This was an early attempt to eliminate low probability areas from survey strategies. More recent archaeological and

ethnographic information has changed our awareness of how prehistoric peoples used higher elevations. In the last decade archaeologists have learned that many ice patches in Alaska and the Yukon contain well preserved organic hunting tools. Using this information, OHA archaeologists have discovered five ice patch archaeological sites in areas above 4000 feet.

Archaeologists surveying in the Denali Highway region should use current archaeological and ethnographic data and a well developed Holocene landscape history. The landscape has in some areas changed considerably in the last 10,000 years, with the draining of lakes and the changing courses of streams. A larger Tangle Lake (called "Ancient Tangle Lake" by Campbell [1993]) existed in the southern Tangle Lakes region in the early Holocene and was used by Denali Complex peoples. This lake partially drained sometime after 8,000 years ago, leaving a fossil shoreline and bathtub ring of archaeological sites approximately 50 feet above the current upper Tangle Lakes. This shows us that we cannot always rely on modern landforms to represent how things were in the past, and illustrates the importance of developing a landscape history of the region before prioritizing areas for their importance in past human use. Thus, any archaeological work in the region should include quaternary geomorphology and soil stratigraphy as components of the research design.

Archaeologists periodically discover new aspects of past human activity (such as ice-patch hunting). Any archaeological survey strategy should be reviewed and updated periodically and incorporate new archaeological, ethnographic and landscape history information. Surveys should be considered that have both probabilistic ("high probability") and non-probabilistic ("random sample") components.

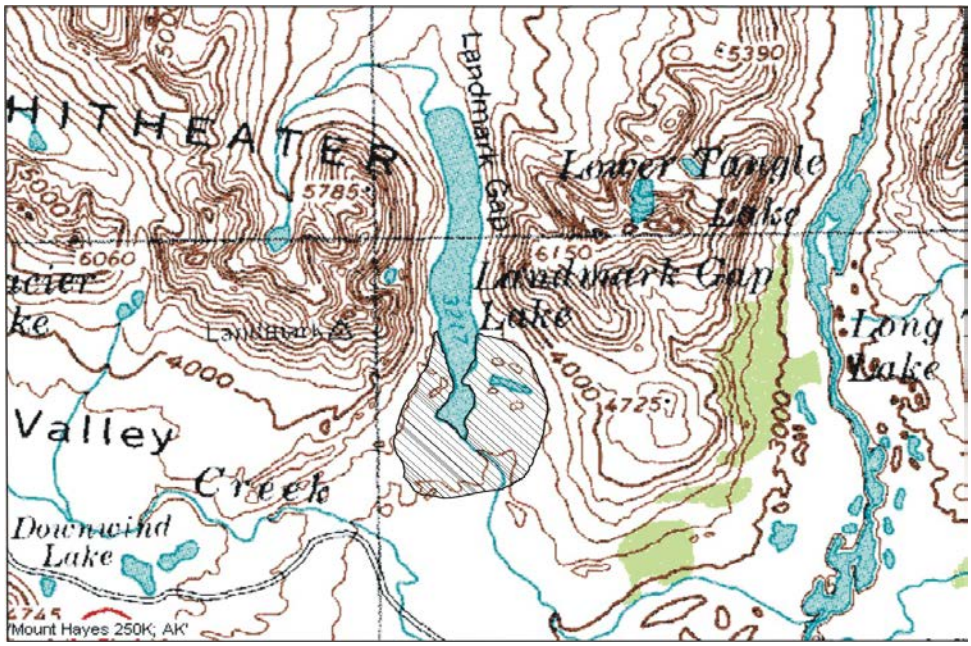


Figure 5. Landmark Gap and Lower Tangle Lakes region of Denali Block I. Hatched area has highest concentration of known archaeological sites (>90), most of them prehistoric, in the Denali Blocks. The historical period started when the Castner and Glenn parties travelled along the Tangle lakes in 1898.

V. POTENTIAL ADVERSE IMPACTS TO CULTURAL RESOURCES ON DENALI HIGHWAY LANDS

There are numerous factors that could affect the cultural resources on Denali Highway lands. These factors include developmental impact, OHV use, erosion, vandalism, ice-patch melting, and general use of the region by the public. The cultural resources of this region are vulnerable. The majority are archaeological sites that are very shallowly buried or exposed on the surface. The soil deposits are very thin in much of the Denali Highway region, with many areas having 30 centimeters (12 inches) or less of soil overlying glacial gravels. Thus archaeological sites are easily disturbed or destroyed by various ground disturbance processes.

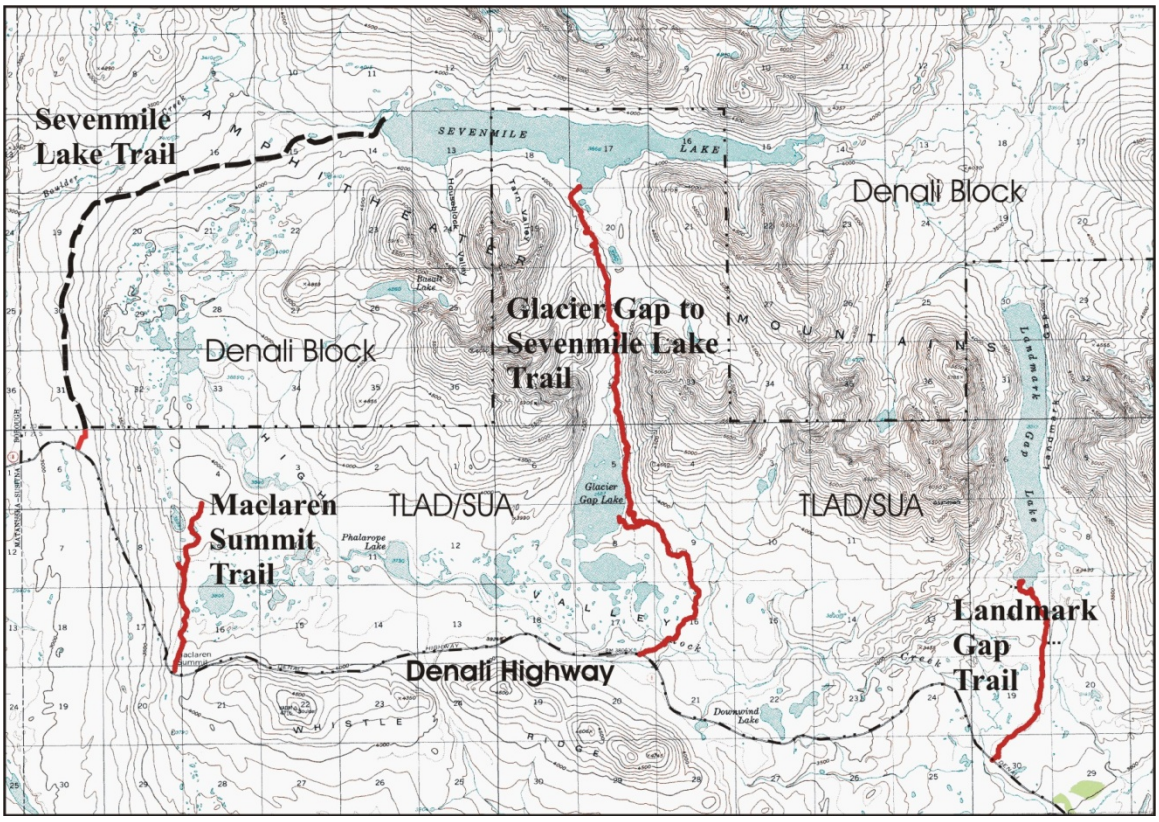


Figure 6. TLAD/SUA OHV Trails, Mile 24-40, Denali Highway. The trail from the Denali Highway to Glacier Gap Lake (shown) is the reroute constructed in 2007. The Glacier Gap trail extension to Sevenmile Lake was constructed in 2009 and 2010. The thick dashed line (upper left) is the section of Sevenmile Lake Trail that lies outside the TLAD/SUA in the Denali Block. The thin dotted lines off the Landmark Gap Trail are unauthorized OHV trails. The dash-dot line is the boundary of the TLAD/SUA. The TLAD OHV trails are GPS trackways supplied by Jusdi McDonald.

A. Human Disturbance Factors

1. Off-Highway-Vehicle Trails in the TLAD/SUA

The primary human ground-disturbing factor in the TLAD is OHV use. OHVs make ruts, eroding soil and exposing artifacts. Archaeological sites are directly impacted by OHV use where trails cross over sites. Archaeological sites that border trails are also threatened, particularly sites that border wet trails, as OHV users seeking dryer ground may pioneer new trails across sites. Archaeological materials exposed by natural or human-induced erosion then become vulnerable to unauthorized collection. Loss of ground cover also encourages cryoturbation, churning up archaeological deposits and destroying stratigraphic context. The challenge to DNR management is to have useable trails that serve the public while discouraging users from pioneering new routes.

Most OHV activity in the TLAD/SUA is on existing OHV trails. TLAD/SUA OHV trails (from east to west) include the Landmark Gap Trail, the Glacier Gap Trail to Sevenmile Lake Trail, and the Maclaren Summit Trail, as well as the first one-third mile of the Sevenmile Lake Trail. Other OHV trails exist in Denali Blocks I and II, including the historic Yost Trail (Figure 9) in the Eureka Creek drainage of Denali Block I, numerous trails in the historic mining district in Denali Block II East, and the Butte Creek Trail in Denali Block II West (Table 2).

Rerouting OHV trails around or away from archaeological sites is a strategy that preserves archaeological sites and is a major consideration in the layout of new trails. New trail layouts avoid not only known sites but also landforms that have high probability for containing sites. The new trail to Glacier Gap Lake avoids an archaeological site (XMH-486) that was bisected by the previous trail (see below).

a. Landmark Gap Trail

The Landmark Gap trailhead is located at Mile 24.7 of the Denali Highway (Figure 6). The trail runs 2.4 miles from the Denali Highway to Landmark Gap Lake. The trail itself crosses two archaeological sites, and runs adjacent to numerous others (VanderHoek 2007:23, 32-36). Several unauthorized OHV trails branch off from the Landmark Gap Trail and have been closed by signage by DMLW. One of these unauthorized trails leaves the trail terminus at Landmark Gap Lake and climbs out of the valley into the high country to the west. This trail crosses at least one site and has the potential to impact other high country sites with little vegetation coverage.

b. Glacier Gap to Sevenmile Lake Trail

The Glacier Gap trailhead is located at Mile 30.6 of the Denali Highway (Figure 6). The trail runs 3.2 miles from the highway to Glacier Gap Lake. This segment was rerouted to avoid the swampy valley bottom and an impacted archaeological site. The new trail, constructed in 2007 by DMLW, follows the sides of moraines along the east side of the glacial basin. The new trail crosses no known sites, but runs adjacent to three sites. An unauthorized OHV trail that runs north along Glacier Gap Lake has been closed by signage.

A trail to Sevenmile Lake was designed by DMLW, working in partnership with trail specialists at NPS. The trail route was archaeologically surveyed by OHA in 2008, with trail construction in 2009 and 2010. Trail construction was archaeologically monitored in 2009. Additional surveys were conducted in 2009 and 2010 in the valley system that the trail will open up for easier public access. The trail extension was completed in 2010.

c. Maclaren Summit Trail

The Maclaren Summit Trail (Figures 6 and 7) leaves the Denali Highway at Mile 36.6, and terminates on a hilltop 2.3 miles to the north. The trail impacts no known sites. Pioneering OHV use in recent years has pushed the trail further to the north, resulting in the current terminus being marked with a trail closed sign.

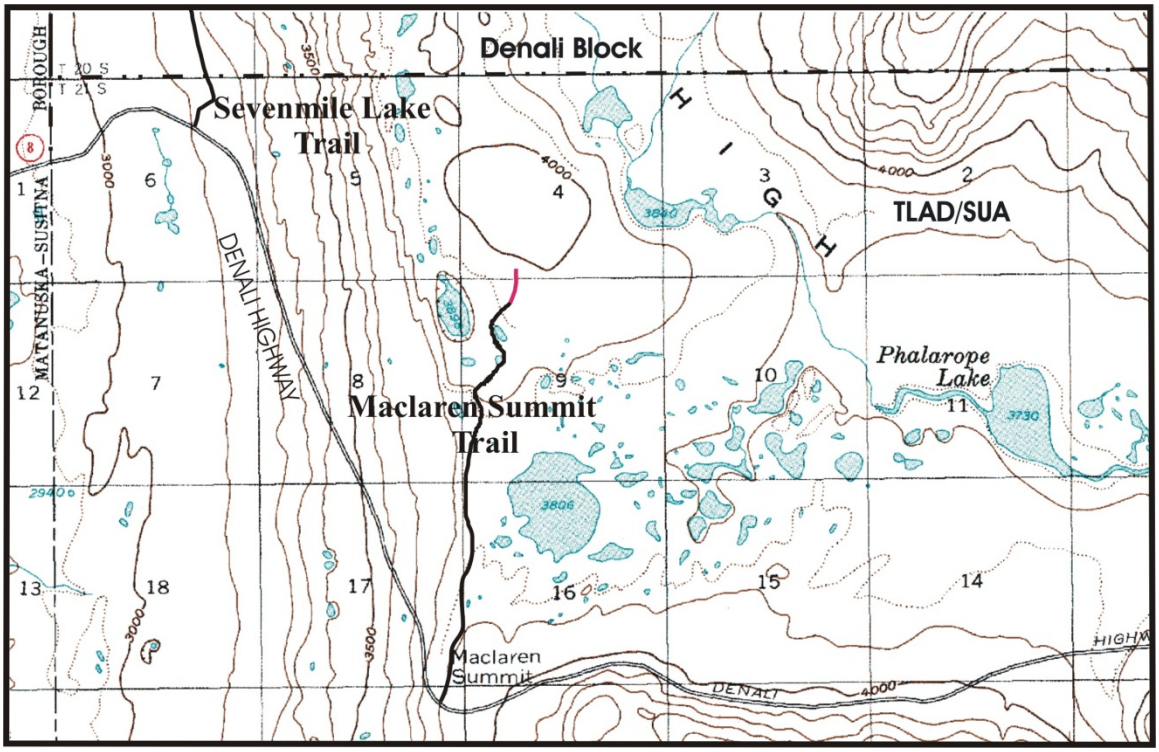


Figure 7. Close up of TLAD/SUA OHV Trails, Mile 33-40, Denali Highway. The Maclaren Summit Trail runs north from the Denali Highway approximately 2.3 miles and lies completely within the TLAD/SUA. Trail is from a trackway recorded in 2003 by a Garmin Map 76S GPS unit. Trail extension (in red) shows unauthorized trail pioneered by OHV users, discovered in 2005. The Sevenmile Lake Trail starts in the TLAD/SUA but then soon leaves the special use area.

d. Sevenmile Lake Trail

The Sevenmile Lake Trail leaves the Denali Highway at Mile 39.7 and terminates 7.5 miles later at Sevenmile Lake (Figures 6 and 7). The trail impacts no known sites. The trail is in very poor condition, and is often impassable. Some sections of the trail have become boulder-filled stream gullies, while other areas are bogs that encourage the constant pioneering of trails to cross.

e. Unauthorized OHV Trails in the TLAD/SUA

It is DNR policy to discourage the development of new user-created trails in the TLAD/SUA. This is done by marking the trail an unauthorized route with signage. If this does not discourage use, the trail is physically blocked by boulders.

Some unauthorized trails, like the Landmark Gap Creek Trial, start on land managed by one entity (in this case BLM) and move to land managed by another (the State). OHA will work with BLM and DMLW to discourage user-created trails that start in one jurisdiction and cross to another.

The "Mile 23.5 Trail" (Figure 8) is a ~700m long trail pioneered north from a pull off on the highway at Mile 23.5. No sites are impacted by this trail. After consultation with DMLW, it was decided that the pull off should be left available for use but the trail should be closed. DMLW worked with Alaska DOT to have the trail blocked by boulders.

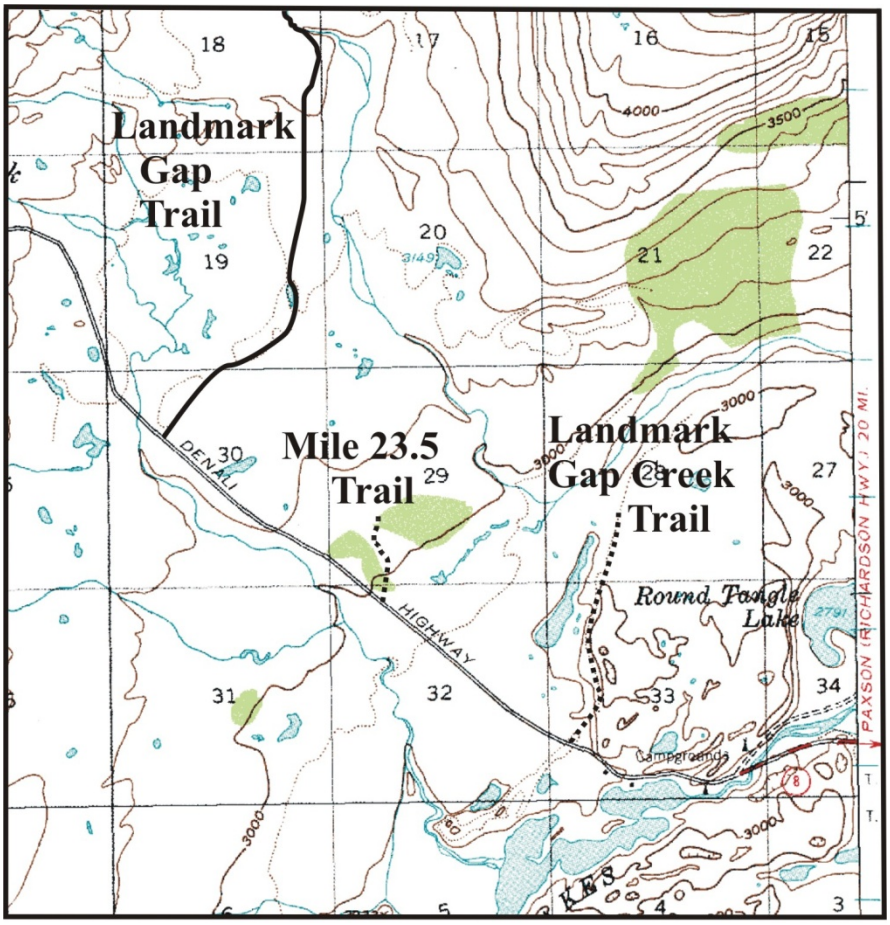


Figure 8. TLAD/SUA OHV Trails, Mile 21-26, Denali Highway. The Mile 23.5 Trail, Landmark Gap Creek Trail and dashed lines off the Landmark Gap Trail are unauthorized OHV trails.

The "Landmark Gap Creek Trail" (Figure 8) is an OHV trail that leaves a gravel pit at Mile 22.2, in the BLM Delta River Wild and Scenic River Corridor, and goes north 1.7 km into the TLAD/SUA. This trail crosses two archaeological sites, one of them a flake scatter with over one hundred flakes visible on the surface (VanderHoek 2007: 23-25). BLM has closed this trail with signage, though it still gets periodic OHV use. DMLW is working with DOT to close the entrance off with boulders.

2. RS2477 Trails in the Denali Highway region

Some trails on Denali Highway lands are designated as RS 2477 trails. RS 2477 trails are a legally guaranteed right-of-way (43 USC 932 [Revised Statute 2477]) across federal, state and private land, and may see more intense traffic, including larger machinery, than other trails. Information on Alaskan RS 2477 rights-of-way is available from DNR at http://dnr.alaska.gov/mlw/trails/RS2477/index.cfm, and at http://dnr.alaska.gov/mlw/factsht/rs2477.pdf. The RS 2477 designation would have little effect on trails that are wholly on state land. The trails most affected are those that show heavy (i.e., motorized vehicle) use and cross federal or private land.

Increased use of RS 2477 trails may accelerate impacts to nearby archaeological sites. These routes should be archaeologically reviewed to insure that they do not impact archaeological sites.

The following eight RS 2477 rights-of-way (a-h) are the qualified RS 2477 trails in the Denali Highway region. One other trail, the former Glacier Gap Trail, has been researched by the State of Alaska to determine if it qualifies as a valid RS 2477 right-of-way. The State has identified it as RST 1809, and its research is insufficient as of this date to determine whether or not it qualifies. The titles in quotes and RST numbers below reflect how the trails are listed in DNR records.

a.“Meier’s Lodge/Dickey Lake,” RST 82.
b.“Swede Lake-Little Swede Lake-Denali Highway,” RST 232.
c.“Gulkana/Denali (Winter),” RST 294.
d.“Gulkana/Valdez Creek (Summer),” RST 295.
e.“Maclaren River Trail,” RST 305.
f.“Paxson/Denali (Valdez Creek),” RST 318.
g.“Windy Creek Access Road,” RST 517.
h.“Sevenmile Lake Trail (Denali Highway),” RST 1814.

3. Other Off-Highway-Vehicle Trails in the Denali Highway region

a. The Yost Trail

The Yost Trail (Figure 9) historically linked the Yost Roadhouse on the Valdez-Fairbanks Road (now the Richardson Highway) to the town of Denali near the Susitna River. A section of this trail is still visible, stretching from Phelan Creek on the Richardson Highway approximately 25 miles to Broxson Gulch in the Eureka Creek drainage. The Yost Trail crosses the BLM Delta Wild and Scenic River Corridor but is open for general OHV use across the corridor, provided that users stay on the trail. No known cultural sites in the Yost Trail would be impacted by increased use (one site in the trail was mitigated in 1988: Bowers 1989), but increased use of the trail would bring known sites, and areas with high site potential near the trail, into higher public use (VanderHoek 2007:26-28). The Yost Trail is not a listed RS 2477 trail.

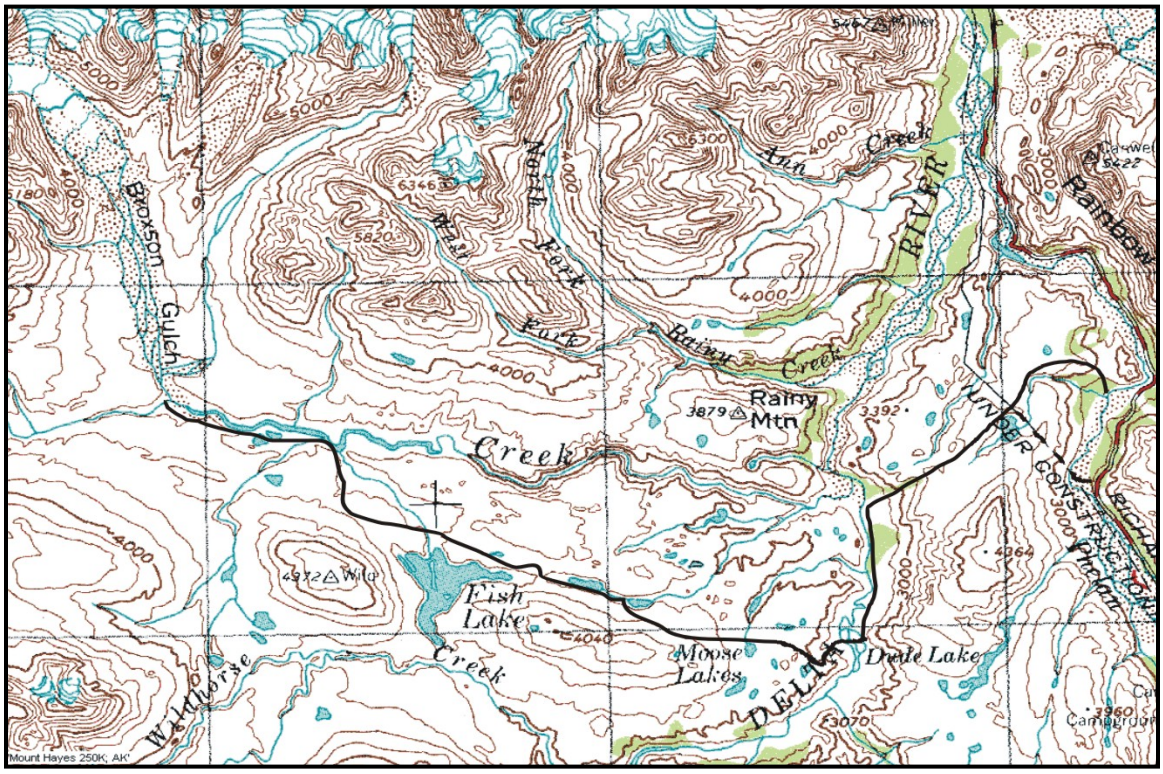


Figure 9. Yost Top-of-the-World Trail. Current access to trail (with permission) is from Trans-Alaska Pipeline corridor (dashed line).

b. Rainy Creek Trail

The Rainy Creek Trail is an access route for mining claims in the Rainy Creek and Broxson Gulch drainages. The trail leaves the Richardson Highway north of the Delta River/Phelan Creek confluence, crosses the Delta River, and then traverses south to Rainy Creek and up the Rainy Creek drainage into Broxson Gulch. The Rainy Creek Trail is not a listed RS 2477 trail.

c. Butte Creek Trail

The Butte Creek trailhead on the Denali Highway is located ~one half mile west of the Susitna River Bridge. Branches of the Butte Creek trail reach south and southwest into the upper Butte Creek and Coal Creek valleys. The trail crosses both BLM and state land. The Butte Creek Valley trail impacts two sites in Denali Block II West. The Butte Creek Trail system should be archaeologically surveyed to insure that no sites are impacted by trail use. The Butte Creek Trail is not a listed RS 2477 trail.

4. Resource Extraction

Mining operations are ground-disturbing activities. Mining operations have the potential to disturb large tracts of land in Denali Block I and the Denali Highway region. Mine portals, open pits, tailings storage facilities, employee facilities, mill sites, new roads, test pits, etc. and associated effects of increased road traffic and new OHV trails, must take into account effects on cultural resources.

5. Other Commercial Development

Commercial development on Denali Highway lands may include guiding, lodges, and other operations. When considering the possible environmental effects of these

operations, their possible direct and indirect impacts on cultural resources must also be taken into account.

6. Road Modification or Development

Any soil disturbance, including changing alignments of existing roads, adding culverts, constructing new roads, and beginning or expanding material sources, has the potential to damage or destroy archaeological sites. Any proposed road-related ground disturbance needs to be reviewed for potential effects on archaeological sites. Archaeological survey and mitigation may be required. If needed, site review should be done in the planning phase and before construction.

7. Hiking Trails

The Denali Highway has numerous hiking trails, especially around the Tangle Lakes and Landmark Gap Lake. Foot traffic alone can have significant impacts on cultural resources, wearing a trough into the soil and exposing cultural materials. This is especially destructive along stream banks, where these effects combine with stream erosion. Foot traffic and natural erosion along Landmark Gap Creek have eroded XMH-403, requiring regular monitoring.

a. Rusty Lake Trail

The approximately one-mile long Rusty Lake Trail is a hiking trail stretching from Mile 17.2 of the Denali Highway to the southern shore of Rusty Lake. The trail was laid out by DMLW and archaeologically surveyed by OHA personnel. No sites are impacted by the trail, though one large archaeological site nearby could become impacted by foot traffic.

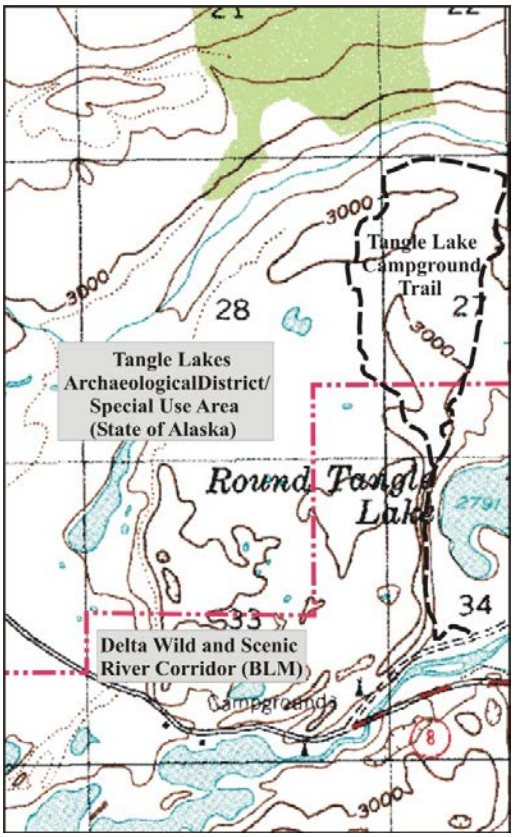


Figure 10. Tangle Lake Campground Trail.

b. Tangle Lake Campground Trail

The Tangle Lake Campground Trail is a joint BLM/State of Alaska trail originating in the BLM Round Tangle Lake Campground (Figure 10). The ~four mile trail leaves the southern side of the campground, cuts gradually across the esker face to the west, then makes a loop across the glacial bench to the west of the lake. The northern mile and a half of the loop lies outside BLM's Wild and Scenic River Corridor on state land.

Table 2: OHV Trails: Cultural Resource Management Considerations on State Lands in the Denali Highway Region.

Trail Name	Map Quad	Block Location	Trailhead Location	Trail Length	RS 2477 Trail	Arch. Surveyed /Open	Cultural Resource Concerns	Recommendations
Landmark Gap (North) Trail	Mt. Hayes A-5	TLAD/SUA, in Denali Block 1	Mile 24.7 Denali Highway	2.4 miles	No	Yes/Yes	Erosion on LG Trail Site; pioneered trails on sides and end of LG Trail.	Lay geoblk over trail at LGT Site & cover w gravel; monitor closed trails.
Glacier Gap to Sevenmile Lake Trail	Mt. Hayes A-5	TLAD/SUA, in Denali Block 1	Mile 30.6 Denali Highway	8.5 miles	Pending	Yes/Yes	Unauthorized trail extension along Glacier Gap Lake.	Monitor.
Maclaren Summit Trail	Mt. Hayes A-5	TLAD/SUA, in Denali Block 1	Mile 36.8 Denali Highway	2.2 miles	No	Yes/Yes	Gradual pioneering at end of trail.	Extend trail out of SUA. Monitor.
Sevenmile Lake Trail	Mt. Hayes A-5	TLAD/SUA & D. Blk. 1	Mile 39.7 Denali Highway	7.5 miles	No	Yes/Yes	Trail braiding drives users to pioneer trails on high-prob. landforms.	Reroute trail. Archaeologically survey any rerouted trail.
Landmark Gap Creek Trail	Mt. Hayes A-5	TLAD/SUA, in D. Blk. 1	Mile 22.2 Denali Highway	1.6 miles	No	Yes/No	Unauthorized trail; crosses several archaeological sites.	Monitor trail for OHV use.
Mile 23.5 Trail	Mt. Hayes A-5	TLAD/SUA, in Denali Blk 1	Mile 23.5 Denali Highway	0.4 mile	No	Yes/No	Unauthorized, unsigned trail, physically closed by rocks in 2005.	Monitor.
Yost Trail	Mt. Hayes A-4,5 B-4,5	Denali Block 1	~Mile 221, Richardson Highway	10 miles in DBI	No	Yes/Yes	Locations with high archaeological potential near trail.	Monitor use. Survey region if use increases.
Rainy Creek Trail	Mt. Hayes B-4,5	Denali Block 1	~Mile 228, Richardson Hwy	>17 miles	No	Yes/Yes	Historic cabins and other sites may lie near trail.	Monitor.
Eastern Paxson Trail/ Denali Highway	Mt. Hayes A-4,5	Denali Block 1	Paxson Roadhouse	~41 miles	Yes	Some/Yes	Trail route has high potential for archaeological sites.	Survey to locate.
Western Paxson Trail	Healy A-1,2, Mt. Hayes A-6	Denali Blk 2, State Selected Land	Mile 41(?), Denali Highway	~31 miles	Yes	No/No	Has high potential for arch. sites & will be impacted by OHV use.	Denali Highway to Roosevelt Lake needs arch. survey.
Windy Creek Trail/Access Road	Healy A-1	Denali BlK 2 East	Mile 78, Denali Highway	14 miles	Yes	Yes/Yes	None known.	Monitor. Survey if trail changes.
Butte Creek Trail	Healy A-2	Denali Blk 2 West	~79.5 Denali Highway	Unknown-First 12 miles surveyed	No	Partial/ Yes	Trail crosses multiple sites. Sites on unsurveyed trail segments may be impacted by OHV use.	Survey trail system. Mitigate sites where warranted.

Only the Yost Trail has been evaluated for eligibility to the National Register of Historic Places. It was determined not eligible.

Trail Name	Map Quad	Block Location	Trailhead Location	Trail Length	RS 2477 Trail	Arch. Surveyed /Open	Cultural Resource Concerns	Recommendations
Rusty Lake Trail	Mt.H. A-4	TLAD/SUA, in D. Blk. 1	Mile 17.2, Denali Highway	Approx. 1 mile	No	Yes/Yes	One large site in area.	Monitor.
Tangle Lake Campground Trail	Mt H. A-5	TLAD/SUA, in D. Blk. 1	Mile 21.3, Denali Highway	Approx. 4 miles	No	Yes/Yes	Trail starts on BLM land, part of loop is State land. Many sites in area. Trail crosses several sites on BLM land.	Monitor.

Table 3: Hiking Trails: Cultural Resource Management Considerations on state lands in the Denali Highway Region.

8. Artifact Collecting

Archaeological materials on Denali Highway lands are vulnerable to collection because they are frequently visible on the ground surface. The disturbance of archaeological sites or unauthorized collection of artifacts on state land is against the law, with violators subject to fines up to $100,000 for each violation (AS 41.35).

B. Natural Disturbance Factors

1. Natural Erosion

The natural erosional effects of wind and water impact numerous archaeological sites in the Denali Highway region. The Zinck and Zinck report (1976) has noted that 40% (N=72) of the sites they examined in the TLAD were affected by wind or water erosion. OHA's monitoring in the Southern Landmark Gap region has found considerable wind erosion, down-slope movement of flakes, and human impact from foot traffic at some of the sites. The site most impacted by stream erosion in the TLAD/SUA is XMH-403, a site located on the stream edge of a pull-off on Landmark Gap Trail near Landmark Gap Lake. The erosion in this case is from a combination of rain and stream erosion coupled with foot traffic to the stream.

2. Melting of Regional Ice Patches and Cirque Glaciers

Ice patches (snow fields) are locations where caribou congregate in the summer to cool off and escape insect parasitism. Hunters in the past looked for caribou, sheep and other animals in these locations. Artifacts, such as darts and arrows, made from organic materials, were lost on these ice patches, and preserved within the ice. Canadian research (Hare et al. 2004; Kuzyk et al. 1999) shows that ice patches frozen for thousands of years have been rapidly melting since the early 1990s, exposing rare organic artifacts to destruction from the elements.

OHA's research designs since 2003 have included monitoring multiple ice patches in the Denali Blocks, particularly those with caribou dung or those which have previously produced cultural material (VanderHoek 2007:39-68). Ice patches surveyed in 2003 in the western Amphitheater Mountains produced two arrow shafts and two antler points, as well as worked antler and fragments of birch bark. Monitoring in the same region in 2004 recovered a fragment of arrow or dart shaft and three lithic points, and in 2007 recovered an antler point.

Survey of ice patches in the eastern Amphitheater Mountains in 2004 recovered a wooden stave that may be a tool for setting ground squirrel snares (Figure 11). All of these artifacts were recovered from caribou dung where an ice patch had melted. These recovered items illustrate the possibility of finding cultural material in receding or former ice patches, and highlight the importance of monitoring the ice patches and related cirque glaciers now, as they are rapidly melting away.

Once cultural materials are found on an ice patch, the ice patch should be monitored until the ice has completely melted away. If there are substantial caribou dung deposits left after the artifact-bearing ice patch has melted, monitoring should continue, as cultural materials may erode from the dung deposits. Ice patches that have produced no artifacts and have completely melted do not require further monitoring if the ice patch returns.

Figure 11. Delta River Ice Patch No. 5. This ice patch, seen here in 2003, had completely melted away by 8/31/04, when OHA personnel recovered a 500 year old wooden artifact, possibly a tool for setting ground squirrel snares, from atop the remaining caribou dung. Caribou dung is visible on lower sections of ice patch. Ice patch is located on a mountaintop west of Lower Tangle Lake at approx. 5350' elevation.

VI. PROJECT REVIEW FOR CULTURAL RESOURCES ON DENALI HIGHWAY LANDS

A. Project Planning: Consideration of Cultural Resources

The following are considerations that must be taken into account when planning ground-disturbing activities on Denali Highway lands:

1. Legal Foundation

The State of Alaska holds cultural resources in trust for its population, just as it does its natural resources. Cultural resources are non-renewable, and like natural resources must be considered when planning projects and developing budgets. Any ground-disturbing activity has the potential to affect cultural resources. As the State's lead agency for cultural resources, OHA is responsible for review of proposed activities that may affect cultural resources on state lands as authorized in AS 41.35. OHA also includes Alaska's State Historic Preservation Office, representing the State's interest in reviewing effects to cultural resources due to federal undertakings (36 CFR 800).

It is the responsibility of the permitting agency to contact OHA regarding cultural resource identification and evaluation. This process should occur early in project planning to allow for maximum flexibility in design phases. Potential impacts to cultural resources must be assessed, allowing for the development of mitigation or avoidance measures that would minimize adverse affects on those resources. One of OHA's roles is to advise DMLW, other state agencies, and commercial entities on ways of avoiding or minimizing adverse effects to cultural resources.

2. Early Assessment of Project Impacts

Management agencies should contact OHA during the initial design phase of the project. Early assessment of impacts to the cultural resources will allow land managers to implement strategies that avoid or minimize impacts. It is generally more economical to avoid impacting cultural resources than to mitigate adverse effects to a cultural site. Trails or roads, along with mining, staging and extraction areas in the region, should be designed to avoid areas with known sites or which have a high probability for undocumented sites to exist.

3. Project Design Factors

Projects should be designed to avoid direct or indirect impacts to cultural resources, and not place users so close that they either purposefully or inadvertently damage a site. Roads, trails, camps and work sites should be situated to direct users away from sensitive areas. Existing OHV trails that traverse swampy areas and are causing users to pioneer new routes should be rerouted or hardened to limit users to the trails. Long trails without pre-established camp sites encourage users to pioneer camp locations that may be detrimental to cultural resources. Trails and campsites near lakes and streams need to take into account the effect of increased foot traffic along shore and stream banks on potential cultural resources.

4. Recommendation for Annual Meeting

OHA, DMLW, and large commercial developers should schedule an annual meeting before each field season to discuss ongoing and proposed activities in the Denali Highway region.

B. The Process for Reviewing Proposed Ground-Disturbing Activities

Consultation between the land managing agency and OHA should involve the applicant at each step of the process, to avoid unnecessary delays due to communication gaps. The following steps should be engaged:

1. Identification and Evaluation of Cultural Resources

a. Consultation with OHA

Before any ground-disturbing activity takes place on Denali Highway lands, the state or federal agency permitting the project should contact OHA to consult on the potential for impacting cultural resources in the project area. At a minimum a letter should be sent to OHA describing the project and including documentation giving its location on United States Geological Survey (USGS) 1:63,360 topographic maps. Large or complex projects may also require a meeting with OHA personnel.

Information on cultural resources, including their locations, is important to land managers in making informed decisions on the management and development of resources on Denali Highway lands. OHA maintains a database of known cultural resources. This database, termed the Alaska Heritage Resources Survey (AHRS), is a GIS compatible inventory of the State's reported cultural resources. When cultural resource data are generated from fieldwork on Denali Highway lands, they are entered into the AHRS database so that they are available to land managers and other authorized users. The AHRS database should be checked by land management agencies and cultural resource specialists to identify any reported cultural properties in the project area.

b. Criteria for Recommending Archaeological Survey

OHA recommendations for archaeological surveys are based on the following factors: (1) the degree and type of ground disturbance the project will produce; (2) the potential for prehistoric or historic resources to be present; and (3) the occurrence and quality of previous archaeological investigations in the area.

Areas in the Denali Highway region that contain a high potential for cultural resources include: transportation corridors, historic mining, hunting and trapping locations, settlements, overlook locations; areas near past or present lakes, lake outlets and streams; lithic procurement sites; areas with past or present ice patches; and areas of bunched resources (see p. 15-18). If an area has a high potential for cultural resources, OHA reviews previous archaeological investigations in the area. If insufficient or inadequate information is available on the cultural resources of the region, OHA may recommend an archaeological survey of the project's Area of Potential Effect (APE). Regional cultural resources information may be considered inadequate if there has been no previous survey, if the information is old, or if locational information is inaccurate due to old technology. Site information for the Denali Highway region is currently incomplete because of limited archaeological survey. Very little of the State of Alaska has been archaeologically surveyed. Less than 10% of Denali Block I and 1% of Denali Block II have been surveyed for cultural resources. Because early research data are often incomplete and lack precise location information due to the methodology and technology available at the time, OHA may ask that they be re-verified. Surveys conducted before GPS instruments became commonly available may have inaccurate locational data. Early archaeological survey reports often have poor maps or no maps at all. A regional archaeological survey is recommended in the Tanana Basin Area Plan (DNR 1991:2-6).

Archaeological survey should be a planned, ongoing activity that is conducted systematically.

c. Low Impact Geophysical Exploration

Certain types of geophysical testing, such as the use of remote sensing or the taking of very small surface soil samples, involve only limited ground disturbance. These activities have a low potential for impacting cultural resources, and OHA will not normally request a survey. Small core diameter drilling operations may not require a survey, unless they are in an area with known cultural resources or with the high probability for cultural resources like the TLAD.

d. Professional Qualifications

Personnel selected to conduct the survey are required to meet the Secretary of Interior's Professional Qualifications Standards (36 CFR 61) appropriate for professionals such as archaeologists, historians, and architectural historians.

e. Evaluation of Cultural Resource Significance

Following identification of cultural resources in the project area, agency personnel are to submit a report to OHA with determinations on the significance of these resources. Under federal law (36 CFR 61), significance is based on the eligibility of the resource for inclusion in the National Register of Historic Places. For National Register criteria, see www.achp.gov/nrcriteria.html. In the federal process, eligibility is determined between the federal agency and the SHPO. Under state law, significance is evaluated using the Alaska Landmark Register criteria (passed by the Alaska Historic Commission 11/30/10). For Alaska Landmark Register criteria, see http://dnr.alaska.gov/parks/oha/alr_criteria.pdf. In the state process, DNR/OHA makes the determination of eligibility. The cultural resource professionals conducting the survey may be able to recommend determinations of eligibility for identified sites from existing information, or may have to return for more intensive investigation.

2. Assessment of Potential Effects

If there are significant cultural resources in the project area, then agency and OHA personnel determine if the project will affect those cultural resources. The agency and applicant are to consult with OHA on the possibility of adjusting the project to avoid or minimize adverse effects on cultural resources.

3. Mitigation of Adverse Effects

If it is not practicable to avoid adverse impacts to cultural resources, then mitigation may be required. Mitigation may include data recovery through archaeological excavation and/or education of the public through the development of interpretive signs, brochures, or presentations to local audiences. A memorandum of agreement may need to be developed between OHA, the agency and the applicant, to document the agreed-upon mitigation.

4. Federal Permitting of Projects: The Section 106 Process

Any activities that require permitting by a federal agency, such as the Environmental Protection Agency or Corps of Engineers, or are federally funded or licensed, must comply with the National Historic Preservation Act. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. The Section 106 process mandates federal agencies to consult with the SHPO on historic properties within the APE of a proposed undertaking. The

historic preservation review process mandated by Section 106 is outlined in regulations "Protection of Historic Properties," and codified at 36 CFR 800.

For an outline of the process agencies should follow in dealing with cultural resources and for OHA/SHPO contact address and telephone numbers, see XI. Appendix: "Cultural Resource Management Checklist for Land Management Agencies and Cultural Resource Specialists."

VII. GUIDELINES FOR OFFICE OF HISTORY AND ARCHAEOLOGY'S CULTURAL RESOURCE MANAGEMENT ACTIVITIES ON DENALI HIGHWAY LANDS

OHA's management and protection goals for the Denali Highway lands include consultation and coordination with state, federal and other agencies, continued site monitoring, and the mitigation of affected archaeological sites. These goals include the continued collaboration with DMLW on management of cultural resources in the Denali Highway region, the development of site management information through archaeological survey and landscape history, the development of public outreach materials and programs, and the production of reports.

A. Coordination and Consultation with State, Federal, Tribal, and Commercial Entities

Effective management of the cultural resources along the Denali Highway requires the coordination of all landowning, regulatory, tribal and commercial stakeholders, including Ahtna Incorporated, DMLW and BLM.

1. State and Federal Agencies

a. Benchmark Activities Triggering Consultation with DMLW

OHA and DMLW should consult when new blocks of Denali Highway land are conveyed from the federal government to the state; mineral exploration, mining and other resource extraction, hydroelectric projects, new roads, trails, or campgrounds are planned; or use priorities change for the region.

b. Ongoing Management of Denali Highway Cultural Resources with DMLW

DMLW should coordinate with OHA on the management of cultural resources in the Denali Highway region. Both parties should meet during the winter to plan joint field operations during the summer season. OHA should coordinate with DMLW on trails management, enabling DNR to serve the public need for more access while protecting the cultural resources of the region. This includes both trails in the TLAD/SUA as well as others like the Butte Creek Trail on the western Denali Highway.

c. Memorandum of Understanding between Mining and OHA

A Memorandum of Understanding (MOU) should be put in place between DNR/Mining and OHA. This MOU would address increasing the communication and coordination between the two offices, identifying individuals involved, and laying out steps and timing for coordinating projects and providing the cultural information needed for planning and permitting those projects.

d. Joint DMLW/BLM/OHA Activities

OHA should work with DMLW and BLM to insure that the appropriate regulatory signage is in place informing the public about the boundaries of the TLAD. Joint projects by the three groups should include interpretive media that highlight past and present use of the land by the Ahtna people and the importance of preserving the cultural resources left behind. OHA should participate in the biannual multi-agency Copper Basin Land Managers Meeting in Glennallen. The agencies should consider a periodic joint public meeting presenting current and upcoming activities.

e. Joint BLM/OHA Projects

OHA should seek joint projects with BLM that would benefit the overall understanding and management of the cultural resources of the region. These include joint surveys of the Amphitheater Mountains along the Denali Block/BLM Delta Wild and Scenic River Corridor boundary; joint survey and mitigation of OHV trails that cross both State and BLM land; joint surveys of historic and proto-historic travel routes across the region; monitoring and testing of sites around the Delta River Falls; joint survey of the northern Delta River corridor with BLM and U.S. Army archaeologists; GIS modeling of Ancient Tangle Lake, recreating prehistoric landscape use and generating background data for public interpretation panels and other outreach products; and dating of regional bluff and lake deposits, to better understand the landscape history of the region and help the development of site predictive modeling.

f. Updating BLM/OHA Agreements

BLM and OHA should review existing agreements and update them as necessary.

2. Regional Native Groups

OHA should coordinate with Ahtna Inc. and regional non-profit Native groups to facilitate interaction between DNR and regional groups concerned with the cultural resources on Denali Highway lands.

a. Yearly Meeting

OHA should consult with Ahtna Inc., Ahtna Heritage Foundation and regional non-profit Native groups on an annual basis.

b. Joint Projects

Coordination between Native groups in the Copper River Valley and OHA may set the stage for joint projects, such as conducting site visits with Ahtna elders and youth to identify Traditional Cultural Properties (TCP's) in the Denali Highway region, the development of a site stewardship program between local Native groups and OHA, or joint participation in public outreach programs.

c. Presentations by OHA

OHA should give regular presentations to regional Native groups on ongoing cultural resource activities in the region.

3. Commercial Interests

a. Yearly Meeting

OHA, commercial entities and DMLW should meet each spring to discuss ongoing and proposed activities in the Denali Highway region.

b. Regional Coordination

The south central regional office (SCRO) of DMLW and other region staff should submit permit and lease notices to OHA for review and comment.

c. Ongoing Coordination

OHA should continue to advise and coordinate with interested parties seeking state permits or leases, and will make recommendations for the best management of cultural resources on Denali Highway lands.

B. Monitoring Known Archaeological Sites

OHA will continue monitoring cultural resources in the Denali Highway region for impacts, depending upon budget and staff.

1. Threatened Archaeological Sites

Monitoring requires regular checking of cultural sites, especially those located in the TLAD and those in or near OHV trails and other areas of intense public use. Sites in or near walking trails require monitoring, especially where foot traffic impacts sites along stream banks. OHA should maintain a list of threatened sites and annually monitor these sites. This list should be updated at the end of each field season.

2. Ice Patches

Monitoring should continue on the ice patches that have produced archaeological materials. The probability is high that fragile cultural materials may be exposed at these locations with further melting. Once these unique artifacts have been exposed through melting, degradation occurs quickly. Monitoring should include documenting the size and location of ice patches and the collection of exposed artifacts.

C. Mitigation of Archaeological Sites

Cultural sites that are in danger of destruction through either human or natural disturbance factors must be protected, if practicable, from these impacts. Mitigation measures include avoidance, protective coverings, trail re-routing, or other non-obtrusive means. Mitigation through data recovery occurs when other measures are not practical or fail to protect the endangered cultural sites.

1. Known Endangered Sites

a. Landmark Gap Trail Sites

Four sites along the Landmark Gap North Trail (XMH-289, XMH-403, XMH-608, and XMH-1313) (VanderHoek 2007), and one on an unauthorized offshoot trail (XMH-1003), have been adversely impacted by vehicle traffic. Coordination is required with DMLW to monitor and possibly mitigate these sites.

b. Landmark Gap Creek Trail

The "Landmark Gap Creek Trail" is an unauthorized OHV trail that leaves a gravel pit at Mile 22.2 in the BLM Delta River Wild and Scenic River Corridor, and extends north into the Denali Block. This trail traverses several archaeological sites (XMH-171 and XMH-1079), and its extension may impact additional sites (VanderHoek 2007). The trail has been closed but may continue to see unauthorized use. Collaboration between DNR and BLM will be necessary when monitoring trails that cross both state land and the federal Delta and Gulkana Wild and Scenic River Corridors.

c. Butte Creek Trail

Two sites (HEA-424 and HEA-425) have been adversely impacted by trail construction and vehicle traffic. Coordination is required with DMLW to monitor and possibly mitigate these sites.

2. Identifying Sites for Mitigation Consideration

Areas for potential development should be anticipated using information gathered in yearly meetings with DMLW and commercial entities. Mitigation recommendations should be included in the regular OHA management report.

D. Archaeological Survey and Landscape Histories

OHA should continue systematic archaeological survey on state lands throughout the Denali Highway region to providing baseline data. Included in these systematic surveys should be the GPS location of known archaeological sites, ice patch survey, and

the survey of RS 2477 trails. In addition, because of Alaska's dynamic nature, landscape histories need to be determined for regional geomorphic features, especially features that may have experienced considerable change during the time of possible human occupation in the region (the last 10,000+ years). Regional geomorphic features provide evidence for different environments in the past that prehistoric occupations would have used differently than current landscapes, and need to be understood when evaluating areas for their potential to yield cultural deposits. Understanding the mechanisms and timings of these features would help archaeologists better understand past landscapes and better plan archaeological surveys in the regions. These studies need to be done early in the planning process, so they can be incorporated into later survey strategies.

Tephra (volcanic ash) falls throughout the Holocene have had a profound effect upon human populations in the region. Work refining the timing and ecological effects of these events would increase the utility of the tephra as marker beds for archaeologists as well as help explain the occupational history of the region.

1. Develop a Denali Highway Region Archaeological Survey Plan

OHA should develop a long range survey plan that includes prioritization of unsurveyed areas in the region for archaeological survey. This prioritization should be done in consultation with state and federal agencies and tribes. Survey priority should be given to areas likely to be impacted by ongoing development as well as areas of high probability for cultural resources. Probability models used in developing survey strategies should be periodically reviewed and updated to reflect current knowledge. Survey should include the unsurveyed ice patches and cirque glaciers in the region, as the long-term climatic evidence strongly suggests that they will continue to melt. Cultural material melting out of this ice is relatively fragile and short-lived, and should be recovered soon after exposure. Time is critical, since many of the ice patches are almost completely melted.

a. Confirm Archaeological Site Locations

Known sites in the TLAD should be relocated and locational information updated with current GPS technology. This is especially important in areas of high site concentrations as in the lower Landmark Gap Lake region. The AHRS should be updated with these improved data.

b. Conduct Archaeological Survey of Unsurveyed Lands

OHA should conduct systematic archaeological survey on state land following the direction provided in the Denali Highway Region Archaeological Survey Plan, including unsurveyed OHV trails and areas of developmental interest at risk from ground-disturbing activities.

c. Survey RS 2477 Trails

OHA should conduct archaeological surveys on the RS 2477 trails on state lands along the Denali Highway not already surveyed. This includes any known but unsurveyed trails, as well as any trails in the future that are deemed RS 2477 eligible.

d. Develop Proto-historic and Historic Trails Map

Recently discovered proto-historic and historic sites in the region appear to correlate with known aboriginal and historic trails. A compilation of these trails would offer high probability locations for future archaeological survey.

e. Develop Landscape Histories

Studies should be conducted of geomorphic features including the Rock Creek flood fan located south of Landmark Gap Lake, the relic drainage on the eastern side of Sevenmile Lake, and the tephra (volcanic ash) layers capping much of the Denali Highway region. The Rock Creek flood fan may indicate both the presence of a much larger Glacier Gap Lake, and the catastrophic draining of that lake. If the Rock Creek flood fan can be dated and proves to have been a Holocene event, its flood may provide a possible mechanism for having triggered the catastrophic draining of Ancient Tangle Lake. The deeply incised Wildhorse Creek drainage appears to have been the former outlet of Sevenmile Lake, making the eastern end around this former outlet a more desirable camping area than it is at present. The 3500 BP Hayes tephra and other tephras indicate periods of ecological stress for aboriginal populations, with the Hayes tephra the possible causal factor in a regional human hiatus. University students should be encouraged to study these and other landscape features and processes for their thesis research.

E. Public Outreach, Interpretation and Education

Public outreach, interpretation and education are cornerstones of any cultural resource management program. This is especially true in the Denali Highway region, where the Denali Block I contains the TLAD. The public should be educated on the prehistory of the region, the past and present use of the lands by the Ahtna people, the fragility of the cultural resources, and the laws protecting those resources. This information would increase the public's enjoyment and appreciation of the prehistory, and encourage better stewardship of archaeological sites.

1. Cultural Resources Pamphlet

A pamphlet should be developed describing the cultural resources on state lands along the Denali Highway, and distributed to the public at area lodges and other outlets.

2. Interpretive Signs

DMLW, DNR/DPOR/ Interpretation and Education, and BLM Interpretation should coordinate on the development and installation of interpretive signs for pullouts and trailheads.

3. Regional Presentations

OHA should develop presentations that include the regional prehistory, state management of the cultural resources on Denali Highway lands, and the importance of archaeological site preservation. These should be presented to the public in the Copper River and Denali Highway regions, to user groups and at professional meetings. OHA could work with regional Spirit Camps, informing Native youth about the archaeological evidence of their past and encouraging a greater appreciation of science and stewardship of their own culture.

4. Archaeological Field School

A small archaeological field school could be organized in conjunction with BLM, NPS, university, or local Native groups, to encourage local participation, train people for seasonal archaeological and interpreter positions, and help foster an appreciation for archaeology as a way of knowing the past.

5. Educational Materials

Educational materials should be developed based on the prehistory and ethnographic use of the Denali Highway region. Educational materials could be made available on the OHA website.

F. Reporting and Curation

OHA should produce a regular report on its cultural resource activities for the Denali Highway region, integrate new cultural resource information into its AHRS database, and curate artifacts collected as designated in state statute. OHA should also compile a bibliography on topics relating to regional prehistory.

1. OHA Regular Report for Denali Highway Activities

Yearly activities performed by the OHA archaeologist should be documented and compiled in an OHA report summarizing the previous three years activities. This report should document all activities for those years pertaining to Denali Highway cultural resource management, as delineated in this document, and be published in the OHA Report Series. This report should include information on joint projects undertaken with other agencies as well as projects conducted solely by OHA personnel.

2. OHA Oracle Database

The Oracle integrated database facilitates DNR management of the Denali Highway region. Data on all newly discovered archaeological sites as well as updated information on existing archaeological sites should be entered into the Alaska Historic Resources Survey (AHRS) component of the Oracle database at the end of each field season.

3. Curation

OHA policy is that artifacts and associated data collected by OHA in the TLAD/SUA or other areas of the Denali Highway will be curated at the University of Alaska Museum of the North or other designated State of Alaska curation facility.

4. Regional Bibliographic Database

A bibliography should be compiled on the history and prehistory of the Denali Highway and adjacent Copper River and Susitna River drainages. This database should include references on the available ethnographic, archaeological and paleoecological data for the region.

5. Regular Compilation of Findings

OHA should compile a set of findings every five years on what has been learned from monitoring, survey and landscape history research, including a discussion of what priorities have been and how they might have changed.

6. Plan Review

This plan reflects the best efforts of the State Office of History and Archaeology to address cultural resource issues in the Denali Highway region, and to put plans in place that provide the best management possible for those resources. This plan is expected to remain relevant to the region's management of cultural resources for approximately 20 years; however, intermediate reviews and appropriate modifications are expected and encouraged. Ideally, the plan would be re-evaluated every five years and updated as necessary to ensure its continued relevancy and usefulness. However, the director may initiate a review at any time, and it is recommended that the plan be reviewed via a public process at least every 10 years.

VIII. TIMEFRAME AND PRIORITY FOR IMPLEMENTATION OF RECOMMENDED MANAGEMENT PRACTICES ON DENALI HIGHWAY LANDS BY OFFICE OF HISTORY AND ARCHAEOLOGY

A. Short Term

Priority:

Meet with DMLW and commercial entities before field season.
Monitor OHV Trails in TLAD/SUA.
Monitor Basalt Lake Ice Patches.
Locate remaining sections of Paxson Trail in High Valley.
Develop Denali Highway Region Archaeological Survey Plan.
Survey areas of developmental interest considered at risk from ground disturbing activities, as determined by coordination with DMLW and commercial entities.
Work with Ahtna elders and youth to identify TCP's in the Denali Highway region.
Record annual findings in regular report of regional activities.
Complete AHRS cards for sites found that year.
Annually update Oracle database.

Also:

Monitor Delta River Ice Patches.
Coordinate with Ahtna on sharing of information with elders, etc.
Survey newly conveyed lands on the Denali Highway, including new ice patches deemed high priority for cultural sites in Denali Highway Region Archaeological Survey Plan.
Collaborate with BLM on GPS documentation of Ancient Tangle Lake shorelines.
Continue work on possible Glacier Gap Lake outburst flood and resultant Landmark Gap flood fan.
Attend bi-annual Copper River Valley Land Managers Meeting
Participate in public outreach activities (public demos at lodges, talks in Copper River Valley, professional conferences, etc.)
Develop bibliography on prehistory/history of region. Post bibliography on OHA web page.

B. Medium Term

Meet with DMLW and commercial entities before field season.
Monitor OHV Trails in TLAD/SUA.
Survey RS 2477 trails in the Denali Highway region.
Survey areas considered at risk from ground disturbing activities, as determined by coordination with DMLW and commercial entities.
Monitor Ice Patches that previously produced cultural material.
Survey newly conveyed lands on the Denali Highway, including new ice patches, deemed high priority for cultural sites.
Produce a regular management report of regional activities.

Participate in an archaeological field school on state lands in the region, with involvement from universities, agencies and regional Native groups.
Work with UAA/UAF geology departments and other researchers on regional landscape history, including dating the draining of Glacial Lake Atna.
Work with DMLW to develop a trails plan for the Denali Highway.
Participate in public outreach activities, including presentations to OHV user groups.
Complete and distribute Cultural Resource Pamphlet.
Update Denali Highway Region Archaeological Survey Plan.
Update Cultural Resource Plan for the Denali Highway Lands.
Develop educational materials on the traditional use of the region and post on the OHA website.
Continue adding to bibliography on prehistory/history of region.
Regularly compile a set of findings on what has been learned from OHA's work in the region.
Participate in periodic public meetings with DMLW and BLM presenting current and upcoming activities.

C. Long Term

Meet with DMLW and commercial entities before field season.
Update Denali Highway Region Archaeological Survey Plan.
Update Cultural Resource Plan for the Denali Highway Lands.
Monitor OHV Trails in TLAD/SUA.
Survey areas considered at risk from ground disturbing activities, as determined by coordination with DMLW and commercial entities.
Monitor Ice Patches that previously produced cultural material.
Survey newly conveyed lands on the Denali Highway, including new ice patches, deemed high priority for cultural sites.
Produce a regular management report of regional activities.
Continue work on regional landscape history.
Participate in public outreach activities.
Continue adding to bibliography on prehistory/history of region.

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X. GLOSSARY

Advisory Council on Historic Preservation - An independent federal agency that advises the President and Congress on historic preservation matters, and oversees the review of projects under Section 106 of the National Historic Preservation Act (36CFR 800) (King 1998:265).

Adverse Effect - Project effects that diminish the characteristics of a cultural resource that make it significant.

Alaska Heritage Resources Survey - Database of historic, prehistoric, archaeological and paleontological properties maintained by the Alaska Office of History and Archaeology.

Archaeological site - The physical location of historic, prehistoric, and archaeological resources.

Archaeological Survey - The process of identifying archaeological properties within a region or area of potential effect. May be performed as the first phase of a 3-phase cultural resource process.

Ancient Tangle Lake - Late Pleistocene/early Holocene lake that existed where upper Tangle Lakes (Tangle Lakes south of Denali Highway) now lie. Lake was dammed by a moraine or esker, possibly ice-cored, which gave way and caused the lake to drain around or after 8,000 years ago.

Area - A geographic unit used in area plans to describe parts of the planning area, but smaller in size than a region.

Area of Potential Effect - That geographic area in which public construction or improvement may directly or indirectly alter the characteristics of a cultural resource that contribute to its significance.

Artifact - Any portable object or resource that has been created or modified by humans, and that can be removed from the site without losing its physical integrity.

Atlatl - Another term for a spearthrower.

Basalt Lake Ice Patch (BLIP) - One of a series of snow fields in the western Amphitheater Mountains from which artifacts have been recovered.

BLM - The Bureau of Land Management, a federal land management agency responsible for managing much of the land along the Denali Highway and the Copper River Basin.

Classification - A land classification identifies the purpose for which state land will be managed.

Consultation - Under existing statutes, regulations and procedures, the Department of Natural Resources informs other groups of its intention to take a specific action and seeks their advice or assistance. Consultation is not intended to be binding on a decision. It is a means of informing affected organizations and individuals about forthcoming decisions and getting the benefit of their expertise.

Cryoturbation - Soil movement caused by the freeze-thaw process.

Cultural Resources - Any building, site, structure, district, object, feature, artifact, historic shipwreck, landscape, location of historical, archaeological, educational, or scientific interest, including, but not limited to, prehistoric and historic Alaska Native sites, treasure embedded in the earth, sunken and abandoned ships and wrecks of the sea or any of the contents thereof, maps, records, documents, books,

artifacts, and implements of culture in any way related to the inhabitants' prehistory, history, art, natural history, government or culture. May be a "historic property" or "heritage resource" (see below).

Cultural Material - Generally historic or prehistoric artifacts.

Cultural Resource Management - The management both of cultural resources and of effects on them that may result from land use and other activities.

Dart - A spear thrown by an atlatl (spearthrower).

Delta River Ice Patch (DRIP) - One of a series of snow fields in the central Amphitheater Mountains from which artifacts have been recovered.

Denali Blocks - Large parcels of land along the Denali Highway in central Alaska, conveyed from BLM to the State of Alaska as part of statehood land selection.

Department of Natural Resources - State of Alaska agency responsible for management of State's natural and cultural resources.

Designation - A category of land allocation determined by a land use plan.

Easement - An interest in land owned by another that entitles its holder to a specific limited use.

Environmental Impact Statement - Under NEPA, an evaluation of potential environmental impacts resulting from the implementation of a project.

Excavation - An archaeological excavation is a program of controlled, subsurface fieldwork with defined research objectives which examines, records, and interprets historic, prehistoric, and archaeological deposits, features, and structures and, as appropriate, retrieves artifacts, ecofacts and other remains within a specified area on land, within the inter-tidal, or underwater.

Flake Scatter - Two or more lithic flakes found on the ground surface.

Generally Allowed Use - An activity conducted on state land managed by the Division of Mining, Land and Water that is not in a special category or status. For the most part these uses are allowed for 14 days or less, and a permit is not required.

Glacial Lake Atna - Massive glacially dammed lake that covered most of the Copper River Valley in the Late Pleistocene and possibly early Holocene.

Goal - A statement of basic intent or general condition desired in the long term. Goals usually are not quantifiable and do not have specified dates for achievement.

Guideline - A course of action to be followed by DNR resource managers or required of land users when the manager permits, leases, or otherwise authorizes the use of state land or resources. Guidelines also range in their level of specificity from giving general guidance for decision making or identifying factors that need to be considered, to setting detailed standards for on-the-ground decisions. Some guidelines, preceded by "may" or "should," state the intent to be followed and allow flexibility in achieving it. Guidelines that are preceded by the words "must," "will" or "shall" are to be followed in the granting of authorizations. Deviations from such guidelines will require a plan amendment.

Heritage Resources - Land where there are significant historical, prehistoric, paleontological, or other cultural values or where there is reason to believe that these values exist. (11 AAC 55.095)

Historic Properties - Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic

Places. This term includes artifacts, records, and remains that are related to and located within such properties.

Holocene - Current geologic time period, referring to approximately the last ~10,000 years, since the end of the last Ice Age.

Investigation - The process of and planning for identification, survey, modification and evaluation of cultural resources; examples include preservation planning, archaeological survey and testing, radiocarbon dating, artifact analysis, building survey, architectural recordation, archival research and literature review.

Land Manager - A representative of the state agency or division responsible for managing state land.

Lithic - Stone.

May - Same as "should."

Microblades - Small stone blades flaked from prepared micro-cores, usually inset in wood or antler for use as knives or projectile points.

Mining - Any structure or activity for commercial exploration and recovery of minerals, including, but not limited to resource transfer facilities, camps, and other support facilities associated with mineral development.

Mitigation - To offset the adverse effects of an act. The recovery of information from a cultural site that is being damaged or destroyed by some process, either man-made or natural. Mitigation may include thorough site documentation and archaeological excavation.

Monitor - (noun) a person meeting the qualification requirements of 11 AAC 16.040 who observes and influences public construction or other activities that may potentially affect historic, prehistoric or archaeological resources, or:(verb) to observe and influence public construction or other activities that may potentially affect historic, prehistoric or archaeological resources.

Multiple Use - "Multiple use" refers to the management of state land and its various resource values, including "(A) the use of some land for less than all the resources; and (B) a combination of balanced and diverse resource uses that takes into account the short term and long term needs of present and future generations for renewable and non-renewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific, and historic values:" (Alaska Statutes 38.04.910.5A & B).

Must - Same as "will."

National Environmental Policy Act - Requires federal agencies (via an EIS) to evaluate the environmental impact of major federal actions affecting the quality of the human environment.

National Park Service - U.S. Department of Interior agency with the responsibility of managing national park lands.

National Historic Preservation Act - The National Historic Preservation Act of 1966, as amended, defines and sets forth policies and programs for preserving and protecting the nation's historic properties and cultural resources, including creating SHPO offices, and identifies responsibilities of federal agencies for protection and stewardship of historic properties.

National Register of Historic Places - The nationwide catalog of significant historic districts, sites, buildings, structures and objects established by the National

Historic Preservation Act of 1966 and maintained by the U. S. Secretary of the Interior.

Office of History and Archaeology - An office in the Alaska Department of Natural Resources/Division of Parks and Outdoor Recreation, that administers the Alaska Historic Preservation Programs (AS 41.35) and the federal historic preservation programs, and serves as the State Historic Preservation Office.

Off-Highway Vehicle - This includes single and multi-person "four-wheelers," tracked vehicles, etc., that are not licensed for highway use.

Permit - A Department of Natural Resources authorization for use of state land according to terms set forth in 11AAC 96.

Recreation - Any activity or structure for recreational purposes, including but not limited to hiking, camping, boating, anchorage, access points for hunting and fishing areas, and sightseeing. This term includes both personal and commercial recreational activities, but it does not include subsistence or sport hunting and fishing.

Right-Of-Way - The legal right to cross the land of another.

RS 2477 - (43 USC 932 [Revised Statute 2477]) Part of an 1866 mining law that reserves rights-of-way for construction of thoroughfares over public lands. With statehood, the State of Alaska took over management of RS 2477 trails.

Section 106 Process - Section 106 of the NHPA requires federal agencies to take into account impacts their undertakings may have on properties eligible for or listed in the National Register of Historic Places before a federally funded, licensed or permitted undertaking proceeds.

Shall - Same as "will."

Should - States intent for a course of action or a set of conditions to be achieved. Guidelines modified by the word "should" state the plan's intent and allow the manager to use discretion in deciding the specific means for best achieving the intent or whether particular circumstances justify deviations from the intended action or set of conditions. A guideline may include criteria for deciding if such a deviation is justified.

State Historic Preservation Officer - The state official appointed by the governor to cooperate with the U.S. Secretary of the Interior to administer the federal State Historic Preservation Program as defined in 16 U.S.C. 470a(b).

Significant Cultural Resources - Resources eligible or potentially eligible for listing in the Alaska Landmarks Register and are sites, structures, buildings, objects, or districts with historic, prehistoric or archaeological values which should be preserved in the public interest as determined by the department (AS 41.35.070.(d).

Special Use Area - Special Use Areas place restrictions on certain activities within a designated area. Restrictions are dependent upon the resource values being protected.

State Lands - All land, including shore, tide and submerged land, or resources belonging to or acquired by the State. Land that has been selected or has otherwise been or is to be acquired by the State, and includes land for which tentative approval, patent, deed, or other document of title conveyance has not yet been received (11 AAC 55.280 [10]). For the purposes of the Alaska Historic Preservation Act,

"state lands" means land owned or controlled by the State of Alaska, including but not limited to lands owned by the University of Alaska, Mental Health Trust, Department of Transportation and Public Facilities right-of-way, tidelands and submerged lands, and Alaska Railroad and other statutorily created public corporations.

Stratigraphic Context - The relationship between the culturally deposited horizon(s) and the surrounding sedimentary units.

Subsistence - The customary and traditional use of natural resources for direct personal or family consumption as food, shelter, fuel, clothing, tools or transportation; for the making and selling of handicraft articles; and for barter or sharing among subsistence users. Food gathering activities occur in a year-round cycle geared to the principal seasons of species occurrences, constrained at times by climate, terrain, and sea conditions.

Temporary Use - A use that is one year or less in duration requiring a state permit. Any structure that is associated with the use must be readily removable.

Tangle Lakes Archaeological District - A 226,660 acre district, rich in archaeological sites and listed on the NRHP, found on state land (north) and BLM managed land (south) of the Denali Highway, between highway Mileposts 17 and 37.

Tangle Lakes Archaeological District/Special Use Area - A state land designation for the region north of the Denali Highway in Denali Block I that surrounds the northern section of the TLAD.

Traditional Cultural Property - A district, site, building, structure or object that is valued because of its association with cultural practices or beliefs of a living community, that is rooted in a community's history, and is important in maintaining the community's traditions, cultural identity, or culturally important activities (King 1998; Parker and King 1998).

Will - Requires a course of action or a set of conditions to be achieved. A guideline, policy, or management intent preceded by the word "will" must be followed in DNR decision making. Actions that permanently change the plan by adding or modifying the basic management intent for one or more of the management units or change its allowed or prohibited uses, policies or guidelines require a plan amendment.

XI. APPENDIX: CULTURAL RESOURCE MANAGEMENT CHECKLIST FOR LAND MANAGEMENT AGENCIES AND CULTURAL RESOURCE SPECIALISTS

Identify and Evaluate Cultural Resources

1. Contact AK Office of History and Archaeology (aka SHPO) Review and Compliance section, and consult on potential for impacting cultural resources in the project area.

1.5 Is project subject to federal permits, license, or funding? ____Yes, go to 9.
____No, go to 2.

2. Check Alaska Heritage Resources Survey (AHRS) for reported historic or prehistoric sites. AHRS is statewide inventory, recorded on USGS maps.
3. OHA assesses information and makes recommendations on need for additional survey.
4. Personnel conducting survey for state projects must meet qualifications required under 11AAC16.
5. Apply for archaeology permit, if applicable.
6. Consult with OHA on significance of cultural resources in project area.

Assess Impact of Project

7. Determine if significant cultural resources will be affected by project and consult with OHA. ____Yes, project impacts cultural resources. Go to 7a.
____No, no impacts to cultural resources. No mitigation required.

7a. If cultural resources affected, consult with OHA on adjusting project to avoid or minimize adverse effects.

Mitigating Adverse Effects

8. If adverse effects cannot be avoided, prepare MOA for mitigation in consultation with OHA.

Federally Permitted , Licensed or Funded Project: Section 106 Process (National Historic Preservation Act)

9. Any projects requiring federal permits, licenses or funding (example: COE or EPA) 36CFR800 requires federal agencies to consult with SHPO regarding impacts to cultural resources before issuing permits. Personnel conducting survey for federal projects (i.e., Section 106) must meet Secretary of the Interior's Standards (36CFR 61). See www.achp.gov for details on process.

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Review and Compliance: Shina Duvall (907) 269-8720
AHRS Database: Joan Dale (907) 269-8718
Archaeology Permits: David McMahan (907) 269-8723
Denali Block CRM: Richard VanderHoek (907) 269-8728