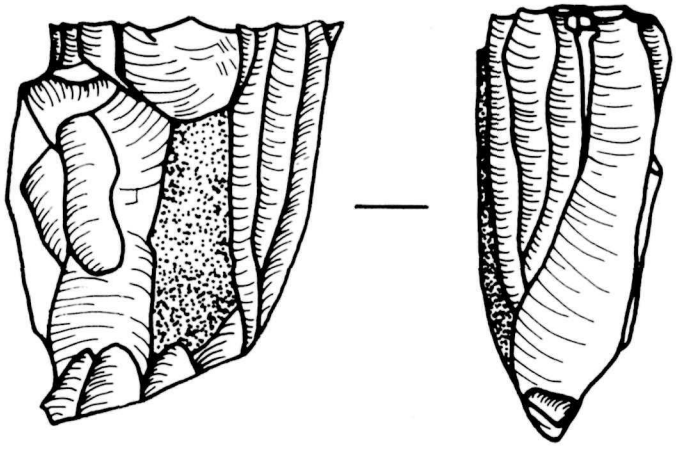
An Overview and Assessment of Prehistoric Archaeological Resources within Yukon-Charley Rivers National Preserve, Alaska



United States Department of the Interior
National Park Service
Alaska Region

AN OVERVIEW AND ASSESSMENT OF PREHISTORIC ARCHAEOLOGICAL RESOURCES, YUKON-CHARLEY RIVERS NATIONAL PRESERVE, ALASKA

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Errata: An Overview and Assessment of Prehistoric Archeological Resources within Yukon-Charley Rivers National Preserve, Alaska.

The captions were omitted from figures 7, 8 and 9 (pages 142, 143 and 144). The captions should read as follows:

Figure 7. Examples of Core and Blade Technology: 1. Wedge-shaped microblade core from EAG-167; 2. Microblade core from CHR-077; 3. (bottom center, identifying number was also omitted) Microblade from CHR-077; 4. Blade-like flake from CHR-074.

Figure 8. Notched and Stemmed Bifaces: 1. Northern archaic notched point from CHR-077; 2. Notched point base from CHR-074; 3. "Fish-Tail" shaped projectile point from CHR-074.

Figure 9. Top Row: Bifaces from CHR-077 (left and center) and CHR-074 (right); Bottom Row: Lanceolate biface/biface base from CHR-077.

ABSTRACT

This overview and assessment addresses the prehistoric archeological resources located within Yukon-Charley Rivers National Preserve. It is intended to provide a review of the Preserve's known archeological resources and a framework for interpreting those resources for general management and planning needs. Information has been included for 89 archeological sites, most of which were recorded during six reconnaissance level surveys of the Preserve. The sites range from small, upland surface lithic deposits to protohistoric Han Athapaskan settlements along the Yukon River. Discussion has been given to the Han ethnographic pattern, ethnographic analogy, regional chronology, forms of survey bias, archeological significance and contexts for future research. Extensive recommendations have been made concerning such topics as research designs, future surveys, data recording, historical archeology and site specific investigations.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACKNOWLEDGEMENTS

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OVERVIEW

INTRODUCTION

Yukon-Charley Rivers National Preserve constitutes a vast natural area in east-central Alaska bordering the Yukon River and Canada (Figures 1 and 2). Originally designated a National Monument, the area became part of the National Park system through presidential proclamation in 1978. Eventually the area was designated a National Preserve through the Alaska National Interest Lands Act (ANILCA) of 1980.

Concern for the prehistory of Yukon Charley is indicated by its inclusion as a major management consideration in the original legislative outline:

> The preserve shall be managed for the following purposes, among others: To maintain the environmental integrity of the entire Charley River basin, including streams, lakes and other natural features, in its undeveloped natural condition for public benefit and scientific study; to protect habitat for, and populations of, fish and wildlife, including but not limited to the Peregrin falcons and other raptorial birds, caribou, moose, Dall sheep, grizzly bears, and wolves; and in a manner consistent with the foregoing, to protect and interpret historical sites and events associated with the gold rush on the Yukon River and the geological and paleontological history and cultural prehistory of the area [ANILCA Title II, Section 201:10].

This overview and assessment is intended to provide information upon which the Preserve will base a Resource Management Plan (RMP). As a generalized management document, the overview has foregone detailed discussion of specific sites in favor of

FIGURE 1

LOCATION OF PRESERVE

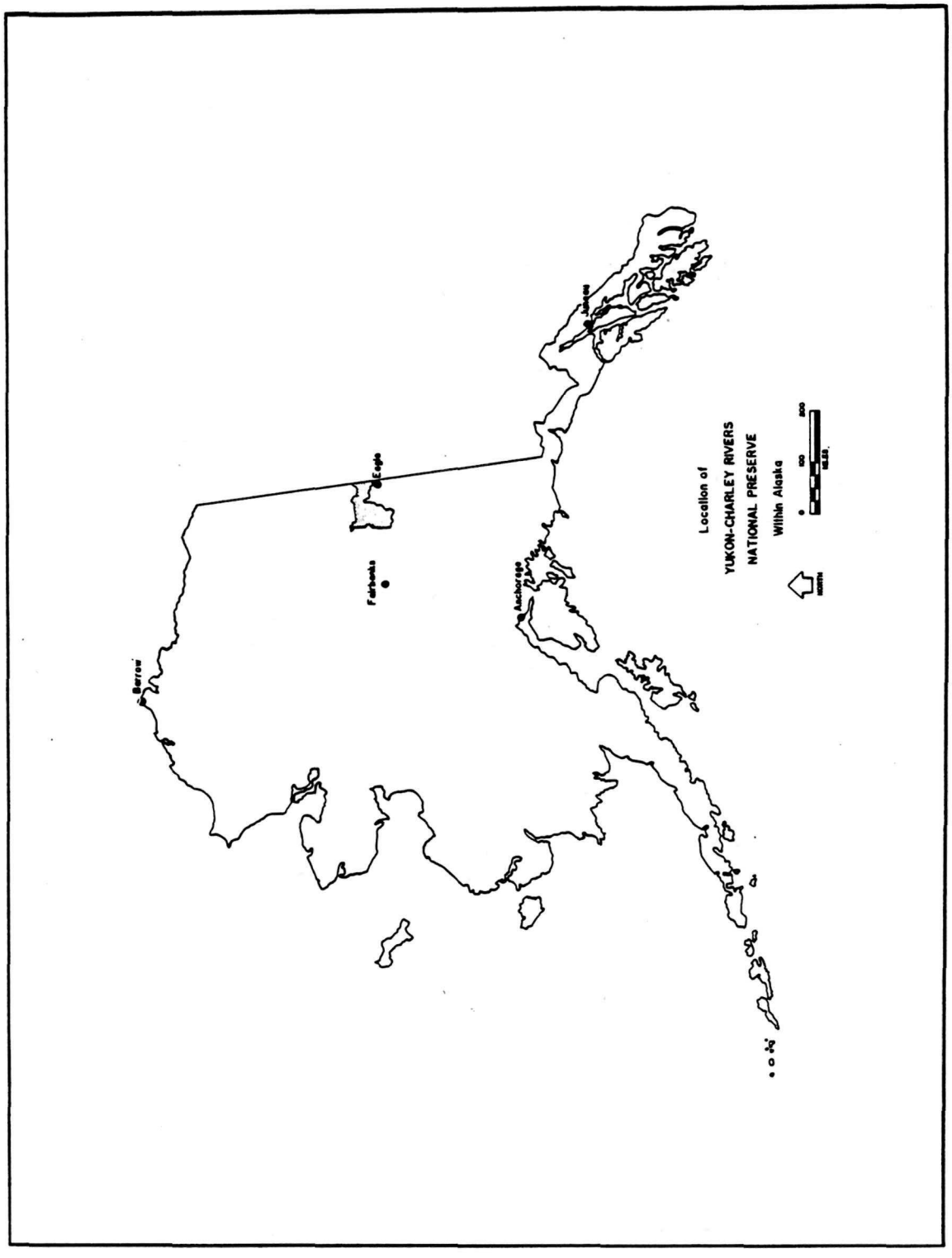


Figure 1. Location of Yukon-Charley Rivers National Preserve within Alaska

FIGURE 2

MAP OF PRESERVE AND MAJOR DRAINAGES

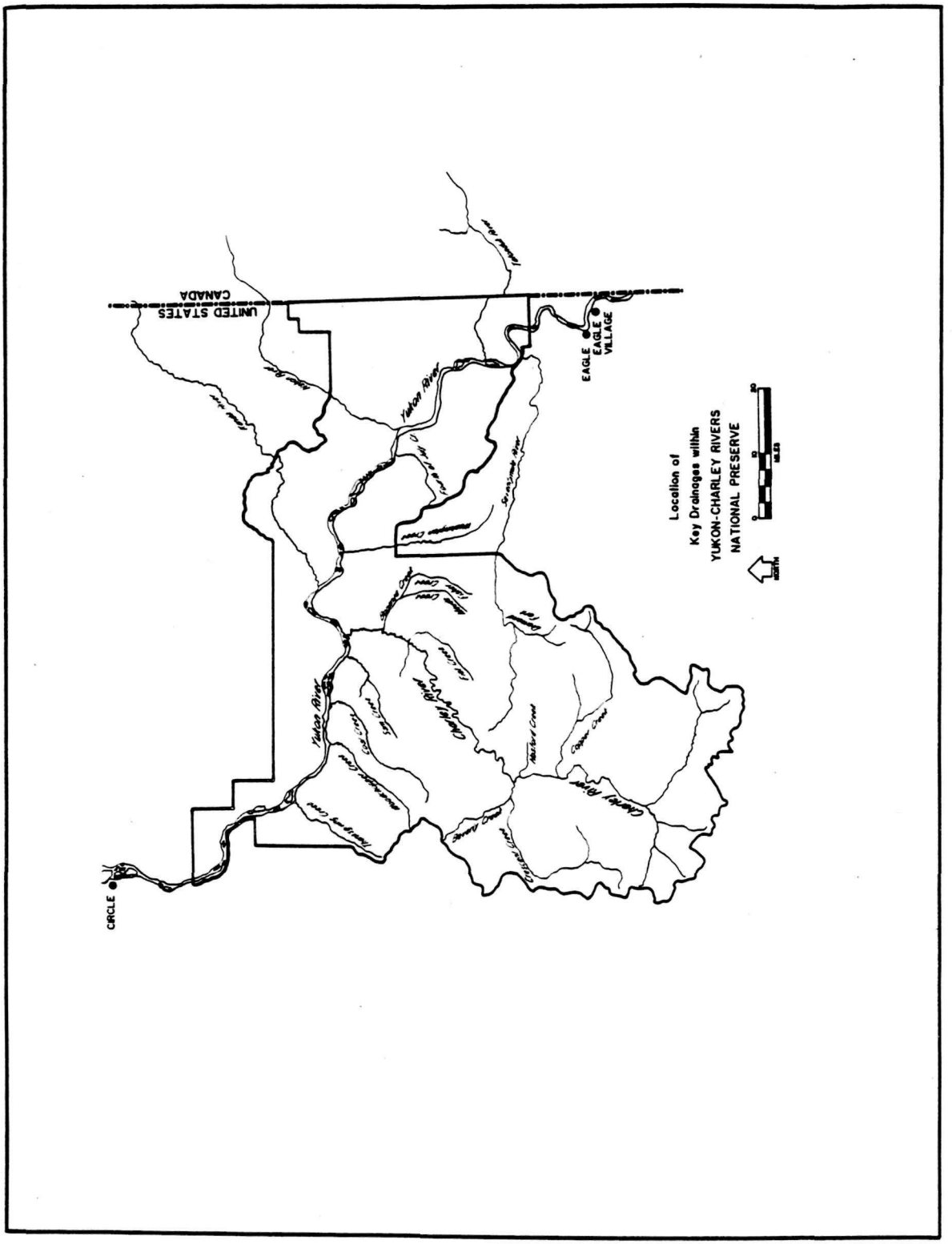


Figure 2. Location of key drainages within Yukon-Charley Rivers National Preserve

providing a broad context for interpreting the prehistory of the Preserve. This particular overview will focus on the prehistoric and protohistoric archeological resources of the Preserve. Historical and ethnohistorical resources have been included only to the extent they are relevant to the prehistoric and protohistoric periods. Similarly, background information, including description of the physical environment, will be provided only where specifically relevant to archeology.

As stated in NPS-28 (Release No. 3, 1985), the Cultural Resource Guideline for the National Park Service (U.S. Department of the Interior 1985), an archeological overview and assessment describes and assesses the known and potential archeological resources in an area. The overview reviews and summarizes the data base, the assessment evaluates it, and the completed document enables the manager to plan future studies and actions. Within these guidelines, this review will provide the following:

1. Present a review of the known and potential prehistoric archeological resources of the Preserve.

2. Provide a context for understanding and evaluating these resources that is based on existing, regionally applicable research.

3. Provide a professional assessment of the resources with respect to their scientific and interpretive potential.

4. Provide management guidelines that enable the Preserve staff to make general management decisions and to plan and evaluate future research.

Previous Archeological Research

To date, the archeological research conducted in Yukon Charley National Preserve has been overwhelmingly survey oriented with very little excavation or other attempts at data recovery. Further, most of the surveys have been preliminary or conducted at the reconnaissance level which, according to the provisions set forth in the Secretary of the Interior's Standards and Guidelines concerning archeology and historic preservation, are often useful in gathering data to refine a developed historical (or in this case, prehistoric) context. In this respect, a reconnaissance level survey is often used to "...allow the formulation of estimates of the necessity, type and cost of further identification work and the setting of priorities for the individual tasks involved" (Federal Register, Volume 48, No.190, 1983). In most cases, areas surveyed on this basis will require resurvey as additional, more detailed information is needed about specific properties.

The two earliest archeological surveys conducted within Yukon-Charley predated the establishment of the Preserve. Between 1963 and 1964 Frederick H. West conducted an archeological investigation of the massive proposed Rampart Dam Impoundment Area (West 1965). Much of the Yukon River was surveyed by boat, including the area between the downstream boundary of the

Preserve and the mouth of the Nation River. This survey also included limited investigation of the extreme lower Kandik River which West stated was also known as the Charley River (West 1965:7). It has since been reported that the survey included the lower Charley River (Bowers and Hoch 1978:15), but examination of West's survey map indicates that he apparently was referring to the Kandik, located directly across the Yukon and known less commonly as Charley Creek (West 1965: Map No. 1, USGS Charley River Quad. B-3). Although the survey was successful in locating and documenting 14 archeological and historic sites, none were located within the Preserve. The most significant of these was the Twelve Mile Bluff site located north of the Preserve boundary, on a bluff above the Yukon. On the basis of subsurface testing, the site is thought to date to 5,000 BP (West 1965:102-112).

In 1974, a very limited archeological survey focused on the lower 40 miles of the Charley River also failed to locate archeological sites within the proposed Preserve (Hall 1976). This survey was conducted by boat and involved cursory inspection of the river banks and mouth of the lower Charley River as well as the mouths of the Kandik, Nation and Tatonduk Rivers (Hall 1976:331). The survey particularly sought to locate the ethnographically recorded settlement of Charley Village, reported to have occupied the mouth of either the Charley River or the Kandik River (Hall 1976:330; Schwatka 1885:262, Stuck 1917:82). No evidence of the

village was found.

In 1976, a limited archeological survey with subsurface testing was conducted along the Copper Creek drainage from its headwaters to its confluence with the Charley River (Bowers and Hoch 1978). The survey represented the first archeological investigation to focus on an upland setting in the Preserve. The project research design was based on an "ecological theoretical framework" (Bowers and Hoch 1978:3). The Copper Creek drainage was selected for survey as an environmental unit that contains representatives of "...nearly every ecosystem known within the Yukon Charley area" (Bowers and Hoch 1978:6). Thus the survey transect, while not formally stratified, attempted to provide a sample of ecosystems within an environmentally diverse area. The survey was conducted on foot and was restricted to the south side of Copper Creek. The investigation resulted in the documentation of one historic site and eleven prehistoric surface lithic deposits. All but one of the prehistoric sites were located in the drainage headwaters, representing a fairly high density of sites for most of interior Alaska.

Craig Davis, a National Park Service archeologist, revisited the Copper Creek area in 1981, confirming most of Bower's and Hoch's observations. A three-day reconnaissance resulted in the documentation of an additional 13 prehistoric surface lithic deposits. A wedge-shaped core (Figure 7) and microblades were

among the tools noted (NPS site files, Alaska Regional Office).

In 1982, a more extensive archeological survey initiated by the National Park Service was conducted within the Preserve, in order to provide information for the Preserve's General Management Plan (Reynolds and Jordan 1983). The survey involved investigation of several sections of the Yukon River corridor and the Charley River, by boat and on foot, with subsurface testing where possible. The survey research design was based on an ecological theoretical framework (Reynolds and Jordan 1983:9) and supplemented by a geoarcheological predictive model that was designed for the survey (Thorson 1982). The survey did not attempt to uniformly examine all possible environments within the project area and identified several areas that were excluded, including low lying boggy areas, areas deemed inaccessible and areas that had been the focus of previous research. Twenty prehistoric archeological sites were documented during the survey, including Calico Ridge (EAG-172), a large, stratified site located on a high bluff above the Yukon.

In 1985, an archeological survey intended as a complement to the 1982 Reynolds and Jordan survey was conducted along the Yukon Corridor and the upper Seventymile River drainage (Alldritt 1985). The survey documented 40 prehistoric sites and five historic sites. The survey results have been incorporated into the assessment section of this overview. The research design

described the project as a reconnaissance level survey with a stated goal of "...locating and recording as many historic and prehistoric sites as possible within the Preserve" (Alldritt 1985:18). To achieve this goal, the survey attempted to predict site location on the basis of the known caribou exploitation system, as specifically illustrated by communal subsistence technology, operational sampling (judgmental selection of high probability areas), knowledge of the Fortymile caribou herd, and non-systematic sampling of varied environmental zones with the exclusion of judgementally determined low probability areas, including low-lying, steep or rugged terrain. Materials suggestive of several time periods were recorded during the survey (Alldritt 1985:19-29; NPS site files, Alaska Regional Office).

One of the sites documented during the 1985 survey, CHR-028, was extensively tested later that season, in an effort to locate site boundaries and determine the least destructive placement of a planned radio repeater installation. Evidence of a blade-core technology was found at the site (NPS site files; NPS compliance files, Alaska Regional Office).

During 1987 and again in 1988, National Park Service archeologists visited and recorded an archeological site in the upper Seventymile area that was originally reported to the Preserve staff by USGS geologists Helen Foster and Terry Keith in

1986. The site has been formally designated CHR-077 but is also known as the Foster-Keith site. Flaked lithic material has been identified along much of a two mile long ridge in what may eventually be determined a district or dense cluster of separate sites. Basic mapping and recording of the site has not yet been conducted (NPS site files, Alaska Regional Office).

A 1986 Mining Cultural Resource Inventory program in the Preserve included field investigation of several Yukon tributaries. The survey was mainly successful in locating historic sites, but two prehistoric archeological sites not associated with mining areas were also documented. One of the sites is located just outside the Preserve boundaries along upper Birch Creek (CHR-074), and the other (CHR-076) is located along Eureka Creek (NPS site files, Alaska Regional Office).

In addition to the above mentioned field investigations conducted within the Preserve, archeological resources adjacent to the Preserve have been discussed in the following research works.

Several researchers have made observations concerning the archeological resources in the Fort Egbert/Eagle Historical District area, located at the edge of the Preserve, adjacent to the present day town of Eagle. Fort Egbert lies within the Fortymile Resource area managed by the Department of the Interior, Bureau of Land Management.

An apparently undocumented survey conducted by William Irving in 1951 resulted in identification of a prehistoric archeological site (EAG-070) that extends inland from the eroding riverbank in front of the National Park Service headquarters in Eagle (Shinkwin et al. 1978:20). This site has since been determined to be of considerable size, although boundaries have not yet been determined. Several other archeological sites in the area (EAG-027, EAG-072, EAG-139, EAG-147, and EAG-202) may eventually be determined to be portions of the same site. An intensive survey of the site geared toward establishing site boundaries would be beneficial.

A later, two-day investigation resulted in recommendations concerning Fort Egbert's historic archeological potential (Sprague 1975). More intensive investigations were conducted by the Bureau of Land Management in 1977 and the subsequent report on archeological and historic research at Fort Egbert discusses 10 prehistoric and protohistoric localities (Shinkwin et al. 1978:238), all of which post-date the 1,400 BP volcanic tephra known to occur in the area (Workman 1974).

A cultural resource study of Doyon Native Corporation lands (Andrews 1976, 1977) provides a compilation of historic and archeological cultural sites as revealed to the author through informant interviews. The Doyon Region represents a vast section

of interior Alaska that roughly corresponds with the territory occupied by Alaska's Athapaskan-speaking peoples. The study is essentially an inventory with management recommendations and includes information on the Fort Egbert and Eagle area discussed above. During the course of her study, Andrews reported the locations of several prehistoric or protohistoric native sites, including EAG-139, a previously unrecorded site. EAG-139 was partially excavated by a University of Alaska Fairbanks archeology crew in 1976. The site, located along the left bank of the Yukon between Eagle and Eagle Village, was determined to be a Han settlement, probably a seasonal winter camp, dating to the early European contact period. Investigations at the site revealed eight house depressions representing Athapaskan skin houses known as Niibaw Zhoo, for which the site was eventually named (Andrews 1976, 1986, 1987). Several different spellings of the site name have been used in print, including Niibeeo Zhoo and Nibaeael Zhoo.

Also during 1976, another University of Alaska Fairbanks archeology crew conducted excavations at the United States Courthouse in Eagle, revealing a prehistoric component under the historic material (EAG-027). The prehistoric component was not assigned a separate site number and may eventually be determined to be part of EAG-070, the site at the Preserve headquarters. The prehistoric material at the courthouse overlaid White River tephra, indicating that the site is less than 1,400 years old

(Sackett 1977; Shinkwin et al. 1978; Shinkwin and Sackett 1976).

A more recent archeological investigation in the same vicinity was conducted at the site of the new United States Post Office in Eagle. The site was designated EAG-202 and excavations yielded Euroamerican historic material as well as prehistoric and/or protohistoric Athapaskan material, in a mixed context (Yarborough 1987).

In addition to the projects already noted, The Bureau Of Land Management has completed cultural resource studies of the Fortymile Resource Area, adjacent to the southern border of the preserve, including a Cultural Resource Inventory with testing of EAG-070 (Waldman 1976) and a Cultural Resource Inventory of the Fortymile River that focuses on historic resources (Bell and Sullivan 1976).

A Historic Resource Study of the (then proposed) Yukon-Charley Rivers National Preserve was conducted in 1976 (Grauman 1977). The report provides a narrative historic and cultural context and an inventory of over 150 known and reported historic sites, some of which were verified through field survey. Although the focus of the study was not archeological, several native sites were included, without field verification.

Lastly, a number of cultural resource inventories have been

associated with reconstruction and maintenance of the Taylor Highway (Alaska Department of Highways 1977; Bowers et al. 1975; Sorenson and Johnson 1981).

PHYSICAL ENVIRONMENT

In its present form the Preserve encompasses 2,520,000 acres surrounding the upper Yukon River (Figure 2). The river flows southeast-to-northwest through the Preserve between valley walls that range from steep bluffs along high, upland benches to terraces representative of several stages of river downcutting. Throughout this area numerous tributaries flow into the Yukon, draining uplands and mountains that rise more than 6,000 feet above sea level. Major tributaries include the Charley, Kandik, Seventymile, Tatonduk and Nation Rivers.

The Preserve is located within the Northern Plateaus physiographic province (Wahrhaftig 1965). As defined by Wahrhaftig, physiographic provinces are areas that are homogeneous topographically and have unified geomorphic histories that differ significantly from those of adjacent regions. The Northern Plateaus physiographic province is further divided into nine subunits, five of which occur within the Preserve: the Tintina Valley, the Yukon-Tanana Upland, the Yukon Flats, the Porcupine Plateau, and the Ogilvie Mountains (Figure 3).

Most of the Preserve's higher elevations occur within the Yukon-Tanana Upland, with relief comprised of rounded, even-topped ridges and gentle side slopes dissected by numerous drainages.

FIGURE 3

PHYSIOGRAPHIC DIVISIONS OF THE PRESERVE

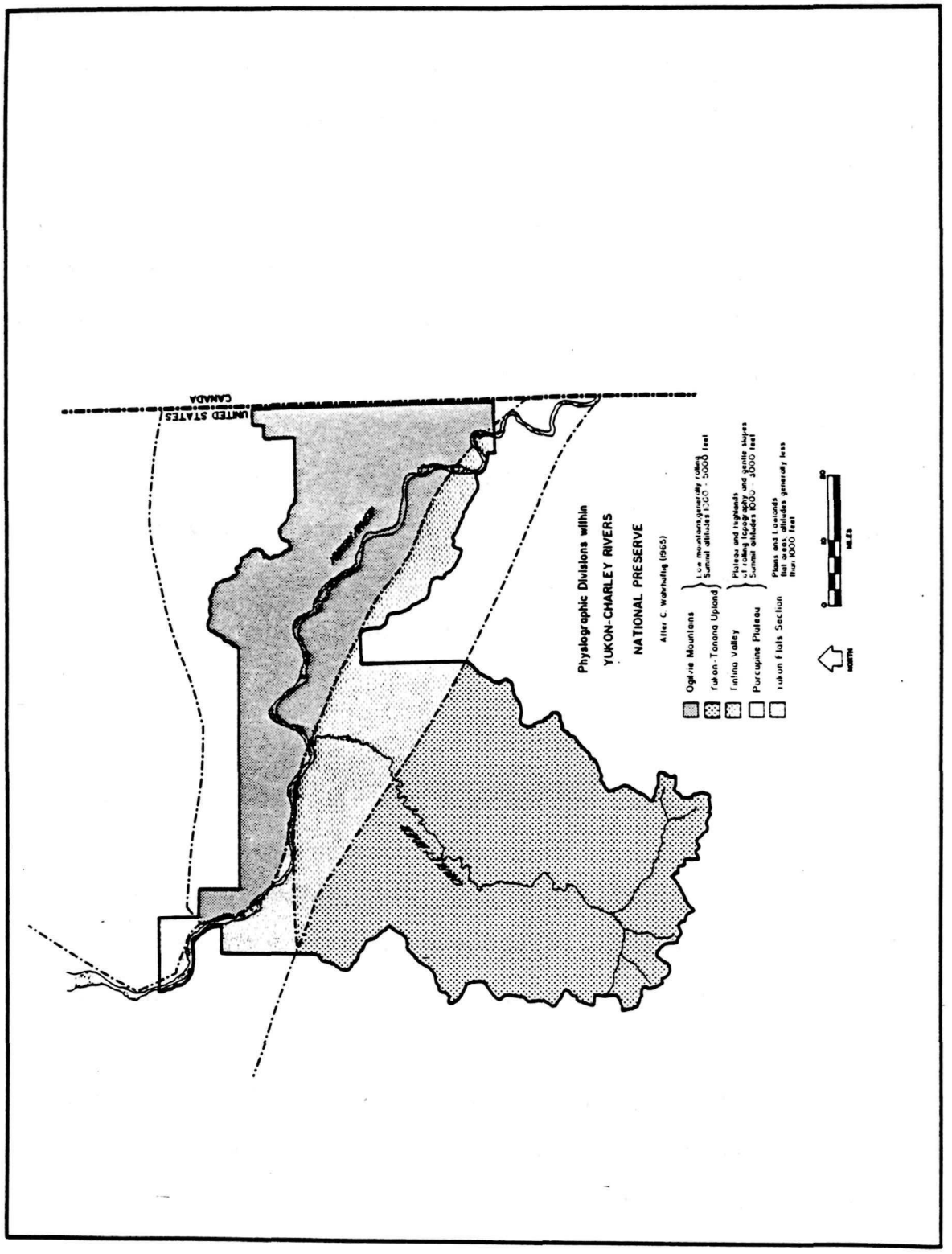


Figure 3. Physiographic Divisions within Yukon-Charley Rivers National Preserve

The Yukon-Tanana Upland slopes gradually into the Tintina Valley, a fault belt characterized by rounded ridges and open valleys. Along the northwest margin of the Preserve the Yukon Valley joins the braided, lake-dotted Yukon Flats. The Porcupine Plateau rises to the north of the Yukon River and is characterized by low ridges with gentle slopes. The entire plateau, except the extreme northeastern part, is drained by several Yukon River tributaries. The Porcupine River also cuts across the plateau, in a narrow cliff-lined canyon. The Ogilvie Mountains are sharp-crested, steeply-sloped and rise to 5,000 feet in elevation. They lie to the northeast of the Preserve and are also drained by several Yukon tributaries, including the Kandik, Nation, and Tatonduk Rivers. Topographic relief is extremely varied within the Preserve, ranging from 600 feet above sea level along the western boundary to more than 6,000 feet in the Charley River headwaters.

Paleoenvironment

The higher elevations within the Charley River Basin have experienced at least two Pleistocene glacial episodes, although neither can be considered major advances. The earlier and more extensive of the two has been correlated with the Illinoian advance (175,000+ BP) (Péwé et al. 1967). During this advance more than 400 cirque glaciers formed in the higher elevations of the Yukon-Tanana Uplands and an estimated one quarter of those

were extensive enough to advance into already existing valleys. Despite annual temperatures low enough to maintain these localized glacial systems, the semiarid climate of the region restricted ice formation within the Yukon-Tanana Uplands to less than five percent of the surface area (Péwé et al. 1967). Glacial advances during the more recent Wisconsin glaciation (ca. 35,000-25,000 BP) were even less extensive than the previous Illinoian-age advances, with ice estimated to cover less than two percent of the Yukon-Tanana Uplands. During both glaciations coverage was confined mainly to upper valley channels and cirque basins, leaving many areas ice-free. Several researchers have suggested these non-glaciated intermontane areas were important for early man, in that they afforded favorable habitat for many of the economically important large terrestrial mammals such as mammoth, bison, elk, and the more familiar bear, moose, sheep and caribou (Guthrie 1968, 1986; Péwé 1975a, 1975b).

Pollen profiles obtained from the middle Tanana Valley provide a paleoenvironmental record that extends back nearly 16,000 years (Ager 1975). This record suggests that at one time vegetation in the region consisted principally of a tundra-steppe biome characterized by grasses, sedges, Artemisia (wormwood), a number of opportunistic herbs and various Compositae (such as Goldenrod) and Cruciferae (mustard family) (Ager 1975:87). By 14,000 BP the climate had begun to change from cooler and drier to moister and warmer. Spruce first appear around 11,000 BP in lowland settings

with forests expanding into the uplands during the next several millennia. A modern, boreal coniferous/deciduous forest was in evidence by 9,000 BP (Ager 1975).

A preliminary analysis of river terrace chronology along portions of the Yukon River corridor identified six stages of development (Thorson 1982). Listed in chronological order, from oldest to youngest, they are: stage 6, bedrock units; stage 5, ancient plateaus; stage 4, oldest drainage networks; stage 3, well defined, broad undeformed terraces; stage 2, low terraces above the modern floodplain; and stage 1, the modern flood plain (Thorson 1982).

Stage 6 represents the initial formation of bedrock units. During portions of this earliest stage, the Yukon-Charley region, like much of Alaska, was submerged under ancient seas (Wahrhaftig 1965:5). Tectonic uplift and warping during the early or middle Tertiary period, created a large plateau located 300 to 600 meters above the present river bed.

Additional tectonic uplift occurring later in the Tertiary caused the Yukon River to deeply incise the plateau westward from Canada to the Bering Sea. The resulting Stage 5 terraces provide the oldest and best defined terrace chronology along the mid-reaches of the Yukon (Thorson 1982).

Prominent paired (Y4) terraces and bedrock strath terraces (T4) were cut by the Yukon and its tributaries during Stage 4. These terraces occur between 30 and 90 meters above the river and represent remnants of the oldest observable fluvial features attributed to the present drainage network. Drainage basin tributaries are clearly defined and graded, suggesting slow downcutting and valley widening through a period of prolonged stability beginning in the early Pleistocene (Thorson 1982).

Stage 3 terraces are the most clearly defined of the entire sequence, consisting of broad, undeformed terraces that lie 30 meters above the modern Yukon River floodplain. Stage 3 terraces are prominent, paired (Y3) terraces that have been strongly modified by post-depositional processes including large alluvial fans, thick expanses of colluvium and bedrock exposed in some places where the terrace intersects the river. These terraces are estimated to be older than 50,000 years BP (Thorson 1982). Stage 2 deposits are low, prominent, paired (Y2) terraces located just below the Stage 3 terraces but above the active floodplain. While exhibiting channeling scars and scrapes, they have been only slightly modified by post depositional processes and are interpreted to be of late Pleistocene age (Thorson 1982).

Stage 1, the modern floodplain, is illustrated by nonpaired (Y1) terraces created by intermittent channel downcutting during the Holocene. These terraces are subject to continuing depositional

processes that are commonly accelerated by break-up (Thorson 1982).

Ecosystems

The modern Preserve area is dominated by taiga forest consisting of white and black spruce, and deciduous trees. Five biotic communities (Figure 4) have been identified within the Preserve: bottomland spruce/poplar forest, lowland spruce/hardwood forest, upland spruce/hardwood forest, high brush plant communities, low brush muskeg/bog, and alpine tundra (Joint Federal State Land Use Planning Commission 1973; U.S. Department of the Interior, National Park Service 1985).

The largest and most conspicuous vegetation community within the Preserve is the upland spruce/poplar forest extending from the Yukon River to elevations of 2,000 feet above sea level or higher elevations on south-facing slopes. Dense stands of white spruce mixed with white birch are found on south facing-slopes, and black spruce dominate more poorly drained soils in level areas and on north-facing slopes. The understory vegetation is varied, consisting of low bush and moss on cool moist slopes, grasses on well-drained slopes, and alder, willow and dwarf birch at higher elevations.

Lowland spruce/hardwood forest occur on shallow peat glacial

FIGURE 4

ECOSYSTEMS WITHIN THE PRESERVE

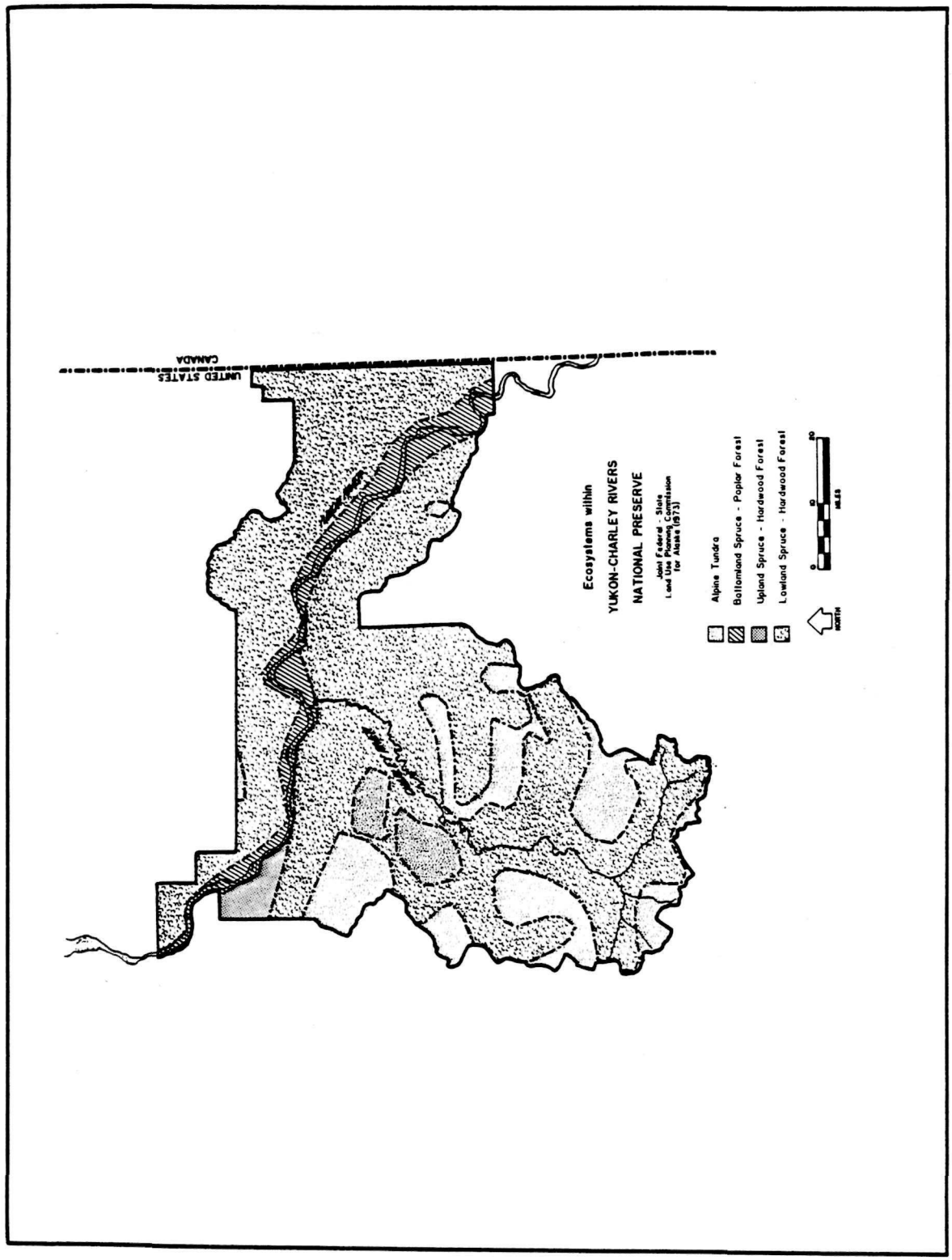


Figure 4. Ecosystems within Yukon-Charley Rivers National Preserve

deposits, outwash plains, alluvial fans and north-facing slopes. This community consists of mixed stands of spruce and deciduous trees. Ground cover includes varied shrubs and grasses.

Bottomland spruce/poplar forest occurs on low river terraces and the Yukon floodplain as well as on the more deeply thawed south-facing slopes of Yukon tributaries. Balsam poplar is characteristic of the early successional stage that climaxes in white spruce forest. A dense understory of shrubs is common with a ground cover of mosses and lichens.

Low brush bog and muskeg are associated with unglaciated areas, river terraces, outwash plains, eutrophic lakes, and sloughs where conditions are too supersaturated to support arboreal growth. Principal plants include willow, sedges, mosses, cottongrass and various berry producing species. Lowbush bog and muskeg are commonly associated with moist tundra, which is dominated by cottongrass tussocks where conditions are supersaturated enough to limit arboreal growth.

Alpine tundra commonly occurs 3,000 or more feet above sea level on shallow soils with little humus, mountain ridges and rubble slopes, well drained alluvial fans, and on the driest parts of upland river terraces. Alpine tundra consists of a low mat of vegetation that is dispersed among large patches of bare ground and rock. The principal plant species are lichens, blueberry,

crowberry, mountain-avens, herbs, grasses, and sedges (Joint Federal State Land Use Planning Commission 1973; U.S. Department of the Interior, National Park Service 1985).

CULTURAL ENVIRONMENT

Ethnographic Pattern

At the time of European contact the area that would eventually become Yukon-Charley Rivers National Preserve was inhabited by Athapaskan peoples. The northern fringe of the Preserve area was inhabited by the Kutchakutchin, but the vast majority of the area was occupied by the Han, a cultural group speaking a distinct language that is most similar to Kutchin (Helm 1981:506).

Ethnographic sources indicate that the former territory of the Han is roughly bisected by the International Boundary and extended along the Yukon River from just above Circle to just above Dawson (Figure 5). It is important to note however, that cultural boundaries among the Han and other Interior groups were not static, but rather:

> It is more likely that traditional ethnic and linguistic boundaries have frequently shifted in response to numerous external pressures such as environmental change, diffusion of ideas, population expansion, or population decline [Bowers and Hoch 1978:24].

The earliest known European contact with the Han is reported to have been in 1843, the result of a gradually westward expanding European fur trade (Osgood 1971:3). Osgood tentatively estimates the entire Han population for the late nineteenth century as 500,

FIGURE 5

HAN TERRITORY

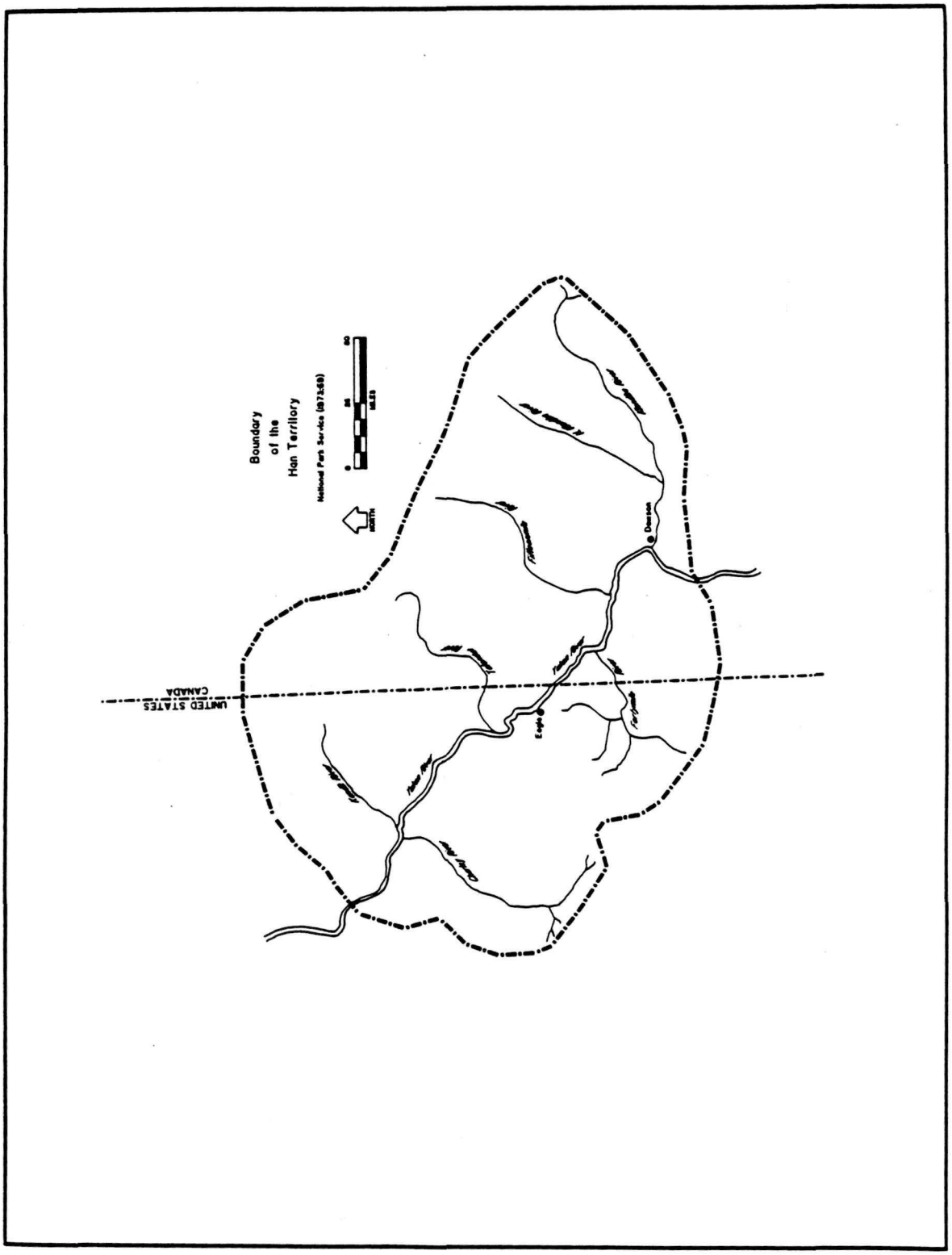


Figure 5. Boundary of the Han Territory

cautioning that the estimate was based on sparse and inconsistent data and may not be an accurate reflection of the early contact population (Osgood 1971:32).

Osgood (1971) and others (Janes 1975) comment on the dramatic impact that continuing white contact had on native settlement, as reflected by a generalized shift toward the main rivers and white population centers (for example, around the mouth of the Klondike River during the gold strike) and a gradual consolidation and reduction in the number of settlements. These changes may be most apparent with respect to the seasonal settlement pattern described below.

Like other Athapaskans, the Han were opportunistic hunter-gatherers whose lifestyle consisted of an annual subsistence round based on the pursuit of the resources available to them throughout a pronounced winter-summer cycle. For the Han those resources were primarily caribou, moose, bear, sheep and fish (Andrews 1977:7). This subsistence style was based on seasonal mobility and a settlement pattern characterized by summer fishing camps located along the Yukon and hunting camps located in the hills and mountainous areas (Andrews 1977:5). The term "summer fishing camp" may be misleading, however. One source indicates that up to seven months out of the year were spent at the village locations during which time a variety of subsistence activities were carried out (Hall 1976:338). According to another source:

> ...villages functioned as base camps from which various subsistence activities were launched. From July through September, salmon were caught along main waterways and berries were harvested. After freeze-up in October, major encampments were left in order to hunt, butcher and cache caribou away from the rivers. In late October, the Han returned to their villages, spending most of their time preparing for the upcoming winter. Several trips were made in late winter to their upland caribou meat caches. Villages survived on caribou meat until the spring [Reynolds and Jordan 1983:35].

The above noted river-oriented winter settlement pattern may actually represent post-contact changes in the subsistence base. According to Janes (1975) and McKennan (1969) it was only with the integration of a fur trade economy and European technology such as the fish wheel, fish net and rifle, that the Athapaskans established semi-permanent settlements.

Well before European contact intergroup trade networks that reached from Siberia to Canada supplied the Athapaskan economy with a wide variety of resources that were not otherwise widely available, including red ocher, obsidian, amber and dentalium shells (Simeone 1982:9). The Han were reportedly skilled at trading, acting as middlemen for other Athapaskan groups living on the Yukon and Tanana Rivers (Simeone 1982:18). These same trade networks eventually became the avenues through which European goods, later to become household necessities, first made their way into Athapaskan culture. According to Simeone:

> ...by the end of the eighteenth century (nearly eighty years before they saw any Russians), Athapaskans were altering their subsistence patterns in order to trap more furs to trade for steel knives, tobacco, beads and metal cooking

pots [1982:9].

Although it is not possible to conclusively document the precontact subsistence pattern, it does seem likely that the growth of the financially profitable fur trade caused some shift in the seasonal round. According to McClellan and Denniston however, these changes did not altogether replace the traditional patterns:

> It is known that well into the nineteenth century seasonal movements appear to have been dictated more by the availability of food and traditional social interests of the Indians than by the goal of trapping furs [1981:375].

As reported in one summary of Han subsistence:

> The Han...relied heavily on the annual run of salmon that began in the first or second week of July. The run lasted until early September and three types of salmon were caught: kings, silvers and dog salmon. The kings were caught in dip nets lowered from canoes while the smaller dog salmon were caught in fish traps placed in shallow water close to the bank. During the salmon run the Han were almost fully occupied in catching and storing fish. Waterfowl was also hunted by the men and the women picked wild rhubarb and gathered bird's eggs.
>
> After the salmon run was finished, entire families moved to the hills to hunt caribou and gather blueberries and cranberries. Fawn caribou skins were particularly prized this time of year because they made soft material for winter trousers and children's clothing. Like the Ingalik, the Han used corrals or surrounds made of brush to capture the animals for slaughter, shooting them with bows and arrows or spearing them. When enough caribou have been harvested, the meat was cached, and in late October the people moved back to the village sites along the river. At this point it was time to prepare winter clothing, snowshoes and sledges. Dried salmon and game, such as moose killed close to camp, snared rabbits and other small game, were the main sources of food during the late fall. In December, as the supplies of dried salmon ran short and game scattered because of extreme cold, trips were made to the caribou meat caches.

> After the winter feasts had depleted the meat supplies, families left the riverside villages to search for game. This was the lean time of year when most resources were exhausted and it was easier to subsist in small groups. After the weather moderated, in late spring, the Han returned to their winter river villages and prepared for fishing, beginning the cycle again [Simeone 1982:14].

The Han, like other Athapaskan groups with access to salmon, devoted the months of July and August and September to catching, processing and drying fish for winter use. Several sources indicate that salmon was probably the most important food for the Han (Hall 1976:336). King (chinook or tyee) salmon (Onchorhynchus tschawytscha), silver (coho) salmon, (Onchorhynchus kisutch), and dog (chum) salmon (Onchorhynchus keta, listed here in the order in which they became available to the people of the middle Yukon, were recorded by Osgood as important to the Han (1971:98-101).

Salmon were taken with hand-held dip nets, with traps and weirs set in eddies along the banks of the Yukon and at the mouths of tributaries (Osgood 1971:103-105) and with gill nets (Bowers and Hoch 1978:27). The fish wheel, a form of moveable, floating fish trap still in use today proved to be highly effective, but these were not a pre-contact technological development (Hall 1976:336). Osgood suggests that king salmon were most often taken with dip nets and dog salmon were taken in traps and weirs (1971:105). As with most cooperative subsistence activities, fishing involved a division of labor with men preparing the fishing gear,

maintaining the traps, and doing most of the fishing. Women prepared the catch and air dried the fish, which could take weeks depending on local weather conditions (McClellan and Denniston 1981:376).

By early fall, subsistence efforts turned toward hunting. Osgood comments that his sources provided less specific data concerning the scheduling of seasonal hunting as compared to fishing (1971:101). This could be a reflection of the reduced visibility of hunting activities, such as that represented by smaller, more dispersed groups in the uplands in pursuit of a highly mobile quarry.

The barren ground caribou (Rangifer tarandus) was the most important species hunted, in terms of the meat they provided and for their skins, which were used to manufacture clothing, shelters and tools. Two caribou herds, the Fortymile herd and the Porcupine herd, presently occupy the Preserve. The Fortymile herd is the larger of the two and has been characterized as perhaps the least predictable of Alaska's herds, at times shifting calving and wintering areas annually. Before the 1950s calving occurred in the White Mountains (Alldritt 1985:4). For the last 20 years, the Fortymile herd has calved in the common headwaters of the Charley, Salcha, Goodpaster, and Fortymile rivers (U.S. Department of the Interior, National Park Service 1988a:33).

The gregarious nature of caribou and their tendency to pursue somewhat predictable spring and fall migration routes are characteristics that may have contributed to the dependence of many Athapaskan groups on caribou (Alldritt 1985). Caribou were taken via several cooperative hunting strategies that involved driving herds into natural or man-made constrictions including narrowings at lakes, constrictions in valleys and constructed or semi-constructed fences or surrounds. Caribou fences constructed by Athapaskans were made from readily available materials including spruce poles, brush, rocks and snow. Sod placed upside down on poles and objects flapping in the wind might also be incorporated into the design to more effectively drive the animals to the waiting hunters (Alldritt 1985; Speiss 1979).

Osgood (1971) reported names and locations for four main Han villages along the Yukon corridor:

1. Charley Village, also known as Charley's Village, Charlieville and Tadush. Osgood indicates that sources disagree as to the exact location of the village, which Schwatka (1885a:262) gave as the left bank of the Yukon, across the river from the mouth of the Kandik River, and Stuck (1917:82) states was located just above the Kandik River, on the right bank of the Yukon. Osgood (1971:26) agreed with Schwatka's location.

2. Johnny Village, also known as Johnny's Village, David's Camp or Klat-ol-klin according to Schwatka (1885a:255), located 3 miles above Eagle (Osgood 1071:26) and associated with the present day location of Eagle Village. According to Dawson 1889:202B) the village was inhabited by the Ka-tshik-o-tin band.

3. Nuklako, also known as Noo-klak-o or Nuclaco, located along the left bank of the Yukon River approximately 13

miles below the mouth of the Klondike, across from which Fort Reliance was established between 1874 and 1883. Schwatka (1885a:246-247) refers to the settlement as a semi-permanent village. Another of Osgood's sources indicates that a band known as Takon occupied the village.

4. Fortymile, also known as Fetulin, located on the Yukon near the mouth of the Fortymile River. Osgood cites sources that indicate that the village was sizeable (Petrof 1900: 68) and occupied by the Tsit-o-klin-otin (Dawson 1889: 202B).

A more recent analysis of the literature reveals only three local Han bands. According to Crow and Obley (1981:513) Osgood's village of Fortymile was actually one of two village locations used by the Johnny Village band.

Ethnographic Analogy and the Archeological Record

As the focus of this overview is prehistoric, it is necessary to consider the limitations in projecting this ethnographically recorded pattern into the past. Ethnographic analogy, the practice of deriving explanations for archeologically collected materials (artifacts, features) from the ethnographic record, is a well established part of archeological analysis (Anderson 1969; Ascher 1961; Binford 1967, 1978; Steward 1942; Thompson 1978:68). In some areas, particularly those in which environment has remained stable over time and a long term, in-situ cultural development is well documented, such inferences can be made with confidence (Anderson 1969).

But the use of ethnographic analogy in any situation is limited, for "The archeologist can never assume complete cultural stability through time---the opposite is almost certainly the case---hence the likelihood of loss or change of meaning of an artifact" (Anderson 1969:134). Perhaps the most obvious limit to analogy is that comparisons cannot be made for objects or features that result from prehistoric activities that have no ethnographic parallel (Thompson 1978:69). For example, a specialized tool kit or feature that results from the exploitation of an extinct resource would not be likely to have a direct correlation in later times. Other problems stem from attempts to make cultural comparisons between the often limited materials preserved in an archeological site (stone, bone) and the much broader range of ethnographically recorded material culture. Specific examples of these types of limitations abound, including microscopic use wear studies in which physical evidence is found to contradict ethnographic interpretations of tool functions (Nance 1970) and studies in which a particular tool type can neither be explained by the ethnographic record nor functionally identified by informants (Griffin 1984).

For much of interior Alaska the use of ethnographic analogy is limited by physical and cultural factors that often include environmental change associated with the periglacial environment, a less than clearly established prehistoric culture history, and

limitations in the available ethnographic data. One such example from the project area involves inferences concerning prehistoric settlement and subsistence patterns made from those recorded ethnographically. Most of the ethnographic data for the Han was compiled by Osgood (1971) from a diverse collection of non-anthropological secondhand sources and supplemented by his own, very limited, and relatively late firsthand field observations in the early 1930s. The data Osgood had to work with was considerably more detailed concerning fishing technology and settlements located along the main river corridor than for other subsistence activities. Researchers have pointed out that these observations were, in most cases, made by sources also tied to the main river corridor, and that Osgood's own observations were made after nearly 100 years of intensive European contact had significantly altered traditional patterns (Bowers and Hoch 1978:24). Thus, a body of ethnographic data that was almost exclusively focused on large, communal population centers along the main rivers may have resulted in a biased perception of Han settlement and subsistence as riverine-oriented (Bowers and Hoch 1978:24, 46).

Possibly the optimal use of ethnographic analogy is as one dimension of archeological interpretation. Ethnographic observations should be, and often must be, used in interpreting past culture, but an awareness should be maintained that direct comparisons between prehistoric and historic cultural systems are

not always possible:

> With careful and logical consideration of physical features, archeological associations, cultural and natural context, and the use of ethnographic analogy, we can greatly increase knowledge of past cultures [Anderson 1969:138].

Culture History

The majority of researchers who have addressed the peopling of the New World agree that the first inhabitants of the North American Continent came from Siberia by way of the Lena and Amur River basins, migrating across the broad, low-lying land mass that has come to be recognized as Beringia (Dikov 1988; Greenberg et al. 1986; Hopkins 1967, 1979; West 1981). At present, Beringia is considered to have consisted of the now-submerged Bering Land platform, along with wide expanses of adjacent Siberia, much of Alaska and an extreme western portion of the Canadian Yukon. This area encompassed an expanse of land that extended over 2,000 kilometers long north to south and a similar distance at its maximum east to west dimension (West 1981).

The exposure of this land mass was brought about by the presence of large continental ice caps on both sides of the Arctic and Bering Seas that dominated the climate and landscape of arctic regions some 20,000 to 14,000 years ago. These continental

glaciers stored massive amounts of ice on the land resulting in the reduction of sea levels throughout the hemisphere. The reduced sea levels in turn exposed the floors of the Chukchi and Bering Seas, creating extensive low-lying plains that connected Alaska and Siberia and formed the area we now know as Beringia (Hopkins 1967, 1979).

Also during this time, generally lowered ocean temperatures resulted in reduced evaporation and chilled overlaying air masses, causing a reduction in moisture-carrying capacity. The result was a drier as well as cooler climate (Hopkins 1979). As large, former sea areas were converted to exposed continental shelf, the eastern and western edges of Beringia lay in the rain shadow of coastal mountains whose summits were raised and broadened by mountain ice fields and ice caps on the adjoining continental shelves, also contributing to a drier climate (Hopkins 1979; Péwé 1975).

Based on fossil pollen studies, the landscape of Beringia during the early Pleistocene has been characterized as a tundra-steppe (Ager 1975; Giterman and Golubeva 1967) or arctic steppe (Matthews 1976), interpreted as a generally treeless vegetation dominated by grasses, sedges, heaths, and various species of Artemisia (Alaska wormwood). Also represented, but less commonly occurring, were dwarf birch and shrub willow (Hopkins 1979).

Approximately 14,000 years ago, the glaciers began a sudden, drastic thinning and oscillating retreat which resulted in the almost complete elimination of the smaller coastal mountain glaciers. Subsequently rising sea levels flooded the coastal shelves, accelerating the breakup of the ice caps and glaciers that had effectively blocked human expansion into eastern Beringia and North America. As late glacial times drew to a close 10,000 years ago, the climate of Beringia become essentially like the modern climate of the region (Hopkins 1979).

Prior to the late Pleistocene, but before rising sea levels breached the Bering Land Bridge, northeast Asian Siberian hunters of large terrestrial mammals slowly but steadily expanded into Beringia and beyond. These movements are reflected by several similarities between prehistoric cultures in Siberia and Alaska, including certain specific aspects of tool technology, most notably the manufacture and use of microblades, and in a variety of biological characteristics. Although virtually all researchers agree that the New World was populated by Siberian groups migrating across Beringia, there remains considerable difference of opinion as to the number and timing of migrations.

There is general agreement that the distinct Aleut and Eskimo peoples are closely related, as demonstrated by comparisons of various linguistic and physical characteristics. These factors have led to the conclusion that the Aleut and Eskimo peoples

diverged from a single, fairly late migration that crossed the southern margin of the Bering Land Bridge, eventually spreading along the coastal margins after reaching Alaska. Dates suggest that this divergence may have occurred as early as 9,000 to 10,000 Before Present (BP) (Laughlin et al. 1979) or as late as 3,000 BP (Dumond 1987).

The prehistoric cultures inhabiting the Interior of Alaska are less easily explained. They are thought to represent either a separate population that migrated at roughly the same time as the Eskimo-Aleut population across inland parts of the land bridge, or the descendants of a separate migration that preceded the ancestral Aleut-Eskimo migration (Greenberg et al. 1986; Turner 1988).

Researchers supporting the first point of view recognize the presence of only one other ancestral population in the New World. These people are thought to have migrated in conjunction with the Eskimo-Aleuts and expanded from Beringia into Interior Alaska where they eventually developed into the Athapaskan peoples and subsequently all other Native American cultures known today. This population is thought to have been adapted to a non-coastal lifeway quite different from that of the Eskimo-Aleut ancestral population (Laughlin et al. 1979).

Other researchers suggest that in addition to the Aleut-Eskimo

migration, there were actually two earlier, separate migrations across Beringia into the Alaskan Interior. The very earliest migration, perhaps dating to 20,000 BP, is thought to have been made by the peoples who initially inhabited this region and eventually expanded southward into the continental United States, as conditions permitted, becoming the ancestors of all other Native American cultures (Clark 1981). Little archeological and physical evidence has been discovered for these Paleoindian cultures, termed "Amerinds" by some researchers. A presumably later migration, better represented in the archeological record, is thought to have developed into the known Athapaskan cultures (Greenberg et al. 1986).

Currently the basis for either lumping or splitting these earliest inhabitants of the Interior is the available linguistic and biological (dental and genetic) evidence that characterizes Northern Athapaskans and other Native Americans. While the multiple migration theory may eventually be born out, at present many scholars remain unconvinced that there is sufficient linguistic, dental and genetic evidence to separate the Northern Athapaskans from all other Native Americans (Greenberg et al. 1986:488-497).

Considerable evidence does exist however, to demonstrate a long, continuous occupation of Interior Alaska, as reflected by a number of key prehistoric archaeological sites that have been

recorded in the region. The following section will discuss these sites with respect to their specific roles in defining the Interior Alaska cultural sequence.

Prehistoric Chronology

Several researchers have noted that the archeology of Interior Alaska is not well known (Bacon 1986; Dixon 1985). This situation is the result of a variety of factors, some related to locating prehistoric cultural material and others related to interpreting it. As stated by Dixon:

> Unique physical factors in central interior Alaska pose difficult problems for archeological research. The region is characterized, with few exceptions, by poor stratigraphy and a lack of deeply buried, naturally stratified archeological sites. Vast areas of lower topographic relief contain massive deposits of perennially frozen flood plain alluvium, while areas of higher topography are usually mantled by shallow deposits of undifferentiated loess (rarely exceeding 50 cm in thickness) in which as much as 12,000 years of prehistory may be recorded. Such locales are frequently subject to cryoturbation and lack of organic preservation, thus rendering dating difficult and frequently impossible [1985:47].

In spite of these limitations archeologists have proposed and are continuing to refine basic cultural sequences for the region. The first sequences were extracted from a relatively few well known sites that possessed datable stratigraphy and diagnostic artifacts and features. In these instances different artifact assemblages, as viewed in a multicomponent site could be compared

and contrasted to others in the region.

The major cultural sequence that has served as a basic chronological framework for Interior Alaska consists of three very broadly defined cultural traditions: The American Paleoarctic tradition, The Northern Archaic tradition and the Athapaskan tradition. This review will be preceded by a brief discussion of occupations that might have predated this sequence. For the purpose of this review, a tradition is defined as a temporal/technological grouping based on artifact styles that is less inclusive than the term culture (Willey and Phillips 1958).

Pre-Paleoarctic Occupations (30,000 to 11,000 BP)

At present, evidence for interior, subarctic habitations that predate 11,000 BP are not well known or agreed upon. Some researchers feel that the earliest recorded materials have been found approximately 200 miles northeast of the Preserve, along the Old Crow River in the Canadian Yukon. At Old Crow, bones of Pleistocene animals that appear to have been worked have been recovered, including a caribou tibia flesher provisionally radiocarbon dated to 27,000 BP (Irving and Harington 1973:335-340). Many researchers dispute the proposed age of the flesher however, suggesting that it was manufactured much more recently, from fossilized bone. More recent attempts to assess the age of

FIGURE 6

ARCHEOLOGY SITES REFERENCED IN THE TEXT

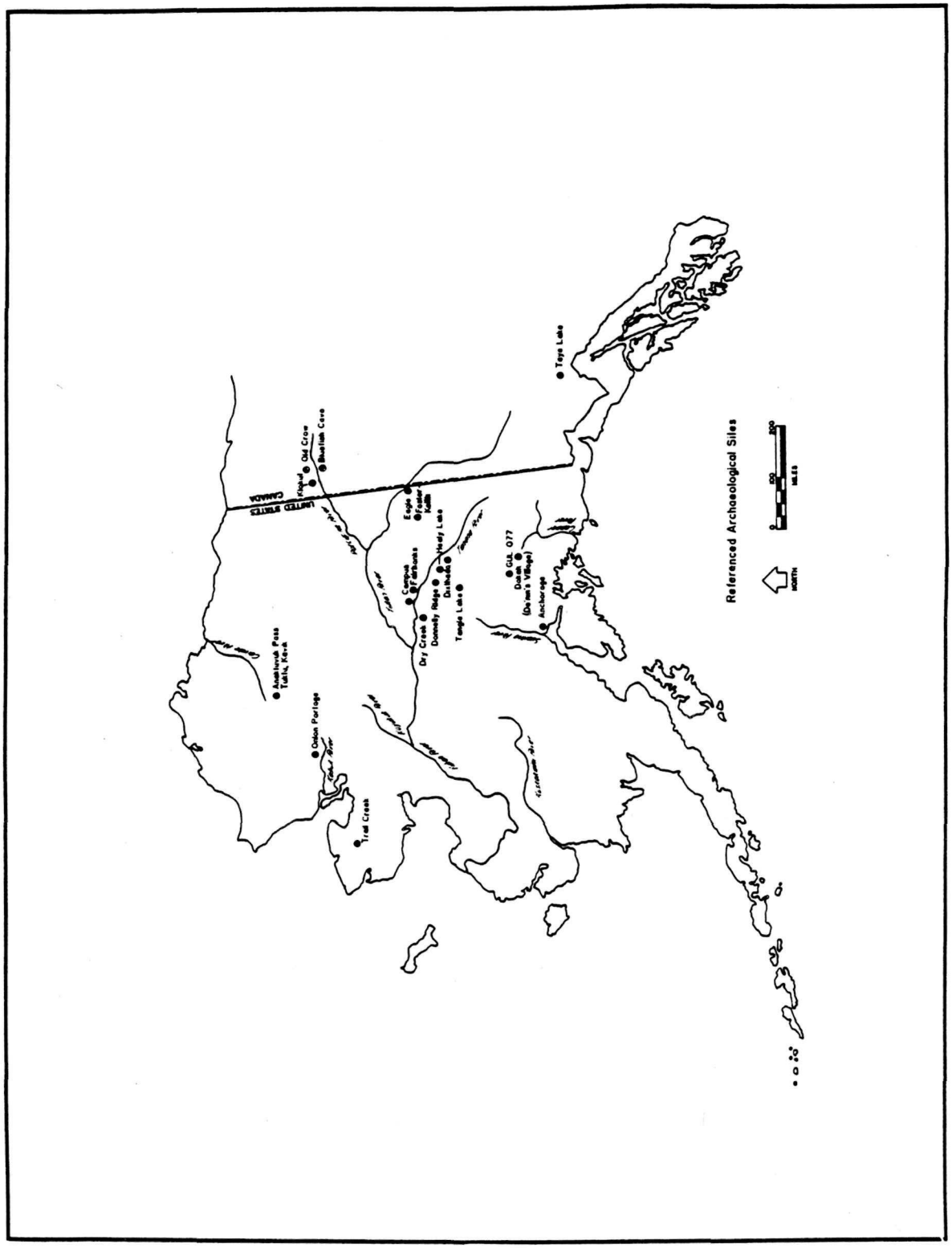


Figure 6. Referenced Archaeological Sites

the flesher have produced a date closer to A.D. 600, adding to the controversy (Dumond 1987:35). Other questions arise from the redeposited context in which some of the less obviously worked bones were found. Another interior site thought to represent similarly early occupation is Bluefish Caves, also located in the northern Canadian Yukon where Pleistocene faunal remains thought to have been butchered by humans have been dated to 15,000 BP (Cinq-Mars 1979). Neither Old Crow nor Bluefish Caves has yet produced lithic artifacts to confirm human activity, although research in these areas is ongoing.

The American Paleoarctic Tradition (11,000 BP to 8,000 BP)

The Paleoarctic, or American-Paleoarctic tradition as it is known in the New World, was originally defined by Anderson (1968a, 1970) on the basis of early stone tool complexes in northwestern Alaska and has been broadened and extended to other areas in Alaska (Bacon 1986; Dumond 1977). Assemblages termed Paleoarctic are found on both sides of the Bering Sea (Dumond 1977:43-46; Jennings 1977:52). Paleoarctic components date between 11,000 BP and 8,000 BP and are characterized by products of a distinctive blade and core technology manifested by small, wedge-shaped blade cores (often referred to as Campus type after a University of Alaska Fairbanks site from which they have been recovered) which are preshaped before blade removal (Figure 7). The parallel-

sided blades removed from these particular cores are known as microblades and are often less than five centimeters in length. Paleoarctic assemblages are also characterized by inter-site diversity and apparently specialized implements, as demonstrated by the presence or absence of bifaces (especially fluted points) and various forms of burins (Jennings 1977).

Sites with Paleoarctic components are found in areas that were either unglaciated during the latest major glacial episodes or in areas that were deglaciated early (Dumond 1978:26-27; Jennings 1977:50). Most researchers agree that the Paleoarctic environment for much of Alaska, from Beringia to the Yukon-Tanana uplands, was arctic steppe-tundra, a cooler and drier environment characterized by treeless grasslands and tundra quite different from the tundra known today (Cook 1969:381; Dumond 1978). Even during peak glacial episodes considerable portions of the interior region remained an ice-free refuge for flora and fauna. According to one reconstruction of the Pleistocene peri-glacial environment:

> Glacial climate in the Interior was different from that of today. It may have been colder, but certainly there was more wind and less moisture. We know from the mammals that lived in Alaska during the glacials that there could have been little snow cover. What snow did fall was probably re-sorted and packed in drifts, much as it is now in mountain pass areas of Delta Junction and Healy. With so little moisture there must have been clear weather most of the year, with high clouds building in the summer and sparkling starlit nights in the winter. The clear skies would have made summers quite warm with deep thaws, but by the same token winters would have been cold with the loss of heat to the black night sky. On the other hand, winter winds,

> which we seldom have today, would have upset any tendency for heavy colder air to accumulate in the lowlands. So the glacial climate may have actually been warmer in the lowlands and cooler in the uplands [Guthrie 1986:57].

Most of the Paleoarctic components identified in Alaska are thought to represent seasonally occupied hunting camps, thus making detailed reconstruction of the prehistoric economy difficult. In general, subsistence is interpreted as having revolved around late Pleistocene-early Holocene hunting of grazing mammals attracted to the rich grasslands that would have occurred adjacent to glacial areas:

> A possible reason for locating near active glaciers stems from the proposed existence within late Wisconsin Beringia (i.e., that area composed of the exposed Bering Platform and adjacent unglaciated portions of Alaska, Canada, and Siberia) of a relatively xerophytic steppe environment dominated by grass and Artemisia, upon which would have fattened herds of grazing animals such as elephant, bison, and horse, and which would have been significantly more productive than any portion of terrestrial Alaska was to be in the Holocene [Dumond 1980].

Species represented in some of the relatively few Paleoarctic sites with identifiable faunal assemblages include horse, bison, caribou, moose, wolf, fox, hare, ptarmigan, duck and bear from the Trail Creek Caves site (Larsen 1968), bison, sheep, elk and ptarmigan from Dry Creek (Dumond 1978:25; Powers and Hamilton 1978; Thorson and Hamilton 1977), small mammal and bird bones from the Garden Site at Healy Lake (Cook 1969), possibly caribou from the Akmak component at Onion Portage (Anderson 1970, 1978) and caribou, sheep and ground squirrel from the Carlo Creek site (Bowers 1978). It is significant that no site in Alaska has yet

produced extinct fauna, mammoth for example, in direct, undisputed context with cultural material (Dixon 1985).

Within the broad, geographically widespread category represented by the Paleoarctic tradition, researchers have defined regional variants in several archeological assemblages. Most notable for Interior Alaska are the Denali complex, as seen in Component II at the Dry Creek site in the Central Alaska Range (Powers et al. 1983), and the Chindadn complex, at Healy Lake in the Yukon-Tanana Uplands (Cook 1969).

The Denali complex was originally identified, on the basis of artifact typology, in four Interior Alaska artifact assemblages, including the well known site on the University of Alaska Fairbanks campus (West 1967) and has subsequently been identified in very similar assemblages elsewhere in the Interior. Assemblages attributed to the Denali complex have been dated to between 12,000 and 8,000 BP and are characterized by prepared, wedge-shaped (often called Campus type) microblade cores, microblades, burins, scrapers and bifacially flaked knives (Dumond 1977:40; West 1967). More recent research has caused reinterpretation of the Denali complex as a possibly lengthy and continuous cultural complex, particularly in light of recently returned radiocarbon dates from the Campus site that suggest a much later occupation around 3,000 BP (Mobley 1984, 1985). Other components have yielded Denali complex material in similarly late

contexts (Cook and McKennan 1970a, 1970b). Several researchers have suggested that the temporally separated Denali complex assemblages may actually represent two cultural entities with an as yet undetermined relationship, the later of which has affinities with the Northern Archaic tradition (Bacon 1977; Bacon and Holmes 1982; Dumond 1977; Holmes 1974).

The Chindadn complex was originally identified at the Village site at Healy Lake (Cook 1969) and is characterized by small, thin triangular projectile points, microblades and burins. Radiocarbon dates place the Chindadn complex between 11,000 and 9,000 BP.

The Dry Creek site is perhaps the best example of an Interior Alaska archeological site with a well documented Paleoarctic component. Component I has been dated to approximately 11,000 BP and contains bifacial knives and triangular projectile points, side scrapers, transverse scrapers, end scrapers, burins, flake tools, cobble cores and cobble tools. Significantly, microblades were not recovered from Component I. Component II dates to approximately 10,000 BP and yielded a large assemblage which includes microblades and is considered representative of the Denali complex. The distribution of artifacts in Component II has been interpreted to represent discrete activity areas, not all of which contain microblades (Powers et al. 1983). It is unclear whether the intra-site distinctions are the result of

different activities, only some of which were related to microblade use and manufacture, or perhaps separate visits to the site by different cultural groups with different technologies (Aigner et al. 1986:126).

Two lower levels or horizons are relevant to a discussion of the Paleoarctic at the Healy Lake Village site. Level 9, the "Early" horizon, revealed an assemblage characterized by an absence of projectile points and, unlike the lowest component at Dry Creek, demonstrate a well established core and microblade technology as well as a burin industry (Cook 1969:258, 278). The "Early" horizon was radiocarbon dated to approximately 11,000 BP. The somewhat later "Quartzite" horizon, radiocarbon dated to approximately 9,000 BP, revealed an assemblage that includes small, very thin triangular projectile points, which Cook termed Chindadn points, burins, "a relative lack of microblades" and no microblade cores, indicating a de-emphasis on microblade technology (Cook 1968:257, 337). Cook suggests that these two levels be considered a single unit for interpretive purposes, as the elements that permit differentiation (most notably quartzite scrapers and very small end scrapers made from other lithic materials) are a unique, local phenomenon (Cook 1969:333). Eventually the term Chindadn was extended to the entire early complex at Healy Lake, and has since been applied, on a comparative basis, to technologically similar early assemblages (Cook 1969).

The significance of the Chindadn and Dry Creek Component I and II assemblages revolves around the factors that connect the two sites (the similar triangular projectile points found in both sites and the corresponding radiocarbon dates recovered from both sites) and the factor that distinguishes them (the absence of microblades at Dry Creek Component I). Given that both components can be tied to corresponding time periods, environments and, presumably to corresponding cultures, it is problematical that a definite technological continuity cannot be demonstrated.

The Northern Archaic Tradition (6,000 BP to 4,400 BP)

The time period between 10,000 BP and 5,000 BP was marked by dramatic environmental change that culminated with the peak of post-glacial warming, termed the thermal maximum, by 4,000 BP. Correspondingly, the region experienced a marked expansion of the Boreal forest by 5,000 BP, with the edge of the northern forest considerably farther north than it is today (Anderson 1968).

These events correlate in time with the recognition of the technologically distinct Northern Archaic tradition, a term originally applied to assemblages in northwest Alaska and later extended to assemblages in the interior (Anderson 1968). The

Northern Archaic peoples are thought by some researchers to represent the earliest manifestations of the recognizable Athapaskan cultural pattern (Aigner et al. 1986:130).

Like the Paleoarctic archeological record, relatively few Northern Archaic sites allow for a detailed reconstruction of the prehistoric economy:

> Unfortunately, faunal remains as well as organic artifacts from sites yielding such assemblages are virtually nonexistent. Based on distributional evidence entirely, then, the people represented are presumed to have been generalized hunters of whatever game was available after the development of the modern and relatively impoverished ecological regime of the interior: caribou, moose, bear, and smaller animals [Dumond 1980:33-34].

Among the faunal materials recovered from sites during this time period, caribou appears to have been the most important species (Jennings 1978:56).

It has been suggested that identifiable technological differences between Paleoarctic and Northern Archaic peoples, most notably the sudden appearance of large side and corner-notched projectile points (Figure 8) in archeological assemblages of that time, are linked to changes in the environment (the decline of the Arctic-Steppe and expansion of the spruce forest) that in turn caused adaptive changes in the food procurement system. For example, the Paleoarctic focus on year-round large game hunting would have had to shift toward select, more concentrated resources including migrating fish and caribou (Aigner et al. 1986:130), in a

subsistence system much more like that of historic Athapaskan groups. Other sources suggest that the Northern Archaic technological changes represent a diffusion of new ideas, brought by new groups expanding into the newly forested interior of Alaska from the south and east (Anderson 1968).

Key regional variants of the Northern Archaic tradition include the Palisades complex, first identified at Cape Krusenstern (Giddings 1967), and best illustrated by the Palisades II component that was later identified at the Onion Portage site on the Kobuk River (Anderson 1968, 1986). Another, and quite different Northern Archaic assemblage, the Tuktu complex from Anuktuvuk Pass will also be discussed (Campbell 1961).

The Palisade II assemblages at Onion Portage, dating between 6,000 BP and 4,600 BP, include asymmetrical side-notched points with deep, wide notches and convex bases, end scrapers and large, unifacially chipped knives. Later stages of the same complex are characterized by similar, but somewhat shorter points and the appearance of notched pebbles thought to be used as hafted axes. Still later, the bases of the side-notched points evolve into stems shaped by corner notching. Notched water-worn pebbles thought to represent sinkers and some slate objects are also found in late stages of the Palisades complex (Dumond 1977:40-50).

Among well-dated Northern Archaic assemblages it has generally been accepted that there is a basic continuity in terms of the presence of side-notched points and the absence of the microblade technology that was such a key cultural element in the Paleoarctic complexes. This distinction has led to the interpretation that the Northern Archaic peoples were unrelated to the earlier Paleoarctic peoples, and that Northern Archaic populations were an incursion of a distinct Interior culture, perhaps moving into the north as they followed the expanding limits of the northern forests, sometime following 6,000 BP Anderson 1968). Other assemblages however, considered to date within this same time frame may suggest a technological continuity with the Paleoarctic tradition (Betts 1985). In general however, the most widely held interpretations of Interior Alaska chronology recognize what appears to be a dramatic dichotomy in terms of prehistoric tool kit, one group utilizing microblades (Paleoarctic/Denali complex peoples) and the other using notched points and excluding microblades (Northern Archaic peoples).

Several explanations have been offered for the apparent separation of notched points and microblades in Northern Archaic sites, including a recent assertion that the apparent distinction between notched points and microblades may actually reflect a site sampling bias and that sites that directly link both elements in undisputed contexts are simply less well known (Betts

1987:59). It has also been suggested that, through time, the Northern Archaic has had two distinct focuses, one reflecting an "Early" notched point horizon that occurs without microblades and exhibits cultural continuity with the Paleoarctic and another, "Late" notched point horizon that occurs with microblades and possibly reflects a period of culture contact and diffusion of ideas (Holmes 1982). Still another researcher suggests that while the Northern Archaic is currently accepted as a single, broad cultural entity, it is possible that there may have been two, essentially contemporaneous groups. One adapted to an economy that did not utilize microblades and expanded into the region from the south and east, and the other representing a culture essentially descended from the microblade-using Paleoarctic peoples (Schoenberg 1985). Among the several sites that present archeological evidence in support of the view that microblades and notched points are not necessarily mutually exclusive in Northern Archaic assemblages are the Tuktu component at Anaktuvuk pass, Level 3 at Healy Lake and components at Lake Minchumina and Butte lake in the Central Interior.

The Tuktu assemblage has been radiocarbon dated to 6,000 BP (Campbell 1959, 1962) and is important to a discussion of Northern Archaic assemblages in that it yielded side-notched points, very similar to those in the Palisades assemblages, in addition to a well represented microblade industry. The site, however, is essentially a surface deposit and not well stratified

and interpretive problems have been suggested. While the presence of microblades in the Tuktu assemblage is considered by some to demonstrate technological continuity with the earlier, Paleoarctic microblade assemblages, it is also noted that the Tuktu microblades are different from those associated with Paleoarctic assemblages, in that they were removed from tabular rather than wedge-shaped (Campus type) cores. The term Tuktu has since been applied to other notched point-microblade assemblages (Betts 1987).

The Healy Lake Village Site also revealed a Northern Archaic assemblage (Level 3) with notched points and microblades that were very similar to the Tuktu assemblage (Cook 1969:324), although problems with stratigraphic control at the site coupled with the lack of radiocarbon dating for this level have caused problems in interpretation.

Other Interior Alaska Northern Archaic assemblages that contain notched points and microblades include, but are not limited to, assemblages at Lake Minchumina in the Central Interior (Holmes 1985), and the Butte Lake site in the Alaska Range (Betts 1987). Component II at Butte Lake has been radiocarbon dated to approximately 5,000 BP, making it one of the earliest of the dated sites under consideration here (Betts 1987:87). The Raspberry phase at Lake Minchumina has been dated to approximately 1,200 BP, although the date was obtained by

radiocarbon dating bone which may make the actual date somewhat earlier (Holmes 1986).

To further complicate a discussion of microblades, one researcher has recently reported the existence of a Late Denali complex, dating between 3,500 and 1,500 BP, for the Central Interior (Dixon 1985). It is proposed that this complex is distinct from both the earlier, Paleoarctic Denali Complex and the intervening Northern Archaic tradition, although both of the Denali complexes share many of the same elements: wedge-shaped and other forms of microcores, microblades, and burins on bifaces and flakes (among other elements). If the sequence suggested by dates from the several previously noted sites that possess both microblades and notched points is more accurate, then the Northern Archaic may be more closely related to the Late Denali complex sites than suggested and may reflect some other type of variation, possibly related to seasonal exploitation of different resources.

Perhaps the best known Northern Archaic site in the immediate Preserve area is the Twelve Mile Bluff site excavated by West as part of his investigation of the Rampart Dam impact area (West 1965). The site is located on Twelve Mile Bluff, approximately 12 miles downstream from Circle City (West 1965:90). Excavations at the site suggested two occupations, the later of which West attributed to a recent Athapaskan occupation. The earlier occupation included a fragmented Tuktu side-notched projectile

point, another described as the base or stem of a small corner-notched point, and the tip of a projectile point similar in plan and thickness to the first specimen (1965:95-96). Other tools include leaf-shaped knives, end scrapers and several pebble tools (scrapers, planes, choppers, hammers, notched-axes), some of which may represent tchi thos, flaked spall scrapers used by Athapaskans (1965:98-100). No evidence of a blade and core technology was noted at the site (1965:107). Based on the lithic materials recovered, West suggested a tentative date of 5,000 BP for the earlier component (1956:112).

The Arctic Small Tool Tradition (3,000 BP to 4,000 BP)

While quite definitely not a part of the accepted Interior Alaska chronological sequence, the Arctic Small Tool tradition has been identified at one Interior site, Lake Susitna (Irving 1957), making some discussion necessary.

The Arctic Small Tool tradition was first identified in an assemblage at Cape Denbigh on the Northwest Alaska coast (Irving 1962) and has subsequently been identified in similar assemblages along a widespread coastal-dominated region extending from Bristol Bay and the Alaska Peninsula, across the top of the North American continent to Greenland (Dumond 1977; Giddings 1949, 1951, 1964; Irving 1962).

These assemblages have been interpreted as the remains of small hunting camps apparently geared toward specialized hunting: caribou hunting at Onion Portage and seasonal seal hunting and fishing at coastal sites. The key elements of the Arctic Small Tool tradition include very small, well-made tools that include often bipointed endblades and sideblades, burins struck on small bifaces, microblades, scrapers, and large bifaces. Small adze blades with polished bits and polished burin-like implements are also noted. Constructed houses have been excavated at only four locations, including Onion Portage, revealing small, round or somewhat square, semi-subterranean houses with sunken tunnels for entrances that are thought to have been occupied in the winter (Dumond 1977).

The relationship between Northern Archaic peoples and those of the Arctic Small Tool tradition is not clearly defined. The most widely held interpretation views the Arctic Small Tool peoples as culturally discontinuous with the Northern Archaic. According to one researcher:

> Wherever cultural deposits of the Arctic Small Tool tradition occur in Alaska they seem to constitute a break in the continuity of occupation at a site. Where predecessors are known, they were people of the Northern Archaic tradition, who, after the interruption of the Small Tool peoples along the coastline, apparently withdrew to thrive in the forested regions inland [Dumond 1977:85-86].

In reviewing the chronological data for the Interior, it is significant that the results of later, very comprehensive research in the Susitna drainage (Dixon et al. 1980; Dixon et al. 1981; Dixon et al. 1982; Dixon et al. 1983; Greiser et al. 1986) and elsewhere in the Central Interior have not identified Arctic Small Tool assemblages. In this respect it is reasonable to infer that the Susitna Lake site may represent some type of localized or specialized assemblage and not an indication of a new, previously overlooked cultural tradition in the region.

The Athapaskan Tradition (1,500 BP to Historic Times)

Researchers are not in agreement as to how far back into the past the people of the Athapaskan tradition, considered the direct ancestors of the Athapaskan peoples of historic times, can be traced. Some sources have interpreted the entire chronological sequence for the Interior as one characterized by cultural continuity and long-term <u>in situ</u> cultural development, with the wide variability demonstrated by historic period groups reflecting increased diversity and specialization that may have grown out of the earliest cultures in the region (Cook 1975). These sources consider the development of the recognizable Athapaskan cultural pattern to have begun with the major environmental and adaptive changes that preceded the Northern Archaic tradition (Aigner et al. 1986:130).

In contrast to this point of view, other sources suggest that two distinct populations have inhabited the Interior through time, having crossed Beringia in separate migrations. The earliest peoples, or "Amerinds", are thought to be represented by the poorly known very early archeological evidence in Alaska. The recognizably Athapaskan cultures are thought to represent a much later migration (Aigner et al. 1986:112-114). On the basis of linguistic evidence, one source has suggested that 3,000 years may have elapsed since the numerous Athapaskan dialects diverged from a common language (Krauss 1972).

Perhaps the best known archeological sites thought to demonstrate the concept of an unbroken, long term, persistence of Athapaskan culture are the Village and Garden sites at Healy Lake (Cook 1969; Cook and McKennan 1970). At Healy Lake, all but the lowest levels (previously discussed as part of the Paleoarctic tradition) are considered to represent the Athapaskan tradition, which was further separated into four phases, the most recent of which is tied to the recognizable materials of a historic Athapaskan band. The three subsurface levels include a poorly defined stratum with microblades, a Denali phase stratum with Campus type cores, microblades and burins, notched and stemmed and lanceolate projectile points, and a level thought to represent a local variant of the Tuktu phase. Based upon the radiocarbon chronology from the site, the Athapaskan tradition

was identified as beginning as early as 11,000 BP.

For the purpose of this discussion however, we will not attempt to clarify the ancestry of the Athapaskan peoples and will restrict our use of the term Athapaskan tradition to the late, ethnographically identified Athapaskan cultural pattern that followed the Northern Archaic tradition. Perhaps the most notable characteristic of the ethnographically recorded Athapaskan peoples is a cultural pattern characterized by cultural diversity and specialization. As discussed in the preceding ethnographic summary, the traditional Athapaskan way of life was based on opportunistic hunting and gathering. The annual subsistence round was based on the acquisition of the specific resources available in each group's territory. Thus, a group like the Han with access to sizeable, dependable salmon runs would pursue a different subsistence focus and seasonal pattern than a group that did not and was more dependent on game animals:

> Regional variations in social organization, culture, settlement pattern, and technology arose from the slight variations in environmental variables with which each group had to cope. Above all else, the Athapaskan culture before the white man appeared to be flexible and adaptive [Reckord 1983:30].

For Athapaskans, traditional settlement patterns consisted of winter villages with well-built multi-family structures near major rivers and tributaries, and more temporary camps comprised of less substantial structures which serving as bases for various

subsistence tasks, including hunting, fishing and fish processing. These camps could represent single-use areas or areas that were reoccupied year after year (Workman 1976).

The caching or storing of seasonally surplus foods was an important adaptive mechanism that enabled Athapaskan peoples to survive leaner periods that occurred within the annual cycle, especially around March and April. As summarized by one source for the Ahtna, a variety of cache types have been identified:

> Another type of permanent structure used by the Ahtna, the underground cache, was apparently built within a convenient distance of the winter settlements, for it was in winter that they were gradually emptied. At the same time, they had to be within a somewhat convenient distance of the summer fish camps, because they were filled primarily with the summer's salmon catch. Thus, the winter village was often located near the summer fish camp [Arndt 1977:19].

Some of the generalized cultural elements associated with Athapaskan sites include evidence of a growing aboriginal trade network (for items such as obsidian and copper) that would carry over into contact times, and possibly evidence of an increased population, as seen in an expanded distribution of Athapaskan sites by 1,000 BP (Cook 1975). Material cultural elements associated with Athapaskan sites include a relative absence of finely worked stone tools, apparently indicative of a greater reliance on bone and antler tools, decorative items such as beads and buttons, split boulder spall scrapers (tchi thos) or thin tabular slabs of schist that are thought to have been used for skin scraping, unilaterally barbed bone points, bone gaming

pieces, caribou tibia scrapers (fleshers), and the geometric embellishment of bone and antler artifacts (Cook 1975).

While relatively few Athapaskan archeological sites have been located and systematically excavated, two examples from areas adjacent to the Preserve have yielded important information about late prehistoric or protohistoric Athapaskan culture.

Given its well-stratified context, preserved faunal remains, and proximity to the Preserve, the Klo-kut site in the middle Porcupine drainage is important to a discussion of the Athapaskan tradition (Morlan 1973). The site is thought to represent 1,500 years of continuous Athapaskan use, culminating with a well-documented historic village component. The artifacts and faunal materials recovered from Klo-kut are characterized by an overall technological continuity. Lithic artifacts include cobble tools and cores, utilized flakes, scrapers, burins and burin spalls, boulder spalls, rough bifaces, and stemmed projectile points. The bone and antler technology identified at the site, including two-handed hide scrapers known as beamers, barbed and un-barbed points, needles, has been described as "Eskimoid", presumably a reflection of culture contact with late prehistoric Eskimo peoples from the southern slopes of the Brooks Range (1973:iii). Only three small examples of native copper were collected. Euroamerican materials, including ceramics, beads and metal, were associated with the historic component. Morlan characterizes the

inhabitants of Klo-kut as primarily caribou hunters, oriented toward upland, treeless areas (1973:516), and hypothesizes a similar lifeway for other northern Athapaskans during the late prehistoric period.

Aided by oral history, excavation of the Nibaww Zhoh site (EAG-139), located between Eagle and Eagle Village on the left bank of the Yukon River, was determined to be a seasonal winter settlement of the Han (Andrews 1987). The site was named for the Athapaskan skin houses that were found at the site, two of which were excavated. The houses were considered typical winter lodging, consisting of caribou or moose skins layered over a pole frame with snow banked around the outside for added insulation. The houses were heated by a sizeable fire built up on a gravel deposit. This type of housing persisted into the historic period, and the written record confirmed many of Andrews findings at the site. Artifacts representative of local manufacture and traditional activities were collected from the houses. These included stone scrapers used for processing the hides of large animals, whetstones, a barbed antler point, a bone netting needle, a bone flesher and a clump of sinew. Imported (European) items included fragments of glass and ceramic items, square-cut nails, fragments of firearms and ammunition, buttons and beads. Based on the data from preliminary excavations, the Han families that inhabited Nibaaw Zhoo focused on hunting large and small game. The site was likely occupied between 1880 and 1890, a

time period preceding the intense, direct European contact with the Han that began to dramatically alter traditional Athapaskan culture and technology.

Other well known Interior Athapaskan sites include two sites in the Copper River area, GUL-077 near Gulkana (Workman 1976) and Dakah De'nin's village near Chitina (Shinkwin 1975), and Dixthada, a village located near Mansfield Lake in the Upper Tanana Valley (Shinkwin 1975). GUL-077 is located on a ridge system that was the location of a series of seasonally occupied, task-specific, late winter-early spring camps and also as a food storage area. The data suggest that beaver was the most commonly harvested food source at the encampments, with red squirrel and various other mammals and small amounts of fish also present. Material goods collected from the site include abundant native copper implements, including projectile points, knives, perforators and ornaments, a well-developed bone and antler tool industry with barbed bone projectiles, split metatarsal beamers and ornamental pins, flaked lithic endscrapers, wedges, burins, retouched flakes and boulder spalls, and whetstones and various ground stone tools. Only one area produced European material, an unusual iron knife, in definite association with aboriginal artifacts. Radiocarbon dates were obtained from four localities at the site. The dates suggest a main occupation between approximately 500 BP and 1,000 BP, although the area may have been used over a considerable period of time:

> There is some evidence that the area was occupied at least sporadically as a camping area for several centuries. Cache pit construction and sporadic use continued until the time of the coming of the Europeans and an occasional family or small group camped there as recently as c. 1800. Large scale utilization of the area as a living site apparently ceased by or shortly after 1500 A.D. at the latest [Workman 1976:147].

Research at GUL-077 suggests cultural, linguistic and technological continuity between the prehistoric inhabitants of GUL-077 and the historic Athapaskan inhabitants of the area, the Ahtna.

Dakah De'nin's village is located along a bluff overlooking the Copper River. The village represents a large, early nineteenth century winter settlement of the Ahtna Athapaskans with nine housepits, several sweatbaths and cache pits. Two houses with attached sweatbaths were excavated at the site in 1973, revealing three successive occupation levels which have been dated, on the basis of tree ring chronology, from 1816 to 1838. Artifacts collected from the houses appear to support the suggested dates.

Artifacts recovered during the excavations included some trade goods (beads, iron goods), in addition to copper and bone points, copper awls and needles, chisels thought to have been used for woodworking, boulder spall hide scrapers, copper knives, an ivory harpoon head, whetstones, hammerstones, grinding stones and several ornamental items (dentalia, trade beads, shell beads, a shell pendant).

Faunal remains collected from the site include large amounts of salmon, grayling, several species of mammals (including hare, porcupine, arctic ground squirrel, bear, beaver, lynx, and wolf) and birds. A clam shell fragment from a marine environment was also identified. Given that fish could be dried and consumed during the entire year, no definite season of use was reported at the site.

Dixthada also consisted of multiple semi-subterranean housepits, storage pits and tent rings. Early excavations of middens at the site (Rainey 1939) suggested that there were three distinct periods of occupation present, one of which was pre-contact. Later investigation of the middens yielded radiocarbon dates indicating occupation around 300 BP. The third date, associated with a microblade, suggests a considerably older occupation dating to approximately 2,400 BP (Lawn 1974).

Locally manufactured artifacts that represent the traditional way of life include numerous copper items (points, awls, pins, beads, and several unidentified and fragmented objects), a wide variety of bone and antler points and barbed points, bone awls, a bird bone drinking tube, a bone beamer, knife and several incised bone objects, and a lithic assemblage represented by large and small bifacial projectile points with stems, broad bifaces with convex edges, boulder spall scrapers, microcores, core tablets,

microblades, transverse burins, and a variety of scrapers and retouched flakes.

Analysis of the Dixthada material has suggested that not all of the features at the site are contemporaneous. The middens and houses are thought to represent the remains of a seasonally occupied, semi-permanent summer village, perhaps related to summer communal fishing activities.

Also important to a discussion of the Athapaskan tradition is the impact of a significant volcanic ash fall that is known to have occurred in East-Central Alaska and adjacent Canada (Workman 1974). The ash, more technically known as tephra, has been identified in archeological deposits and in other subsurface exposures in several areas of the Preserve. The tephra has come to be known as White River ash, and has been traced to one or more eruptions of a vent in the St. Elias Mountains, around 1,400 BP (Workman 1974:240). It has been proposed that the ash deposited by the eruption had a catastrophic effect on the environment, creating intensified erosion and flooding and causing chemical and mechanical damage to plants, grasses, trees and animals. These events would, in turn, instigate a major population shift of Athapaskan peoples out of the impacted areas, most likely to the north or south, into areas already occupied by other groups. The cultural effect of this dispersal is thought to have been a "...widespread accelerated culture change

indicative of intensified contacts datable roughly into the First Millennium A.D." (Workman 1974:255).

The preceding discussion of the chronological sequence identified for the Interior Region of Alaska has revealed a lengthy occupation, dating back to some of the earliest known sites in Alaska. Significant problems remain however, including basic questions concerning the timing and number of migrations across Beringia and the relationship between earliest and later cultures of the region. Subsequent sections of the overview and assessment will deal more directly with the archeological resources found within the Preserve.

ASSESSMENT

KNOWN ARCHEOLOGICAL RESOURCES WITHIN THE PRESERVE

This chapter will discuss the known prehistoric archeological resources in the Preserve, with respect to the information they lend to our understanding of past culture in Yukon-Charley Rivers National Preserve. The bulk of this information has been tabulated and summarized in a series of tables to facilitate comparative analysis and access to site data (Tables 4-6). The summarized information is intended as a reference point for future management and research. If more detail is needed, individual records for each site are on file at the Preserve Headquarters in Eagle, Alaska and at the National Park Service Regional Office in Anchorage, Alaska.

Historical Archeology Within the Preserve

Although this overview is directed at prehistoric archeological resources, some discussion of the archeological potential of the historic resources within the Preserve is warranted. Historical archeology is the study of historically documented material through archeological methods (Deetz 1972:115). Of the more than two hundred known historic sites located within the Preserve, no distinction is presently made between historic sites and historic sites with archeological potential. Technically, any historic site with intrinsic research potential could have archeological

potential as it is not the nature of the site but rather the methods used to recover data that classifies a project as archeological. This point is illustrated by the fact that the fundamental archeological data gathering, recording and analytical techniques have been successfully applied to very diverse non-prehistoric research settings, including excavation of historic structures, detailed mapping and collection of surface and submerged sites, and even modern-day arson and crime investigations.

In this sense, the research potential of historic resources should be evaluated against the same standards used to evaluate prehistoric sites. According to one discussion of the determination of research significance and the National Register:

> Archeological properties do not have to be large, impressive, or rich in artifacts or data to qualify...nor do they have to be suitable for public interpretation. Any archeological resource is potentially eligible if one can legitimately argue that it is likely to be associated with a cultural pattern, process, or activity important to the history or prehistory of it's locality, the United States, or humanity as a whole, provided it's study can contribute to an understanding of that pattern, process, or activity [King, Hickman and Berg 1977:231].

A Historic Resource Study of the Preserve area (Grauman 1977) identified eleven broad categories, in this case termed "frontiers", for historical research in the Preserve: the Indian Frontier, the English and Russian Frontier, the Trading Frontier, the Early Mining Frontier, the Klondike Gold Rush Frontier, The Military Frontier, The Missionary and Settlement Frontier, The

Water-Travel Transportation Frontier, The Land-Travel Transportation Frontier, The Twentieth-Century Mining Frontier, and The Twentieth-Century Trapping Frontier.

Sites that illustrate each of these frontiers were recorded during the study, some on the basis of field observation, most on the basis of written records or reported information. The earliest known historic sites represent the late period Athapaskan native habitation of the Preserve. Without excavation it is often impossible to determine whether or not a native or Athapaskan component dates to a prehistoric or early historic (often termed protohistoric) time period. These sites are usually identified by the presence of items of native manufacture, most notably a lithic (stone) tool technology, and may or may not also include items of non-native manufacture.

The Historic Resource study identified several native sites within the Preserve, representing a variety of subsistence and cultural activities associated with the traditional Han way of life, including fishing camps, hunting camps, caribou fences, settlements of various sizes, caches and burials. The present site of Eagle Village is recognized as the location of the ethnographically recorded settlement of Johnny's Village (Klat-ol-klin) and present information indicates that much of the town of Eagle is superimposed on one or more native sites, including EAG-077 at the Preserve headquarters (Andrews 1987; Grauman 1977;

Sackett 1977; Yarborough 1987).

The single largest category of sites identified by the Historic Resource Study consists of sites either directly or indirectly related to mining activity by Euroamericans from the late 1800s (the Klondike gold rush) to recent times. In many ways mining opened up the Alaskan Yukon for later exploration, as many of the early communities were settled by prospectors who stayed on in the region and subsequently created the need for goods and services. Grauman cautions however, against overemphasizing the role that the gold-rush played in the local history:

> The historical significance of the Yukon-Charley area derives not from a single nationally significant site but from a whole spectrum of sites expressive of several broad historical themes. The upper Yukon represents a great chunk of Alaskan and American history that the historical narrative treated in the light of national, state, and local themes. It belies the common assumption that the Yukon is important only as part of the gold-rush story. Other themes---the fur trade, English-Russian-American relations, aboriginal use and lifestyles, the rise and development of towns, border amicability with Canada, twentieth-century mining and trapping, and international activities such as the telegraph, trails, steamboats, and mail delivery---historians have largely ignored [Grauman 1977:234].

For detailed information concerning individual historic resources identified as part of the Historic Resources Study, consult Grauman (1977).

Perhaps the best documented historic resources in the area lie just outside the Preserve, within Fort Egbert and the Eagle Historic District. Extensive historic and archeological research

conducted within and beyond the fort core area (Shinkwin et al. 1978) has yielded considerable detail concerning a decade of military occupations. The fort was active between 1899 and 1911 and was originally comprised of 45 buildings. Only five of the original structures remained on the grounds by the time the investigation was conducted, and only four of those five were found in their original locations. Varying degrees of evidence were also found of the roads, fences, boardwalks, refuse areas, and other structures and features that made up the fort. Several sites that were related to fort operations were located outside the core fort area, including roads and resource use areas such as timber cutting areas. In the more outlying areas, several sites were located that were not directly associated with the fort, including a mining claim and cabin remains, and also trapline trails, a moose fence, and birch bark collection areas that were associated with traditional Han subsistence activities.

A number of the structures eventually underwent stabilization by the fort's managing agency, the Bureau of Land Management, and subsequently were the focus of archeological excavation. Both the quartermaster's stables and the courthouse were found to have prehistoric or protohistoric Athapaskan components (Shinkwin et al. 1978). The excavation of the courthouse (EAG-027) was detailed in a separate report (Sackett 1977). In the same vicinity, a more recent archeological excavation was conducted at the site of the new United States Post Office in Eagle (EAG-202),

also located within the Eagle Historical District. The site yielded protohistoric or prehistoric Athapaskan material in addition to an historic component (Yarborough 1987). The previously discussed Nibaww Zhoh site, located along the Yukon River between Eagle and Eagle Village, is another important historic resource associated with the Eagle Historical District. The site is particularly significant in that it offers archeologically recovered detail about the traditional Han lifestyle not available in most prehistoric settings, which are often far from complete. While the focus of only a preliminary excavation, the site has been attributed to a wintertime occupation with multiple skin structures. The time period given for occupation, based on the artifacts recovered, is during the earliest stages of European contact, in the late 1800s (Andrews 1987).

While the Fort Egbert investigation included an archeological field survey intended to locate historic and prehistoric sites, observations were limited to surface evident material. The survey was successful in locating historic material and also documented several lithic scatters on the surface and in the eroding bluff edge along the river (Shinkwin et al. 1978:239). The lack of subsurface examination however, very likely prevented the discovery of additional, buried archeological deposits. For detailed discussion of the individual sites associated with Fort Egbert and the Eagle Historical District see Shinkwin et al.

(1978), Andrews (1987), Sackett (1977), and Yarborough (1987).

Many of the most recently documented historic sites in the Preserve have been located as part of the National Park Service's Cultural Resource Mining Inventory program. During 1986, over 40 historic mining sites were recorded in the Preserve. These sites range from isolated finds, such as single tools or refuse, to ruins of cabins, homesteads and roadhouses, complex mining camps, sophisticated hydraulic systems, extensive tailings and machinery. Evaluation of these sites to determine National Register eligibility is ongoing, and will eventually be presented in a National Park Service publication. Site files are maintained at the National Park Service Alaska Regional Office in Anchorage and at Preserve Headquarters in Eagle.

Additional information on specific historic sites is included in files maintained by the Branch of Compliance, Cultural Resource Division of the National Park Service, Alaska Regional Office. These files contain information collected from sites that may be subject to some type of planned impact.

Prehistoric Archeological Resources

Presently there are 89 recorded prehistoric sites within the Preserve. Included in this total is CHR-074, a site located on

the Preserve boundary in upper Birch Creek. Not included in this total, but referenced in the summary table of site information, are CHR-071 and CHR-072, the sites at the Preserve headquarters. Recorded sites are sites for which detailed information has been formally recorded by professionals on the exact location and the nature of the cultural material. All recorded sites have been assigned numbers from the Alaska Heritage Resource Survey (AHRS) numbering system, administered by the Division of Parks and Outdoor Recreation, Office of History and Archeology, Alaska Department of Natural Resources.

In addition to recorded resources, there are numerous other known prehistoric resources that have yet to be precisely recorded and documented, including four apparently intensively utilized archeological "zones" that have been reported in the upper Charley River drainage, and approximately 22 lithic tool sites in the Diamond Fork/Upper Seventymile drainage area. The documentation that exists for these sites ranges from notes on fortuitous discoveries made by Preserve staff members, archeologists and other researchers to more casual observations made by the diverse users of Preserve lands. In the absence of detailed observations and consistent locational information however, it is possible that some of these reported resources are redundant. This is particularly likely for several of the sites identified in the Diamond Fork/upper Seventymile drainage, as subsequent surveys have revealed a high density of sites in a

restricted area.

While informally recorded resources can be a very valuable source of information, particularly in directing archeologists to high potential areas, they also present a number of problems in determining the nature of the complete archeological record for the Preserve, as in most cases only a very general locational reference is reported and descriptions of observed material often lack the types of information that enable the archeologist to categorize or interpret a site. Some of the types of information likely to be excluded in an incomplete site observation include exact location, topographic setting, presence of diagnostic artifacts or the recognition of the full range of artifacts present at the site, type of deposit (surface and/or subsurface, lithic deposit), the range of features, and site dimensions. Misinterpretations can also easily result from inconsistent use of terms that have very specific meanings to archeologists, for example, scraper, blade or knife.

For the purpose of this document, we will distinguish between recorded and unrecorded or incompletely recorded sites. Incompletely recorded resources have been included where possible, depending upon the level of available information, but the aforementioned limitations should be kept in mind. As more complete documentation is made, probably the most significant corrections will pertain to more consistent application of terms

like "site" and "zone". It is very likely that some of the larger use areas that have been identified, as in the Crescent Creek area for example, will eventually be further broken down into a number of distinct sites after careful analysis of the spatial distribution of artifacts.

Site Types

Before continuing this discussion of the prehistoric resources in the Preserve, it is necessary to define the terms by which the resources will be categorized. Archeological sites may be described and classified according to many different variables. For example, a single archeological site could be representative of:

> a specific time period as indicated by direct evidence (perhaps diagnostic artifacts types or radiocarbon dates) recovered during excavation,
>
> a specialized function as indicated by the location of the site in proximity to a particular resource and the presence of direct evidence (perhaps mammal bone and/or functionally diagnostic artifacts and features) recovered during excavation,
>
> a particular morphological or descriptive site type (subsurface lithic deposit for example) on the basis of information apparent from minimal inspection of the site.

In fortunate circumstances, the archeologist is able to make use of all three types of information. At the reconnaissance or preliminary survey level however, direct evidence may not be

recovered and observations may be limited to just the third category, limiting meaningful interpretation. The two most common ways in which archeologists categorize sites is according to their known or suspected use (functional site types) or according to the observable, physical characteristics of the cultural deposit (descriptive site types). Examples of functional site types include terms like temporary camp, overlook, and winter settlement. These terms imply that the archeologist has found evidence that has permitted reconstruction of the activities that took place at the site. Descriptive site types, on the other hand, must often suffice when adequate evidence is not available to suggest site activities, either due to an absence of diagnostic materials in the cultural deposit or limited data recovery at the site. Examples of descriptive site types include terms like surface lithic deposit, midden, and subsurface lithic deposit. Both categories of site types were used in compiling the table of known archeological resources in the Preserve (Table 5), depending on the nature of the information recovered from the site. Where possible, the basis upon which functional site types have been assigned will be indicated.

For the majority of the archeological resources located within the Preserve, very little information is known, placing considerable limitation on the use of a functional site typology. Presently the body of data is based on preliminary surveys with

subsurface observations limited to the minimum number of small, shovel test holes necessary to verify the presence of a site or restricted (in terms of number and size) testing designed to record information useful in planning future stages of research without excessive impact to the site. With the exception of the archeological excavations at Nibaaw Zhoo and around Fort Egbert just outside of the Preserve, excavations within the Preserve have been restricted to testing associated with surveys and a number of also limited, systematic testing programs conducted in anticipation of proposed impacts. Such excavations can not provide the type of complete, detailed information that is recovered during systematic, comprehensive excavations.

Not only have excavations or more data recovery oriented types of research been lacking, but many of the sites located within the Preserve pose particular problems in recovering such data. This is particularly true of most of the surface lithic deposits that occur in deflated upland areas and are not well suited to excavation. These sites constitute a substantial proportion of the known sites in the Preserve about which little is known. While these sites cannot provide the archeologist with the stratified context, organic and/or faunal materials, and identifiable features that stratified sites possess, in some cases other types of information can be used to suggest site function. Certain lithic tool types, for example, are considered diagnostic, or indicative, of specific functions. For example, a

particular type of crude scraping implement made from cobble spalls and known as tchi thos are thought to have been used by Athapaskans for skin or hide scraping. Their occurrence at a site can be used to infer both period of occupation and at least one function that occurred at the site. Site location can also be an indication of site function, in terms of proximity to a given resource (caribou migration route or a good fishing locale).

In terms defined in one proposed system for interpreting subsistence strategies (Binford 1980), the ethnographically recorded Han subsistence pattern may best be described as representative of the "collector" end of a forager-collector continuum. The collector strategy is characterized by the storage of food resources for at least part of the year and by "logistically organized food-procurement parties." Collectors operate from residential bases and pursue specific resources in task groups that could generate five types of archeological sites, although overlapping functions could also occur;

> Residential Bases: The hub of subsistence activities, the locus out of which foraging parties originate and where most processing, manufacturing, and maintenance activities take place. These sites are often referred to as village locations.
>
> Locations: A place where extractive tasks are carried out. Often low bulk procurement sites used during short occupations. The lack of intensity at the location results in the use or abandonment of few tools. Examples of locations could include berrying or hunting locations.
>
> Field Camps: A temporary operational center for a task

group...the place where a task group sleeps, eats and otherwise maintains itself while away from the residential base.

Stations: Sites where special purpose task groups congregate when engaged in information gathering, for instance, for the observation of game movement. These sites are often termed overlooks and lookouts.

Caches: The site of a temporary storage phase in the subsistence strategy, made necessary by the successful procurement of large quantities of food by a small group [Binford 1980].

Other researchers have pointed out that population size influences the viability of the collector subsistence strategy, in that smaller populations may not have sufficient numbers to launch specialized task groups (Warren et al. 1986:24). Thus collecting undertaken by family-sized units would likely have ruled out some highly specialized subsistence activities, except as communal activities undertaken by temporarily combined groups. For the Han as well as many other Northern Athapaskan groups, this distinction may have been most apparent seasonally, with communally organized activities, such as fishing, fish processing and hunting with the aid of caribou fences, taking place during the summer and early fall.

While the above noted continuum is almost certainly relevant to the subsistence system used by the Han, incompleteness of the site data for the Preserve area does not easily permit the archeological distinctions necessary to employ the above terms. The greatest difficulty occurs in attempting to place minimal

surface lithic scatters into either the station, field camp or location category. In most cases, surface or very shallow sites lack the type of cultural deposit that can yield identifiable features, fire hearths for example, that might indicate a field camp. Similarly, a fairly complex, multi-function site for which a complete inventory of tools has yet to be made could easily be misinterpreted as a single-use or single function locality.

Working from the known sites in the Preserve and the information that has been extracted from them, a set of prehistoric site types has been assembled that attempts to address proposed site use or function without reaching beyond the limited nature of the Yukon-Charley database (Figure 1). The categories attempt to incorporate the site types employed by previous researchers in the Preserve and region with general observations about the local settlement and subsistence patterns. It is important to recognize that the categories are not mutually exclusive and that any location could retain evidence of numerous, functionally distinct activities.

> Campsite: Campsites represent temporary or seasonal habitations, usually resulting from one or more subsistence tasks. Physical evidence includes some sign of habitation, usually a hearth feature represented by fire-cracked rock, charcoal, ash, or fired earth, or a discrete lithic concentration. Campsites are indicated by artifacts and or features can that result from the multi-faceted activities associated with human habitation, which could include cooking, eating, sleeping, several elements of tool use and manufacture, as well as a broad possible range of resource procurement tasks. Campsites are considered somewhat more diffuse than settlements, reflecting shorter term and/or less intensive use. It is presumed that the selection of a

campsite would reflect the specific subsistence task or tasks being undertaken and thus would differ from season to season (caribou hunting campsites would be located in different areas than bird hunting campsites).

Lookout: Also referred to as overlooks. Lookouts are thought to represent locations selected for their observation potential, presumably for hunting. Many lookouts may actually be a specialized type of campsite. Others that lack evidence of habitation may have been employed on a very transitory, single-purpose basis that resulted in the accumulation of very little physical evidence, such as very diffuse lithic scatters or isolates. As presently known, these sites demonstrate a strong tendency to occur on high bluffs and in the upland, knoll-top or ridge-top areas in the Preserve that afford unobstructed views of valleys, alluvial plains and other animal migration routes.

Quarries: Quarries represent specialized locales for the collection of raw materials for lithic tools and, in some cases, on-site preliminary reduction and manufacture of lithic tools. Quarries can also be specialized campsites. Within the preserve, known quarries are often associated with exposed outcrops of cryptocrystalline materials and/or areas in which bedrock occurs at or near the surface. For this reason quarries have a strong correlation with surface evident lithic sites in upland areas. Physical evidence could consist of any or all of the full range of lithic reduction processes, including nodules, cores and core preforms, primary flakes, secondary flakes, whole and broken tools. Difficulties in determining that an outcrop has been used for lithic procurement often stem from the fact that many cryptocrystalline materials exhibit natural breaks or fractures that are very similar to man-made fractures.

Settlements: Settlements are sites that provide conclusive evidence of repeated and intensive habitation, as indicated by house depressions, living floors, hearth features (fire broken rock, ash, charcoal, fired earth) possibly structural remains, and a range of artifactual materials consistent with the multiple activities derived from human habitation. Settlements can vary with respect to size, ranging from the large, multi-family, ethnographically recorded Han villages to much smaller, winter settlements. Known or suspected settlements are rare for any time period within the Preserve. In other areas, Athapaskan settlements often occur along major river terraces. Burials and caches may also be associated with settlements.

Cave/Rockshelter: Given the relative uniqueness of these landform types within the Preserve and their well documented

appeal for diverse uses in other regions (including both temporary and long term habitation, burials, storage and specific resource activities) caves and rockshelters are often carefully examined for signs of human utilization. In cases where direct evidence of use is lacking, associations with adjacent cultural material are also often considered. Physical evidence indicating use of a cave or rockshelter would be expected to vary according to the range of specific activities conducted there. Within the Preserve, most of the known rockshelters occur in high upland areas characterized by rocky outcrops and exposed surface bedrock. Many of these outcrops are thought to have been used, at least casually, as procurement sites (quarries) for lithic materials.

Burials: Burials include any evidence of human remains or interment. For the Han, cremation was the most common burial practice. Cremated remains were collected and placed in some type of container. Other practices included internment on platforms in trees, or perhaps in a canoe. Often artifactual materials, such as beads, are associated with human remains.

Isolated Finds: This category is not actually a functional type, but rather identifies an artifact that has been located with no observable context or associated material. Examples often include surface lithic items. These finds are recorded as sites with the assumption that later research may reveal additional, associated cultural material or provide a context for interpretation. Only rarely can some type of functional interpretation be extracted from an isolated artifact.

In addition to functional classifications, the sites within the Preserve have also been categorized according to purely descriptive characteristics that address the inherent physical characteristics of the cultural deposit. These descriptive site types have also been included in the table summarizing known sites in the Preserve (Table 2). Where site data have proved insufficient to make functional associations, only the descriptive categories have been noted, with the assumption that

Table 1. Functional Site Types Within the Preserve

Inferred Function	#	%
Campsite	50	56
Lookouts	24	27
Quarries	2	2
Settlements	2	2
Cave/Rockshelter	2	2
Burials	1	1
Isolated Finds	8	9
Totals	89	99

they will be modified or updated as more information becomes available. The range of descriptive site types that have been identified for prehistoric sites in the Preserve include:

Surface Lithic Deposit: A site with no known subsurface element characterized by lithic artifacts that are apparent from ground observation. These sites are often found in upland, wind deflated areas that are characterized by minimal soil development.

Subsurface Lithic Deposit: A buried lithic deposit that is not apparent from ground observation. These sites often occur on terrace or areas that have developed soil profiles. Lithic artifacts are detected through shovel testing, augering, or observing available subsurface exposures, including cutbanks, bear scrapes, and other types of erosional features.

Surface/Subsurface Lithic Deposit: A combination of the two preceding site types, indicated by lithic material on the surface and also below surface. These sites are also often associated with terraces or areas that have at least minimal soil development. There may be no direct association, either functionally or temporally, between the surface material and the subsurface material.

Subsurface Deposit: This term is used to describe a cultural deposit that is not limited to flaked lithic material. These sites might include bone (whole, crushed or burned) or other faunal materials, ocher, fire cracked rock,

or hearth activity.

Surface Isolate: An isolated find (see above) located on the surface.

Subsurface Isolate: An isolated find (see above) recovered through subsurface testing or an erosional feature.

Interpreting the Database

The following sections will discuss the known prehistoric archeological sites in the Preserve in terms of the information they can lend to our understanding of prehistoric culture. Before attempting such a discussion however, it is necessary to give some discussion to the limitations of the archeological database.

As has been previously noted, archeological research conducted within the Preserve have been limited to preliminary surveys that include some testing. Archeological surveys can be divided into several different types based on variations in objectives, coverage, and strategies. All of the surveys that have been conducted in the Preserve can be categorized as reconnaissance level, meaning that the investigation was limited in terms of areal coverage and was intended as an initial attempt at recovering information about the study area. These constraints are particularly important given the size and diversity of the study area, and the proportionately small sample that has been

Table 2. Descriptive Site Types Within the Preserve

Site Type	#	%
Surface Lithic Deposit	39	44
Subsurface Lithic Deposit	18	20
Surface/Subsurface Lithic Deposit	8	9
Subsurface Deposit	16	18
Surface Isolate	5	6
Subsurface Isolate	3	3
Totals	89	100

explored. Perhaps the single most important factor in discussing survey coverage involves the forms of bias a survey can impart to the archeological record. During the course of planning and implementing a survey, a researcher must make decisions as to where to focus, what types of information to record and how to record it. Each of these decisions favors some types of information at the expense of others. Often, a reconnaissance level survey is geared toward the recovery of the most basic types of information from an unknown area, usually to facilitate planning needs. At this level the stated primary objective may be to inventory, or obtain an idea of the number of sites and type of cultural material in a particular area, under the assumption that more detailed or comprehensive research will follow. By itself however, an inventory of sites is of limited value in interpreting past culture in much the same way a single artifact examined out of context loses its interpretive value.

In addition to simple inventory, more comprehensive surveys also allow the archeologist to formulate ideas about where the sites are located and what types of behavior they represent.

At the practical level, it is impossible for a study area the size of the Preserve to be completely surveyed. That means that some areas will be investigated to the exclusion of others. The factors that influence which areas will be selected or excluded are an important source of bias in an archeological survey, for it is necessary to investigate each of the areas used by a group of people if we are to compile an accurate impression of their way of life.

At a very basic level, limitations of access biases most surveys before they start. Terrain that cannot reasonably be reached or expediently examined is often eliminated from the survey universe, thus excluding sites associated with those areas from the archeological record. Survey area selection is also often biased in favor of areas shown by previous research to be high potential or have a high probability of containing resources. In this sense high probability can actually be a reflection of a variety of factors, including the presence of conditions favorable for site preservation and site detection, a high correlation with the known (ethnographically recorded) site pattern, as well as the actual intensive utilization of a particular area. Obviously if only areas we know are likely to

yield sites are investigated, we close the door to all of the unknown and unproven areas.

The complete sampling of all of an area's microenvironments becomes even more important when studying populations like the Han, known to have exploited diverse resources and microenvironments, some quite far removed from each other, in a seasonally mobile subsistence pattern. One researcher, commenting on the southern Northwest Coast culture area, has concisely summarized the significance of ensuring the complete sampling of microenvironments:

> The efficient system of environmental exploitation demanded the regular seasonal movement of families from site to site over a fairly wide area...the archeological implications, even on this synchronic level are enormous. First of all, since different kinds of activities were carried out at each site, within a period of weeks the same individuals could be expected to leave quite distinctive archeological traces at sites miles removed from each other. The corollary to this is that no one site may be expected to reflect the total culture of any group [Abbott 1971:103].

Thus, the best insurance a researcher can have against basing interpretations on biased samples of site types is to insure proportionate survey coverage of the greatest possible variety of microenvironments found in the study area.

The review of previous archeological surveys that have been conducted in the Preserve indicates that each had differing environmental focuses with some overlap. Areas that have

received coverage include the main Yukon River Corridor and major drainages (Alldritt 1985; Hall 1976; Reynolds and Jordan 1983; West 1965), the mid-to-lower Charley River (Hall 1976; Reynolds and Jordan 1983), the upper Seventymile (Alldritt 1985), the Copper Creek drainage (Bowers and Hoch 1978), and the mid-to-lower regions of several minor drainages impacted by mining activity (NPS Cultural Resource Mining Inventory Program site files, Alaska Regional Office). In general terms, these investigations included either intermittent coverage of the main Yukon River Corridor, including confluences with major tributaries, or upland areas characterized by alpine tundra in the Upper Charley and Upper Seventymile drainages. The result of this pattern of survey coverage is apparent on maps showing the location of sites in the Preserve. For example, at present, the Diamond Fork/Upper Seventymile River and the nearby Copper Creek drainage appear to represent areas of high site density. Forty-seven of the 89 prehistoric sites recorded in the Preserve, as well as numerous unrecorded sites, are clustered in these two areas alone, creating an impression of unusually high utilization when compared with adjacent, unsurveyed drainages and other environmental zones. Virtually all of the remaining sites, an additional 39, are recorded along the Yukon River Corridor, another area that has received focused survey efforts from multiple researchers.

While these areas do show evidence of siginificant utilization,

it must be kept in mind that they have also received focused survey efforts that other areas have not. These numbers give an impression of an extremely bimodal pattern of site distribution for the Preserve that may eventually be disproved by investigation of a broader range of microenvironments.

For the most part, research in the Preserve has not progressed to the point where cultural reconstruction can be attempted. Basic paleoenvironmental data are lacking for most of the region and many fundamental research needs, such as the dating and cultural affiliation of sites to regional chronologies, cannot be established with existing data. Most known sites have either been only minimally investigated with no determinations made concerning site function or time period. In addition, many of these, particularly the surface lithic deposits and isolates, are inherently not well suited to the recovery of detail at the reconnaissance level of investigation.

For many archeological sites in the Preserve, our knowledge is limited to site location. In an ideal situation, considerable information can be derived from an analysis of the spatial distribution of archeological sites within a region. Even without other types of data, the simple plotting of site locations can illustrate patterns in human land use. When used in combination with detailed information from each site location, archeologists can often use site distributions to reconstruct

many elements of past culture, including the ways in which human populations and their land use practices related to natural environments. Perhaps the optimal situation is one in which detailed background research and intensive survey coverage has already been obtained, making it possible for researchers to generate site distribution models that in turn enable correlations between geographic setting and particular site types to be made.

One type of background research crucial to archeological interpretation is detailed paleoenvironmental reconstruction. It is virtually impossible to interpret changes in prehistoric culture without some understanding of changes that occurred through time in the environmental landscape. Such data not only allow the researcher to hypothesize site function, but also make it possible to isolate particular areas or landforms that would have been important to people of a given time period.

Obviously paleoenvironmental reconstruction is not a critical factor in interpreting late period sites that can be discussed in terms of the modern environment. As long as modern environments can be shown to have remained constant it is possible to project known cultural patterns back into time. For example, because observations indicate that many late period Athapaskan groups were dependent on salmon, it is possible to suggest that sites located at desirable fishing locales were related to fishing and

proceed to systematically look for supporting evidence. Farther back in time, however, such associations become more dependent on environmental reconstruction and attempts to work without accurate perceptions of local paleoenvironments forces the archeologist to work from broad generalizations. For example, while we know that during the postglacial warming trend Pleistocene grasslands were replaced by interior spruce forests, local variations in forest cover would certainly have occurred on a scale sufficient to influence prehistoric land use. Thus, we can hypothesize that changes in the environment necessitated a shift to a forest-adapted subsistence strategy and we can also hypothesize that strategy would have involved the pursuit of forest-related resources like caribou, moose, bison, but we cannot pinpoint particular areas that would have been related to specific subsistence activities.

In the absence of a solid paleoenvironmental database, potential for interpreting the function of a particular site or the reason for its location is very limited. In these cases, observations concerning distributions of sites may be limited to associations between known sites and the modern day microenvironments in which they presently occur, not necessarily the settings in which they were formed. While such observations do not explain site function they can provide a useful basis for ordering site data.

These associations are not always easy to extract from the

archeological record, however. Within the Preserve these efforts are hampered by the difficulty of applying environmental observations that differ according to project objectives and the type and level of detail sought. Difficulties also occur in attempting to delineate microenvironmental zones with the existing, generalized regional ecosystem maps. For example, one researcher might describe a site as being associated with a knoll above the Seventymile River. Another researcher describing the same site could discuss the site as occurring on a kame terrace. Still another could define the site's location in relation to the most prominent surrounding topographic feature, perhaps as part of a moraine system. In actuality, all three associations are correct, depending on which level of observation is used. These distinctions become particularly important in trying to compare sites on the basis of information extracted from USGS topographic maps. Because the scale of topographic map that is available for most of the State of Alaska (1:63,360) has contour intervals of one hundred feet, many secondary or minor landforms cannot be detected. Similar problems accompany attempts to assign sites to vegetation microenvironments, although these problems may be solved when the Geographic Information System (GIS) is eventually implemented in the Preserve. The very detailed environmental data that the GIS provides will be of tremendous value in accurately recording and plotting archeological resources.

In summary, there are several factors that inhibit discussion of

the individual archeological resources that will follow. The most significant of these include the proportionately small and uneven sample of the Preserve that has been investigated, the lack of supporting, interdisciplinary background data such as localized paleoenvironmental data, the lack of chronological and functional data for the known sites, and the difficulties in comparing results from the different surveys that have been conducted. Each of these factors should be kept in mind in the following section. Several will receive further discussion in subsequent sections dealing with future research goals and recommendations.

Site Discussion

With respect to prehistoric habitation, possibly the two most significant geographic attributes of the Preserve are the presence of the Yukon River and the absence of an extensive Wisconsin glaciation. The importance of the Yukon stems from its role as a migration route, leading populations from Beringia into the Interior. The lack of glaciation would have provided favorable living conditions would have been provided for early occupants. Given these considerations, it is possible that archeological resources in the Preserve will eventually provide evidence of the very earliest inhabitants of the New World. At present however, due to the limitations already discussed, the

known archeological resources in the Preserve will be compared and contrasted with respect to three very general types of associations: vegetational setting, landform association, and temporal associations.

Vegetational Setting

As noted in previous discussions, the Preserve provides several vegetational ecosystems that would have been important to the prehistoric economy (Figure 4, Table 3). Assignment of sites to particular ecosystems has been made on the basis of recorded field observations. The plant community designations used correspond to those commonly used in the region (Joint Federal and State Land Use Planning Commission 1973) and have been defined in a preceding section of the overview.

Table 3 clearly suggests a bimodal frequency in terms of site distribution, with Lowland Spruce and Alpine Tundra accounting

for 72 of the 89 sites. The large number of sites attriibuted to the Lowland SPruce ecosystem is particularly notable, in that it appears (on ecosystem maps) as a proportionately minor component within the Preserve, restricted to the Yukon alluvial plain, downstream from Woodchopper Creek.

Table 3. Site Location with Respect to Ecosystem

Ecosystem	#	%
Lowland Spruce/Hardwood Forest	36	40
Upland Spruce/Hardwood Forest	12	13
Bottomland Spruce/Poplar Forest	5	6
Low Brush Bog/Muskeg	0	0
Alpine Tundra	36	41
Total	89	100

This distribution pattern is more apparent than real, reflecting inconsistencies in both the currently available ecosystem maps and the field observations recorded on the site forms. It appears that field observers have not consistently made distinctions between the three types of spruce forests that make up the Preserve; Bottomland Spruce/Poplar Forest, Lowland Spruce/Hardwood Forest and Upland Spruce/Hardwood Forest. The result is a kind of composite spruce/deciduous forest association that varies in terms of the individual, on-site vegetational pattern. This association presently accounts for 59 percent of the total recorded sites within the Preserve. The other well represented category, Alpine Tundra, is less difficult to differentiate and thus may more accurately correlate with site distribution. Presently the remaining 41 percent of the sites within the Preserve are associated with Alpine Tundra ecosystems.

Landform Associations

A review of geographic settings of known sites reveals a somewhat more diverse pattern of associations, although data reflecting inconsistencies similar to those pertaining to vegetational associations have also hampered interpretation. Most commonly, archeological site forms isolate the most specific, localized landform on which a site occurs. In many cases these landforms are actually secondary features that, in turn, occupy larger, primary landforms. Examples of secondary landforms that have consistently been identified within the Preserve include knolls, bluffs, ridges, cirque lakes and kettle lakes. For known sites within the Preserve, these secondary landforms are commonly associated with different types of terraces, using the term in the very broadest sense to mean a level or somewhat level surface that forms a break in a slope, as with a stepped side-slope.

The terrace category can further be broken down into either river terraces, formed by alluvial processes, or terraces of glacial origin. Both of these can result from either erosion or deposition of material. On the basis of presently recorded information, broadly categorizing sites according to these two types of terraces appears to represent the best, most reliable basis for comparison. Careful examination of site files and maps does not permit precise application of any of the secondary landform categories, because in most cases, multiple landforms

overlap.

Perhaps the most complex examples of overlapping landforms occur in several of the upland areas, where sites occur on moraine features in the upper reaches of several glacial valleys, many of which contain cirque lakes and/or kettle lakes and ponds. One such moraine feature in the Upper Diamond Fork of the Seventymile drainage was found to contain eight sites, many of which were associated with smaller knolls, kames, and kettle ponds that were distributed across the moraine's surface. A similar setting and site distribution pattern occurs in the Copper Creek drainage, where eight sites and an isolated artifact were recorded on another moraine, with the sites keyed to several kettle lakes and minor knolls. In summary, given the present level of information, attempts to classify sites on the basis of mutually exclusive landform categories would be misleading and would not benefit those either planning future surveys or interpreting the resources that have already been identified.

In planning future surveys, it is important to note that differences in depositional processes that form terraces definitely influence the type of archeological remains that will be recovered from them. River terraces, characterized by varying thicknesses of alluvium, provide a different site formation/preservation environment than a terrace characterized by exposed bedrock that has been carved from the hillside of an

alpine valley. This dichotomy is particularly apparent when sites located on alluvial terraces, found primarily along the Yukon and lower Yukon tributaries, are compared with the sites located in upland areas. Of the 42 sites located on alluvial terraces, 24 (57 percent) have buried components. In most cases, these sites would not have been located without subsurface testing. In upland areas however, 42 of the 47 sites (89 percent) were surface cultural deposits occurring in areas with minimal soil development and, in many cases, a high rate of wind erosion.

Temporal Associations

As previously discussed, a relatively small number of artifacts has been recovered from the archeological sites in the Preserve. An even smaller number of these artifacts possess attributes that suggest chronological affiliations for the sites from which they were recovered. It is important to keep in mind that in most of these cases, the context for interpretation is very limited and that evidence should be considered suggestive rather than conclusive.

CHR-010: A small, randomly-flaked chert projectile point (UA82-112-1), was found in slumped bank sediments. The point is similar to those known as Stott points, known from the southwest

Yukon Territory. Stott projectile points date to 1,600 BP (Reynolds and Jordan 1983:97).

CHR-015: An isolated lanceolate projectile point base (UA82-30-1) was collected from the surface of a creek terrace adjacent to the Yukon River. Based on general similarities, the point may tentatively correlate with the Taye Lake phase of the southwest Yukon, early in the Christian era (Reynolds and Jordan 1983:45).

CHR-016: Subsurface testing at the site, located across the Yukon River from Nation Reef, revealed a shallow, subsurface cultural deposit that included large mammal bones, two ground scrapers, a possible hammerstone and one white trade bead. An iron Hudson's Bay-type axe head (YUCH-55) was collected from the base of a slope at the edge of the site (NPS site files, Alaska Regional Office). The presence of the axe head, if determined to have eroded from the site, and the bead suggest that a portion of the site post-date Euroamerican contact.

CHR-028: The site is located on a high terrace above the north bank of the Yukon River. Materials recovered from the shallow deposit include biface fragments, scrapers, a graver, a large number of flakes, and two microblades (NPS site files, Alaska Regional Office). While most of the artifacts are non-diagnostic, the microblades demonstrate the presence of a core and blade technology.

CHR-060: The site consists of a 2.4 x 3.3 meter rectangular depression in the ground surface that contained human remains, a number of glass trade beads and one small chert flake. The beads suggest Euroamerican contact (Reynolds and Jordan 1983).

CHR-074: This site is located immediately outside the Preserve boundaries, in the headwaters of the South Fork of Birch Creek (NPS site files, Alaska Regional Office). Cultural material observed includes the basal portion of a side-notched projectile point (Figure 8), microblades, broad bifaces (Figure 9), blade-like flakes (Figure 7), and a projectile point with a "fish-tail" shaped base (Figure 8). The side-notched projectile point suggests a Northern Archaic occupation, while the microblade could represent an early core and blade industry. Projectile points similar to the "fish-tail" shaped example have been recovered from Level 1 at Healy Lake where they were assumed to have functioned as lance or spear points (Cook 1969:166-167, 345, 353). Level 1 was dated to 900 BP (Cook 1969:245).

CHR-077: This site is an extensive surface lithic deposit that occupies the eastern end of a high, prominent east/west-trending ridge above the upper Seventymile River. Since the site was initially recorded, several visits to the ridge by archeologists and Preserve staff have revealed that perhaps as much as two and one-half miles of the crest of the ridge contains clusters of

artifacts. Presently the entire ridge is considered a single site, but further research will be necessary to determine if the site designation should be broken into numerous individual sites. Various observers at the site have noted microblades (Figure 7), amorphous cores, large flaked bifaces (Figure 9), notched projectile points (Figure 8), boulder spall scrapers, a bone flesher, and a full range of flaking debris. One of the cores (YUCH 217) was identified as Campus type, dating to perhaps 12,000 BP (Figure 7). Another core was identified as a tabular Tuktu core, perhaps dating to 6,500 BP (NPS site files, Alaska Regional Office). One observer at the site described the size range of blade-like flakes at the site as bimodal and characteristic of Paleoarctic assemblages in other parts of Alaska. The Tuktu core and side-notched projectile point suggest continued use of the site through the Northern Archaic, a period many researchers feel was characterized by dramatic changes in environment and technology.

EAG-126: The site is an extensive lithic deposit located on a prominent ridge in an upland area of the Preserve. Materials associated with the site include a burin-like implement, a microblade and seven retouched flakes (NPS site files, Alaska Regional Office). Microblades demonstrate the presence of a core and blade technology.

EAG-130: The site consists of a single, heavily patinated

microblade that was collected as an isolated find from a wind deflated surface along a terrace (NPS site files, Alaska Regional Office). Microblades demonstrate the presence of a core and blade technology.

EAG-137: The site consists of a fairly large lithic deposit located on a terrace above Copper Creek. Materials collected from the site include a burinated flake and a flaked cobble (NPS site files, Alaska Regional Office). Burinated flakes such as these have been described as scraping, planing, or whittling tools and appear in a number of artifact assemblages from interior Alaska.

EAG-167: Materials collected from the site include two microblade segments and a microblade core (UA81-146-1). The black chert microblade core is double-ended and wedge shaped (Figure 7). Both microblade segments are of the same material. The small, frontal wedge-shaped core closely resembles Campus or Denali type cores attributed by some researchers to the earliest cultures in the region, dating to 11,000 BP (Reynolds and Jordan 1983).

EAG-172: This site is one of the largest known sites in the Preserve. Multiple site loci have been identified along most of the south-facing edge of Calico Bluff. Materials recovered from the site include hundreds of flakes, a number of bifacially

worked tools, amorphous flake cores, a scraper/core biface (UA82-104-39), and a small biface (UA82-104-29, 30, 37). The latter two cores are similar to those related to the Akmak complex of the Paleoarctic tradition. The investigators at the site caution that due to the lack of a distinct stratigraphic context at the site, the entire assemblage represented at Calico Bluff site could be of almost any age (Reynolds and Jordan 1983:42).

EAG-193: The site consists of a shallow, 4 meter x 2.5 meter depression thought to represent a house floor. Materials recovered in direct association with this feature include flakes, burned bone fragments and between 200 and 300 glass trade beads, some of which were fused by fire. The presence of historic artifacts suggests direct or indirect contact with Euroamericans (Reynolds and Jordan 1983).

While not yet recorded as a site, a native copper projectile point was recovered from the surface of a creek terrace in the upper Charley River drainage basin. The point was associated with an unrecorded concentration of flaked lithic material. Three other unrecorded sites were noted in the same area (Case Incident Record 830032). Copper projectile points are often associated with late period Athapaskan sites, although the antiquity of native copper working has not been determined.

Summary

The preceding discussion has outlined what is presently known of the aboriginal occupation of the Preserve. It is clear that at least two very broad, very different environmental areas, upland/alpine tundra and lowland/spruce forest, were utilized. Portions of the upland areas, in particular, appear to illustrate fairly intensive utilization. In this case intensity could either be a function of repeated occupation of localized areas through time or more condensed, concentrated use of an area for a shorter period of time.

The range of site types that has been shown for the Preserve (Table 1.) will almost certainly be expanded and refined with future research. Campsites (56.8 percent) and lookouts (26.1 percent) are the most commonly occurring types, but this may be a function of the lack of detail for most sites. The recovery of additional information could reveal structures or other features that would suggest less temporary use. As previously noted, these are certainly not mutually exclusive categories. It is also true that for the ethnographically recorded subsistance pattern, the multi-function campsite would have been the most prevalent site type. For each permanant or semi-permanant settlement, numerous different types of subsistence related campsites would be expected.

TABLE 4 SURVEY PROJECT SUMMARY

(* denotes sites from which collections have been made)

Researcher, References	Areas Surveyed/ Dates of Fieldwork	Recorded Sites/ Location of Collection
An Archeological Reconnaissance of the Copper Creek drainage, upper Charley River area, East-Central Alaska (Bowers and Hoch 1978)	Twelve day reconnaissance with testing of Copper Creek, upper Charley River; August-September 1976	EAG-126* Locality A (EAG-127*, EAG-128*, EAG-129, EAG-130*, EAG-131*, EAG-132*, EAG-133*, EAG-134*, EAG-135*, and EAG-137*), (EAG-136 historic site); Collections at UAF Museum, Fairbanks
C.Davis Fieldnotes on file at National Park Service, Alaska Regional Office (NPS Site Files)	Three day reconnaissance of Copper Creek, upper Charley River; July 1981	EAG-159, EAG-160, EAG-161, EAG-162, EAG-163, EAG-164, EAG-165, EAG-166, EAG-167*, EAG-168, EAG-169, EAG-170, EAG-171; Collection at Preserve headquarters
Archeological Reconnaissance of the Yukon-Charley Rivers National Preserve (Reynolds and Jordan 1983)	Six and a half week reconnaissance with testing of the Yukon River corridor and lower Charley River; June-July 1982	CHR-010*, (CHR-011, historic site), CHR-012*, CHR-013*, CHR-014*, CHR-015*, CHR-035*, CHR-036*, CHR-037*, CHR-038*, CHR-039*, CHR-060*, CHR-061*, CHR-062*, EAG-172*, EAG-173, EAG-174*, EAG-175*, EAG-176*, EAG-193*, EAG-194*, EAG-213*; Collections at UAF Museum, Fairbanks

TABLE 4 SURVEY PROJECT SUMMARY, continued

(* denotes sites from which collections have been made)

Researcher, References	Areas Surveyed/ Dates of Fieldwork	Recorded Sites/ Location of Collection
Unpublished manuscript (research design) on file at National Park Service, Alaska Regional Office (Aldritt 1985; (NPS Site Files)	Eleven week reconnaissance with testing of the Yukon River corridor, the lower Tatonduk River, and the upper Seventymile drainage; June-August 1985	CHR-016*, CHR-017*, CHR-018*, CHR-019*, CHR-020, (CHR-021*, historic site), CHR-022*, CHR-023*, CHR-024*, CHR-025*, CHR-026*, CHR-027*, CHR-028*, (CHR-029, historic site), EAG-214*, EAG-215*, EAG-216*, EAG-217*, EAG-218*, EAG-219*, EAG-220*, (EAG-221, historic site), EAG-222*, EAG-223*, EAG-224*, EAG-225*, EAG-226*, EAG-227*, EAG-228*, EAG-229*, EAG-230*, EAG-231*, EAG-232*, EAG-233, (EAG-234, historic site), EAG-235*, EAG-236*, EAG-237*, (EAG-238, historic site), EAG-239, EAG-240, EAG-241*, EAG-242*, EAG-243*, EAG-244*, EAG-245*,; Collections at National Park Service, Alaska Regional Office, Anchorage

TABLE 4 SURVEY PROJECT SUMMARY, continued

(* denotes sites from which collections have been made)

Researcher, References	Areas Surveyed/ Dates of Fieldwork	Recorded Sites/ Location of Collection
Mining and Cultural Resource Inventory Program (NPS Site Files)	Selected drainages; August 1986	CHR-074, CHR-076; No collection
Miscellaneous Compliance Projects (NPS Site Files)	Upper Seventymile; August 1986	CHR-077*; Collection at Preserve Headquarters, Eagle

TABLE 5

SUMMARY OF KNOWN PREHISTORIC SITES

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
CHR-010	CHR-A1	River terrace	Camp (Subsurface deposit)	FCR, red ocher, tool found	Fishing/ hunting	Bottomland spruce
CHR-012	CHR-B3	Bluff	Lookout (Surface lithic deposit)	Lithic debris	Hunting	Upland spruce
CHR-013	CHR-B4	River terrace	Camp (Subsurface deposit)	Hearth/FCR, lithic debris, bone	Fishing/ hunting	Lowland spruce
CHR-014	CHR-B6	River-creek confluence/ ridge	Camp/lookout (Subsurface lithic deposit)	Lithic debris	Fishing/ hunting	Upland spruce
CHR-015	CHR-A1	River-creek confluence	Isolated find (Surface deposit)	Projectile point	Hunting	Lowland spruce
CHR-016	CHR-A2	River terrace	Settlement/camp (Subsurface deposit)	FCR/ash, burned bone, tools found	Fishing/ hunting	Lowland spruce

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
CHR-017	CHR-A1	River terrace	Camp (Subsurface lithic deposit)	FCR	Fishing/ hunting	Lowland spruce
CHR-018	CHR-A1	River terrace/ creek confluence	Camp (Subsurface deposit	FCR/hearth	Fishing/ hunting	Lowland spruce
CHR-019	CHR-B4	Bluff/knoll	Camp (Subsurface deposit)	FCR/charcoal, burned bone	Fishing/ hunting	Lowland spruce
CHR-020	CHR-B3	River terrace	Isolated find (Surface)	Lithic debris	--------	Lowland spruce
CHR-022	CHR-B4	Bluff/knoll	Camp (Subsurface lithic deposit)	Lithic debris, tool found	Fishing/ hunting	Lowland spruce
CHR-023	CHR-A1	River terrace/ slough	Camp (Subsurface deposit)	Lithic debris, faunal remains	Fishing/ hunting	Lowland spruce

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
CHR-024	CHR-A1	Ridge	Camp (Subsurface lithic deposit)	Lithic debris	Fishing/ hunting	Lowland spruce
CHR-025	CHR-A1	Ridge/ river terrace	Camp (Surface lithic deposit)	Lithic debris	Fishing/ hunting	Lowland spruce
CHR-026	CHR-A1	River terrace/ creek confluence	Camp (Surface/ subsurface lithic deposit)	FCR, lithic debris	Fishing/ hunting	Lowland spruce
CHR-027	CHR-A1	Ridge/ river terrace	Camp (Subsurface deposit)	Burned bone, lithic debris, tool found	Fishing/ hunting	Lowland spruce
CHR-028	CHR-C6	Knoll/ river terrace	Camp (Subsurface lithic deposit)	Large lithic concentration tools found	Hunting	Bottomland spruce

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
CHR-035	CHR-A2	Ridge/bluff	Quarry/camp (Subsurface lithic deposit)	Lithic debris, charcoal, tools found	Lithic material source	Lowland spruce
CHR-036	CHR-A2	River terrace	Camp (Subsurface lithic deposit)	Lithic debris	Fishing/ hunting	Lowland spruce
CHR-037	CHR-B4	River terrace	Settlement/camp (Subsurface deposit)	Depression, FCR, charcoal, bone, lithic debris	Fishing/ hunting	Lowland spruce
CHR-038	CHR-B4	River terrace	Isolated find (Subsurface)	Flake	--------	Lowland spruce
CHR-039	CHR-B6	Ridge/ river terrace	Lookout (Subsurface lithic deposit)	Lithic debris	--------	Upland spruce

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIAL AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
CHR-060	CHR-B4	River terrace	Burial (Subsurface)	Depression, lithic debris, human remains, wood, beads	--------	Bottomland spruce
CHR-061	CHR-B4	Ridge/ river terrace	Camp (Subsurface deposit)	Hearth/FCR, bone, lithic debris	Fishing/ hunting	Lowland spruce
CHR-062	CHR-B6	Knoll	Camp (Subsurface lithic deposit)	Lithic debris	Fishing/ hunting	Lowland spruce
CHR-074	CHR-A6	Ridge	Camp (Surface)	Lithic concentration tools found	Hunting	Alpine tundra
CHR-076 **	CHR-B5	Bluff	Lookout (Surface)	Lithic concentration	Hunting	Upland spruce

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGY SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
CHR-077	CHR-A4	Ridge	Camp (Surface deposit)	Lithic concentration tools found	Hunting	Alpine tundra
EAG-005 **	EAG-D1	River terrace	Settlement (Subsurface deposit)	Historic and protohistoric debris	Fishing/ hunting	Bottomland spruce
EAG-027 **	EAG-D1	River terrace	Settlement (Subsurface deposit)	Lithic debris, FCR, bone, tools found, historic debris	Fishing	Bottomland spruce
EAG-070 **	EAG-D1	River terrace	Settlement (Subsurface deposit)	Lithic debris, tools found, fire hearths, bone, historic material	Fishing/ hunting	Bottomland spruce

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-071 **	EAG-D1	River terrace	Settlement (Subsurface deposit)	Lithic debris, two micro-blades	Fishing/ hunting	Bottomland spruce
EAG-072 **	EAG-D1	River terrace/ creek confluence	Settlement (Subsurface deposit)	Lithic debris, fire hearths, postmold, historic material	Fishing/ hunting	Bottomland spruce
EAG-126	EAG-D4	Creek/ridge	Lookout (Surface lithic deposit)	Lithic concentration tools found	Hunting	Alpine tundra
EAG-127	EAG-D4	Kame terrace	Lookout (Subsurface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-128	EAG-D4	Kettle pond	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra

TABLE 5 SUMMARY OF KNOWN ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-129	EAG-D4	Kettle pond/ kame terrace	Lookout (Surface lithic deposit)	Lithic debris	Hunting	Alpine tundra
EAG-130	EAG-D4	Kame terrace	Lookout (Surface lithic deposit)	Lithic concentration tools found	Hunting	Alpine tundra
EAG-131	EAG-D4	Kame terrace	Lookout (Subsurface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-132	EAG-D4	Kettle pond/ kettle terrace	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-133	EAG-D4	Kettle pond/ kettle terrace	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-134	^EAG-D4	Kame terrace/ knoll	Isolated find (Surface)	----------	Hunting	Alpine tundra

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-135	EAG-D4	Creek terrace	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-137	EAG-D5	Creek terrace/ spur	Lookout (Subsurface lithic deposit)	Lithic concentration tools found	Hunting	Upland spruce
EAG-139 **	EAG-D1	River terrace	Settlement (Surface/ Subsurface deposit)	House depressions, lithic debris, historic material, trade beads, tools found	Fishing/ hunting	Bottomland spruce
EAG-145 **	EAG-D1	River terrace	Settlement (Subsurface lithic deposit)	Lithic debris	Fishing/ hunting	Bottomland spruce
EAG-147 **	EAG-D1	River terrace	Settlement (Surface lithic deposit)	Lithic debris	Fishing/ hunting	Bottomland spruce

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-148 **	EAG-D1	River terrace	Settlement (Subsurface deposit)	Core tablet, campus-type core fragment	Fishing/ hunting	Bottomland spruce
EAG-149 **	EAG-D1	River terrace	Settlement (Subsurface lithic deposit)	Lithic debris	Fishing/ hunting	Bottomland spruce
EAG-150 **	EAG-D1	River terrace	Settlement (Subsurface)	Lithic debris	Fishing/ hunting	Bottomland spruce
EAG-159	EAG-D4	Ridge/spur	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Upland spruce
EAG-160	EAG-D4	Kettle pond/ creek terrace	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Upland spruce
EAG-161	EAG-D4	Creek terrace	Isolated find (Surface)	----------	-------	Upland spruce
EAG-162	EAG-D4	Kettle pond/ knoll	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-163	EAG-D4	Creek terrace	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-164	EAG-D4	Knoll	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-165	EAG-D4	Knoll	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-166	EAG-D4	Knoll	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-167	EAG-D4	Creek terrace/ knoll	Lookout (Surface lithic deposit)	Lithic concentration tools found	Hunting	Alpine tundra
EAG-168	EAG-D4	Creek terrace/ knoll	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-169	EAG-D4	Creek terrace	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-170	EAG-D4	Ridge/knoll	Isolated find (Surface)	----------	Hunting	Alpine tundra
EAG-171	EAG-D4	Ridge/knoll	Lookout (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-172	EAG-D1	Bluff/ridge	Lookout (Surface - subsurface deposit)	Lithic debris, FCR, charcoal, tools found	Fishing/ hunting	Lowland spruce
EAG-173	EAG-C1	River terrace	Camp (Subsurface deposit)	FCR, lithic debris	Fishing/ hunting	Lowland spruce
EAG-174	EAG-D1	River terrace/ creek	Camp (Subsurface deposit)	Lithic debris, tools found	Fishing/ hunting	Lowland spruce

TABLE 5 SUMMARY OF KNOWN ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-175	EAG-D1	River terrace	Camp (Subsurface deposit)	FCR/hearth, lithic debris	Fishing/ hunting	Lowland spruce
EAG-176	EAG-D1	River terrace	Camp (Surface deposit)	Lithic debris, tools found	Fishing/ hunting	Lowland spruce
EAG-177 **	EAG-D1	River terrace	Settlement (Surface)	Lithic debris, burned bone	Fishing/ hunting	Bottomland spruce
EAG-193	EAG-D1	River terrace	Settlement (Subsurface deposit)	Depression, FCR, beads, bone, lithic debris, tools found	Fishing/ hunting	Bottomland spruce
EAG-194	EAG-D1	River terrace	Camp (Subsurface deposit)	FCR, charcoal, bone, tools found	Fishing/ hunting	Bottomland spruce

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURES	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-202	EAG-D1	River terrace	Settlement (Subsurface deposit)	Lithic debris, FCR	Fishing/ hunting	Bottomland spruce
EAG-213	EAG-D5	River terrace/ knoll	Camp (Subsurface lithic deposit)	Lithic debris, bone	Fishing/ hunting	Upland spruce
EAG-214	EAG-D1	Bluff/ terrace	Camp (Subsurface lithic deposit)	Depression	Fishing/ hunting	Lowland spruce
EAG-215	EAG-D1	Ridge/slough	Isolated find (Subsurface)	----------	--------	Lowland spruce
EAG-216	EAG-D1	River terrace	Camp (Subsurface deposit)	Hearth	Fishing/ hunting	Lowland spruce
EAG-217	EAG-D1	River terrace	Camp (Subsurface lithic deposit)	Lithic concentration	Fishing/ hunting	Lowland spruce
EAG-218	EAG-D1	Bluff/ridge	Camp (Subsurface lithic deposit)	Lithic concentration	Fishing/ hunting	Lowland spruce

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-219	EAG-D1	River terrace	Camp (Subsurface lithic deposit)	Lithic concentration	Fishing/ hunting	Lowland spruce
EAG-220	EAG-D1	River terrace	Camp (Subsurface lithic deposit)	Lithic concentration	Fishing/ hunting	Lowland spruce
EAG-222	EAG-D4	Knoll/ kame creek	Isolated find (Subsurface)	----------	--------	Alpine tundra
EAG-223	EAG-D4	Knoll/creek confluence	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-224	EAG-D4	Ridge/ kame terrace	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-225	EAG-D4	Knoll/ kame terrace	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-226	EAG-D4	Knoll/ kame terrace	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-227	EAG-D4	Kame terrace	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-228	EAG-D4	Kame terrace	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-229	EAG-D4	Knoll/ kame terrace	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-230	EAG-D4	Kame terrace/ creek confluence	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-231	EAG-D4	Kettle lake/ kame terrace	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-232	EAG-D4	Ridge/ kame terrace	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-233	EAG-D4	Kame terrace	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Alpine tundra
EAG-235	EAG-D4	Knoll/ kame terrace	Camp (Surface/ subsurface lithic deposit)	Lithic concentration	Hunting	Upland spruce
EAG-236	EAG-D4	River terrace	Camp (Surface/ subsurface lithic deposit)	Fire hardened sediment, lithic concentration	Hunting	Upland spruce
EAG-237	EAG-D4	River terrace	Camp (Surface deposit)	Lithic concentration	Hunting	Upland spruce
EAG-239	EAG-D4	River terrace/ talus slope	Quarry/camp (Surface lithic deposit)	Lithic concentration	Lithic material source	Lowland spruce
EAG-240	EAG-D4	River terrace/ knoll	Camp (Surface lithic deposit)	Lithic concentration	Hunting	Lowland spruce

TABLE 5 SUMMARY OF KNOWN* ARCHEOLOGICAL SITES, continued

SITE #	MAP QUAD	GEOGRAPHICAL FEATURE	SITE TYPE(S)	ARCHEOLOGICAL MATERIALS AND FEATURES	INFERRED RESOURCE OR ACTIVITY	ECOSYSTEM
EAG-241	EAG-D4	Knoll/cave	Camp (Surface/ subsurface lithic deposit)	Shallow cave, lithic concentration tools found	Hunting	Lowland spruce
EAG-242	EAG-D4	River terrace	Camp (Surface/ subsurface lithic deposit)	Lithic concentration	Hunting	Lowland spruce
EAG-243	EAG-D3	River terrace	Camp (Subsurface lithic deposit)	Lithic concentration	Hunting	Lowland spruce
EAG-244	EAG-D4	River terrace/ limestone outcrop rockshelter	Camp (Surface/ subsurface lithic deposit)	Rockshelter	Hunting	Alpine tundra
EAG-245	EAG-D4	River terrace	Camp (Surface lithic deposit)	Lithic concentration tools found	Hunting	Alpine tundra

* Sites For Which Archeological Material Has Been Documented
** Recorded Archeological Sites Immediately Adjacent to YUCH

TABLE 6

SUMMARY OF CHRONOLOGICALLY DIAGNOSTIC MATERIALS

TABLE 6 DIAGNOSTIC CULTURAL MATERIAL

SITE #	CULTURAL MATERIALS	REFERENCE
CHR-010	Stott type projectile point	Reynolds and Jordon (1983:43-44, 97)
CHR-015	Lanceolate point base	Reynolds and Jordon (1983:120)
CHR-016	Hudson Bay axe head and one white glass trade bead	NPS Site Files
CHR-028	Two microblades	NPS Site Files
CHR-060	Thirty-six glass trade beads	Reynolds and Jordan (1983:48, 115-116)
CHR-074 *	Side notched projectile point bifaces, microblade	NPS Site File
CHR-077	Microblades, wedge-shaped core, Tuktu core, notched points, boulder spall scrapers, bone flesher	NPS Site Files

TABLE 6 DIAGNOSTIC CULTURAL MATERIAL, continued

SITE #	CULTURAL MATERIALS	REFERENCE
EAG-070 *	One biface, historic material	A.H.R.S. Site Form; Waldman (1976); Shinkwin et al. (1978:339)
EAG-071 *	Two microblades	A.H.R.S. Site Form; Waldman (1976)
EAG-072 *	Features, historic material	A.H.R.S. Site Form; Waldman (1976); Shinkwin et al. (1978:339)
EAG-126	Lithic concentration including one microblade and burin-like implement	Bowers and Hoch (1978:35-36)
EAG-130	Lithic concentration including one microblade	Bowers and Hoch (1978:38)
EAG-137	One burinated flake	Bowers and Hoch (1978:39)

TABLE 6 DIAGNOSTIC CULTURAL MATERIAL, continued

SITE #	CULTURAL MATERIALS	REFERENCE
EAG-139 *	House depressions, whetstones, bone; barbed point, netting needle, flesher, stone scraper, historic material	E.Andrews (1987:56-61)
EAG-148 *	Core tablet, campus-type core fragment	A.H.R.S. Site Form
EAG-167	Lithic concentration including a double-ended wedge shaped microblade core and two microblade segments	NPS Site Files
EAG-172	Akmak core, core and biface scrapers	Reynolds and Jordon (1983:41-42, 76-82)
EAG-174	Lithic concentration including one biface. (Lithics are similar to EAG-172)	Reynolds and Jordon (1983:42-43, 83-84)
EAG-193	Two to three hundred glass beads	Reynolds and Jordon (1983:43, 89-91)
EAG-241	Lithic concentration including one microblade	NPS Site Files

TABLE 6 DIAGNOSTIC CULTURAL MATERIAL, continued

SITE #	CULTURAL MATERIALS	REFERENCE
EAG-245	Lithic concentration including core	NPS Site Files
No Site #	Copper projectile point	NPS Form 10-343 No.830032

* Recorded Archeological Sites Immediately Adjacent To YUCH

FIGURE 7

BLADE AND CORE TECHNOLOGY

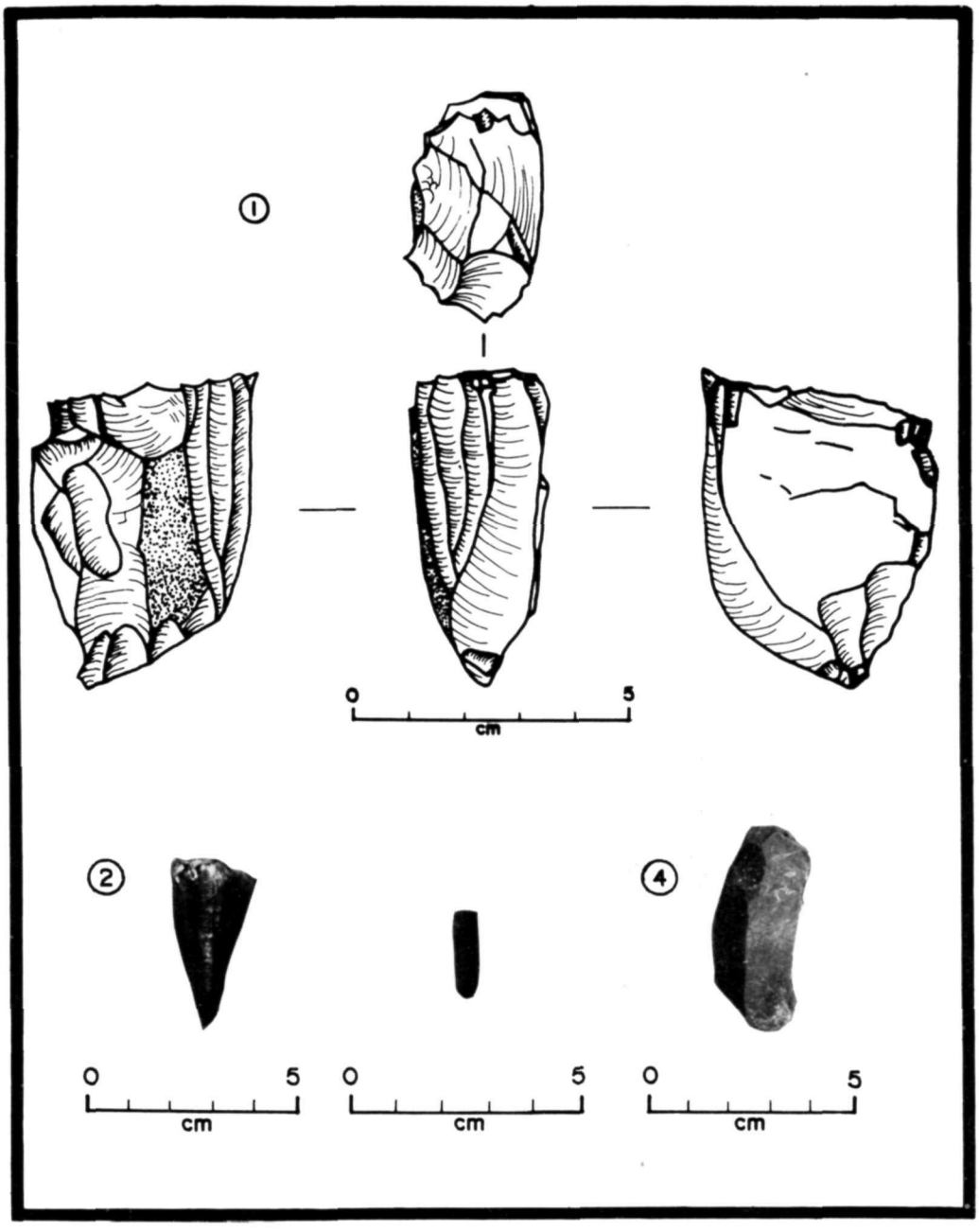


FIGURE 8

NOTCHED POINTS

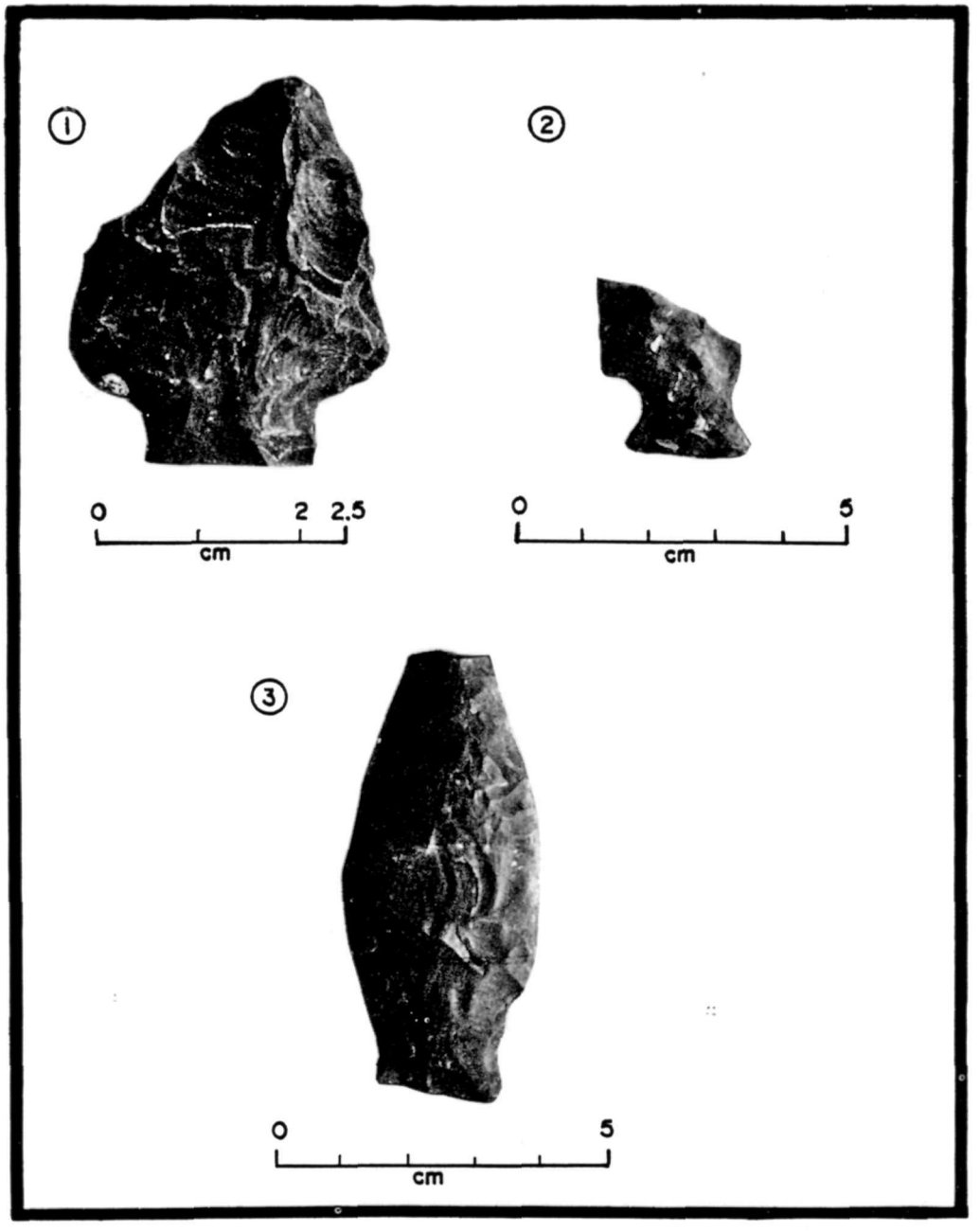
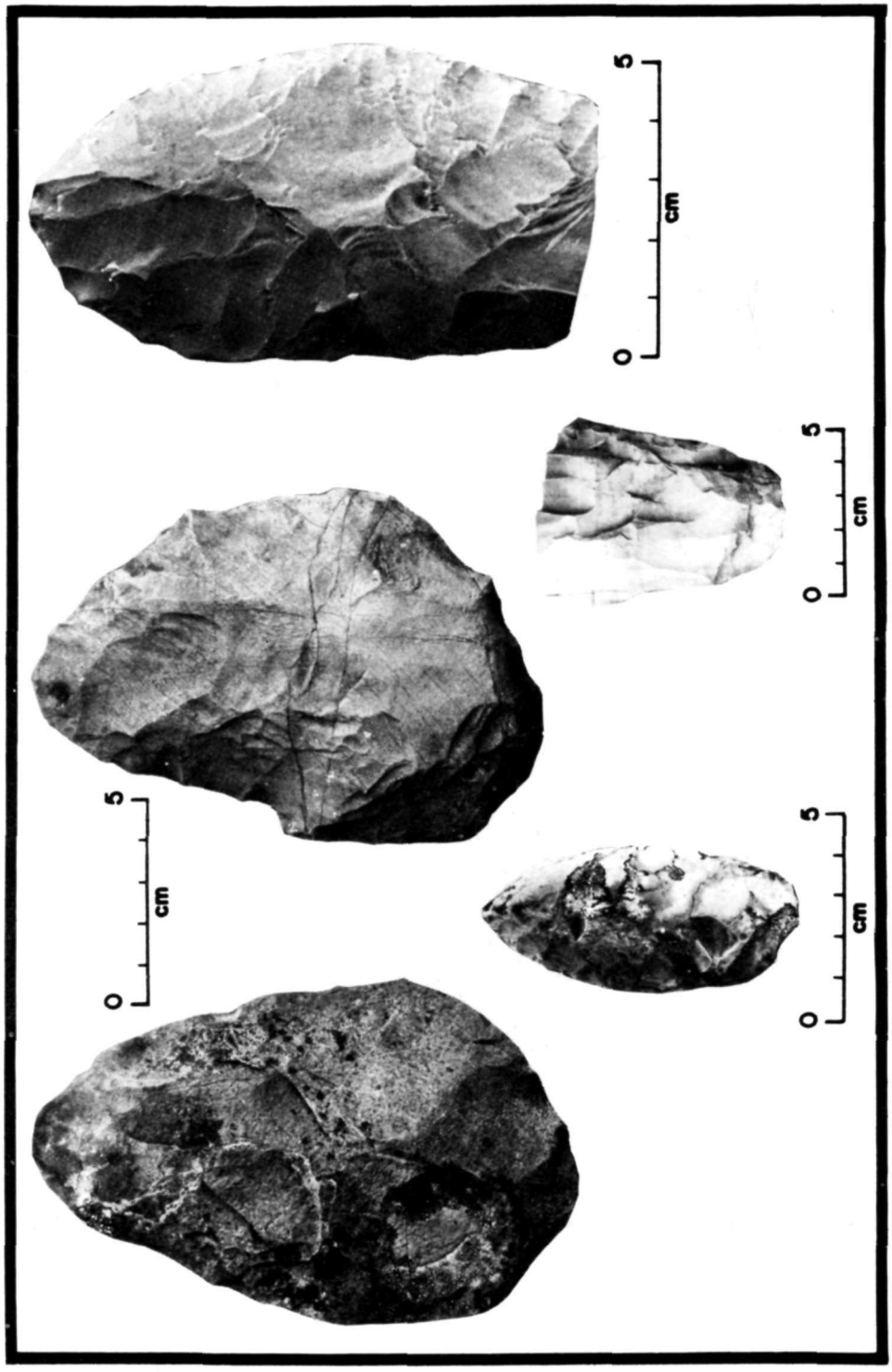


FIGURE 9

BIFACES



In the upland areas, "dead-end" drainages, box canyons and other areas characterized by restricted access appear to have been associated with intensive or focused prehistoric use. Prime examples include the headwaters of the upper Diamond Fork and Copper Creek. It is presumed that these sites may be related to ethnographically recorded Athapaskan caribou hunting strategies, that include the use of fences and/or natural constrictions to drive herds of caribou into areas that allow more efficient slaughter. Demonstrating a greater time depth for these sites could suggest that recognizable Athapaskan culture has been developing in place longer than presently known.

Given the lack of major glacial coverage for much of the Preserve, most areas would have been able to support human habitation during man's earliest expansion into the New World. Cultural materials suggestive of a broad temporal range have been recovered from the Preserve, but firmly dated contexts have not yet been discovered.

Recovered materials that may represent early (Paleoarctic) occupations in the Preserve include the products of a blade and core technology; burins, blade-like flakes, microblades and associated cores (CHR-028, CHR-077, EAG-126, EAG-130, EAG-137, EAG-167, EAG-172, EAG-241). As discussed in the chronology section of the overview, many sources link microblade technology to some of the oldest cultural components in the region,

representing technological adaptations developed by Siberian cultures migrating across Beringia. Other sources suggest that microblades persisted into more recent times, perhaps as late as 1,700 BP, and that their inclusion in a component may be the result of functionally specific tool requirements or cultural differences. At present, the most conclusive indications of very early affiliations are the presence of a blade and core technology in combination with other evidence, including radiocarbon dates.

Sites that include cultural materials indicative of the Northern Archaic are not well represented in the Preserve. This time period is indicated primarily by side-notched, bifacially worked projectile points and an absence of microblades, although not all sources agree with the exclusion of microblades from Northern Archaic components. Side-notched projectile points have been noted at two upland sites within or adjacent to the Preserve (CHR-074 and CHR-077) and at The Twelve Mile Bluff site along the Yukon north of the Preserve (West 1965).

Cultural materials associated with the Athapaskan period are fairly well represented within (EAG-193, CHR-010, CHR-016, CHR-060, CHR-077, and the isolated copper point) and adjacent to the Preserve (site at headquarters, Niibaw Zhoo). Within the Preserve, Athapaskan materials include beads, house depressions, cache depressions, burials, bone fleshers, a copper point,

boulder spall scrapers, a tentatively identified Stott projectile point, and Euroamerican materials. In the absence of aboriginal materials, Euroamerican goods may not necessarily reflect aboriginal components (CHR-016). In some cases, the stratigraphic position of the cultural material in relation to a particular volcanic tephra, White River ash, dated at approximately 1,400 BP (Workman 1974) has also suggested or provided confirmation of site age (CHR-010, EAG-175 and EAG-194).

Impacts

The review of known sites in the Preserve has revealed a pattern to adverse site impacts. Archeological resources are susceptible to many kinds of impacts, resulting from both natural and human actions. Natural threats include such physical processes as chemical deterioration of artifacts, erosion, bioturbation, cryoturbation and deposition. For much of Alaska, cryoturbation, the disturbance of sediments through the freeze-thaw cycle (including frost boiling, frost heaving and solifluction), is a significant site impact. Thin or surface sites, including many of the upland sites in the Preserve, are particularly subject to the effects of cryoturbation. Subarctic researchers have attempted to assess and predict the effects of cryoturbation in archeological sites (Bowers et al. 1983), but such efforts are

influenced by many variable and results must be considered hypothetical. Chemical destruction, the dissolution and decay of artifacts and objects, results from the interaction of complex site environment variables, including climate, flora, and pedology. Physical destruction occurs when the associations between artifacts and objects are disturbed or destroyed. Because the relationship between archeological materials may yield the most important information about a site, the destruction of that association severely limits interpretation. Deposition may not destroy sites, but can cover them, making them difficult to identify. Deeply buried sites may then become more subject to destruction due to an unawareness of their presence. Erosion and ice scouring along major rivers has an obviously negative impact on cultural deposits. The effect of fire on archeological materials is not well documented, although destructive impacts would be greatest for thin or surface deposits.

Human impacts to archeological sites can stem from a number of different actions. Impacts can result from such planned activities as mining, construction and development, from unauthorized artifact collecting, or from a variety of unintentional sources. Repeated camping and relatively low-density recreational use almost certainly cause inadvertent damage to archeological deposits, particularly in upland areas where sites occur in thin or surface deposits. Even the testing

and surface collecting that archeologists engage in adversely impact sites. For whatever reason, removing an artifact from its original context is essentially destructive. To do this without careful planning and mitigation speeds the destruction of a fast-vanishing, non-renewable resource. Most human impacts can be controlled by the manager through advance planning and carefully direction of activities. Others, such as the uncontrolled collecting of artifacts, leave unknown gaps in the archeological record for researchers to contend with. When enough artifacts have been removed from an area it may cease to have any meaning as an archeological site. It is essential that all types of casual artifact collecting be discouraged, perhaps through public education and support.

Natural threats are by far the most prevalent form of impact for the sites within the Preserve, and unlike the human-generated threats, may be impossible to control. Each of the previously conducted surveys has reported adverse impacts to sites within the Preserve. Erosion, by either fluvial or eolian means, consistently appears as the most commonly occurring threat. Of the 89 sites under consideration, 13 of the 42 located on river terraces (40 percent) have been affected to some degree by erosion. Sites situated on glacial terraces appear even more likely to be subject to natural impact. Thirty-five of the 47 known sites found in these areas are associated with wind deflated (blowouts) surfaces that also suffer severe frost

heaving. When considered together, natural impacts have affected more than half (55 percent) of all recorded sites.

RESEARCH AND MANAGEMENT RECOMMENDATIONS

As suggested by the preceding review of investigations and sites in the Preserve, valuable information concerning the prehistory of Yukon-Charley Rivers National Preserve has been recovered. Each of these investigations was carefully planned and implemented, and was successful in locating sites in areas about which very little was previously known. But the several difficulties pertaining to interpretation that have been discussed have significantly limited the degree of analysis and synthesis that this overview and assessment can provide to managers.

These types of difficulties are not new or restricted to the Preserve. The results of a seminar on regional-level cultural resource planning, conducted in cooperation with the National Park Service and the School of American Research in Santa Fe, New Mexico, address many of the same kinds of issues (Plog and Wait 1979). While the seminar was geared toward cultural resource management in the American Southwest (San Juan Basin, New Mexico), many of the ideas expressed are relevant.

One of the problems that the seminar participants were particularly concerned with was that in the absence of a unifying plan or direction, continued research, done on a project-by-project basis, is unlikely to substantially further knowledge of

the prehistory of an area. Thus for the San Juan Basin, where individual, very localized surveys of well-pads form the bulk of the data-base, the actual number of surveys and reports is high but the interpretive value of the data-base is very low, due to extreme variability of the information (Plog and Wait 1979:3-4). While on a different scale, these interpretive problems are somewhat similar to those identified in the Preserve, stemming from the pursuit of independent research goals and methods and the lack of a broad, unifying research context.

One of the seminar contributors specifically addressed the relative importance of overviews, their role in the management process, and the information they require:

> Archeological overviews are an essential component of the information base required by management because they provide an assessment of the current archeological knowledge of an area and describe research issues that merit attention. It should be noted, however, that in any area of active archeological research, overview assessments are frequently out of date as soon as they are published. Furthermore, with few exceptions the research problems defined are relative to a theoretical model and may lack permanence. This is not to suggest that overviews are not important. Indeed they are, and management must address the issues raised by these assessments of current knowledge and theory, and plan accordingly. However, if managers are responsible for the long range disposition of the resource, they must adopt a more detached, objective posture, not tied to any immediate model or information base. For this reason, archeologists could profit by framing research questions of the broadest interest, irrespective of particular time periods or geographical areas. Further, long-range cultural resource management must be guided as much by gaps and deficiencies in the information base as it is by the known available data.
>
> In this regard, I feel that we should define for particular regions of archeological interest what might be termed

> "base-line" information, that is archeological data of a nature so fundamental that without it one cannot expect management to make decisions essential to the responsible, long-term conservation of the resources in question. Archeologists should assess and present to management not only the known data, but also the major gaps or deficiencies in the base-line information. Federal agencies do not usually tolerate attempts at managing natural resources in the absence of base-line information. Once an assessment has been made, priorities are established immediately to bring the information base up to the minimum level necessary for responsible management. Why should cultural resource managers be any less responsible? I consider it our duty as archeologists to define levels of base-line information for a specific area such as the San Juan Basin and the make management aware of problems, deficiencies and gaps that exist [Plog and Wait 1979:5-6].

The author further defines "base-line" data as those information categories absolutely necessary for analyzing and synthesizing on a regional level:

> (1) Chronological Placement of Sites: Although absolute chronological control is desirable, the relative placement of archeological sites is essential to proper management. In addition to relative chronology, the ability to establish rough contemporaneity of sites is extremely important.
>
> (2) Site distribution: The region should be divided into generalized ecological zones assumed to be relevant to past subsistence economies. Such zones are often necessary for other managerial concerns and may already have been formulated. Within each zone, all known archeological sites must be accurately located. If less than 100 percent inventory has been completed, the nature and representativeness of the sample within both the zone and the region must be specified.
>
> (3) Site type: The determination of basic site type is essential to proper management. Minimally, the distinction between habitation and nonhabitation sites should be made, and the criteria used for classifying them should be clear [Plog and Wait 1979:6-7].

In light of the above discussion, it is apparent that fundamental, base-line data for the Preserve are lacking. This clearly indicates that the appropriate starting point for future research in the Preserve is to formulate a cohesive data-base that is broad enough and detailed enough to allow comparative, statistical manipulation of the known sites.

Significance

It is beyond the scope and intent of this overview to address National Register significance for individual properties, but as determinations of significance will eventually influence the management of those properties, some discussion is warranted. There are many concepts of significance that can apply to archeological resources, most of which involve specific contexts for determining the special values or worth of a given property. In this sense "significance" and "insignificance" are not mutually exclusive groups, rather both are determined according to multi-faceted criteria. One definition of archeological significance addresses the common value shared by all archeological sites, and the concept of situational or relative significance:

> The fact that archeological sites and the information they contain are our only clues to much of human life in the past makes every site potentially significant. It is generally recognized, however, that defining significance implies some frame of reference, problem orientation, geographic,

> temporal or other context, against which an archeological phenomenon is to be evaluated. A site is therefore more or less significant relative to some criterion or criteria.
>
> If "all" of the sites within a drainage have been surveyed and the region itself has been well studied, relative scientific significance can be established with considerable confidence. If the site in question is the only one of its type known for the drainage (and most of the rest of the drainage and region is unknown) the archeologist has no choice but to determine the site is significant. Only when the topical, geographical and temporal context is under control can relative significance be estimated.
>
> Significance obviously is not a directly measurable property of an archeological resource as is site size, depth of fill, or number of artifacts. A large deep site with numerous artifacts may not be evaluated as more significant than a small shallow one, if the former is a member of a well-studied class with a number of regional examples, and the latter is unique or is thought to contain data relevant to one or more important research problems.
>
> Thus a single universal or absolute frame of reference cannot be established against which all archeological resources are to be measured to determine significance. There are many potential kinds of significance, the evaluation being relative to the question(s) being asked at the time and the state of knowledge concerning the resource and the question [McGimsey and Davis 1977:31].

Independent researchers can identify and assign significance on the basis of virtually any criteria. Some of the criteria that have been used include scientific significance or relevance to a particular research question or problem, monetary value, historic significance, ethnic significance, public significance, and geographic significance (McGimsey and Davis 1977:31; Moratto and Kelly 1976; Schiffer and Gumerman 1977:239). As used by Federal agencies however, significance has a very specific meaning; properties that are eligible for placement on the National Register of Historic are significant (Sharrock and Grayson 1979).

National Register eligibility, as determined by the Federal government, is measured according to the four criteria outlined in 36 CFR part 800: Procedures for the Protection of Historic and Cultural Properties:

> The quality of significance in American History, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and:
>
> (A) That are associated with events that have made a significant contribution to the broad patterns of history; or
>
> (B) That are associated with the lives of persons significant in our past; or
>
> (C) That embody the distinctive characteristics of a type, period, method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (D) That have yielded, or may be likely to yield, information important in prehistory or history.

While archeological resources may be relevant to any or all of these criteria, they most commonly are evaluated with respect to the fourth category, the potential to yield information important in prehistory or history. Several archeologists have suggested that this category, used by itself, is too broad for meaningful discussions of significance, and that more case-specific rationales need to be provided. They suggest that perhaps the optimal use of this criterion would further tie significance to explicit, problem-oriented research designs, goals or contexts (King, Hickman and Berg 1977; Raab and Klinger 1977; Schiffer and

Gumerman 1977:249). The National Register encourages such context-oriented research through the acceptance of Multiple Property Nominations. Such nominations identify and address contextual frameworks that provide a basis for evaluating the significance of a group of topically related sites in an area such as the Preserve.

Research Topics

One way that the National Park Service is attempting to encourage problem oriented contexts for research is through the identification of a framework of broad thematic goals, sub-themes and facets (U.S. Department of the Interior, National Park Service 1987). The thematic framework is not intended to replace individual research designs and questions or enforce "canned" federal research goals. Rather, themes offer several unifying contexts for grouping research of historic and archeological properties and addressing the extent that those properties reflect the Nation's past. In this way, the National Park Service can identify and pursue research topics that reinforce each other and also quantifiably assess the "representativeness" of the cultural resources in the National Park System.

Using the most recently revised edition of the proposed thematic framework (U.S. Department of the Interior, National Park Service

1987), the following topics have are a sample of those relevant to the known and potential prehistoric archeological resources in the Preserve. These selections are subject to change as additional themes are identified.

Theme: Cultural Developments:Indigenous American Populations

Subtheme: The Earliest Inhabitants

Topical Facets:
- The Early Peopling of North America
- Archaic Adaptations of the Subarctic
- Archaic Adaptations of Montane Regions
- Archaic Adaptations in Riverine Zones
- Early Man and Late Pleistocene Faunal Extinctions
- Human Factors in Late Pleistocene Faunal Extinctions
- Human Osteological Evidence of Early Inhabitants
- The Big Game Hunters

Subtheme: Post-Archaic and Pre-Contact Developments

Topical Facets:
- Subartic Hunters and Gatherers
- Post-Archaic Adaptations
- Post-Archaic Adaptations in Riverine Zones
- Post-Archaic Adaptations in Montane Regions
- Physical Anthropology of the American Indian

Subtheme: Prehistoric Archeology

Topical Facets:
- Prehistoric Architecture/Shelter/Housing
- Prehistoric Technology
- Prehistoric Diet/Health
- Prehistoric Economics/Trade
- Prehistoric Settlements and Settlement Patterns
- Prehistoric Demographics
- Prehistoric Cultural Change
- Paleoecology
- Prehistoric Warfarefare
- Prehistoric Religion, Ideology, and Ceremonialism
- Prehistoric Transportation and Travel

Subtheme: Ethnohistory of Indigenous American Populations

Topical Facets:

- Native Cultural Adaptations at Contact
- Native Adaptations to Subartic Environments
- Establishing Intercultural Relations Guiding Explorers
- Trade Relationships
- Helping Foreigners Survive
- Introductions to Foreign Religious Systems
- Conflict, Conquest or Accommodation
- Transfer of Technology to Native Peoples
- Forced and Voluntary Population Movements
- Military Removal and Concentration
- The New Demographics
- Disease and Massacres: Cultural and Biological Effects
- Depopulation of Terrain
- Changing Settlement Types
- Townspeople
- Sedentary Villages

Additional guidance in establishing research contexts and using the Thematic framework can be obtained from Preservation Planning: A Handbook of Technical Assistance Material for Cultural Resource Planning (U.S. Department of the Interior, National Park Service 1988b).

In addition to the previously noted research themes, a sample of scientific questions that might also be used to generate problem oriented research designs has been compiled. These questions are grouped according to four broad research categories. Most have previously been identified in regional archeological literature. In some cases, references have been given for sources of additional information. It should be noted that the Office of History and Archeology, Alaska Department of Natural Resources,

is presently designing a comprehensive cultural resource planning and preservation document that will be known as the Alaska Historic Preservation Plan. When completed, the preservation plan will almost certainly identify research problems not identified here. Perhaps most importantly, the document will provide a broader, state-wide context for interpreting the archeological resources in the Preserve.

Settlement and Subsistence:

1. What effect did European contact have on Athapaskan house types? Did early contact house types reflect design changes for pre-contact house types? Were design elements borrowed from European structures?

2. What were the effects of European contact on the traditional, pre-contact Athapaskan settlement-subsistence pattern? It has been suggested that the permanent settlements and economic pursuits shifted as a result of European contact (Bowers and Hoch 1978:46), perhaps in response to an increasing involvement in the European economic system (fur trade for example) and in the consumption of European goods. It has also been suggested that the introduction of the fish wheel by 1904 may have resulted in a greater dependence on salmon fishing and a more riverine based ecomony (Clark 1981;44; Hall 1976:351).

3. Do Athapsakan house types and artifacts within the Preserve show Eskimo influences (Morlan 1973)?

4. Was the Northern Archaic subsistence pattern sufficiently different from that of the Paleoarctic to enable the formation of a predictive model based on site locations?

5. What is the full range of settlements for each of the periods occupation identified for the Preserve?

6. What are the subsistence patterns for each of the periods of occupation identified for the Preserve?

Technology:

1. What effect did European contact have on Athapaskan tool technology? What tool types persisted? Which were modified or abandoned in favor of European tools?

2. Can tracing the distribution of selected tool materials (lithics, copper) illustrate Athapaskan trade networks?

3. Can the material sources of obsidian artifacts collected from the Preserve be traced? Modern analytical techniques, including X-ray florescence analysis, has enabled researchers to differentiate among different sources in other regions.

3. What is presently known of the origins and evolution of Athapaskan copper technology (Franklin et al. 1981)? Where are the raw material sources within the Preserve?

4. Is the dichotomy between Paleoarctic components containing microblades and later components that lack microblades and contain bifaces real or apparent (Betts 1987)? What explains components in which microblades occur in direct association with corner-notched points?

5. What is the validity of the Denali complex, as originally defined by West (1975)? Is Denali blade and core technology temporally diagnostic of early occupation (Dixon 1985; Bacon 1986; Betts 1987)?

6. What is the nature of the broad range of tools and lithic debris found at CHR-077, the Foster-Keith site? If the site is a camp associated with hunting caribou or other mammals, would such a broad range of materials be represented (microblades, and a great diversity, in terms of size and shape, of cores, bifaces, blades and blade-like flakes)?

8. If CHR-077 is found to have been utilized from the Paleoarctic through Athapaskan times, was this ridge (and others in the Preserve) relatively unaffected by the environmental changes hypothesized through time?

Environment:

1. Do changes in prehistoric settlement and subsistence patterns support major hypothesized paleoenvironmental changes?

2. To what extent did the post-glacial warming trend influence forest cover in the Preserve? Which areas changed? Which remained the same? What effect would these changes have had on faunal resources?

3. Can the White River tephra-related population movements hypothesized by Workman (1974) be documented through the archeological record in the Preserve?

Chronology:

1. The need to recover dates and datable materials from the Preserve has been noted in several places in the overview and recommendations have been made concerning future excavations. A very basic question that needs to be addressed concerns the range of time periods is represented by the known sites in the Preserve. Methods of obtaining dates for known sites might include excavation with the recovery and analysis of diagnostic tools and datable materials (including the processing and analysis of samples recovered during previous investigations), hydration studies and more experimental studies, including the dating of organic residue on stone tools. Hydration analysis could be useful in obtaining dates from the many surface lithic deposits that lack organic materials. This type of analysis requires that obsidian sources be known and that the hydration rates be calibrated with radiocarbon determinations.

2. How far back can the Athapaskan cultural affiliation be traced (Cook 1969; Morlan 1973)

3. Where are the oldest sites in the Preserve? Can specific, high probability environmental areas be identified? Can low probability areas be ruled out?

Management Recommendations

The following section identifies several actions that would result in a better understanding of past culture in the Preserve. Many of the ideas proposed are directed at improving the level of site detail that presently exists. In order to understand the prehistory of the Preserve it is essential that more detailed

information about a minimum number of sites in the Preserve be recovered. The only way to obtain the type of detail necessary is through the application of some form of careful site investigation. It is neither responsible nor necessary to excavate all or most sites, but maximizing the information recovered from a small sample of carefully selected sites could greatly enhance our knowledge and permit additional interpretation of material that has already been recovered. It is virtually impossible to discuss chronology for a study area the size of the Preserve without a single radiocarbon date. Similarly, attempts to discuss literally a few lithic tools in terms of regional chronologies are not scientifically valid.

Formation of Research Designs and Proposals

As stated in the preceding discussions of significance and research contexts, the formation of problem-oriented research designs is a vital part of meaningful archeological research. In fact, many researchers suggest that problem-oriented research is the only way significance can be assessed:

> ...archeological resources acquire scientific or historical significance only as they relate to specific research questions in substantive, technical, methodological, and theoretical contexts...that is, archeological resources are significant to the extent that their careful study might be expected to shed light on various current research questions in the several domains (House and Schiffer 1975:163).

Clearly, this type of research design provides more than a description of fieldwork methods and scheduling accompanied by a pre-field literature review. Researchers are encouraged to develop problem-oriented research contexts, using either the previously noted thematic framework, scientific questions, or other sources for ideas. Obviously the development of such contexts must be of a scale appropriate to the project at hand, but all projects benefit from a planned, clearly stated research goal.

The Secretary of the Interior's Standards and Guidelines outlines the elements that should be incorporated into research designs for all identification studies, including most archeological research (see recommendations concerning intensive surveys for a discussion of identification studies, p. 170). According to this outline, research designs should specify, at minimum:

> 1. Objectives of the identification activities. For example: to characterize the range of historic properties in a region; to identify the number of properties associated with a context; to gather information to determine which properties in an area are significant.
>
> The statement of objectives should refer to current knowledge about the historic contexts or property types, based on background research or assessments of previous research. It should clearly define the physical extent of the area to be investigated and the amounts and kinds of information to be gathered about properties in the area.
>
> 2. Methods to be used to obtain the information. For example: archival research or field survey. Research methods should be clearly and specifically related to research problems.

> Archival research or survey methods should be carefully explained so that others using the gathered information can understand how the information was obtained and what its possible limitations or biases are.
>
> 3. The expected results and the reasons for those expectations. Expectations about the kind, number, location, character and condition of historic properties are generally based on a combination of background research, proposed hypothesis, and analogy to the kinds of properties known to exist in areas of similar environment or history [Federal Register 1983 Vol. 48, No.190:44721]

For other discussions concerning the content and formation of research designs consult Hill 1972, Johnson 1978, King, Hickman and Berg 1977, McGimsey 1972, McGimsey and Davis 1977, and Schiffer and Gumerman 1977.

Another critical element in planning future research is the need for close consultation with the Preserve Staff. Such cooperation is essential to the successful completion of any project involving the Preserve. The Preserve staff must have input at each stage of planning and have an opportunity to review and comment on all research proposals and designs that involve the Preserve. These consultations should take place well in advance of field work. For federal projects, communication should begin with the circulation of specific Task Directives between the Preserve staff and project managers.

<u>Stratified Environmental Model for Archeological Surveys</u>

The formation of a broad, regional approach to archeological survey that systematically integrates environmental and cultural variables should be given priority as a future research goal. Such a plan would provide the perspective from which small compliance projects, isolated surveys or more specialized types of research could be interpreted and put in a meaningful context. Use of environmental models to explain, interpret and, in some cases, predict prehistoric culture have become well established practice. Such models assume that there is a discernable relationship between the environment and specific human land use practices (Steward 1938; Thomas 1973). It follows that specific activities related to the prehistoric economy (hunting, fishing, tool manufacture) did not randomly occur across a given territory but rather were associated with specific microenvironments. Thus only by collecting and comparing data from a full range of microenvironments can a complete reconstruction of an entire system of land use practices be made. For example, a survey that examined only the main river corridor would likely encounter many late period fishing camps, but would not provide data on the upland caribou hunting camps. In this respect a research design that attempts to investigate the widest possible range of microenvironmental units, or strata, would insure sampling of as wide a variety of potential use areas as possible.

It is possible to stratify the environment according to any

number of different variables or purposes. For example, a region might be stratified according to specific vegetation types or perhaps according to elevation. These are units that may directly (as in the case of vegetation) or indirectly (as in the case of elevation) influence land use. Another example is Thorson's (1982) geoarcheological model that stratifies parts of the Preserve into geomorphological units with respect to their potential to contain archeological evidence.

It is impossible to know for certain which environmental criteria were culturally relevant prehistorically. Factors that could influence which strata were relevant in the past might include environmental change resulting in a shifting resource base, changes in population size and changes brought about by culture contact. Often data derived from the ethnographically recorded culture pattern will be used as a basis from which relevant strata are formed (Thomas 1969, 1973). As discussed previously, there are limitations to projecting ethnographically recorded patterns back into prehistory but in combination with archeological and paleoenvironmental data, this may be the best basis from which to work.

Supporting Studies

Considerable discussion has already been given to the need for

interdisciplinary studies that would enhance interpretation of archeological resources in the Preserve area. The most important of these is paleoenvironmental reconstruction, including resource availability studies, and palynolological (pollen analysis), climatological, and botanical information. An ethnohistory program, including oral history (interviews), and additional geoarcheological research, like the preliminary study undertaken by Thorson (1982) would also be beneficial.

Historical Archeology

Within the Preserve, previously conducted archeological surveys have been based on research designs and field methods specifically designed to recover prehistoric site information. In most of these cases historic sites, when encountered, have also been recorded, but without the subsequent analysis and discussion of problem-oriented research potential that is required for prehistoric sites. The result is a considerable gap between reported and field verified historic sites in the Preserve. Neither do historic resource studies, like that conducted by Grauman (1977), fill this need. They tend to focus on written records and reported information rather than the physical remains of the historic period. It is recommended that more care be given to systematically recording and researching the historic resources of the Preserve. Historic resources

should be documented in as much detail as prehistoric resources and researchers should be prepared, before initiating fieldwork, to interpret and discuss the archeological potential of historic sites. This will require development and refinement of regional historic contexts like those proposed by Grauman (1977). Once research contexts have been developed and intensive survey and inventory have been conducted, recommendations for specific historic site investigations should be formulated.

Intensive Archeological Survey

As stated in NPS-28, when an overview and assessment determines that existing information is inadequate, additional archeological identification and evaluation studies may be needed to fill the gaps. Identification studies attempt to: "...discover the locations and some of the characteristics of all or a sample of the archeological resources in a particular area." Evaluation studies attempt to "...collect sufficient data and conduct sufficient analysis to determine the eligibility of the archeological properties for the National Register of Historic Places. They frequently are linked with identification studies."

Both of these goals could be accomplished with an intensive survey program in the Preserve. As has been previously discussed, intensive surveys differ from reconnaissance level

surveys in terms of objectives. The latter seeks to gather information necessary to plan (assess the necessity, type and costs involved) subsequent (identification and evaluation) studies, while the former can actually provide the information needed. According to the Secretary of the Interior's Standards and Guidelines (Federal Register 1983, Vol. 48, No. 190), the distinguishing characteristic of an intensive survey is that it requires the recovery of considerable detail, providing "...information on the appearance, significance, integrity and boundaries of each property sufficient to permit an evaluation of significance." In The Arlie House Report, McGimsey and Davis offer another definition of intensive field surveys:

> Essentially a comprehensive field survey of the project area, this type of study is initiated when total ground coverage is necessary, normally because specific alternative designs are being considered, or, if not accomplished earlier, when final designs have been set. Intensive surveys document in detail a project's impact on the cultural resource base, and collect the data to evaluate this base in light of the archeological context and accepted mitigation alternatives [1977:47-48].

Thus, an intensive survey using an environmentally stratified survey model like that noted above could provide the baseline site data that are needed to begin reconstructing the prehistory of the Preserve. Depending on the scale of the project, such a survey could document the full range of sites for a representative sample of the Preserve.

The information gathered during an intensive survey using an

environmentally stratified model could be manipulated in many ways. In addition to the recovery of detail lacking for many of the known sites in the Preserve, comparing the site types and numbers for different strata could be used to address many identified information gaps. Examples might include refinement of the presently used site type categories, understanding the relationship between functional activities and different environmental areas, or documenting changing land use pattern through time.

Specific areas that will benefit from an intensive survey program in the Preserve include the mid-sections of many Yukon tributaries and secondary drainages. Each of the previous researchers in the Preserve has recommended that these areas be intensively surveyed.

It is also recommended that historic resources be targeted and dealt with as rigorously as prehistoric resources in subsequent archeological surveys. As defined in NPS-28, the National Park Service does not distinguish between historic and prehistoric archeological resources. Both should be considered to have to have archeological potential unless field observation and research prove otherwise. The lack of well documented historic site data from the Preserve has been discussed as a separate research recommendation.

Data Recovery Plan for Surface Lithic Deposits

Presently surface lithic deposits of varying sizes that appear to represent single components make up a disproportionately large number of the known sites in the Preserve and this number will certainly increase with additional survey. Several sources have discussed the importance of these sites, focusing on their importance in determining a full range of prehistoric activities (Talmadge and Chesler 1977). Others have focused on the ability of small, single component sites to provide "clean", un-mixed assemblages that can only result from a single, specific site function or period of occupation (Hall 1982). While such deposits may provide the best setting for recovering functionally specific information, they obviously cannot be investigated by typical archeological methods (excavation) and possess several additional inherent difficulties:

> (1) If such sites are of any antiquity they usually produce only lithic material.
>
> (2) Usually such sites can only be dated through artifact comparison with cultural manifestations of known age.
>
> (3) The exposed nature of such sites often leads to artifact loss if the sites are discovered by individuals unaware of their scientific importance.
>
> (4) The exposed nature of such sites leads to artifact displacement, through various causes, resulting in a pattern not truly reflective of the behavior that produced the site.
>
> (5) Such sites can be difficult to locate [Hall

1982:13].

At present, observations for surface lithic deposits are usually limited to basic location information and often unquantified descriptions of cultural material. In order to get beyond the present level of data recovery it is essential that investigation go beyond compiling rough estimates of type and density of lithic materials present at a site based on reconnaissance level surface observations.

Perhaps the next level of investigation could incorporate a detailed surface mapping program with computer analysis of the spatial relationships between artifacts and features (clusters). This information could be compared with similarly detailed maps of excavated sites. In keeping with the conservation ideal embraced by the National Park Service, such a program might include extensive on-site analysis of a valid statistical sample of the lithic material at the site. Very detailed lithic analysis of wear patterns and tool types found at a site may eventually lead to functional or temporal interpretations. Conducting analysis of the materials in-situ would allow data to be collected without actually destroying site integrity. A small number of selected artifacts could be collected for off-site analysis, perhaps including obsidian hydration and residue analysis. One recent study has shown that blood residues on some prehistoric stone tools can successfully be used for dating

(Nelson 1986). It might also be possible to trace the distributions of indigenous lithic materials through comparison with other archeological collections. In areas that also posses thin subsurface deposits, perhaps investigation could include limited testing, primarily focused on the collection of samples for later analysis, including microscopic analysis of sediments (pollen analysis, analysis of microfaunal remains).

Far more important than any one site investigation, it is recommended that considerable effort be given to formulating a data recovery plan for these types of sites, using the best, most up-to-date information available.

Specific Site Investigations

CHR-077, The Foster-Keith Site: CHR-077 is one of the upland sites that would benefit from the formation of a surface site data recovery plan. Both the size of the site and the diversity of cultural material found suggest that CHR-077 is an important archeological resource. But at the present level of information we can only assert that this ridge was intensively utilized or has been utilized for long periods of time and that many functionally different types of tools are found there. Furthermore, the continued erosion and exposed nature of the cultural material and the site's location in an area used by

modern day subsistence hunters and others make the site subject to negative impacts. It is suggested that considerable effort be directed at interpreting the very broad time range suggested by the materials observed.

EAG-172, The Calico Ridge Site: EAG-172 is another highly important archeological resource in the Preserve, given the size and location of the site and the high potential for recovering datable materials in an undisturbed context. It is suggested that the entire bluff/ridge area be intensively surveyed to determine the relationships of the sites or site loci along the ridge and to isolate optimum areas for excavation. Only a very small sample of the site need be disturbed but the information gathered, particularly if samples for radiocarbon dating are recovered, would greatly enhance our interpretation of materials that have already been collected.

Data Recording and Archeological Records Management

Perhaps one of the most important recommendations included here involves the written records generated by archeological research. As with any body of information, comparative analysis of archeological data is influenced by the consistency of the database. It is recommended that all researchers document located sites on carefully designed site forms. It is also

recommended that all located sites recieve AHRS site numbers. These forms will become permanent records to be maintained at the Preserve and the Alaska Regional Office. Forms generated by specific projects will inevitably include site observations geared toward addressing their own research design, but certain minimum data categories must be made when any site is initially recorded. These minimum observations form the Cultural Sites Inventory (CSI) which, as outlined in NPS-28, includes site location, site description, significance, threats, and management requirements. It is the responsibility of each researcher to insure that information sufficient to meet CSI needs is recorded in a self-explanatory manner.

Each of the above noted data categories should be addressed in detail. In addition, site boundaries, type of deposit, depth of deposit, type and number of cultural materials and features observed should be noted. Quantification of some type is essential for <u>all</u> of these observations, even if only estimates are possible. It is also helpful to give an indication of how the assessment was made. When determinations of cultural affiliation, chronology or site function are recorded it is essential that the basis of the determination also be recorded.

Recording the environmental setting would be greatly enhanced in terms of detail and consistency by incorporating the Geographic Information System (GIS) presently planned for the Preserve.

Researchers should familiarize themselves with the GIS and attempt to incorporate it into their research designs. A minimum set of first-hand observations pertaining to each sites environmental setting should be identified prior to fieldwork and made at each site.

Similarly, guidelines for a minimum level of locational information to be collected should be agreed upon before fieldwork. Locational information should be as precise as possible, preferably to the 1/4-1/4-1/4 section, and include accurate Universal Transverse Mercator (UTM) designations. A xerox copy of the pertinent USGS map quad showing both the map reference and the site location would also be very helpful, both as a quick reference and as a check against recording errors. If adjacent sites are also plotted these map sheets provide another useful purpose, enabling the reader to think in terms of broader use areas. Actual site maps should be completed with the need to orient the map, to USGS maps and to surrounding land forms and features in mind. Some assessment of impacts, including quantification (perhaps percentage of disturbance), should also be made.

It is likely that many of these recommendations will eventually be required through a uniform NPS archeological data recording format. Such a format will be beneficial to the Preserve, to the staff at the Regional Office, and to the archeological community,

facilitating both research and management needs. As the Yukon-Charley archeological site data base grows larger it will become even more important that information be collected in a uniform, detailed, objective manner, for this enables the kind of valid comparisons upon which modern archeology is based.

Archeology and Interpretation

Archeological research often generates data important to Park interpretive programs. As archeological research progresses in the Preserve, many different types of archeological material could be produced that would support public information. These materials might include slide presentations, video cassettes, books, pamphlets, signs, displays, or exhibits. Development of an interpretive program should closely involve the Preserve staff, and both the Division of Interpretive and Visitor Services and the Division of Cultural Resources at the Alaska Regional Office.

Eagle Historical District

Although the Eagle Historical District is outside the jurisdiction of the National Park Service, the Preserve has accepted management responsibility for EAG-071 and EAG-072, the

sites underneath and adjacent to Preserve headquarters. While Preserve activities affect only a small portion of those sites, it is recommended that archeologists record and document both sites in their entirety, to enable more culturally meaningful interpretations and assessments of impacts. It is also recommended that effort be given to determining the relationship between these sites and the other sites known to occur within the district. It is possible that much of the Historical District is underlaid by a continuous protohistoric cultural deposit, portions of which continue to be assigned independent site numbers by researchers. To continue to add new numbers without investigating site boundaries is confusing and not in the best interest of management or research. It is suggested that the National Park Service encourage the many agencies and individuals responsible for the Historical District to conduct an intensive archeological survey with the intent of determining site boundaries. The result would be greatly enhanced archeological interpretation for all the sites within and adjacent to the District, including EAG-071 and EAG-072.

Conclusion

The preceding overview and assessment has presented the Preserve as an area of untapped archeological potential. The available evidence, while preliminary, suggests that this region was

logistically and environmentally suitable for very early habitation and that portions of the Preserve have seen intensive use, perhaps continuously, through time. The majority of these sites are well protected, through their isolated settings, from intensive human impacts.

These factors alone make the archeological resources contained within the Preserve important on a local, regional and National level. The overview and assessment has attempted to summarize what is presently known about the Preserve and, more importantly, identify some of the many information gaps and questions that remain to be addressed.

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APPENDIX:

GLOSSARY OF SELECTED TECHNICAL TERMS USED IN THE TEXT

After: Bates and Jackson 1984; Champion 1980; Dunnell 1971; Fagan 1972; Gibbon 1984; Loy and Powell 1977; McGimsey and Davis 1977; and Willey and Phillips 1958

Activity area:
A term used in archeology to describe the smallest observable component of a site; the site of an activity or event.

AD:
Abbreviation for Anno Domini; within the Christian Era.

Alluvium (alluvial):
Material deposited by rivers; the largest deposits of alluvium are flood plains and deltas. Build-up of alluvial material may occur where a river overflows its banks.

Amorphous:
Literally, without form; often refers to artifacts without a definable shape or to the texture of rocks and minerals lacking definite crystalline structure.

Archeological resource:
All evidence of past human occupations that can be used to reconstruct the lifeways of past peoples. Such evidence includes sites, artifacts, and features and all other relevant information, including the contexts in which they occur. Archeological resources include material elements of both prehistoric and historic cultures.

Artifact:
Any object made, modified or used by man; May range from a coarse stone used to flake lithic material to a tool representing high technical accomplishment made from any material. Anything that exhibits physical attributes assumed to be the result of human activity.

Assemblage:
A set of objects found in association with each other and therefore assumed to belong to one phase and one group of people. An assemblage can be made up of many different types of objects and differs from an industry in that the latter describes a set of objects in one medium. Thus at a given site, an assemblage might include lithic, bone and shell artifacts but an industry might include just the lithic materials. An assemblage may reflect the full range of artifacts available to a particular

group of people at one time.

Association:
Objects are said to be in association when they are found together in a context that suggests simultaneous deposition. For example, the objects found in a cache pit or on a house floor are considered associated. Associations between objects are the basis for relative dating.

Beamer:
Two-handed hide scraper, usually made from a longitudinally split metapodial bone. Commonly found in Athapaskan sites (see illustration in Morlan 1973:301).

Bedrock:
The solid rock that underlies gravel, soil, or other superficial material. Also spelled bed rock.

Beringia:
The region that includes Western Alaska, Northeastern Siberia, and the shallow parts of the Bering and Chukchi Seas. This region is presumed to have been the avenue for human migrations between the Old and New Worlds.

Biface:
A lithic tool class defined by the presence of bifacial flaking along two converging surfaces of an edge of an artifact. Flaking can be either continuous or intermittent. The flaked surfaces must converge at least one point. The worked edges should facilitate cutting functions approximately parallel to the longitudinal axis. Includes projectile points and hafted and non-hafted knives.

Bioturbation:
Disturbance of sediments by animals (burrowing, etc).

Blade or blade-like flake:
A long, thin relatively narrow flake with more or less parallel lateral edges. May be triangular or trapezoidal in cross-section. The length is equal to, or greater than, twice the width. Also see microblade.

Blade-core:
The parent material from which blades are struck (removed). Typified by the presence of a large flat striking platform. The core shape can be pyramidal, cylindrical, or wedge-shaped. Blades are removed at right angles to the striking platform and the removal of one blade prepares the core for the removal of the next blade, producing a fluted appearance.

Burin:
A chisel-like stone implement formed when a specialized flake has

been removed parallel or roughly parallel to the long axis generally forming a right-angle edge on one or both margins. Can be modified by removal of other transverse or oblique burin spalls.

Burin spall:
A specialized flake or blade removed from a burin core. The blade is thick in relation to its length and is usually triangular or rectangular in cross-section.

BP:
Abbreviation for before present; years ago.

Chert:
A compact, siliceous rock with quartz particles that can be discerned either by the unaided eye or by magnification up to 14 times. Most varieties of chert are opaque, although some may be semitranslucent along thin edges. Variations in color and texture distinguish commonly used popular names for chert: jasper, flint, etc.

Cirque:
A deep, steep-walled recess or hollow, horseshoe-shaped or semicircular in plan view, situated on the side of a mountain and produced by the erosive activity of a mountain glacier. A cirque glacier is a small glacier occupying a cirque. A cirque lake is a lake occupying a cirque.

Component:
The manifestation of a given archeological focus at a specific site.

Context:
The spatial and chronological setting of an artifact or other element of a site; the relationship of the associated materials in a site.

Cordillera:
An extensive series of more or less parallel ranges of mountains including their associated valleys, basins, plains, plateaus, rivers, and lakes. Commonly used to describe the great mountain region of western North America (from the eastern face of the Rocky Mountains to the Pacific Ocean or the Andes in South America).

Core:
A lithic term for an object from which flakes have been removed and that exhibits numerous negative bulbs of applied force (also see blade, blade-core, microblade core).

Cryoturbation:
The disturbance of sediments by freezing and thawing. Includes

frostheaving, frostboiling, and solifluction.

Cryptocrystalline:
Lithic material with crystals too small to be distinguished with the naked eye; indistinctly crystalline. This characteristic influences the flaking ability of lithic tool materials. Includes such materials as obsidian, chert, agate and jasper. Commonly abbreviated as "CCS" (for cryptocrystalline silicate).

Cultural affiliation:
A known, projected, or hypothesized cultural, ethnic, or tribal group (e.g., Athapaskan, Eskimo, Aleut, Russian, European, etc.).

Cultural resources:
Districts, sites, structures, objects and evidence of importance to a culture, ethnic group or subculture. Cultural resources and relevant environmental data are important for describing and reconstructing past lifeways, for interpreting human behavior, and for predicting future courses of cultural development.

Culture history:
The chronological and spatial framework for describing the development of human societies and cultures, and the documented processes of cultural change involved in this development. Studies in culture history are primarily concerned with defining the geographic extent, relative age, and course of development of cultures.

Debris (or debitage, or detritus):
One or more fragments of waste lithic material; the material that results from either the manufacture or use of flaked lithic artifacts. May also be known as flakes, waste flakes, or unmodified flakes.

Ecosystem:
An ecologic system, composed of organisms and their environment. The result of interaction between biological, geochemical, and geophysical systems.

Eolian:
Material deposited by the wind, such as loess or dune sand. This term may also describe wind generated erosion.

Ethnography:
A descriptive anthropological study of a particular existing culture or subculture.

Ethnographic resources:
Evidence of identifiable historic or protohistoric ethnic lifeways that may be used for describing, reconstructing, and interpreting cultural systems. These include sites, artifacts, ethnographic (written) records, informant interviews,

photographs, environmental data, and all other relevant information.

Ethnohistory:
An anthropological study that focuses on historic or contemporary societies.

Esker:
A serpentine ridge of roughly stratified gravel and sand deposited by a stream flowing in or beneath the ice of a stagnant or retreating glacier and left behind when the ice melted. Length ranges from less than three to over 500 kilometers. Height ranges from three to over 300 meters.

Erosion:
The wearing away of soil and rock by weathering, mass wasting, rivers, streams, glaciers, waves, wind, and underground water.

FCR:
A common abbreviation for fire-cracked rock. This term describes otherwise unmodified rock that has been broken, cracked or thermally altered (discolored, pitted) through exposure to heat or fire. Fire-cracked rocks are not considered artifacts in the same sense as a formed tool, but in many cases they do represent physical evidence of human activity at a site. Many archeologists collect and analyze (weigh, map, count) fire-cracked rock as indicators of hearth activity and to identify specific activity areas within a site. In some contexts it can be difficult to separate naturally occurring fire-cracked rock (perhaps due to forest fires) from culturally fire-cracked rock. Other abbreviations include FBR (fire broken rock) and TAR (thermally altered rock).

Flake:
A removed piece of lithic material having the following characteristics:

a) a regular (prepared core) to highly irregular (unprepared-core) outline
(b) evidence of a bulb of applied force (bulb of percussion);
c) if the flake is whole, a platform or point of impact, bulb scar, conchoidal ripple marks and varied radial fracture lines.

Flaked:
An object that has been formed or intentionally modified through the removal of one or more flakes.

Feature:
In archeological excavation, a non-portable cultural element of a site that is not classed as an individual artifact. Often a distinct association of cultural elements. Pits, concentrations

of lithic debris, walls, floors, hearths, depressions, graves, postholes, are all features.

Geoarcheology:
The study of the relationship between prehistoric cultural deposits and their geological or geomorphological setting.

Glaciation:
The process by which land is covered by a glacier or ice-sheet or the period of time during which such covering occurred. The periods of colder weather that cause glacial formation are called glacials, and intervening warmer periods are called interglacials. Landscapes covered by ice can be recognized by smoothed and/or abraded rock surfaces, U-shaped valleys carved by ice-sheets, and glacial drift or till (the rocky rubble carried and deposited by glaciers).

Graver:
A stone tool used to incise or form organic materials and soft stone. Gravers exhibit a distal end that is thick in cross-section and have a chisel-like edge, not unlike that of a burin (although not all chisels are manufactured through burin technology).

Hammerstone:
A stone object showing battering or pitting on one or more sides or ends; can be either intentionally formed or a convenient utilization of natural form and material with no obvious manufacturing.

Historical Archeology:
The study of historically documented material or material associated with the historic period through archeological methods, with the goal of reconstructing and interpreting past events. These methods might include survey, testing or excavation, mapping, intra-site spatial analysis, surface collection, use wear, residue analysis, and a variety of dating techniques.

Illinoian glaciation:
The third of four Pleistocene glaciations in North America; Preceded the Wisconsin glaciation and correlates with the Riss glaciation in Europe.

In-situ:
Generally means found "in place"; in natural or original position.

Intensive Archeological Survey:
A comprehensive archeological field survey designed to recover detailed site information. Recovered information should be sufficiently detailed to permit assessment of the appearance,

significance, integrity and boundaries of individual sites. Intensity can be influenced by the degree of ground coverage (how closely field workers are spaced or how many survey transects per areal unit) or the degree of detail recovered from individual sites.

Kame:
A mound or short irregular ridge, composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; or deposited by a superglacial stream in a low place or hole on the surface of the glacier. An assemblage of kames might be called a kame complex, kame field or, if terrace-like or ridge-like, a kame terrace. Such features are commonly pitted with kettles and have an irregular surface.

Kame and kettle topography:
The uneven topography that results from various ice disintegration actions. Characterized by the presence of kames and kettles. Sometimes known as knob and kettle topography.

Kettle:
A depression in glacial drift, especially in outwash or in a kame field, formed by the melting of a detached block of stagnant ice that was buried in the drift. Kettles often contain lakes (kettle lakes) or swampy areas.

Loess:
Windblown glacial silt. Loess is derived from glacial deposits and may be carried hundreds of kilometers before its deposition. In some locations massive loess deposits of several meters or more accumulate. Significant loess deposits are not common in the Preserve, being limited to areas downstream from Woodchopper Creek.

Macrocrystalline:
Rock with a crystalline structure distinctly visible to the unaided eye or with the use of a simple lens. Includes such materials as quartzite or granite.

Megafauna:
Animals, living or fossil, that are large enough to be seen and studied with the unaided eye.

Microblade:
A specific type of small, thin blade with roughly parallel sides and a prepared proximal end. Commonly defined as having a width less than 10 millimeters (also see blade, blade-core,).

Microblade-core:
The prepared nucleus from which microblades were removed (also see core).

Midden:
A deposit of occupation debris, rubbish, or other by-products of human activity.

Moraine:
A mound or ridge of unstratified glacial drift, chiefly till, deposited by direct action of glacier ice.

Occupation:
A discrete cluster of cultural material assumed to be the product of a single group of people at a particular locality and deposited over a period of continuous residence.

Palynology:
The study of pollen; pollen analysis.

Patination:
The chemical weathering of the outer surface of an artifact resulting in exterior differences in color, texture and substance. For example, chert often has a grey, white or bluish patina obscuring its natural color.

Phase:
An archeological temporal unit, defined by traits that distinguish it from all other units similarly conceived, whether of the same or other cultures or civilizations. Spatially limited to a relatively brief interval of time. A paradigmatic class of occupations defined by types and/or modes.

Preform:
A shaped artifact blank that needs further modification to be completed. Has the basic shape or outline of the finished product, but cannot perform the functions of the ultimately intended tool.

Prehistory:
The time before the written record; studied through the material remains of past culture.

Quaternary era:
The last great subdivision of geological time, of which the Pleistocene is a part.

Reconnaissance:
A relatively superficial and brief examination of representative portions of a project area, conducted for the purpose of defining the nature of the cultural resource base, determining general site types, and planning for future research. Test excavations may be conducted during a reconnaissance.

Research design:
A plan for conducting an (archeological) investigation that is

formulated prior to undertaking the research project, fieldwork or study. A research design includes a clear statement of the research problem, basic assumptions, activities and techniques for problem solution and hypothesis testing, and a specification of the relevant data and how they will be utilized for a full understanding of the resource. A research design should be sufficiently detailed to permit an evaluation of its methodological sophistication and feasibility.

Retouch:
The modification of a tool, after preliminary shaping, in order to refine or complete the tool. On a core-tool, retouch may consist of roughly trimming the edge by striking with a hammerstone, but on a smaller, finer flake or blade tools retouch usually consists of pressure-flaking. Also known as secondary flaking.

Ridge:
A general term for a long narrow elevation, usually sharp-crested and with steep sides.

Sampling:
The process or technique of selecting a part of a study area that is representative of the whole for inspection or analysis. Representativeness should be appropriate to the research problems under consideration. Sampling is utilized in archeological research both for recovering data from large study areas and individual sites. Sampling is commonly applied to both survey and excavation projects. The level of intensity depends upon the precision required of the investigative results.

Stratified Sampling:
A sampling technique used to insure some control over the spacing of samples. In this method two or more sampling strata within the population are established. These strata may be arbitrary or based on recognized differences in the area of study (e.g., topographic and ecological zones within a study area, depositional zones within a site, etc.). Once strata have been established, a representative sampling procedure may be used to select specific units (perhaps squares within a grid) for each stratum.

Scraper:
A tool used for scraping. Scrapers may be minimally formed, perhaps representing the use of a naturally sharp object (boulder spall), or be intentionally flaked. Scrapers can be unifacial or bifacial.

Site:
A site is the locus of any surviving physical evidence of past human activity, including the record of the effect of the activity on the environment. For the purposes of the National

Park Service Cultural Sites Inventory, it is a resource for which decisions will be made, benign or active, for its management (preservation in place, benign neglect, interpretation, or data recovery) as mandated by the National Park Service.

Site density:
The quantity or number of sites in a given area, as in distinguishable zones within a study area. Site density may be a critical factor in developing research designs and cost estimates for study or mitigation and with establishing significance.

Study area:
The zone or region selected for research. In cultural resource management investigations the study area limits should be that area which will lead to the most efficient and effective results with respect to the appropriate consideration of the cultural resources potentially affected. The study area should be specifically delineated in research proposals, research designs, contracts, and research agreements.

Survey (archeological):
A comprehensive and extended physical examination of a study area conducted to obtain reliable data on archeological resources and relevant environmental variables. Located sites are described, categorized, dated if possible, and their distributions noted. Test excavations may be necessary to identify the character, age, and significance of the resource. See also reconnaissance and intensive archeological survey.

Tchi-thos:
Boulder spall scrapers used in hide preparation. Commonly found in Athapaskan sites.

Tephra:
A collective term for all clastic materials ejected from a volcano and transported through the air. It includes volcanic dust, ash, cinders, lapilli, scoria, pumice, bombs, and blocks.

Terminal moraine:
The outermost end moraine of a glacier or ice sheet, marking the maximum advance of the ice with deposits of glacial till or drift.

Terrace:
A relatively level bench or steplike surface breaking the continuity of a slope. The term is applied to both the lower or front slope (the riser) and the flat surface (the tread) and can apply to stream terraces, marine terraces, or structural terraces.

Testing (test excavation):
The preliminary, exploratory and limited excavation of portions

of sites or specific features within sites, carried out for the purpose of better defining site size (vertically and horizontally), site complexity, chronological span of components at sites, quality of subsurface materials, state of preservation and other aspects critical to the determination of site significance, problems for investigation, proper research methods, and research time and cost for future studies.

Tradition:
A sequence of styles or traits which develops continuously, thus forming an easily accounted-for series of advancements from one culture to another. A cultural class that displays an extensive distribution in time and a limited distribution in space. A temporal continuity represented by persistent configurations in single technologies or other systems of related forms.

Tuff:
A general term for all consolidated pyroclastic rocks.

Tundra:
A treeless plain that may be level or undulating and is characteristic of arctic regions, having a black muck soil and a permanently frozen subsoil.

Type:
An intuitive cultural class of discrete objects or a paradigmatic class of discrete objects defined by modes.

Typology:
The classification of artifacts, by type, in archeology.

Use wear:
Physical evidence of a tools's use and/or function. Most types of use wear involve some form of damage, such as chipping, abrasion, crushing, dulling. Use wear may not be visible without magnification.

Wisconsin glaciation:
The fourth and final Pleistocene glaciation in North America, beginning some 70,000 years ago. The Wisconsin glaciation preceded the Holocene and correlates with the Wurm glaciation in Europe.