Kobuk Valley National Park
Traditional Affiliation Scoping Study

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Introduction

This report represents a collaborative effort to scope a planned National Park Service Traditional Use Study (TUS) for Kobuk Valley National Park (KOVA), and to carry out tribal consultation and planning in support of this effort. The scoping effort centered upon the ties between the park and the Kuuvangmiut community of Kiana, Alaska—one of six predominantly Inupiaq Eskimo communities with deep traditional cultural ties to the lands and resources encompassed within the park. On the basis of this effort, the lead author and NPS staff will conduct a TUS addressing historic and contemporary resources of cultural significance to the Native community of Kiana, as well as expanding the scope of investigations to include Ambler and possibly other communities traditionally associated with Kobuk Valley. Importantly, the current document is not a stand-alone report for such a Traditional Use Study, but a compendium of information that will guide and, in time, be integrated into a future study report.

The work was undertaken in response to interest by the Native Village of Kiana (a.k.a., Kiana Traditional Council) in participating in a Traditional Use Study, expressed during government-to-government consultations regarding the management of culturally significant sites along Kobuk River. As funding was delayed, the current effort was limited to a scoping effort, designed to guide and add momentum to a full TUS, initiated under a new Task Agreement concurrent with the completion of the current document. The current document provides an outcome of literature review, as well as extensive consultation, community meetings, and reconnaissance ethnographic interviewing with Kiana residents between 2014 and 2017. The planned full project will be conducted in three phases: 1) planning and consultation for future phases, and the compilation of additional existing documentation and resources, 2) detailed ethnographic research and fieldwork, and 3) compilation of data in the form of a written thematic report and map/GIS datasets. All phases will involve collaboration between PSU researchers and NPS staff.

The National Park Service (NPS) has a mandate to formally consult with traditionally associated Alaska Native groups regarding places of cultural importance within the park and potential effects park operations might have on them. The NPS also has a mandate to systematically document such places and to assess their eligibility for inclusion on the National Register of Historic Places under the National Historic Preservation Act, so they may be protected, documented, commemorated, and

interpreted for the benefit of American citizens and National Park visitors alike. The planned research will help achieve these goals, as well as others identified in the text below. A portion of the language from the 2017 Task Agreement authorizing the full Traditional Use Study is included in an appendix to this document (Appendix A).

Tribal Concerns and their Urgency

The current study focuses on lands and resources within Kobuk Valley National Park, a cornerstone of interior Inupiat culture and history. Recognizing the unique importance of the Kobuk Valley to Inupiat communities in the region, interviewees generally stressed the importance of gathering information regarding culture and history in the work ahead. Speaking generally about resource management, interviewees wanted protection of ancient and modern sites from erosion, to maintain access for subsistence and possible resource development, and to maintain the integrity of natural resources on which subsistence traditions depend. Most urgently, however, interviewees want to see both knowledge of, and access to, these lands preserved, so that Inupiat communities and their culture may survive for generations to come.

Timing, interviewees suggested, is critical, as the need to document the area is increasingly urgent. Within the park boundary, riverbank erosion is said to be occurring rapidly. Interviewees consistently described a pattern of accelerated ice breakup causing the accelerated erosion, all the while eroding some cultural sites and traditional use areas. Jackie Johnson was one of several people who spoke of these changes:

> "It's not like before…faster…and the water goes through different channels…all along the river…there's always a cut bank. Less snow…the climate is changing…used to be a slow breakup but now it's fast and washes out [the bank]. A lot of places we used to stop we can't now—can't go up the cut banks…and what really surprised me was the river's getting really shallow [from the sediment] so it's hard to travel in places we used to go" (JJ).

Archaeological sites, burials, and modern cabins and allotment lands are all being undermined, according to interviewees.

Other environmental changes were mentioned that were equally concerning to Kiana residents. For example, several interviewees reported a spontaneous die-off of salmon early in the spawning cycle. As local observers, Kobuk River people linked the salmon die-off to record high temperatures for August 2014. After the die-off was investigated, reports confirmed that the warm, sunny weather was one piece in the environmental conditions that caused the die-off (Selawik National Wildlife Refuge, 2014). Within the community of Kiana, this and other environmental changes contribute to a sense of urgency that documentation be assembled of the natural heritage of the park and its important linkages to the tribe's cultural heritage.

Historical and social factors also suggest to tribal members that the time has arrived for a detailed study of their ties to Kobuk Valley. Historical and cultural knowledge of the area is abundant, but this knowledge is primarily known to older generations. Many interviewees noted the importance of ensuring the passage of their knowledge to younger generations. Many elders spoke of the importance of elders' passing on critical survival information to the youth; Ella Sheldon, for example, spoke of her grandmother Lena: "She taught us where to go camping and pick berries and go fishing" (ES). Another interviewee spoke of: "The old people, they teach me how [to survive] …old people always tell me" (PJ). The elders demanded a high standard of young people learning core skills, Ella Sheldon notes, recalling her grandmother pulling apart the stitching in traditional crafts and asking her grandchildren to start over if the work was unsatisfactory.

Interviewees also expressed concern about trespass on allotments and their use by non-Native visitors to the river. Some spoke of the importance of documenting and broadcasting the locations of allotments to river visitors, as well as information regarding the history of Native use and protocols for the visitation and use of allotments.

The subsistence hunting of today presents new challenges. According to Kiana residents, fall caribou hunting pressure has increased noticeably as hunters from around the NANA Region and beyond crowd the western boundary of the park and along the Kobuk River corridor. For example, interviewees suggest that when outsiders hunt caribou along the river in large numbers, the corridor becomes unsafe, with rafts and other boats passing through active hunting grounds, and with hunters shooting in the direction of one-another as they pursue caribou. Outsiders sometimes behave recklessly and need to be rescued, adding risks to the Kiana residents who participate formally or informally in search and rescue operations. Some outside hunters are seen "just chasing the caribou" in a disruptive way. Kiana residents have gone so far as to offer outside hunters their own caribou if they will stop hunting and leave (ES). Furthermore, outsiders' trespassing and littering on Native allotments has become a growing concern in recent years. As has vandalism and theft at cabins (DD, ES).

Primary Objectives of the Planned TUS

Climate change has led to erosion, which in turn has contributed to the loss of river sites—compounding the loss of access to, and knowledge of, key cultural areas.

Accordingly, interviewees expressed that the river should be the focus of the planned TUS, emphasizing the telling of the history of imperiled places.

Moreover, interviewees agree that the study should document settlements and settlement history, trails and other traditional routes of travel, the cultural significance of resource harvest areas, and the resources gathered therein.

During interviews, many expressed a desire to have researchers record "oral history, placenames, and the descendants that are tied to those places" (VM). Placenames were said to be an important part of the documentation process, and a type of data that should be analyzed and reconsidered throughout the study. As Vera Morris observes, "We were talking about placenames…when you have a place you look at the name. It helps you understand the place more…you may have stories of that place" (VM). "Every little bend, every little crook and cranny has a name [but] they're not saying the names any more…and they need to be remembered" (LS). Recording the placenames and presenting them in an organized fashion will ensure that future generations recall this trove of traditional knowledge passed down from the ancestors through placenames.

Much of this research will involve structured and semi-structured interviews. While many of these will be one-on-one interviews, the researchers also hope to host events such as potlucks, in which several individuals are invited to come together to share information in an open, conversational setting. In addition to the interviewees who participated in the scoping phase, Kiana residents identified several individuals and families potentially interested in contributing knowledge and ideas about the study area. They are identified in a list maintained by Deur and Atkinson that will guide future research.

This work will also involve visits to places within the park, guided by knowledge-holders from Kiana and, when possible, Ambler. Such on-site visits reveal a wealth of information not apparent in off-site interviews and—with both elders and youth involved—facilitate the continued intergenerational transmission of knowledge regarding places of importance. Visiting by boat, when summertime activities are underway and families occupy their camps, is an especially high priority. Yet, wintertime visits by snowmachine may also be possible. Interviewees also strongly support the continued mapping of cultural and historical information, as well as compiling photos and other materials that are accessible to the community.

As the environment changes for the Kobuk River people, and the elders who remember the traditional way of living are passing away, documentation of knowledge and history are increasingly valuable for Kiana. Quite frequently, interviewees and scoping meeting participants expressed frustration about participating in research projects that have not resulted in information, nor any clear benefits of the studies, returning to the community. Frequently and vehemently, participants asked that this study help to inventory and "bring home" materials already collected regarding the study area. Connecting Kiana community members to unpublished reports and findings could present the community with tools to engage in management.

Other Objectives Relating to Community Outcomes

The information recorded in the course of the proposed study is said to be fundamental to the identity of tribal members—tribal youth in particular. Oral histories are said to be essential to "letting people know who they are."

In this light, almost every interviewee stressed the importance of youth involvement and the development of educational opportunities for tribal youth. These opportunities may help develop vocational skills, but at the very least can help younger tribal members appreciate how and why these kinds of studies are undertaken. Ideally, as organized venues for sharing cultural and historical information, interviews and field visits can also serve as opportunities for the intergenerational transmission of knowledge, facilitated by the NPS research process. Simply getting high school kids out on the river with elders was said to be imperative "so they can see those places and learn" (EJ). The high school has a required Inupiat Studies curriculum that might support research tasks and use research products. During visits to Kiana in the scoping phase, PIs have made trips to the school to consult with teacher and administrators, this connection will remain important throughout fieldwork. Another educational opportunity is a summer culture camp organized by Kiana Traditional Council. The culture camp brings together tribal elders, youth, and schoolteachers and coincides with salmon fishing on the Kobuk.

Added to the importance of preserving and passing on Traditional Ecological Knowledge and place-based cultural knowledge, are more immediate concerns: some interviewees suggest that young people are not learning core survival skills, raising the need for more formalized mechanisms for transmitting this type of cultural knowledge. Often, young people are experiencing difficulties and assuming risks most elders did

not. NPS regulation, some suggest, adds to risk by restricting opportunities to cut firewood, build emergency cabins, store fuel, and the like; some interviewees wish to propose alternatives that might address these perceived risks. Some suggest the community would benefit from a guidebook containing the teachings of their elders and outlining survival techniques, especially those related to wintertime wilderness survival. While this lies somewhat beyond the scope of the proposed study, the researchers anticipate gathering and sharing information of this type within the community.

Interviewees generally expressed that they wished to see the cultural importance of salmon, plants, and caribou researched at a level reaching beyond conventional subsistence studies. Likewise, they suggested including management recommendations stemming from an understanding of the deeper cultural significance of this place and these keystone resources. For example, some recommended discussing culturally appropriate protocols for addressing the inadvertent exposure of human remains and archaeological materials.

Documentary Sources

Existing sources will be reviewed for all content germane to the current study. These sources will include those currently in the possession of the NPS, and those in institutional, tribal, and personal collections. Some key resources, though not all, are discussed here based especially on input from tribal interviewees regarding "missing collections" they wish to see incorporated into the current project, and brought, whole or in part, back to the village for community use.

Sources Internal to NPS Collections

For over a decade, NPS staff have made progress in digitizing legacy toponym information, often referred to as place names. Stories and observations recorded in conjunction with place names provide local knowledge and observations regarding seasonality, weather, natural phenomena, travel, early settlement, historic activities, beliefs, mythology and more. The information is organized in a database with over 3,000 entries (for all of Western Arctic National Parklands) and is restricted in access because of sensitive information.

The existing Kobuk River place name datasets often contain observations about the natural environment, including animal behaviors, habitation and migration locations, geologic features, plant gathering areas, and much more. Some discussions highlight changes in the natural landscape as well as observed impacts of such changes. This traditional knowledge can be used to inform, and perhaps direct, current research. As an example, maiġñiġruaq is a lake that was once a large lake with lots of muskrats. Now, it has become just solid ground. (It is also known as Sirraġniġruaq, according to Shungnak informants).

A limited number of place name maps have been circulated in Kiana. Community members feel that they are a helpful tool for travel, education, search and rescue operations, and local resource management discussions. Inupiaq place name information is important background for further traditional use research, and it will be important to work with the community to fill in missing information in the legacy data. Through further consultation with Kiana Traditional Council, it is possible to open up access to Kobuk River place names in the NPS database and create maps and tools for public use.

In 1988 the Alaska Regional Office of the National Park Service awarded a four phase contract (CX9700-8-0016) to the University of Alaska Fairbanks, Department of Anthropology. This contract involved the research and production of an Ethnographic Study for Cape Krusenstern National Monument, Kobuk Valley National Park, and Noatak National Preserve (known collectively at the time as NWAK – Northwest Alaska Areas). Intended products of this research included 1) an Ethnographic Overview and Assessment, 2) a Traditional Use Study, and 3) Ethnohistories. Dr. Linda Ellanna of the UAF Department of Anthropology was the Principal Investigator on the project.

Dr. Ellanna became ill in 1990, research halted, and there are no progress reports to draw upon to determine precisely what background and field research Dr. Ellanna and her team accomplished, although it is clear that fieldwork (including recorded interviews) was conducted in at least one village – Kiana. Upon the death of Dr. Ellanna, the contents of her UAF office were boxed up and removed by family members.

In 1995, the NPS received a formal request from the council to obtain ethnographic data collected by Dr. Ellanna that might assist in documenting their traditional use of the Squirrel River area. This was to aid them in responding to a proposal by the Bureau of Land Management to designate the Squirrel River as "Wild and Scenic" (Atoruk, 2000). Some portion of the interviews, field notes, and documentation were delivered to the research team in 2016 and interviews have been transcribed. These materials will add

significantly to future research. Further consultation is required to return the materials to the Kiana Traditional Council.

Sources External to NPS Collections

We will collect and utilize a wide range of preexisting materials in the project ahead—helping to "bring home" materials previously recorded as part of the project archive. This will include:

The extensive notes and collections of Douglas and Wanni Anderson—especially unpublished ethnographic and historical documentation, gathered in their many years of work on the Kobuk. Some portion of this work was undertaken with NPS financial support and permits, though copies are not on file in NPS offices. NPS staff will reach out to the Andersons, seeking their assistance and guidance in conveying this material to the NPS for use in this and other endeavors.

J. Louis Giddings publications and papers relating to Onion Portage and vicinity, which he studied in the 1950s and 1960s up to his untimely death in 1964, will be consulted. This will include, though not be limited to, further reconnaissance at the Haffenreffer Museum of Anthropology at Brown University (in Providence, RI) where Giddings was based. Some interviewees recalled their families being interviewed by Giddings or helping his work in other ways. They suggest some of the material they shared with Giddings appeared in his publications, though much of it did not. Other university collections relating to 20th century archaeological research (such as University of New Hampshire) will also be revisited for relevant materials.

NANA Regional Elders Council Recordings

Notes mentioned by interviewees from studies of plants and plant use by Anore Jones. The availability and relevance of these and other private collections will be investigated.

Allotment files from the Bureau of Indian Affairs, found in BIA and/or BLM offices, including maps, notes, and perhaps audio recordings of interviews.

Potentially revealing information on the quantity, timing, and changes in game species will be sought from the U.S. Fish and Wildlife Service and ADF&G.

Military surveys of those who traveled the Kobuk region, including the John C. Cantwell and George Stoney logbooks from the 19th century. Also, the logs of the Revenue Marine steamer ship, Corwin, which traveled the Kobuk in 1885.

The University of Alaska, Fairbanks photo collections relating to the study area. Also, the photos of a number of individuals and families who have expressed a willingness to share their archives with researchers. With the consent of such contributors, the researchers will compile and make digital copies when possible, adding to the project archive and potentially to the community archive as well. NANA's Munick Chappel, who helped significantly in research planning, indicates that her organization or the tribal office may be willing to seek funds to assist in digitizing and filing photos for such an effort.

Protocols for Future Research

A number of protocols were identified during reconnaissance interviews and meetings that will guide the research ahead. The research team will maintain regular contact with the Kiana Traditional Council and the Elders Committee, to provide periodic updates and to ensure compatibility with tribal needs and expectations. Throughout the research, the research team will also seek to facilitate youth involvement, with possible presentations and other outreach to the Kiana School. In upcoming research, the team will also include other communities—Ambler at minimum, but perhaps others too.

The research team will recruit and train one or more tribal research assistants. These individuals will be from participating villages, and will assist in many project tasks, possibly including: the identification and recruitment of interviewees, organizing and participating in interviews, helping plan and coordinate field visits, possibly translating, and helping to identify photos and documents within the community. This person, or persons, will gain skills and perspectives that will last well beyond the life of the project. The research assistants must be reasonably well organized, respected and respectful, and have a schedule compatible with intermittent (but often very focused) periods of activity. Ideally, these research assistants will include at least one person who can speak and write passably well in Inupiaq. The researchers will work with the tribal governments to identify, recruit, and contract with these individuals.

Storing sensitive information will be executed in a suitable way, such as making digital collections accessible only to tribal and NPS viewers. An understandable concern exists

regarding sensitive material, as some past studies have led outsiders to archaeological sites and graves, and some sites have been looted. Individuals have said they know these places are imperiled, and that sharing their knowledge might help in their protection. Yet, they desire assurances that sharing their knowledge will not add to problems on the Kobuk.

Researchers can often be seen as arrogant and self-serving. Thus, in all phases, the researchers will abide by local protocols, receptive to information from knowledge-holders. Some individuals reported they "were always taught not to interview for studies," because studies aided the interests of everyone except those living in the village. At every turn, this work must proceed with humility and an acknowledgement that the knowledge-holders are the people of the villages. Any research should bring results of clear value back to the communities.

The NPS will oversee all tribal consultation, as is required legally, superintendent or their designee will be present for tribal consultation. Yet, NPS staff—principally Hannah Atkinson—will also provide assistance in all project phases: aiding in the outreach to communities, collaborating in interviewing and coordination, and helping to plan and execute field visits.

Interviewees have noted considerable turnover in the leadership and staffs of organizations key to community life, such as the City of Kiana, Kiana Traditional Council, and NANA. Turnover in the NPS staff was also mentioned as a historical challenge, resulting in a loss of "institutional memory," and a shift in objectives and consultation style. This at once creates challenges, but also opportunities for the current research. In some respects, interviewees note, developing written documentation and recommendations will help to ensure that tribal perspectives are not forgotten amidst the turnover of staff and administrations.

Proposed Products

Beyond a thematic report, this project will result in the production of several other products.

Mapping will be a significant component of the project ahead. Placenames have been recorded in the course of the current reconnaissance effort, as well as prior studies. Concurrent with the current study, many of these were synthesized by Eileen Devinney

into a comprehensive map for the study area. Most are Inupiaq, but modern usage includes many English names for landmarks as well as camps such as "Larry's Camp," or "Wilbur's Camp." In the work ahead, the team will refine this placename mapping, as well as maps of traditional use areas showing juxtaposition with allotments, cabins, and historical villages. These, interviewees suggest, should identify key trails and travel routes. We propose, especially, to map in detail places of importance within the corridor from downstream from Coal Mine to Onion Portage, reflecting the high density of cultural activities and historical connections to that area. Maps will be designed so that print copies are intuitively understandable, using known landmarks and appropriate coloration, for example, to orient those who do not use maps regularly. They can then be printed and made available broadly within the community for personal and educational purposes. Such maps are also said to be helpful for use by search and rescue operations, and can be made available for these kinds of uses.

Interviewees want maps of cultural information shared with children in particular—through the schools, perhaps, including their standard Inupiat Studies classes. A few individuals mentioned the possibility of having more Inupiaq placenames formally listed on the USGS Geographic Names database as formal placenames, especially for the many places now lacking formal English names.

As mentioned, most participants in this scoping process accentuated the need to develop educational opportunities and materials for tribal youth. This might include guidebooks or other written summaries of cultural and historical information, presented in formats appealing to young people. Interviewees suggested how the research team might make sense of complex cultural and natural resource information in digestible ways—such as organizing information on cultural uses of natural resources by season. Such youth education efforts might also include events bringing tribal members, especially youth, onto NPS lands of traditional cultural importance. Potentially, this educational effort might include digital maps providing georeferenced placenames, stories, audio of placenames and stories, photos, and other content. Students might even help generate content, if the schools wished to get involved in this way.

Many interviewees mentioned a desire to house a collection of materials relating to the Kobuk within the village of Kiana. A number of proposals were mentioned regarding the curation of these materials, ranging from existing tribal offices, to the creation of a new, small library on natural, cultural, and historical themes in an unused building in Kiana. The researchers will maintain an ongoing dialogue with tribal representatives,

and attempt to package the project archive in a way that is compatible with community needs.

Interviewees are also highly supportive of producing digital collections, such as collections of photos, writings, and other materials that would be accessible to tribal members. Potential accessibility to outside viewers, such as through online media, will need to be discussed with participating tribes and interviewees as the project proceeds.

SUMMARY OF EXISTING DOCUMENTATION PERTAINING TO THE STUDY AREA

The following section provides background information on the study area and its use by Native peoples through time. Comprising the background are the reconnaissance interviews with Kiana community members, and the results of the literature review of relevant sources. Interviewees contributed knowledge of the study area, including modern and traditional subsistence practices, the role of KOVA lands and nearby sites for subsistence living, their concerns surrounding the continuance of these practices, and suggestions for the upcoming project. The results of the literature review support these topics, provide additional context, and suggest additional avenues for future research.

In general, the interviews and literature highlight the breadth of resources utilized in the region and the acquisition of supplies near seasonal camps. The case for continuity of resource use is strong in historical, archaeological, and ethnographic literature. Caribou and fish especially were, and continue to be, critical resources for the region's inhabitants. Important harvest locations for both are located within KOVA, and identified by the interviewees and documentary sources. The literature emphasizes resource variability, both relatively predictable seasonal shifts and longer-term population cycles. Kobuk Valley Inupiat have always faced scarcity, often even famine. Yet cultural practices cushioned against food insufficiency. These practices included alternate food resources, relocation, trade, feasting, and cooperative practices.

The earliest historical sources capture information on resource use but may be problematic for two reasons: 1) in general, they focus on lands considerably south and west of the study area;[1] and 2) they generally fail to distinguish between people who lived in coastal areas, people who lived inland, and people whose residences spanned

[1] John Cantwell (1887, 1890) and George Stoney (1900) traveled up the Kobuk.

both areas. Additionally, the names historic-era Euro Americans used to characterize Native peoples vary widely and correlate poorly with names used since then; historic-era designations correlate *especially* poorly with names Native peoples used (Burch 1998; Anderson 1970b; Anderson 1972; Anderson 1979; Burch 2006).

Ethnographic research conducted in the mid-20th century convincingly captures resource use just before Euro American contact. However, there is a significant gap in the literature treating early 20th century resource use in light of changing patterns of residence. Additionally, the interactions between education, wage labor (particularly whaling, oil, and tourism), subsistence practices, and patterns of residence during this period remain insufficiently studied.

Results of the interviews and literature review highlighted possible focuses for the upcoming ethnographic research. The paucity of information on shifts in resource use in the early 20th century presents one avenue for future research. Potentially, analysis of the "Kiana and Gates of the Arctic Jukebox" transcripts and Foote (1965b; 1966a;1966b)[2] will remedy this lack to some extent. Another research focus is the symbolic importance of subsistence fishing and hunting as part of modern tribal members' enduring Native identity, as well as their diet. Caribou hunting and fishing are particularly relevant subjects given the primacy of the resources, as is the use of KOVA lands for these activities. Kiana community elders emphasize the desire to document and pass on such information to younger generations. The continued usage of subsistence activity camps and locations in KOVA, especially Onion Portage, suggests another topic to examine for its role in cultural continuity and lasting importance for subsistence practices.

Finally, modern tribal members face various challenges to the continuance of subsistence lifeways. These include restrictions to land and resource access, and competing claims on resources from visiting hunters, fishers, and industries. Changes in climate are also a factor. Multiple interviewees raised concern over the current erosion cycles destroying subsistence areas and archaeological sites, and mentioned a salmon die-off event possibly due to warmer water. Further examination is warranted to better identify and understand challenges to subsistence harvests, and tribal members' suggestions on how to mitigate these effects.

[2] Among Foote's papers at the University of Alaska, Fairbanks, library.

Kobuk as a Place of Resource Abundance

Historically, people living in the Kobuk River Valley utilized a wide array of locally available resources. The numerous species provided food, clothing, fuel, and other necessities. Archaeological and ethnographic sources attest to the long-standing importance of the region's resources, particularly fish and caribou for inland people like the Kobuk Valley Inupiat. These practices continue today for modern tribal members, including the communities of Kiana and Ambler who utilize KOVA for subsistence harvests.

During interviews for the current reconnaissance study, people consistently described the Kobuk River corridor as a place of resource abundance, not only for fish but for game: "all kinds of game up there—you name them!" (ES). The river and riparian corridor contributed not only to resource wealth, but helped to offset scarcity in lean times or even what are locally called "starvation times." Many tribal members note that "a lot of their foods were in the river," and that they went there when keystone resources were scarce to fish for secondary species, hunt for small mammals, and gather plant materials that helped to sustain them until the caribou, salmon, and other major subsistence species returned.

There are also areas in the Kobuk River Valley known for their inhospitable conditions and difficulty of travel. As one interviewee attests, "it's beautiful country but I wouldn't want to live there…it's like Tucson!" (RB). The microclimate of the sand dunes is also known to produce resources that are scarce in other areas. For example, interviewees reported visiting the sand dunes to collect a certain berry that was not found in abundance elsewhere.

The literature likewise notes the resource abundance of the Kobuk River and the surrounding region. Sources document the use of these resources by inhabitants, spanning from the prehistoric archaeological record, through the ethnographic past, to present communities. Noting the breadth of resource use across the wider region, Foote writes:

> "The Eskimos used a wide variety of foods such as sea slugs, seaweed, warble fly larvae, caribou feces, gull eggs, crayfish, ling, suckers, sculpin, loons, sandhill cranes, gulls, muskrat, wolverine, porcupine, and others. It can be said that only the raven and killer whale were not hunted" (1965a:263).

The Kotzebue area contains an abundant variety of resources that inhabitants utilized:

> "Traditional populations of the Kotzebue region had hunting-gathering economies based on resources that were relatively rich and varied for an area this far north. Caribou, mountain sheep, bears (grizzly, black, polar), several species of sea mammal (bearded seal, ringed seal, spotted seal, beluga, walrus, bowhead whale), fish (char, several species of salmon and whitefish, sheefish, grayling, burbot, Arctic cod), small game (ground squirrels, hare), furbearers (white fox, colored fox, hoary marmot, wolverine, lynx, wolf, otter, mink, muskrat, ermine), and birds (ptarmigan, snowy owls, sandhill cranes, whistling swans, several varieties of ducks and geese, seacliff nesting birds) comprised the harvestable fauna" (Burch 1984:306).

Smith provides further detail on the inland resources found in the Kotzebue region. The land contains numerous plant and animal species, available seasonally or year-round:

> "The interior river valleys are forested with stunted spruce, birch, cottonwood, and willows, which provided the aboriginal inhabitants with building materials and fuel. The forest also serves as a habitat for large game, including bear, mountain sheep, caribou, and moose, and a variety of small furbearing animals. The latter include the muskrat, squirrel, land otter, beaver, mink, martin, weasel, and rabbit; the silver, red, and cross foxes; and also the predators, the wolf and wolverine" (Smith 1966:10).

The ponds, swamps, and rivers are also home to various birds and fish:

> "Numerous varieties of waterfowl, including ducks, geese, and cranes frequent the ponds and swamps of the coastal tundra during the summer season. Ptarmigan are year-round inhabitants" (Smith 1966:10).

> "The salmon run in Kotzebue Sound is the farthest north movement of this species in North America; it normally begins in late July and continues through August. There are occasional years in which an early (June) run of salmon occurs, dependent upon local weather and ice conditions" (Smith 1966:11).

Giddings emphasizes past Kobuk Valley Inupiat peoples' focus on these local productive resources. They "depended almost wholly upon the resources of the streams, lakes, mountains, and forests" over those available farther afield or through trade (Giddings 1961:128). Their subsistence patterns focused on the inland resources described above. For clothing, people used "caribou, sheep, lynx, marmot, mink, marten, muskrat, ground squirrel, beaver, otter, and occasionally moose" (Giddings 1961:139). Food sources also spanned a variety of species, however a few resources were critical for their food base: "the two most important bases for survival were the fish and the caribou. Success in the quest for these assured a comfortable existence" (Giddings

1961:128). Even today, "caribou and fish, the most common foods, are valued above all others" (Anderson et al. 1998:240), as will be emphasized in other sections below. The lands in and around KOVA were, and continue to be, important harvest locations for these species.

Past harvesting techniques were diverse, enabling the Kobuk Valley Inupiat to exploit a wide range of local resources. With the bow, men hunted caribou, sheep, marmot, ptarmigan, waterfowl, beavers, muskrats, and mink, as well as "all manner of small animals and birds" (Giddings 1961:132). Inupiat took bears with spears or arrows (Loon and Georgette 1989:30). They set traplines for rabbit, ermine, fox, grouse, among others, and packed into the mountains to snare caribou and sheep; some old men trapped marmot closer to home and women set "ptarmigan fences" and snares along rabbit trails (Giddings 1961:133). Likewise, people trapped caribou and fox in pits (Giddings 1961:133). Fishing techniques included gill nets, dip nets, and seines made from sealskin, caribou sinew, or willow bark; they caught fish with leisters, weirs and hooks and lines (Burch 1984:309-310).

Scholars generally suggest that these resource use practices have been quite consistent, from prehistory to the present. Anderson (1998), Andrews and Creed (1998:1), and Stalker (1998:31) note significant continuity in resource use through time. This persistence is displayed in both ethnographic and archaeological evidence. Indeed, the ancient hearths found at Onion Portage in KOVA resemble those left by hunters today (Anderson 1970c:3). Analysis of remains at the Onion Portage site revealed some of the species utilized in the past. Mason and Gerlach identified eight possible protein sources in pre 350 A.D. seasonal Ipiutak occupations at Onion Portage: caribou [98% of the sample], mountain or Dall sheep, musk ox, birds, hare, canids, fish, and small mammals (1995:118–119). Many of these are still sources of protein today for local Inupiat peoples.

Continuity in subsistence practices has endured alongside changes for the people living in the Kobuk River region. As indicated by Anderson et al.:

> "The years since 1880 have brought a great many changes in life on the upper Kobuk River. Much of the traditional technology has been altered, lost, or replaced by new implements from western culture. … Despite these changes the Kuuvaŋmiut still make their livelihood primarily from the land" (Anderson et al. 1998:35).

Seasonal subsistence rounds are similar, with newer technology changing the way modern tribal members travel, as well as their hunting and fishing equipment

(Anderson et al. 1998:35, 48). "Residents of Northwest Alaska rely substantially on subsistence hunting, fishing, and gathering for nutrition and to support their customary and traditional ways of life. Since in the early 1980s, estimates of average subsistence harvests have ranged from 398 to 940 lb. per person per year" (Magdanz et al. 2011:3). Caribou and fish remain vital resources, yet the more recently available moose has also become a common food source (Smith 1966:10). Animal skins and furs are still important for clothing, both practically as they are often superior over manufactured items for winter gear, and as a symbol of Native identity (Anderson et al. 1998:242). Other changes occurring in the late 19th century and the 20th century will be further discussed in the following sections.

Subsistence food practices continue for modern tribal members utilizing lands in the KOVA region. The communities of Kiana and Ambler are the primary users of park lands for subsistence harvests. Magdanz et al. collected subsistence food use data for Kiana households in 2006, which included resources harvested in and outside of KOVA. In 2006, 99% of Kiana households used subsistence foods: an estimated 70,791 lbs. of fish (salmon, other fish, and shellfish), 52,093 lb. of land mammals (predominantly caribou and moose), 2,591 lb. of marine mammals, 1,706 lb. of birds and eggs, and 5,027 lb. of vegetation (Magdanz et al. 2011:53–59). Magdanz et al. explain:

> "Harvests vary from community to community, and harvests vary over time in both amounts and species harvested. Species harvested include, but are not limited to, salmon, inconnu (commonly called sheefish) *Stenodus leucichthys*, Dolly Varden *Salvelinus malma*, whitefishes, caribou Rangifer tarandus, moose *Alces alces*, bearded seals *Erignathus barbatus*, beluga whales (white whales) *Berardius bairdi*, other seals, geese, ducks, crabs, clams, wild berries, and wild greens" (Magdanz et al. 2011:3).

In 2012, within the Ambler community, 98% of households used wild resources. The resources totaled an estimated weight of 170,468 lb., comprised of 104,682 lb. of land mammals, 59,639 lbs. of fish, 3,409 lb. of vegetation, with the remaining 2% including all other categories (Braem et al. 2015:37). This 2% included 2,720 lb. of harvested bird meat, and a sparse amount of bird eggs (Braem et al 2015:51). The numbers evidence the continued importance of subsistence hunting and gathering for Kiana and Ambler residents.

For these and many other reasons, continued and largely uninterrupted access to the traditional subsistence resources of the Kobuk Valley is said to be imperative for Kiana

community members. Lorey Schuerch expresses a common sentiment: "people use the park to harvest necessities and it should remain that way."

Further details on resource use can be found in the following sources: Anderson et al. provide a comprehensive list of resources used by the Eskimos of the Kobuk River in his appendices 2 and 3 (1998:283–286, 287–306). Recent harvests detailed by village are available in Braem (2012) [big game], Georgette (2000) [birds and eggs], and Magdanz et al. (2011). See J.P. Anderson (1939) and Jones (2010) for the use of plant resources.

Residential Patterns

Modern tribal members live in permanent villages, using camps in KOVA and the surrounding area for resource acquisition. These camps are sited to take advantage of localized, seasonal resources and relate to the traditional seasonal round of the Kobuk Valley Inupiat. Some of the camps have a long history of use by community members and their ancestors.

In the past, Kobuk Valley Inupiat were nomadic, moving to resource locations throughout the year. Yet sources describe how most Kobuk Valley inhabitants, unlike other Inupiat groups in Northwest Alaska, remained inland during the summer rather than traveling to the coast. They maximized their resource acquisition through knowledge of resource locations and the landscape. This heritage makes the camps in KOVA not only economically important, but culturally important for modern tribal members.

Burch recorded eight fall/winter settlements in the central Kobuk River valley prior to contact. Qaiyana was the name of a settlement south Kobuk River from the current location of Kiana. Aksik was located downriver toward the Kobuk River delta, and six settlements were located upriver. One recent interviewee explained "That corridor all the way up the Kobuk—that's where all the people lived!" (RB).

One of the more significant settlements in the region was *Igliqtiqsiugvigruaq* "Swift water place"—a place with shallow, fast water as the name implies, ideal for traditional fishing and other pursuits. Many members of the community have roots in that community, which has been the focus of significant archaeological research by Douglas Anderson in recent decades. Other major villages once existed along the river, such as

the Kavet Creek confluence near the Great Kobuk Sand Dunes—another village where Kiana families trace their origins.

The dialect of the Kobuk Valley is widely understood to be distinctive, subtly different than Inupiaq found at Kotzebue, for example.

Enduring Camps

Camps along the Kobuk River have always been important to the use of the area. Today, based largely on private allotment lands, these camps remain a critical foothold for traditional users now living outside of the park. These are base camps for subsistence activities, and key processing areas for fish, game, and plant products obtained nearby. Some families maintain a single camp, placed close to a key fishing or hunting site; a few maintain multiple camps, spaced along the Kobuk River corridor in such a way as to allow access to a range of natural resources over time.

Yet, these camps are combined social and work spaces, not existing for solely utilitarian purposes. People work hard at these camps, but they also play hard, take long walks along the river, share stories and traditional knowledge, and eat well. The camps are important for subsistence, but many interviewees spoke nearly as often about returning to the camps for solitude, for a break from village life, and for the camaraderie of family and close friends. For many, it is their attachments to place that are as much an attraction as the resources the place affords. As Johnson Black, who has gone to the camps since his boyhood in the 1930s, says, "it's pretty nice up there. I like it up there…I love that country: that's why I go there" (JB).

Families have continued to visit camps annually. The move to the camps often occurs as the school year ends—a time when children are available, and fish, plants, and certain game become accessible in the landscape. "We would go up there about the time school was out and we'd stay 2-3 months of the summer" (NW). A few individuals still "stay until winter," coming downstream by boat as the snow begins to fall (JB).

Many individuals reported that they or friends and family have camps (many with cabins) in the Coal Mine area, roughly a mile and a half downstream from the formerly vast village of *Igliqtiqsiugvigruaq*, "Swift Water Place." The Jackson family, for example, are often mentioned in this regard. Some of these families lived in the Coal Mine area full-time, though increasingly the area has served as a seasonal base of operations for

social and subsistence activities. The camps are described as a base of social life, and many mentioned important moments in their life that took place in camps. Some, such as accomplished storyteller Blanche Cook, were born while her family was at camp. Other camps were said to dot the shoreline in the reach between Coal Mine and *Igliqtiqsiugvigruaq*. Upstream confluences, such as that between the Kobuk and Mauneluk Rivers, are also noted to be the sites of family camps. A few families and individuals from Kiana, such as Johnson Black, have allotments as far upstream as the Onion Portage area.

Camps commonly sit in places where long ago villages or significant, established camps were located. "You can see the old villages there…there are pits [in the ground] and wood sticking out…mostly along the river" (DD). Tents or brush shelters have been placed on ancient campsites, or even on beaches with good access to the water and fishing sites. While canvas tents have long been used, it is since the creation of allotments that "most of the cabins were built" (DD). Some older cabins exist on federal lands outside of the allotments, though these have often fallen out of use as people consolidate on allotment lands—in part due to concerns regarding title and access when off of private allotments.

Many interviewees discussed life in the camps at Coal Mine. Jackie Johnson, for example, mentioned that his grandfather Warren Black lived there almost year-round. He seined fish in the nighttime, catching enough fish to fill his boat before heading back to his cabin. Percy Jackson says this was among the best fishing places in the region, with "any kind of fish you want!" (PJ). "You can get *every* kind of fish there!" (HJ).

Other camps were reported in places such as *Nelluq*, where many families have netted fish. Though the water is shallow there, young men often get out of the boats to help usher the nets through. Also mentioned were camps at Moose Lake—a place long used by the Atoruk and other families for fishing. Some places, such as *Iyagak*—Ella Sheldon's camp—are named by or for particular families, and are largely used by those families today. So too, Ambler residents have maintained camps in several locations, especially above Hunt River and in the Onion Portage area. Many families have held on to camps long after moving their full-time residences to Kiana and other area villages. Interviewees note that when people die, their families sometimes stop using the camps.

Traditional Seasonal Residential Patterns

Historical context for these subsistence activity camps is provided by documentary sources. The camps are a continuation of practices in the traditional Kobuk Valley Inupiat subsistence round. The nature of this document precludes a detailed account of the traditional seasonal round. However, a general discussion and details relevant to KOVA are included here. For further information, Anderson et al. (1998:30-54) provide an excellent summary of the upper and lower Kobuk peoples' traditional and modern subsistence cycles.

Kobuk Valley Inupiat followed a seasonal round to exploit localized resources across the landscape. Anderson et al. describes the necessity of this pattern:

> "During aboriginal times the Eskimos had no large or permanent settlements; they lived in camps that could be moved whenever the need for resources demanded it. Because transportation was limited…in order to survive, they had to be nomads who stayed near the herds of caribou wherever they might be" (Anderson et al. 1998:262).

Similarly, Mason and Gerlach (1995:121) note, "nearly all inland societies were on the move throughout the year for seasonally abundant resources." The ability to successfully harvest these resources required knowledge of the landscape. This includes familiarity of the terrain and conditions during different seasons for navigation and travel (Anderson et al. 1998:251). Efficiency in travel was crucial for the harvesting and transportation of resources during the seasonal round (Burch 1975). People also needed to know where resources were located on the landscape, and under what conditions a resource was productive, and thus when to travel to harvest it (Anderson et al. 1998:251). The overall range of their subsistence round hinged upon "resource availability, topography, weather, and technology…but [also] cultural factors, such as ideas about territoriality" (Anderson et al. 1998:142-143). Territoriality will be discussed further in a later section.

Oolyak described a Kobuk family's seasonal round for Giddings in 1947 (Giddings 1961:39–48). Before freeze-up, men hunted marmot and caribou, and sometimes sheep and bear, for skins. From their winter houses, they trapped whitefish and mudshark. From their spring camps, men snared ducks and geese, occasionally cranes, and hunted muskrat with bows and arrows while women netted fish. From the summer fish camp, men traveled to hunt for marmot or caribou, perhaps ground hog, while women prepared and filled the family fish cache. Oolyak's description serves as a general example of the Kobuk Valley Inupiat seasonal residential pattern.

Magdanz et al. synthesize descriptions of the seasonal round into the following depiction:

> "The culture and economy of the *Kuuvaŋmiut* ("Kobuk River people") has been described by Giddings (1952, 1956, 1961), by Burch (1998), and especially by a National Park Service study (Anderson et al. 1977). In summer, *Akuniġmiut* women operated fish camps along the main river, harvesting and drying salmon and whitefish. Also in summer, able-bodied *Akuniġmiut* men walked north into the Baird Mountains to hunt caribou and sheep, staying there for several months before rafting back to the Kobuk River with skins for clothing and dried fat and meat. Reunited at the end of summer, families moved to caribou crossings on the Kobuk River. They waited for migrating caribou to swim the wide river, and dispatched the swimming animals from kayaks and canoes. Before freeze-up, they traveled to their winter settlement areas, where they built new semi-subterranean homes of wood and sod each year. The size and location of winter settlements varied from year to year. After freeze-up, they built fish traps, snared caribou and small game, repaired and prepared equipment for the coming summer, and participated in regional festivals featuring dances, feasts and games" (Magdanz et al. 2011:50).

Spring brought the opportunity to break from winter camps and seek newly available resources. During this season, fish could be hooked through the ice, and small game were abundant, such as muskrat, hare, ptarmigan, and migrating waterfowl (Anderson et al. 1998:30-31, 44). Available large game included scattered caribou and bears in their dens. In times of scarcity, families relied heavily on stored foods (Anderson et al. 1998:30). Spring activities in KOVA lands included hunting caribou, bear, muskrat, and waterfowl (Anderson et al. 1998:33), and once the ice broke and the river cleared, families moved to summer camp locations.

A unique aspect of the seasonal round in the Kobuk River region was remaining inland during the summer. Most other Inupiat groups shifted to the coast in the summer to harvest marine resources. But inhabitants of the Kobuk Drainages could remain inland as the rich fishing resources of their territory meant they "did not have to go anywhere at all. They lived primarily on migratory fish at this time of year. All the people had to do was stay where they were and wait for the fish to come to them" (Burch 1975:3). During the season, they resided in their summer camps to catch and process fish, building up their food reserves. A small number of people did travel to the coast to obtain crucial supplies like seal oil. Burch notes:

> "Much smaller movements took place in the Kobuk River and Selawik districts, where the only people who regularly came to the coast were traders. These

> people, with their families, wintered on the upper reaches of the rivers concerned, and traded their way down to the coast in June. Then, after a few weeks there, they returned home, trading their way back up again" (Burch 1975:6).

As Oolyak mentioned, Kobuk Valley Inupiat hunted large land mammals before winter for skins. Late summer and early fall was a time to secure skins for clothing, and meat for sustenance. Burch (1975:3) indicates "the primarily goal in most areas was acquisition of caribou skins, which are in prime condition for clothing in late August." The population split at this point in the seasonal round to take advantage of multiple resources at the same time:

> "Along the Kobuk River…the men undertook rather long overland trips in August for the purpose of acquiring skins. The women, however, stayed behind and fished. Since the women could take care of the fishery quite adequately by themselves, the men would have been superfluous had they stayed home as well…The pursuit of quality goods was thus always in addition to the acquisition of essential raw materials in quantity" (Burch 1975:3).

Anderson also notes this pattern for the study area:

> "Historically, Eskimos from the middle and upper Kobuk also travelled to the upper Noatak during fall to hunt sheep and caribou before rejoining their wives at the fishing camps along the Kobuk River" (1972:68).

Some of the fish camps were in KOVA, as Anderson et al. states: "Prior to the 1960s, most upper Kobuk families spent early fall in fish camps scattered from the Hunt River to the Selby River," and "Lower Kobuk people spent early fall in fish camps scattered along the main channel all the way from the delta to the Salmon River" (Anderson et al. 1998:177).

During the fall, migrating caribou crossed the Kobuk River. Families moved to these locations to hunt the animals from kayaks and canoes (Magdanz et al. 2011:50). Onion Portage in KOVA was a significant site for the fall caribou hunt.

During the winter, Kobuk Valley Inupiat lived in houses along the river in locations that afforded fishing opportunities (Giddings 1956). Burch describes the winter season for Middle Kobuk people, writing:

> "Late in the summer the men would return, and the move to the winter settlement then would be made by boat. At freshwater freezeup the Middle Kobuk people were distributed among several medium-sized settlements located

> at or near the major tributaries of the Kobuk. They trapped fish as long as possible, then hunted caribou and small game and lived on their fish supplies during the winter" (Burch 1980:291).

This was also a time for trading and feasting, enabled by easier overland travel and a slow-down in subsistence harvesting (Burch 1975:6-7). Burch describes the relation of winter activities to the seasonal round:

> "This particular time of year was a true holiday season in traditional Northwest Alaska, for it was the period during which inter-regional visiting, feasting, and ceremonial activities were undertaken on a relatively large scale (Simpson 1875:262). It just so happened that this period came at the end of the fall hunting season. Consequently, long-distance travel for purposes of trade or pleasure did not interfere significantly with basic subsistence activities. It was also the time of least sunlight, a factor that inhibited big game hunting, but had relatively little effect on travel" (Burch 1975:7).

The traditional residential patterns of Kobuk Valley Inupiat revolved around travel to seasonally variable inland resources. As a mobile people, their knowledge of the landscape and resources were crucial for successful resource harvests. Other techniques of resource acquisition, including trade and feasting, will be further discussed below.

Shifts in Residential Patterns

The shift over time from a traditional seasonal round to the current system of permanent villages and resource camps is explained in this section, with information coming from a literature review, augmented by pertinent information from interviews with tribal members.

Although contact with Russians and Euro Americans began earlier, it was not until the late 1800s that new factors in the KOVA region caused shifts in residential patterns. Most of these were tied to the arrival of Euro American industries and governmental agencies. Throughout these shifts, subsistence lifeways continued, if in modified form. Today, the influence of these past forces on subsistence lifeways is further complicated by recent factors like tourism and climate change.

During reconnaissance interviews, Kiana residents noted that Russian traders initiated major shifts by bringing to the region a range of tools and goods. These spread quickly through preexisting trade networks. By the 19th century, the people along the Kobuk

had guns, metal tools and pots, and other goods, and became accustomed to robust, if intermittent, trade with these outsiders.

Scholars indicate one of the changes that affected residential patterns was the establishment of Euro American shore-based whaling stations in the 1880s. According to Bockstoce, "Natives from all over the interior drifted to the coast to become commercial hunters, and before long the number of crews had increased two or three times above the aboriginal level" (1977:n.p.). Ducker suggests that in the late 19th century, as many as half the Eskimo people north of the Bering Strait engaged with the whaling industry seasonally (1996:46). This participation in commercial whaling altered traditional residential patterns by prompting interior Inupiat to move to the coast, detracting from time that might otherwise have been spent subsistence hunting.

Almost three decades later, in 1908, the industry collapsed, prompting a return to subsistence whaling. The number of whaling crews fell almost to pre-commercial levels. Since about 1970, whaling has again expanded. High-wage oil jobs increased access to the capital needed to equip and run whale hunts (Bockstoce 1977:n.p.), allowing more people to participate in whale hunting.

Another change came in the early 20th century with the advent of Bureau of Education schools in Alaska. During recent interviews, community members mentioned that pressures to send children to formal schools precipitated an exodus of families from permanent homes along the Kobuk—many relocating to villages including Kiana and Ambler, which have had significant and enduring schools. Many elders in the community were additionally sent away to boarding schools such as Mount Edgecumbe (Sitka), Chemawa (in Oregon), and Haskell (in Kansas). This at once provided educational opportunities unknown in their home communities, but sometimes served to interrupt lives as well.

Described in the literature is this intersection of disruption and opportunity. Schools offered people in the KOVA study area opportunities for trade and employment as well as education (Ducker 1996:51). However, as people chose to relocate near the schools and establish permanent residences, traditional residential patterns were significantly disrupted. A quote from Ducker explains:

> "When the agency erected schools along the Noatak, upper Kobuk, and Selawik rivers in 1907 and 1908, Eskimos by the score immediately followed and built permanent homes, creating villages that still survive. Superintendent Shields observed that 'the natives will establish a permanent village at any good place

> where the Government establishes a school and an industrial plant. It is a remarkable fact that a Government school is the only thing that will hold natives even in a bad place, for they want school advantages for their children'"(Walter C. Shields to W.T. Lopp 8 December 1915 in Ducker 1996:50–51).

Multiple factors likely influenced relocation decisions, according to scholars. Ducker suggests that epidemics, the prophecies of Maniilaq, the adoption of Christianity coupled with missionaries' personal integrity, access to medical care and resources during periods of scarcity, *as well as* widespread interest in education encouraged people to relocate to communities with schools (1996:51–53). The author observes that people's traditional settlement patterns and expectation of periods of scarcity facilitated relocation:

> "Thus, a movement to a school village within the traditional society territory was not unprecedented, although the congregation of so many natives in a single site for many consecutive years was novel… The concentration of Inupiat at a single site could, after a number of years, strain the resources in the immediate vicinity. But Eskimo people and educators were able to adjust—the Eskimos, either the men alone or with some or all of their families, wandered farther to hunt and trap, and the educators understood and acquiesced in shortened school years so that villagers could gain their subsistence" (Ducker 1996:54).

Although Inupiat shifted to living in permanent villages, many families have maintained a strong presence in the Kobuk River corridor, using cabins and allotments as a base of operations for social and subsistence activities rooted in the distant past. Information from interviewees indicated that families such as the Jacksons, Westlakes, Henrys, and Walkers, for example, all continue to use allotments and cabins annually, while many others are also present for varying lengths of time.

The above quote from Ducker likewise indicates that subsistence food practices continued and remained integral to survival. This is evidenced further by Anderson et al.:

> "Arrival of the Europeans began a period of accelerated cultural and technological change…The pattern and technology of subsistence changed, but the imperative remained the same—the geographic range of activities was determined by the location of resources. Hunters went to the game" (Anderson et al. 1998:262).

During the current reconnaissance interviews, the mining of coal, gold, and other minerals was reported in the study area in the very late 19th and 20th centuries. Mining

of the region brought many non-Native families into the region through the 20th century, and some tribal members are descended in part from these families. This contributes to a diversity of perspectives and opinion regarding resource use in the study area. The gathering of minerals in the study area is a pre-contact practice, and mining is seen by some as a traditional activity within the park. Mining equipment, tailings, and other physical evidence of the peak mining of the mid-20th century can be seen close to the western border of the park.

Magdanz et al. (2011) describe how the development of Kiana was influenced by gold mining, eventually leading to Inupiat permanently settling in the town. As with the school villages, subsistence lifeways continued alongside the changes:

> "After the discovery of gold at Nome in August 1898, prospectors flooded northwest Alaska. Hundreds of men made their way up the Kobuk River where they spent the winter of 1898–1899 (e.g., Grinnell 1901). Not finding appreciable quantities of gold, most miners left the following summer. Several settled at a site across the river from the point called *Qayaana*. They built log cabins, continued to prospect and, in some cases, married into the *Akuniġmiut* society. Prospecting on the Squirrel River in 1909, Andy Garbin and "Spanish Jack" discovered gold at Klery Creek (Bain 1915:590), which spurred mining activity in the Kiana area. Fueled by this new industry, Kiana prospered during the first decades of the 20th century and saw the construction of a post office, hotel, saloon, jail, and restaurant. Iñupiat were attracted to the new settlement, and the old winter settlements were gradually abandoned in favor of life in the new town. Virtually all Iñupiat continued their subsistence pursuits, but some also worked in the mines, sold food and building materials to the miners, or filed claims themselves. Gold production was sufficient to support a dredge which operated into the 1960s. Interest in gold mining in the Kiana area continues to the present day, but development has been limited" (Magdanz et al. 2011:50-51).

Other changes to residential patterns in the Kobuk River valley around this time in conjunction with gold mining are mentioned by Mendenhall:

> "Mr. Samms, the missionary on Kotzebue Sound, after a careful estimate made during the winter of 1898, placed the number living in the valley at that time at 500. They are undoubtedly decreasing in numbers, but probably not at so rapid a rate as the difference in these estimates would indicate. Many of the prospectors who left the country in the spring of 1899 gave their outfits to natives, and these, believing that white men would continue to come into the valley, did not make their usual preparations for winter, so that numbers perished from exposure and starvation—during the year or two following. Others have followed the white

> men to adjacent fields, and so there has been a decrease in the population of the valley without a decrease in the numbers of the tribe" (Mendenhall 1902:52).

Kobuk Valley inhabitants took up commercial fur-trapping in the early to mid-20th century, adjusting residential patterns and travel ranges to obtain furs. Trapping muskrats was a major occupation from the 1900s to the 1960s. *Kuuvaŋmuit* "families drove their dog teams to 'rat camp' in late March or early April…By late April, the villages were virtually abandoned" for the spring muskrat hunting season (Anderson et al. 1998:220). They also trapped for other furs until the mid-1930s when the Depression and domesticated furs destroyed the market for wild pelts (Anderson et al. 1998:223-224). Fur trappers expanded their range to obtain furs:

> "During the peak of commercial trapping in the 1920s, the area utilized by *Kuuvaŋmuit* trappers expanded dramatically. Traveling with dog teams, they ranged north to the Colville River, south to the Huslia River, east to the middle Alatna River, and west beyond the Hunt River" (Anderson et al. 1998:224).

Commercial fur trapping declined after the 1960s, and furs are now primarily taken for personal use to make clothing (Anderson et al. 1998:220).

The region currently experiences increasing and diversifying demands on resources that are likely to continue impacting lifeways in the future. Young (2012) describes how the melting ice opens new potentials to access resources in the region:

> "The recession of sea ice in the Arctic Basin has fueled worldwide interest in opening commercial shipping lanes in the arctic and exploiting reserves of oil and gas that are becoming increasingly accessible. Enhanced prospects for ship-based tourism and industrial fishing have come into focus as well" (Young 2012:167).

Magdanz et al. point to other developments, in addition to climate changes, that have potential to impact resources and thus future subsistence lifeways:

> "Much like the fish and wildlife populations, neither the environment nor the economy of Northwest Alaska has been static. Supplies of and demand for fish and wildlife changed over time, sometimes dramatically and rapidly. Climate-related changes have occurred and were expected to continue to occur in Northwest Alaska (Grebmeier et al. 2006; Hinzman et al. 2005; Overland and Stabeno 2004). In addition, proposed industrial developments could impact not only renewable natural resources through habitat alteration, but also social and economic systems by providing increased employment and dividend income to residents of the region (Fried and Robinson 2008). Specific examples included

> proposed expansion of the Red Dog Mine (Tetra Tech Inc. 2008), proposed offshore oil development in the Chukchi Basin, and ongoing mineral exploration in the Ambler and Candle mining districts" (Magdanz et al. 2011:7).

The impacts of climate change will be further discussed below.

Though scholars recognize that Euro American education has changed residential patterns (Ducker 1996) and that Euro American whaling and the oil industry have significantly impacted subsistence practices (Bockstoce 1977), the intersection of whaling, education, oil, gas, and tourism in the early 20th century with subsistence resource use remains underexamined.

Trails and Other Travel Corridors

All camps, resource harvest areas, and other use areas are linked by networks of trails—originally used by dogsled and foot, the trails have continued to be important for ATVs and snowmachines in recent times. These have been partially mapped during reconnaissance interviews, and will be mapped in much greater detail in upcoming work.

Interviewees describe a network of major trunk trails connecting villages and linking them to key subsistence areas, as well as secondary trails linking a vast constellation of campsites, resource harvest areas, and other sites of cultural significance. Most trails existing today originated before motorized vehicles, being used for generations on foot and by dog sled. Today, these trails are still used and augmented to accommodate ATV and snowmachines. Traveling across the river corridor by snowmachine, Kiana families typically reach their allotments in only an hour, two, or three—roughly half (or less) the time formally required by dogsled. Airplanes are also used at times to access the study area, landing on river gravel bars or other flat surfaces. When space is limited, airplanes take off uphill on low, gradual slopes.

People formerly stayed longer in the country and relied more on camps spaced throughout the river valley camps when transportation was less efficient, some suggest, due to the sheer difficulty of moving between places (JB). Today, some subsistence activities are easily based out of a single location. For example, some families have even moved fish processing from camps to their homes, in light of transportation efficiency and the convenience of processing fish in home kitchens with plumbing and electricity. Conversely, some suggest the decline in older, slower modes of transportation was

hastened by the emergence of regulations—especially regulations restricting the time available for hunting and fishing certain species.

Trails are described following most of the major drainages, especially north of Kobuk River—Salmon River and Hunt River being important corridors to both hunting areas and villages north, east, and west of the park. The ridges and valleys along the western edge of the park are used extensively for wintertime travel, and have a number of fine-grained snowmachine trails traversing low passes between drainages and over open, clear ground. Trunk trails link the Kobuk area to villages west of Kiana, including one major trail that passed along the base of the hills and above the marshes along the edge of the Squirrel River Basin.

Summer trails avoid marshy areas. No matter the season, travelers try to avoid the sand dunes, said to be a mess of mixed snow and sand that can bog down machines and strand travelers, if not careful. The rapid arrival of storms in winter can be potentially dangerous. Winter travelers on the Kobuk track the visibility of certain landforms around the basin, and if those landforms become obscured, they known storms are moving in.

Traveling by water requires similar careful attention, as the water is often shallow and channels can quickly migrate. The river is prone to rapid and potentially dangerous fluctuations, interviewees report: "people watch the water levels. If they start to fluctuate it often means that the water is going to rise really quickly… you have to look out" (ES).

Burch's works (1975, 1976) on transportation and travel routes provide further information on travel strategies and traditional routes through the region. As interviewees mentioned, Burch (1975) notes the hazards of marshes and bogs in the summer, inhibiting travel. Navigation of the terrain in all seasons requires knowledge of the landscape and seasonal conditions. Documenting traditional overland travel routes in northwest Alaska, Burke mentions important routes between the Kobuk River Valley and various locations, including those in the Noatak and Selawik regions (1976:5-6).

Resource Variability

Resource Availability

Regional resources fluctuate seasonally and vary by location. Their seasonal patterns are regular, however, and often predictable by other environmental conditions. People in the region face longer term patterns that can negatively affect resources, sometimes leading to food scarcity. But both historically and in present times, ecological knowledge and strategies for dealing with resource shortages helped ensure successful harvests and survival in times of scarcity.

As stated, seasonal resource patterns in the study area are relatively consistent and predictable, often by environmental conditions. Some plant and animal resources can in turn indicate upcoming seasonal changes. Caribou migration remains predictable, before the fall freeze-up and again at break-up in spring or early summer, and generally along the same routes (Anderson 1988:1; Giddings 1961:130). Anadromous fish tend to arrive a little after breakup. Smelt arrive during wet, stormy weather with west winds, and summer weather arrives when the smelt run finishes (Anderson et al. 1998:160). Berries regularly ripen summer and fall, and sourdock is available all summer long, though best gathered on bright windy days in mid-July (Andrews 1998:42–43). During fall caribou hunting, "the women travel farther upriver to their camps to fish for salmon and sheefish." At first frost in mid-September, people harvest roots (*masru* or Eskimo potatoes) from mouse caches (*nivi*) (Loon 1998:39–40; Jones 2010:116–118). Whitefish signal winter:

> "Kobuk River people are alerted to the impending freeze-up [of the oncoming winter] when they begin to catch whitefish with thick, rough scales. This is called *atigirut*, or "putting on the parka," and it is usually discovered a few days before the ice begins to form" (Anderson et al. 1998:183-184).

Resources can vary beyond their regular seasonal patterns, however. Changes in resource availability may be annual, or decades-long, potentially creating food scarcity. Early summer can be a time of shortage if stored food stocks run out, as caribou, fish, and other game resources are absent, in low numbers, or hard to catch during this period (Anderson et al. 1998:37). "A bad salmon season, or a year in which the caribou varied their migration route, might…bring about hardship and even starvation" (Giddings 1961:128).

Local environmental conditions affect the abundance of resources. Interviewees note that large fires sometimes occur in the area—such as a large fire in the hills north of Kobuk River in the mid-1970s—resulting in noticeable and enduring changes to plant and animal habitats.

Another factor is adverse local weather conditions, which may make harvest and storage impossible and produce short-term scarcity (Moore 1979). For example, "rain or damp weather for a period of several days can ruin for human consumption hundreds or even thousands of drying fish" (Anderson et al. 1998:174). Weather conditions affect waterfowl migration and ease of hunting (Anderson et al. 1998:258), and environmental conditions have the potential to delay sheefish and salmon migrations, as "a late breakup of the ice in Kotzebue Sound or Hothham Inlet will delay their arrival in the Kobuk River" (Anderson et al. 1998:163). According to Mason and Gerlach, various adverse weather conditions can also negatively affect fish populations (1995:115). For example, changes in temperature in streams, whether warmer or cooler, can lead to a decline in salmon fry survivorship.

Longer-term scarcity occurs in tandem with cyclic population oscillations of key resources. For example, scarcity happens at the eight to twelve year lows in populations of hare and ptarmigan (Anderson 1988:1). Caribou are likely on a 60- (Anderson 1988:5), 80- (Mason and Gerlach 1995:122), or 100-year population cycle (Anderson et al. 1998:259). The caribou population cycle is unclear as "caribou demography, although much studied, is still poorly understood" (Mason and Gerlach 1995:112). Years of caribou scarcity can create hardship as the species is a major part of the Inupiat food base. As Anderson et al. observe in their history of Kuuvaŋmiut subsistence:

> "Life along the Kobuk River has clearly been cyclical throughout the centuries. There is no reason to doubt that cycles of abundance and of scarcity will continue into the foreseeable future" (1998:22).

To weather these shifts in resource availability, Kobuk Valley Inupiat historically developed techniques and strategies to mitigate food shortages. Their subsistence lifeways generally bolstered resource acquisition and built up food reserves in anticipation of shifts in availability. Transportation skills also aided adaptation to changes in resource availability, as their strategies often involved traveling to other areas. Anderson notes that Arctic peoples have long "maximized their ability to locate, capture and store natural resources" (Anderson 1988:1). Their success with transportation involved strategies for seasonal terrain conditions, and utilization of tools like boats, sleds, and dogs. Burch remarks:

> "Mid-nineteenth century Eskimos of Northwest Alaska…had developed before contact with Europeans a remarkable ability to transport goods and people over long distances. This ability, in turn, enabled them to accumulate greater

> quantities of food and equipment than most other hunting-gathering peoples could" (Burch 1975:1).

When food shortages did occur, people adapted to the circumstances by employing many strategies. As Anderson et al. note: "The *Kuuvaŋmiut* subsistence economy has always been maintained through flexibility and adaptation to new conditions as they occur" (Anderson et al. 1998:260). Likewise, Burch (1980:254–265) mentions how small, family-based social units (like those of the Kobuk Valley Inupiat) necessarily facilitated flexible resource strategies to ensure success in resource acquisition. Their main strategies in times of shortage involved compensating by seeking less-valued foods, and using social networks to access resources in other areas (Anderson 1988:1), either via direct resource harvest or trade. Their ecological knowledge and technology allowed them to seek other species, travel to other locations, or trade with people from other areas, if necessary.

Shifting focus to alternative resources is a long-standing practice in the region in response to shortages. Morlan suggests food shortages may have altered cultural practices even in ancient times (Morlan 2000:5, 55, 57). Archaeological evidence records one such change, indicating "that people from the Kobuk Valley relied increasingly on salmonids and/or shifted to sea mammals as caribou declined over the period of the Arctic Woodland sequence" (A.D. 1250 to 1750) (Mason & Gerlach 1995:114). And under stress, ancient people ate parts of animals they ordinarily did not, or parts normally used for other purposes—for example, the limbs of snowshoe hare, or the brains of snowshoe hare, marten, and beaver (Morlan 2000:57). Referring to more recent times, Anderson writes,

> "Early in the twentieth century, when caribou were scarce, hares were the major source of fresh meat during the winter. Today they are especially important in the spring, when other sources of fresh meat or fish are unavailable" (Anderson et al. 1998:218).

Another example of alternate resource use strategy is proposed by Mason & Gerlach. They suggest "the reluctance of Brooks Range Inupiat to hunt sheep" in modern times may represent strategic "conservation of emergency resources" (Mason and Gerlach 1995:121). Surviving in their environment requires the ability to think ahead, to conserve, and to adapt to ever-changing conditions.

The critical nature of resource variability is emphasized by its presence in traditional stories. The stories generally begin with a reference to subsistence. Additionally, resource variability, food scarcity, and strategies for dealing with these realities appear as regular motifs (Anderson and Brown 2005:31–32, 38–39, 41, 125). Generally, the food scarcity motif reinforces the vital importance of subsistence skills, but may also present death as a blessing, e.g. Raven Brings Light in Giddings (1961). Another concept that sometimes emerges in the stories is how environmental changes cause food shortages in three parallel worlds—the sky world, the human world, and the animal world (Anderson and Brown 2005:26). For example, John Pakuraq Brown's telling of Two Men from the Moon describes a time when the people in the sky had caribou and Dall sheep, but lost all their seafood to a tenacious freeze up (Anderson and Brown 2005:82–83). Another theme emerges in one of Kahkik's Kayaktaonektok episodes, where a grandfather of the white owl people says, "the weather is not always the same—sometimes plenty of food, sometimes not so much" (Giddings 1961:97). Mason and Gerlach summarize that "oral tradition provides the means of adapting to circumstances unforeseen by a living generation who are well aware of a range of potential outcomes" (1995:121). Important cultural information on resource use and strategies for surviving food shortages is perpetuated through the telling of different stories.

Changes in Resource Availability Over Time

The availability of resources in the region has shifted over time. As previously mentioned, resources can vary seasonally in the area, or over longer periods. These shifts are sometimes tied to cyclical population patterns. Changes in resource availability in the written record are found in sources starting to the early 20th century. Most note decreases in species like caribou, while other species, like moose and sheep, increased or rebounded in the region.

Observations in the early 20th century come from two US Geological Surveys. In 1901, Mendenhall's party traveled from Fort Hamlin to Kotzebue Sound (Mendenhall 1902). Later in 1910 and 1911, Smith and his crew surveyed the Noatak-Kobuk region (Smith 1913). Mendenhall found fish and fowl plentiful in the Kobuk Valley (Mendenhall 1902:56), while Smith observed that fowl were numerous, and fish, particularly salmon, were abundant "as far up as Lake Shelby" (Smith 1913:52). Yet larger game appeared to be scant. Mendenhall notes, "the Kowak natives now are generally forced to cross over to the Noatak Basin or eastward to the head of the Totsenbet River in order to secure

caribou skins for clothing" (Mendenhall 1902:56). Smith described bears as "practically the only large animals" and "game not plentiful" in the area surveyed (Smith 1913:52). Mendenhall also observed that people found "a few white mountain sheep" in the headwaters of the Kobuk, Allen, and Colville Rivers, black bears throughout the valley, brown bears along the lower Noatak and Kobuk, and muskrat in the Kobuk delta (Mendenhall 1902:56).

Mendenhall and Smith's observations correspond with other records indicating a scarcity of caribou in the Kobuk region during the late 1800s and into the early 1900s. As will be discussed later, the caribou population crashed sometime around the 1880s (Burch 1980:291) and did not rebound in the Kobuk Valley until the 1940s (Anderson et al. 1998:259). The decreasing numbers of caribou could be part of a long-term pattern, as caribou may have a 60-year cycle (Anderson 1988:5) or a 100-year cycle (Anderson et al. 1998:259).

Although both Mendenhall and Smith note bears in the Kobuk Valley, the number of bears was possibly lower at that time than in the past. Oral sources suggest that grizzly bears once congregated along spawning streams in the study area in greater numbers than anywhere else in the region (Burch 1998:159).

Populations of three species increased through the 20th century. Though Dall Sheep were plentiful in the Baird Mountains through the 1800s, in subsequent decades, they appear to have disappeared, due to the widespread use of rifles and the increased demand created by caribou decline. But in the early 1990s, Dall sheep had repopulated the western part of the range and a resident population occupied the central part of the range (Burch 1998:159). Another species that rebounded was beaver. Previously relatively common, beavers were reduced in the second half of the 19th century, yet recovered in the second half of the 20th (Burch 1998:159).

Moose, once rare in the Kobuk region, moved into the area in the 1900s. In 1901, Mendenhall observed that "moose are not plentiful anywhere" in the Kotzebue region (1902:56). Yet the population was considerable by 1998 (Burch 1998:159). Anderson et al. explains:

> "Around 1910, Eskimos began finding moose far up in the Kobuk drainage, around the Pah River flats. Over the next 50 years the animals gradually spread downriver, as they are still doing today. This movement is only part of a dramatic expansion of the moose range throughout the north" (Anderson et al. 1998:259).

Scholars now believe moose numbers are declining. The herd seems to be moving west, increasing at the coast and declining in the valley (Anderson et al. 1998:259). Magdanz et al. similarly note the population may be declining from its historic high (2011:6–7):

> "Moose populations had also declined in northwest Alaska due to extreme winter conditions in the mid-1990s, recovered slightly, and then stabilized at low densities (Dau 2008:558; C. Westing, Area Wildlife Biologist, ADF&G, Kotzebue, personal communication)" (Magdanz et al. 2011:7).

Changing resource availability can have sweeping consequences. Burch's work on ethnic relations in Northern Alaska analyzes the outcomes of resource scarcity at a critical time in history. During the "fragmentation period," 1838-1897, Native Alaskans faced a "deterioration of the resource base" combined with introduced disease epidemics (Burch 1979:130). This, to devastating effect. Burch explains:

> "The effects of disease were compounded in the Eskimo and Koyukon areas by a general resource crisis which resulted in increasingly frequent and progressively more severe famines. These famines were caused in both language zones by a decline in the caribou population (Burch 1972), and in the Eskimo area by the decimation of the whale (Marquette 1977:58 ff.; R.H.Ray 1885:45) and walrus (Fay 1057) stocks by American whalers (D.J.Ray 1975h:199)" (Burch 1979:130).

Further details are provided by Burch in a synthesis of scholarship on resource crashes and people movements:

> "The late 1870s and early 1880s were a disastrous period on the Seward Peninsula and in the Kotzebue Sound drainage (Burch 1998a). The caribou populations in those areas crashed, and refugees from all over western North Alaska began moving into the Brooks Range in an effort to make a living. Possessing fairly high quality rifles by that point, the refugees seriously overhunted what remained of the western arctic caribou herd. Shortly thereafter, the Porcupine caribou herd to the east began to be subjected to the same treatment (S. Jenness 1991:91; Woolfe 1893:146). As they moved eastward, the Inupiat also exterminated local populations of Dall sheep (Burch 1998a:159; Campbell 1978). … By the beginning of the twentieth century… As the caribou and sheep populations continued to decline in the interior, many people who wanted to live there were forced by lack of food to emigrate to the American whaling stations at Cape Smythe (Barrow) and Herschel Island. There they replaced local people who had died from imported Western diseases (D. Jenness 1957:33-34, 164-165; Leffingwell 1919:67; Stefansson 1909:606-607, 1913:451-452, 1951:66-67)" (Burch 1998a:27).

The results of these forces devastated the population, and many survivors migrated to different areas with more resources, resulting in a higher level of interaction between groups. By the 1890s, the previous societal system had broken down, leading to the practice of basing ethnic identity and relations on linguistic differences (Burch 1979:134). This period was followed by a time of consolidation, eventually leading to the establishment by the 1930s of the villages known today in the Kotzebue region, with the addition of Ambler in the 1960s (Burch 1984:314-315).

Recent Impacts on Resources

Currently, climate changes are impacting resources and subsistence lifeways, potentially leading to disruptive changes. One current concern for tribal members is erosion cycles tied to climate change. Erosion is caused by rapid warming causing a much faster breakup of ice. Chunks of ice flush down the river quickly along unfrozen banks, accelerating erosion dramatically in recent years. In the lifetime of interviewees, for example, the bank in front of *Igliqtiqsiugvigruaq* 'Swift Water Place' is said to have lost roughly 15 to 20 feet due to erosion, exposing archaeological materials and possibly human remains. This issue of exposed artifacts is also reported by interviewees who know of Kiana residents, children especially, who have found cultural objects while walking the shoreline and gravel bars looking for projectile points and other artifacts. Jade items are sometimes reported, linked to longstanding use of deposits in the Jade Mountains. Oil lamps and other items are said to appear at times on the sand and gravel bars, attesting to the erosion of both pre- and post-contact village sites.

In the case of *Igliqtiqsiugvigruaq*, Kiana Traditional Council worked cooperatively with archaeologists to learn more from the artifacts and human remains found in one of the house-pits. Erosion precipitated by climate change has in turn, interviewees suggest, contributed to the loss of river sites, which in turn compounds the loss of access to, and knowledge of, this key cultural area. More data recovery may be necessary at the eroding edge of the site, and many other pre-contact settlements along the river present a management decision for which the National Park Service and Kiana Traditional Council will have to work closely.

This also immediately threatens cabins within allotment camps, as some families have pulled their cabins back from the edge of rapidly eroding bank. There is fear of a future when large portions of allotments wash away. In some cases, cabin users are elderly or

few in number, making it difficult to assemble a work group that could successfully move an imperiled cabin.

Climate change is impacting keystone species. As mentioned earlier, several interviewees reported a spontaneous die-off of salmon which was confirmed to be in part caused by warmer water temperatures (FWS, 2014). One individual remarked that salmon are not making it all the way to their usual spawning locations, apparently due to lower water levels on some tributaries during spawning season: "they never go all the way up sometimes…never made it up to the places" (JJ). These environmental changes contribute to a sense of urgency within the Kiana community to document the natural heritage of the park and its linkages to the tribe's cultural heritage.

The literature also describes possible effects of climate change. As previously mentioned, Young (2012) and Magdanz et al. (2011) note repercussions of climate change on resources in the region. Climate changes can also have repercussions on caribou populations, and can thus threaten the food base. Mason and Gerlach explain, "recent evidence indicates that climate change does affect the forage of large herbivores such as caribou, and thus affects the subsistence of arctic peoples (Bryant et al. n.d.)" (Mason and Gerlach 1995:113). A variety of climatic factors, such as moisture stress or icy conditions, can decrease the forage availability and accessibility (Mason and Gerlach 1995:113-114). Other changes can occur with weather shifts related to the snow. Calving success is negatively impacted by delayed snow melt, while early fall snow can trigger migrations.

According to recent models by Jorgenson et al. of ecosystem changes caused by temperature increases over the next 90 years: "project net changes will be relatively modest" (2015:143) in northwestern Alaska. It may be important to note, however, that the future temperature predictions used in the study "assume an aggressive reduction in [greenhouse gas] emissions" (Jorgenson et al. 2015:133). The authors note that other studies found ecosystem changes will be more rapid than their findings (2015:141). Whatever the rate of change, if specific areas within the KOVA study are affected, climate changes have the potential to disrupt local animal and plant resources. This scenario could require modern tribal members to go elsewhere for subsistence harvests.

Since research is limited and sometimes conflicting regarding possible effects of climate change on subsistence lifeways in the study area, it would be an advisable focus of further research. This is suggested by the paucity of information on these topics, the

concerns of modern tribal members, and the consequences climate changes may have on future resource use.

Finally, interviewees mentioned the disruptive effects of outside hunters in the study area. As previously discussed, these non-Native river visitors trespass on allotments, create hunting pressures, and in some cases, make the Kobuk River corridor unsafe. Sources also document that visiting hunters have disrupted subsistence hunting and fishing in the upper Kobuk region since the 1980s (Braem et al. 2015:14-15). Other conflicts revolve around sports fishing. One issue is the practice of catch-and-release fishing, raising concerns about fatal damage to sheefish (Georgette and Loon 1990). Similar issues likely occur elsewhere in popular tourist hunting and fishing locations.

Fish

Fish is a vital subsistence resource in the study area. It is relatively stable and plentiful, providing a food base utilized virtually year-round through fishing or stored foods. The Kobuk River provides key fishing locations, home to a variety of fish including the essential salmon and sheefish. This section details fishing practices shared by Kiana residents, and those of the Kobuk Valley Inupiat in historical and recent times from the documentary record.

People have long fished for salmon along the Kobuk River in lands within the park—in fact, this is said to be the best salmon fishing area in the region by those interviewed. The area has been utilized by families not only from Kiana and Ambler, but also Noorvik and other communities nearby. A number of families and individuals from Kiana still fish at these camps along the Kobuk. Older camps are widespread from the Salmon River confluence downstream, while in the 20th century, many newer camps were established on allotments upstream from there. Many of the newer allotments have cabins. As Lorey Schuerch notes, "the BIA required that people used and occupied their allotments…so then people built there" (LS). Families use all of these camps as bases of operation for fishing, especially for salmon, but also whitefish, sheefish, grayling, smelt, trout, and other species.

The significance of the Kobuk River and its fish to residents is described in ethnographic and historical literature as well. The following quote emphasizes this importance:

> "The *Kuuvaŋmuit* Eskimos are, first and foremost, people of the river. It is the Kobuk River with its interconnecting web of lakes, sloughs, and streams that provides their most reliable resource: fish. A wide variety of fish species, both migratory and resident, are found in the waters of the Kobuk valley and may be exploited at various seasons. Were it not for the availability of fish, this would be a much poorer environment for human habitation. Caribou, bear, moose, and other game animals are either not abundant enough to sustain a resident population as large as that of modern times, or they are subject to unpredictable migratory shifts and population declines" (Anderson et al. 1998:144).

Fish is a large part of current and past food bases. As Mason and Gerlach explain, "the role of fish in short- and long-term economic stability cannot be overestimated. Fish are the 'corn of the north' in that they are predictable and easily stored for later consumption by people and dogs" (Mason and Gerlach 1995:115).

Fish species mentioned in interviews are also described in the literature as important for both recent and past generations. Of the 12 types of fish along the Kobuk River taken by Native peoples, four are recorded as especially significant: 1) the five northern species of salmon, particularly chum (*Oncorhynchus keia)*; 2) several species of whitefish *(Corregonus)*; 3) sheefish; and 4) pike (Anderson 1988:6). According to Anderson:

> "Resident whitefish, pike, and shee comprise the major source of fish for the Kuuvangmiut. They catch and consume even more of these fish than they do of salmon" (Anderson 1988:13).

Giddings also mentions these four fish types when describing Kobuk Valley Inupiat fishing: "Salmon usually reach the middle Kobuk by the middle of July" (Giddings 1961:129); "Salmon seined were mainly pink, or 'dog salmon,' and some humpbacks. Quantities of whitefish, some prized sheefish, and occasional pickerel were also seined" (Giddings 1961:130).

Sheefish are uniquely abundant in the Kobuk River relative to other Alaskan rivers (Anderson 1968:26–27). Given their large size and taste, sheefish (Stenodus leucichthys) are attractive to subsistence fishermen (Georgette and Loon 1990:1). "As one of the region's most delectable fish, sheefish are harvested heavily by residents of Kotzebue, Selawik, and the Kobuk River (Noorvik, Kiana, Ambler, Shungnak, and Kobuk)" (Georgette and Loon 1990:2).

Fishing Locations and Techniques

The Coal Mine area was said to be particularly important for fishing by interviewees. Many families have seined there for salmon, sheefish, whitefish, and other species—with a number of families continuing the practice, though perhaps fewer than historically. It is known as an especially good area to fish, with accessible shallows and side channels, as well as good landing areas: "In that Coal Mine area there's a little inlet. You can land your boat anywhere. You can cast your line and every cast you get a salmon" (ES). Grayling, readily abundant coincident with the salmon harvest, are sometimes caught and eaten as "camp food"; if it is not eaten soon after it is caught, grayling can become soft and mushy. Settlements have been in the Coal Mine area since time immemorial. Nearby springs—some staying a nearly constant temperature—provide predictably good drinking water through much of the year.

At times, in some shallows nearby, fish are said to be so numerous they can be caught with bare hands—by grasping the fish and tossing it to the bank before it can escape, a playful test of dexterity among Native youth over the generations. The fish are traditionally processed right on the beach or beside a family's cabin. They are then dried in this area, with racks and small smokehouses along the shoreline. People "go up there in the summertime…put a net across the river, maybe check two times a day" while they work, socialize, and process fish. Grizzly bears are said to be a danger in the area, drawn to all of the fish in the shallows and the camp smells and activity, yet tribal members have ways of avoiding and dispelling the bears.

Many of the community's fish camps sit just downstream from the park boundary in the vicinity of Sheldon's Camp. Ella Sheldon recalled that "Sheldon's Camp" belonged to her father-in-law, and that it was passed generation to generation into the present day. Members of the Sheldon family still visit the camp annually to catch and process fish.

It is said that families traditionally seined salmon until their boats were full, traveled down to Kiana and contacted various households, saying "take what you need!" (ES). Interviewees note that in recent years people have tended to camp closer to the village of Kiana than was the case when populations were broadly distributed and people had year-round residences along the river. Salmon, as well as caribou from the Kobuk Valley is often taken home and shared with other households—not only within Kiana, but with kin in places like Kotzebue or even Anchorage.

In addition to fishing on the main stem of the Kobuk, interviewees discussed fishing on tributaries as well. Many families have fished on Salmon River. Jackie Johnson, for

example, recalled fishing there with family in the mid-20th century; he traveled there with dog teams, hand seining for salmon that was used as food for both his family and his dogs. One family was said to have maintained a cabin on Salmon River. This was a year-round home long ago, though Lorey Schuerch recalls the family living onsite only in summer by the 1960s.

Several fishing sites are documented by Anderson et al. (1998) within KOVA, some similar to those mentioned in the interviews, while others are used by the Ambler community. "Some of the best places used by the Ambler *Kuuvaŋmiut* [for spring gill net fishing] are in the Kobuk Valley National Park" (Anderson et al. 1998:37). One important slough is near Onion Portage:

> "In late spring, for a few weeks after breakup, there is excellent gill netting for pike, whitefish, and suckers in a small slough near Onion Portage. This place is names *Siġlauraq* because it is a reliable source of food during the lean time after breakup" (Anderson et al. 1998:253).

Places used for early summer fishing included "the lower Hunt River and flats to its south" (Anderson et al. 1998:156). On both sides of the park are highly productive salmon spawning areas: along the Salmon River on the west, and Hunt River on the east (Anderson et al. 1998:175-176). Finally, within the park and its general vicinity, Kobuk people utilized burbot trap sites "from the Pah River to below the Hunt River" since "a time beyond the memory of the oldest living people" interviewed in 1970s (Anderson et al. 1998:189-190).

Though outside of the park, Squirrel River is also widely reported as the venue for campsites and fishing stations of importance by interviewees. Annie Barr discussed fishing and camping along Squirrel River with her husband in past decades. Elmer Jackson recalled going there as a boy with his family, taking three boats up as far as a place called *Utu*, where the river becomes shallow and braided. He described fishing there for salmon and other species: "we were seining full time…we happened to catch the silver salmon there too" (EJ). He also recalls finding rows of house pits in this area off the river, not far from the fishing station—evidence, he notes, of a very long pattern of use in the area.

These fishing camps were part of a larger constellation of fishing sites used at different times depending on the season and year-to-year fluctuations in salmon availability. So too, fish was sometimes cached in excess of annual needs to prepare for potential fluctuation in the next year's harvest. To demonstrate the extent of these networks of

alternative fishing sites, some interviewees mentioned outlying fish camps in places such as Selawik Lake. Jackie Johnson used to fish there for a month or more some years, catching sheefish and whitefish, which he cached for later use (JJ). The diversity of fishing stations ensured that a shortfall on one river system could be readily offset by fishing in other river systems nearby.

Historically, people used a variety of fishing techniques and storage strategies to fully take advantage of fish resources. Ancient people used gill nets, dip nets, and seines made from sealskin, caribou sinew, or willow bark. They caught fish with leisters, weirs, and hooks and lines (Burch 1984:309–310). Cantwell observed the use of seine nets and willow traps in the summer of 1884 along the Kobuk River (1890:81) and noted that residents caught fish through the ice in winter (1890:83). Food storage was essential for sustenance in the winter and spring months. Salmon, whitefish, roe, and salmon heads were stored for later use (Giddings 1961:135), and salmon entrails rendered for fat (Giddings 1961:155). Some of these techniques continued into the 20th century.

Giddings portrays mid-20th century fishing techniques of the Kobuk Valley Inupiat. As in the past, they still used fish fences and Y-net frames to trap whitefish moving downstream in fall (Giddings 1961:133), and spruce basket traps when the whitefish return in spring. People also trapped mudshark in fish fences and used hooks, spears, and possibly fish arrows, for grayling, sheefish, and pickerel. They occasionally speared salmon out of season (Giddings 1961:134). Slightly later in the 1970s, Anderson et al. observed that fish continued to be stored, and primarily dried, while fish heads and eggs were sometimes stored in pits to decompose into "head cheese" (Anderson et al. 1998:171, 173).

In 2006, Jones published a guide to traditional fish storage and preparation methods used by the Inupiat across Northwest Alaska. She also documents Ambler seasonal fishing patterns, relating them to the Kiana fishing patterns. The effectiveness of seasonal patterns of fishing is exemplary of the precise economics that sustained the Kobuk River people. Jones' documentation also accounts for modern adaptions to old traditions. For example, snowmachines as faster transportation add to the tool box for efficient processing and storage of fish.

It is important to note that interviewees mentioned considerable TEK relating to the availability and harvest of salmon and other species. They could describe not only significant variation in the timing and availability of particular species in particular tributaries, but could also describe the distinctive flavors and fat content of fish from

different drainages. Interviewees also mentioned techniques of fish capture that are innovative and deserving of further documentation. These include, for example, the excavation of trenches along oxbows and ephemeral channels along riverbank to produce fish traps (ES).

In the Jones' *Fish that we Eat* (2006), ice fishing techniques are documented. Through the winter, humpback whitefish, broad whitefish, and mudshark were harvested by the hundreds. Fish were commonly stored by freezing in large piles and were good food for both people and dogs. Fishing changed significantly in the mid-20th century with the shift from dog team transportation to snowmachine. There was less need for fish without dog teams to feed. Winter fishing, both by net and hooking, is still an important subsistence activity on the Kobuk River. Fishing practices, still highly efficient in processing a large catch, are now facilitated by use of snowmachine.

Interviews evince the continued role of fish as a highly valued food resource. This is also reflected in documentary sources. Fish are often consumed daily, and "in terms of resource volume and long-term reliability, fish are the economic mainstay of *Kuuvaŋmiut* society" (Anderson et al. 1998:29, 144). Recent harvest numbers emphasize the continued usage of fish resources by local people. Magdanz et al. report that 99% of Kiana households used fish and shellfish; 92% attempted and successfully harvested fish and shellfish. The authors estimate the harvest contained 32,524 lbs. of salmon (fall chum, Coho, sockeye, Chinook, pink, and unknown salmon), 38,268 lbs. of other fish (whitefish, sheefish, burbot, northern pike, Dolly Varden, smelt, Arctic grayling, herring, least cisco, saffron cod, and halibut), and 1,347 lbs. of shellfish (clams, king crab, and butter clams) (Magdanz et al. 2011:55). In 2012, Ambler households harvested 10,096 lb. of salmon, and 49,411 lb. of other fish species, most predominantly sheefish and whitefish (Braem et al. 2015:39).

Subsistence fishing is essential for modern tribal members both for diet, as well as its symbolic ties to identity. Subsistence harvest foods are considered "real food" and are considered vital for health (Anderson et al. 1998:240). Changes to fishing practices since the mid-20th century are known to some extent, but a further documentation would be useful in management of parklands for continued use.

Caribou

The importance of caribou to past and present Inupiat along the Kobuk River has already been noted above. Both the ethnographic and archaeological record contain evidence of caribou hunting and use within KOVA for thousands of years. Although the availability of caribou in the Kobuk Valley area has shifted through time, caribou persist as a vital resource for the Inupiat food base. This section provides information on the traditional, and continued, use of caribou, based on recent interviews and the literature. Descriptions of population changes in the Western Arctic Caribou herd through time is presented at the end of the section.

Caribou are said to be a culturally keystone species—consumed as a staple meat, but also used as a source of hides, horn and bone tools, edible blood and fat, and many other important items. Interviewees mentioned many facets of their traditional caribou hunt on the Kobuk. The caribou cross the Kobuk in astonishingly large numbers within what is today the park. Places such as *Nelluq* are said to be the epicenter of the local hunt:

> "*Nelluq*—that's where caribou come from the north…that's their main crossing. Oooh, they're beautiful. All you do is wait for them to cross the river and you can get all the caribou you want!" (ES).

Other places, such as near the Westlake cabin, were also described as very important caribou crossing areas. The camps along Kobuk River are traditionally used as part of this hunt. As with salmon and other fish, the caribou harvested here were shared, sustaining the entire community. Ella Sheldon notes that her family used to shoot several, bring them down to the village and say "'take your pick!'" (ES).

So too, places up the drainages north of Kobuk River were described as important hunting areas. Percy Jackson, for example, described the Salmon and Hunt River drainages as major places for hunting caribou, as well as Dall sheep, bear, and other species. Onion Portage is sometimes visited by motorboat for short caribou hunting trips as well.

The literature provides further details on caribou hunting practices. As the interviewees mentioned, Inupiat hunted caribou during the spring and fall migrations through the study area region, and Kobuk Valley Inupiat hunted either on land or in the water. Giddings notes:

> "Water drives in the fall and early summer had even more appeal than land drives, because of the danger and skill required in killing the swimming animals" (Giddings 1961:131).

Fall drives produced meat for freezing and storage, while meat from spring drives had to be dried or eaten immediately. Caribou provided not only meat, but also skin (including fawn skin particularly prized for its softness), fat, and antler (Giddings 1961:131–132). Indicative of the long history of hunting caribou, Giddings observed stone cairns used in caribou drives still standing along the Kobuk highlands and ridges in the mid-20th century (Giddings 1961:130).

Modern subsistence harvest of caribou focuses on the Kobuk River. In the fall, hunters canvas the river for migrating caribou and often end up concentrated in key migratory locations like Onion Portage.

Kiana residents shared many aspects of their traditional hunting practice, such as the convention of not shooting at animals until the herd is already crossing the river. "Caribou come from the north by the thousands… after the first 500 or so cross the river you can start taking caribou" (ES). If the shooting begins before they cross, there is less chance of a successful hunt at that moment, but the shooting may also disrupt the migration in the times ahead. It is especially important to never harm or bother the lead caribou in a herd—the movement of the herd depends significantly on the behavior of the lead animal, so this animal is always shown extra deference (PJ, ES). This kind of Traditional Ecological Knowledge (TEK), interviewees note, is critical for the future survival of the caribou and of subsistence hunting practices.

In 2015, Kiana Elders Council voted and approved guidelines for fall caribou harvest for the river corridor near Kiana. The guidelines were shared publicly through a flyer titled "*Inupiat Ilitqusiat*: Hunter's Succuss for Caribou Hunting." The collection of traditional guidelines include "always camp and hunt on the south side of the river," as well as guidance to wait until the first caribou have crossed the river. In 2017, the Kiana Elders Council worked with Maniilaq, Selawik Fish and Wildlife Refuge, and the National Park Service to revise the Hunter Success guidelines. Continued partnership on gathering TEK could result in further cooperative management of subsistence hunting on the Kobuk River.

The longstanding hunting of caribou contributed to patterns of land use that still require documentation. For example, interviewees discussed the use of bluffs and other high points along the river as lookouts, and perhaps as staging areas used in preparation for the hunt—affording wide views of the river and known caribou crossing points. *Tuluqat* was one such place, and others are reported nearer to Onion Portage. There are surely other sites still to be mapped. People traditionally follow the

caribou with tents and camping supplies as they go, sometimes for several days until they find a good opportunity to hunt. Temporary camps are traditionally constructed at kill sites if an animal is killed far from an existing camp or village; a camp may also be established at a convenient central place between kill sites. Over time, these campsites aggregate in key hunting corridors, leaving extensive archaeological traces (JB, PJ). Interviewees suggest that many families from downriver places such as Noorvik and Selawik might fish close to their villages (and therefore beyond the park), but still come to the prime hunting grounds of KOVA for big game hunting.

Sources support the use of KOVA lands, documenting that throughout much of history the area played a significant role in caribou hunting. People hunted and butchered caribou in park lands since ancient times (Mason and Gerlach 1995). "Archaeological evidence from Onion Portage and other nearby sites suggests that this general area has been the main passage route [for the fall migration] for thousands of years" (Anderson et al. 1998:200).

Tribal members in the mid to late 20th century also utilized KOVA, as Anderson et al. explain:

> "The main points of access to one extremely important subsistence resource—caribou—are located within Kobuk Valley National Park. Major routes for spring and fall migrations are inside the boundaries, as are portions of the wintering range" (Anderson et al. 1998:267).

The use of Onion Portage continued as well:

> "The most important area for [fall] caribou hunting is in the vicinity of Onion Portage. In many years the heaviest activity is within the boundaries of the Kobuk National Park" (Anderson et al. 1998:39).

The literature mentions that in the past, hunters traveled during the summer and winter to hunt caribou, in addition to hunting in fall. Mason and Gerlach state:

> "In early historic times almost all Kobuk hunters annually went north to the Noatak drainage in August to hunt caribou when skins were in prime condition for clothing. They brought…hides, fat, and dried meat home to the Kobuk" (Mason and Gerlach 1995:115).

Traveling to hunt caribou was especially important if caribou migration patterns shifted to outside of the Kobuk Valley area. This occurred in the 1880s during a low population period (Anderson et al. 1998:259). According to Anderson, Kobuk hunters ranged

widely to take caribou in fall and winter "at least since the abandonment of the region by the Noatagmiuts around the turn of the century" (1972:98):

> "Although most of the middle river Kobukers travel to the Noatak via the Redstone across Ivishak Pass to the Cutler valley, some also take the route via the Ambler, across Nakmaktuak Pass to Nushralutak Creek and from there to Midas Creek. … The surveyed area of the upper Noatak supports large mountain sheep, wolf and caribou populations. My own impression is that the caribou trails here are as numerous as along the better known caribou migration routes in the middle Noatak canyons. During our week- long survey we saw many sheep and about a dozen solitary caribou or cows with calves" (Anderson 1972:98).

Caribou remain a significant source of food for modern tribal members. For lower Kobuk residents, caribou even increased in importance to a similar level as fish (Anderson et al. 1998:48). Subsistence resource statistics quantify recent caribou use by Kiana and Ambler households. Magdanz et al. estimate Kiana households harvested 41,612 lbs. of caribou in 2006. Caribou was used by 94% of Kiana households (2011:57); 62% of Kiana households attempted to take caribou, and 57% succeeded. For the Ambler community, 91% of households used caribou in 2012, with a total weight of 93,220 pounds (Braem et al. 2015:45).

Western Arctic Caribou Herd

Caribou migrating through KOVA are part of the larger Western Arctic Caribou herd (WACH), resident to northwestern Alaska. The size of the WACH has fluctuated through time. These changes impacted Inupiat hunting practices, sometimes requiring implementation of food scarcity strategies like relocation. Recent research suggests that these population shifts continue to occur in the study area region.

Scholars assign an array of dates to past caribou population changes. Anderson states:

> "Based on narrative accounts, some historical documents and other types of information, the caribou in Alaska had population highs in the 1860s and 1920s… and lows during the 1890s and 1940s"(Anderson 1988:5).

Other authors indicate that the WACH crashed between the 1870s and 1880s (Burch 1980:287; Burch 1998:158–159; Morlan 2000:57). To the south of the study area, caribou remained plentiful in the upper Koyukuk until 1902, when they changed their

migration route. They did not appear in significant numbers again until 1919 (Marshall 1933:169 cited in Burch and Mishler 1995:163).

Within the specific study area region, the number of caribou oscillated as well. After the crash in the 1880s, caribou began to rebound and range more widely at the turn of the 20th century, returning to the Kobuk region in the 1940s (Anderson et al. 1998:259). However, numbers were still low in the mid-20th century. Citing Clarence J. Rhode, a regional director of the U.S. Fish and Wildlife Service, Lantis, notes that in 1949, "only nine sizeable herds of caribou (2,500 head or more) remained in Alaska" (Lantis 1950:42). One of the nine herds was located in the Kobuk-Noatak area. According to Anderson et al., the caribou population may have peaked in the 1960s and may well be in decline, though caribou were seasonally plentiful in the 1980s (Anderson et al. 1998:259).

Historically, a severe lack in caribou required people to relocate to other resource areas:

> "Whenever the caribou populations were extremely low, it was impossible for families to remain in the interior. In most cases they responded by moving to the coast around Kotzebue Sound where they could live with relatives. …During the nadir of the population decline in caribou, the river systems draining into the Chukchi Sea were apparently abandoned by Eskimos altogether" (Anderson 1988:21).

Modern tribal members continue to respond to population fluctuations by changing their subsistence strategies:

> "Hunters will go to the caribou, and the location and size of the herds will determine the villagers' subsistence range. If caribou are found only in one area of the Kobuk valley, villagers will hunt there; if they remain in the Noatak country, villagers will hunt there" (Anderson et al. 1998:263).

Relocation and other scarcity strategies will be addressed further in a later section.

Recent research indicates the WACH population continues to fluctuate. Braem describes the recorded decline in the population:

> "This herd, which roams throughout an area of 190,000 square miles, is the largest caribou herd in Alaska, with a revised estimated July 2011 population of 325,000 caribou. The 2011 count represents a 5% decline from the 2009 census, which counted 348,000 caribou. The herd has declined 4–6% annually since 2003 from its peak of 490,000 caribou" (Braem 2012:1).

Magdanz et al. note that although the population is lower, it continues to move through the study area:

> "Although recent caribou migrations have been late and caribou have not been as available as in the past, in most years the largest portion of the Western Arctic caribou herd has moved south through the middle Kobuk River valley and down the Squirrel, Salmon, and Hunt river valleys to Kiana hunters waiting along the Kobuk River" (2011:56).

The apparent centrality of caribou for modern tribal members and the study area suggests it would be an important focus for further investigation. Relevant topics for research include the significance of caribou for both subsistence living, and symbolic ties to Native identity. KOVA locations for hunting and processing will be documented through further research. Working with Kiana Traditional Council and Kiana Elders Council, further study could explore hunting practices and use traditions to feed into timely management for the WACH.

Other Hunting and Trapping

Caribou, as well as salmon and other fish species, are clearly the focus of Kiana subsistence, with enduring subsistence ties to Kobuk Valley. Still, there is a diversity of resources used, and of traditional knowledge of those resources, deserving attention in future research. Not only are animal resources harvested for food, but also for materials such as pelts, still used for traditional crafts and clothing like hats and mittens. Many of these additional species are consistent with those taken in the past, such as bear, sheep, and other fur-bearers. Information provided during recent interviews with Kiana residents is consistent with existing literature on hunting and fur trapping.

Moose are hunted "any place they go" (JB). A number of Kiana residents spoke of the practice of Moose hunting by boat along the Kobuk River riparian corridor. Moose are highly prized but not always available. They are also so heavy, they can't be hunted in areas with especially shallow water, where boats might get stranded on the river bottom. As previously mentioned, sources indicate moose are a relatively new animal to the Kobuk River Valley, appearing in the early 1900s (Anderson et al. 1998). Magdanz et al. report that Kiana households took 8,629 lbs. of moose in 2006; 21% of Kiana households attempted to take moose, and 14% succeeded; 40% of the community used moose (Magdanz et al. 2011:57). In Ambler, households harvested 7,715 lb. of moose in 2012 (Braem et al 2015:45).

Beyond this, Kiana residents spoke especially of hunting brown bear, Dall sheep, musk ox, and a few other species. Bear were once hunted by many families, though this is relatively rare now. Bird hunting is mentioned as an enduring activity, though core waterfowl hunting areas for Kiana are largely in the marshes, lakes, and shorelines well west of the park. Seal and beluga hunting—still important to many families—is also understandably focused well downstream from the park boundary.

ADF&G reports record the same large mammals taken for subsistence. Kiana households in 2006 attempted to take brown bear, black bear, musk ox, and Dall sheep (Magdanz et al. 2011:57). In 2012, Ambler households took small amounts of black bear, Dall Sheep, and brown bear (Braem et al 2015:45).

The reports also indicate that marine mammals play a role in their subsistence use for meat and oil. Magdanz et al. estimate that Kiana households harvested 2591 lbs. of adult bearded seal. The authors report that 51% of Kiana households used seal oil; 39% used bowhead, 10% Belukha, and 5% unknown whale; as well as 4% ringed seal, 3% young bearded seal, 1% spotted seal, and 1% unknown seal (Magdanz et al. 2011:57). For Ambler, most marine mammals used by the community are obtained through sharing, barter, or trade. In 2012, 36% of households used seal oil and 42% used bowhead whale oil (Braem et al 2015:49).

As with all fish and game mentioned in these interviews, elders shared considerable Traditional Ecological Knowledge regarding hunted species. Percy Jackson mentioned that bear are best hunted as they were in their den with "lots of fat" on them, for example, while moose need to be bled as soon as they are killed or they will taste like the willow they eat. When caribou are bled out, the blood can be drunk as soon as the flow begins to change color (PJ). Such information will be recorded in depth in the study ahead.

Trapping is said to have been widespread along the Kobuk, and trapping continues to this day, according to recent interviewees. This is also suggested in the literature. For previous generations, fur-bearing animals provided materials for clothing and were an important trade good. VanStone explains the role of furs in trade for inland Inupiat:

> "Since furs were by far the most important articles traded by the interior Eskimos, both to their coastal counterparts and to the whaling and trading ships, these were valued according to their scarcity and utility in the following order: silver grey fox, cross fox, land otter, beaver, black bear, wolf, wolverine, brown bear, lynx, marten, red fox, white fox, deer, mink, hare and squirrel. As indicated

> previously, these were exchanged with the coastal Eskimos for seal oil and seal skins. A bag of seal oil brought from two to four red fox skins, while a large tanned seal skin was worth two fox skins. Occasionally a coastal Eskimo would trade a new umiak for as much as twenty-five to thirty skins" (VanStone 1962:128).

This practice continues into modern times:

> "Oral traditions of the Kobuk people describe a fur trade system between the inland and coastal Eskimos, extending back well beyond the nineteenth century. Skins of wolf, wolverine, beaver, lynx, and other fur bearers were exchanged for such coastal products as seal oil, *maktak*, sealskin, and ivory. This trade continues in modified form today" (Anderson et al. 1998:223).

Recent interviews document that wintertime trapping of wolf, wolverine, martin, and mink has been an important activity—providing furs for both commercial and personal use. Traplines are often maintained along the Kobuk River corridor, where these animals travel in large numbers, or along the riparian zones of its major tributaries. The plateau areas just north of the Kobuk River corridor, and some of the mountain drainages such as the upper Salmon River beyond, are also said to be good for many of these species. Anderson et al. mention one of these locations in the park: "the south end of a long peninsula of tundra near Onion Portage is known as an excellent place for hunting or trapping [wolf and wolverine]…during winter" (1998:253).

Kiana residents shared that these winter traplines are often configured so that trappers can take advantage of good winter trails, with safe river crossings and clear passage through mountain passes. Thus, for example, one trapline used by some men in Kiana ascended the Salmon River, then crossed down into immediately adjacent drainages close to their headwaters, allowing trappers to make a single, simple loop as they visited each trap. These trails are configured so as to avoid northern exposure to the extent possible, as north-facing slopes tend to become icy and unnavigable at certain times of the winter. Until very recently, people navigated these traplines by dead reckoning and the use of known landmarks. In recent years, the arrival of GPS technology has changed and simplified the navigation of traplines significantly.

Summertime trapping is also widely reported by interviewees. Beaver and muskrat, for example, have long been hunted and trapped along the Kobuk River corridor. As previously mentioned, commercial muskrat trapping is documented as a major occupation for residents in the first half of the 20th century (Anderson et al. 1998). Kiana residents mention that families maintain beaver and muskrat trapping camps along the

river, including camps within the park boundary not far from the Great Kobuk Sand Dunes. These areas have marshes reported to be good beaver and muskrat habitat. Oxbows between the dunes and the Kobuk are said to be good for both species, beaver in particular, and beaver dams and lodges are commonly seen there. Muskrat are especially trapped in May and early June. The pelts are sold for cash used to obtain motors, nets, and other items used when accessing and gathering resources in the study area.

Trapping can be lucrative if done well. A good wolverine pelt, for example, can fetch $700 through local buyers. In recent times, increases in human traffic along the rivers—the Kobuk in particular—have pushed traplines further inland (HJ). Some of these species, notably wolverine, are said to reproduce slowly and have not rebounded readily when too much trapping pressure is exerted on them in the Kobuk River corridor. Local trappers commonly uphold certain traditional ethical standards relating to trapping, such as revisiting traplines frequently once traps are set to ensure captured animals do not suffer for long. Some interviewees note that younger men are not as involved in trapping, and older men are moving out of the field, so that trapping is becoming less common within the villages of the region.

Surveys by ADF&G provide further evidence of use of fur-bearing animals by the Kiana and Ambler communities. The surveys indicated that Kiana households took 155 animals not usually eaten, likely for their furs: muskrat, marten, red fox, land otter, wolf, wolverine, lynx, and coyote (Magdanz et al. 2011:57). Fur-bearing animals harvested by the Ambler community included gray wolves, red foxes, wolverines, marten, and mink (Braem et al 2015:46).

The two communities also hunted small mammals, some of which are mentioned above by interviewees. According to the authors, Kiana households harvested 1851 lbs. of small mammals (beaver, snowshoe hare, and porcupine) (Magdanz et al. 2011:57). Ambler households harvested 2,266 lb. of beaver, 113 lb. of snowshoe hare, and small amounts of muskrats, porcupines, river otter, and lynx (Braem et al 2015:45).

Reindeer

Reindeer are a non-native species to Alaska, brought to the state by the US government. Although related to caribou, reindeer are a smaller, domesticated form of the species.

The federal reindeer program brought the animals from Siberia to the study area in the late 19th and early 20th centuries.

The reindeer program intended to teach the Inupiat animal husbandry and provide them with a way to support themselves through reindeer herding. The program was supported by the US Bureau of Education, and relied on missions to distribute the reindeer and implement the apprentice training system (VanStone 1976:4; Flanders 1991:47-48). Flanders explains the US Government's objectives for the program: "Reindeer were an important element of the federal government's plan for the Iñupiat…The reindeer were to be a civilizing and commercializing force" (1991:47-48).

Scholars have identified three developmental periods of the reindeer industry in Alaska: these periods being 1892-1914, when only Eskimos and Lapps owned reindeer; 1914-1939, a period of commercial exploitation that met with limited success; and a slow recovery period beginning in 1939 (Lantis 1950:27–28; Stern et al. 1980:37).

In the study area region, reindeer first arrived at Kotzebue. The Quaker mission at Kotzebue with its "adherents from both the Noatak and Kobuk River watersheds" received a reindeer herd from the government and began an Inupiat apprentice-training program in 1901 (Flanders 1991:49). In 1907, the government brought reindeer to Shungnak, closer to KOVA (Anderson et al. 1988:18). At this time, the caribou population was low and residents needed a source of meat and skins. People herded reindeer near Shungnak from 1907 to 1940 and 1945 to 1952. Other communities near the park with reindeer herds were Noorvik from 1914 to 1940 and 1956 to 1964, and Selawik from 1909 to 1940 and 1945 to 1970 (Stern et al. 1980:17).

The reindeer herding program struggled in the early 20th century. Stern et al. explain: "Many Eskimos owned and tended deer by 1914; however, many of the owners had so few deer that their herds could not be considered viable economic production units" (Stern et al. 1980:20). In general, the demands of herding the reindeer, often requiring constant herding to keep the reindeer safe, and the challenges of shipping the reindeer meat to markets, hampered the viability of the industry (Lantis 1950). Another complication to the viability of reindeer herding came in the 1920s. During this period, "overgrazing, poor herding practices and competition from a white-owned herd" jeopardized the reindeer program (Flanders 1991:54). In the study region, the Kotzebue Quaker mission herd was sold in 1927 to a Native-owned company (Flanders 1991:49). The reindeer population crashed in the Kotzebue region in the 1930s (Burch 1984:314).

The US Government attempted to revive the reindeer industry by purchasing all non-Native owned reindeer in 1939, and a recovery seemed to be underway by 1949 (Lantis 1950:28, 43). Later, in spite of "the failure of many herds located between Noatak and Barrow, the Kobuk and Selawik Rivers, and south of Norton Sound during the 1950s, a number of newly established herds did survive" (Stern et al. 1980:46). Based on a lack of available sources, the current status of reindeer herds in the study area is unclear.

Plants

Plant Foods

Plant foods play a smaller, but integral, role in diets in the study area. As with animals, Kobuk Valley Inupiat utilized many plant species, employing a variety of harvest and processing techniques. Subsistence plant foods remain a part of modern tribal members' diets, mentioned by Kiana elders in the recent interviews.

According to Kiana residents, berry picking is common along the riparian zone in the summertime, especially concurrent with fishing at family camps. Nearly every kind of berry traditionally utilized by the families of Kiana is said to occur in abundance along the Kobuk riparian. As Ella Sheldon observes,

> "you name the berries—they're there! ...When you go out walking [along the river] you see *all* kinds of berries—raspberries, lots of them. You always have to keep an eye out for bears [who] like the berries too" (ES).

This includes, but is not limited to, wild blueberries (*Vaccinium uliginosum* and others), nangoonberries (*Rubus arcticus*), cloudberries (*Rubus chamaemorus*), "blackberry" or crowberry (*Empetrum nigrum*), wild cranberry (*Vaccinium oxycoccos*), highbush cranberries (*Viburnum edule*), wild currants (*Ribes* spp.), and other species. Some places, including the edge of the sand dunes, are said to be visited sometimes for bearberries (*Arcostophylos uva-ursi*). When camping along the Kobuk, families often gather large quantities of wild blueberries to eat fresh or baked into pancakes at camp. Wild greens are often consumed coincident with visits to hunting and fishing areas, such as sour dock and wild rhubarb; beyond being eaten fresh, wild rhubarb is often processed and frozen for later use. Root digging is also said to be common traditionally, for "Eskimo potato" (*Claytonia tuberosum*) and other species.

Some plant gathering areas are geographically distinctive and possess unique cultural significance, and cranberry bogs are an important example of this kind of culturally valued harvesting landscape. Bogs of wild cranberry (probably *Vaccinium oxycoccos*) are described as being located within the study area, not far from the river corridor. These have not only been harvested for food and perhaps medicinal use, but have served as critical risk-reducing resources during scarcity. One oral tradition describes a family that was starving in the spring and forced to boil and eat leather to survive. They went to a particular cranberry bog in the study area, at Moose Lake near the slough called *Qusrimmaqituuq*, and were able to survive solely on the berries. Descendants of this family are said to live in Kiana and other communities today (VM), and people still gather berries in this location. In future research, a full account of this event and of the general importance of cranberries deserves attention.

Plants mentioned by interviewees are consistent with those recorded in previous works. Observations on the historical use of plant foods come from the work of J.P. Anderson, who in the summer of 1938, studied regional flora and collected herbarium specimens in the Eskimo villages of northern Bering Sea and Arctic Alaska. Anderson sought information about local plant use "from white school teachers and other white persons resident in the district but for the most part direct from the Eskimos themselves" (Anderson 1939:714). J.P. Anderson's scientific names, local and common names, and details of use and preparation are found in Table 1.

Anderson observed that although the proportion of plant food use was small, it included a wide range of species:

> "The diet of the Eskimo is almost exclusively of animal origin. The total portion that is directly vegetable is very small. …Considering the small amount actually consumed, the number of native species used is surprisingly large" (Anderson 1939:714).

Preparation techniques for plant foods were varied:

> "Various methods are employed in preparing the plant material for consumption. Some is eaten raw. … Some is simply scalded. Another method is to use either scalding or cold water and then allow the material to ferment, the preparation being ready for consumption when the proper stage of fermentation is reached. They call this "souring" and sometimes add sugar to the soured material. Ordinarily the material is also boiled" (Anderson 1939:714–715).

Plants were often stored for later use in the winter:

> "One of the commonest methods of use is to immerse the plant material in oil. In this way it may be preserved for winter use. … On the mainland the Eskimo frequently uses seal oil; reindeer tallow may be used. …All berries are eaten fresh and most kinds are also preserved in oil. To a limited extent the Eskimo is learning the white man's methods and there is a tendency away from the old habits" (Anderson 1939:715).

Anderson et al. and Giddings record the continued use of plant foods by the Kobuk people from the late 19th into late 20th century. Plant foods like berries, tubers, and vegetables were gathered in the summer and fall, and stored for later use (Anderson et al. 1998:231). These foods supplemented the diet, with berries the most important plant food gathered by the Kobuk people (Anderson et al. 1998:231, 233). Giddings similarly describes their plant use:

> "Throughout the growing season, the Kobuk people have always been accustomed to gathering and eating wild plants. …First among aboriginal food are blueberries which were gathered by the women in great quantities" (Giddings 1961:155).

Furthermore, blueberries keep well; beaten with fat they traditionally made *akootuk*, a festive mid-winter treat. People also ate polygonum roots, wild onion, wild rhubarb, and other berries (Giddings 1961:135). Common food plants available along the Kobuk River included blueberries, lowbush cranberries (Anderson et al. 1998:232), saxifrage, sourdock, wild spinach, and wild chives (Anderson et al. 1998:234).

Presently, traditional Inupiat plant foods remain treats, providing essential nutrients and reinforcing cultural continuity (Jones 2010:vii–viii). Many traditional greens are now eaten in salads. However, traditional preparations also continue: leaves are eaten raw in seal oil, cooked and stored with or without fermentation, raw fermented, and stored in caribou stomach contents and ptarmigan intestine. Roots are cached dry or stored in fat or oil. Berries are eaten fresh, boiled for sauce or jam, canned, stored cold or frozen, or stored in liquid, fat, or oil (Jones 2010).

Park lands provide access to a diverse array of plants for modern tribal members. Swadesh describes the unique location of KOVA, resulting in multiple vegetation types:

> "The area contains extremely important vegetational relationships. As a result of its unique transitional location between forest and low-elevation tundra, the Kobuk River area contains a complex pattern of tundra, forest, and forest-tundra vegetation" (1975:18-19).

Overall, "the vegetation of Kobuk valley is diverse. At least 368 species of flowering plants have been reported for this general area" as well as lichens and liverworts (Swadesh 1975:46).

As with animal resources, almost all Kiana and Ambler households use subsistence plant foods. Magdanz et al. report 99% of Kiana households used harvested plant foods in 2006. The authors estimate Kiana households took 2,874 lbs. of blueberries, 1,343 lbs. of cloudberries, 420 lbs. of low-bush cranberries, 251 lbs. of crowberries, 65 lbs. of Eskimo potato, 51 lbs. of wild rhubarb, 22 lbs. of sourdock, and 1 lb. of willow leaves (2011:59). Ambler households harvested 2,772 lb. of vegetation, of which 2,384 lb. were berries, primarily blueberries, cranberries, and salmonberries. Other harvested plants were Hudson's Bay tea, wild rhubarb, wild celery, Eskimo potato, sourdock, wild rose hips, stinkweed, and puffballs (Braem et al 2015:54).

Other Uses of Plants

Plants provide construction materials for structures and equipment, and fire fuel for modern tribal members, as they did for past generations. For example, firewood cutting, as well as the gathering of firewood from shorelines and gravel bars, was widely reported as a vital traditional activity during the recent reconnaissance interviews. Within the documentary record, firewood procurement for past generations in the nineteenth century is described as "the single most time-consuming cold winter activity" (Anderson et al. 1998:238). More recently, Swadesh notes "most tree and shrub species [in KOVA] are of importance to the residents for a variety of subsistence purposes, such as sleds, firewood, boats, fish drying racks, and snowshoes" (Swadesh 1975:59).

In the past, people also used plants for "cordage, watercraft, traps, [and] hostelry" (Mason and Bigelow 2008:60). Specifically, willow was used to make fishnets, rope, and snowshoes (Anderson et al. 1998:235). They used spruce bark and birch bark for boats, such as kayaks (Anderson 1974:74; Giddings 1952:59), and spruce pots and birch bark baskets served as cooking vessels (Anderson et al. 1998:235-236). They also utilized spruce for making equipment and shelters. Structures of various types were constructed using willow and other wood, bark, moss, sod, and grasses (Burch 1984:307-308).

Access to these forest resources is unique in Northern Alaska:

> "The forests are very important to the Kobuk people, because they provide wood for construction and heating as well as game and fur-bearing animals different from those found on the nearby tundra. The *Kuuvaŋmiut* are unusual among the Eskimo groups, for nearly all Eskimo peoples are oriented exclusively to the resources of water and tundra environments. But people of the Kobuk valley have added to this an adaptation to life in timbered country and the special array of resources it provides" (Anderson et al 1998:28).

Thus, living in an area with forests provided significant opportunities for the Kobuk Valley Inupiat and influenced their lifeways.

One final use of plants comes from the work of J.P. Anderson: the use of *Anemone narcissiflora* L. for ceremonial purposes (Anderson 1939:715). See also Burch (1984:306) for additional uses of plants.

Medicinal Use of Plants and Animals

People in the KOVA region used plants and animals for multiple purposes beyond food. One notable function is medicinal use. A few sources offer details on species used for medicines and medical technology.

Many plants served as medicines. J.P. Anderson identified *Ledum decumbens* (Ait.) Lodd, called Delakeet or Iyoo and known as Labrador tea and *tilaaqqiuq* (Anderson 1939:715–716). Lulu Geary (*Tuttuġruk*) from Buckland, and Lucy Foster (*Akuġluk*) from Noorvik reported use of the tea for blood flow and food poisoning (Anderson et al. 1998:246). Both sources document the use of *Artemesia* spp., called Sugrit or perhaps *Sargiq,* or commonly known as wormwood for wounds or chest pains (Anderson 1939:715–716). Juniper berries were also used for chest pains (Anderson et al. 1998:246). *Picea canadensis* (Mill.), called Goochuchglook, utilized as an infusion from needles and as resin chewed or applied to wounds (Anderson 1939:715–716). Additionally, people used cranberries to treat rash (Giddings 1961:18), and when "fried in oil are said to help cure a sore throat" (Anderson et al. 1998:233).

Animal products were also used medicinally. Inupiat in the Kotzebue region use bear fat for curing illnesses and sores (Loon and Georgette 1989:38). Grayling fins were chewed to reduce dental pain (Giddings 1961:18). Geary and Foster mention blubber as treatment for sore throats, plucked and dried swallows for sore tongues in children, and seal oil for seizures in children (Anderson et al. 1998:246, 247).

Noatagmiut midwife and general practitioner, Mrs. Della Keats, provides further information on traditional medicines and medical technology. Keats counts mustard plasters, camphorated oil, lard, chewing tobacco, seal oil, whale blubber, powdered willow ash, Artemesia leaves, and dried porcupine excrement among the items in the traditional pharmacopeia. Traditional medical technology includes splints, dried caribou leg sinew, and bandages and wraps of the inner skin of caribou, dried bearded seal intestine, and other skins. Lancets were made of bone, jade (Lucier, Vanstone, and Keats 1971:254–255), or obsidian (Clark 1995:85).

Social Contexts of Resource Use

The resources from the Kobuk area are said to have significantly sustained the Kiana community for many generations. Not only did resource harvesters benefit from the resource abundance of the Kobuk, but the entire community depended on these resources—obtained through traditional sharing practices within the entire community. As Ella Sheldon says, traditionally "you *give, give, give*! Some still do that…they share fish with the people who help…some of the young men still bring a boat load of fish down to the village" (ES).

These traditional sharing practices are further evidenced in literature on the people of the Kobuk River valley and the wider Inupiat population. Anderson et al. record various types of partnerships, revolving around two people (kin or non-kin) who help each other with tasks like fishing or hunting (Anderson et al. 1998:64-55). These relationships are important for subsistence living, enabling people to perform tasks that might otherwise be difficult to accomplish individually. Additionally, through the 20th century, people left doors unlocked and hunters were free to use and replace food and fuel in unoccupied cabins. In the previous century, theft, interference with others' nets, and failure to share food with family members invoked social sanctions (Anderson 1974:77–78).

Giddings describes cooperative resource acquisition in previous generations:

> "Food had to be secured in quantity. We cannot stress too much the emphasis that a hunting and gathering people places on group enterprise in securing its food. The more colorful aspects of the hunt—those which are often best represented in archeological collections—such as hook and spear fishing, and stalking with bow and arrows, were strictly supplementary to game drives and salmon seining, and trapping" (Giddings 1961:128).

Current cooperative practices are described by Magdanz et al.:

> "Iñupiat hunters, fishers, and gatherers typically work together in crews or at camps to secure whales, seals, salmon, whitefish, caribou, and other traditional subsistence foods. Cooperation continues once harvesting and processing are complete, as subsistence foods are shared with extended family and other community members, sometimes across considerable distances (Burch 1975b, 1988; Magdanz et al. 2007). Iñupiaq culture places a high value on sharing, particularly of nikipiaq or "real food" like frozen fish, seal oil, and dried meat. Some households harvest more than is needed for their own consumption in order to provide for an elder household that no longer hunts, or for a single parent household with 1 working adult and several children. Sharing networks are typically along family lines, but in practice are not limited exclusively to close family households (Bodenhorn 2000; Magdanz et al. 2002)" (Magdanz et al. 2011:77).

In their survey of Ambler households in 2012, Braem et al. (2015:63-64) recorded over 800 instances of food and labor exchanges. Subsistence food harvest and processing was often performed cooperatively. "This cooperation is often organized based on kinship in the manner of traditional Inupiaq communities" (Braem et al. 2015:63). Food is exchanged through trade, barter, or sharing within the community and with households outside of Ambler. This data, as well as the sources cited above, make clear that sharing and cooperative practices continue to be an integral part of modern tribal members' lifeways.

In the Kiana community, similar cooperative behaviors occurred in the 2006 harvests. Thirty-five percent of sources for subsistence foods were extra-household, either from another household in Kiana, or from another community (Magdanz et al. 2011:65). Marine mammal resources came from Barrow, Kotzebue, and Point Hope. "Kiana lacks ready access to the sea, thus most households relied on sharing and trade networks to get seal oil, whale muktuk, and other marine mammals products. Most frequently, those products came to Kiana from Barrow and Kotzebue, but also from Point Hope" (Magdanz et al. 2011:65, 68). The authors state that "most households in Kiana were connected by cooperative food production" (Magdanz et al. 2011:68).

Responses to Scarcity

Food scarcity was a common occurrence for people living in the Kobuk area. Accordingly, they developed strategies for coping with shortages. Responses to

resource scarcity are described in the literature, and observed in the archaeological and ethnographic record. As previously discussed, their strategies included shifts to alternate resources, relocation, and more social strategies such as trade and feasting.

Numerous sources illustrate how relocation and trade cushioned against scarcity. In times of inland resource scarcity, families along the Kobuk River could relocate to the coast to harvest maritime resources (Anderson et al. 1998:22). This move to the coast is attested to in a 1965 interview:

> "My family comes from Kobuk side, but I remember one winter when we were so hungry. Everybody starving. We came down here [Kotzebue area] for fishing on the ice. Another year there was no fish here, and whole village hungry. One man he say he going down there (Cape Blossom). He find one family there. They got lots of fish and he bring some back. So we all go down there to camp" (Smith 1966:18).

Mason suggests relocation to be a particularly durable strategy in the late 19th and 20th centuries:

> "Because of limited numbers, family strategies would of necessity require some flexibility, especially in the face of famine and increasing economic opportunities with European traders and whalers. A rather more complex situation probably prevailed, as exemplified on Nunivak Island in the late 19th and early 20th centuries, by marriage cycles and shifts in residence patterns that resulted from subsistence crises, epidemic diseases, and domestic needs (Pratt 2009:190ff). Although residential shifts in the 20th century might be atypical, similarly complex residential biographies must have prevailed in Northwest Alaska, considering the low populations and the benefits of intercommunity alliance (cf. Burch 2005; Sheehan 1997)" (Mason 2012:74).

Burch mentions that trading and relocation can ease resource scarcity:

> "The relative abundance of the different resources varied from one societal territory to another, as did the precise timing of animal and fish movements. …If the members of a given society did not have direct access to a particular resource in their own territory, either at all or at the desired level, they could acquire what they needed either by moving to where the resource was, or by trade, or by some combination of the two" (Burch 1984:306–307).

Although describing the Bering Strait culture to the immediate south, Ray's description of their responses to resource scarcity are like those of the study area:

> "No matter how dire subsistence conditions became in the nineteenth century, there was no need for a family or village to move outside its own subsistence pattern. The use of both land and sea was involved in each pattern, and the large hunting and fishing areas could be utilized by any one of the villages belonging to the dialect group or tribe. Furthermore, every village's safety was reinforced through an intricate kinship system and reciprocal trading arrangements. Thus, numerous alternatives through flexibility of the subsistence pattern, mobility within their territory, kinship relations, and trade were always available during crises. At times of famine everywhere, the kinship and tribal boundaries expanded to allow greater latitude of interaction" (Ray 1964:64).

As Burch mentioned above, trading provided the opportunity to acquire goods not otherwise attainable in an individual's residential area. A common trade scenario involved trading partners from different ecological zones, often the coast and the interior. For instance, a person living on the coast could trade seal oil and other maritime goods for caribou skins with their inland trade partner (Burch 1970:56). Trade and other cooperative partners were not necessarily related. "The need for cooperation and aid is so crucial that institutionalized ways of cooperation have been created and are sanctioned by the establishment of fictive kin relationships" (Anderson 1974:78). Heinrich (1960:112) also notes the importance of these relationships, stating that "potential kinship is extremely important for inter-areal interaction." These partnerships enabled the acquisition of resources and a means of support in times of scarcity.

Trading was also part of feasting, providing an opportunity to foster social connections and share resources. The presence of extensive caribou drive lines and the absence of associated storage facilities in the archaeological record hint at possible seasonal feasting, suggesting a considerable time depth for the practice in the region (Mason and Bigelow 2008:60). In the historic period, thousands of people gathered at the summer fair held at Sheshalik (*sisualik*), and later near Kotzebue, to feast, trade, and socialize (Burch 1984:305). People from Kobuk, Noatak, Selawik, and Cape Prince of Wales interacted while trading and feasting at these regular summer fairs (Anderson 1974; Anderson 1968). Here, Kobuk Valley Inupiat traders could obtain coastal resources in exchange for inland resources. Hooper observed the trading in 1880, describing the trade goods:

> "The coast natives bring oil, walrus-hides, and seal-skins; those from Cape Prince of Wales bring whiskey, arms, tobacco, and skins of tame reindeer, which they purchase from the Tchuktchis. These articles are exchanged with the natives of the interior for furs—wolf, fox, marten, mink, &c" (Hooper 1881:26).

Other goods inland Inupiat brought to trade included "dried fish, jade and other products of the interior (Rainey 1947:267-68)" (Vanstone 1962:126). Hawkes observed slightly later in the early 20th century that "most Eskimo festivals result in more or less trading" (1913:7). In terms of subsistence, trading at celebrations added to their opportunities to obtain resources, and strengthen relationships that could be relied upon in times of scarcity.

During the wintertime, smaller feasts occurred throughout the study area. These feasts were called Messenger Feasts and provided another chance to trade. In the invitation, the feast host requested guests bring particular needed items to the feast (Hawkes 1913). Sprott provides a description of the event:

> "The Messenger Feast, the second significant ceremony, was common to all Alaskan Eskimo groups and was a hunting festival 'to the extent that life-like performances depicting the habits of animals and scenes of hunting and warfare were given by masked dancers to please the spirits' (Lantis 1947:67-68). The name comes from the custom of formally inviting other villages to take part in the festival and notifying them via messengers of the kind of gifts that were expected. Citing Curtis (1930), Lantis (1947:70) wrote that the Kobuk River Eskimos held a scaled-down version of the Messenger Feast with Indians that had little religious ritual associated with it. She entitled it a 'Trading Feast' and wrote that it consisted of dances and songs for greetings, eulogies, and for entertainment" (1997:73).

Foote (1965a) locates Messenger Feasts in river valleys in the study area:

> "Messenger Feasts, an Eskimo social custom through which trade goods were exchanged, were held in winter between such Eskimo groups as the Tigaraqmiut of Point Hope and the Naupaktomiut of the lower Noatak River, the Naupaktomiut and Eskimos around the Squirrel River and between various Eskimo groups on the Kobuk River" (Foote 1965a:111).

Aspects of these feasts continue into present celebrations. Sprott (1997) parallels the practices of people living in Deering and Aksik in the early 1900s to those of contemporary people in Noorvik. Sprott suggests that the annual basketball competitions and sled dog races reflect the societal competition of the Messenger Feasts (1997:79). The catering responsibilities of hosts and the exchange of gifts are also similar to practices at past feasts. At the Christmas Feast "the ever-present caribou soup/stew and other traditional foods [are] likely to be served in abundance" (Sprott 1997:96). Traditional foods continue to be part of contemporary celebrations like birthdays and holidays, with people routinely serving such foods as *niqipiaq*, dried caribou and fish,

frozen fish, seal oil, vegetables in seal oil, and berries (Stalker 1998:31; Rearden 1998:128).

Territoriality in Resource Use

Access to resources in the KOVA region is traditionally based on territorial rights or the custom of using a specific area. Although now relatively flexible and open, land use rights in the early 19th century were exclusive to the resident society. By the late 19th century, population devastation led to a breakdown of the societies, and conceptions of territorial rights became more like those of modern times. Starting in the 20th century, new factors affected land access with the creation of private property, and the establishment of National Interest Lands. Access to land remains vital for the continuance of subsistence lifeways.

In the early 19th century, the greater Kotzebue region contained 10 societies with corresponding territories. The "identification with a particular territory" acted as a unifying factor for the society as "the members owned [the area] to the exclusion of all other people" (Burch 1984:304). Inter-district travel was hampered by this exclusionary ownership, as well as inter-societal hostility and prejudice, sometimes leading to warfare. However, some degree of travel across districts occurred regularly to access resources not otherwise attainable (Burch 1984:306, 307). Summer was a truce season, enabling travel to the coast for resource harvesting and the summer trading fair, and for hunting caribou and other land mammals in other territories (Burch 1980:274). Two other contexts for inter-societal travel existed outside of summer: the Messenger Feasts and relocation in times of scarcity. Burch states:

> "There were two contexts in which intersocietal travel could be legitimately undertaken during the long intervening period [between summers]. One involved movement to or from a messenger feast, which was basically just a one or two week gathering of two local families from different societies whose heads were associated on a partnership or co-marital basis; participation was by invitation only (Spencer 1959:210 ff.). The other context in which peaceful inter-societal travel could be undertaken was when a region had been struck by famine. In that case people would flee the territory in small family groups to take up temporary (seasonal) residence with allies in neighboring societies. Even in these emergency situations, there was still considerable urgency in making contact with one's partner or co-spouse, since failure to do so was likely to be interpreted as a sign of evil intentions" (Burch 1980:274).

The necessity of these options for subsistence has already been discussed above. This social system broke down after population destruction, migration, and Euro American influences during the mid to late 1800s (Burch 1979:133-134). By the 1890s, the former strict territoriality associated with the societies disappeared.

Territoriality in more recent times can be considered more open and flexible. Giddings describes traditional attitudes toward animal and land rights:

> "Ownership did not apply to most game animals, although one's rights to hunt within a certain territory were understood by all. When a man found a beaver house, on the other hand, it belonged to him. …Neither local game laws nor taboos protected game animals with a view towards preservation" (Giddings 1961:151).

Anderson et al. explain further:

> "It is important to stress that the Kobuk people's concept of territory differs from that familiar in western cultures. To the *Kuuvaŋmiut*, a territory is not strictly bounded and does not confer exclusive rights to use. Instead, it is a home area, known in detail, which for various ecological, technological, and social reasons a person tends to utilize more extensively than other areas" (Anderson et al. 1998:143).

In modern times, "when necessary, the home areas of neighboring *Iñupiat* can be utilized with few if any constraints imposed by the people who live there" (Anderson et al. 1998:143). Thus, this conception of territory allows people freedom to use the land, and to enter the land of other groups to access resources. There are some remnants of the older societal system in more recent attitudes toward territory:

> "By the early 1900s, the enforcement of this system had changed considerably, but its roots remained. Today, strangers from outside the local society are not greeted with hostility, but are still often regarded with suspicion unless their purpose is known and approved. Local residents still consider certain areas as their 'territory and desire some knowledge and control of what occurs there'" (Georgette and Loon 1990:27).

Using distinct locations within a territory is similarly open, but is often prescribed by a history of repeated use. Anderson et al. document that the Kuuvanmiut of a particular village tend to take resources within a specific area. For example, Ambler inhabitants usually hunt and fish east of Anugituut Creek, and Kiana community members to the west. Furthermore, some village families take resources in specific parts of the village's range. Some Ambler families go upriver to hunt and fish, while some go downriver

(Anderson et al. 1998:264). This conception of land use rights is seen in earlier 20th century winter residential practices as documented by Giddings:

> "The move away from the Kobuk headwaters or smaller tributaries leads each family now to a broad section of the river, where it has been customary for a man and his fathers before him to build a winter house. …The house building place is not determined by an exact site, but by the section of the river to which the family has fishing rights or understandings with neighbors" (Giddings 1956:28).

The custom of using a particular territory does not preclude others from using the location, and thus does not equate to exclusive rights or ownership. Rather, using a territory for several years gains an individual a "preferred", or "first right", status, rather than ownership of that location (Anderson et al. 1998:145).

Corresponding with conceptions of territoriality is the fact that subsistence lifeways require flexibility—which allows people to adjust to resource variability, often entailing use of different areas. Changes beginning in the early 20th century conflict with traditional notions of territoriality. These changes include private property rights, in the form of allotments, and governmental agencies controlling access to resources.

Allotments in the Kobuk area were mentioned during recent interviews with Kiana community members. Families were able to choose allotment lands, many establishing allotments in the 1970s or later. The Kobuk River shoreline was a prime place for making such claims. Most of the key campsites, good landing areas, and prime resource harvesting areas became allotments with time. As interviewees note, the same qualities that drew their ancestors to particular places also draw modern people. Some families built cabins on allotments once title was secured, though for others the cost of construction was prohibitive and tents are still used. Allotments of up to 120 acres can be found along the river, still owned and actively used by families from Kiana and beyond. Yet these allotments are clearly in peril as, in some cases, erosion washes away prime camping and fishing sites. For many reasons including these threats of erosion, interviewees encouraged the inclusion in this study of allotment lands internal to the park, even though these are not generally managed by NPS. Allotments are also threatened by financial realities. Some families lose allotments over time as financial need and other life circumstances prompt them to sell the lands. In general, the loss of allotments—the remaining "footholds" on this part of Inupiat traditional land—is a concern to tribal members.

On the other hand, the work of Anderson et al. (1998) suggests that private property in the study area conflicts with traditional subsistence patterns. They state:

> "Private property rights granted to individuals under the 1906 Native Allotment Act have begun to affect this traditional land ethic. …Some villagers now feel that the individual land allotments were ill conceived for an area such as this. While they give people a right to some land, they also bind them to specific places and subvert the basic patterns of subsistence living" (Anderson et al. 1998:264).

While new rates of erosion referenced above threaten allotments, changes to the river are not a new phenomenon. Interviewees acknowledge that the river has continuously changed, and that families long understood and anticipated these changes. Those who travel the river for the first time after breakup go cautiously to avoid hazards and navigational challenges associated with a changed riverbed. In recent years, this caution has increased in response to the changes witnessed by multigenerational river users. "In summertime it's pretty sand—you have to know the river. You will hit the bottom, you will ruin the [motor's] prop" (JB).

Anderson et al. also discuss this pattern of changing river conditions mentioned by interviewees. They suggest that being tied to a parcel of land can be detrimental with the ever-shifting fishing and river conditions. As all rivers change through time,

> "it becomes necessary for subsistence fishermen to seek out new and more productive fishing sites. This was a prime reason why private property concepts did not develop in traditional times. Now, Kobuk people are forced into the rigid complexities of legal ownership and trespass restrictions; they face increasing difficulty in adjusting to the environment's natural dynamics" (Anderson et al. 1998:146).

Other challenging entities that arrived in the 20th century were governmental regulatory forces with control over land and resource access. Regulatory advances included the Alaska National Interests Land Act and the establishment of KOVA. During interviews, many expressed a desire to not have the proposed future study contribute to conservation activities limiting in any way the activities and types of access local communities need and are accustomed to. Some, though, wished to see commercial activities limited to those that could exist comfortably alongside traditional activities—smaller activities such as the continued operation of modest, locally-operated lodges, or modest charter transport, fishing, and hunting businesses. They note that these businesses struggle even in good times, and that restrictions could

eliminate many of these small, often home-based businesses from Kiana and other villages. There is a widespread view that "there are too many restrictions" (DD). Instead, they look to the NPS for cooperation in making the resource harvests and access sustainable over the long term, to support both the village economies and the integrity of the lands and resources on which these economies depend (LS).

Concerns over regulatory forces restricting access to resources, such as those voiced in interviews, are suggested in the literature as well. While subsistence access to the lands is for the most part protected, it has caused concern for modern tribal members for potential conflicts and complications. Burch notes that modern tribal members have been active in the debate "about who, if anyone, should be permitted to hunt on National Interest Lands" (1984:316). McNabb recorded the concerns of one Inupiat elder regarding hunting restrictions in his work documenting the social movement of Inupiat Ilitqusiat. The elder stated:

> "we really must counsel our young hunters, that they get only those animals that they can take home. This goes for the caribou, too. This is good advice and counsel, and getting food from our land will continue to get harder and harder, especially hunting wild game. They are getting more scarce. If they continue to find overkills and what they consider wanton waste, leaving killed wild game out in the country, the Game Wardens will use that information to kill our way of life of hunting for wild game from our land" (McNabb 1991:70).

Continued access to KOVA lands, and to the plants and animals within the area, is vital for subsistence lifeways of local residents. The park contains many key subsistence areas of Kuuvanmiut traditional use, notably caribou hunting and hook-and-line fishing in the eastern portion; along with caribou, moose and bear hunting, seining, hook-and-line fishing, plant gathering, and fur trapping in the western portion (Anderson et al. 1998:33). Additionally, stored foods are often produced where the raw resources are taken. Thus, subsistence requires not only access to the resources themselves, but may require ongoing access to lands (e.g. space for drying racks) and structures (e.g. docks).

Sources also suggest that access can be hampered by conflicts with non-local hunters in the study area. For example, near KOVA in the upper Kobuk area, multiple instances of non-resident hunters disrupting subsistence hunts and displacing locals from their traditional hunting locations are recorded in the mid-1990s and 2000s (Braem et al. 2015:14). Other conflicts include sports fishermen practicing catch-and-release fishing, and disposal of fish parts in the river around Shungnak and Kobuk (Georgette and Loon 1990). These issues primarily revolve around cultural differences, conflicting with

Inupiat ethics of treatment of the fish. However, there is concern that the catch and release of sheefish may cause fatal damage to the species.

Though regional economies have changed significantly in recent generations, the resource abundance of the Kobuk is still widely seen as essential to the survival of local communities. Today, subsistence economies and cash economies exist side-by-side, much of this combined economy still focusing on the Kobuk. Scheduling constraints associated with paid employment can make it difficult for some families to return, even when living not far downstream: "nowadays we have to earn a living so [we can't go]. That wasn't a problem when we were kids" (NW).

These changes, along with others previously noted, intertwine to create complex challenges for modern tribal members looking to continue subsistence practices. Dependent on the ever-shifting locations of resources, subsistence harvests require access to a range of areas and the plants and animals within them. However, allotments and governmental agencies both protect, and limit access to these areas. Other challenges raised by Kiana residents include governmental regulations placing limits on harvests, and other demands on time, such as wage jobs. While paid employment might limit time for subsistence harvests, many commercial activities rely on the same lands along the Kobuk River as subsistence activities. Further examination is warranted to better identify and understand these complexities surrounding subsistence harvests, the current strategies employed by tribal members, and their suggestions for future solutions.

Attitudes Toward Resources and Places

Kobuk residents live in an environment requiring flexibility and ingenuity to adapt to ever-changing conditions. A large part of their success is the ability to exploit a large range of land and the species within it. Anderson et al. observe attitudes of noncommitment and freedom on the land that correspond with their subsistence lifeways.

Remaining flexible in resource harvesting plans is required to adapt to shifts in the environment:

> "Kobuk people live in an environment where nothing is ever certain. Perhaps this explains why they often avoid committing themselves to long- or short-range plans. …This same noncommittal attitude applies traditionally to the use

> of specific places or land areas. The *Kuuvaŋmiut* are basically nonterritorial, though they tend to focus their activities within certain areas to avoid competition for resources" (Anderson et al. 1998:264).

This nonterritorial attitude allows open access to the land, enabling them to exploit resources that often vary in their location through time, as previously discussed. Everyone in a community has "equal and unimpeded access to all surrounding land" (Anderson et al. 1998:266). This relationship with the land is an important part of their lifeways:

> "Perhaps nothing is more valued by the villagers than their identity as *Iñupiat* and their inviolate freedoms on land they consider to be under their guardianship" (Anderson et al. 1998:266).

These attitudes are highlighted in their conflict with sports fishermen:

> "The conflicts between subsistence and sport fishermen on the upper Kobuk River spring from cultural differences, and not—at least so far—from excessive competition for a limited resource. For subsistence fishermen, the upper Kobuk River is home. Their long-standing relationship with the area is evident on the land: in the old village sites, the graves, and the summer and winter camps. Nearly every bend and feature has a name, and usually a story accompanying it. Upper Kobuk residents do not mind sharing this land with visitors, as long as others' behavior is respectful of their home. But that is exactly the problem: the two cultures—Inupiat subsistence fishermen and Euro-American sport fishermen—espouse fundamentally different and conflicting views of appropriate behavior towards fish and access of land. Solutions to the conflicts on the Kobuk River are not easy. Local residents desire some control over their land and their future, as they had in previous generations. Urban Alaskans and non-residents desire access to uncrowded public lands and unexhausted public resources. Both groups feel they have rights to the resources" (Georgette and Loon 1990:33).

McNabb similarly notes the Inupiat desire to control and preserve their lifeways:

> "Protection and preservation of subsistence hunting and fishing rights is arguably the central sociopolitical issue in northwest Alaska. This issue surfaces as a specific provision of plans, goals, and advocacy efforts by most regional institutions. Subsistence may be conceived as an idiom in Iñupiat culture, hence threats to subsistence privileges are often viewed as threats to identity and cultural continuity" (NcNabb 1991:69-70).

The Inupiat in the Kobuk region maintain subsistence practices as part of lifeways and their Native identity. Their attitudes toward the land and animal resources reflect this continued relationship with the environment.

Attitudes Toward Animals

Sources indicate that the Kobuk Valley Inupiat followed protocols when harvesting food from animal sources, and tribal members continue these traditions. Rules of conduct often relate to respect for the animals and ensuring future success. They also provide for the safety of the hunters and their families.

Respect toward animals and its effect on resource harvesting is explained in the following quote regarding its continued relevance to modern tribal members:

> "upper Kobuk residents' traditional ethics toward the natural world…, distinct from those of Euro-Americans, were developed over centuries and are still central to local people's beliefs and behavior. Fundamental to these ethics is the concept that living things are cognizant of the way people treat them. If animals are treated with respect, they in turn make themselves available for use by humans. If animals are abused, the natural order is disrupted, and people risk not being able to catch enough food" (Georgette and Loon 1990:29).

Giddings' informants provided examples of these protocols for earlier generations, particularly for salmon:

> "Pegliruk explained that in former times there were rules for everything. Some rules were not especially important, and these were hard to remember. Others had to do with the game animals and the salmon [e.g. working caribou or sheep skins when the salmon are running]" (Giddings 1961:20).

Other practices regarding salmon included avoidance of seining in stormy weather, as it was neither practical "nor a spiritual means of satisfying the salmon" (Giddings 1956:17). Additionally, failing to observe gender roles in subsistence would be "dangerous to people and insulting to salmon" (Giddings 1956:14).

Hunting caribou required certain etiquette as well. The hunter:

> "needs long rest and quiet to resist the dangers that go with the taking of the lives of other creatures. One sleeps and eats as much as he wants, and makes

> magical observations around the campfire in the night sunlight" (Giddings 1956:9).

Such practices prepared hunters for upcoming challenges that potentially placed them in danger. Hunters and those around them also refrained from speaking about hunting the caribou. They believed the caribou could hear them and learn of the hunter's intentions, thereby threatening the hunt (Nelson 1900:438).

Similar Kobuk Inupiat protocols exist regarding bears, to ensure protection and hunting success. The belief that brown bears had been hearing influenced these actions, as Loon and Georgette summarize:

> "Iñupiat hunters believe bears have good hearing even during hibernation, and hunters therefore should not talk about their intentions to hunt these animals. A hunter should not brag about how many bears he has caught, nor should he talk about the bear in a threatening manner. To avoid harm to himself or his family, a hunter should not 'act big'" (Loon and Georgette 1989:33).

Once a bear is killed, hunters remove and discard the bear's hyoid bone prior to butchery. This is to "ensure that the spirt of the bear has gone elsewhere, and retaliation to the hunter is avoided" (Loon and Georgette 1989:34).

In the past, the subsequent consumption of bear and other fur-bearers, and the disposal of the bones were also highly regulated (Giddings 1961:20; Morlan 2000:51). For example, protocols prohibited dogs from consuming the bones of fur bearers:

> "There is considerable ethnographic evidence of a taboo against allowing dogs to eat the carcasses of fur bearers, lest trapping success be adversely affected (McKennan 1965:84, McClellan 1975:48)" (Morlan 2000:51, 55).

Nelson (1900) recounts a similar practice in coastal areas where dogs were not allowed to touch whale bones. Dogs were considered offensive to the game animals, and "should a dog touch one of them [whale bone] the hunter might lose his luck—his nets would break or be avoided by the whales and his spears would fail to strike" (1899:438).

Another reason for these regulations is the resemblance between bear meat and bones, and those of humans. Many traditional stories characterize the boundary between human and animal as fluid, with transformation possible on both sides (Nelson 1900:427; Anderson and Brown 2005; Giddings 1961:67-69). Accordingly, treatment of these animals required caution.

An additional aspect of their attitude toward bears is found in Jennie Jackson's recollection:

> "A bear can easily destroy a carefully preserved season's catch, making people disappointed or angry. A Kianna elder, Jennie Jackson, said (NANA Region Elders' Conference 1983), 'My grandfather, *Sapiqsuaq*, always told us not to be stingy and be hurt…when then bears eat what we dry or store away because someday when a hunter is out he may kill a bear and you can have that meat instead'" (Loon and Georgette 1989:43).

Jackson's statement conveys an attitude of reciprocity towards bears. This reciprocity is also seen in their treatment of mice caches.

Native people in Northern Alaska have a practice of harvesting plants from mice caches, and replacing the plants with other foods. Sources recorded the Eskimo of the Northern Bering Sea and Arctic Regions harvesting starchy roots of a sedge, called mouse food:

> "from the custom of robbing the nest of field mice (Microtis), which gather them for winter food. In some places fish is placed in the mouse nests so that the mice may live through the winter and be able to store a new supply of sedge the following year" (Anderson 1939:715; see also Loon 1998:41 and Anderson et al. 1998:234).

The Inupiats' reciprocal behavior in this practice conveys respect toward the lives of mice, and maintains the food resource for future harvests.

Sharing food with animals also occurs in fish butchery practices:

> "Upper Kobuk residents believed that the proper place to dispose of fish remains was on a river bar or bank [as opposed to in the river] so that this food was shared with other creatures. 'The river is not a dump,' one Shungnak resident said. 'They should leave it on the bank where animals can clean it up.'" (Georgette and Loon 1990:31).

Attitudes toward resources can also indicate which are safe to eat. For instance, the snowshoe hare was not a highly valued food, according to "the common native statement that one can 'starve to death on rabbits' since for most of the year they have little body fat" (Morlan 2000:57 citing Rogers and Smith 1981:135).

Other types of knowledge help to identify resources that might otherwise be difficult to find. For example, local knowledge of resources and behavior enabled Giddings to

identify cortex flakes of obsidian pebbles on a bluff overlooking the Little Noatak Channel as evidence of an obsidian-working site:

> "Late one evening in 1946 I sat before a campfire talking with a 65-year-old native of the Kobuk, Tommy Jackson, when he remembered something about the flints we were seeking. 'My father used to tell us about that place over there,' he said, pointing across the river to high ground across the side of a mountain slope. 'My father said that when it rains, the little angmaks—flints—come to the top of the ground, and then when the rain stops, they go down again'" (Giddings 1962:16).

Graves and Sacred Places

Interviewees often attest that "gravesites are all along the river" both within and beyond the NPS boundaries (VM). These were associated with human settlements, so that they aggregated in large numbers over time near camps and villages. Graves are increasingly washing out of the banks as river erosion accelerates. In recent decades, interviewees reported seeing occasional human remains or likely grave goods along the banks of the Kobuk. When people buried human remains historically, they were careful to place the remains at some distance from the river to avoid inadvertent disturbance by human or natural causes. But now that erosion is accelerating, extra care has been taken to place burials away from the water. In light of references to widespread burials in the study area, the proposed study is likely to have implications relating to NAGPRA, with input from tribal representatives on how to address reported increases in grave exposure associated with accelerated erosion.

Interviewees note that the Kobuk River corridor was also known as an area with many sacred sites. As Elmer Jackson notes, "in the old days there were shamans…they had places [on the Kobuk] called 'no man's land'…that's where the shamans did their work." Some interviewees still revere and respect these places, saying that they possess spiritual powers: "even though there's no shamans, stuff is going on out there" (EJ). Spirit guardians, including "little people," are described in oral tradition as living in these areas—a source of danger to those who approach the areas disrespectfully.

Entities in Oral Traditions

Other dangerous entities in the oral traditions of Kobuk Valley Inupiat are recorded in the literature. During his travels in the Bering Strait and Kotzebue regions from 1877-1881, Nelson described a belief in mythic animals or monsters among the Inupiat (1900:441). Burch's (1971), article describes some of these entities in the Kobuk River area and explores how these beliefs influenced mid-19th century settlement patterns, as well as contemporary attitudes.

Some of these entities inhabited the study area, and people employed techniques for protection against them. Burch (1971:153) notes the presence of wild babies, *iraaq* or *naaluniq,* along the Kobuk. The territories of the wild babies were avoided, and mittens were carried to slap together to frighten them away. In addition, dangerous trolls, *iqsiniraq,* lived in the hills between the Selawik and Kobuk drainages (Burch 1971:152–153). People traveled together in pairs to intimidate the trolls. According to Burch, dangerous giant birds, *tinmiaqpak*, lived in all of Northern Alaska (1971:155–156). People avoided areas frequented by these beings and only rarely attempted to eliminate them (1971:155–156, 159). Other inhabitants of the region include annoying humanoid entities, *iziraq* (*nuliayuq*, fem.), visible only when unaware of human observation, and the widespread and dangerous *aliuqtuq* ghosts (1971:154–155). The arrival of missionaries in the 1890s brought an additional tool for defending oneself against these entities, with the Bible and "the power of God and the efficacy of prayer" (1971:161–162).

When Burch interviewed his informants in 1969-1970, older people had the most experience with these entities, and these beliefs and experiences decreased with the age of the informant (1971:162–163). Many of the older people believe that the entities are gradually disappearing. This material suggests that some people may recognize locations in the study area as having dangerous phenomena that ought to be avoided, or that require certain actions to ensure safety.

Onion Portage

A significant site in KOVA is Onion Portage, or *Patitakh*, on the Kobuk River. The site contains an archaeological record of resource harvesting and seasonal camping at this location for thousands of years. Today it remains an important hunting and fishing site for modern tribal members.

Archaeological evidence indicates people camped at Onion Portage on the Kobuk River from as early as 8,500 years ago through the historic period (Anderson 1968:26–27). Anderson describes land and resource use over time at the Onion Portage site:

> "A sandy knoll dominates the wooded landscape at the site. Hunters both ancient and modern have used this vantage as they look out for the thousands of caribou that cross the river at Onion Portage, moving north in the spring and south in the fall. From the knoll the approaching animals can be seen soon enough for men to be stationed for the kill at points where the herd is likely to cross the river. The fishing at Onion Portage is also good; several species of salmon migrate upstream during the summer. The prized sheefish, which is scarce in other Alaskan rivers, is also caught by the local Eskimos" (Anderson 1968:26–27).

Giddings describes some of the usage of Onion Portage in the mid-1900s:

> "[The] river bank campsite called Patitakh (wild onion), or Onion Portage, is a favorite tea-making or overnight stop for travelers along the Kobuk River... Portagers, formerly by canoe and now only by dog team in winter, make use of this flat ground to save miles of river travel around a great meander" (Giddings 1962:6).

Onion Portage today remains a site for significant fall caribou hunting. People converge on the area from various Inupiat communities such as Kotzebue, Noorvik, Kiana, Ambler, Shungnak, and Kobuk (Anderson et al. 1998:271). During the summer, they catch several species of salmon at the site during the upstream salmon migration, as well as catching sheefish (Anderson 1968:26-27). As previously mentioned, modern tribal members also utilize significant locations for wolf and wolverine hunting, and a slough for gill netting, in the Onion Portage vicinity.

The time depth of Onion Portage and its use into present times makes it a unique site in Alaska. Inclusion of Onion Portage in the upcoming ethnographic research, along with other traditional locations mentioned by interviewees, is warranted—especially given their cultural significance and continued subsistence usage. Kiana community members have also expressed a desire for further documentation of these locations.

Management Concerns

Through the scoping for a Traditional Use Study for Kobuk Valley National Park, the research team gathered feedback on primary objectives for future research. Objectives

that have risen to the top in interviews include: protection of ancient and modern sites from erosion, maintaining access for subsistence and possible resource development, maintaining the integrity of natural resources on which subsistence traditions depends, and knowledge of their way of life preserved for generations to come. Management concerns that have been documented through scoping are gathered in this section for development in the planned traditional use study.

Documentation of community interdependence on the Kobuk River is at the center of the planned traditional use study. A significant and timely concern is erosion accelerated by climate change. Erosion is caused by rapid warming causing a much faster breakup of ice. Chunks of ice flush down the river quickly along unfrozen banks, accelerating erosion dramatically in recent years. The implications of the changing Kobuk River on management are multifaceted.

The impacts of erosion have been described as the accelerated cutting away of the river banks. The banks of the Kobuk River are the main location of settlements for past and present Kuuvanmiut. For Kiana residents with allotments, there is concern over the impacts on their property. In traditional Kuvaanmiut settlement patterns, changes to the river were easily adapted to as settlements could be moved from one bank to the other or a mile up or down the river (Burch 2006, 1998). Through scoping, interviewees have discussed the changes in settlement caused by establishment of public lands and the allotment application process. As native allotments play a large part in continued subsistence practices in Kobuk Valley National Park, if the erosion of allotments and displacement of family camps is not addressed, the community and Kobuk Valley National Park will face a significant loss.

Sites of cultural heritage exist all along the Kobuk River alongside sites of current settlement. Interviewees see the erosion on cultural sites. The bank in front of *Igliqtiqsiugvigruaq* 'Swift Water Place' is said to have lost roughly 15 to 20 feet due to erosion, exposing archaeological materials and possibly human remains. Other cultural artifacts and human remains have been observed on the banks of the Kobuk River, suggesting that Igliqtigsiugvigruaq is not the only site experiencing significant erosion. Preservation of cultural sites impacted by climate change related erosion is a timely management concern across Arctic parklands. Through further traditional use documentation with the community of Kiana, the National Park Service will seek guidance on NAGPRA processes, prioritization of cultural sites for data recovery, stabilization, and cultural preservation.

Through scoping, interviewees expressed the importance of preserving the cultural heritage of the Kobuk River. The documentation of cultural heritage has several applications for the community of Kiana. Cultural heritage considerations can play into the management of lands for conservation nor development purposes. More than that, there is an increased urgency to document the old ways as the region faces significant changes. Interviewees are clear that cultural preservation must be used to engage younger generations in the continued use and stewardship of the region's resources.

Past NPS and external research will be used for the planned traditional use study. Past research is also valuable to the community of Kiana. Interviewees have often mention research they participated in saying that the results have not been shared by the community, but that they think it would be valuable for their families and communities to have the information. Past projects include Inupiaq placename documentation, interviews from Dr. Linda Ellanna's interviews, oral history documentation from Wanni Anderson, Giddings' ethnographic research, and recordings of the Regional Elders Council conducted by NANA Regional Corporation. The accessibility of past research is a management concern for the community of Kiana as well as the NPS. Often, the NPS has archived materials that simply need releases and direction from the participating community to be shared with the public or with select few. The research team for the planned traditional use study will have to work with the tribe in order to establish an infrastructure to make the background research used in this project accessible.

Fish and game management are of paramount importance though many of the issues raised are beyond the scope of NPS management alone. Fish and game populations are monitored and managed in partnership with Alaska Department of Fish and Game. The National Park Service does have a legislated obligation to federal subsistence in Kobuk Valley National Park (ANILCA Title VIII). The local park service office in Kotzebue works closely with a group known as the Kobuk Valley Subsistence Resource Commission to participate in the process of federal subsistence management. As the subsistence resources like caribou, moose, and other wildlife are not confined to boundaries, the management of the resources often requires collaboration of other land owners, federal, state, native-owned, and private.

Collaborative management of fish and game is possible, and it is easier to accomplish when there is a clear directive from the subsistence users themselves. For example, an initiative created by the Kiana Elders Council referred to as "*Inupiat Ilitqusiat*: Hunter's Succuss for Caribou Hunting" went through the Kobuk Valley Subsistence Resource Commission, and engaged Maniilaq, Selawik Fish and Wildlife Refuge, Alaska Department of Fish and Game, and the National Park Service to share the hunter

success guidelines with the region more broadly. The Kiana Elders Council initiative is rooted in traditional knowledge. It is a model for a collaborative management of fish and game that has a deeper impact than the NPS management objectives alone.

Most interviewees expressed that they wished to maintain unimpeded access to the study area. As part of this sentiment, they noted a desire to have historical trails and other routes of access documented, and those routes maintained, protected, marked, perhaps interpreted so that they are not forgotten. Continued access to resources allows the subsistence way of life to continue.

The park boundary contains many key subsistence areas of Kuuvanmiut traditional use, notably caribou hunting and hook-and-line fishing in the eastern portion; along with caribou, moose and bear hunting, seining, hook-and-line fishing, plant gathering, and fur trapping in the western portion (Anderson et al. 1998:33). The management of the National Park also impacts the ability of residents to harvest wood for building and heating. Enforcement of park regulations has had a powerful impact on subsistence users. Management of other users like sports fishermen, floaters, and sport hunters in the National Park has also shown to have an impact on subsistence access and traditional uses (Georgette and Loon 1990). Documentation of traditional uses of Kobuk Valley National Park can guide management of subsistence and commercial uses. In some cases, traditional knowledge may be used to augment regulation, for example, documentation of traditional bear deterrents would be helpful for reshaping regulations around Defense of Life and Property.

The scoping and planned traditional use study rose to the top of NPS priority when Kiana Traditional Council expressed interest in a government-to-government consultation. Through scoping, it has been clear that turn-over both in Kiana's leading organizations and in the local park service office in Kotzebue as well as lack of follow-through on proposed projects in the past has led to a lack of trust that impedes collaboration between the Park Service and the community.

In continuing work on the traditional use study, the research team must work closely and consistently with Kiana's leading organizations. Outcomes of future research will address management concerns by providing a path for future government to government consultation. Best practices in tribal consultation suggest frequent communication with tribes to build trust in the agency's ability to take the tribes management concerns seriously. In working with the tribe on the proposed traditional use study, the National Park Service is establishing open communication, documenting

cultural ties to the land, and will be able to follow up with specific concerns. Tribal consultation in the future will benefit from this study.

Sources

Interviewees and Discussants in Formal Meetings

Annie Barr

Johnson Black

Dan Douglas

Elmer Jackson

Henry Jackson

Percy Jackson

Vera Morris

Lorey Schuerch, Sr.

Ella Sheldon

Nelson Walker

Interviewee Codes Used in the Text

AB - Annie Barr

JB - Johnson Black

DD - Dan Douglas

EJ - Elmer Jackson

ES - Ella Sheldon

HJ - Henry Jackson

LS - Lorey Schuerch, Sr.

NW - Nelson Walker

PJ - Percy Jackson

VM - Vera Morris

Others who Informally Contributed Significant Information and Ideas

Raymond Barr

Viola Barr

Munick Chappel

Jackie Johnson

Glen Miller

David Smith

Bibliography

Anderson, Douglas D.

1968. "A Stone Age Campsite at the Gateway to America." *Scientific American* 218 (6): 24–33.

1970a. "Akmak: An Early Archaeological Assemblage from Onion Portage, Northwest Alaska." *Acta Arctica* 16: 1-80.

1970b. "Athapaskans in the Kobuk Arctic Woodlands, Alaska?" *Canadian Archaeological Association Bulletin* 2: 2–12.

1970c. "Microblade Traditions in Northwestern Alaska." *Arctic Anthropology* 7 (2): 2–16.

1972. "An Archaeological Survey of Noatak Drainage, Alaska." *Arctic Anthropology* 9 (1): 66–118.

1979. "Archaeology and the Evidence for the Prehistoric Development of Eskimo Culture; an Assessment." *Arctic Anthropology* 16 (1): 16–26.

1988. *Onion Portage: An Archaeological Site on the Kobuk River, Northwestern Alaska.* Anthropological Papers of the University of Alaska, vol. 22. Fairbanks: University of Alaska Press.

Anderson, Douglas D., Wanni W. Anderson, Ray Bane, Richard K. Nelson, and Nita Sheldon Towarak

1998. *Kuuvanmiut Subsistence: Traditional Eskimo Life in the Latter Twentieth Century*. Washington, DC: United States Department of the Interior, National Park Service.

Anderson, J. P.

1939. "Plants Used by the Eskimo of the Northern Bering Sea and Arctic Regions of Alaska." *American Journal of Botany* 26 (9): 714–716.

Anderson, Wanni W.

1974. "Song Duel of the Kobuk River Eskimo." *Folk. Dansk Ethnografisk Tidsskrift* 16: 73–81.

Anderson, Wanni W., and John Patkuraq Brown, eds.

2005. *The Dall Sheep Dinner Guest: Iñupiaq Narratives of Northwest Alaska*. Fairbanks: University of Alaska Press.

Andrews, Shona Greist Nasruluk

1998. "Inupiaq Recipe for Cooking and Gathering Sourdock." In *Authentic Alaska: Voices of Its Native Writers*, edited by Susan B. Andrews and John Creed, 42–43. Lincoln: University of Nebraska Press.

Andrews, Susan B., and John Creed
1998. *Authentic Alaska: Voices of Its Native Writers.* American Indian Lives. Lincoln: University of Nebraska Press.

Atoruk, Ben
2000. Letter to Robert D Barbee, NPS Regional Director. Unpublished correspondence in KOVA files, USDI National Park Service.

Beechey, Frederick William
1831. *Narrative of a Voyage to the Pacific and Beering's Strait, to Co-Operate with the Polar Expeditions: Performed in His Majesty's Ship Blossom... in the Years 1825, 26, 27, 28.* London: H. Colburn and R. Bentley.

Bockstoce, John
1977. "Eskimo Whaling in Alaska." *Alaska Magazine* 43 (9): 4–6.

Bockstoce, John R., and Charles F. Batchelder
1978. "A Gazetteer of Whalers' Place-Names for the Bering Strait Region and the Western Arctic." *Names* 26 (3): 258–270.

Braem, Nicole M.
2012. *Subsistence Wildlife Harvests in Ambler Buckland, Kiana, Kobuk, Shaktoolik, and Shishmaref, Alaska, 2009-2010*. Special Publication SP2012-003. Fairbanks: Alaska Department of Fish and Game, Division of Subsistence.

Braem, Nicole M., Elizabeth H. Mikow, Seth J. Wilson, and Marylynne L. Kostick
2015. *Wild Food Harvests in 3 Upper Kobuk River Communities: Ambler, Shungnak, and Kobuk 2012-2013.* Technical Paper No. 402. Fairbanks: Alaska Department of Fish and Game, Division of Subsistence.

Burch, Ernest S.
1970. "The Eskimo Trading Partnership in North Alaska: A Study in "Balanced Reciprocity." *Anthropological Papers of the University of Alaska* 15 (1): 49-80.

1971. "Nonempirical Environment of the Arctic Alaskan Eskimos." *Southwestern Journal of Anthropology* 27 (2): 148–165.

1974. "Eskimo Warfare in Northwest Alaska." *Anthropological Papers of the University of Alaska* 16 (2): 1–14.

1975. "Inter-Regional Transportation in Traditional Northwest Alaska." *Anthropological Papers of the University of Alaska* 17 (2): 1-11.

1976. "Overland Travel Routes in Northwest Alaska." *Anthropological Papers of the University of Alaska* 18 (1):1-10.

1979. "Indians and Eskimos in North Alaska, 1816-1977: A Study in Changing Ethnic Relations." *Arctic Anthropology* 16 (2): 123–151.

1980. "Traditional Eskimo Societies in Northwest Alaska." *Senri Ethnological Studies* 4: 253–304.

1984. "Kotzebue Sound Eskimo." In *Arctic,* edited by David Damas, 303–319. Vol. 5 of *Handbook of North American Indians*, edited by William C. Sturtevant. Washington, DC: Smithsonian Institution Press.

1998. *The Iñupiaq Eskimo Nations of Northwest Alaska*. Fairbanks: University of Alaska Press.

2005. *Alliance and Conflict: The World System of the Iñupiaq Eskimos*. Lincoln: University of Nebraska Press.

2006. *Social Life in Northwest Alaska: The Structure of Iñupiaq Eskimo Nations*. Fairbanks: University of Alaska Press.

Burch, Ernest S., and Craig W. Mishler

1995. "The Di'hąįį Gwich'in: Mystery People of Northern Alaska." *Arctic Anthropology* 32 (1): 147–172.

Cantwell, J.C.

1890. "Exploration of the Kowak River, Alaska. Ethnological Notes." In *Report of the Cruise of the Revenue Marine Steamer Corwin in the Arctic Ocean in the Year 1884*, by Michael A. Healy, 75-98. Washington, DC: Government Printing Office.

Clark, Annette McFadyen, and Donald Woodforde Clark

1976. "Koyukuk Indian-Kobuk Eskimo Interaction." In *Contributions to Anthropology: The Interior Peoples of Northern Alaska*, edited by Edwin S. Hall, 193–220. Ottawa: National Museums of Canada.

Clark, Donald W.

1995. "Batza Téna: The Trail to Obsidian." *Arctic Anthropology* 32 (1): 82–91.

Ducker, James H.

1996. "Out of Harm's Way: Relocating Northwest Alaska Eskimos, 1907-1917." *American Indian Culture and Research Journal* 20 (1): 43-71.

Ellanna, Linda J., and George K. Sherrod

1995. ""Big Women": Gender and Economic Management Among King Island and Kobuk River Inupiat of Northwest Alaska." *Research in Economic Anthropology* 16: 15–38.

Flanders, Nicholas E.

1991. "Missionaries and Professional Infidels: Religion and Government in Western Alaska." *Arctic Anthropology* 28 (2): 44–62.

Foote, Don Charles
1964. "Changing Resource Utilization by Eskimos in North-Western Arctic Alaska, 1850 - 1962." The Papers of Don Charles Foote in the Dartmouth College Library. Rautner Special Collections Library, Dartmouth College, Hanover, Rhode Island.

1965. "Exploration and Resource Utilization in Northwestern Arctic Alaska before 1855." PhD diss., McGill University.

1965b. "Field Notes from the Upper Kobuk River, Alaska." Don Charles Foote Papers. Alaska and Polar Regions Department Archives, Rasmuson Library, University of Alaska, Fairbanks, Alaska.

1966a. "Eskimo Stories and Songs of the Upper Kobuk River." Don Charles Foote Papers. Alaska and Polar Regions Department Archives, Rasmuson Library, University of Alaska, Fairbanks, Alaska.

1966b. "Human Geographical Studies in Northwest Arctic Alaska." In The Upper Kobuk River Project: Final Report. Don Charles Foote Papers. Alaska and Polar Regions Department Archives, Rasmuson Library, University of Alaska, Fairbanks, Alaska.

Georgette, Susan and Brittany Sweeney
2014 *News from Selawik Refuge: Update on Kobuk River Salmon Die-off (Lab Results).* USFWS Selawik National Wildlife Refuge, self-published newsletter.

Georgette, Susan
2000. *Subsistence Use of Birds in the Northwest Arctic Region, Alaska*. Technical Paper No. 260. Juneau: Alaska Department of Fish and Game, Division of Subsistence.

Georgette, Susan, and Hannah Loon
1990. *Subsistence and Sport Fishing of Sheefish on the Upper Kobuk River, Alaska.* Technical Paper No. 175. Juneau: Alaska Department of Fish and Game, Division of Subsistence.

Giddings, J.L.
1941. "Ethnographic Notes, Kobuk River Region, Alaska." *Kiva* 6 (7): 25–28.

1952. *The Arctic Woodland Culture of the Kobuk River.* Museum Monographs. Philadelphia: The University Museum, University of Pennsylvania.

1956. *Forest Eskimos: An Ethnographic Sketch of Kobuk River People in the 1880's.* Philadelphia: University of Pennsylvania.

1961. *Kobuk River People.* Studies of Northern Peoples, No. 1. College: Department of Anthropology and Geography, University of Alaska.

1962. "Onion Portage and Other Flint Sites of the Kobuk River." *Arctic Anthropology* 1 (1): 6–27.

1965. "A Long Record of Eskimos and Indians at the Forest Edge." In *Context and Meaning in Cultural Anthropology*, edited by Melford E. Spiro, 189–205. New York: The Free Press.

Halas, Gabriela
2015. "Caribou Migration, Subsistence Hunting, and User Group Conflicts in Northwest Alaska: A Traditional Knowledge Perspective." MS, thesis, University of Alaska, Fairbanks.

Hawkes, Ernest William
1913. *The "Inviting-in" Feast of the Alaskan Eskimo*. Department of Mines Geological Survey Memoir 45, Anthropological Series, 3. Ottawa: Government Printing Bureau.

Healy, Michael A.
1889. *Report of the Cruise of the Revenue Marine Steamer Corwin in the Arctic Ocean in the Year 1884.* Washington, DC: Government Printing Office.

Heinrich, Albert
1960. "Structural Features of Northwestern Alaskan Eskimo Kinship." *Southwestern Journal of Anthropology* 16 (1): 110–126.

Hooper, Calvin Leighton
1881. *Report of the Cruise of the US Revenue-Steamer Corwin in the Arctic Ocean.* United States Revenue-Cutter Service. Washington, DC: Government Printing Office.

Jans, Nick
1993. *The Last Light Breaking: Living among Alaska's Inupiat Eskimos.* Anchorage: Alaska Northwest Books.

Johnston, Thomas F.
1975. "Alaskan Eskimo Dance in Cultural Context." *Dance Research Journal* 7 (2): 1–11.

1976a. "The Eskimo Songs of Northwestern Alaska." *Arctic* 29: 7–19.

1976b. "The Social Background of Eskimo Music in Northwest Alaska." *The Journal of American Folklore* 89 (354): 438–448.

Jones, Anore
2010. *Plants That We Eat: Nauriat Nigiñaqtuat: From the Traditional Wisdom of the Iñupiat Elders of Northwest Alaska.* Fairbanks: University of Alaska Press.

Jones, Anore
2006. *Fish That We Eat: Iqaluich Nigiñaqtuat* United States Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program, Final Report No. FIS02-023, Anchorage, Alaska.

Jorgenson, Mark, Bruce Marcot, David Swanson, Janet Jorgenson, and Anthony DeGange
2015. "Projected Changes in Diverse Ecosystems from Climate Warming and Biophysical Drivers in Northwest Alaska." *Climatic Change* 130 (2): 131–144.

Lantis, Margaret
1950. "The Reindeer Industry in Alaska." *Arctic* 3 (1): 27–44.

1980. "Changes in the Alaskan Eskimo Relation of Man to Dog and Their Effect on Two Human Diseases." *Arctic Anthropology* 17 (1): 1–25.

Lee, Linda
1989. *Lore of the Inũpiat: the Elders Speak = Uqaaqtuaṇich Iñupiat: Ultuqqanaat Uqaaqtuaqtut.* Vol. 1. Kotzebue: Arctic Borough School District.

Loon, Hannah Paniyavluk
1998. "Inupiaq Woman Learns How to Search for Mouse Caches." In *Authentic Alaska: Voices of Its Native Writers*, edited by Susan B. Andrews and John Creed, 39–41. Lincoln: University of Nebraska Press.

Loon, Hannah and Susan Georgette
1989. *Contemporary Brown Bear Use in Northwest Alaska.* Technical Paper No. 163. Anchorage: Alaska Department of Fish and Game, Division of Subsistence.

Lucier, Charles, James Vanstone, and Della Keats
1971. "Medical Practices and Human Anatomical Knowledge among the Noatak Eskimos." *Ethnology* 10 (3): 251.

Magdanz, James S., David S. Koster, Liliana Naves, and Patricia Fox
2011. *Subsistence Harvests in Northwest Alaska, Buckland and Kiana, 2003 and 2006.* Technical Paper No. 363. Kotzebue: Alaska Department of Fish and Game, Division of Subsistence.

Mason, Owen K.
2012. "Memories of Warfare: Archaeology and Oral History in Assessing the Conflict and Alliance Model of Ernest S. Burch." *Arctic Anthropology* 49 (2): 72–93.

Mason, Owen K., and Nancy H. Bigelow
2008. "The Crucible of Early to Mid-Holocene Climate in Northern Alaska: Does Northern Archaic Represent the People of the Spreading Forest?" *Arctic Anthropology* 45 (2): 39–70.

Mason, Owen K., and S. Craig Gerlach
1995. "Chukchi Hot Spots, Paleo-Polynyas, and Caribou Crashes: Climatic and Ecological Dimensions of North Alaska Prehistory." *Arctic Anthropology* 32 (1): 101–130.

McNabb, Steven

1991. "Elders, Iñupiat Ilitqusiat, and Culture Goals in Northwest Alaska." *Arctic Anthropology* 28 (2): 63–76.

Mendenhall, Walter Curran
1902. *Reconnaissance from Fort Hamlin to Kotzebue Sound, Alaska, by Way of Dall, Kanuti, Allen, and Kowak Rivers.* Professional Paper No. 10. Economic Geology. Washington, DC: Government Printing Office.

Moore, Gregory D.
1979. *Issue Background: Buckland Food Shortage.* Technical Paper No. 7. Kotzebue: Alaska Department of Fish and Game, Division of Subsistence.

Morlan, Richard E.
2000. "The Siruk Site, Alatna River, Alaska: A Koyukon Winter House." *Arctic Anthropology* 37 (1): 43–59.

Nelson, Edward William
1900. *The Eskimo About Bering Strait*. Smithsonian Institution, Bureau of American Ethnology. Washington, DC: Government Printing Office.

Nelson, Richard K.
1974. "Relationships between Eskimo and Athapaskan Cultures in Alaska: An Ethnographic Perspective." *Arctic Anthropology* 11: 48–53.

Ray, Dorothy Jean
1964. "Nineteenth Century Settlement and Subsistence Patterns in Bering Strait." *Arctic Anthropology* 2 (2):61-94.

1975. "Early Maritime Trade with the Eskimo of Bering Strait and the Introduction of Firearms." *Arctic Anthropology* 12 (1): 1–9.

Rearden, Spencer
1998. "Families Help Define the Meaning of "Native."" In *Authentic Alaska: Voices of Its Native Writers*, edited by Susan B. Andrews and John Creed, 127–128. Lincoln: University of Nebraska Press.

Smith, Philip Sidney
1913. *The Noatak-Kobuk Region, Alaska.* Bulletin No. 536. Washington, DC: Government Printing Office.

Smith, P. S., and H. M. Eakin
1911. "The Shungnak Region, Kobuk Valley." US Geological Survey Bulletin 480: 271–305.

Smith, Valene Lucy

1966. "Kotzebue: A Modern Alaskan Eskimo Community." PhD diss., University of Utah.

Sprott, Julie E.
1997. "Christmas, Basketball, and Sled Dog Races: Common and Uncommon Themes in the New Seasonal Round in an Iñupiaq Village." *Arctic Anthropology* 34 (1): 68–85.

Stalker, Julia Jones Anausuk
1998. "Native Food Nourishes the Body and More. In *Authentic Alaska: Voices of Its Native Writers*, edited by Susan B. Andrews and John Creed, 30–31. Lincoln: University of Nebraska Press.

Stern, Richard O., Edward L. Arobio, Larry L. Naylor, and Wayne C. Thomas
1980. *Eskimos, Reindeer, and Land*. Bulletin No. 59. School of Agriculture and Land Resources Management, Agricultural and Forestry Experiment Station. University of Alaska, *ScholarWorks* website. Accessed February 15, 2016. https://scholarworks.alaska.edu/handle/11122/1205.

Struzik, Edward
2015. *Future Arctic: Field Notes from a World on the Edge.* Washington, DC: Island Press, Center for Resource Economics.

Swadesh, Morris
1975. *Proposed Kobuk Valley National Monument, Alaska: Final Environmental Statement.* Washington, DC: Alaska Planning Group, United States Department of the Interior.

Vanstone, James W.
1962. "Notes on Nineteenth Century Trade in the Kotzebue Sound Area, Alaska." *Arctic Anthropology* 1 (1):126-128.

1976. *The Bruce Collection of Eskimo Material Culture from Port Clarence, Alaska.* Fieldiana Anthropology, vol. 67. Chicago: Field Museum of Natural History.

Young, Oran
2012. "Arctic Politics in an Era of Global Change." *The Brown Journal of World Affairs* 19 (1): 165–178.

1992. *Arctic Politics: Conflict and Cooperation in the Circumpolar North*. Hanover: University Press of New England for Dartmouth College.

Appendices

Appendix A

Background, Objectives, and Public Purpose statements

Kobuk Valley National Park Traditional Use Study,
Native Villages of Kiana and Ambler

2017 Task Agreement, Alaska CESU
Douglas Deur, Portland State University, PI

A. Background

Kobuk Valley National Park (KOVA) is a unit of the NPS initially established as a national monument in 1978 and re-designated a national park through passage of the Alaska National Interest Lands Conservation Act (ANILCA) in 1980. Totaling 1.7 million acres, the park encompasses boreal forest, montane, and riverine ecosystems, archeological and historical sites, arctic sand dunes, rare plants and amphibians, and a wide array of subsistence resources including salmon, sheefish, whitefish, Arctic char, waterfowl, caribou, Dall sheep, and moose as well as edible and medicinal plants. The Kobuk River and its tributaries have been used for subsistence and cultural purposes by Native peoples for generations. Though these people have now relocated to villages outside of KOVA – most notably the villages of Kiana and Ambler – local residents continue to depend on the resources of the Kobuk Valley for their physical and spiritual well-being.

Located at the confluence of the Kobuk and Squirrel Rivers, Kiana is roughly 20 miles downstream from the western park boundary. The Native Village of Kiana (aka Kiana Traditional Council, or KTC) is a federally recognized tribe whose membership comprises the majority of the village's 361 residents. KTC members are Iñupiaq Eskimo (Kuuvaŋmiut) whose ancestors have lived in the Kobuk River area for generations. Prior to the establishment of the modern village around 1915, Kuuvaŋmiut lived on the land, following game and resources, establishing small camps and settlements along the way. The park lands are part of the larger Kuuvaŋmiut homeland.

Meanwhile, just upstream – roughly seven miles from the park boundary and fronting the Kobuk River – is the Native Village of Ambler. Ambler, or Ivisaappaat, was founded in 1957-58, when residents of nearby villages relocated to become part of a single combined village. The village was incorporated in 1971. According to the 2000 census, there were 309 people, 79 households, and 63 families residing in Ambler – most being Kuuvaŋmiut Iñupiat. Most of these families have historical ties to lands and resources now in KOVA, and continue to visit those places as part of cultural, economic, social, and subsistence

activities.

The documentation and interpretation of KOVA's Kuuvaŋmiut history, as well as the systematic evaluation and protection of sites associated with that history, are understood to be for the benefit of American citizens generally, and NPS visitors in particular. Accordingly, the NPS has a variety of obligations to document places of cultural importance to traditionally-associated peoples, and to account for these places in the future management of park lands and resources. Among these obligations is the mandate for all federal agencies to document properties eligible to the National Register of Historic Places – including Traditional Cultural Properties (TCPs) – on their lands, as anticipated in Section 110 of the National Historic Preservation Act, and prescribed in National Register Bulletin 38 and other National Register publications, which will be addressed in the current effort. Also, among the purposes for which the park was created, ANILCA Section 201 mandates the NPS "to protect and interpret, in cooperation with Native Alaskans, archeological sites associated with Native cultures" – another goal of the current project. KOVA's February 2010 draft Foundation Statement recognized the importance of ethnography in the preservation and interpretation of cultural resources stating: "Staff work in collaboration with local peoples to document their historic and continuing presence on the land and foster the transmission of cultural knowledge and values associated with resources and features of the park."

To document these resources, this project will involve the development of a Traditional Use Study or TUS. A TUS produces information that will allow for the better management and protection of cultural resources that are of national as well as state and local significance. These documents also benefit the public by compiling information on the cultural heritage of national parklands, as well as guiding NPS staff in the development of public education opportunities relating to that heritage. These documents further assist park staff when making management decisions so that places contributing to the heritage of Iñupiaq people, and indeed the American public, are appropriately managed and protected. These management decisions are understood to affect "ethnographic landscapes" within NPS units, and such landscapes are the focus of the current TUS. Ethnographic landscapes are a category of cultural landscapes and are defined by the NPS Ethnography Program as landscapes that "are important to a people's sense of purpose or way of life." They represent contiguous areas of interrelated places that contemporary cultural groups define as meaningful because these landscapes are inextricably and traditionally linked to their local or regional histories, cultural identities, beliefs and behaviors.

B. Objectives

The objective of this project is to complete a TUS for KOVA, documenting a community/tribe-specific ethnographic landscape, in partnership with the KTC. The current effort requires technical assistance and collaboration from a variety of experienced researchers in order to produce a TUS that meets all NPS professional standards and might serve as a template for future NPS TUS efforts centering on ethnographic landscapes.

The proposed study resulted from government-to-government consultations with KTC regarding research within a culturally important archeological site which demonstrated a need for engagement in collaborative research to identify places and resources of cultural significance to ensure pro-active and culturally appropriate management. Current mining activity and proposed road developments just beyond the park's eastern boundary also provide impetus for this Traditional Use Study.

The project was originally conceived as having four Phases: I) initiating planning, consultation and compilation of existing resources, II) carrying out reconnaissance fieldwork, including field interviews that will gather site-specific cultural and historical information and aid in the scoping of future fieldwork, III) ethnographic research and field work based on the project scope as determined in Phase I, and IV) compilation of data in the form of a written report, GIS datasets, and other formats as determined during the tribal consultation and collaboration in Phase I.

Phase I was completed under a separate Task Agreement by Dr. Douglas Deur in 2016. Further consultations with community and tribal members, as well as initial interviewing, was also begun by Dr. Deur in 2015-16. As Phase I was completed under a prior Task Agreement, the current project addresses only the three remaining phases. Therefore, the current project will only address what are termed Phases II-IV above, but renumbers these for the purpose of the agreement as follows:

I. Carrying out reconnaissance field interviews to refine project scoping and guide future fieldwork phases.
II. Ethnographic research and field work based upon the project scope as determined in Phase I.
III. Compilation of data in the form of a written report, GIS datasets, and other formats as determined during the tribal consultation and collaboration in Phase I.

Under the prior agreement, PSU conducted archival and literature research, and traveled to Kiana to conduct several scoping and planning sessions with KTC and individual community members. The planning sessions culminated in the development of a project scope of work (written by PSU), which will guide work in the current agreement through Phases I, II and III. In Phase I, PSU will conduct an array of reconnaissance field interviews with knowledge bearers on an expedition along the Kobuk River, and refine the Work Plan developed under the prior agreement. In Phase II, PSU will conduct ethnographic interviews with Kiana and, to the extent possible, Ambler residents and cultural specialists with ties to the study area in order to document traditional ties to cultural and natural resources of KOVA. During Phase III, the project transitions to the writing and printing of the TUS in collaboration with the Kiana and Ambler Traditional Councils to a standard that meets NPS TUS Professional Guidelines.

All project phases are understood to be collaborative, involving the technical input of NPS, the PSU research team, and Alaska Native leadership. NPS will oversee initial

tribal consultation, and participate in various research tasks, including the aggregation of archival and "gray literatures" regarding the study area. Ethnographic interviewing will be conducted with the assistance of park and/or Alaska Regional Office staff. Ethnographic interviewing will be semi-structured, centering on identifying places and resources of particular cultural significance, and gathering information required for their evaluation and nomination, employing the standards for NPS Traditional Use Studies and ethnographic landscape studies. Interviewee recruitment will be undertaken in consultation with KTC to insure that appropriate individuals – those with ties to, and detailed cultural knowledge of the study area – are included in the interviewee pool. Initial interviewing will seek to ascertain the extent of the lands and resources contributing to the ethnographic landscapes that will be addressed in the TUS. Later interviewing will seek to ascertain additional details regarding these lands and resources. Field visits to places and resources mentioned by interviewees will also be conducted, beginning in FY17, allowing field interviews and the documentation of site-specific details not readily recoverable through off-site interviews. If funds and circumstances allow, the Native Village of Ambler will also be included in documenting cultural sites from their perspective. Research findings will be thematically summarized in a single TUS report. Research findings will also be periodically shared with members of the Kiana community and NPS staff through public presentations.

As the preceding implies, KOVA and NPS staff will collaborate on this project in several ways. They will coordinate and participate in tribal and community consultation and ensure meaningful involvement of the Kiana and Ambler Traditional Councils and other interested groups in the planning and the execution of the TUS research and report preparation. KOVA and NPS staff will also participate in the planning and execution of project interviews as funding permits. NPS will be involved in developing the project design and ensuring that the project meets the needs of management.

C. Public Purpose

Documentation of cultural and historical resources through this research will contribute to their better protection and management for the benefit of all park visitors, and appropriate responses to potential threats to these public resources by resource extraction on other public lands beyond the park's borders. The TUS can be used by park associated tribes to support their efforts to identify and preserve traditionally significant resources and may be used in educational programs in the Northwest Arctic Borough School District. Data collected as part of this study may be used to draft nominations to the National Register of Historic Places for cultural sites, as appropriate. Reports from this project, describing the cultural and historical values of the study area, will be publicly available at the conclusion of the research. The contents of the report will also provide information on KOVA's cultural resources for park interpreters who, following the conclusion of this research, will be able to share the findings with visitors to the park through interpretive media and programs.

Appendix B

Preliminary Inventory of Dr. L. Ellanna Research Materials from the Northwest Alaska Ethnographic Study for the NPS

Eileen Devinney, 2004

This material is currently stored at the Dept of Anthropology, UAF
There are no releases present (signed or blank) for any of the material in this collection.

Brown Case #1: Audio Cassettes

H88-2A-36
H88-2A-37
H88-2A-4
H88-2A-43
H88-2A-44
H88-2A-46
H88-2A-47
H88-2A-48

These tapes are from the Tupou Pulu collection at Oral History.
Bill Schneider says these tapes belong to NANA and were erroneously given to UAF Oral History and cataloged.
Copies were returned to NANA.
It is not clear how Ellanna got these copies – maybe from NANA?

POSSIBLE OWNERSHIP ISSUES!

Tape 1 A: Pauline Garbin Schuerch (& Daphne Sun)
Kinship Terms Interview with Mike Engelhard and Mike Moutlon
July 19, 1990

Tape 2 A/B: Henry Jackson, Sr.
Mapping Interview with Mike Engelhard and Mike Moutlon
July 9, 1990

Tape 3 A/B: Andrew Black
Mapping Interview with Mike Engelhard and Mike Moutlon
July 21, 1990

Tape 4 A: Tommy Wells
Mapping Interview with Mike Engelhard and Mike Moutlon
July 18, 1990

Tape 5 A/B: David Black
Mapping Interview with Mike Engelhard and Mike Moutlon
July 20, 1990

Tape 6 A/B: Elmer Jackson
Mapping Interview with Mike Engelhard and Mike Moutlon
July 12, 1990

Tape 7 A/B: Johnson Black
Mapping Interview with Mike Engelhard and Mike Moutlon
July 22, 1990

Tape 8A/B : Pauline Garbin Schuerch
Mapping Interview with Mike Engelhard and Mike Moutlon
July 13, 1990

Tape 9A: Donald Smith
Mapping Interview with Mike Engelhard and Mike Moutlon
July 5, 1990

Tape 9B: Lucy Jackson & Dolly Smith
Mapping Interview with Mike Engelhard and Mike Moutlon
July 6, 1990

Tape 10 A: Lucy Jackson and Henry Jackson, Sr.
Eskimo Kin Terms Interview with Mike Engelhard and Mike Moutlon
July 23, 1990

Tape No#: Peter Atoruk
Land Use Interview
August 9, 1989

Tape No#: Elwood Atoruk
Land Use Interview
August 11, 1989

Tape No#: Martha Hasway Wells
Land Use Interview
1989?

Tape No#: Elmer Atoruk and Sam Reed
Eskimo Kin Terms Interview
July 22, 1990

Brown Case #2: Audio Cassettes

H88-2A-20A These tapes are from the Tupou Pulu collection at Oral History.
H88-2A-19 Bill Schneider says these tapes belong to NANA and were
H88-2A-18 erroneously given to UAF Oral History and cataloged.
H88-2A-17 Copies were returned to NANA.
H88-2A-16 It is not clear how Ellanna got these copies – maybe from NANA?
H88-2A-15
H88-2A-14 POSSIBLE OWNERSHIP ISSUES!
H88-2A-13

H88-2A-24
H88-2A-23
H88-2A-22
H88-2A-21B
H88-2A-21A

Brown Case #2: Audio Cassettes (continued)

H88-2A-20D
H88-2A-20C
H88-2A-20B
H88-2A-35
H88-2A-31
H88-2A-30
H88-2A-3
H88-2A-29
H88-2A-28
H88-2A-27
H88-2A-25

Noatak – Blue Plastic Box

-Code book for family history forms
-Transcripts of interviews with Dwight Arnold by George Gmelch (June 6, June 7, June 10, July 9, 1989)
-Numerous pages of photocopied typed field notes from Gmelch dated 1989
-Mike Moulton Kiana typed field notes from summer 1990
-Original, completed Family History Forms and Household Composition Forms

Kiana – Blue Plastic Box #1

-Original, completed Family History Forms and Household Composition Forms

Kiana – Blue Plastic Box #1

-Original, completed Family History Forms and Household Composition Forms

At back of the box are a series of folders marked:
-Family History Analysis (1 page of brief notes)
-Kiana Vital Statistics
-Kiana Gen (contains family trees)
-Kiana Tapes (contains a listing of audio interview tapes produced in 1990 for the project)
-Kiana Traditional Council
-Kotz (contains folders for two households, presumably Kiana people residing in Kotzebue)
-Anchorage (presumably information for Kiana families residing in Anchorage.
-Vital Statistics
-Kiana List (individuals' names, birth date, death date, ages at death, marital status, etc)
-Kin Terms/Forms

Ambler – Blue Plastic Box
-Original, completed Family History Forms and Household Composition Forms

NW AK Place Names Data Sheets – Cardboard Records Box
-Copy of Susan Faulkner MA thesis
-One 3" black binder containing place names map sections and original data sheets for Ambler River and Baird Mountain Quadrangles. Contains printout versions of project's place name database.
-One 1" tan binder containing color photos mounted on cardstock pages. Includes some photos of subsistence activities and some of USGS topos marked/shaded in pen.
-One 2" light blue binder containing miscellaneous materials, including an introductory section of Engelhard's work.
-One hardbound blue book of Dr. Ellanna's 1989 field notes (some handwritten and some typed, printed and taped into pages of the book).
-One hardbound green field book of Dr. Ellanna's 1989 field notes (some handwritten and some typed, printed and taped into pages of the book).
-Large format photocopies of USGS Bulletin 536 Plate 1 (c1913). These look like they mark travels and field camps of Stoney or some other USGS explorer.
-Faint photocopies of Noatak BIA census of 1940
-Expanding folder containing printouts of Kiana individuals' statistics and personal information.
-Folder of correspondence with Kiana Traditional Council
-Folder of 1920 Noorvik Census (contains family tree diagrams)
-Folder of 1920 Kiana Census (contains family tree diagrams and photocopies of ledgers)
-Folder of 1920 Shungnak Census (contains family tree diagrams and ledger photocopies)
-One 16 page document titled: NW Ethnographic Study Draft Ambler Land Use Narrative, 5 January 1991
-One 11 page document titled: NW Ethnographic Study Draft Kiana Land Use Narrative, 5 January 1991
-One 13 page document titled: NW Ethnographic Study Draft Noatak Land Use Narrative, 9 January 1991

Inventory Observations:

None of the maps used in the mapping/land use interviews appear to be present.

No Consent and Release forms are present.

The tapes seem not to have any introductions – they just start midway into discussions (at least the few I listened to).

The tapes seem to be in fairly good shape.

I imagine that there must be additional notes and tapes in the hands of the project assistants, such as George Gmelch, Mike Engelhard and Mike Moulton (and there may be other persons involved).

Appendix C

Plants Eaten by the Inupiat of the Northern Bering Sea and Arctic Regions of Alaska
(based on Anderson 1939; italics, spelling, capitalization in original)

Scientific Name	Local Name	Common Name	Preparation
Carex sp.	mouse food, Bitnix, Kakkot, Puknuk	sedge	
Allium sibiricum L.	Patitak		scalded
Iris setosa Pall.			seeds roasted, ground, used as coffee
Salix pulchra Cham.	Ahuatabawak (cambium); Ahfelak (catkins); Choolya, Kokonick (shoots)	willow	shoots and catkins eaten fresh, in seal oil; stored; cambium eaten
Oxyria digyna (L.) Hill.	Kolnick, Konghuit, Konholic, Koongalik, Kowolnyok		leaves fresh, soured, boiled, or in oil
Rumex arcticus Trautv.	Aloukut, Alwaruk, Askakook, Kiblegrat; Kagankuk, Kohlkleguk (root)		leaves fresh, soured, boiled, or in oil
Claytonia acutifolia	Koactet, Oackshak		taproots
Ammodenia peploides major Hook	Achaclook		leaves fresh, soured, or in oil
Rhodiola integrifolia Raf.	Eluaklak, Nonavook, Okveyok (roots)		leaves fresh, soured, or in oil; sometimes roots
Anemone narcissiflora L.	Cocpotac		used as cress, soured, in oil; in oil with other greens to make cocpotac and frozen for Eskimo ice cream
Caltha asarifolia DC.			leaves fresh
Ranunculus Pallasii	Kabootie		roots
Saxifrage punctata L.	Amslokruk, Asezet, Aziusak		leaves fresh, in oil

Ribes triste Pall.		red currant	
*Potentilla fruticos*a L.			dried leaves as tea
Rubus arcticus L.	strawberry, Beyouwachock		intergrades with *Rubus acaulis* Michx.
Rubus Chamaemorus L.	salmonberry, Akpik, Atpik, epik	Cloudberry, Baked-apple berry	
genus *Hedysarum*	Muchoo		roots used like potatoes
Lathyrus maritimus		Beach Pea	seeds roasted, used in coffee
Epetrum nigrum L.	Blackberry, crowberry, Aluit, Bonak		
Epilobium angustifolium L.		Fireweed	shoots boiled, mixed with *Rumex*, bacon
Hippuris tetraphylla L.	Dookyook	Mares-tail	young leaves as greens
Ligusticum hultenii Fern.			mixed with fish, boiled
Coelopleurum gmelini (DC.) Ledeb.	Egoosick		used as celery
Arctostaphylos alpine (L.) Spreng.	Gubluks	Alpine Bearberry	
Vaccinium ulignosum (L.)	blueberry, Asievak, Asievet		particularly var. *alpinum* Bigel.
Vaccinium vitis-idea minus Lodd	Kipmingwak, Kopnut, Pornock	Lowbush or Mountain cranberry	
Mertensia maritime (L.) S.F.Gray			roots
Pedicularis	Bumblebee plant, Ungooigok		roots eaten, leaves soured
Petasite frigida (L.) Fries	Kangwak, Komgwak	Sweet Coltsfoot	greens
Taraxicum spp.		Dandelion	greens
mushrooms			raw