National Park Service
U.S. Department of the Interior

I LOVE THAT COUNTRY

That's Why I Go There



Enduring Kiana Village Ties to Kobuk Valley National Park, Alaska

By Douglas Deur, Jamie Hebert, Emily Creek, Tricia Gates Brown,
Hannah Atkinson, and the Knowledge-Holders of Kiana, Alaska

Tribal Review by Christina Westlake

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Cover Photo by Doug Deur

A Traditional Use Study prepared for the National Park Service

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Throughout the report you will see drawings from youth in Kiana created as part of an NPS outreach program in the summer of 2024. Thank you to all the youth artists!



Family on Kobuk River, by Aleena – Kiana, Alaska

CHAPTER 1

Introduction Kobuk Valley National Park, Iñupiaq Homeland

For countless generations, Kobuk Valley has been a home to the Iñupiat. Seasonal camps and winter villages, hunters and fishers, travelers, and resident families: all have been part of the human history of this place since the beginning of remembered time. At the center of this homeland is *Kuuvak*—"the big river" in Iñupiaq, the origin of the Kobuk name. Among the largest rivers of Alaska's north, the Kobuk meanders some 280 miles from east to west, from the peaks of the Brooks Range to the Chukchi Sea. The river transects the 12,300-square-mile Kobuk River Basin—a river basin straddling the divide between the arctic tundra extending to the north and the boreal forests found especially to the south. The highest peak in the valley is 4,700 feet, and the basin contains extensive tundra and taiga forest, varied wetlands, dynamic sand dunes, and a network of rivers teeming with fish.[1]

Iñupiaq communities have long understood how to live well within the Kobuk River Basin's diverse habitats and variegated landscapes. In the waters of the Kobuk, for example—its main channel, complex side channels, and tributaries—the Iñupiat have harvested grayling, whitefish, pike, burbot "mudsharks," smelt, char, cisco, Dolly Varden, and a famously large population of sheefish (*Stenodus leucichthys*). And there are Pacific salmon: large numbers spawn in the Kobuk and its tributaries each year, making the Kobuk among the northernmost rivers in North America with a large and predictable run of kings, silvers, dogs, and pinks. As Elder Percy Jackson, Sr., noted, on the Kobuk, a person can catch "any kind of fish you want."[2] As Henry Jackson, Sr., exclaimed, "You can get *every* kind of fish there!"[3] This is not just a seasonal phenomenon: every time of the year, fish are available on the Kobuk. Traditional fishing sites and stations therefore line the banks of the Kobuk, where families have caught fish with nets, traps, lines, and many other methods for generations.

And there are the caribou. The Kobuk Basin is home to the vast Western Arctic Caribou Herd, one of the world's largest herds of barren-ground caribou. Though the population of the herd has fluctuated widely over the years, it has sometimes reached up to a half million animals, traveling together across northwestern Alaska to breed and to feed. In some years, the herd surges through Kobuk Valley—traveling north through the spring to their breeding grounds and summer range, returning in the fall, heading south to their wintering grounds. When the caribou travel through the lower Kobuk, resident Iñupiaq hunters have thrived



Kiana elder and Elders Camp instructor, Thomas Jackson, being interviewed by Hannah Atkinson. Douglas Deur Photo

hunting along the migration routes, and especially at the river crossing points where caribou slow down, bunch up, and paddle with broad hooves by the thousands across the Kobuk and its tributaries. In other years, the caribou herds migrate west to east and through river valleys outside of the parklands. Traditionally, Iñupiaq hunters have adapted their seasonal round to the location of the caribou herd, traveling to distant places where caribou can be found, or shifting their attention more directly to the fish and other game found along the Kobuk. While the number of caribou varies across decades, and their routes vary too, the herds remain closely associated with the Kobuk Basin—linked biologically, and also as an iconic keystone species in the diets and cultural traditions of Iñupiaq communities.

The land and waters of the Kobuk abound with life and, for Iñupiaq communities, guided by generations of shared knowledge, the land presents a wealth of opportunities to harvest foods, medicines, materials, and cultural and spiritual sustenance. For food or furs, Iñupiaq residents pursue many species beyond caribou, such as the beaver and muskrats of the riverbanks and marshes, as well as hares, marmot, brown and black bear, wolf, and, in recent times, moose. For a number of game species, the Kobuk Basin sits near the extreme northern end of their range. The tundra and river's edge also offer plant foods—berries such as blackberry, salmonberry, highbush cranberry, and *tinnik* (bearberries), as well as greens such as wild rhubarb and sour dock. Forests of spruce, birch, and

other trees—among the northernmost boreal forests in Alaska—provide unique habitats as well as wood for fuel and for smoking food, or for the construction of tools and shelters. Elders have observed that especially good places along the Kobuk River simply "have it all"—offering whitefish, salmon, sheefish, and pike in one place, for example, with caribou crossings and moose habitat nearby, plus nearby timber, freshwater, and easy access in winter and summer alike.[4] Such bountiful places have long been preferred village and camp sites, with multiple layers of historic and contemporary land use. Many of these sites are now privately owned allotments, land granted to Alaska Native owners under the Alaska Native Allotment Act of 1906.[5]

Not surprisingly, before Euro-American contact, the lower Kobuk River was lined with hunting camps, fishing stations, winter villages, berry-picking areas, and many other places of significance. No bend of the river was unknown or unused, and nearly every landmark had a name. The terrain rising on both sides of the river was crisscrossed with winter and summer trails, linking Kobuk River communities with one-another and with a constellation of other important places—such as upland hunting and trapping areas, jade-quarrying sites, and the villages and river basins beyond. Iñupiaq residents have developed a rich technical understanding and vocabulary related to the landscape of the Kobuk Basin, encoding their understanding of its fine-grained details—from the behavior and movement of caribou to the behavior of the river as it meanders across the Kobuk River floodplain, carving fresh channels as others run dry. Generations of Iñupiaq families living in this place have left subtle but unmistakable traces of their presence. These traces still abound in the landscape today—from ancient archeological sites at places like *Paatitaaq* "Onion Portage" and *Igliqtiqsiuġvigruaq*, "Swift Water Place," to the enduring subsistence camps and cabins of the present day. The archeological signatures of past human communities of the Kobuk are numerous. Sites along the river corridor reveal over 10,000 years of human occupation of the valley, and continuity in the reliance on fish, caribou, and other resources still found there today.[6] The arrival of Euro-American miners at the end of the 19th century disrupted these longstanding patterns of Iñupiaq life along the Kobuk in myriad ways. Beginning in the 1890s, the Klondike and Nome Gold Rushes prompted a short-lived Kobuk gold rush that sent prospectors far upriver—a remarkable event, encoded in several accounts in Iñupiaq oral history. The introduction of foreign disease, and the disruption of caribou herds, which moved away from the valley for years, soon upended many Kobuk River communities. At the same time, small, initially non-Native mining communities began springing up along the Kobuk. Through the early years of the 20th century, Iñupiaq families from along the Kobuk relocated to these new settlements, forming mixed communities along the river—Kobuk, Shungnak and Ambler upstream, and Kiana and Noorvik just downstream from the modern park, as well as relocating to larger regional settlements such as Kotzebue. Despite their displacement from many reaches of the Kobuk, attachments endured. Many of these families retained camps and built cabins on the river's banks, while also sustaining time-honored traditions of subsistence hunting, fishing, and other activities throughout what is today Kobuk Valley National Park. Accessing these places by boat and dogsled through the early 20th century, these families have been able to visit these places with growing efficiency from area villages since mid-century, utilizing snowmachines, ATVs, motorized boats, and occasionally small planes. This has allowed people to continue regular visitation to these places despite the increased competition from village-based commitments such as school and work.



Elder Thomas Jackson helps identify places of significance on a map of Kobuk Valley National Park. Emily Creek photo, courtesy of the National Park Service

Riverside camps remain a critical foothold for traditional users now living outside of the park—as bases 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 so as to allow access to a range of natural resources over time. However, the role of these places in subsistence traditions is, by itself, not a sufficient explanation of their importance. Kobuk Valley remains a place of shared significance in the cultural and subsistence traditions of all the modern descendant communities and to individuals. The camps are both social and workspaces, almost never solely utilitarian. 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 with family and friends. Elders speak of returning to the camps for solitude, for a break from village life, and for the camaraderie of family and close friends. Some say Kobuk Valley is a place where they can reconnect with the land, and "be themselves." For some, the place is said to be a personal "refuge." In a sense, this echoes pre-contact oral traditions of people "escaping" to the Kobuk—even for their safety, such as from attacking outsiders, or simply for solitude. Such places, it is said, were sometimes even denoted with the term *Qaluu* in the placename, a term that denotes its importance as a place of escape.

As said by Elder Johnson Black, who had traveled to the camps since his boyhood in the 1930s, "it's pretty nice up there . . .. I love that country: that's why I go there."[7] A number of today's elders recall living on these allotments with their families through the summer, only returning to live full-time in the villages when school was in session. Many families continue to visit camps annually, some staying for weeks at a time. Iñupiaq elders often observe "that place feels like home." Despite the national park's presence and countless other changes since the first moment of Euro-American contact, the Kobuk is still home to the people who use, seasonally dwell in, and trace their ancestry back to this land.

The Kobuk River, as it passes through the park, is homeland for many Iñupiaq nations referred to by various names over time. Here we provide some discussion and clarify names that we employ throughout this document. First, to plot out modern communities: Noorvik (*Nuurvik*) and Kiana (*Katyaak*) are situated near the Kobuk River delta, to the West of Kobuk Valley National Park. This area is commonly referred to as the Lower Kobuk. To the east of parklands, Ambler (*Ivisaappaat*), Shungnak (*Issiŋnak*), and Kobuk (*Laugviik*)) are referred to as the Upper Kobuk[8]. These regional distinctions align with many ecological differences that have also determined differences in land use and distinct cultural heritage. Communities are commonly referred to by their Iñupiaq name and "-miut" a suffix in the Iñupiaq language that means "people of" is added to the place name to refer to the people of a specific settlement or settlement area. For example, there are the *Katyaaŋmiut,* the people of *Katyaak*, the settlement also called Kiana.

Many of the people living along the Kobuk River are descendants of longstanding Iñupiaq nations including, at various times, the *Kuuŋmiut*, *Akunġmiut, Kuuvaum Kaniaġmiut*[9] and the *Amilġaqtauyaaq* the people of Kobuk Valley on the eve of contact. This name is rooted in the word *Amilġaqtauyaaq*, meaning "the place where a lot of people live together," reflecting how densely Kobuk Valley was settled in earlier times.[10] The lines between traditional settlements were permeable, with families marrying and interacting frequently over generations. These communities sometimes hunted together historically and have had overlapping territorial ties—hunting caribou or picking berries, for example, in the same places that today fall within the park. The distinction has blurred more recently, as families move between

Kobuk River communities or to the regional hub of Kotzebue, becoming part of more fully integrated and settled communities, reflecting the fact that Kobuk Valley families now live in villages throughout the region with roots in several contact-era Kobuk River communities.

Populations of Kobuk River Iñupiat are so closely linked, historically and today, that while there is community specific knowledge, there is also a lot that can be said of *Kuuvaŋmiut*, meaning the people of the Kobuk. This report seeks to be inclusive of all users of the Kobuk Valley and those that trace their lineage to those lands, now living in different communities. In the pages that follow, distinctions are made only when *Katyaaŋmiut* speak specifically about their heritage. The human history of these peoples is woven into the park's own history and management in several ways. The ancient Native heritage and enduring Native subsistence use of Kobuk Valley were fundamental to the creation of the park and are acknowledged in the park's founding documents. These matters are clearly recognized in the presidential proclamation that first created Kobuk Valley National Monument in 1978, which noted that "archeological features within the area illustrate an unbroken continuum of human adaptation to the natural environment from the early . . . people of 10,500 years ago to present-day local residents [while the natural environment of the monument] supports now, as it has in the past, the unique subsistence culture of the local residents."[11]

So too, Alaska's congressional delegation and other members of the U.S. Congress acknowledged these connections between Native residents and Kobuk Valley when negotiating the terms of the 1980 Alaska National Interest Conservation Act (ANICLA). In this Act, Congress set aside over 1,710,000 acres to create Kobuk Valley National Park. The objective of this act was,

> "to maintain the environmental integrity of the natural features of the Kobuk River Valley, including the Kobuk, Salmon, and other rivers, the boreal forest, and the Great Kobuk Sand Dunes, in an undeveloped state; to protect and interpret, in cooperation with Native Alaskans, archeological sites associated with Native cultures; to protect migration routes for the Arctic caribou herd; to protect habitat for, and populations of, fish and wildlife including but not limited to caribou, moose, black and grizzly bears, wolves, and waterfowl; and to protect the viability of subsistence resources."[12]

The terms of the Act also noted that "subsistence uses by local residents shall be permitted in the park."[13] Native communities, those with roots in Kobuk Valley, still actively using the land, have had an ongoing conversation with National Park Service staff ever since—about how this special place should be managed, interpreted to the public, and understood in the context of its significance in the cultural and subsistence traditions of Kobuk Basin Iñupiaq communities.

Iñupiaq life and traditions have continued within Kobuk Valley since 1980, in some ways nearly unaffected by the valley's national park status. Subsistence hunting and fishing, as well as the extended stays at allotments interior to the park boundary, have continued into the present day. In this report, we use the term "camp" to describe a site of continual use over time for the purposes of hunting, fishing, spirituality, and recreation. Camps were often selected during the allotment process and therefore are parcels of private land within the park. Not all camps are allotments. Camps can be temporary structures or cabins but can also be undeveloped lands.[14]

The park is largely undeveloped, which results in lower visitation compared to other U.S. national parks. Still, there are modest but increasing visitor pressures along the river corridor,



Experienced river pilots from Kiana, like Larry Westlake Jr., carried researchers, elders, and Kiana youth to places along the Kobuk River in 2023 to aid in the research for this project. Douglas Deur Photo

concentrated around sites like the Great Kobuk Sand Dunes. Visitor numbers have been on the rise since around 2011 and may continue to increase in the future. This trend presents the risk of trespass on allotments and growing safety concerns, as traditional hunters must now factor recreational visitors into decisions about where they hunt, which direction they can shoot, and how the game animals move. The park's creation has added another level of federal regulation to traditional land and resource use, reshaping hunting and fishing practices as well. Federal land management effectively "locks in" land ownership patterns in a way that village residents sometimes describe as misaligned with the highly mobile and adaptive land use traditions of Iñupiaq communities. Development pressures emerging on lands adjacent to the park also have the potential to affect fish and wildlife within the park, along with a host of other concerns.

There are even more imposing challenges to the continued traditional uses of the park, reflecting changes occurring on both regional and global scales. For example, in recent years, caribou migrations and numbers have become unpredictable and much diminished—impacting traditional Iñupiaq uses of Kobuk Valley in numerous ways. Elders and Western scientists alike agree that climate change appears to be transforming the region—affecting water quality as permafrost melts, altering the cycles of freeze-up and breakup that have shaped the riverbank, and changing the annual rise and fall of water levels.[15] Melting permafrost has increased river turbidity and affected water quality. Combined with changes in the timing of ice breakup, this has also accelerated riverbank erosion, contributing to the loss of allotments and other culturally significant lands, and at times the loss of cabins, campsites, and archeological sites along the Kobuk, as has occurred along other arctic rivers in recent years.[16] In turn, these events are reshaping the cycles of traditional use in Kobuk Valley—with complex effects on the health, abundance, and distribution of freshwater and anadromous fish, as well as many game species. Simultaneously, changes in Iñupiaq lives and economies create a growing list of time constraints, scheduling conflicts, and other factors that have sometimes affected the nature and frequency of their time in Kobuk Valley. The

cost of fuel, motor parts, and ammunition may be shaped by global economic trends but can have tangible local impacts on enduring Iñupiaq uses of the Kobuk.

In the early 2000s, archeological excavations of *Igliqtiqsiuġvigruaq*, Swift Water Place, by Douglas Anderson and his collaborators reignited a conversation with park-associated villages about the human history of the Kobuk River Valley. Abandoned by its Iñupiaq inhabitants during the tumult of the contact period, this village remained well preserved archeologically—and was inhabited so recently that robust oral traditions persisted regarding this place, now sitting within the park.[17] Consultation between the Kiana Traditional Council (KTC) and National Park Service (NPS) regarding the Anderson excavation and human remains recovered from the site fostered a lively discussion on the culture and history of the Iñupiaq communities with ties to the park. The village of Kiana, immediately downstream from the modern park boundary, was especially involved in these conversations. Summarizing the events of this period, Anderson observed that the community was clearly "interested in their history and, in particular, the parts of history that are related to their identity."[18] Inspired by these exchanges, Kiana residents advised the NPS to initiate a study of the village's many ties to lands now within the park—and the present manuscript is the outcome of the study the community had suggested.

Research was carried out in two phases. The first phase was a scoping report to understand what the community of Kiana wanted from a broadly used tool like the Traditional Use Study and Affiliation Study. Phase II focused on a traditional use study of the ties to Kobuk Valley National Park. The KTC became a partner for the scoping project, providing direction on the research needs, methods, and outcome. The funding for phase II was not issued in full but was patched together from several sources, which delayed the fieldwork by several years. During this time, we preserved the momentum of community work by making trips to the community and sharing the outcomes of the scoping report. The NPS contacted the Ambler Traditional Council by letter and email but did not receive a response. Through reports from a Subsistence Resource Commission member, it was understood that they had developed an independently designed land use study. We solicited feedback through annual presentations to the Kiana Tribal Council meeting as well as through community meetings co-signed by KTC. The staff at KTC changed over the course of the project. The scoping report started to take shape with input from Dale Stotts. After Dale passed, the NPS worked with Delores Barr to support the full project proposal. Directors Kathleen Jaycox, Millie Sheldon, and Tessa Baldwin worked with staff over the later years of the project. Persistent communication with the tribal staff and quick summaries were key to continuing the partnership even through obstacles such as the COVID-19 pandemic when travel to the communities was prohibited.

Concurrent with past archeological research in the park, Eileen Devinney—an NPS Cultural Anthropologist and coordinator of the Native American Graves Protection and Repatriation Act (NAGPRA) program—began work with the Kiana community and other Kobuk villages. One focus was compiling placenames and other information regarding traditional ties to the park from archival sources for review by Iñupiaq cultural specialists. Eileen initiated the present study, recruiting Doug Deur from Portland State University to direct what would become a decade-long effort documenting traditional ties to Kobuk Valley with the Kiana community. As Eileen stepped back from the project for health reasons, she and Doug invited Hannah Atkinson to step forward. A Kotzebue resident with experience working in Kiana, Hannah became the Park Anthropologist early in the project. Together, Deur and Atkinson carried out a scoping study with the Kiana community. Making repeat

visits to the village, they asked residents and the Kiana Traditional Council for their guidance on study methods, goals, and protocols—alongside representatives of related institutions such as NANA Regional Corporation and the Native Village of Kiana. The Kiana community made several recommendations, which were summarized in a scoping document that, in turn, guided the direction of the present study and report. In 2022, Hannah left her position in the National Park Service to pursue graduate school. In 2023, the new park anthropologist, Emily Creek, accompanied Doug and Hannah, still serving as a contractor on the project, during field work on the Kobuk River.

During the scoping phase of this study, the residents of Kiana made one point especially clear: many people had come to their community asking questions about traditional land and resource use on the Kobuk. Academic anthropologists, professional archeologists, linguists, Alaska Department of Fish and Game representatives, Alaska Native Claims Settlement Act researchers from the Bureau of Indian Affairs, and many others—not to mention past National Park Service researchers—had repeatedly asked similar questions during ethnographic interviews. While the community had initiated the study and continued to support it, they were also experiencing a kind of "researcher fatigue" common in Alaska villages. Moreover, Kiana residents reported that they rarely received copies of recorded information for their own curation and use and, in many cases, were unsure where such materials could be found. They encouraged us to proceed with interviewing knowledgeable elders in the community but also asked that we help track down some of the information from those

Figure 1.1: Timeline of research for the Kiana Traditional Use Study.

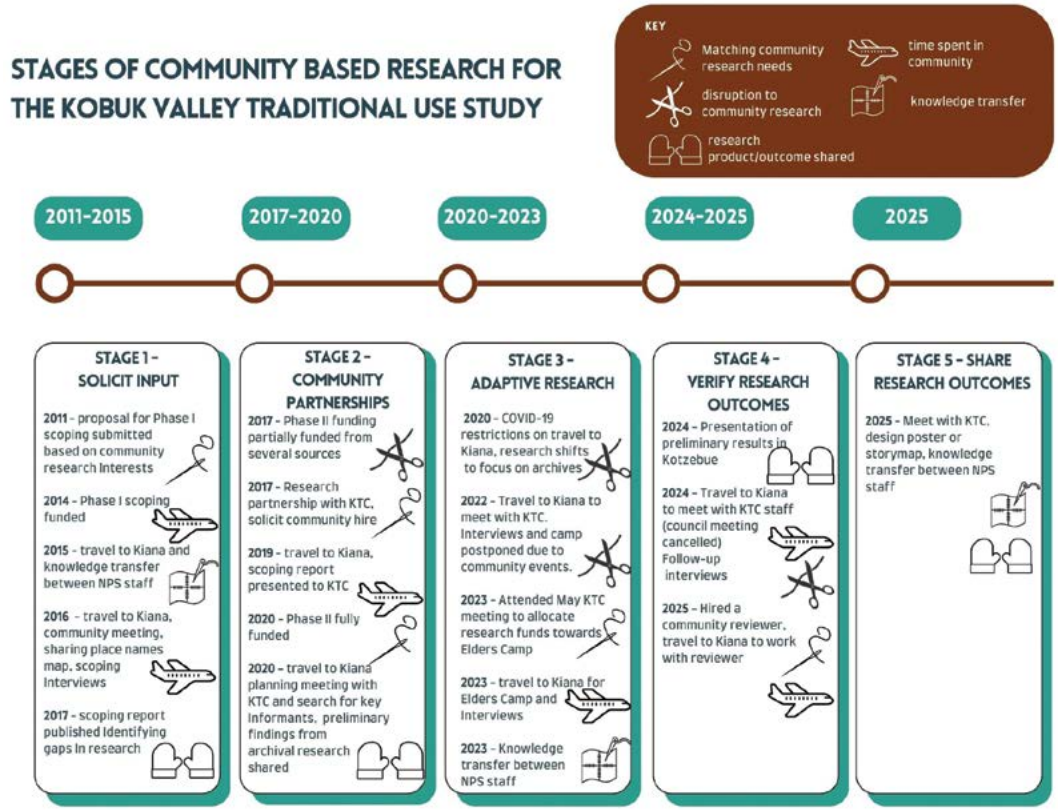


Figure designed by Hannah Atkinson with input from Emily Creek.

prior studies—the words of past generations of elders—and "bring that information back to the community."

This manuscript seeks to do just that. We have tracked down ethnographic interview recordings, transcripts, and notes from those prior studies, seeking to recover past elders' knowledge of land and resource traditions relating to Kobuk Valley. Often, we recovered these materials in the form of raw field notebooks or other archival materials—such as the recently recovered notebooks of University of Alaska researcher Linda Ellanna; notebooks and transcripts from ANCSA interviews regarding culturally significant sites; and more widely available sources, including the output of University of Alaska-Fairbanks Oral History Program and the writings of Douglas and Wanni Anderson. The contents of this report synthesize the words of elders shared across these various studies and present them together around key themes that emerged in interviews about Iñupiaq ties to Kobuk Valley. We do this so that this information will no longer remain scattered and inaccessible but instead be integrated and made accessible to the Kiana community and to NPS managers who now collaborate with Iñupiaq knowledge holders in caring for lands within the park. Following guidance from the Kiana community, we foreground the words and teachings of the elders and ancestors, rather than the perspectives of outside researchers. As shown in Table 1.1, this document directly quotes or paraphrases a long list of elders—most from Kiana but also including recordings of residents from other Kobuk River villages. A list of similar length could be offered to name all the people who contributed their knowledge and perspectives in various ways to this project. We sincerely hope that we have done justice to their words, their contributions, and the trust they placed in us and prior generations of researchers, as we present their voices in the pages that follow.

Table 1.1: Interviewees Quoted or Paraphrased in the Current Report

Hazel Apok	Henry Jackson, Sr.	Johnson Black	Ella Sheldon
Albertha Atoruk	Leo Jackson	Esther Brown	Minnie Sheldon
Ellwood Atoruk	Lucy Jackson	Mark Cleveland	Tommie Sheldon, Jr.
Mary Atoruk	Percy Jackson, Sr.	Joe Carter	Donald Smith
Peter Atoruk	Thomas Jackson	Walter Cook, Sr.	Daisy Tickett
Roger Atoruk	Jackie Johnson	Herbert Custer	William Tickett
Vera Morris	Helen Kagoona	Dan Douglas	Martha H. Wells
Wilbur Atoruk	Clara Lee	Joe Field	Tommy Wells
Eva Baldwin	Helvi Sandvik	Amelia Gray	Christina Westlake
Annie Barr	Ruth Sandvik	Minnie Gray	Larry Westlake, Jr.
Josie Black	Lorenz "Lorry" Schuerch, Jr.	Pauline Harvey	Larry Westlake, Sr.
Rudy Black	Marie Schuerch	George Hasway	Louise Wood
Inez Ayagiaq Black	Pauline Garbin Schuerch	Martha Hasway	
Andrew Black	Tony Schuerch	Albert Sheldon	
Elmer Jackson	David Black	Billie Sheldon	

The archival materials are combined with recent interviews with knowledgeable members of the Kiana community. Another source for the project comes from our visits to places within the park with Kiana knowledge holders, including Thomas Jackson as part of the 2023 Elders Camp. In the document that follows, we present words of living elders whom we have interviewed and with whom we have visited in Kobuk Valley—alongside the knowledge and voices of past generations of elders. Together, their words and collective knowledge provide a rich picture of life and traditional land use on the Kobuk, in lands now managed as part of the park. Their words demonstrate that the cultural significance and traditional knowledge of fish, caribou, and many other traditional game species all endure across generations, even as people must adapt to changing circumstances. Elders still possess a rich body of knowledge relating to environmental patterns and phenomena in and around Kobuk Valley—what is commonly referred to as "Traditional Ecological Knowledge" or TEK. This includes insights into the movement of caribou, changes in the river's configuration over time, and many other themes. We offer a summary of their knowledge and observations here, but it is only a thin reflection of the full richness of that body of knowledge, transmitted across generations. A full treatment would require several volumes, and a lifetime of careful listening and learning.

The memories of these elders also give us insights into pivotal moments in Kobuk Valley history. We learn, for example, of the first arrival of Euro-Americans in the valley at the end of the 19th century and the astonishingly rapid transitions that followed. We learn about the formation of multiethnic mining communities through the early 20th century—at Kiana, and at other villages along the Kobuk. We learn of the enduring traditions of dogsled use in and around the park, and of the rapid decline of that practice mid-century. And, for example, we learn about how the changing caribou migrations have had dramatic effects on Kobuk Valley villages. Communities that were on the brink of collapse for other reasons in the wake of contact often disbanded and relocated during the early 20th century when the caribou became scarce. Yet the caribou have returned at different times, and with them the valley has experienced rebounds in caribou hunting and the many other cultural and subsistence traditions linked to that practice. At these times, when the hunting is good, hunters still traverse the hills and tundra along well-worn caribou trails in the park and hunt the predictable caribou crossings where herds regularly traverse the Kobuk River. In this way, the history of Kobuk Valley is still being written, and the boundaries between what is "historical" and what is "contemporary" are not always neatly defined.

We use Iñupiaq terms widely throughout the document to explain certain practices, resources, places, and other themes. The Iñupiaq language is expressive in how words can depict the details of life on the Kobuk. A discussion of traditional land and resource use in the park would not be complete without them. Different communities may use specialized vocabulary or have differing pronunciation. For this reason, the terms for different natural phenomena, including placenames, often differ from place to place. Throughout the report, we use the modern standardized spellings from the NANA dictionary to enhance readability and make this a useful resource. We include the spellings as presented in original sources in a table in Appendix A—knowing that these may reveal subtle distinctions of pronunciation and can be analyzed by Iñupiaq speakers and linguists in the future. Plural forms of words often end in "t," according to Iñupiaq grammar, but in some places the reader will notice quoted Iñupiaq subjects with the English plural form "s" (e.g., *tinnit* vs *tinniks*), reflecting the natural blending of languages in conversation.

The number and richness of Iñupiaq placenames reported in the park is an indicator of the depth of Iñupiaq connections to the lands and waters of Kobuk Valley. In this document we present many placenames, recorded in many different sources—all reflecting the knowledge of Iñupiaq elders from Kiana and other area villages, shared during interviews by a succession of researchers over the decades. Many of these sources are internally inconsistent in spelling or other details, reflecting the diversity of the original archival sources. Regrettably, many placenames recorded on the Kobuk River a generation or more ago—such as those from the ANCSA interviews of the 1970s—come to us without accompanying maps showing their locations; for that reason, we can discuss the lessons of these names in general terms but cannot offer precise locations for several of the terms mentioned here. Nonetheless, we present a portion of these placenames at the end of this document, in Appendices B, C, and D and a subset of these names we present here in map form. These placenames and others are also noted widely throughout this document. Those placenames that have already been recorded and mapped by the National Park Service, based on the knowledge of Kiana residents with the guidance of Eileen Devinney, are included at the end of this Introduction; these represent only a portion of the names for places within what is today Kobuk Valley National Park.

In reviewing these lists and maps of placenames, it is important to remember that Iñupiaq speakers might apply the same name to different places along the river, simply because they are accurate descriptions of types of landmarks or resources found at more than one place. One common example involves the recurring variations on the placename *Qalugruaq*, or "salmon," which is sometimes applied to salmon seining stations, good salmon fishing waters, salmon fishing camps, and related features. Traditionally, Iñupiaq speakers would understand which river reach was being referenced by the context of the conversation, allowing them to differentiate one *Qalugruaq*-named place from another. For this reason, it is sometimes difficult to link ethnographic information documented years ago, without clear context, to specific places—though many are clearly related to Salmon River and, specifically, the Salmon River-Kobuk confluence in the heart of the modern park.[19]

Kobuk Valley is not solely a place of archeological or historical significance; it is of ongoing importance to the lives and living culture of Iñupiaq people today. With villages sitting near the upstream and downstream ends of the park, this connection will endure into the imaginable future. As part of seasonal treks that sustain them in myriad ways, individuals and families continue to visit lands in the park, and allotments interior to the park's external boundaries. So too, organized community events, such as Elders Camp, continue to bring Native youth and elders to Kobuk Valley together, ensuring that the knowledge, values, and perspectives of Iñupiaq people related to this place endure across generations. Many oral traditions and personal experiences converge here, giving many modern village residents a strong sense of attachment to Kobuk Valley, and a "sense of place" that is distinctive and deep. In this way, Kobuk Valley is a landscape that remains essential not only to the past, but also to the present and future of Iñupiaq people.

These observations have many implications for future management of the park. Continued consultation with village tribal governments and Native corporations will be key to navigating the resource management challenges of the future. We see a continuing need for collaboration between the NPS, Kiana, and other Iñupiaq communities in the recovery and organization of the vast archival legacy of Kobuk Valley archeological and ethnographic research—so that these materials can be accessible to NPS managers and Iñupiaq



Thomas Jackson leads traditional singing and drumming practice for Kiana youth and Kiana Elders Camp on the banks of the Kobuk River. Emily Creek photo, courtesy of the National Park Service

communities. We see a clear, and mutually beneficial opportunity to develop educational opportunities and materials for Iñupiaq youth that convey some of the lessons of the elders and ancestors, partially described in this document, for the benefit of future generations. And we recognize many other management implications of this project's findings. For example, we contend that the lower Kobuk River corridor, where it passes through the park, is unambiguously eligible for National Register listing as a district. This eligibility is based not only on the corridor's pronounced archeological significance, but also on its eligibility under Traditional Cultural Property (TCP) criteria—TCPs being places "that [are] eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community," to quote *National Register Bulletin 38*.[20] These designations would have wide-ranging implications for the care and management of this land, as well as for relationships between the NPS and

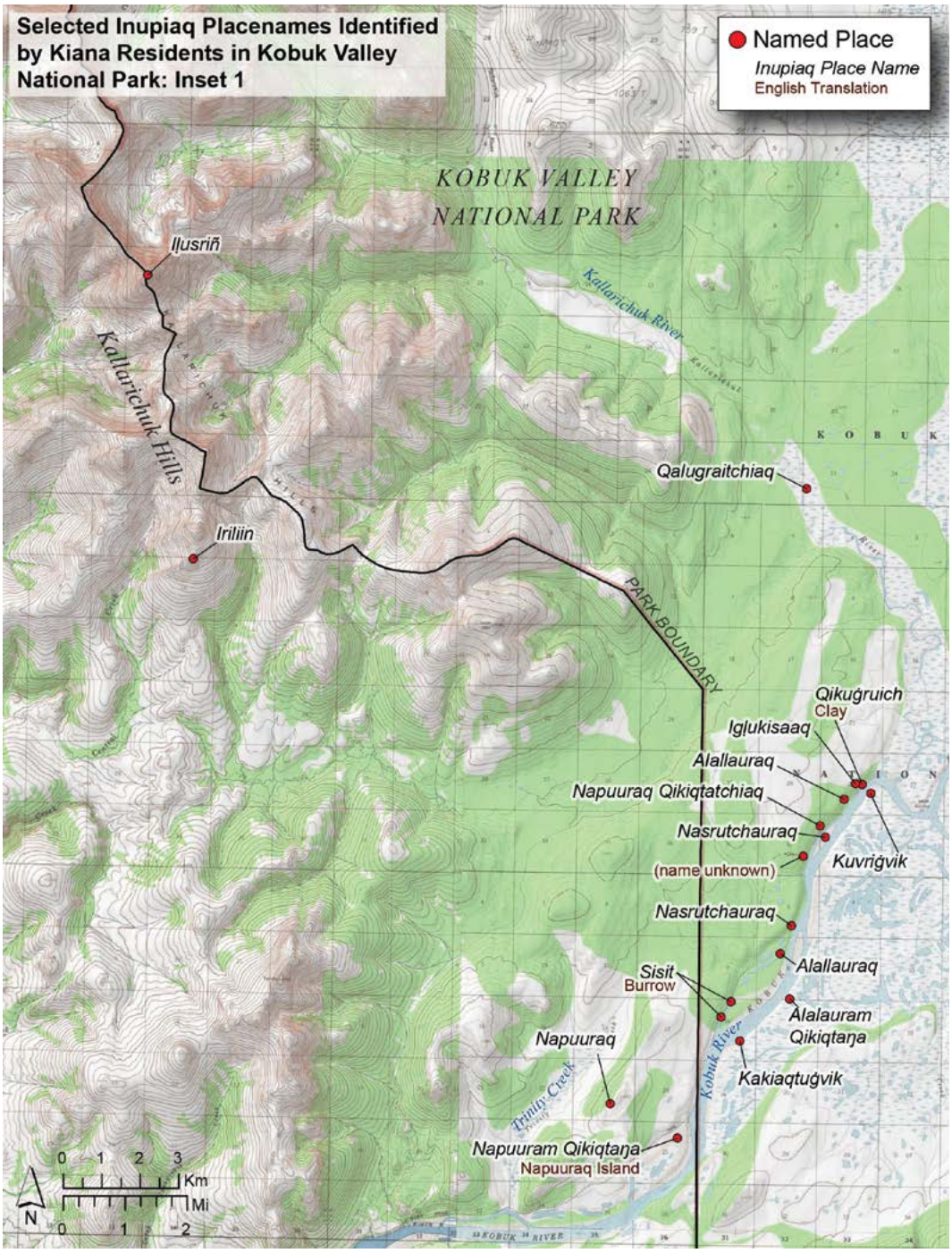


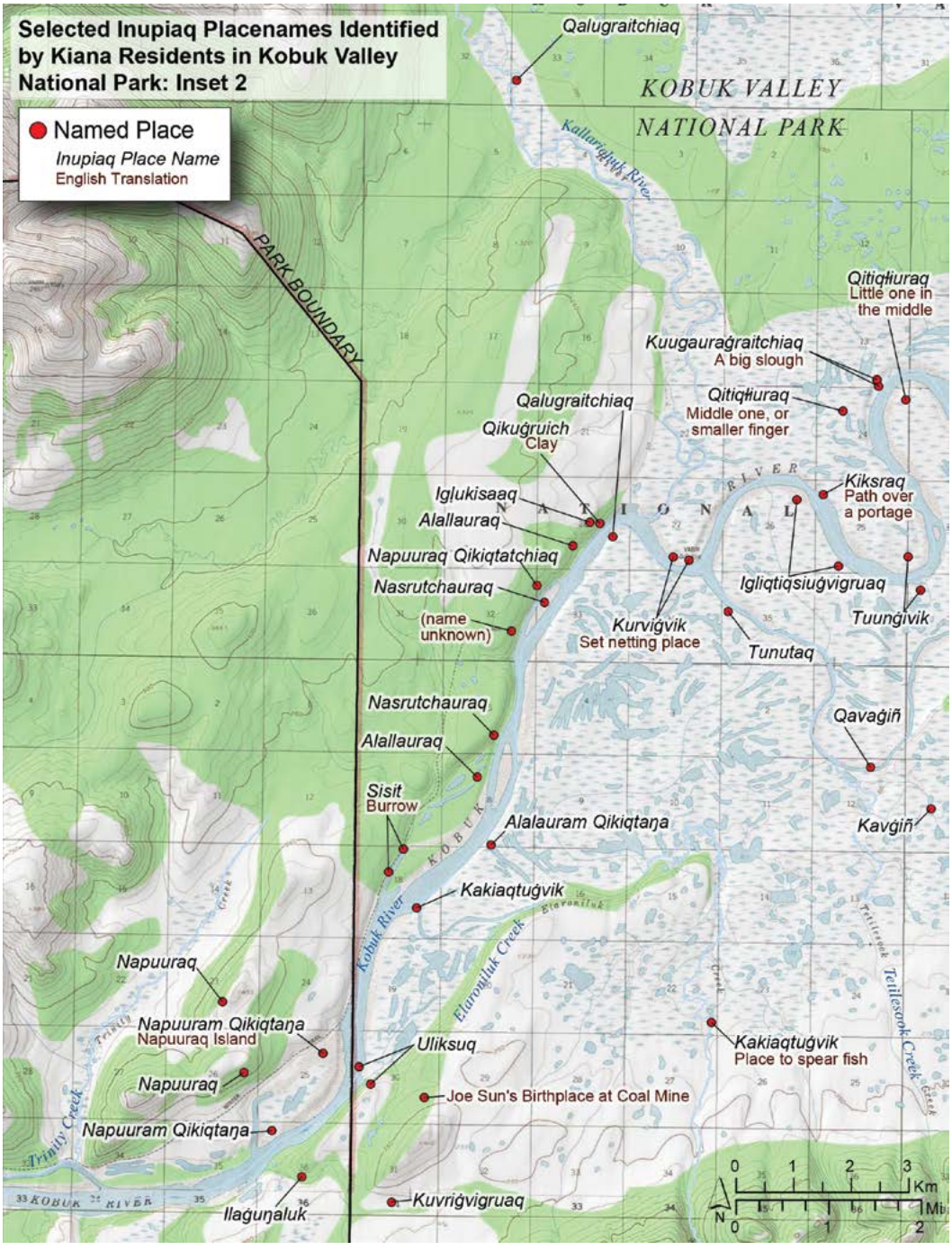
Kobuk River at Onion Portage, an important settlement and hunting place with the park, used for thousands of years.
Emily Creek photo, courtesy of the National Park Service

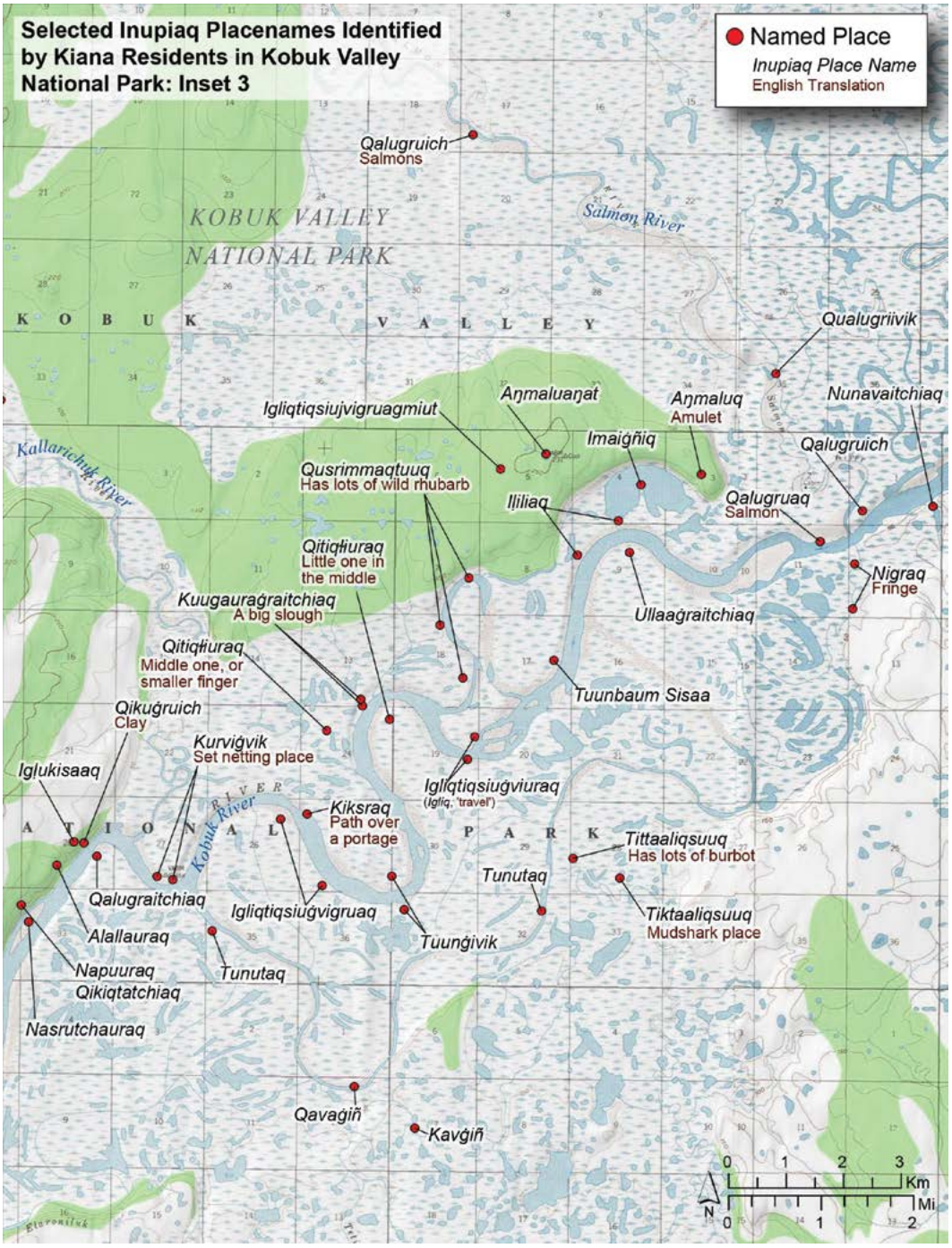
Iñupiaq communities into the foreseeable future. We address these and other considerations in the conclusion of this document.

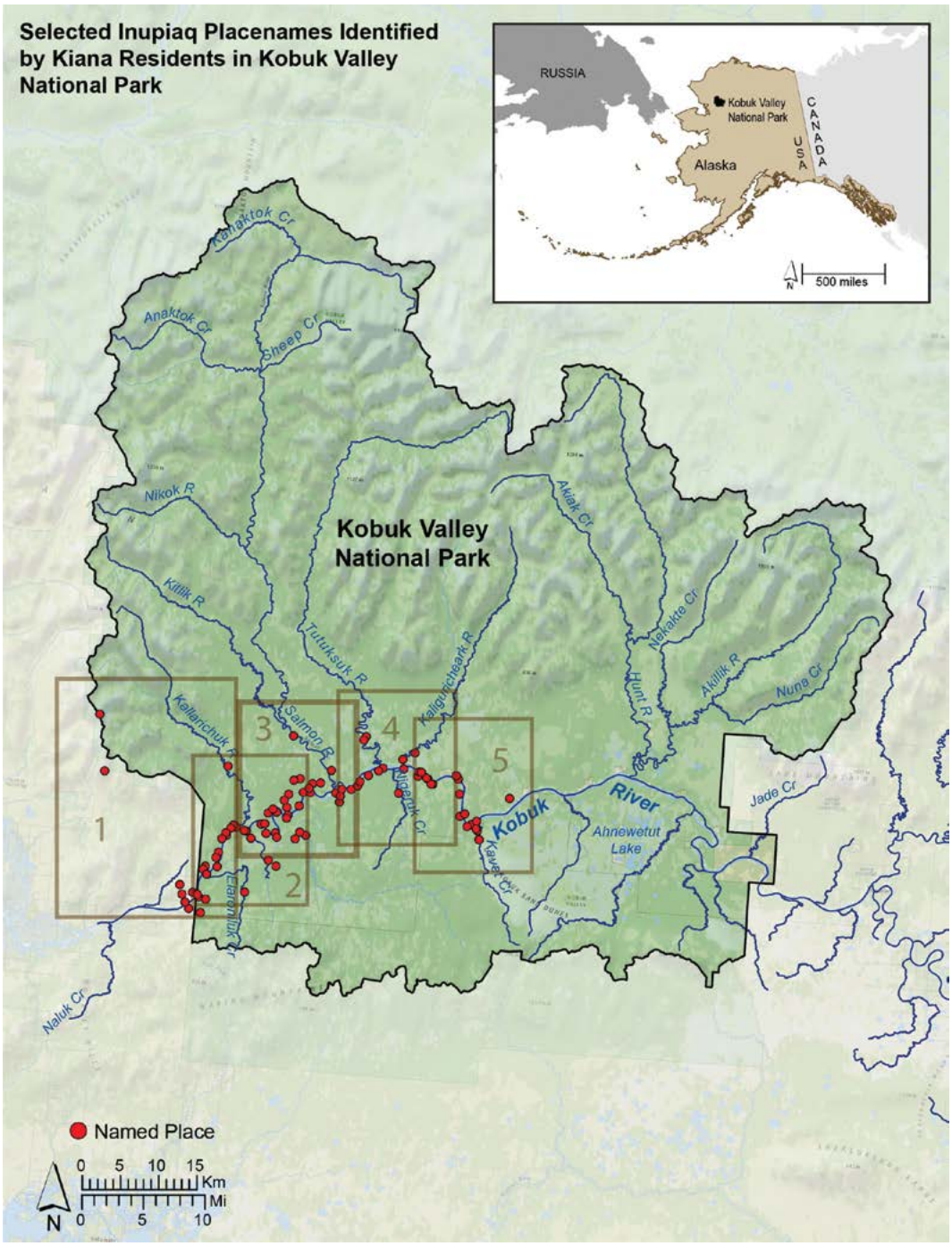
Recognizing the unique and deep associations of Iñupiaq communities with Kobuk Valley, we have developed this report with the active engagement and oversight of Iñupiaq representatives and elders, including group workshop meetings as well as individual interviews and conversations over the course of the study. The knowledge, perspectives, and guidance of these Iñupiaq participants are woven into this document in every chapter. Our recommendations for the future, presented in the pages that follow, are guided not only by concern for the archeology and material landscape of Kobuk Valley, but also for the enduring, tangible, and sometimes intangible values of this place to the Iñupiaq people of today—and of the future. If the conversation between the NPS and Iñupiaq communities continues as a collaborative dialogue about what matters and what should be protected in this place, we will not only sustain the integrity of Kobuk Valley's cultural landmarks and landscapes for the future, but also help sustain Iñupiaq values, historical memory, subsistence practices, and cultural traditions that endure today despite many historical challenges. Factoring these considerations into the future management and interpretation of the park, we will leave this place truly "unimpaired for the enjoyment of future generations," Native and non-Native alike. What follows is a detailed, thematic volume, intended as a resource for anyone committed to those ideals.

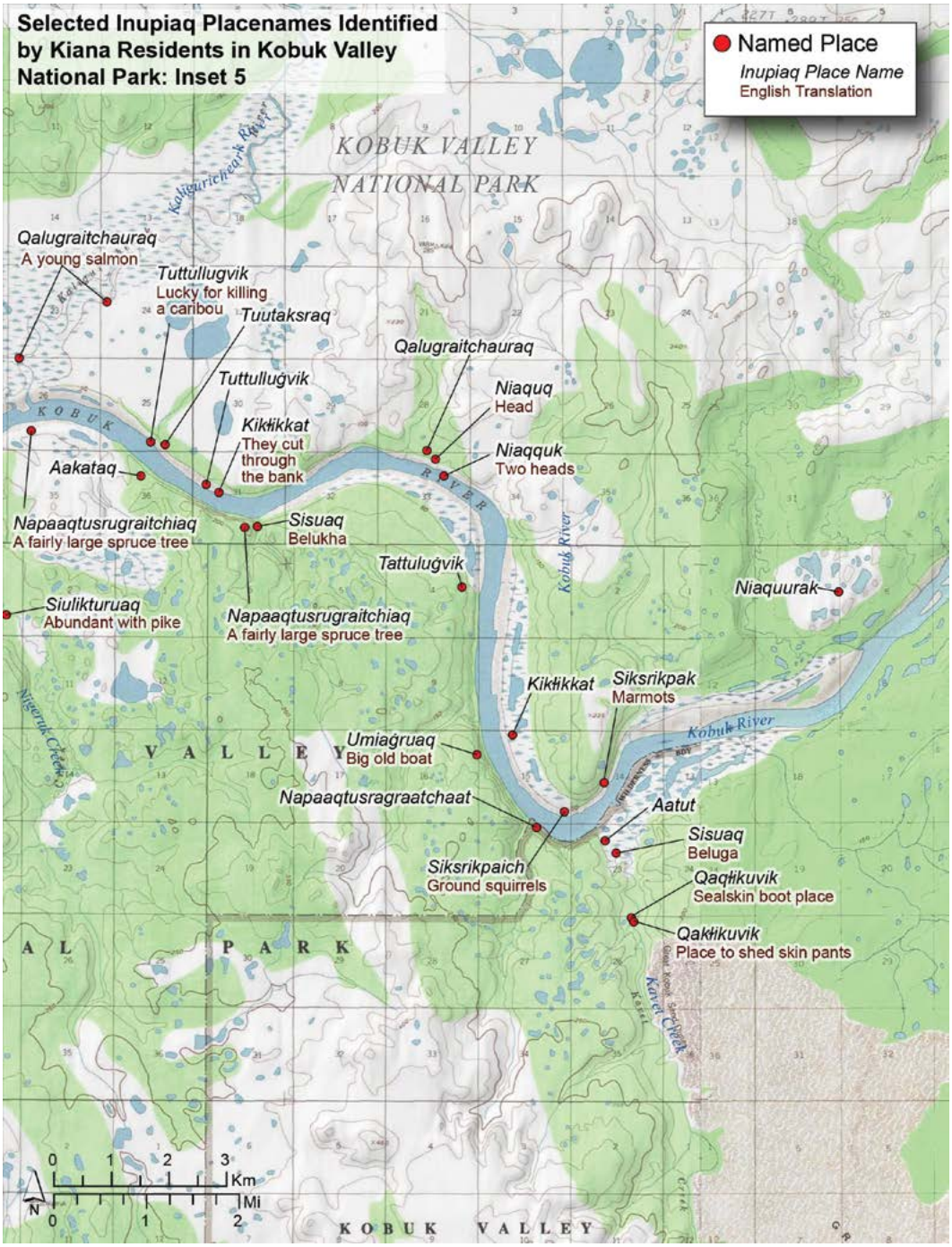
On the following pages are maps of selected places within Kobuk Valley National Park.


Selected Inupiaq Placenames Identified by Kiana Residents in Kobuk Valley National Park: Inset 1
Named Place
Inupiaq Place Name
English Translation
KOBUK VALLEY
NATIONAL PARK
Iḷusriñ
Kallarichuk River
Kallarichuk Hills
Iriliin
Qalugraitchiaq
PARK BOUNDARY
Qikuġruich
Clay
Iglukisaaq
Alallauraq
Napuuraq Qikiqtatchiaq
Nasrutchauraq
Kuvriġvik
(name unknown)
Nasrutchauraq
Alallauraq
Sisit
Burrow
Alalauram
Qikiqtaŋa
Napuuraq
Kakiaqtuġvik
Kobuk River
Trinity Creek
Napuuram Qikiqtaŋa
Napuuraq Island
0 1 2 3
Km
Mi
N
0 1 2


Selected Inupiaq Placenames Identified by Kiana Residents in Kobuk Valley National Park: Inset 2
Named Place
Inupiaq Place Name
English Translation
KOBUK VALLEY NATIONAL PARK
PARK BOUNDARY
Kallurigiqtuk River
Qalugraitchiaq
Qitiqliuraq
Little one in the middle
Kuugauraġraitchiaq
A big slough
Qitiqliuraq
Middle one, or smaller finger
Qalugraitchiaq
Qikuġruich
Clay
Kiksraq
Path over a portage
Iglukisaaq
Alallauraq
Napuuraq Qikiqtatchiaq
Nasrutchauraq
(name unknown)
Igliqtiqsiuġvigruaq
Tuunġivik
Kurviġvik
Set netting place
Tunutaq
Nasrutchauraq
Alallauraq
Qavaġiñ
Sisit
Burrow
Alalauram Qikiqtaŋa
Kavġiñ
Kakiaqtuġvik
Kobuk River
Napuuraq
Napuuram Qikiqtaŋa
Napuuraq Island
Uliksuq
Napuuraq
Napuuram Qikiqtaŋa
Joe Sun's Birthplace at Coal Mine
Kakiaqtuġvik
Place to spear fish
Trinity Creek
Kuvriġvigruaq
Ilaġuŋaluk
0 1 2 3 Km
N
0 1 2 Mi


Selected Inupiaq Placenames Identified by Kiana Residents in Kobuk Valley National Park: Inset 3
Named Place
Inupiaq Place Name
English Translation
KOBUK VALLEY NATIONAL PARK
KOBUK VALLEY
Salmon River
Kallarichuk River
Kobuk River
Qalugruich
Salmons
Qualugriivik
Aŋmaluaŋat
Aŋmaluq
Amulet
Nunavaitchiaq
Igliqtiqsiujvigruagmiut
Imaigñiq
Qalugruich
Qusrimmaqtuuq
Has lots of wild rhubarb
Ililiaq
Qalugruaq
Salmon
Qitiqliuraq
Little one in the middle
Nigraq
Fringe
Kuugauraġraitchiaq
A big slough
Ullaaġraitchiaq
Qitiqliuraq
Middle one, or smaller finger
Tuunbaum Sisaa
Qikuġruich
Clay
Kurviġvik
Set netting place
Iglukisaaq
Igliqtiqsiuġviuraq
(Igfiq. "travel")
Kiksraq
Path over a portage
Tittaaliqsuuq
Has lots of burbot
Tunutaq
Qalugraitchiaq
Igliqtiqsiuġvigruaq
Tiktaaliqsuuq
Mudshark place
Alallauraq
Tuunġivik
Napuuraq
Tunutaq
Qikiqtatchiaq
Nasrutchauraq
Qavaġiñ
Kavġiñ
0 1 2 3 Km
0 1 2 Mi
N


Selected Inupiaq Placenames Identified by Kiana Residents in Kobuk Valley National Park
RUSSIA
Kobuk Valley National Park
Alaska
CANADA
USA
500 miles
Kobuk Valley National Park
Kallaktok Cr
Anaktok Cr
Sheep Cr
Nikok R
Killik R
Akiak Cr
Nakakte Cr
Akillik R
Nuna Cr
Tutuksuk R
Kalgurcheark R
Hunt R
Salmon R
Kallanchuk R
Jade Cr
Kobuk River
Ahnewetut Lake
Kavet Cr
Naluk Cr
1
2
3
4
5
Named Place
0 5 10 15 Km
0 5 10 Mi
N


Selected Inupiaq Placenames Identified by Kiana Residents in Kobuk Valley National Park: Inset 5
Named Place
Inupiaq Place Name
English Translation
KOBUK VALLEY NATIONAL PARK
Kaligurichearik River
Qalugraitchauraq
A young salmon
Tuttullugvik
Lucky for killing a caribou
Tuutaksraq
Qalugraitchauraq
Tuttullugvik
Niaquq
Head
Kiklikkat
They cut through the bank
Niaqquk
Two heads
Aakataq
Napaaqtusrugraitchiaq
A fairly large spruce tree
Sisuaq
Belukha
Tattulugvik
Kobuk River
Niaquurak
Siulikturuaq
Abundant with pike
Napaaqtusrugraitchiaq
A fairly large spruce tree
Kiklikkat
Siksrikpak
Marmots
Nigeruk Creek
Umiagruaq
Big old boat
Napaaqtusragraatchaat
Aatut
Sisuaq
Beluga
Siksrikpaich
Ground squirrels
Qaqlikuvik
Sealskin boot place
Qaklikuvik
Place to shed skin pants
Kavet Creek
0 1 2 3 Km
N
0 1 2 Mi
KOBUK VALLEY

Endnotes

[1] Each of these habitats are described in a growing literature regarding the natural environments of Kobuk Valley National Park. See, for example, Necsoiu et al. (2009) on the migrating dune fields of the park—a process resulting in successional vegetation that is of importance to Iñupiaq harvesters, such as the emergence of *tinnit* (*Arctostaphylos spp.)*, a focal point of traditional harvests on the dune margins.

[2] PJS.

[3] HJS.

[4] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[5] https://www.blm.gov/programs/lands-and-realty/regional-information/alaska/land_transfer/ak-native-allotment-act#:~:text=1119.,116%2D9%2C%20Section%201119.

[6] See Giddings 1941, 1952, 1961, 1962, 1956, 1965; Anderson 1968, 1970a, 1970b, 1970c, 1972, 1979, 1988; Anderson, et al. 1998; Anderson and Lutz 2019.

[7] JB.

[8] Northwest Arctic Borough, 2025: https://www.nwabor.org/villages/

[9] Burch 1998.

[10] Anderson and Anderson 2019.

[11] 93 Stat. 1462 Proclamation 4620, Dec. 1, 1978.

[12] Alaska National Interest Conservation Act, 16 U.S.C. 3101; Pub.L.96-487.

[13] Alaska National Interest Conservation Act, 16 U.S.C. 3101; Pub.L.96-487.

[14] https://www.blm.gov/programs/lands-and-realty/regional-information/alaska/land_transfer/ak-native-allotment-act#:~:text=1119.,116%2D9%2C%20Section%201119.

[15] Brown et al. 2020; Murdoch et al. 2020; Jorgenson et al. 2015; Durand et al, 2011; ANTHC 2011.

[16] See Durand et al. 2011.

[17] Anderson and Lutz 2019; Anderson and Anderson 2019; W. Anderson 2019.

[18] Anderson and Anderson 2019:291.

[19] E.g., Field 1987:7.

[20] NPS 1998:1.



The view from the east end of Kiana village in 2023, looking at the Kobuk River at its Squirrel River confluence towards Kobuk Valley National Park. Douglas Deur Photo

CHAPTER 2

Oral Histories of Kiana and the Kobuk Basin, A Brief Overview

When it comes to the history of the Kobuk Valley and the emergence of modern village communities, Iñupiaq oral traditions are rich, covering aspects of life from the very beginning of human time to the events of the recent past. A compilation of oral histories of the *Kuuvaŋmiut* would fill many volumes. While the full span of this abundant oral history is beyond the scope of this document, we share here a few selected oral traditions that have particular significance in understanding the depth of the Iñupiaq association with Kobuk Valley and the ways that the modern community of Kiana emerged from these remarkably deep ancestral roots, right up to the moment of park creation.

The most ancient oral traditions of the *Kuuvaŋmiut* affirm that their ancestors have been in Kobuk Valley since the beginning of remembered time; the valley, its landforms, and its lifeforms were all formed by spirit beings who shaped the landscape for the Iñupiaq people yet to come. For example, Minnie Gray of Ambler shared foundational oral traditions of a powerful spirit being from the coast, called *Qayaqtagugnik* (or "Qayak" for short). This story cycle is set in a formative time, a liminal spiritual phase in the world when animals could readily transform to become human, and humans could still transform to become animals. Burch said that if this story is told in its entirety in traditional oral history form with a storyteller, it would take 2-3 hours per night for weeks on end. A "transformer" and a creator of many things, *Qayaqtagugnik* ascended the Kobuk River, shaping the land, people, and animals as he traveled. Traditionally, the story cycle of his many works and accomplishments is very long. In its original form, accounts of his travels likely mentioned most key landmarks and most key animals throughout the Kobuk River Basin, describing his role in their origins.

In his travels along the Kobuk River, *Qayaqtagugnik* encounters human-like beings, though he knows they do not belong in the valley. He decides to send them into the mountains. They become the Dall sheep of the Baird Mountains and other northern ranges. He proceeds along the river and camps at the base of steep mountain slopes. There he encounters a "copper man," thus establishing the geological fact that copper is found "in the steep places …. That's how the copper is in steep hills. It's hard to find."[1] Moving along the river, *Qayaqtagugnik* meets and marries a caribou. This caribou has very short

legs, as all did in that time, and as they continue on their travels, he soon discovers that she cannot travel well in the snow: "They were walking along and it was deep snow . . . his wife have short legs so he take the stick and hit her and her legs get longer."[2] From this time forward, the caribou emanating from Kobuk River Basin have the long legs we know today. As *Qayaqtagugnik* continues along the Kobuk, he sees many other beings who are not shaped properly. In turn, he reshapes the bodies of the lynx, the wolverine, and many other animals. It is said that he even shapes the bodies of early humans too. In this way, the Kobuk Valley is a center of creation in ancient *Kuuvaŋmiut* oral traditions. Though humans and other animals may have existed before *Qayaqtagugnik* walked this land, it is along the Kobuk that they take their full and final form.

Still, it is not only animals and humans that he reshapes. As he travels along the Kobuk, *Qayaqtagugnik* also decides on the uses of trees and other plants, guiding Iñupiaq uses of these things in the time yet to come. For example, he determines that birch bark will be the main type of bark used to make watercraft, and that spruce will also be used in their construction. As Minnie Gray recalled of this part of the cycle:

> "All around the world he [went] . . .. When he first started making a canoe he tests everything—like bark. Tree bark: spruce tree bark, alder bark, cotton [prob. Balsam poplar, *Populus balsamifera*] tree bark, and he tests them on the water to see what kind will be floating. All those are sinking, they are heavy, so he picks birch bark . . .. He tests them again for the wood. So, when he uses spruce, it's lighter than all those and easy to work on. So, he picked spruce tree . . .. And he gathered everything and put them by his camp and went to bed. And while he was sleeping those animals start working . . . all around the kayak. There's porcupine working on pitch from spruce tree . . . and there's beaver. All those animals working on that kayak. He never gets up and just watches them. Those animals finishing his work for him."[3]

When a man tries to stop *Qayaqtagugnik's* adventures and kill him, setting traps where he might travel, Qayak bundles spruce limbs in his parky (local term for parka)and tosses them into a trap, foiling this man's plans and allowing Qayak to continue his journeys.[4]

Each custom and geographical feature associated with the Kobuk River Basin was formed by *Qayaqtagugnik's* actions and his encounters as he traveled across the land; each place he touched, each living thing, had its own special significance. Being of spiritual and cosmological significance, these stories were told in full form only at certain times of the year.[5] Every part of the Kobuk Valley geography bears the fingerprints, the handiwork, of *Qayaqtagugnik* and other spirit beings into the present day. Indeed, some places are traditionally understood to hold an elevated power, and to deserve respect, due to these ancient origins.[6] More generally, the entire Kobuk Valley is the handiwork of ancestral beings—touched and traversed by countless generations of ancestors. Therefore, the valley as a whole is also "sacred" and deserving of special respect.

The Kiana Twins

The people of Kiana trace their heritage to pre-contact settlements in the same location as the modern village: at the confluence of the Kiana and Squirrel rivers. Christina Westlake described what she had been told: that there was a summer camp in the Squirrel River, and that Kiana was built in the location of the pre-contact winter camp. There are many stories about *Katyaaŋmiut* ancestors. In 2023, Thomas Jackson shared his version of the story of the

Kiana Twins, prominent figures in the cultural heritage of the *Katyaaŋmiut.* The full transcript of his telling is shared here.

> "This story was told by my other and various storytellers that I've also heard from. The twins were born at a place called *Iḷaŋiaġruaŋuluk*, maybe a bend from here from the Elders Camp. They were having a feast or dancing or *anaktaq* (anaktaq is that of native games).
>
> So, they were at the *qargi* (community house) where the gathering was, a bigger sod house. One of the twins kept crying, kept crying for some reason. And the mother kept going in and out. And finally, she looked down the river, she could see the mountains, and of course it was a full moon so it was very bright, she could see a long ways. So, she went in and informed the people that there was a large line of people coming in, and we were told they were the Point Hope warriors. She went in and by then people tried to get ready with their weapons, their bows and arrows, whatever they used to protect themselves. Spears, knives, and of course the knives were made out of slate or bone, something that was sharp. I've heard of even jade knives were preferable because they were stronger. Stronger material. The husband of the wife with the twins, she was advised to take the babies—not straight across the river—but follow the tree line that's there. And then upriver to cross the river, so they wouldn't see her tracks. She went across. She was advised to go through the mountains and through the mountains from *Iḷaŋiaġruaŋuluk* is Squirrel River Valley, and her husband would meet her there. He was killed during the fight. He didn't show up, and she figured that he was killed. She raised the twins—not in a shamanistic way, but in like a supernatural way—and they were really good with their bows. And mom said something when she was training them—she had to go slow. She would even drink and eat slow and move slow. Mom said she would even have to drink from a chickadee's upper beak and skull—that's how she drank her water. Maybe it was part of the ritual, I don't know. But she raised the twins up there. They made a trap out of boulders where they would spear the fish, of course there's current up there. They would spear the fish the ones they could see up in the surface area. The late Tommy Sheldon told me he has been up there, with your boat and motor now a days you'd have to go in the middle otherwise your motor will hit the boulders they used.
>
> Then in this area, a man— where we are at now, *Sugailich*, where we are at Elders Camp— they were attacked again by northern people. He had, just in case before—during the fall time when its freezing—put a thick layer of ice on the house and just the *qiŋaq* for the air flow to go through. And he had to block the entrance—I don't know how he did it, but he blocked it really well where they couldn't get in. Before that he tried to hide, and they'd find him, him and his wife, he had two wives. So Siqłik sent a message to Squirrel River to get the twins. The twins *taglu* over night –*taglu* is snowshoe—from the Squirrel River. When they got to the place where Siqłik is now, they started fighting the northern people with their bows. And every time the northern people would shoot, every time before it hit them, they would move. So, they would miss them. In a lot of stories, they would leave at least one man alive to go back home, if he made it home, so he could tell them what happened so they will not try to come back again. And they probably did that.

Siqłik had two wives, he had one wife from the northern area, and one was Kobuk.

The parky that she was wearing—there's different styles. Her husband always tells her to use her coastal style parky in case the northern people were there. When she was picking in the mountains from this area—the northern people—she was using the Kobuk style, and she was killed.

So, another story to add on to what mother and other story tellers would tell me. At *Iqsiuġvik*, Squirrel River—the old settlement. *Iqsiuġvik* means "place to be scared" because that was a place because they had wars—even my grandmother Clara Jackson would tell me if you find a spearhead or arrowhead on the tundra never to pick them up. And I would ask why. And she said it was bad ground, meaning they had war there. That weapon probably killed somebody, so she didn't want me to touch it.

At *Iqsiuġvik* they had the entrance tunnel and another tunnel that was hidden and make it look like it was just part of the wall of the igloo. So, if they needed to escape they had another long tunnel where they wouldn't be seen going out. They would try to put that hidden tunnel, even when they were going out they would fix it so it looked like no one was there, even though there was evidence, so they could escape. Now, when they attacked at *Iqsiuġvik*—they said it was Noatak. Noatak River people and Kobuk River people fought a lot. Just like they said Selawik people and Buckland people fought a lot. They told me that a young man named Qamik was from the Noatak area but one of the people recognized him and they told the twins, 'Don't get that man, he is my relative.' And the twins listened to him. And here Qamik was boasting, *uqavigaa*-ing and saying he could kill people with his knives and his bows. But they were advised not to kill him because that's their relative. After he boasted like that, to teach Qamik a lesson one of the twins shot him in the Achilles, through his mukluk. And they said, the storyteller said that after he boasted he was crying like a little boy because the pain was so bad. They kept him alive to go back home to the Noatak area to tell them that all the men were killed except him. And then he told them up there what happened—that the twins were there. That's just some of the stories about the twins that I know, there are lots of them.[7]"

People, Occupying the Land

The landscapes shaped in the time of creation, and the ways humans spread across and occupied the land, are matters discussed widely in *Kuuvaŋmiut* oral tradition. As people became established in the Kobuk region, they placed their homes near places uniquely abundant in certain resources—the places where caribou passed through and crossed the Kobuk predictably each year, for example, and the places where people might best fish for salmon, sheefish, and many other species. They also chose places where transportation access was easy, where settlements could be readily reached by river and by trail. When caribou stopped coming or were reduced in number, people turned their attention more directly to fish, which remained diverse and abundant in the Kobuk. When all resources faltered, families relocated and adapted—moving to new caribou hunting places and new fishing stations or turning more heavily to the harvests of other species. And when those resources failed altogether, some even moved temporarily to the coast. Movement between places and travel over extensive resource-harvesting ranges kept communities alive for generations and reduced risk in its



A *tuqsruk* (tunnel entrance) into a *ukiivik* (winter house) dug into the ground in Kobuk Valley. Photo courtesy of the National Park Service

many forms. These patterns of life, rooted in resilience and adaptation, also ensured that Kobuk Valley people held strong social ties and extensive kinship bonds with people from other places—the coastal Iñupiaq, the Noatak Basin Iñupiaq, and people more distant, such as the Koyukuk people far to the south.[8]

Yet, despite the rise and fall of the availability of caribou, fish, and other sources of food, the Kobuk remained significant in its resource abundance, allowing people to settle comfortably along the river corridor. Late-19th-century accounts describe a remarkably dense pattern of settlement in some places as can be confirmed by the archeological record.[9] Different kinds of dwellings served different purposes. In many places along the Kobuk, there were winter houses dug into the ground—the "*ukiivik*. . . made with spruce and sod covering [with] willow on the floor." Being winter homes, these houses were accessed by a tunnel entrance, *tuqsruk*; the tunnel sealed with a door that was often not made of wood, but of skin, the *napaaġtuq*.

Some had windows, *igalaaq*, made of animal gut. Smoke from a central fire exited through a chimney lined with animal skin, and people "put rocks on top of [the] skin chimney, to keep cold out." Some houses were expanded to become *iglusiit*—houses partitioned into two separate rooms.[10] Near these winter homes were often auxiliary structures, caches, and buildings such as an *uqquutaq*—a "house for women, child bearing."[11] And there were external buildings for women to use during menstruation, or to occupy temporarily when a person died in the family's main house.[12] The largest house in the settlement was the *qargi*, a community house or men's house[13]. Outside these structures, people sometimes erected barriers or short fences to keep children from falling into the swift river, especially on steep bluffs.[14] Together, collections of homes and outer buildings formed the winter village, the core of Kobuk Iñupiaq community life.

With the arrival of warmer temperatures, much of the community moved away from these winter villages to camps, occupying temporary seasonal structures, called *ivruligauraq*, each year.[15] These could be found at hunting places away from the river, at plant gathering sites, along the riverbanks, and at other places of importance. Elders have described them as "not for cold period [made of] spruce mainly, maybe willow-covered w[ith] sod, [thatched in] mainly grass, maybe bark long ago." There was also the "*napaqtaq* … [a] wide round house—spruce covered with skin." And, in the warmest months, there was the "*itchalik* … [which used] hide-covered willow in birch frame for water hunting, hot summer"; these temporary structures were often round, with a frame called a *qanak*.[16] At camps revisited seasonally, some people maintained semi-permanent willow-frame structures, adding fresh boughs, moss, and other thatching materials to make the camp habitable each year.[17] The ancestors placed these warm weather camps where they would be exposed to prevailing



A caribou hunting camp at Onion Portage showing the frame of an *ivruligauraq* (temporary seasonal structure traditionally used while hunting). Each year people who freshly cover and rethatch the wooden frame with bark and other plant materials. Pete Sanchez photo, courtesy of the National Park Service

winds, reducing the number of *kitugiat*, mosquitos.[18] Yet, persistent winds came with their own challenges. Thus, throughout Kobuk Valley, people often constructed *uqquutaq*, said to be "wind break[s], used [when a person had to stay in the same place a long time, such as] when fishing." These could be made of stone, of branches and brush, or "when people ice fished on river, these could be made by snow."[19]

These many settlements – the constellation of family camps and villages of Kobuk Valley – were once numerous. Their residents moved their villages and camps as needed over time so that, across many centuries, a remarkably large proportion of the Kobuk River riparian seems to have served as a home place and a base of operations for generations of Iñupiaq people. Traces of these former settlements have become elusive in many places —overgrown by willow and other vegetation. In some places, any evidence of these settlements has entirely eroded away. Still, here and there, at such places as *Igliqtiqsiugvigruaq*, Swift Water Place, elders report seeing many remnant house pits in the soil – remnants of winter villages of long ago.[20]

Colonization and Relocation

At a time when other areas in North America were being overrun and reoccupied by the peoples of Europe, the Kobuk River Basin remained remarkably distant from the influence of colonizing peoples. It wasn't until the 1880s that the direct influence of the non-Native world began to transform life in the Kobuk region in dramatic ways. As ships began to arrive in the region seeking furs and other resource wealth, Iñupiaq communities were drawn into trade relationships and other exchanges that began slowly but within a few decades, reshaped the entire region. In the first half of the 1880s, Iñupiaq trade with arriving ships had already shifted the focus somewhat from the inland to the coast, and the new coastal trading center shifted from the longstanding village of *Sisualik* to *Qikiqtagruk* (Kotzebue). Many Iñupiaq families began venturing to Kotzebue for trade – acquiring high-quality reindeer skins from Asia (valuable for making winter clothing) and many other items. Some families stayed in Kotzebue for extended periods, forming an expanding seasonal camp that over time evolved into a year-round village. It was during these exchanges along the coast that Iñupiaq communities first encountered active missionary efforts by members of the Friends Church. The Friends encouraged school attendance for all children and became instrumental in establishing a mission and school in Kotzebue by 1897—bringing additional incentives for families to relocate to Kotzebue and to dwell there year-round. The Iñupiaq settlements up the Kobuk began to change quickly as well—some becoming larger and more settled with the growth in fur trading and trapping for both Native and non-Native markets.

Trapping may have intensified in the basin for a period because of these changes. Elder Herbert Custer recalled that Iñupiaq trappers of the period were active across the Kobuk and routinely descended the river to Kotzebue for trade. By this period, introduced trade goods, tools, foods, and other items were becoming more widely available. As Custer recalled, the people of the Kobuk Basin traded their furs on the coast. They would "exchange them with seal oil and sell them for rope [of seal or bearded-seal skin] or ammunition, white [peoples'] food like flour and tobacco."[21] Access to these novel goods created new incentives for the trapping and hunting of furs regionwide. Outside trappers began entering the region around this period too—tentatively at first, but with growing frequency in the early decades of the 20th century.

Still, traditional practices thrived within the villages and across the region, and Iñupiaq communities adapted to the rising expansion of trade relationships across the territory. Trade in products from Kobuk Valley that had been used in intertribal trade for generations

expanded. Birch bark, gathered along the Kobuk, continued to be carried to distant village communities for trade: "Kobuk [people], they bring down birch [for] birch baskets. To make the baskets, berry baskets for picking berries."[22] Caribou and beaver hides were also popular trade items; these were sometimes carried between villages or to trade fairs involving Iñupiaq families from across the region.[23]

Elders also recall that social connections between villages continued to thrive and expand in many ways. For example, they note that the winter was a time for people from many of the Kobuk River villages to come together up and down the river, visiting family and friends and celebrating winter holidays: "a lot of people go [to get together] for Christmas. I mean [long ago, some] didn't know about Christmas, but get together. Invite people: this invitation is a Village-to-Village, and [they] sent a person to other Village[s] from their Village to get people. Lot[s] of people are invited; they start having Eskimo dance and play football having fun. They eat native food."[24] These gatherings were often described as fun times, when social bonds among all the villages along the river were forged and sustained. Big summertime gatherings also took place, bringing together people from many Iñupiaq communities; these gatherings involved seal-hunting on the coast or hunting for other game inland, trading, dancing, holding races, and taking part in many other activities. Broad social networks throughout the region were sustained through these seasonal gatherings—networks that extended even to villages of the North Slope and Siberia.[25]

Mining operations also had a profound effect on Kobuk Valley throughout this period. In the 1890s, much of Alaska experienced—directly or indirectly—the effects of the Klondike Gold Rush, which brought perhaps 100,000 prospectors into the state. Throughout the state, the spillover effects came in many forms, including the arrival of prospectors searching for rich gold deposits yet unknown and untapped by the larger horde. Prospectors arrived in Nome and, finding gold in 1898, incited the "Nome Gold Rush" – a surge of mining activity in northwestern Alaska that would last for over a decade. The Kobuk Basin was not immune from this intrusion. Prospectors almost immediately flooded into the Kobuk Basin beginning in the winter of 1898-99. These events instigated what has sometimes been called the "Kobuk Gold Rush": as many as 1,200 miners inundated the area looking for gold.

It was during these events that non-Native people first began routinely entering the Kobuk Valley and having direct influences on Native communities in the area. At first only a few arrived by boat; but that number soon grew. As Elder Inez Ayagiaq Black recalled, "The first white men came up the river by boat in 1898. The name of the boat when pronounced in the Iñupiaq language came out as 'Iknis Fua' (Agnes Four)." Herbert Custer, of Kobuk Village, recalled oral history of the ancestors' first encounters with non-Native people on an unidentified reach on the Kobuk, likely as part of these late 19th century events. As his elders explained, "The hunters in summer when they came down the river they were at the bend of the river; they see people have fire and they stop there. And those people look different: those were white men, when they first came. They [the white men] started feeding them with their food but they [were] scared of them and can't eat their food. But [they did like] their tobacco."[26]

Over the course of about a year, thirty-two prospecting camps spread out across the Kobuk River, including one camp forming across from a point called *Qayaana*, at the present site of Kiana. Elders are quick to note that Kiana had long been a home to Iñupiaq people, even long before the miners arrived. As Inez Ayagiaq Black explained,

> "Before Kiana was established there were Iñupiat living along the river and fishing and hunting all through the area. For their settlements people selected sites which

were ideal for fishing and hunting. Originally there were two families living over by the slough at a place called *Aksraksaġvik.* This was on the north side of the present village. There were other families at *Puivlich* (Kidways) and further upriver. You can still find the ruins of old places up that way."[27]

As other elders summarized, "At the time of the establishment of the community, there was a *Kuuvaŋmiut* (Iñupiat) settlement located at the confluence of the Squirrel and Kobuk rivers—referred to as the 'old village' today."[28]

A small number of non-Native men soon built cabins at this long-inhabited stretch of the river, prospecting for gold and eventually marrying into the Iñupiaq community. Again, quoting Inez Black, "After two or three years had gone by, some other white men came. It was around 1901 or 1902. When they came back, they settled where Kiana is now. There were only a few of them at that time. Some of the elders said that there were only three."[29] Inez also recalled, "When the white men settled here, they didn't build sod huts. They built log cabins in those days. I remember seeing some of those old log houses still standing, but they're gone now."[30]

This initial gold rush was brief and relatively unproductive. After little more than a year, most prospectors swiftly left for Nome or other gold fields or returned home to the contiguous United States.[31] Nonetheless, the short-lived gold rush ushered in an era of continued outside interest in the geologic wealth of the Kobuk Basin and active mining for gold and other minerals would continue to shape the community for decades to come. A few miners stayed, and others came in the wake of the initial rush to continue mining in the Kobuk River Basin. Placer gold discoveries continued to sustain interest, including a significant 1909 gold strike on Klery Creek, a tributary of the Squirrel River.[32]

The community expanded steadily with the resulting surge in mining through the first half of the 20th century, with stores, a jail, a saloon, and other new institutions serving an increasingly multiethnic community. These miners and mining communities left their mark on the wider Kobuk Basin landscape too; into recent times, elders can still sometimes recall the names of miners who left pits and other features on the landscape of the Kobuk River Basin.[33] Gold mining continued, with dredging operations persisting well into the 20th century, while the mining of other minerals – silver, zinc, lead, and others – gradually transformed the regional economy and provided periods of employment to Iñupiaq families. So too, mining of coal – especially for regional markets –remained an important part of the economy. The practice is memorialized in the placename "Coal Mine" along the bend of the Kobuk River near where the river exits the park, a place with numerous allotments and extensive subsistence hunting and fishing traditions. Certain Kiana residents trace their roots back to miners of these coal miners associated with these early operations. Households that once had coal miners living alongside subsistence harvesters were often the most economically stable in those days, with access to both subsistence foods and the benefits of the cash economy; as Larry Westlake, Sr., recalled of his youth, "mother. . . knew all the subsistence way of life. And those were the survival days. And my dad. . .he was a successful gold miner, you know. We never ran out of food during the winter."[34]

While elders suggest that villages may have been growing larger and more "settled" even before non-Native people began directly entering the Kobuk Valley, the disruption that occurred during this period was profound. The arrival of so many miners brought with it newly introduced diseases and created conditions of food scarcity. Influenza and other epidemic diseases arrived with the earliest wave of miners. In 1901, Walter C.

Mendenhall traveled through the area and found village settlements sparsely populated and "decreasing in numbers," with fewer residents along the river. This decline partially reflected the influx of miners, disruptions to subsistence practices, and the spread of introduced disease.[35]

Meanwhile, the effects of mining spread rapidly as miners explored the wider basin. Prospectors exploring upriver brought similar growth in communities like Shungnak, which became a boomtown in 1903; a Friends mission school was established there over the next two years. Kobuk village experienced the same surge of mining and settlement in 1905.[36] Caribou populations began to decline at the same historical moment, the herds having moved farther to the north. In time, caribou nearly disappeared from lower Kobuk, a fact that some elders speculate was linked to disturbances caused by mining and emergent mining communities. Hunger was said to be rampant. A 1905 account from a traveler journeying from Shungnak to Kiana found very few houses occupied along the way, with people subsisting on fish, hare, and ptarmigan rather than caribou.[37]

Some families moved to the mining settlement at Kiana, some to the coast at Kotzebue, while others moved to communities such as Noorvik, Selawik, Ambler, Kobuk, Shungnak, and more distant places still. Elders sometimes observed that this trend of relocating to consolidated villages is reflected in the name of Noorvik—from *Nuurvik*, "when you move."[38] And while causing the growth of villages outside the park, the relocation and consolidation of this period rapidly depopulated many places now located within the park. Even the substantial village of *Igliqtiqsiuġvigruaq*, Swift Water Place, appears to have been nearly abandoned by the very first years of the 1900s.[39] As Anderson and Lutz summarize, based on the oral traditions of many families across the region,

> "Whether because the residents were suffering from food shortage brought about by the decline in caribou or because of the attraction of the American-inspired trade venues at the coast, or the massive incursion of Euro-America prospectors and other fortune seekers, or of other causes, the last families to leave began to disperse to other parts of the Kobuk or to the Selawik River system."[40]

During these lean times, the Iñupiaq, formerly dispersed along the Kobuk River, consolidated in the five Kobuk region villages of today – Kiana, Noorvik, Ambler, Kobuk, and Shungnak – between 1907 and 1914. They were at once fleeing the resource scarcity of the hinterland, and drawn to the community life, schools, and economic possibilities of these towns during lean times. As Magdanz notes, the Iñupiaq families that converged at these villages describe immediately entering into a kind of hybrid economy, balancing very ancient and very new kinds of lifestyles: "virtually all Iñupiat continued their subsistence pursuits, but some also worked in the mines, sold food and building materials to the miners, or filed [mining] claims themselves."[41] Pay was often poor, but the hybrid economy allowed families to rapidly adapt, and to gain access to new tools, firearms and ammunition, and other goods that also helped to sustain and even accelerate the subsistence harvest.[42]

Kiana was home to many Iñupiaq families, both longtime residents and those who had relocated from other areas. It also became host to non-Native men who moved into the community for mining opportunities. Kiana was a community that came together quickly with Native and non-Native districts and gradually integrated over time. Many elders speak of this early period, when Kiana grew especially rapidly because of the influx of non-Native miners. For example, Pauline Harvey recalled,

> "I was born in 1907 and that was at Kobuk, way up Kobuk . . . while I was still a baby, a kid, my folks moved down to . . . Kiana because miners were coming in that time and people who wanted to work were gathering there, and my folks were one of the couples that moved down from up there. And ah, there was gold mining at Kiana. Lot of white people when I [was old enough to] start noticing. There was an old village; nobody's living in that old village now but what we used to call "town" where the miners lived is now a village . . . Kiana town. Everybody moved [over time from the old Native community to] that side because the old folks have all gone."[43]

She notes that because of their relocation from other parts of the Kobuk Basin to Kiana, many people from elsewhere shifted their hunting, fishing, and trapping territories to the Kiana area. Many began to hunt and fish with greater intensity than before in that part of their homeland that is today the western half of Kobuk Valley National Park. As Pauline recalled: "my folks, in the summertime, when my dad is not working, they go up to Salmon River for fishing and trapping when he's not working. It wasn't too many years that he worked in mines. Then he started on trapping then between Kiana and Salmon River [when] I started to grow up."[44] During this time, Kiana, and all five modern villages continued to grow much larger and more settled as miners moved into the area.

As village populations swelled and hunting opportunities continued to decline, the U.S. government established a reindeer herd in the area in 1907, in part, a response to the rapidly shifting and declining subsistence prospects as caribou departed, but also as part of a nationwide effort encouraging Native communities to adopt herding and agricultural practices—an effort described in greater depth elsewhere in this report.[45] In 1908, a depot was established at the mouth of Squirrel River to provide for the prospectors of the Klery Creek area, and in 1909, the settlement at Squirrel River was formally renamed Kiana.[46] The population concentrated at Kiana motivated the U.S. government to establish it as a city in 1915. A hub within Kiana was the trading post, where miners and locals could find products such as coffee, sugar, tools, and other "imported" goods. Initially, in these growing mining communities, where the Iñupiat and settlers lived together, not every child was required to attend school. This included those living in Kiana. According to Inez Ayagiaq Black, some segregation characterized early attendance. She reported:

> "When the white men who married local women had children and the children started growing up, the white men built a schoolhouse made of logs. Some elders say that when the school was first built, only the children of mixed blood attended. Later, the full-blood Eskimo children attended also. Back then everyone had just an Eskimo name. But when children started attending school, the teachers gave them English names too."[47]

Tommie Sheldon, Jr., also reported on this segregation, saying, "The Iñupiat were not permitted to live in the town or attend the school when it was first established in Kiana. Many of the Kiana children went to Noorvik to attend school. After a while though, everyone could attend the Kiana school."[48] When the school did open up to children of Kiana residents, use of the Iñupiaq language in school was discouraged. As Tommie recalled:

> "The teacher came in the fall and left on the supply boat each spring. I was asked if I knew any English when I first went to school in 1931. Like the other children, I spoke only Iñupiat. The school rule was to speak only English on the school grounds

and for every Iñupiat word we spoke, we would get one mark. If we got ten marks, we were not invited to the Friday night party. None of us wanted to miss the Friday night party; we were given one glass of juice and two cookies at the party. So that is how we learned to speak English."[49]

Throughout the 20th century, schools continued to bring Iñupiaq families to towns from far-reaching Kobuk Valley settlements; many families relocated to the communities of Kiana, Selawik, Noorvik, and other villages so that children were able to attend schools established by the Bureau of Indian Affairs.[50] The result of these transitions ultimately led to a significant shift in the locations of families, and in a shift of Iñupiaq children's education into increasingly regimented educational experiences shaped, in part, by non-Native agendas.[51]



View of Kiana in the mid-20th century. Courtesy of the Kiana Traditional Council. Green notation transcribed by Emily Creek (NPS) from Tribal Reviewer Christina Westlake's notes.

During that period, the Kobuk River Basin also began to see some of its earliest non-Native recreational use, due in part to the influence of the church and the early mission schools. Through these connections, non-Native fishermen and hunters increasingly accessed the basin. And, according to the reports of several elders, church groups began camping on the Kobuk River regularly in the middle decades of the 20th century. These groups were apparently an offshoot of the Friends mission, but at times were also described by elders as "Baptists" or simply as "the Bible School group."[52] Around this time, certain men in the community led occasional hunting and fishing trips for outsiders, presaging the later development of private chartered guides from the villages.

Land ownership patterns also interconnected with these changes in various ways. At Kiana, and wherever towns were established, new rules and regulations were introduced that did not coincide with the traditional practices of Iñupiaq communities. A significant example is landownership. The Western concept of individual landownership, and the enforcement of external regulations, often did not align with traditional Kobuk expectations—a phenomenon that became more noticeable to residents especially by the mid-20th century. Elders spoke of the shock and the novelty when they were told that land belonged to "someone else" – not only the small private lands within the villages, but also the larger landscape beyond where they had hunted, fished, traveled, and camped since the beginning of remembered time. Tommie Sheldon, Jr., for example, described the dissonance caused by the arrival of private landownership: how the introduction of the allotment system changed not only the concept of landownership, but also relationships between tribal members:

"Time changes. People moving out, move in and right—we [traditionally] don't buy lots, see. You have to buy a good lot in order to build your own home. Them [old] days was not like that. You can build a house over here and stay there for five years, and then if you decided to move, another family move in with that little house. It belonged to everybody . . . it's not what [you see] today. There is "no trespassing" signs. No [we never] lived just like that. We never see trespassing sign. Not too long ago, there was



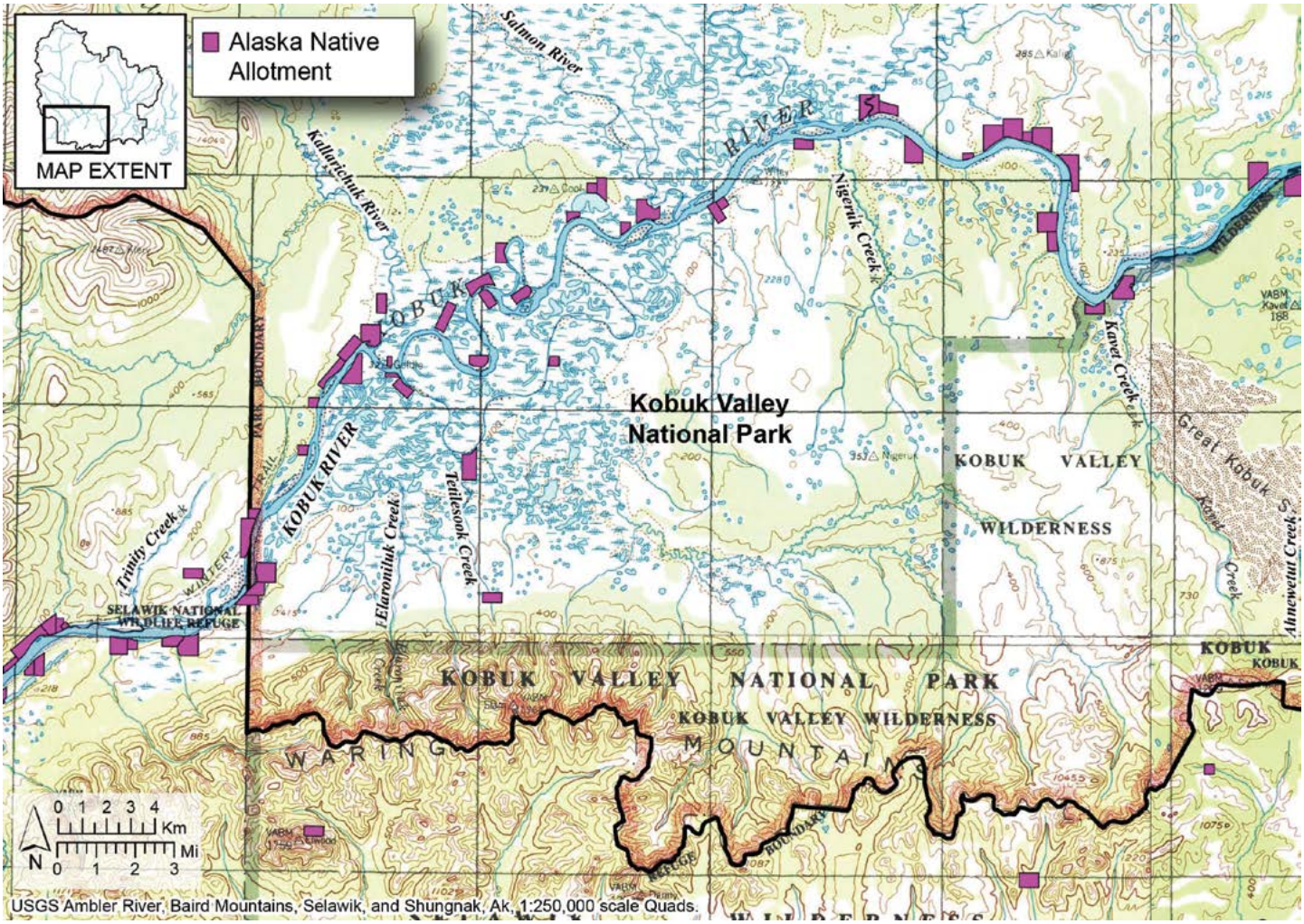
A family cabin on a Native Allotment, interior to the park on the banks of Kobuk River. Douglas Deur photo

one down here …. Ruth was the one that put it in. And after that it was gone again. No—nobody like it. Because we were trained … village belong to everybody."[53]

The gradual emergence of Native allotments in the Kobuk Basin both complicated and helped offset some negative effects of these riveting changes. Beginning with the Alaska Native Allotment Act (34 Stat. 197) of 1906, Alaska Native individuals could obtain up to 160 acres of land – a practice that continued under various amended or expanded legal authorities in the years that followed. This "locked in" the patterns of legal landownership that undermined Native control of their homelands, giving them discrete parcels where they once had unfettered rights of use and movement across the entire landscape. With this shift came the threat of losing one's allotment for various reasons—if they experienced a period of financial hardship, for example, or did not use and occupy the allotments to the Bureau of Indian Affairs' satisfaction. This contributed to a period of cabin building in the mid-20th century; as Lorey Schuerch noted, "the BIA required that people used and occupied their allotments … so then people built there."[54]

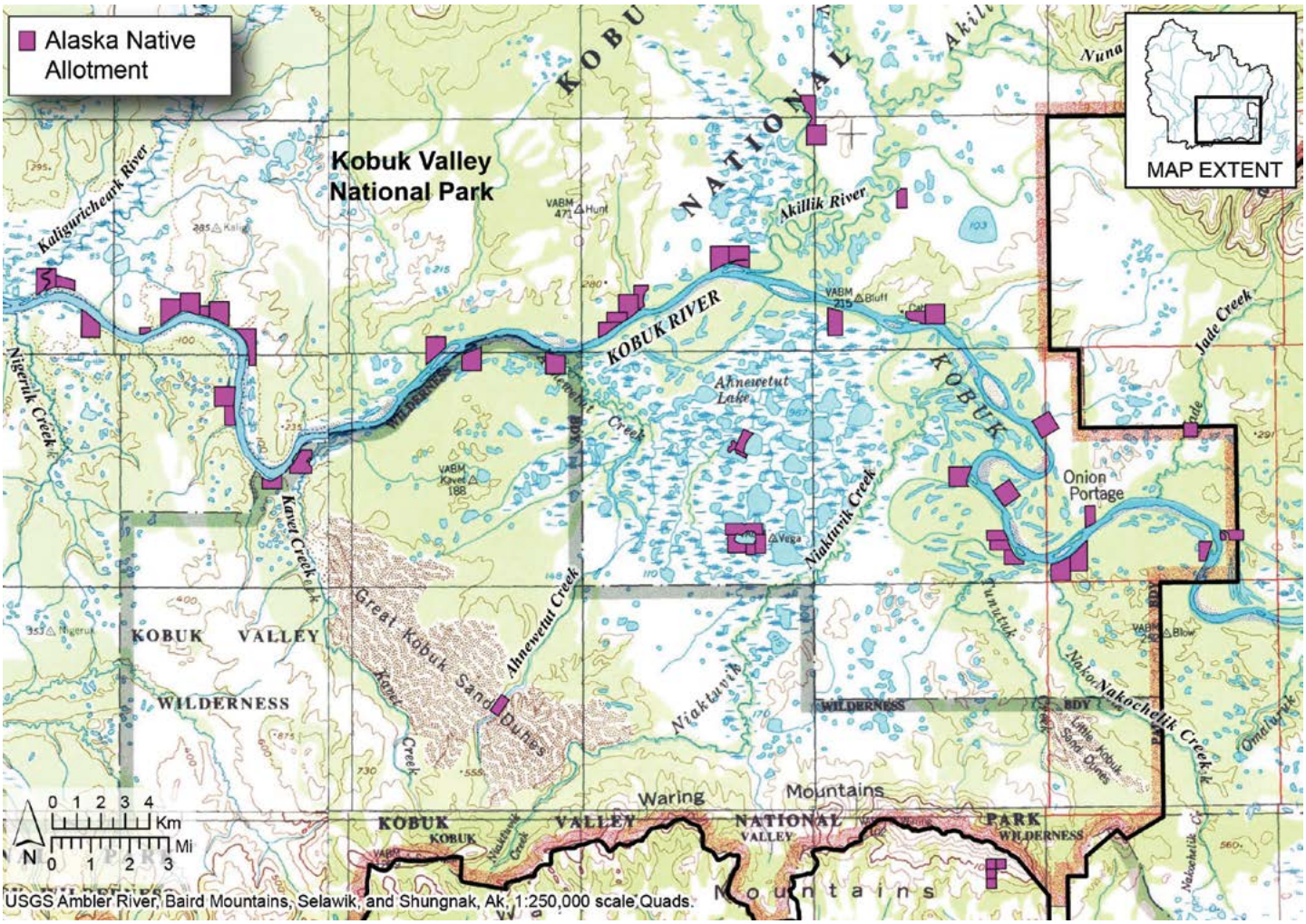
Allotments also became important in resisting the adverse effects of displacement. Families quickly realized that they could make allotment claims on their traditional camps, on the former village sites, and on prime hunting and fishing places. They did so, despite their relocation to Kiana or other modern villages, sustaining their connections with these

culturally important places. Not only could they continue to travel up the Kobuk and across the surrounding landscape for subsistence purposes and other reasons, but they could retain a foothold in an otherwise depopulated portion of the Kobuk River Basin. In places that would soon become part of the park, families claimed allotments in remarkable densities, almost all lining the Kobuk River – each in a place that was of unique importance to a particular family, and of enduring importance to communities. Cabins and camps, still maintained in these locations, have allowed families to maintain their connections to lands now within the park despite generations of displacement. Furthermore, several families maintain longstanding family camps and allotments just outside of the park boundaries that serve as a base of operations for resource harvests and many other activities occurring within the park as well. By the time the park was established in 1980, as part of the Alaska National Interest Conservation Act (ANILCA), these patterns were all well-established, ensuring the endurance of Native presence and use in the park – despite all the changes and displacement that had come before.



Map 2.1 Native Allotments in the western half of Kobuk Valley National Park. Each represents a place of longstanding use by the Iñupiat and occupation over a century ago, and each persists as a foothold for Native families traveling, harvesting subsistence resources, and other activities today. Map by Johonna Shea.

By 1964, Kiana was incorporated as an Alaska municipality, and by 1971 U.S. Congress passed the Alaska Native Claims Settlement Act (ANCSA), settling remaining land claims across the state while also contributing to the creation of NANA Regional Corporation and, in time, the Kiana Traditional Council. The village continued to consolidate and grow, as its administrative functions and the regional economy grew; the village's school district contributed to these changes as well, fostering increased settlement in the village as school attendance became compulsory under BIA oversight in the middle 20th century. Meanwhile, a sort of Kobuk Valley "diaspora" continued, as the result of the trends we describe here. A review of genealogical information makes it clear that descendants of Kobuk Valley villages like *Igliqtiqsiuġvigruaq*, Swift Water Place, "still live up and down the Kobuk River, in Shungnak, Kobuk, Ambler, Noorvik, Kiana, and all the way up the coast in Kotzebue."[55] Some of these descendants have taken on leadership roles in their communities—in tribal councils, and for NANA. Many have allotments, or have access to family allotments, within the park today. And they are well represented among the interviewees for the present report.



Map 2.2 NATIVE Allotments in the eastern half of Kobuk Valley National Park. As with the other allotments in the western part of the park, each is a place of enduring significance to Iñupiaq families, continuing to serve as a foothold in the park into the present day. Map by Johonna Shea.

Throughout modern *Kuuvaŋmiut* communities, traditional subsistence lifeways persist and remain robust despite many changes. How resources are hunted or gathered, what transportation methods are used, what tools or appliances are used in preparing traditional foods, how one dresses oneself for being out in the elements, and other practices may have changed with the introduction of modern technologies and products. But importantly, resources continue to be gathered and used from the land. *How* they are harvested is less important.[56] Most elders agree it would be unreasonable for a person not to use new and effective technologies for surviving off the land, like snowmachines and ATVs, chainsaws, and firearms. It is the culture, the living practice of subsistence, the land and river, and all the living beings of land that matter, and endure. The practices have meaning, and so do the foods: as some elders say, they do not feel they have eaten until they have eaten traditional "Eskimo foods." So too, there are the values that keep people safe, alive, and working together successfully in this place— the traditions of respect for elders, of sharing the harvest. Living off the land offers not only food, but emotional, physical, and spiritual sustenance.[57] It is hard to overstate the resourcefulness and perseverance required to make a home in the Kobuk River valley—a reality referenced repeatedly in this report. The skills, creativity, and cooperation required for survival for the people of Kobuk, translate into a self-understanding and way of life tied to the land – today, as in the past.[58] Observing change, families and communities adapt, allowing them to survive hardships of many kinds, some quite ancient, others quite new.

Throughout 125 years of disruption, people of the Kobuk region retain a strong sense of attachment to the Kobuk Valley region as a place of shared origin and enduring attachment. Many have continued to view subsistence practices, travel, and other cultural activities in the Kobuk Basin as an important part of their shared identity—even as life changed with the arrival of outsiders. The landscape, shaped by glaciers and water, and by the travels of *Qayaqtagugnik*, endures – as do the people who have understood how to travel, hunt, fish, and survive in this place.

Endnotes

[1] Gray 1987:7.

[2] Gray 1987:8.

[3] Gray 1987:10.

[4] Gray 1987, Tape 2:1.

[5] Gray 1997:10.

[6] Certain caves had special significance, for example, as places of refuge, storage, and of spiritual significance. Elders have noted caves in the region where no one entered without an offering, due to their elevated importance: in these places, one "should take along small piece of something—wolverine, wolf or anything valuable" to leave as an offering (Sheldon and Sheldon 1987, Tape 2:9).

[7] TJ, 2023

[8] Anderson et al. 1998:22.

[9] Anderson and Anderson 2019.

[10] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.; R. Nelson and N. Sheldon Towarak 1975 12:248

[11] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[12] Gray 1987, Tape 2:4.

[13] Burch, 2006.

[14] Gray 1987, Tape 2:6-8

[15] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[16] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[17] Cleveland, Gray and Lee 1987:15.

[18] E.g., Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np. So too, when choosing places to keep their sled dogs for extended periods, people often choose places with predictably persistent wind, where there will be fewer mosquitoes too (Field and Field 1987:11).

[19] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[20] E.g., Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[21] In Custer and Gray 1987:2.

[22] Sheldon and Sheldon 1987:9.

[23] Ibid.

[24] Herbert Custer in Custer and Gray 1987:4.

[25] Sheldon and Sheldon 1987:9.

[26] In Custer and Gray 1987: 5.

[27] IAB 2002.

[28] NAES 1991a:1.

[29] IAB 2001.

[30] IAB 1992.

[31] Anderson et al. 1998:16. The outsider activity along the Kobuk River in 1898 may have inspired a census count by the U.S. government, which hired Friends teachers and missionaries, Carrie and Robert Samms, to make a count of residents up the river. The Samms encountered several settlements, but two of significant size: one on the Hunts River and one at the mouth of the Pah River. The latter

settlement, *Paa* village with 280 people, must have been the largest settlement in interior Alaska at the time, even larger than Kotzebue. The Samms petitioned permission for Friends to found a school and mission for the many upriver residents, which Friends eventually did in 1907-1908.

[32] As Magdanz et al. (2011:50-51) summarize, "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 *Akunigmiut* 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. . .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."

[33] Custer, Wood, and Gray 1987.

[34] LWS.

[35] Mendenhall (1902: 52-56) reported on accounts of local missionaries of the period: "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."

[36] When a Friends school and mission were established near the Shungnak Post Office in 1905—led by teacher-missionary James V. Geary, a settlement of about 150 people sprang up almost overnight. This school lasted only a year before Geary was called away; but because a town had been established, the U.S. government reopened the school in 1907. Its attendance matched that of the school in Kotzebue. See Anderson et al. 1998:18.

[37] Anderson et al. 1998:18.

[38] Field 1987:2.

[39] "Although we cannot say when the site was founded, the dates from our archeological excavations confirm that it was occupied when Europeans first sailed into nearby Kotzebue Sound in 1816 (Kotzebue 1821). Swift Water Place is still part of the living tradition of the region, for here reportedly was the home of one of the region's most important shamans and other political leaders whose influence was felt along the entire course of the river" (Anderson and Lutz 2019:1).

[40] Anderson and Anderson 2019:291. "Swift Water Place is now overgrown with numerous poplar trees (*Populus balsamifera*) and, along its innermost edge away from the river, some black spruce (*Picea mariana*). The understory is largely parklike, dominated by grassy vegetation interspersed with an occasional alder (*Alnus* spp.) or willow (*Salix* spp.) thicket" (Anderson and Lutz 2019:1-2).

[41] Magdanz et al. 2011:50-51.

[42] Native people were paid $2.50 for a ten-hour day of work (Anderson et al. 1998:20).

[43] Harvey 1987:10.

[44] Harvey 1987:10.

[45] Anderson et al. 1998:18.

[46] Anderson et al. 1998:19.

[47] IAB 1992.

[48] TSJ 2001. Walter Cook, Sr., reported the same: "And he [Tommie Sheldon] was saying the village people, the Natives, were not allowed to go to the white people's town over here when the—the first white people first come around. And then he was saying the natives were not even allowed to go to school. And so that must have been about 18—maybe late 1800s or so. Maybe even the early 1900s" (WCS 2002).

[49] TSJ 2001.

[50] Sheldon and Sheldon 1987:4.

[51] Anderson et al. 1998:14-15.

[52] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[53] TSJ 2002.

[54] LS.

[55] Anderson and Anderson 2019:274.

[56] Anderson et al. 1998:274.

[57] Anderson et al. 1998:273. A *Kuuvaŋmiut* man achieves status by being a good hunter, trapper, traveler, and boatsman; and a *Kuuvaŋmiut* woman achieves status by being a good fisher, sewer, and preparer of traditional foods.

[58] Anderson et al. 1998:272. The Kobuk people's personality and view of themselves in relation to the world have emerged as an element of the hunting-gathering life in a difficult environment. They place great emphasis on knowing the land in detail and learning the methods of harvesting its resources. As a result, adults and elders are acutely knowledgeable about the intricacies of their environment, and they are highly skilled in the methods of living from this land. They describe the land in a complex, specialized vocabulary; they perceive its subtleties with a trained and masterful eye; and they relate to it in a familiar and personal way that stems from knowing each place as unique unto itself.

[59] Anderson et al. 1998:22.

[60] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[61] TSJ 2001.



The Kobuk River Twists And Turns At Onion Portage Making Dynamic Changes To The Landscape Each Year. Emily Mesner Photo, Courtesy Of The National Park Service.

CHAPTER 3

Earth, Stone, and River Iñupiaq Geological Knowledge of Kobuk Valley

'Formation of a River': Kobuk River Processes and Landforms in Iñupiaq Language and Oral Tradition

Living along the Kobuk River for countless generations, *Kuuvaŋmiut* communities have been affected by the movements and natural cycles of this waterway in almost every aspect of their daily lives—subsistence fishing, traveling by water, and locating or relocating settlements along the river's dynamic banks. This resulted in a nuanced body of traditional knowledge regarding river systems generally, the behavior of each *kuuġuqpak* (literally "big river").[1]

The Upper Kobuk dialects of the Iñupiaq language contain a rich lexicon of terms for riverine environments and landforms, reflecting generations living in and around a highly dynamic river and complex fluvial landforms. Every little feature of the river was said to have its own Iñupiaq placename in past times, and many of these Iñupiaq names are still recalled by Kiana elders today. The range of concepts noted by past generations of Kobuk Basin elders for Kobuk River's signature includes landforms and landform-making processes—what might be summarized as the fluvial geomorphology. Through an interplay of word roots and suffixes, different terms imply, for example, a "well-established gravel bar island in the river" versus a "gravel bar island that has formed due to recent events," or perhaps even "a former island that has now become attached to the shore by sedimentation to form a peninsula." Some terms distinguish an "old and established bend in the river" versus a "relatively new bend in the river," and might also call out such details as whether that new bend is causing active riverbank erosion on its outer curve. There are terms for *kurri*— "the formation of a river" —the process of forming new channels, and the river taking a new shape.[2] While people worldwide may be familiar with clichés about the number of "Inuit words for snow," the Iñupiaq words for rivers are what truly stand apart along the Kobuk.

Within the deep cultural context of traditional river use and navigation, the origins and implications of each term would have been clear to Iñupiaq speakers traditionally, so that listeners might appreciate the deeper layers of meaning that each term implies. Thus, to Iñupiaq listeners, certain placenames might imply, for example, a "new navigational hazard for people traveling in skin boats, created by a place with very shallow and swift water that was not there until recently," or a "*new small island that has recently emerged from sand or*

Selected Kobuk Valley Iñupiaq Terms for River Landforms

Amitchuq	- very long, thin islands or sloughs (metaphorical; lit. "a slender twig")
Igliqtiqsiuġvigruaq	- longstanding place with swift water
iḷutmun	-inward; side channel temporarily flowing backward from the main current
iḷḷuvilik	- bar or island with much gravel (lit. "place with gravel")
itimniq	- riffle currents, running quickly over rocky shallows
katyaak	- lit. "river fork" - also the name of a specific village at a fork
kumiñiq	- bank erosion due to migration of river channel
Kurri—	- lit. "formation of a river; as dripping water makes a little stream"
kuugauraġraitchiaq	- lit. "a big slough [formed relatively recently]"
kuuġuqpak	- lit. a "big river"
paalitqiun	- a river channel that has recently formed (lit. "new river channel")
putu	- lit. "river channel"
poġaq	- suffix, denoting big river bend
qala	- two rivers turbulent and "boiling" at their confluence
gasunigruaq	- large eddy that has been in its current position for a long time
qikiataġruk	- peninsula that was formerly an island (likely generic term)
Qitiqłiuraq	- longstanding small island
Qikiqtatchiaq	- relatively new small island
qikiqtaq	- river island; general term for sand, cobble, or gravel bar island
quagruk	- ridges, esp. those formed by past river erosion of a bluff or high point
tapqaġnaq	- sand bar

rock deposits and stabilized, possibly offering a new opportunity for salmon seine fishing, game processing away from shoreline brown bears, and a range of other uses"—all in one concise term. Here, we offer a few examples of this rich terminology and briefly discuss what these Iñupiaq terms might still teach about life on this highly dynamic river.

Elders have commented on how the river was constantly changing, and that each Iñupiaq term for river features embodies an understanding of this change—in generic terms for riverine landforms and processes, but also in the application of proper placenames that often incorporated these generic terms.[3] They note that as the peak high water, receded each year, the river channel was often transformed by shifting currents, bank erosion, and moving sediment. On the Kobuk, river islands commonly form, persist for a time, and many eventually erode away—sometimes within the memory of individuals, or within the shared memory of families and communities. To illustrate this point, elders explain that people sometimes refer generally to *qikiqtaq*—a general term for a river island or mid-river gravel or sand bar. This term forms the root of certain proper placenames, such as *Alalauram Qikiqtaŋa*, an island with gravel bar, traditionally used as a fish seining place in the fall.[4] Elders further note that Iñupiaq speakers have applied qualifying suffixes to clarify whether this was a longstanding river island, or a river island that had formed in recent memory; *Qikiqtatchiaq* being the term for a small island that had formed recently is sometimes used as a proper placename, while *Qitiqłiuraq* denotes small islands that have been well established over generations.[5] Beyond this, elders noted that islands sometimes have gendered terms, denoting some aspect of the island—the term *qikitaq* being applied to

a nominally "male" island, *qikitat* to a female island—though it is unclear what attributes of these islands might prompt these distinctions.[6]

The Iñupiaq terminology for landforms and specific places sometimes employs metaphorical constructions to convey these geomorphological truths. Shaped by fast currents, for example, especially long and thin islands of sand, cobble, or gravel sometimes form in the river, in alignment with the dominant current of a river reach. These landforms were sometimes called by the metaphorical term, *amitchuq,* a term widely used for a number of long, thin landscape features such as long thin islands or long thin sloughs along the Kobuk.[7]

Placenames or words describing landforms track change to the river over time, with suffix modifiers, differentiating "old" from "new" features within dynamic river environments, are applied to other landforms as well. For example, "—tchiaq" refers to "new." An example of a slough that has formed recently would be the placename *Kuugaurağraitchiaq*[8]. This is reflected in placenames such as *Qasruniġruaq,* meaning a "big old eddy" in the river[9]. One place by the former name in the river was said to be a "major gill net area" for people historically, well established geologically, and well-known among Kobuk River communities as a place where fish are predictably found.[10]

In fact, elders of the past explained these distinctions in reference to the well-known placename *Igliqtiqsiuġvigruaq* "Swift Water Place."[11] As they confirmed, the suffix in this placename makes it clear that this village sat beside a bend of the river that was not just a "swift water place [with] many riffle currents." Instead, the structure of this placename conveyed to Iñupiaq speakers that this was a place characterized by these river conditions across generations, as an "old and longstanding place with swift water"—some offering an informal translation for this placename as "old Swift Water" on the Kobuk.[12] By their explanation, a newer "swift water place," a place where that swift current had developed in recent memory, would have a different ending to differentiate. Places with swift water were of special interest and concern for Iñupiaq river users and codified in placename usage for a number of obvious reasons relating to traditional navigation, fishing, and a range of other activities fronting the river. In these places, people traveling the river must navigate *itimniq*, for example—a more specific term, implying fast moving "riffle currents" running over rocky shallows, largely outside of the main channel, which pose significant challenges to boating and fishing alike.[13] Some places along the river Iñupiaq elders described as simply "too swift for any use." They describe former camps at such places, or see archeological evidence of past settlement—which, they suggest, is an indication of changes in river morphology and current over time.[14]

The many gravel, cobble, and sand bar islands, exposed as the water drops, traditionally serve as a venue for fishing, especially for seining salmon.[15] Changes in water levels are said to significantly affect fish-netting locations as people seined from these islands through the season. For example, at the small river island called by the placename *Qikiqtatchiaq*, (literally "new little island") people set their nets from the side of the island but "when water is high set on [the] lower end."[16] The force of the river current and higher water levels during peak river flow seem to make netting more difficult in the channels along the side of the island—making the slower water on the lee side of the island more productive and less likely to result in tangling or damage to nets.

As relatively open and protected areas that are often largely unvegetated and separated from the shoreline by flowing water, these river islands are traditionally used for fish and meat processing through the warm months. Fish can be processed and dried in the open spaces on temporary racks, with ample sunlight and wind. Exposed gravel bar islands are



The Kobuk River twists and turns at Onion Portage making dynamic changes to the landscape each year.
Emily Mesner photo, courtesy of the National Park Service

also said to be relatively safe from bears traveling along the riparian corridor, and are often visited for field processing of game—a practice recalled in detail by Larry Westlake, Sr., who described field dressing brown bears hunted on Kobuk River tributaries during his youth.[17]

Many other kinds of specialized resource harvesting and processing also take place on the exposed sand, cobble, or gravel bar islands. Rocks from cobble or gravel bars are traditionally gathered for many purposes—to be used as cooking stones, as pounding tools for softening and working hides, and for many other applications. Elders also mention that these islands were excellent places to gather driftwood for use in fires and other purposes—especially at the downstream ends of these islands, where slack water sometimes allowed wood to accumulate in larger quantities. People sometimes went to river islands, especially the younger river islands, to gather willow and other plant materials that were seasonally submerged under water and ice. In these places, for example, people sought out willows that grow in small clusters, harvesting and using them for many utilitarian purposes. Small islands were known to be good places to gather, perhaps due to the abundance of young, relatively straight shoots in these hydrologically and geomorphologically active sites, swept over by river water and ice most years.[18] Birds sometimes nest on these relatively unvegetated but protected islands seasonally as well, making certain islands traditional venues for specialized egg harvests.[19] When made of sand or other soft sediment, these bars are places where people can install fish traps directly into the submerged sandy substrate, such as the whitefish traps that were sometimes built on the submerged margins of sand islands.[20]

As water levels drop during the warm season, certain gravel bar islands sometimes become partially or fully connected to the shoreline; the intervening shallows are said to be specialized hunting and fishing places as well. Moose, for example, are said to be drawn to these shallows to forage. As moose are found in these places under just the right water conditions, hunters are said to time their visits to these places to hunt.[21] Some islands, elders note, sometimes connect to land as the water drops seasonally—or reconnect permanently over the years, as the side channels separating them from land dry out and silt up over the years. Yet, due to the persistence of memory, certain places that no longer appear as islands today might still be called islands on old maps.[22]

The sand, gravel, and cobble bars that form along the shoreline are traditionally used for many of these same purposes. Along the banks of the river, people sometimes sought out gravel or sand bars that were called *tapqaġnaq*—these places provide wood for fuel and space for adjacent campsites to temporarily house families fishing or carrying out other tasks at these places. Gravel and sand bars were therefore desirable places and very often were occupied by seasonal fish racks, if they fronted even passable waters for fishing.[23] Such places were, and still are, likely to have had a fishing camp nearby, even if it was not a major fish camp, since these were so popular and convenient as fishing venues.[24]

Particular places along the banks of the Kobuk River with especially fine and extensive gravel deposits are identifiable by their parts of placename *iḷḷuvilik*—meaning "place with gravel."[25] Elders also mentioned proper names for specific gravel beaches, such as *Tuttullugvik* on the north shore of the Kobuk. Translated by elders as "first caribou kill," and said to be "lucky for killing a caribou," the name relates to enduring traditions of caribou or caribou hunting on river beaches, such as those found at caribou crossing sites along the river.[26] The sand, gravel, and cobble bars along the margins of the Kobuk River have also been mentioned as the venue of battles, such as in Iñupiaq oral histories regarding battles with "Indians" during incursions of the contact period.[27]

Changes in the river channel other than the emergence and disappearance of islands and sand bars also figure prominently in the language and oral tradition of Iñupiaq communities. The river channel is constantly in motion, its sinuosity and channel structure changing a little each year. The major bends of the river often grow quite large over time, and many are named; the suffix "-*poġaq,*" shortened to "ġaq," or sometimes variations on -*laq* is used to denote certain big bends in the river.[28] These bends all had names traditionally, such as *Iḷiliaq,* the name applied to the river bend and sand bars at Rhoda Atoruk's former allotment.[29]

Elders note that the river has migrated constantly over the span of human history, but these rates may also vary over time—causing many kinds of riverbank erosion areas and associated landmarks. When the channel migrates to the extent that it is causing bank erosion, this is traditionally called *tilañiq* (lit. "current cutting a bank")—a useful term in Iñupiaq, as it is such a common feature along the Kobuk and must be factored into navigation and a range of other activities along its banks. In these places, where there is active erosion of the shoreline, one may see *sisuġoġaq*—"mud that slides." There are places with the prefix *qiku-* (lit. "clay"), applied to certain places that contain clay too, such as recently eroded banks and bluffs. Other places, with rocky bedrock that resists erosion, sometimes form points that jut into the river channel; one such place along the river is called *Kitlit*, meaning a 'series of bluffs.' This is a general term for such a landmark. Back from the active floodplain in certain places are *quagruk*, "ridges," sometimes formed by the erosion of bluffs and other high places along the riparian corridor, followed by a shift of the river away from the bluff over time and sedimentation of the intervening plain. A hill of mud or sand, often created by riverine processes, can also be called a *sisurortaq*—a general term meaning a "muddy [or] sandy hill."[30]

Other landforms are shaped by the movement of the main river channels as well. For example, there are names given to point bars that form on the slower-flowing interior side of expanding river bends, such as the place called *Uqtutaiḷaq*. If the river bend continues to gain sinuosity, sometimes a meander cutoff will form, creating a new direct channel that bypasses a former bend or oxbow. Elders of the past identified river cutoffs, where the river has cut straight where it used to meander, as *putuuraq* —apparently "river cut off."[31] Elders of the past have noted that willow sometimes grows densely in the outside of these meander bends too, often on eroding banks fronting water with a swift current. And they offered the term *ikpik* to describe a bluff.

Over time, the migration of Kobuk River often forms oxbows and—if these become separated from the flow of the river—they become oxbow lakes. When an oxbow lake is formed by a cutoff channel, or the river migrates in some other way, former river channels are cut off or run dry. Iñupiaq words denote these old channels, which have silted up and no longer regularly contain water, such as *tunutaq*.[32] The placename *Tunutaq,* located in the park, denotes both the old river channel as well as an old village sitting adjacent.[33] The many small lakes and ponds along the riparian corridor have special cultural functions, including the many oxbow lakes formed by the long-term movement of the river channel. These places are hunted and trapped for muskrat or beaver and visited for duck hunting in the fall.[34] As silt gradually filled these areas, they often became shallower, forming wetlands that become especially rich environments for specialized resource harvests – places often containing muskrats, beaver, ducks, caribou, moose, berries, and other resources all together in one place.[35]

Elders observe that some oxbows become unusually muddy or turbid for various reasons. Terms for different states of turbidity and "muddiness," *magatlaq* and *isuaġayak* ("isuq"--) are

applied to certain muddy sloughs, ponds, and other waterways of this kind along the river corridor, and *Maġġaqłak* is a specific placename for a consistently "muddy place."[36]

Despite their cloudy water, these slow-moving sloughs were places of special importance. They have been major centers of hunting, trapping, and fishing. In the springtime, elders recall that their families maintained camps near sloughs, oxbow lakes and other slow waters that served as a base of operations for muskrat hunting and trapping, as well as hunting of moose, caribou, and other species.[37] There were specialized mudshark (burbot) fisheries in these slow-moving channels, and special techniques for netting fish in sloughs, different from the techniques used for seining in open river water. Certain sloughs also were said to be very good for hooking fish through the ice – having slower water, these places not only have certain fish not available in the main channel, but are often safer, with thicker and more stable ice even when river ice is thin.[38] Sloughs along the river very often had their own proper names, such as *Titaaliqsuuq*, the slough known for having burbot fronting the Roger Atoruk allotment. Some sloughs are informally known, in English, by the name of the person whose camp or cabin fronted the slough.

The river margins are lined with *tunutauraq*—a general term for a small side channel off the main river course. In most cases, these flow in the same direction as the main river channel. The term is also applied to a proper placename for a channel on the south bank of the Kobuk, *Tunutauraq*, which elders explained literally means "little one comes back around."[39] There are other variations on this concept of channels, with the current running the opposite of the Kobuk River flow. Under certain conditions, such as during strong west winds or freeze-up, the current sometimes flows backwards, a condition described by the term *iḷutmuq*— "a current goes upstream"—or more precisely by the term, *illulmukmaans*, meaning "water raised current backward," which is applied to certain places along the Kobuk River corridor. These terms and concepts are reflected in placenames in old meander scar oxbows and other riverine landforms where this phenomenon is sometimes observed, such as the slough along the Kobuk named for this phenomenon, *Ilaġuŋaluk*— "current goes upstream with wind [place]."[40]

The confluences and tributaries of the Kobuk all have their own names, as do the landforms associated with these features. There are the places called *katyaak* (lit. "river fork"), and this name was also applied to a particular village at one such fork: *Katyaak*.[41] There are also numerous creeks draining into the river, some with names that contain the root *kuuk*—a general term for creek.[42] A special, metaphorical term is also used for the turbulent waters where tributary rivers and streams empty into the Kobuk: "*Qala* meaning the two rivers stirring or boiling where [they] join."[43] The term was applied to a village by that name, at a river confluence with the Kobuk a short distance upstream from the park; accordingly, the residents of that community were called *Qalamiut*—indicating the "people of *Qala*."[44]

All of the changes in the river morphology over time have had tremendous effects on the lives of people living on the banks of the Kobuk. Elders' comments make it clear that a place that might have been ideal for a camp or settlement in one era—with ample fresh water and good river access for fishing and travel—can sometimes be left landlocked or be undermined by erosion. This can occur over generations, but sometimes, during extreme moments, occurs with disruptive speed. Good fishing places can appear gradually or spontaneously over time. So too, prime fishing places can gradually or spontaneously disappear. Past elders have noted that certain places near Coal Mine that were once heavily fished were later largely abandoned for this use, being "too shallow for seining now," for example, and oral tradition hints at many

other changes of this type.[45] In other places, elders observe that former fish processing sites spontaneously appear from eroding banks, or even from under layers of shifting dune sand, in places where fishing stations would no longer be viable.[46] Elders' share how the geography of fishing sites was adaptable, with camps moving as necessary to accommodate changes in river morphology and fish availability over time. The dynamism of the Kobuk rearranged both the opportunities and challenges of Iñupiaq life along this river. Similarly, in so many ways, generations of Iñupiat responded to these changes with diverse strategies, learned and shared across generations, allowing them to live abundantly and enduringly along the shorelines of this ever-changing river.

Culturally Significant Stone and Minerals of Kobuk Valley

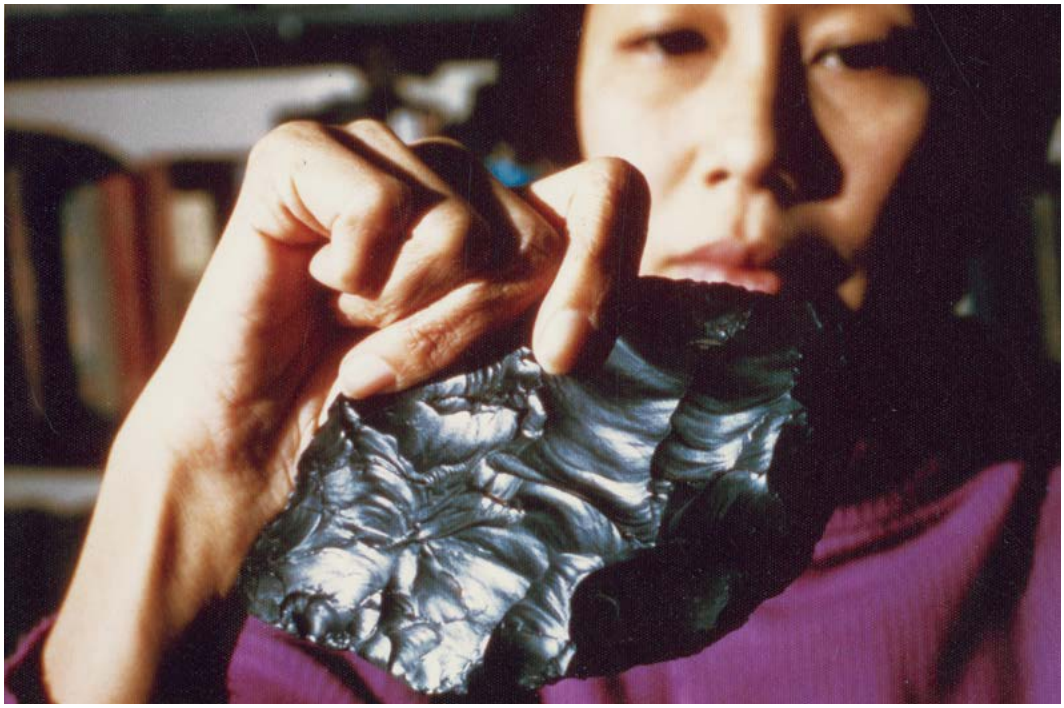
The gathering, use, and transportation of stone were also important aspects of Kobuk Valley Iñupiaq life prior to the introduction of metal in the 1800s. There were clays and pigments gathered in the valley for cultural uses, and there were also certain unique types of stone that had elevated cultural value. Certain mountains in the Kobuk River Basin were widely known as excellent sources of stone for ulus. These places, and others in the region, were often visited by people to obtain the stone used in wedges, scrapers, and other stone tools. Siltstone and other materials were obtained for use as the base of oil lamps. Copper is found in the wider region and was sometimes gathered where it was exposed and accessible along escarpments. Cobble beaches and islands had cobbles that served as excellent cooking stones, or as hammerstones used for many purposes including the working of hides. There are places in the park named for the gathering of material for labrets— *Tuutaksraq* (Tutuksuk River), which is named for stone. As Joe Sun recalled, "This place is named after a place where Iñupiat searched for rocks for their labret farther up river"; this was "a white rock," probably limestone of some other similarly soft stone that could be readily worked for this purpose.[47] Elders recall that they occasionally encounter places in the river corridors where they can see exposed lenses of coal along the river and streambanks, as well as clay and fossils of plants – seldom gathered, but a welcome novelty all the same.[48] Certain places had rocks and soil containing iron oxide and other reddish compounds; travelers sometimes visited these places to harvest the pigment, which is traditionally heated and turned to dyes and paints for use in traditional crafts, as well as ceremonial purposes and other applications.[49] In Iñupiaq oral tradition, many of these unique mineral gathering sites were the work of the transformer, *Qayaqtagugnik*, who placed this mineral wealth across the land so that they were available for use by the Iñupiaq people yet to come.[50]

Yet, the minerals most mentioned by today's elders are the jade and obsidian that were widely transported and used throughout the Kobuk River Basin. Sitting along the eastern edge of the park, the Jade Mountains, *Iñġisgruich*, were an important source of jade to the people of the Kobuk. (The areas beyond the Jade Mountains were sometimes visited during treks to harvest stone and were called *Iñġich Tunuat*— also named with reference to jade.) Jade from these mountains is exceptionally strong, and was widely used in the production of knives, tools, beads, and other items. Kiana elders such as Thomas Jackson note that their ancestors also used this jade to make axe blades and sharp mauls, used for utilitarian purposes and also as a specialized weapon used in self-defense against bears and other threats. As Thomas recalls, people made

> "Axe handles out of jade. . . . The people like it because it was really a hard material. And a man would [conceal himself above a bear den] and when the bear put its head

out, they would hit it with the axe. My father found one of those . . .it looks like a maul handle, but it's very sharp tip. . . It's green. Around here, it's green."[51]

The Kobuk River served as a route for transporting jade from these mountains to local villages, as well as to the coast, where it was shared and traded by *Kuuvaŋmiut* travelers.[52] The river corridor also served as a route in the obsidian trade from rich sources in the region such as the Koyukuk River, which brought obsidian from these distant places to Kobuk Valley communities, and to communities living upstream and downstream from the modern park. Kiana residents observe that jade and obsidian were therefore abundant in the Kobuk Valley—being traded, transported, worked, and used in myriad ways in the daily lives of river residents.[53]



Traditionally, jade and obsidian are important materials used to make knives and tools. These materials are found, manufactured, used, and traded along the Kobuk River corridor. This large ulu dates from approximately 10,000 years ago and was recovered at Onion Portage. Robert Belous photo, courtesy of the National Park Service

In Kobuk Valley, you can find materials such as chert and jade for shaping tools. Obsidian was also traded throughout northern Alaska. Recovered fragments show clear signs of ancestral handiwork. A few Iñupiaq families still gather obsidian and jade on gravel bars and in other settings along the Kobuk when weather and water conditions permit. Some simply collect obsidian, knowing that this material is culturally meaningful as well as aesthetically appealing; for some, this is a practice of elevated cultural importance, knowing that each recovered specimen has been touched by the hands of ancestors from pre-contact times. A few individuals also actively work obsidian into tools as a hobby and traditional craft. This repurposing of jade and obsidian found along the river corridor is said to be a traditional practice, a kind of "recycling" done even well before the time of European contact. They note that if people found cores or nodules of obsidian or jade historically, they commonly fashioned them into useful items and would not let such valuable material go to waste. So

too, in spite of the availability of metals and other introduced goods, these stones maintain heightened value— increasingly for their cultural and aesthetic significance rather than strictly practical use— and are often used for purposes that reflect this enduring significance. Some individuals have items fashioned out of jade by family members in recent times, such as small platters or blades. A small block of this local jade remains on display in the Kiana medical clinic, an aesthetically pleasing reminder of this enduring cultural heritage linked to the Jade Mountains and the Kobuk River corridor.

Endnotes

[1] Placename from NANA 1994.

[2] NANA 1994.

[3] On the complexity of Kobuk River hydrology and its implications for the future of the river, see e.g. Durand et al. 2011.

[4] NANA 1994.

[5] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np. Elsewhere, these elders allude to a placename for a "new" island, *Qeqittačiak*, that appears to be a cognate or equivalent of that term.

[6] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[7] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[8] NANA 1994.

[9] NANA 1994.

[10] Elders reference a number of specific netting places associated with these kinds of features, such as *Kurviġvik* (lit. "set netting place") on the Kobuk. NANA 1994.

[11] An entire book is dedicated to the history and archaeology of the former village at this place; the book being entitled "Life at Swift Water Place." See Anderson and Anderson 2019.

[12] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[13] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[14] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[15] Tickett and Tickett 1976, np.

[16] Tickett and Tickett 1976, np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[17] LWS, 2022.

[18] Tickett and Tickett 1976, np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[19] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np. This might relate to placenames such as *Nauyaġruaq* (lit. "big old seagull"), a name applied to an island on the Kobuk. NANA 1994.

[20] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[21] Tickett and Tickett 1976, np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[22] Tickett and Tickett 1976, np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[23] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[24] Ibid.

[25] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[26] The name appears and is discussed in several placename compilations. NANA Regional Corporation 1994; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.; NAS n.d.a.; NAS n.d.b.; NAS n.d.c.; 1991a; 1991b; Kuuvaŋmiut n.d.a, Kuuvaŋmiut n.d.b.

[27] Herbert Custer in Custer and Gray 1987: 6; Gray 1987.

[28] Tickett and Tickett 1976, np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[29] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np. This may be the same place identified as *Iḷuliaq*, described by Peter and Effie Atoruk and Thomas Sheldon, Jr., as a bend in the river and a sandbar, the name implying "Big bend" (Burch 1989a, 1989b).

[30] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[31] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[32] The channel mouth of a former channel called *Taksrak* was identified as *Taksruk paaya*; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[33] Burch 1989a, 1989b.

[34] Tickett and Tickett 1976, np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[35] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[36] Tickett and Tickett 1976, np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[37] Brown 1987: 7.

[38] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[39] NAS n.d.a.; NAS n.d.b.; NAS n.d.c.; 1991a; 1991b; Kuuvaŋmiut n.d.a, Kuuvaŋmiut n.d.b.

[40] Tickett and Tickett 1976, np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np. Spelling of both terms unclear in original.

[41] NANA 1994.

[42] Tickett and Tickett 1976, np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[43] Custer and Gray 1987: 2.

[44] Gray, Cleveland and Lee 1987.

[45] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[46] LWS, 2023.

[47] NANA 1994.

[48] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[49] Custer, Wood, and Gray 1987. As Anderson and Lutz (2019: 61) note of the people of Swift Water Place, "The artists colored some of their objects with red paint made from pulverized iron oxide, likely heated to enhance the brilliance of the red color."

[50] Gray 1987: 7.

[51] TJ, 2023.

[52] Custer, Wood, and Gray 1987; Gray 1987; TJ, 2023.

[53] Custer, Wood and Gray 1987.

[54] Custer, Wood and Gray 1987.



Women traditionally stay at fish camps during the summer, catching and processing fish but also gathering important plant items, such as greens and birch bark. National Park Service photo

CHAPTER 4

Fundamentals of the Traditional Seasonal Round in and Around Kobuk Valley

The Iñupiat of the Kobuk River Valley have established a sustainable lifeway that is responsive to the natural cycles of the landscape and animal populations, known as a seasonal round. Traditionally, *Katyaaŋmiut* were settled only during winter, spending the rest of the year moving from one resource-harvesting camp or area to another. In 2002, Elder Roger Atoruk remembered a period in his own lifetime when people were entirely dependent on hunting and gathering—having no cash income apart from materials from the land:

> "And everybody used to go to spring camp to hunt muskrats. That's about the only income they had. No—no other work in the village. No jobs. The only income was trapping. Trapping and hunting for fur. No electricity—no electricity, no running water. And after spring camp, we used to go out for ... summer fish camp. After [from] summer fish camp, we used to go to fall camps. We used to move from camp to camp all year around. The only time we come to the—to Kiana, is wintertime."[1]

Elders Tommie Sheldon, Jr., and Hazel Apok remarked on the same, saying, "All of our people survived by living off the land. In those days, everyone hunted and fished for their livelihood" (Tommie).[2] And Hazel: "We had our spring camp, our summer camp, and during the winter, we roamed the area looking for caribou."[3]

Over the last several decades, transitions away from this traditional pattern have meant that most *Katyaaŋmiut* families now live "in town," referring to Kiana. They used town and camps along the river as a network of base camps from which to make subsistence-resource trips: "The configuration of spring camping from Kiana, especially of the Kobuk delta where the environment is very complex, [has been] to move to multiple spring camping sites, with one camp functioning as a base camp. This configuration was still being practiced in 1990 even though individual camping trips were somewhat shorter in duration."[4] The change from seasonal base camps to a year-round camp was brought about by mechanized travel and dependence on settlements to obtain gas and other supplies.[5]

Traveling extensive distances upriver was not necessarily needed as many resources are found downriver, or as in the case of animals, will travel to closer areas in time. As Jackie

Johnson explains: "I would do just wait. It would be up right by the dump area so it was just—get some binoculars to see if there's anything up there, or the pilots would tell us, 'Oh, there's caribous up there. They're coming down.' We'd say 'Ok, we'll just wait.'"[6] On the other hand, there is a freedom associated with spring and summer after travel becomes difficult during breakup. Food becomes available, and it is a joyful time of connecting to the land and with family. One site that is commonly used as an escape and place of reconnection is the summer fish camp. [7]

While the trend of using Kiana as a basecamp for subsistence is increasingly common, *Katyaaŋmiut* still continue to venture out on subsistence-resource gathering trips and to stay in a variety of camps. Some trips take them into national park lands for caribou hunting or other activities.[8] This was the case with Elder Elmer Jackson. During an interview with Elmer, Moulton observed that Elmer

> "doesn't use the land as extensively as his father Henry Jackson, Sr., (such as going all the way to the Noatak River for caribou). ... He goes to the northern part of the Kobuk Delta for Spring camp (muskrat and some sheefish). He goes to Coalmine (family fish camp) in the Summer. He'll also use the same summer cabin as a base when trapping in winter. ... In early fall he'll hunt caribou as far away as Onion Portage but as Fall progresses into Winter the caribou migrate closer to Kiana. He used to go up the Squirrel River but not so much today."[9]

Similarly, Elder Henry Jackson, Sr., traveled by dogsled from Kiana to Noorvik, hauling camping gear and food provisions before breakup, sometime in March or April. His family stayed at camp until June, hunting muskrats. "June—7th is the last day of hunting, I think. At least June 10. We move out of there while the water's still high."[10] They returned to Kiana for the summer months, fishing for salmon and whitefish in the surrounding sloughs. Then in August the family had their dogs pull their boat to fish camps, including camps up Squirrel River. There they harvested salmon, whitefish, and trout before coming "back down with a raft."[11]

At various sites along the seasonal route, the Iñupiat historically erected temporary housing. According to Elder Inez Ayagiaq Black,

> "People lived in sod houses called *ivrulik* (sing) *ivrulgiich* (plural). They did not live in the same place all the time. They made a new house every winter, and in the summer, they built a summerhouse. They would excavate a spot, frame it with wood, and cover it with sod. They were building new dwellings all the time even though it required hard work. Whenever it was time to leave a house, they took all their belongings with them because they knew that they would not return to that house."[12]

Over the past century and a half, changes described elsewhere have made the people of the Kobuk somewhat more stationary. The introduction of new technology has been central to these changes. Anderson et al. summarize the adaptations seen in Kobuk Valley:

> "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. Log and lumber houses have supplanted tents and semi-subterranean dwellings, rifles have displaced bows and spears, motorized boats have replaced canoes, nylon gill nets substitute for nets of willow bark, and snowmachines have largely superseded dog teams. The life pattern, too, has changed considerably. People are permanently settled in villages, they participate in a wage economy, and their entire social culture has been altered drastically."[13]

Despite these changes, subsistence-resource gathering continues in Kobuk Valley National Park and in surrounding areas, closer to the towns of Kiana, Ambler, and Noorvik.[14] In the following section, we describe the seasonal round of subsistence-gathering practices, supported by archival data and interviews.

Summer

A unique aspect of the seasonal round in the Kobuk River region was the practice of remaining inland during the summer. Most other Iñupiat 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 primarily lived 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."[15] 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 such as seal oil. But 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."[16]

As Oolyak mentioned, Kobuk Valley Iñupiat hunters pursued large land mammals prior to winter for skins. Late summer and early fall were times to secure skins for clothing and meat for sustenance. Burch indicates that "the primary goal in most areas was acquisition of caribou skins, which are in prime condition for clothing in late August."[17] 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."[18]

It was in early June that *Kuuvaŋmiut* (and often *Katyaaŋmiut*) men traditionally moved north toward the mountains to pursue not only sheep and caribou, but also marmot and bear. This hunting season focused on collecting sinew, antlers, and other useful animal parts, along with the valuable hides, while consuming most of the meat that they gathered. While the women stayed behind to work at fish camps, they also gathered plant items and birds' eggs. When salmon began to run in early July and peaked in August, the efforts of women and children were extensively focused on seining salmon, whitefish, and sheefish—as well as processing fish and gathering.[19] Additionally, pike, though it can be harvested year-round, is often caught in the summer with seine nets, and in the fall with gill nets.[20]

This division of labor by gender, as mentioned elsewhere in this report, historically characterized the seasonal round, with "men off on wide-ranging forays while women stayed in base camp to conduct fishing and where seasonally appropriate, berry picking."[21] Even in more recent decades, a gender division of labor has been in evidence, according to Moulton, with men engaged in wage labor as women "engage in fish camps." In 1991, the Northwest

Areas Ethnographic Study (NAES) found that "[o]verall, the role of women in summer fishing was much more prominent in recent years due to the absence of males and young adults. This is reflected, for example, in the fact that summer fish camps are commonly referred to by the names of women rather than [those of] males in the family."[22] And yet, "The division is not that clear-cut ... sometimes men spend an intensive period of subsistence and women engage in employment for wages."[23]

For Martha H. Wells' family, summer was definitely a time for fishing. In June, her family moved from spring camp to an area near Okak Point where they went smelting: "When the fish start running off from the lakes . . . [my family would] move down to that ducks camp. That's where mom and dad used to stay there. Spring. After breakup."[24] Pointing on a map to a camp at the mouth of Oskik Creek, Martha remarked, "Way up here. You know those two rivers down there? One is this way and right there that's . . .. [W]e call it ducks camps and *qanigak* (phonetic), that's *qanigak*. ... That's where we used to fish. ... We used to get lots."[25]

Pauline Garbin Schuerch's family stayed at summer fish camp for about a month, then returned to Kiana: "Oh, we'd stay about a month, maybe. Hunt muskrats. And in the summer when we berry-pick, we stay only two to three days."[26] For most of the summer, Pauline's family remained in Kiana to fish: "All summer. We dry the fish for the dogs, for winter. And for ourselves too .... Take care of them and dry them good. We make special ones [smoking a few] for ourselves. And the dogs—dog salmon—we just split them in two and fillet them."[27] According to Tommie Sheldon, Jr., "Some summers, we would have rainy weather while trying to dry fish. We had no choice but to eat the fish that was not dried properly. All the campers would stay until school started."[28]

Summer fish camps are located far and wide, though mostly along the Kobuk River proper and at the mouths of tributaries.[29] They can be located as far downriver as Noorvik and as far upriver as Qala. According to the Northwest Areas Ethnographic Study, sites used particularly by Kiana residents are located "at Kallarichuk River and at the mouth of the Omar River, *Nalluq*, *Siqsiq*, Onion Portage, and Trinity Creek. ... Move[s] to summer fish camps were normally made during the latter half of July. Transport to summer fish camps was by boat."[30] Summer fish camps used predominantly by Ambler residents were "distributed from ten miles downriver from Onion Portage and upriver to Bear Island (located approximately eight miles southwest of Nilunorat Hills). Prominent sites for fish camps were *Qala* (also spelled Qallami or Kalla), the mouth of the Black River (*Imaġluktuq*), *Niliq,* and *Pitqiq* and *Taksruġruaq* lakes."[31]

In more recent decades, several Kiana residents have participated in Kotzebue-based commercial fishing. As stated in the NAES, "preparation for moving to the coast took place in the village after spring camping was complete," and apparently involvement in commercial fishing, especially among males, has been "more intensive in Kiana than upriver in Ambler."[32] Summer is the season for wage-labor in other arenas as well, such as firefighting and, at times, oil-spill cleanup efforts, such as in the summer of 1989.[33] As reported in the early 1990s: "Kiana firefighting crews have been active for the last two decades and well known for their desire to participate in this activity. In more recent years, a greater number of females have participated in this sporadic and short-term, but sometimes lucrative, form of employment."[34] Residents of Ambler sometimes sought summer wage-employment related to archeological work. As noted in the NAES: "During the time Ambler people lived in Shungnak, some males and occasionally females were employed for wages at archeological sites on the Kobuk River—most commonly at Onion Portage and in the Brooks Range. Women conducted camp

chores and males served as guides and hunters. Both males and females also were involved in excavations."[35]

During late summer and into early fall, hunting trips sometimes take place in the vicinity of fish camps as hunters pursue moose and caribou. "In recent years, moose and caribou have been available at multiple locations on the Kobuk River or its tributaries within a mile of the riverbank."[36] But as fall progresses, most families fully transition from fishing to hunting endeavors.[37]

Fall

Traditionally, when summer came to an end, men descended from mountain hunting grounds, packing out goods on log rafts, and meeting up with family members at fish camps. For some time, they remained in these camps, fishing, collecting berries, and partaking in other subsistence activities like harvesting various birds and small mammals.[38] The attention of the men would then turn to caribou hunting and processing, as skin tents were raised and fires kept going to provide warmth in the rapidly cooling season.[39] Furthermore, "Prior to freeze-up, some hunters would construct caribou or moose skin covered temporary boats and float with the harvested food and raw materials back to the village. In other cases, hunters cached most of the meat at the hunting site, to be picked up later in the year when it was needed."[40]

Anderson also notes an early fall pattern in which people traveled long distances for big game and also kept local fish camps: "Historically, Eskimos from the middle and upper Kobuk ... travelled to the upper Noatak during fall to hunt sheep and caribou before rejoining their wives at the fishing camps along the Kobuk River."[41] Some of the fish camps have been in KOVA, as Anderson et al. note: "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."[42]

Lucy Jackson's family remained at camp until things began to freeze up: "Early fall, yeah. They stayed 'til freeze-up. After freeze-up, when they put fish traps, they catch those too. Under the ice."[43] The icing-over of waterways opened up opportunities for ice fishing, and some travel became easier; but this could take some time. Fall is a season of waiting for ice to form. As Johnson Black remarked, "I never even go out fall time ... because fall time, ... ice down there is too thin, whatever. There's no place to go. ... And the lake is frozen but thin. Can't go no place fall time."[44] Others made similar remarks about waiting out fall in the villages.[45]

Though Henry Jackson, Sr., spent summers traveling, hunting, and fishing in the Kiana area, in the fall he was taken to Noorvik to attend grade school: "They took us down there [to Noorvik] late October—I mean September. By the time we get to Noorvik, our raft, it was iced up, you know, already frozen."[46]

In September, Martha Wells' family returned to Kiana each year: "Back to Kiana, come back to Kiana. And then when it freeze[s] up, start fishing again. Under the ice. . . . For whitefish with long nose [inaudible], and when they catch sheefish running down, they always get sheefish too. Under the ice." They would use gillnets and traps near Kobuk: "By Kobuk. That's where they used to trap. Never miss, fall time, the men."[47]

It was during the fall that migrating caribou crossed the Kobuk River, and families moved to these locations to hunt the animals from kayaks and canoes.[48] Onion Portage

in KOVA was a significant site for the fall caribou hunt. Gravel bars, free from vegetation and mud, are optimal areas for processing caribou.[49] Tommy Wells describes the shift to hunting in the seasonal round, saying, "Sometimes. Yeah, in the fall. Mostly—mostly when I go camp it's in the fall and we're hunting caribou."[50] The NAES found that "[b]y the time that caribou began their fall migration in late August and early September, most males employed away from Kiana attempted to return to participate in hunting activities. Women and children often accompanied men on these trips."[51] In the latter half of October and November, caribou, moose, brown and black bear, and Dall sheep were the species harvested. Though data around 1990 indicates "that regular fall hunting camps were less common in the case of Kiana than for Ambler residents."[52] Within the area that is now largely Kobuk Valley National Park,

> "[f]all hunting trips were made to *Naquligauraq*, *Qalugraitchiaq*, Salmon, Hunt, and Squirrel rivers as well as to North Fork, Kidways, Onion Portage, and the headwaters of the Omar River. Up until the mid-1960s, males left the village in early fall for extended hunting and trapping trips to the upper Noatak and Colville rivers and Anaktuvuk Pass. . .. Late fall was also the season for gathering plant resources such as multiple species of berries, *masru*, and birchbark."[53]

In the NAES report on Ambler, the authors write, "Wives of men who participated in the extended hunting trips remained in the village, gathering their wood supply for the winter, hunting ptarmigan, and gathering vegetation such as *masru* and spruce roots."[54]

Winter

After fall caribou hunts wrapped up, families historically moved to winter houses along the river in locations that afforded fishing opportunities.[55] 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 freeze-up 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."[56]

Winter residences were solid, semi-subterranean, sod-covered dwellings that allowed protection against the cold. The two houses excavated at the winter village site at *Igliqtiqsiuġvigruaq* are examples of these winter lodgings.[57] Subsistence activities did not abate, however, as winter set in. Not only did ice fishing provide a substantial catch, but so did winter trapping for furs and food.[58] Birds, though not harvested in large quantities, were also taken throughout the winter.[59] And indoor subsistence activities became important during this season, whether equipment repair and construction, or passing along knowledge.[60] Cultural activities such as storytelling and ceremonies also took up a lot of time during the cold, dark months. Enabled by easier overland travel and a slow-down in subsistence harvesting,[61] people devoted winter to leaving the village for trading and feasting. 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).



An Iñupiaq hunter heads back to his family after a successful caribou harvest. National Park Service photo

> 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."[62]

Again, in winter, hunting and trapping became more significant: "Following freeze-up, trapping was the predominant activity (except for recent times). Several summer camps also doubled as winter trapping base camps."[63] Furthermore, some men began traveling all the way to the Upper Noatak River Valley to the *Ninŋuqtuuq* (Nimiuktuk River) to establish camps for winter caribou hunting. As Andrew Black describes: "That's our base camp, I would call it. And we stayed there about three weeks, you know. Hunting caribou. No caribou any place else. The first caribou we hit was when we—when we hit Noatak River. That's the first caribou we seen ever since we start from Kiana. ... [T]hat's a long trip."[64] According to Andrew, it took about a week to reach the campsite. He was accompanied by his father, his brother-in-law Duffy Smith, and a man named Winiq Thompson; the group took a total of three dog teams, though additional hunters and their dog teams made the same trip at the same time. Andrew Black recalls they stayed at camp for about three weeks. When provisions such as coffee and sugar ran low, he would travel back to town with the dog team: "And then after we stayed about three weeks right there, we ran out of coffee, sugar, and stuff .... And I had to—they sent me to town with the dog team."[65] The trip to town took three days: "Yeah, I travelled late and late at night. So. But when I went back, after I stayed here about a week,

they got what they wanted, you know. Coffee, tea, sugar, and stuff like that. And I made it out two and a half days."[66] He also recalls he made the trip during the last part of February, traveling late into the night, the daylight hours being very brief during that time of year: "Yeah, even day time barely—barely daylight."[67] Caribou would be processed and packed onto sleds, transported home by creating a series of caches. "We had to start back with all the meat that we could take in relays."[68] The group returned to Kiana in early March "when the days got long."[69]

Donald Smith headed out to his caribou-hunting camp in winter and stayed until the ice breakup: "Right there. ... We go there with dog team and stay there 'til breakup."[70] According to the WACH Working Group: "Hunters traveled by dog team in winter when Donald [Smith] was a young man. He recalled how they would drive their teams all the way to Noatak, not knowing for sure whether caribou would be there or not."[71] In wintertime, Elder Henry Jackson, Sr., also traveled with a dog team. He went to "Ingoksruk, Kiana. Sometimes we'd follow this trail. Winter trail. All the way this way, you know. And then we'd cross Spruce Creek. And then out to Timber Creek. [Inaudible] and then from here, over to Omar."[72] He identified the names of two winter trails they used from Kiana to Noatak: *Naulik* and *Naquligauraq*.[73] According to Elder Martha H. Wells, the caribou-hunting territory up north was sparsely populated. She remarked: "There was nobody living up there except my grandparents—my grandma. I was going to bring that uh—my taata, grandpa. Where they have little hut. Wintertime spend there. Wintertime. And you ... see their raft and that little house with those trees, I think ...."[74]

During the winter, traps for sheefish were placed at *Sapusrigaitchiaq* under the ice of the Kobuk River near Kiana. Martha also explained: "That's, there's Qaian. And then you go ... right there. They call it Sapusrigaitchiaq (phonetic) Sapusrigaitchiaq. ... That means there's sappi, I guess. ... When they put those trees where the fishes will go through. Sappi ... Sapusrigaitchiaq. ... [T]hey used to put fish trap."[75]

In the last few decades, three different patterns of land use have been practiced



During the winter, traps are set under the ice to catch various fish species. These two Iñupiaq women are harvesting whitefish. Robert Belous photo, courtesy of the National Park Service.

by Kiana residents in winter months. For example, at times "people moved to camps for trapping which were often the same sites as summer fish camps. Here they resided in cabins which, in some cases, were built on Native allotments. Other people spent the winter in the village, running traplines in the vicinity of the community and pursuing less important activities such as ice fishing for burbot and, in early winter, whitefish, and snaring arctic hare and ptarmigan."[76]

Alternatively, some of the same people who live in the village or at winter camps undertake mid-range or more lengthy and longer-range hunting and trapping excursions: "These were the most spatially extensive activities in the course of a year for Kiana residents."[77] Species hunted on these trips include caribou, Dall sheep, wolf, wolverine, fox, lynx, marten, mink, and river otter. Ice fishing is done when traveling to and from these winter activities.[78] According to the NAES report on Kiana, mid-range winter hunting trips "were taken to the Purcell and Baird mountains, the Squirrel, Omar, and Tutuksuk rivers, and Timber Creek. Longer range trips were taken to the upper Noatak to *Ninŋuqtuuq* [. . .], Midas Creek. Although these more extended trips were not as common as in earlier times, a few informants reported still making them in the 1980s."[79]

Regarding Ambler, the NAES reports:

> "During winter months [after establishment of the town in 1958], residents were relatively stationary in Ambler, running traplines and snaring ptarmigan in the vicinity of the village as well as taking short and middle-range trapping and hunting excursions to the Jade Mountains, Ambler Lowland, Hunt and Redstone rivers, and the lake systems south of Ambler. . . . People did not venture further north than Ivishak Pass for caribou, due mainly to the . . . shift in the distribution of the habitat of this species."[80]

Spring

As days lengthened following a long confinement to winter homes, the land opened up to more extensive travel in the spring. First, in early spring, the increased daylight hours and solid snow and icepack are ideal for long overland trips. Then, as the ice and snow become unstable, breakup forces travelers to stay in one place. Late spring brings open waterways and increased animal activity with the birds returning and access to fish and small mammals. Historically, *Kuuvaŋmiut* loaded up sleds and began the season of traveling over the land gathering resources, trapping, and hunting. They might camp alongside waters that could be fished, or in locations where they had caches of food stored from the previous fall.

Areas visited during late winter and early spring hunting and trapping trips included mid-range trips "to the Kallarichuk Hills, the Squirrel and Omar Rivers, and Klery and Trinity Creeks. Long-distance trips were made to the upper Noatak River as far as Itimtikrak Creek."[81] Spring subsistence camps, on the other hand, were located closer to the village: "[T]hroughout the Kobuk River delta in the vicinity of Noorvik and Selawik, up the Squirrel River to the mouth of Timber Creek, and at *Nalluq*. The most heavily used sites for spring activities were downriver rather than upriver on the Kobuk or its tributaries. Upriver boundaries for spring camp activities were approximately seven to eight miles from the village site of Kiana."[82] It has been most common for males to make short, middle-range, and extended trips from Kiana to hunting and trapping sites during the late winter and early spring period, traveling to subsistence gathering sites together, although groups often

dispersed when they reached their destinations. "Women and children did not generally accompany males on these trips but remained in the village, although there were exceptions to this generalization."[83] During the winter-into-spring season, hunters and trappers have sought caribou, wolf, fox, marten, and wolverine, with a "tripartite division of trips on the basis of proximity to the village and mobility [being] the pattern."[84] Some hunters ranged far from the village, to the extents of their seasonal hunting range. For example, according to a report from Henry Jackson, Sr.'s family, their seasonal movements "ranged from spring muskrat camp on the [Kobuk] Delta to caribou hunting at Onion Portage and the Hunt River. ... He has two 80-acre allotments on the Squirrel River just above and below the North Fork. He has hunted sheep along the Agashashok River (all the way east to the Salmon River)."[85]

In the early 1900s, a focus on trapping muskrat in the Kobuk and Selawik River deltas, spurred by the fur trade, dominated the spring season.[86] The generation of *Katyaaŋmiut* elders interviewed in the 1970s and 1980s recalled this was a time when muskrat hunting camp was a large part of the seasonal subsistence cycles. Martha Wells' family went muskrat hunting in the spring when the land would freeze at night, facilitating travel to spring muskrat camps[87]; and when they arrived at camp, the first thing they would do is "start bringing the fishes and everything from storage."[88] Though people might hunt for rabbits or ptarmigan or the occasional caribou in the spring, food was scarce. As the season progressed and ice broke up, however, more resources became available.[89] Harvest activities at spring camps could include beaver trapping, muskrat hunting, duck and geese hunting, ice fishing for whitefish and burbot prior to breakup, and net fishing for pike, sheefish, and whitefish after breakup.[90] According to the Northwest Areas Ethnographic Study, "Both dip nets and seine nets were used at spring camps downriver from Kiana."[91]

According to Tommie Sheldon, Jr., during springtime, in "muskrat hunting season, people would leave by dog team taking their boats with them (although not all the families had boats and outboard motors). They would gather enough skins for their own use and to sell to the local stores."[92] Storekeepers traveled by boat to the camps, to pick up muskrat skins as payment for charges made at the stores to pay for groceries.[93] Tommy Wells also went muskrat hunting during springtime with his mother and father. They would hunt ducks and geese as well: "[O]ne time I went down here. Down to Makak, you know after we were done hunting ducks and geese when sheefish were coming in."[94] Tommy fished using a rod and reel. This continued until weather conditions shifted. As Ruth Sandvik remarked:

> "And you were there until the ice went out. You'd go—you'd take a boat up. And . . . as the river, as the little sloughs would melt, you could put a net there so you would have fresh fish. And then when the river cleared up, you would load up all your. . . gear and then come back down to the village. And then shortly thereafter, you'd go down to another slough to fish for whitefish. And so that would last for two or three weeks, and then back to the—back up here to the village to wait for the salmon."[95]

When Johnson Black was a child, he hunted in the springtime with his sister and brother-in-law, usually leaving the village during the month of May: "That's where the springtime they go out about a month. Everybody. Our family go out and hunt muskrat. Them days—them days is two and a half a muskrat. Everybody hunt in springtime."[96] Occasionally, they would also harvest ducks: "We get quite a few ducks. Especially—we can't throw them away; we always eat them. You know, that—we get for lunch or supper or whatever."[97] Elder Eva

[Baldwin] also reported going "downriver to fish camp to ... mother's camp in the spring for several weeks."[98]

During an interview in 1990, Elmer Jackson located a cabin where he went after spring breakup to hunt muskrats. He remembers that at times, they also fished for sheefish at the site, "cause the sheefish are starting to run at that time."[99] Elmer stayed at the cabin site five to seven days at a time, returning every year in the springtime. In another map interview, Donald Smith recalled traveling from winter camp, once the weather warmed to a slough where he fished as an eight- or nine-year-old: "And before, when I was a kid, we used to go to that slough right here. Go fishing [for whitefish]."[100] His family stayed at that site until the 4th of July. Speaking generally about springtime subsistence practices, Donald reported, "I usually come down on this river [pointing at map]. . . . And then right here, we go different directions from here."[101] Again, referring to a map, he indicated a place along the river where he would make camp and stay for a day or two before "going over"[102] to hunt ducks and muskrat. Every spring he made this trip a couple of times, depending on weather conditions.

David Black remembered staying at camp with his parents during the springtime.[103] He continued to use the cabin each year later in life: "I've been going up there with some friends. Check on the cabin sometimes, see how it is. Everything was okay up there. Look around same time, we got a tower up there, where we could climb and look around with the binoculars when it's clear. See if you could see a bear or moose or some caribous."[104] During the spring, after breakup, he took a boat to his cabin: "Yeah, we go up there. When the water was real high, we wait for a while when all those woods are drifting down. You gotta watch some places. Sometimes when those woods are drifting down, they always be like real small logs. But sometimes they always be real big."[105] Black went to his cabin to "hunt ... and look around. And sometimes we fish. . . . We get some sheefish and sometimes we get salmon."[106] He hunted for caribou, moose, or bear, all of which provide "fresh meat."[107]

Quoting an elder, Linda Ellanna noted the general excitement and busyness of getting ready to go to camp in the spring:

> "[B]y the time Frederick and I had arrived at Kiana on May 5, Lee and his family and nephews had gone to camp approximately 45 miles below Noorvik awaiting the river to go out so they can go to Kotzebue, and Christina Westlake and her husband took her mother from Noorvik to a camp below the village the evening of 6/6—people were very anxious to get out of town and go to camp—on 6/3, at least 5 or 6 people put their larger wooden boats onto [?] flooding Noatak [Never] at Noatak on the lee side ([slaw] side) of the band below the river—They tested and worked on boats and motors, all preparing to head for Kotz in a [group] as soon as possible—in both Noorvik and Kiana snow remained on the frills but was rapidly disappearing, the rivers were ice free, the lands [?] flooded; and the first hint of green was in the air—summer was only beginning that week of 6/3—6/9—Rachel told [Smeleh], 'stop wondering how long it will last, only enjoy its presence or it will go away, all too soon'."[108]

Most families moved swiftly from spring camps to summer fish camps. "In other cases," as described in the NAES, "a brief return to the village occurred between the two camping periods."[109] The NAES noted a division of labor characteristic of spring camps. They write, "males would trap beaver and hunt muskrat while females might also hunt muskrat. Males

hunted ducks and geese (mid-May and early June). Women regulated camp activities, went ice fishing, and gathered sourdock, wild rhubarb, willow greens, birchbark, and spruce roots."[110] They also note the location of certain spring camps further upriver at: Pah River Flats, the lake system south of Shungnak and Kobuk, *Niliq*, Black River, and *Pitqiq*.[111]

In summary, it can hardly be overstated how important the cycles of the seasonal round are to the *Kuuvaŋmiut*, both culturally and for resource subsistence. In fact, Anderson et al. suggest that the very existence of the Kobuk Valley Iñupiat people depends on continued support for their traditional lifeways and seasonal round, even if they are currently practiced differently than they were historically. Anderson et al. write,

> "If land planning and policy did not support the continuation of subsistence, in recognition of its long history and its importance to the indigenous people, there could be far-reaching effects. A viable, active hunting and gathering lifeway, one of the last remaining on earth, could dwindle and vanish from existence. With its foundation and the source of its essence being gone, *Kuuvaŋmiut* culture would move more swiftly toward extinction."[112]

Modern life commonly requires *Kuuvaŋmiut* to participate in the wage economy. Still, many wage-earners view their jobs not as ends in themselves but as necessary to buy the things needed to continue life in their homeland, and to continue to live off the land, to the extent possible. Cash purchases are necessary not only for things like snowmachines, power tools, and fuel—all part of modern subsistence living, but also for meat-freezers, high-tech cold-weather clothing, and other modern tools to help continue a very ancient subsistence tradition. These technologies are understood to facilitate traditional lifeways, rather than competing with them. They help subsistence-resource users to continue to live off the land, and to continue a modern seasonal round, while still participating in schools and other aspects of contemporary village life.

Managing Resource Scarcity

These traditional patterns of movement and resource harvest, outlined in simplified form above, are sometimes disrupted by changes in the availability of fish and game. In some years, caribou do not return to Kobuk Valley, or fishing seasons are unsuccessful due to high water. These changes can be seasonal, or even decades long, creating unpredictability and scarcity. Early summer can be a time of shortage if stored food stocks run out, or if caribou, fish, and other game resources are absent, available in low numbers, or hard to catch during that period.[113] Looking to the archives for similar situations and solutions, Giddings writes, "A bad salmon season, or a year in which the caribou varied their migration route, might . . . bring about hardship and even starvation."[114] Elders spoke of times in the past when their ancestors experienced true "starvation." They explained that, during these times, "all [the] game hole up, none come out. Then they are there but not available." Sometimes this happens with just one or two species at a time, but during especially bad times this happens all at once "for all game."[115] Because people knew that these times were coming, they saved food and taught young people how to survive in lean times. Elders of the past sometimes said that the "cause of starvation [was] laziness, inability to be frugal." The survivors were "those who search for crumbs on floor, under willow or bark at camp. Often those [people with the] most starve, for people beg, borrow, and steal all they have, leaving nothing for them."[116]

Fortunately, environmental cues often helped predict when plants, fish, and animals were to arrive. For example, as discussed elsewhere, caribou migration remains predictable before the fall freeze-up and again at breakup in spring or early summer, and generally along the same routes.[117] Similarly, 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.[118] Berries regularly ripen in summer and fall, and sour dock is available all summer long, though it is best gathered on bright windy days in mid-July.[119] At first frost in mid-September, people harvest roots (*masru* or Eskimo potatoes) from mouse caches called *nivi*.[120] 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."[121] Using these seasonal indicators of resource availability, people are able to position themselves on the landscape to maximize resource harvests and stave off scarcity. Anderson notes that Arctic peoples have long "maximized their ability to locate, capture, and store natural resources."[122]

Another way in which people of the Kobuk area have traditionally avoided food shortages is by building food reserves in anticipation of shifts in resource availability. Expansive and overlapping traditional resource harvest territories also contributed to the long-term success of villages in the Kobuk Basin—providing a range of backup options when resource harvests fell short of expectations. Accordingly, travel between seasonally variable areas of resource availability has been a key strategy for the Kobuk people. Once one area has been harvested, whether for quantities of berries, fish, or caribou—the resource is then preserved, packed, and transported to the next area using the appropriate method for seasonal terrain conditions, whether that be sleds and dogs historically, snowmachines in winter today, or boats in spring and summer. As Burch remarks, even before the arrival of Europeans, the Native people of this region "had developed . . . 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."[123]

Strategies for dealing with resource shortages helped ensure successful harvests and survival. Shifting focus to alternative resources is another way in which the Kobuk people have responded to food shortages. This shift in focus most often requires families to relocate on the landscape to take advantage of alternate harvest areas. Morlan suggests that food shortages may have altered cultural practices even in ancient times.[124] Archeological 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).[125] 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.[126]

Relocation of people groups in response to resource availability is another strategy seen in Kobuk Valley. Christina Westlake points to this source to explain that there "was a lot of famine in the late 1800s, 1860s, and some people went north, some people came south, spread out and . . . I always imagine that's probably what they were doing [moving in order to find food]."[127] In times of inland resource scarcity, families along the Kobuk River could relocate to the coast to harvest maritime resources.[128] A 1965 interview of an elder attests to one move to the coast: "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."[129]

Mason suggests that relocation was a particularly salient 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)."[130]

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."[131] Another example of alternate resource use strategy is proposed by Mason and Gerlach. They suggest "the reluctance of Brooks Range Iñupiat to hunt sheep" in modern times may represent strategic "conservation of emergency resources."[132] Surviving in their environment requires the ability to think ahead, to conserve, and to adapt to ever-changing conditions.

Again, a traditional strategy for adapting to shortages in foods like salmon or caribou involved switching emphasis to a different resource. In lean years, the trapping of small mammals during winter served to compensate. It was much more common in earlier times for caribou to be scarce, which augmented the importance of animals like the hare.[133] This strategy is exemplified in a quote from Elder Inez *Ayagiaq* Black*,* reflected on times when *"*people did not catch enough fish even though they worked hard at hunting and fishing," and at these times, snaring small mammals became a wintertime focus. "If they were not able to store much food and berries, even though they had also worked hard to snare animals, they sometimes would go hungry in the winter. After all, one could hardly hunt during a blizzard. So, when it got . . . really stormy, the women went out and set snares. In those days they probably used snares made of sinew."[134] Inez described how, during times of extreme scarcity, women and children tried to preserve the food for men, who needed strength for hunting:

> "Whenever I listen to the stories from the elders about life long ago, I am not sure that I could have survived in those days. For example, they told us that when times of suffering came and there was not enough food, the women and children did not eat much because they tried to feed what little food remained to the men in order to strengthen them. This most likely happened when the weather was even too harsh to set snares for small game."[135]

The critical nature of resource variability and the necessity of adaptability are emphasized by their 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.[136] Generally, the food scarcity motif reinforces the vital importance of subsistence skills, but may also present death as a blessing, as in Raven Brings Light in Giddings.[137] 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.[138] 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.[139] Another theme emerges in one of *Qayaqtagugnik's* 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."[140] 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."[141] Important cultural information on resource use and strategies for surviving food shortages is perpetuated through the telling of different stories.

In a repeat of the strategies mentioned above, Burch reports how trading and relocation are adaptation practices that 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."[142]

Today, the people of Kiana remain flexible, ready to respond accordingly to the dynamic conditions of their homeland. Often Iñupiaq people do not express firm plans from one week to the next, or even one day to the next, because so much is up in the air when lifestyles are dependent on weather, the migrations and behaviors of subsistence prey animals, or the abundance of plant species.[143] Personal reports of the elders emphasize flexibility as a key feature of the lifeways of the Iñupiaq people. Leo Jackson told this story: "Well, when we were kids my dad hardly—they don't have jobs, you know. ... All we live on was subsistence like fishing and berry picking. And leaves like rhubarbs and sour docks and meat and fish. We hardly have white grub in those days. Boy, during Christmas that used to be our treat. When they gave us candies in school."[144] One way the culture accommodates times of food shortage is by allowing flexibility regarding the hunting/gathering territories described above. Though in most circumstances people keep to familial or community boundaries, these boundaries can be overstepped when needed, if adequate food is not found within one's own territory.[145]

Several staples, both wild-caught and commercially available, are now abundant near the main villages, meaning that people do not always have to travel to distant resource harvest areas to meet their minimum dietary needs. Yet if the availability of fish and game, or the economic realities of the modern village, were to change dramatically, adaptations to food insufficiency would surely involve adaptations to the seasonal round, and perhaps even families' decisions as to where they live.[146] Anderson et al. explained in the 1970s that even though food resources have been fairly stable and close at hand, many families were still quite dependent on access to lands within and immediately adjacent to the park:

> "While subsistence has remained the Kobuk people's economic mainstay, the geographic extent of subsistence activities has fluctuated considerably during the past

century. Over the past several decades, the subsistence range has become increasingly concentrated within the Kobuk valley and near existing settlements. Caribou have reached a peak of abundance and have become easily available near the villages. At the same time, moose populations have reached a high point, commercial trapping has declined severely, and fish and small game have remained fairly plentiful."[147]

While hunting and fishing have become concentrated around villages like Kiana, the frequency of these practices has fallen for many residents, to accommodate the duality of subsistence harvesting and employment in a cash economy. Helvi Sandvik describes this transition: "people were really a lot more nomadic in the past. And then . . . you know, jobs . . . instead of hunting seven days a week, it's a weekend activity.. . . your time constraints, you know, sort of determined where you could go, and how far you could go."[148]

These patterns persist in relation to wage employment today. For some residents of Kiana, subsistence practices like fishing, hunting, and trapping remain integral as sources of food, alongside earned income. Many jobs in the Kobuk area are seasonal, available only during the summer months—and most of these opportunities have been largely available only to men, in commercial fishing, mining activities, and operating heavy machinery. In adapting to these conditions, women and children more commonly visit traditional camps, fishing and gathering resources for the family, while men find employment. Helvi Sandvik remembers that many of the men from Kiana worked for B&R as tugboat captains during the summer, while the women harvested fish:

"Lucy Jackson—Henry's or Thomas's mother— . . . and Martha's husband, worked in the summertime . . . up on the North Slope. . . . [H]e was geological survey I believe. And Henry Jackson, Thomas's father—his mother would be fishing in the summertime, seining, and doing all that stuff, and Henry was off somewhere working seasonally. So, a lot of the . . . women and kids—would be doing the seining and the fishing and the cutting and the hanging while the men were off working in wherever they could find work. You know, a lot of the men here, that would have been my mother's contemporary, they were seasonal workers somewhere. They were tugboat captains for B&R. We actually had a surprising number of tugboat captains here. Rudy Black. There were like five men from Kiana and then several from Noorvik who drove those big tugboats."[149]

The men then came home in the fall, in time to begin hunting caribou and trapping during the winter.[150] When Larry Westlake, Sr., was raising a family, he worked in the summer at the mine, operating heavy machinery. But he mentions that "trapping really helped us out when we needed a little more money raising our children, you know."[151] Christina adds that, in the past, having a supply or store of subsistence foods provided security against unreliable commercial sources: "Yeah, well, in those days too, you know, getting the food to eat was so important. There was not a piece of meat to be had in the stores. . . . Any of what we have now. Just cans. . . . And they always ran out of supplies in the spring."[152]

Thus, the people of Kobuk Valley continue to employ traditional techniques to adapt to dynamic resource availability in the Kobuk region, based on an intimate relationship with the environment, which is predicated on many generations of careful observation of seasonal and annual change.

Table 4.1: Selected Seasonal Camp Locations Used by Kiana Families. Using USGS spellings[153]				
Spring Camps	**Late Winter/Early Spring camps**	**Summer Fish Camps**	**Fall Hunting Trips**	**Winter Hunting Trips**
Kobuk River delta	Kallarichuk Hills	Kobuk River	Nakolikurok Creek	Purcell Mountains
Noorvik	Squirrel River	Squirrel River	Kallarichuk River	Baird Mountains
Selawik	Omar River	Noorvik	Salmon River	Squirrel River
Squirrel River	Klery Creek	Qala	Hunt River	Omar River
Mouth of Timber Creek	Trinity Creek	Kallarichuk River	North Fork	Tutuksuk River
Nalluq	Noatak River	Mouth of Omar River	Kidways	Timber River
	Itimtikrak Creek	Nalluq	Onion Portage	Noatak River
		Siqsiq	Headwaters of Omar River	Nimiuktuk River
		Onion Portage	Noatak River	Midas Creek
		Trinity Creek	Colville River	
			Anaktuvuk Pass	

Endnotes

[1] RA 2002.

[2] TSJ 2001.

[3] HA 2002.

[4] NAES 1991a:4.

[5] Moulton 1990:15. Of David Black, Moulton says: "He does follow the younger seasonal cycle, using Kiana as a year-round 'base camp' and making forays out and about" (Moulton 1990:22).

[6] JJ 2016.

[7] Moulton 1990:16.

[8] People from Selawik and Noorvik go upstream from Kiana to go hunting: "Hunting. . . . But not fishing" (WPJ 2016).

[9] Moulton 1990:15.

[10] HJS 1990:2.

[11] HJS 1990:3. An account recorded by Ellanna also depicts resource-gathering up into the national park area, near Onion Portage: "Ukualuk—place where waterfall drops to water—between [mtns]] and flows to Kobuk Creek go to arca w/no trees, only willows [areas]] Noatak area went as far as Colville River—only leave from area—stay until last part of September—used dogs to pack and went on foot and stayed until end of September and used willow for fuel—make 3 packs and put no dogs—leave to another place and then later—weight of packs always be the same—move in short distances—then return—when get to Ambler River—move raft down the Ambler River by raft—shoot rifles when they get close to village—1928 4 people went. . . this was last time they went trapping to Colville River—Hunt River this side of Onion Portage—Etailuk River" (Ellanna and Sherrod 1989b:13-14).

[12] IAB 1992.

[13] Anderson et al. 1998:35.

[14] NAES 1991b:11-12.

[15] Burch 1975:3.

[16] Burch 1975:6.

[17] Burch 1975:3.

[18] Burch 1975:3.

[19] Anderson et al. 1998:32; NAES 1991a:6. Linda Ellanna made this notation regarding Martha Wells' family: "[A]fter breakup those who camped down there—after 'collecting' get a lot of 'grub'—sugar, flour, tea, coffee, dried fruit, salt, twine, rope, (manilla—no nylon) knives, shotguns, 2700 and ammunition, lard—move to Okuk Point where store for smelts—went smelting in June at Okuk Point . . . after smelts, people come back to village for white fishes and salmon" (Ellanna and Sherrod 1989a: NA34-35). ... "There—some people stayed at old village [Kiana] for salmon and whitefish—used tents—berry picking while at fish camp . . . June—July—August—Sept –" (Ellanna and Sherrod 1989a:NA35).

Also, regarding Martha Wells' family: "[F]irst whitefish from sloughs, trouts in June—trouts from lakes—like now in July—in June always start getting trout in gillnets" (Ellanna and Sherrod1989a:NA35). And "[S]ome families moved upriver, Kiana (reindeer corral—Martha's allotment) for salmon—cabins—would like to spend summer" (Ellanna and Sherrod 1989a:NA35).

[20] Anderson et al. 1998:184 "Pike and whitefish are available beginning in early summer as they move from marshes and lakes back into the tributaries of the Kobuk (Anderson et al. 1998:163).

[21] Moulton 1990:15.

[22] NAES 1991a:7.

[23] Moulton 1990:15. As Moulton writes, "Whereas Fall and Winter were the time when families

split to engage in different activities (i.e., fishing as opposed to caribou hunting and trapping), Summer and Spring is the period of family separation (i.e., seasonal wage labor)" (Moulton 1990:15).

Wage labor became a larger factor in the 20th century. A 1920 Kiana Village Census compiled by the Alaska Department of Commerce, spelled out the wage labor Kiana residents engaged in. Listed are 302 entries, one entry for each individual. Each entry contains the following data fields: Name, DOB, Residence, and Age; Father's name, his ethnicity, POB, and occupation (FOCC); Mother's name, her ethnicity, POB, and occupation (MOCC); Offspring (total and living); MWF (not sure what this stands for); and Notes. Of the 302 individuals, 136 of them identify their father's or mother's occupation as laborer and 53 contain no information. Fifty-seven individuals identify their father's or mother's occupation as a hunter, 56 as a trapper, 12 as a fisherman and seven as a reindeer herder. Other entries include, automobile mechanic, B&R tug and barge captain, BIA teacher, BLM, Cat driver, store clerk, field planner, home worker, janitor at BIA school, maintenance man, military, miner, no occupation, oiler, pilot, security guard on the North Slope, store keeper/manager, student, woodcutter and well driller" (Bureau of the Census 1920).

Notes made by Linda Ellanna while interviewing Eldwood Atoruk allude to the desirability of wage labor: "Muskrat about half mile from camp when 10 years—went to work at (Candle) in 1945 desperate for working—claimed to be 18—airplane mechanic helping—learned to weld from James Hutchinson—1979 certified welder—greatest ambition to be a certified welder—lots of people went there (Candle) to work while during 1940s—dredges on Candle—stay on river mostly—in summer stay on river—plenty of caribou on river—caribou yellow—muskrat yellow" (Ellanna and Sherrod 1989b:NA20).

[24] MHW 1990:4.

[25] MHW 1990:5-6.

[26] PGS 1990:5.

[27] PGS 1990:6.

[28] TSJ 2001.

[29] NAES 1991b:6.

[30] NAES 1991a:7, 6.

[31] NAES 1991b:6.

[32] NAES 1991a:6; also, NAES 1991b:12. The NAES reports on how this affects the division of labor at summer fish camps: "Due to more frequent involvement of males in commercial fishing and wage- earning activities, the division of labor in fishing—particularly for salmon but, to some degree for other species as well—has shifted. Related groups of females—most commonly, mothers, daughter, and their in-laws—did most of the work in fish camps until later summer and early fall. At this time, those males involved in cash earning activities returned and conducted hunting in the vicinity of summer fish camps" (NAES 1991b:12).

[33] NAES 1991a:7.

[34] NAES 1991a:6-7.

[35] NAES 1991b:5-6.

[36] NAES 1991a:6.

[37] "You know, summertime, it's the lower river because it's mostly fishing in the summertime, you know. It's—your activity is around fishing and then in the fall time your activity is about hunting. And so, it's further up the river for hunting really" (Helvi Sandvik 2023).

[38] "The Lower Kobuk River drainage is an optimal inland location for hunting a variety of bird species, including nesting waterfowl. Waterfowl were not only eaten but also used to make socks, waterproof pouches, and medications (Burch 2006:179). Waterfowl remains at the site included eider (Somateria sp.), old squaw (*Clangula hyemalis*), pintail duck (*Anas acuta*), scoter (Melanitta sp.), and loon (Gavia sp.)." (DeAngelo and Weiss 2019:84) Also, ducks (family Anatidae and geese, gull (family: Laridae), owl (family: Strigidae), and crane. Waterfowl like ducks and geese reach the Kobuk River in late spring and stay through the fall. Gulls are generally hunted in the fall "specifically from late

September through October (Nelson 1969:164)" during times of open water. (DeAngelo and Weiss 2019:96). Small mammals are also hunted. Though available year-round, marmot are typically hunted in late April or the end of August to late September (Burch 2006).

[39] Anderson et al. 1998:34.

[40] NAES 1991b:8.

[41] Anderson 1972:68.

[42] Anderson et al. 1998:177.

[43] Lucy Jackson 1990:4.

[44] JB 1990:13.

[45] "So, fall time, you pretty much remained in the village" (RS 2002). And, once the rivers freeze up, Donald returns to Kiana (DS 1990:12). According to Johnson Black, he would begin hunting in August and continue through October: "That's the time we hunt until October when .... When it freeze up, we use a snow machine. When we got snow machine" (JB 1990:8).

[46] HJS 2002.

[47] MHW 1990:24.

[48] Magdanz et al. 2011:50

[49] "[W]ho wants to cut up a caribou in a bunch of willows and mud? You know, so having a spot where if you were to get an animal, where you can clean it on the nice gravel bar, is preferable" (Helvi Sandvik 2023).

[50] TW 1990:8.

[51] NAES 1991a:8.

[52] NAES 1991a:8.

[53] NAES 1991a:8.

[54] NAES 1991b:8.

[55] Giddings 1956.

[56] Burch 1980:291.

[57] Two houses have been excavated at *Igliqtiqsiuġvigruaq*. They are "semisubterranean sod structures with wooden supports typical of ethnographically recorded winter dwellings (Burch 1984; Andersen et al. 1998; Giddings 1952; Gubser 1965). Kobuk Eskimos traditionally spent fall and winter in houses of this type, moving to muskrat and whitefish camps when ice began to melt in the spring" (DeAngelo and Weiss 2019:94).

[58] Hares were extensively represented at the winter village at *Igliqtiqsiuġvigruaq*: "Hare snaring and hunting was a typical winter activity among the lower Kobuk of the early 20th century, beginning at the very end of October and continuing through the winter and into the beginning of spring. Hares are typically hunted in the winter and considered a staple food along with ptarmigan (Curtis 1930; Anderson et al. 1998). Hare snaring often occurred when fish were more difficult to catch, such as when snow was very deep (Anderson et al. 1998). Mink or marten are available from September to February (Nelson 1982), representing another fall/winter resource" (DeAngelo and Weiss 2019:96-97).

"Two species of hare are hunted in the site region: the snowshoe hare (*Lepus americanus*) and the Alaskan hare (*Lepus othus*). While snowshoe hare are abundant throughout Alaska, Alaskan hare tend to be restricted toward coastal areas, occupying land throughout the Hotham Inlet. The presence of a small number of Alaskan hare specimens farther inland, slightly out of modern range, indicates that either individuals brought remains back from coastal travels, that published ranges are slightly inaccurate, or that the range of these animals has changed" (DeAngelo and Weiss 2019:85-86).

[59] "When the snow became very deep during the winter and fishing more difficult, the *Kuuvaŋmiut* [and also the *Katyaaŋmiut*] hunted ptarmigan (and hare) as a substantial food source (Anderson et al.

1998:47). Jenny (Masruana) Jackson recalls that 'all winter long, ptarmigan were often the only creature available to sustain human life' (Burch 2006:181)" (DeAngelo and Weiss 2019:96).

". . .. According to ethnographic accounts, the snaring of ptarmigan was a favorite winter pastime of women and children, who could set snares in willow thickets close to home at a time of year when other sources of food were scarce" (Anderson and Lutz 2019:30).

"The techniques for hunting birds varied depending on a number of factors, including the season and hunting group size. People typically snared or netted ptarmigan (Burch 2006; Hall 1971) In 1975, the people of the Kobuk hunted waterfowl with arrows, leisters, and snares (Anderson et al. 1998:221)" (DeAngelo and Weiss 2019:82).

[60] Anderson et al. 1998:34.

[61] Burch 1975:6-7.

[62] Burch 1975:7.

[63] Moulton 1990: 18. Linda Ellanna made this notation regarding camping arrangements in Martha Wells' family: "[S]ome families (2 or 3) camp together or 4 in Martha's family . . . some both families and fires camped together—stay until breakup" (Ellanna and Sherrod 1989a:NA34).

[64] AB 1990:5.

[65] AB 1990:7.

[66] AB 1990:7.

[67] AB 1990:8.

[68] AB 1990:8.

[69] AB 1990:8.

[70] DS 1990:8.

[71] Working Group 2008a:4.

[72] HJS 1990:17.

[73] HJS 1990:17.

[74] MHW 1990:19.

[75] MHW 1990:24.

[76] NAES 1991a:8-9.

[77] NAES 1991a:9.

[78] NAES 1991a:9.

[79] NAES 1991a:9-10.

[80] NAES 1991b:14.

[81] NAES 1991a: 5.; "Itimiŋuraq" in Iñupiaq referring to the rapid, shallow river. Noatak Placenames 2004;2024.

[82] NAES 1991a:4-5; NAES 1991b:12.

[83] NAES 1991a:5.

[84] NAES 1991a:5.

[85] Moulton 1990:12.

[86] https://jukebox.uaf.edu/things-themes/muskrat-hunting

[87] Moulton 1990:2. "[M]any oral histories, like that of Susie Barr, highlight that 'when spring came in the last part of April, the people always prepared to go to their muskrat camps' (Anderson et al. 1998: 92)" (DeAngelo and Weiss 2019:97).

[88] MHW 1990:4.

[89] Anderson et al. 1998:30.

[90] "In the 19th century, the lower Kobuk was known for its high density of nesting waterfowl, a welcome addition to the spring Eskimo diet (Anderson et al. 1998: 221)" (DeAngelo and Weiss 2019:96).

[91] NAES 1991a:4.

[92] TSJ 2001.

[93] TSJ 2001.

[94] TW 1990:4.

[95] RS 2002.

[96] JB 1990:4.

[97] JB 1990:4.

[98] Ellanna and Sherrod 1989a:37.

[99] EJ 1990:2.

[100] DS 1990:9.

[101] DS 1990:1.

[102] DS 1990:1.

[103] DS 1990:4.

[104] DS 1990:4.

[105] DS 1990:4.

[106] DS 1990:3.

[107] DB 1990:4.

[108] Ellanna and Sherrod 1989a:70-72.

[109] NAES 1991a:5.

[110] NAES 1991a:4.

[111] NAES 1991b:4.

[112] Anderson et al. 1998:277.

[113] Anderson et al. 1998:37.

[114] Giddings 1961:128.

[115] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[116] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, np.

[117] Anderson 1988:1; Giddings 1961:130.

[118] Anderson et al. 1998:160.

[119] Andrews 1998:42–43.

[120] Loon 1998:39–40; Jones 2010:116–118.

[121] Anderson et al. 1998:183-184.

[122] Anderson 1988:1.

[123] Burch 1975:1.

[124] Morlan 2000:5, 55, 57.

[125] Mason and Gerlach 1995:114.

[126] Morlan 2000:57.

[127] CW 2023.

[128] Anderson et al. 1998:22.

[129] Smith 1966:18.

[130] Mason 2012:74.archival records, and historical accounts. Although Burch emphasized the number of small dispersed homesteads across the Noatak and Kobuk drainages, three coastal communities dominated the politics of Northwest Alaska (Barrow, Point Hope, and Wales

[131] Anderson et al. 1998:218.

[132] Mason and Gerlach 1995:121.

[133] As Anderson et al. describe: "Despite their mobility and their use of all available resource places, Kobuk people have known times of food shortage. Most adults in the villages can speak of these times from personal experience. When food shortages occurred, hare and ptarmigan became the staple winter foods. In former times, caribou, moose, and beaver were scarce in the Kobuk country, so these small animals were essential for meat. Fish was summer food; small game was winter food. People caught thousands of hares and ptarmigan each year when they were available. But of course, the same limitations apply to these animals as to any others. In some years there were almost no hares and ptarmigan were also scarce, so the Kuuvaŋmiut were hard put to find food. Today, of course, store-bought food eliminates the threat of physical starvation, but they do not prevent the hardship of dependence on a foreign diet" (Anderson et al. 1998:264).

[134] IAB 1992.

[135] IAB 1992.

[136] Anderson and Brown 2005:31–32, 38–39, 41, 125.

[137] Giddings 1961.

[138] Anderson and Brown 2005:26.

[139] Anderson and Brown 2005:82–83.

[140] Giddings 1961:97.

[141] Mason and Gerlach 1995:121.

[142] Burch 1984:306–307.

[143] Anderson et al. 1998:263-264.

[144] LJ 1990:8.

[145] Anderson et al. 1998:263.

[146] Anderson et al. 1998:267.

[147] Anderson et al. 1998:266.

[148] HS 2023.

[149] HS 2023.

[150] "So, the men were off doing that, and the women were doing the fishing activity. And then they'd come back in the fall time which was just in time for the caribou migration and the hunting. And so, what I remember as a kid was feeling deprived because—and abused, because we—our mother was very strict, and we had to be home earlier than the town curfew. And I was envious of my friends who got to camp in their canvas tent down on the beach and play until all hours of the night (laughs), right there by the river" (Helvi Sandvik 2023).

[151] LWS 2023.

[152] CW 2023.

[153] NAES 1991a

[154] MHW 1990:24.



The view from a game lookout point on the banks of the Kobuk River near Kavet Creek, used historically and today as a place to watch for migrating caribou and other game species. Douglas Deur photo.

CHAPTER 5

Caribou, Caribou Hunting, and Traditional Caribou Knowledge in Kobuk Valley

For Iñupiaq people, caribou are central to traditional subsistence, economies, and community life— almost every aspect of life in the Kobuk River Basin. As Elder Larry Westlake, Sr., of Kiana stated at a meeting of the Caribou Herd Working Group, "when we talk about caribou, we talk about our dinner table, our clothing, and our survival. That's the importance of the caribou herd."[1] A rich body of Indigenous Knowledge, accumulated over countless generations and transmitted to each new generation in turn, documents the movement of caribou, their traditional uses, and hunting methods. Caribou are a significant species, but more than that, the relationship between the Iñupiat and the Western Arctic Caribou Herd has played a pivotal role in shaping community life and lands now managed as part of Kobuk Valley National Park. Caribou have been hunted throughout the park, but at certain places—such as caribou crossing points on the Kobuk or on the Baird Mountain slopes—caribou hunting has been among the most significant and enduring dimensions of Iñupiaq traditional use of the land.

Both the ethnographic and archeological record point to caribou hunting and use dating back 8,000-11,000 years within what is today the park. Yet, for this entire history of human interaction with caribou, people have had to adapt to the wide and changing migrations of the species. Places such as the ancestral settlement of *Igliqtiqsiuġvigruaq* tell the story: butchered caribou bones were distinctly scarce, yet implements made from caribou antlers were still present.[2] Authors DeAngelo and Weiss suggest that people living at this village traveled long distances to harvest caribou as the herds roamed outside of their normal migratory paths, hauling the meat and hides home, leaving bones at the harvest site.[3] Therefore, even at times when caribou were scarce in what is today the park, they have remained central to the dietary and cultural practices of resident Iñupiaq communities.

Today, caribou still feed many families. Documentation of modern subsistence practices clearly reports ongoing and widespread caribou use by Kiana and Ambler households. Magdanz et al. estimate Kiana households harvested 41,612 lbs. of caribou in 2006 alone.[4] In 2021, caribou was still the most significant harvested subsistence resource by weight, estimated at 40,061 lbs (or 106 lbs per person). Caribou were used by 97 percent of Kiana households in that year; 60 percent of Kiana households attempted to take caribou, and 47 percent succeeded,

commonly sharing the harvest with households that had not harvested their own caribou.[5] These enduring practices ensure that, in spite of the many economic and dietary changes of the last century, and in spite of the changing demographics and movements of the species, caribou retain a central place in the lives and diets of modern Iñupiaq families.



Thousands of caribou travel through Kobuk Valley in the fall. Here, a single caribou travels near Onion Portage. National Park Service photo.

Volumes could be written about Iñupiaq relationships with caribou over time in the Kobuk Valley; here we offer only a summary, meant to illuminate themes of particular concern to Iñupiaq families from Kiana and other park-associated communities. We briefly address changes in caribou herd distribution, and the unique importance of caribou herd crossing points on the Kobuk River as enduring hunting sites. We also address the harvest methods and uses of caribou, and how these have changed over time even as the significance of caribou endures. We close with a brief discussion of traditional rules for caribou hunting that are brought into conversation today with the decline of the Western Arctic Caribou Herd.

The Western Arctic Caribou Herd Across Time

The caribou that migrate through Kobuk Valley are considered part of the larger Western Arctic Caribou Herd (WACH), a vast caribou herd that resides in northwestern Alaska. The size and geographical range of this herd vary widely over time. To offer recent statistics for reference, the herd consisted of 490,000 caribou and ranged over 190,000 square miles in 2003—the year of its largest recorded population. In the 20 years that followed, the herd has declined to 152,000 caribou, a mere fraction of that number.

The chronology of these fluctuations remains a topic of active debate, research, and speculation. Scholarly studies assign an array of dates to past caribou population fluctuations and attribute these changes to several historical causes. As Anderson observed during the 1980s, for example, "[b]ased 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."[6] Other authors have observed that the WACH crashed between the 1870s and 1880s.[7] To the south of the study area, caribou remained plentiful in the upper Koyukuk and could still be hunted there on long-distance treks by Kobuk River communities until 1902, when the herd changed its migration route—not appearing in that area in significant numbers again until 1919.[8]

After the 1880s crash, caribou began to rebound in the Kobuk Valley and range more widely at the turn of the 20th century. In the 1940s, with their migration patterns shifting, the caribou returned in large numbers to the Kobuk region—a phenomenon recalled by elders such as Larry Westlake, Sr., who describes their return as a watershed moment in Kiana and Kobuk River Basin history, as we address in more detail below.[9] Caribou populations remained comparatively depressed in the mid-20th century. Citing U.S. Fish and Wildlife Service data, Lantis notes that in 1949, "only nine sizeable herds of caribou (2,500 head or more) remained in Alaska."[10] One of the nine herds was located in the Kobuk-Noatak area and continued to sustain Kobuk River Basin families through this period. Caribou continued

to be seasonally plentiful in the region through the late 20th century, reaching their peak population in the early 2000s before their recent and precipitous declines.[11]

Over the years and in recent times, these broad fluctuations have clearly impacted Iñupiaq hunting practices in numerous ways. In some cases, the decline of caribou numbers—the migration of the herd away from the Kobuk River Basin—has required families to take disruptive measures, even short-term or long-term relocation of entire households to distant places. These cycles of disruption and relocation seem to have punctuated Iñupiaq life historically. Evidence of these dramatic cycles can be seen at the historic *Igliqtiqsiuġvigruaq* village site, for example. Occupied in the 18th and early 19th centuries, the village was abandoned around 1900, due to what was likely a food shortage, caused largely by a shift in caribou migration pathways to places beyond the reach and traditional hunting territories of the village.[12] At this time, many residents moved to coastal areas in search of food: "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."[13]

Modern Iñupiaq hunters continue to respond to fluctuations in caribou population by adjusting their subsistence strategies. For example, some continue the longstanding practice of taking long-distance hunting treks to faraway hunting areas, such as those within the Noatak Basin. As Anderson et al. observed, "[h]unters 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."[14] These patterns are still described by contemporary hunters from Kiana and other villages, who describe long-distance trips to the Noatak Basin as a recurring theme in their families' hunting practices. Johnson Black, for example, referred to days when the caribou hunt required a trip to Noatak from Kiana: It was a "[l]ong ways to go out for caribou."[15] Lucy Jackson also recalled that hunters traditionally made the trek to the Noatak each winter, in search of caribou: "In the wintertime men used to go with the dog teams and hunt. Because caribou was scarce around here. There was no caribou. You have to go way up north with a dog team. That's how they used to hunt caribou."[16] Martha Wells recalls when there were no caribou near Kiana, only reindeer: "There was no caribou that time. No moose, no caribou. They never used to come around. . . they used to go way up [to Noatak] to hunt for caribou."[17] Even if these times have involved a shift in caribou hunting practices away from the park, the treks to these distant places have still historically involved the park—with, for example, winter trails through the park being used by Kobuk River Basin families to access, and return with game from, the Noatak Basin.

While the caribou population has declined in recent years, large herds continue to move through Kobuk Valley regularly, drawing hunters from Kiana and other communities to longstanding hunting areas within the park. As Magdanz et al. note, "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."[18] The centrality of caribou in the lives of modern Iñupiaq families and in the ecology of Kobuk Valley suggests that interplay of changing caribou migration with the patterns of Iñupiaq traditional use is sure to be a productive and timely topic for further investigation. Working with Kiana

Traditional Council and Kiana Elders Council, further studies might explore dynamic hunting practices and community-wide adaptation in time-honored caribou hunting traditions—helping not only to guide park management but also the emerging management of the Western Arctic Caribou Herd.

The Many Uses of Caribou

Countless traditions persist regarding the preparation, transportation, preservation, and consumption of caribou meat once the animals have been dispatched. Here we provide only a few examples, drawn from the accounts of Kiana elders. In one interview, Elder Andrew Black described the way Kobuk elders traditionally processed caribou:

> "Well, the way the old people fix a caribou, you know, they make it real small. They cut it up in pieces and freeze it …. Right together … then pile it up in one pile. So, it would be easier to carry it and get more load like that."[19] Typically, sleds were full of caribou meat upon the return to Kiana. "See, we take about—say around nine caribou. But you have to take it in relays, you can't take it all at one time. That's too much for one trip."[20]

At times, caribou were dried into what is called *paniqtaq*.[21] Thomas Jackson describes how his family prepared and dried caribou meat; as a kid, one of his jobs was to watch that other kids did not "steal the meat" and sneak away with pieces that were not yet dry, because they loved the meat so much. He also made dried meat for his brothers before hunting trips—a lightweight, protein-rich food that sustained hunters over long treks.[22]

Jackson adds to the story, explaining a drying technique his father dictated, where the meat was taken out of the freezer, wrapped in cheesecloth, and hung to dry where it developed a 'crust' of mold: "And I did that one time, and hung them—it was good weather outside first, but I had moved them inside the house …. When they … made a crust on them and the inside, most of the moisture came out, [dad] instructed me to put them in seal oil. And about a week and a half later he said for me to get … the container. He said, 'This is better than the black [meat]' and it was."[23] The hanging conditions were described as "a high platform away from the dogs that you had to climb on a ladder and poles like these poles were put. And he said a nice cool breeze and underneath the house were above—were like on the hill—so a nice cool breeze would go through." And the meat was left to mold until it looked green. At that point, "they kind of thawed some … took off and cleaned the mold … cut the cheesecloth to where it was just perfectly red meat. And it was stuck frozen, and he said, 'Get the oil.' And I got the oil and that was very good frozen *quaq* [frozen raw meat]. Very, very good."[24] This exact method of preparation is no longer used, and Thomas does not feel confident in replicating it: "And that was the only time I made that—when he instructed me to do it. But now I … [have] the know-how to do it. The mold helps preserve the meat. And he cleaned it so clean. Took off the crust mold and then the crust dried, outer crust. That was really good *quaq*."[25]

Hunters are taught to use all parts of the animal; for example, bones are left in the carcass to be transported back to Kiana, and the marrow of the large caribou bones is a prized treat.[26] Larry Westlake, Sr., remembers that his mother usually saved all of the bones from the caribou they harvested and boiled them down to extract a substance that looked like lard:

> "[We] had to go out two hundred miles into the Noatak in the winter to get our caribou, before they migrated. And we'd save all the cooked bones from the legs, not the ribs and stuff like that, and backbone, just the—from the legs …. And she had a

> flat rock. It was about maybe eighteen inches in diameter, square. . . . [Y]ou put that in the bottom and then she had a kind of round rock in the bottom. We used that to . . . crush it down as good as you could get it and put it in a dishpan, a metal dishpan. And—this is after all the hunt is over and we were at the spring camp or something when we do that. And then when it start coming to a boil, all this oil comes up. And she skims it off into a bowl. And . . . it took her quite a while to do that, most of the afternoon, or evening. [Keep skimming it, keep skimming it.] Yeah, get everything out. And then when we were done, we just cool it off and divide it to the dogs. And then we use that—when it cooled off, it got like lard. It was white and you just dip your dry meat in there and eat your dried meat, wonderful stuff [and really good for you, very healthy]."[27]

Other parts of the animal were also prepared for consumption, as described by Hazel Apok: "[W]e used to eat every bit of the caribou. And there are some delicacies that I don't know how to make, you know, using intestines and liver."[28]

Certain shifts in caribou preservation and consumption have come with modern life. For example, freezers have become essential for preserving caribou meat. As Ellanna reported, "Larry and Christina [Westlake] have . . . another storage shed w[ith a] freezer from which she got us an entire thigh of caribou for us to eat (I told her how much I loved caribou and to hunt)."[29]

Aside from consuming all of the edible parts of the caribou, *Kuuvaŋmiut* hunters are taught to use every portion of the caribou and to let nothing go to waste. For example, they traditionally try to use skins, the gut, and other parts of the animal whenever possible. At hunting camps in Kobuk Valley, people traditionally dry not only the caribou meat, but the skin, sinews, gut, and most other body parts for future use. People sometimes use the uniquely soft, pliable fur of juvenile caribou for parkas.[30] Every part of the animal has a special role in Iñupiaq culture, and every part has special methods for its processing and care.

Kobuk Valley and the Changing Distribution of Caribou Herds

To a great extent, life in the Kobuk River Basin is oriented around the migration of the caribou. To this day, Iñupiaq families of the Kobuk River Basin closely follow the movements and distribution of the Western Arctic Caribou Herd, especially in autumn, as anticipation rises and various cues signal the return of the herd. Each fall, nearly everyone in these communities prepares, whether they intend to take part in the hunt or support it from their homes and villages. In modern times, pilots fly the area looking for the herd, people make boat trips to places like Hunt River, and some relocate to their fall hunting camps to be ready for the southward migration.[31] This attention to the environment connects hunters to their ancestors, who tracked the caribou by foot and by dogsled, frequently stopping at high lookouts along the way, following the caribou from seasonal camp to seasonal camp throughout the basin.

In modern times, as in the past, when the caribou do not migrate toward Kobuk River, hunters take long journeys to the Noatak River valley and other river basins adjacent.[32] In years of abundance, however, when the caribou migrate toward the Kobuk River, people return en masse to their camps along its banks, reconnecting to places of deep ancestral significance as caribou hunting grounds. Several major routes for these fall migrations, as well as the return migrations of the spring, fall within the boundaries of Kobuk Valley National Park—most famously at *Paatitaaq* and Onion Portage, as well as at many other places within the park.[33] Here we address some of these important routes and hunting areas



The fall migration of caribou at a 'caribou crossing'—natural crossing places that become traditional hunting sites on the Kobuk and other rivers across the region. Kyle Joly photo courtesy of the National Park Service.

in and around the park, based on the accounts of Iñupiaq elders.

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 period of low caribou population.[34] According to Anderson, Kobuk hunters ranged widely to take caribou in fall and winter. Travel through the mountains was done by a number of routes, such as along the Redstone River, crossing from Ivishak Pass to the Cutler River valley, and also through the Ambler River, Nakmaktuak Pass to Nushralutak Creek to Midas Creek. This aligned with caribou migration routes through the passes "at least since the abandonment of the region by the *Nautaaġmiut* [people of the Noatak] around the turn of the century."[35]

The accounts of Kiana elders about hunting caribou along these traditional routes in the park are as numerous as they are rich. So too, there are many accounts of traveling through lands now in the park in search of caribou in more distant places, in response to these long-term fluctuations in caribou abundance and location. For example, Percy Jackson, like many elders, remembered traveling north from the Kobuk in the summer, following the course of the Salmon River and traveling through the mountains in search of caribou.[36] So too, Walter Cook, Sr., recalled elders of the past traveling through this area in the fall to hunt caribou during times when caribou were scarce in the Kobuk River Basin.[37] In these times, they often traveled up the rivers draining into the Kobuk from the north, crossed mountain passes, and hunted caribou on the far side of the Baird Mountains:

> "this old man [brother of Richard Glover] most of his life, he's been going up, way up north to hunt. Because I notice all these people, especially our Native old people, you go out about September; August, September, go way up because there's no caribou them days. You have to go either past Noatak side and stay out there for 2 or 3 weeks at a time they used to say. And then they'd run into caribou. And they'd . . . dry that meat out there, you know, in order to take it back home."[38]

In the early 20th century, caribou were often scarce along the Kobuk, so these long-distance journeys became commonplace for many families who traveled from Kobuk Basin villages to the Noatak each year in search of caribou. For this reason, a number of elders came to think of traveling to the Noatak as "the norm" in their youth, before the caribou began to return to the Kobuk in greater numbers around the 1940s. For example, Larry Westlake, Sr., recalls that, during his youth, his family routinely traveled to the Noatak country to find caribou:

> "I did go out with my brothers until I was fourteen. They went out with their uncle and other relatives in the winter, especially in February, March . . . when the days get a little longer. And they would start from here and go to the North Fork, Squirrel River, and there's a divide over to the Noatak. Take a couple days to get there. And they'd camp out and just—for a week, ten days, depending on how much caribou they get. And they'd bone most of the meat to start with. So, they start to get the dogs up to giving them all that oil and bones and stuff to [get them ready]."[39]

People traveling to harvest caribou on the Noatak were traveling over vast distances, sometimes over two hundred miles in a single caribou-hunting trip. They often had camps along the way, where they could stay when they needed rest or shelter during inclement weather. Beyond that, elders report that, when bringing caribou meat back from the Noatak region to Kobuk River villages, they had to "go back and forth" repeatedly through passes in the Baird Mountains to get all the meat and other goods back home.[40] Often, this involved creating caches at the midpoint between the Noatak hunting grounds and the Kobuk Basin villages. Again, quoting Larry Westlake, Sr.,

> "when there's a good hunt and they get enough [on the Noatak] they make a run, sled full of meat. They make a one-day run towards home, as far as they could get, maybe halfway and bury the meat in a snowdrift and make another run back to camp and do the final one the next day. They did that, they shuttle it. [So, they could get it from a long way away and still get it halfway in the snow and keep it safe there.] Bury that valuable stuff."[41]

These patterns were seasonal. Winter allowed for dogsleds to help carry hunters and gear, as well as the large quantities of caribou meat obtained in these distant places. In the summer, by contrast, people did not have the option of dogsled travel. Prior to the advent of all-terrain vehicles (ATVs) and small personal airplanes in the second half of the 20th century, they had to travel by foot, sometimes with pack dogs. Still, when the caribou were better in the Noatak Basin, this was nonetheless an important place for extended hunting treks through the summer, with hunters moving over long distances and traveling very light. Herbert Custer recalled these extended treks by foot, keeping weight and provisions as light as could be:

> "when summer comes they start going hunting . . . going over to Noatak hunt for caribou, sheep in summer. And when September comes they start coming home from

north. Some hunt for marmots only and they start coming home on September. They take dogs to help packing at that time . . . they take all their dogs. They don't have a pot to cook with, but they roast on open fire. And there's a plate, a thin wooden plate . . . that was their only plate they have; they also use it for drinking water. . .. They have tobacco and ammunition. That's the kind of life they have in those days."[42]

Through the 20th century, evolving transportation options have changed the geography of the hunt, but so too have the changing migration patterns of the caribou during the same period. As discussed elsewhere in this section, the caribou began to return to the Kobuk River Basin in large numbers mid-century, much reducing the need for long trips to the Noatak River Basin and prompting a rebound in the extent and intensity of the caribou hunt in the Kobuk Basin. People increasingly built "fall hunting camps" along the Kobuk in the years following World War II. Since the 1970s, with growing access to motorized transportation, many hunters remain at their homes and use these as "home bases"—going out on abbreviated hunting trips or day trips to participate in the fall hunt, while some utilize fall hunting camps not far from town.[43] Elder hunters like Donald Smith recalled how these shifts resulted in the adaptation of their caribou hunting areas. Smith once traveled all the way up the Noatak River, but by the late 20th century, "you find caribou just outside your door."[44] In the 1980s, he typically set out before December, taking his dog team to Cross Creek where he spent the night before continuing on to *Takpalaruq*, where he camped for another night: "Yeah. Another camping spot there. And end of the timber line right over here some place. That's where the timber line ends. Nothing but willows after that. Those are the main camping spots around there. When you travel with dog team."[45] In more recent years, the caribou moved even closer to the village. By the early 1990s, Donald could make day trips to Klery Creek hunting for caribou: "And then after that we just go to Klery Creek and places around here just to go hunt. Caribou was all over."[46] The shift in opportunities for hunting brought an expansion and elaboration of hunting territories at every step.

In normal years, some of the best fall caribou migration occurs within and around Kobuk Valley National Park. Anderson describes the caribou moving in two main groups: one traveling up and down the Hunt River and other river basins descending from the Baird Mountains in the north, and a second group often migrating along the western edge of the park, often passing through the Squirrel River Basin following the time of the migration in the Hunt River.[47] In some years there is ice in the river when the caribou migrate, and they may move along the river looking for open country and waiting for an opening in the ice to cross. As part of these general patterns, many migrate through the heart of the park. Elders observe that some places in the park are predictably good for caribou, while some they identify as only being "good sometimes." Especially in the era before the advent of motorized vehicles and remote communications, when caribou locations were harder to determine at a distance, they often visited the most predictably good places in Kobuk Valley first, then worked back to a constellation of other possibilities. For example, Henry Jackson, Sr., identified Akiak Mountain as a place "where caribou travels, right through this mountain here [during the fall time]. . . . And then ... they cross this Hunt River creek right here and then they follow this low land to this Onion Portage."[48] In his time, hunters went to these pathways first—hunting there or, if they found no caribou in the usual places, traveled to other points along their known paths of migration to meet the herd. At the time of the interview, in 1990, Henry commented that he had hunted for caribou "last summer. . . . Every summer. That's where people hunt all the way [through this area]."[49]

The migration routes through the late 1900s and early 2000s were especially well aligned with Kobuk River communities, with caribou traveling in large numbers through the area between Shungnak and Kiana—in other words, right through the heart of the park. Often, they have arrived first near Hunt River. Families will boat up the Kobuk to the Hunt River confluence to check on the progress of the migration. Some hunt there, but others wait for later stages of the migration.

These patterns have largely continued into the present day—though the situation has been complicated by reductions in size of the Western Arctic Caribou Herd, and changes in the herd's migration patterns. In recent interviews, Kiana elders express disorientation regarding the herd's new migration and decline, and seem to adapt to these changes in ways that reflect time-honored patterns of assessment and adjustment in the traditional hunt:

> "Well, right now, yeah. I'm puzzled what the caribou is doing because . . . there was a herd over between Kivalina and Noatak and there was a herd over at Buckland, a herd by Selawik, and a big herd right in Shungnak area, right around the town this year. Shungnak and Ambler. And those were the ones that migrated to the mountains in November. They were a late herd, and they just got to the river there and crossed it and wintered there. And we didn't get any caribou here last fall, so. And this spring, coming in the spring for years and years, the migration that—in the Buckland, Deering area, and the Selawik area—most of them used to come right through here. They'd come over those mountain range between Selawik and here, and they just come right down the river and follow the river up . . . while the ice is good. Not one come through here this spring. There's a lot of change in that."[50]

Kobuk River Caribou Crossings

Hunting caribou at water crossings has been key to harvest practices in the Kobuk River Valley. Widely documented Iñupiaq tradition focuses on the hunting of caribou as they cross the river – where they move slowly and can be readily hunted from the shoreline. Over time, campsites aggregated in key hunting sites at these crossings, and longstanding hunting camps at river crossings became the cabin and camp sites of the 20th century. Elders' accounts make it clear that modern allotments are often located at places that were predictable caribou crossing and hunting areas historically.[51] Here, we address certain places mentioned by Kiana elders as important caribou crossings— at places such as Kidways, *Tuutaksraq*, the Salmon River drainages, Coal Mine, and areas nearer to Onion Portage. These are just a selection of caribou crossing places long visited and hunted by *Katyaaŋmiut* and other Kobuk River communities.

In places where caribou predictably cross the Kobuk River in large numbers, elders often report the placename *Nalluq*—which they describe as meaning, "where animals cross . . . a stream, caribou mainly."[52] As Larry Westlake, Sr., explains, "It's *Nalluq.* Means, 'caribou, they jump in the water.'"[53] Christina Westlake adds: "Or a 'crossing for animals,' *Nalluq*—bears cross there too, or moose."[54] A place called by that name was reported on the river in Kobuk Valley National Park—described as a place for hunting, but also with an adjacent hill used for gathering cranberries and blackberries. Families visit and maintain camps in this place, associated with caribou hunting and other subsistence activities.

Places such as *Nalluq* are said to be the epicenter of the local hunt: "*Nalluq*—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!"[55] This crossing place was an important hunting site, and at *Nalluq*, at least two hunting camps were active



Caribou tracks through the Great Kobuk Sand Dunes of Kobuk Valley National Park. Amy Martin photo, courtesy of the National Park Service Artist-in-Residence Program 2023.

in the 20th century. As Larry Westlake, Sr., recalls, there "used to be a great one right there. Both camps [there] you know."[56] In spite of their great historical abundance at this place, hunters such as Larry Westlake Jr., are concerned that the caribou have started moving from *Nalluq*: "[W]e haven't had much cross for a few years here, but you know, they found different places. Maybe there's—maybe that's the reason they don't cross here. They went back and start going to—further up Salmon River, Onion Portage."[57]

There are many caribou crossings on the Kobuk River, not all of them named for that characteristic. The place called Kidways is remembered as an important caribou crossing and hunting point along the river and is interior to the park. Henry Jackson, Sr., remembers the caribou often crossing in multiple locations ranging from Onion Portage to Kidways: "Kidways. It's what they call—it's on the Kobuk River."[58] Helvi Sandvik also identified Kidways as "a good spot [for caribou crossing]. . . . Yeah, Kidways is a spot where you've got

good visibility and you can see, actually see the caribou coming up over the mountains and then down to that creek. You can see them coming down the hill, and then they disappear into the woods; but they're coming and they're going to come out on that creek."[59]

Other places, such as *Tuutaksraq*, were also described as important caribou crossing areas. The camps along this reach of the Kobuk River are traditionally used as part of the Kiana hunt, and individual families still return to this area today. Some described this as a historically rich area and note that the caribou harvested here were widely 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!'"[60]

Onion Portage, *Paatitaaq* in Iñupiaq, has long been a caribou crossing place. *Paatitaaq* gets its name from the wild onions that grow along the river. The English name, Onion Portage, comes from the same plant and the presence of a portage that cuts off approximately ten miles (16 km) of river travel. It is upriver from Kiana and still visited by motorboat when the caribou are migrating in that direction. Recently, Larry Westlake, Sr., has been hearing about more caribou crossing in two key areas, near the Salmon River confluence and Onion Portage, and growing interest in this area among hunters as the caribou migrations continue to change with time. For some families, this may prompt a return to hunting areas used by their families long ago but not visited much in recent years.

Still, this is not the full list of caribou crossing places. Even the area around Coal Mine is said to be a caribou crossing place hunted by families in recent times. Sitting so close to Kiana, it is an appealing place to hunt when the caribou migrate through the area. As Helvi Sandvik observes, "a place like *Tuutaksraq* or Coal Mine, that nice bend where the gravel is, you know, those are the kinds of spots where you're hoping you come across a caribou. . . when I think of *Tuutaksraq* it's all about hunting." Kiana hunters monitor these places during the fall caribou migration, and hunt there when the caribou cross the river in these areas.[61]

There were also many smaller caribou crossing places that hunters have visited along the tributaries of the Kobuk, within what is today the park. A number of elders mentioned hunting crossing places on the Salmon and Hunt Rivers, for example, as caribou ascended and descended between the Kobuk River floodplain and the Baird Mountain slopes. 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. Thomas Jackson remembers a caribou crossing point in the Salmon River Basin at "*Uliqsuaq*, even across *Nakuuraq* they cross right there. . . . Yeah. *Nakuuraq* is where they cross to right there. People [hunters] wait there on the south side."[62]

All along the Kobuk and its tributaries, the longstanding hunting of caribou at water crossings contributed to land use patterns like 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. Interviewees note that many of the high bluffs along the Kobuk River serve as lookouts for hunters. They pull their boats ashore at these places and climb the bluffs to see if they can detect caribou, as well as bear, moose, or other game species in the area. This is also done from camps and cabins sitting near the base of these bluffs. Some families have regular lookouts that they have used for many generations to look for game in the vicinity of their homes. This is consistent with the accounts of past generations of elders, who recall that several hills and bluffs along the river are "used for berries, but mainly as a lookout for game." In some of these places, hunters "can see for miles."[63]



Caribou crossing the Kobuk River. Paddling with their large hooves, their hollow insulating hair adding buoyancy, they generally cross the river twice each year—heading northward in the spring and southward in the fall. Kyle Joly Photo, courtesy of the National Park Service

Changes in Caribou Harvest Practices

In sharing aspects of ancient Iñupiaq harvest practices with the research team, Kiana elders discuss how harvest both continues ancient traditions while also evolving in many ways. Caribou behavior can be quite transitory, and learning to understand caribou behavior is key to acquiring traditional ecological knowledge related to hunter success. For instance, it is good to know that caribou tend to avoid burned-out areas for decades, both in "tundra and boreal forest, during winter ... because of the lack of lichens. In contrast, fires on caribou summer range may actually stimulate growth of caribou forage species and prove beneficial—though investigations into this process are just beginning."[64] This is just one example.

Traditionally, people might follow the caribou with tents and camping supplies as they go, sometimes devoting several days to the pursuit, as they await a good opportunity to hunt. Adaptability is part of this equation. If an animal is killed far from an existing camp or village, temporary camps are constructed at the kill site. A camp may also be established at a convenient central place between kill sites. The ability to form processing camps in the country continues to be important for harvesting, and some allotments were chosen with this purpose in mind. Interviewees suggest that many families from downriver places such

as Noorvik and Selawik might fish close to their villages (and therefore beyond the boundary of the park) but still come to the prime hunting grounds of Kobuk Valley National Park for big game hunting. Nonetheless, the distance traveled to hunt caribou has changed significantly throughout time. For example, the literature suggests that a major shift occurred in the 1980s, when men were not venturing into the minor creeks and rivers, possibly because the proximity of the caribou herd did not require them to do so.[65] At other times, hunters needed to travel far from home to hunt, as described elsewhere in this report. Sometimes, the lands now within Kobuk Valley National Park have been among the most heavily hunted in the entire basin; at other times, following the movement of caribou, the lands within the park may be largely devoid of hunting – even as families continue to watch the trails and caribou crossings of the Kobuk for the caribous' return.



Iñupiaq hunters in 1972 in Kobuk Valley. While new technology, such as snowmachines and rifles, have been integrated into hunting methods, but the cultural significance of the caribou hunt remains the same. Robert Belous photo, courtesy of the National Park Service.

In the past, "the only hunting weapons the Iñupiaq men had were spears and bow and arrows," as Elder Inez Ayagiaq Black describes. "Because they had no rifles back then, they used rawhide ropes to make snares for caribou."[66] There are still places on the landscape and in the park called by the placename *Nigaqtuġvik* – a term for the traditional practice of snaring caribou, which is still applied to locations where this practice was done.[67] Also, in earlier times, hunters used stacked stones called *iñuksuich*, in Iñupiaq: "[c]aribou weirs of stone were used by Kobuk people to drive animals into rivers or lakes where they were taken by hunters with long knives in kayaks."[68] All of this changed with the introduction of rifles and other new technologies through the late 19th and early 20th centuries.

Though methods have changed, the centrality of the caribou hunt in Iñupiaq culture has not. Some *Katyaaŋmiut* elders describe learning hunting skills at relatively young ages, such as in their teens—even going out on their own at that young age. For example, Leo Jackson



Archeologist stands next to an inuksuk, likely used for caribou hunting, on the Akilik River in Kobuk Valley National Park.
Brendan Doucet photo, courtesy of the National Park Service.

recalled that "[a]fter the first year ... I start going out hunting caribou by myself, too. Spend two and three days, I was 17, 18. Come home with a sled load." He explained how his father had taught him how to hunt, and the challenges of hunting in those times: "I used those techniques and I get a few, maybe five or six [caribou], and come home with half a load—I mean, half of what I catch and go back and get the other half. I had to haul wood, carry water, chop the wood. No chain saw of any kind. Deep snow, hard travel. Wind blowing, snow—stormy. Hard times we had."[69]

The lands now managed as part of Kobuk National Park endure as a caribou hunting venue of importance. Many Kiana elders reported hunting in the Kobuk Valley during their adult years. Indeed, several elder hunters continued to harvest well into old age, in part, to apprentice younger hunters. "Lee [Barr from Kiana] said that his sons are good hunters and go out with him—he taught them to use firearms at the age of three [or] four."[70] Peter [Atoruk] began hunting when he was 4- or 5-years old and his father took him out to the mountains. He said [in 1989] that "despite his age 85 or 86, he had hunted caribou and fished during the last 12 months successfully, although he had given up trapping because of low fur prices."[71] In 1989, he identified his employment, including subsistence, as "hunting caribou and fishing."[72] In the 1980s, a number of elders identified subsistence harvest as a main part of their employment.[73] On a *Family History Form* filled out for Rudy Black in 1989 as part of the *Northwest Alaska Study*, Black documents his household subsistence activities to include hunting at Onion Portage and fishing from a cabin located between Kiana and Ambler.[74] On her 1989 *Family History Form,* Martha Hasway reported approximately twenty hours a week spent hunting caribou at Onion Portage from September to October, in addition to fishing at camp upriver from Kiana, approximately thirty hours each week between July and September.[75]

The literature suggests that the gender dynamic of hunting has shifted over time—another adaptation in hunting practices. There are many accounts of women hunting; and in 1990, it was common for women to go out hunting by themselves. Their range was slightly different than their male counterparts: hunting closer to the village, not past Kallaruichuk River.[76] Elders recall that women often harvested berries and greens during summer caribou hunting.[77] Female hunters, like their male counterparts, often learned hunting while young. Hazel Apok reported hunting caribou as a child and learning from her mother:

> "My mother explaining to me that caribous looked like this, they have big eyes. Me and your father are going to—not corral them, but we're going to go on each side of them and try to get . . . them to an area where it will be easy to reach . . . they wanted to get the caribou close to where we were at and [my mother] explained to me that I had to sit still, that if I did see a caribou, not to be frightened. I remember that very vividly because that caribou—that one caribou did come along, you know, and we looked at each other. And it was good that they talked to me about that because I don't know how terrified I would have been."[78]

Thomas Jackson's grandmother, Clara Jackson, hunted caribou with a group of other women:

> "They were using the eighteen-horse motor . . . my mother's big blue boat and . . . younger men like Walter Cook, Raymond Stoney; even Raymond Stoney told me this. But his mother was telling me because she was there. They let the two older ladies go first. When they got to the herd that was crossing, Anna had the .22 and [Iñupiaq name] was driving, but she got—when they got to the herd, Elsie . . . couldn't stop the

motor. It kept going, but they were going slow. And Elsie, she said they—the boat, even right through the caribou on the sides, bull caribou (chuckles). She said Anna was up in front, she started going like, . . . 'Never mind! Start shooting!' She didn't even have to aim, all she had to do [was shoot]—because the caribou were right there. . . .[B]ecause she couldn't stop the motor, she finally took the hose off. And when . . . it stopped, Elsie said the young men were really laughing. They . . .—maybe four, five caribou they got. The men sure were happy . . . because they started laughing. She said, the men gut it, quarter it for them."[79]

Though gendered patterns exist with regard to who harvests and by what method, these patterns do vary by family: "Christina [Westlake] learned to shoot both small and larger game, but many females do not know how to shoot—her father taught her and her sisters to shoot when young—[she] has taken caribou and gone [with her] husband bear hunting."[80]

Traditional Hunting Values

As many Kiana elder hunters attest, hunters have long been taught to "[s]how respect for the caribou after it is harvested"[81]—an especially enduring cultural value. As the WACH Working Group states: "You are responsible for the caribou you shoot. Take good care of the meat and all the parts. This is how we give thanks to the animal that gives itself to us. Not only is waste of caribou disrespectful, it is illegal."[82] In return, some hunters have understood caribou behavior to be aimed at them; they might perceive an animal to be "giving itself" for the sake of the hunter. This is something many experienced traditional hunters have noted—even though it is a foreign concept to Western hunters.[83]

Values related to the caribou hunt reflect a very longstanding tradition of traditional care and management of caribou, rooted in millennia of dependence and close connection with these animals. Elders make it clear that these values were not just arbitrary or self-serving, but reflect a deeper understanding, even a wisdom, regarding how the caribou should be looked after and respected so that both humans and caribou thrive together across the generations. Illustrating this point, Donald Smith, both a Kiana Elder and a Guest Elder at the May 2007 Western Arctic Caribou Herd Working Group Meeting in Kotzebue, "...spoke about how Natives managed wildlife on their own. 'Thirty or forty years ago Eskimo controlled their caribou—just like farmers. If you over hunt one year then you won't get as much next year.'"[84] Larry Westlake, Sr., another Kiana Elder, spoke about how elders of his youth played a critical role in caribou hunting, stating, "The caribou wasn't a very big herd at that time, but with the help of our elders and knowledge of the land and the herd—they were the best managers on earth because they knew that the herd had to survive so they could survive themselves. [The elders] were a big part of the growth of our caribou herd."[85]



A caribou skull skits among the fall bearberries, dwarf birch, and willow in Kobuk Valley National Park. National Park Service photo

Traditional caribou management included traditional "regulations," and has integrated

more recently with formal regulatory schemes. Referring to caribou hunting regulations of the past, Johnson Black explained, "[T]hey had certain days for seasons to open [during the month of August]. We go—we follow that rule. ... Regulations, yeah. We follow them." Johnson continued, "So—that month caribou open, moose open, bear open. And all that. Berry season open. You know, we—we don't waste anything. Like when we were hunting, we don't shoot anything—if it's open or closed."[86] And, "when they open and it's about a week. It's not open caribou wise. Later on, everything open. Caribou, moose. Caribou, that's the time they—just before freeze-up, they always start getting stuff to eat. You know, fresh. Berries. Not much berries this year."[87]

In his description of one traditional hunter, Walter Cook, Sr., associated cleanliness with skill in the hunt:

> "This here is Harold Gooden, my uncle. My mom's brother. . . he is also a hunter, you know. Especially with dogs. And then he goes out and he catch caribou. Usually this old, this guy here, he never gets his mukluks bloody or anything when he's out. He's really clean when he's butchering caribou. You never see no blood stains on his mukluks when he comes home. I guess he—the way he—that's how he was when I first noticed when he goes out hunting. He takes care of all of his dogs [in] winter-time. He's a good hunter, too."[88]

Written sources and elder interviews broadly discuss various kinds of traditional stewardship to ensure the migration: "Caribou come from the north by the thousands . . . after the first 500 or so cross the river, you can start taking caribou."[89] 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.[90] This kind of traditional knowledge, interviewees note, is critical for the future survival of the caribou and of subsistence hunting practices.

According to the WACH Working Group, the most important Traditional Ecological Knowledge, or "regulation" regarding caribou is this principle of 'letting the lead caribou pass.' Allowing this first caribou to pass is apparently a traditional hunting practice for Indigenous people well beyond Kobuk Valley—for example, also in the Yukon and Northwest Territories of Canada. "Reindeer herders throughout the world use 'lead animals' to help manage and move their herds."[91] The Working Group explains the wisdom of the practice this way: "If the lead caribou are spooked toward another area, the caribou coming behind them will follow that trail away from traditional hunting areas. Iñupiaq elders say that the first caribou leave a scent trail with their hooves."[92] Cows with calves also typically walk toward the front of the caribou migration, followed by bulls—another reason to let the lead animals pass.[93]

Many Iñupiaq caribou hunters are concerned that the traditional practice of 'letting the lead caribou pass' continues.[94] Thomas Jackson states that "our elders, . . . tell us, 'let the first bunch go first.' [L]et them go because more will come, and they will always follow that scent trail."[95] Larry Westlake, Jr., adds that not

> "only that, but when the second bunch come, you—after you take your kill, you go back around and make sure they finish crossing. Don't ever let them go back. . . . Because they'll never cross there again; they remember. . . . So, you let that [first group go through]—even if you have to, you know, go way in[to] shallow [water], get them

back and get them to keep crossing. And that's a big mistake a lot of new hunters don't know. . . . [Westlake, Jr., describes himself as] pretty vocal when it comes to stuff like that. I get really upset. I tell people, you know, 'You can't.' I guess not in a nice way."[96]

According to Jackie Johnson, caribou hunters have been asking the young people to abide by this traditional ecological knowledge that regulates the first caribou crossing:[97]

"[O]ne thing we ought to let our young people do is just let them cross first before you start getting the first ones going across; always had to let them go across first. That's how it used to be a long time ago. The old people, they always said, 'Let them cross first and try to catch whatever you try to,' because if they don't go across, they'll just turn back and go down the river someplace. . . . Yeah, no matter how much fresh you wanted, you got to let them pass (laughs)."[98]

The Working Group further explains:

"Protecting caribou leaders is a hunting practice passed down through generations of Alaska Native hunters. It is a deeply-held ethic among subsistence hunters; one repeatedly told to younger hunters. A few years ago at the beginning of the fall migration on the upper Kobuk River, Shungnak hunters waited patiently at home until a local elder gave the word over the VHF radio that the lead caribou had safely crossed the river and that hunting could now begin."[99]

Historically within the Kiana community, these traditional prohibitions have been hugely important. Larry Westlake, Sr., describes how, one year, the caribou arrived at *Nalluq* after years of being away. After consulting with each other, the elders assembled with the community and demanded that the hunters of the community wait two or three days after the first caribou entered the water before they could begin the hunt. As he recalls,

"The caribou came to these mountains, far from us; had to cross right there [on their migratory route]. I don't know if they did that before because that one place that they cross there, they call *Nalluq*, and that's a place of crossing, a caribou crossing. I don't know where that name came from, but they started for that area . . . then we got held up by the elders. The elders had a meeting including my uncle on my native side. He told people, all of us together, and he sit down, 'We have to wait.' He had us wait two days until they knew that the caribou was crossing. He must have been checking them because from that ridge over there, they could see, walk up there, and see the crossing on that area. And I remember two days. It might have been three days or something they held us back, but right after they cross, they found out they crossing, they had another meeting, all the hunters and said, 'Ok. You guys can go out hunting and remember this in your mind that any place you are, don't hunt in front of the migration because if you keep them from crossing, they're going to go back and cross someplace else. And it'll be further for you to hunt them' [They waited two days before hunting the caribou. The herd was really moving through.] . . . And they told us, once . . . don't bother them, let them cross, you will have caribou there all your life. . . . I know it works, and I know the consequences if you don't make it happen. [You could totally change the migration pattern.]"[100]

Many hunters recommend camping on the south side of the Kobuk River in order to give the lead caribou adequate space for crossing the river. According to Larry, "the best thing



Caribou traveling in the fall through Kobuk Valley National Park. Kyle Joly Photo, courtesy of the National Park Service.

about this is supporting the migration of the caribou. If you have a camp, we recommend you camp on the south side [of the Kobuk River]. We have to support the migration and hunt as they cross."[101] Helvi Sandvik has seen people set up camp "on the other side of the river where there's Tommie Sheldon's cabin up on the hill. And that's a good place for seining, but it's also a good place to watch caribou."[102] Despite traditional hunting practices, concern persists that increased river-based, fall caribou hunting pressure in a shorter time window can lead to disruptions in the caribou migration.[103]

Regarding ancient caribou driving practices Larry Westlake, Sr., reflected:

> "how they work it at that time, [caribou were] coming through the pass from the north into the Noatak River. . . . [the migratory path] it could be controlled, you know, very easily if you think about the right things to do. And here they were trying to make them [the caribou] cross the Feniak Lake [by putting pressure on them] because that's the only way they could kill them with kayak and spear them, or arrows, whatever they used."[104]

In 2015, Kiana Elders Council voted and approved guidelines for fall caribou harvests for the river corridor near Kiana. The guidelines were shared publicly through a flyer titled "*Iñupiat Ilitqusiat*: Hunter's Success for Caribou Hunting." The collection of traditional guidelines includes "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 partnerships to appropriately gather, record, and share Traditional Ecological Knowledge could result in further cooperative management of

subsistence hunting on the Kobuk River. The list of caribou hunting guidelines was distributed through the Western Arctic Caribou Herd Working Group:[105]

1. Use smaller caliber rifles, for the safety of others.
2. Approach caribou from the north to keep the migration moving south.
3. When caribou start crossing the river, wait until they are halfway across before approaching.
4. If you already have caribou, let the next boat in line have a chance.
5. Keep the land and water clean from trash.
6. Always camp and hunt on the south side of the river.
7. Respect the cabins you stop at and replace any resource you borrowed. Keep allotments clean.
8. Fall caribou hunting traditions differ between communities, but people who rely on caribou often have similar customs. One common traditional practice is to ensure that migratory paths are well established each year before hunting begins.

Following the Kiana Elders Council's lead, the Native Village of Kotzebue documented these traditional values associated with winter hunting:[106]

1. Take your time. Observe caribou groups before you approach.
2. Pick out the animals you want to harvest.
3. Look for animals that are fat and in good shape before you shoot. The shape of the back, the color/quality of the hide, and the upward curve of the tail can be clues to look for.
4. When mature bulls are in rut, younger bulls and barren cows can still provide good meat. Do not shoot cows with calves. If you want to take a cow, wait to see if it has a calf with it. Avoid pregnant cows when possible; they are the breeding stock of the herd.
5. Don't shoot aimlessly into a bunched-up group of caribou. Wait until they separate and target specific animals.
6. Chasing caribou and causing them to run is bad for the health of the animals and results in poor quality meat.
7. If you must chase, pick out one animal to harvest and move it away from the rest of the group. Use the terrain: look for high ground, hills, cover, or deep snow.
8. Caribou will often go to high ground if they are being approached. You can make a plan to take advantage of this or try to move caribou toward deep snow, which will allow you to get closer.
9. Show respect for the caribou after it is harvested. You are responsible for the caribou you shoot. Take good care of the meat and all the parts. This is how we give thanks to the animal that gives itself to us. Not only is waste of caribou disrespectful, it is illegal.
10. In the wintertime, an effective way to tenderize the meat is not to butcher the animal too soon. You may gut the animal out in the country but keep the skin on and don't take the animal apart. Then, bury it in the snow for a few days. The hide will keep the meat from freezing, and the retained heat will tenderize your meat.

Key to transmitting these values and traditional knowledge between generations are informal exchanges between youth and elders. Sometimes elders will welcome relatively structured "apprenticeships" where young people, especially young men, travel with older hunters to learn about caribou behavior, caribou migrations, hunting methods, and the many values and rules that are applied to the hunt. Apprenticeship remains important for relaying traditional knowledge about the caribou hunt between generations today—reflecting a tradition of apprenticeship that sustains many other traditional practices in Iñupiaq life. Hunting with a knowledgeable elder is an "aspect of traditional education. Often a young hunter is guided in the apprenticeship by an uncle. . . . The apprenticeship begins on the day that the uncle chooses to take the future hunter out."[107] Ongtooguk goes on to explain that apprentice hunters do not always hunt right away themselves:

> "The youngest person sets up the tent, hauls water, perhaps prepares sleeping bags, collects firewood, cooks, and certainly cleans. . . . While out at camp, the young boy learns about good locations for certain animals, fish, or materials during certain seasons. The boy also learns about how to select the location for the hunting camp, what equipment to bring for certain areas and for different kinds of hunting, fishing, or trapping. . . . He learns how to pack and store and how to move from one place to another, efficiently and intelligently."[108]

If the hunt is successful, the apprentice is able to observe many techniques and skills used in locating and stalking animals, and in preparing the kill. "The apprentice hears the male hunters discuss the nature of the hunt and anything learned, anything unusual or notable. ... Within this context, traditional education is a highly disciplined education. There is a need to pay attention to the stories that are told about right and wrong attitudes and behavior."[109]

Aside from apprenticing young people on hunting expeditions, men apprentice them in alternate ways. For example, "Hunting skills and conditioning were, and are, learned through traditional games and competition such as wrestling, weightlifting, and the one- and two-foot high kick [. . .] Traditional education has provided and is continuing to provide a way for children to learn and accept other adult roles that are essential to survival."[110] Uncles often take on the role of apprenticing, and as Ongtooguk explains, the decision of a particular uncle to guide a young hunter "is dependent upon complex family, social, psychological, and community relationships. It is also within the context of a community of hunters that the apprenticeship occurs. Preservation of the communities and societies depends on the cooperation of its members."[111] Sometimes a non-familial male elder has stepped in when a father or uncle could not apprentice a young man. For example, when Johnson Black's father passed away during his boyhood, he went out hunting with an older male hunter, or more often, with his older brother Rudy Black.[112]

In these ways, the knowledge of the caribou—their behavior and migrations, important placenames and harvest locations, the right ways to hunt them, and the right ways to show respect—are carried on to the next generation. Through these continued values and practices, the caribou, and the human communities that depend on them, continue to be sustained into the foreseeable future.

Endnotes

[1] Working Group 2018:11i.

[2] Anderson and Lutz 2019:19.

[3] DeAngelo and Weiss 2019:87.

[4] Magdanz et al. 2011:57.

[5] Lamb et al. 2021:73.

[6] Anderson 1988:5.

[7] Burch 1980:287; Burch 1998:158–159; Morlan 2000:57.

[8] Marshall 1933:169 cited in Burch and Mishler 1995:163.

[9] Anderson et al. 1998:259.

[10] Lantis 1950:42.

[11] Anderson et al. 1998:259.

[12] Anderson and Anderson 2019:273.

[13] Anderson 1988:21.

[14] Anderson et al. 1998:263.

[15] JB 1990:16.

[16] LJ 1990:10.

[17] MHW 1990:23.

[18] Magdanz et al. 2011:56.

[19] AB 1990:8.

[20] AB 1990:8.

[21] Moulton 1990:10.

[22] TJ 2023.

[23] TJ 2023.

[24] TJ 2023.

[25] TJ 2023.

[26] AB 1990:9; Moulton 1990:3.

[27] LWS 2022.

[28] HA 2002.

[29] Ellanna and Sherrod 1989a:81-82.

[30] Custer and Gray 1987, Tape 2:3.

[31] Anderson et al. 1998:204.

[32] DeAngelo and Weiss 2019:87.

[33] Anderson et al. 1998:39.

[34] Anderson et al. 1998:259.

[35] Anderson 1972:98.

[36] PJ 2016.

[37] Walter also said that "[Richard Glover]—he lived most of his life here in Kiana. Cause, he used to have his own house down here, right across [from] Blankenship's store. Right now, PHS (Public

Health Service) has their sewer plant where he used to live. Anyway, he sort of was short guy. And he does most of his hunting in them days, too, walking. Like I was saying, taking dogs and go out two, three months out at a time when he goes out" (WCS 2002).

[38] WCS 2002. The term "*paniqtuq*" is often used in reference to the caribou meat (Thomas Jackson 2023).

[39] LWS 2022.

[40] Custer and Gray 1987, Tape 2:4.

[41] LWS 2022.

[42] In Custer and Gray 1987:4.

[43] Anderson et al. 1998:204, 209.

[44] DS 1990:15-16. He mentioned visiting hunting areas like Naksraq and Sakku in the course of these travels.

[45] DS 1990:17.

[46] DS 1990:17-18.

[47] Anderson et al. 1998:207.

[48] HJS 1990:12.

[49] HJS 1990:13.

[50] LWS 2022.

[51] JB, PJ 2016; Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[52] Tickett and Tickett 1976:np.

[53] LWS 2023.

[54] CW 2023.

[55] ES.

[56] LWS 2023.

[57] LWS 2022.

[58] HJS 1990:14.

[59] HS 2023.

[60] ES.

[61] HS, 2023.

[62] TJ 2023.

[63] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[64] Swanson and Joly 2013:10.

[65] Moulton 1990:16.

[66] IAB 1992.

[67] NANA 1994.

[68] Ellanna and Sherrod 1989a:67.

[69] LJ 2002.

[70] Ellanna and Sherrod 1989a:35.

[71] Ellanna and Sherrod 1989b:9-11.

[72] PA 1989:54.

[73] EA 1989:35; In PA 1989:54; VA 1989:133.

[74] RB 1989:293.

[75] MH 1989:464.

[76] Moulton 1990:16.

[77] Moulton 1990:2,5.

[78] HA 2002.

[79] TJ 2023.

[80] Ellanna and Sherrod 1989a:68.

[81] Working Group 2018a:3.

[82] Working Group 2018a:3.

[83] Ongtooguk 2000:60.

[84] Working Group 2008a:4. Donald Smith also expressed frustration at the ways younger generations had lost touch with resource-management practices, and at the ways institutions tried to impose management on traditional hunters like him. According to Moulton: "Donald Smith, did a family history—He discussed disciple [*sic*; discipline?] with us. He said that disciple is the key to raising children. 'Parents put kids to much under their wing.' He was disgusted towards those who collect the dole rather than work for a living. It is a very major issue with him. He also discussed his anger with those who would manage his living off the land, a value or right that he holds to be his to manage" (Moulton 1990:19-20).

[85] Working Group 2018:11.

[86] JB 1990:7. Moulton wrote: "Talked with Johnson Black yesterday (map interview). He was very careful to assure me that they hunted within the allotted seasons" (Moulton 1990:23).

[87] JB 1990:17.

[88] WCS 2002.

[89] ES.

[90] PJ, ES.

[91] Working Group 2014a:2.

[92] Working Group 2014a:2.

[93] Working Group 2014a:2.

[94] Larry Westlake, Sr., also commented that he "did a write-up with the hunting success you know, with the tribe years ago, put all that in it. I think the Kiana people understand now that it works better if you go by that rule [letting the first ones cross the river]. . . . And you help the migration move forward. . . . If you don't hunt in front of them. You've got to wait until they get in the middle of the river and go behind them. And help them across. And you could get all the caribou you want, and the migration still goes on" (LWS 2023).

[95] TJ 2023.

[96] LWJ 2023.

[97] "Well, we've been telling them all the time, every time they hunt; let them cross first before you start shooting. . . . Once they cross, you're good" (JJ 2016).

[98] JJ 2016.

[99] Working Group 2014a:2.

[100] LWS 2022.

[101] Working Group 2018:11.

[102] HS 2023.

[103] TJ 2023; LWS 2023.

[104] LWS 2022.

[105] Working Group 2017b:2

[106] Working Group 2018.

[107] Ongtooguk 2000:60.

[108] Ongtooguk 2000:61.

[109] Ongtooguk 2000:61-62.

[110] Ongtooguk 2000:62.

[111] Ongtooguk 2000:61.

[112] JB 1990:1. Johnson Black: "The interesting aspects of the interview were that he was too young to have gone out with his father before his dad died. Also, he spent a lot of time out [with subsistence] with his brother Rudy, then his much older brother Andrew" (Moulton 1990:24). His brother Andrew Black had been fortunate to learn a lot from his father. As Andrew reported: "A couple times I went [out hunting with his father]. While I was going to school, you know. I had to take my books along with me and take my schooling while I'm with my dad. My dad was pretty well-educated guy, you know, and he's my teacher sometimes. When I run into something that I don't know. That was a long time ago" (AB 1990:20).

[113] Anderson et al. 1998:39.

[114] LWS 2022.

[115] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.



A Fox from Kobuk Valley, by Victoria – Kiana, Alaska

CHAPTER 6

Traditional Hunting and Harvesting in the Kobuk Valley

Here we address Iñupiaq hunting and harvesting traditions in the Kobuk River Valley, except for fish and caribou—resources so singularly important that we address them in separate and standalone sections. Throughout the Kobuk Valley region, traditional resource harvesters go where the animals go, so that their travels and connections to place are much influenced by the harvest of certain key species. Traplines and family camps that span the landscape are centers of cultural activity where core cultural knowledge is transmitted across generations. Harvest of small mammals, birds, moose, Dall sheep, and other fur bearers demonstrate connections to the river valley. Some harvest practices take people into the mountains and connect them to Kobuk Valley's higher elevation areas as well. While hunting and harvesting practices are passed down through generations, these practices have adapted in various ways due to changing technologies, economies, diets, climate shifts, and the availability and distribution of wild game. The cultural significance and traditional knowledge of each distinct resource endure, even as people must adapt to changing circumstances.

There are so many dimensions to Iñupiaq Traditional Knowledge of these species and their harvests that they would require a full volume to address meaningfully. Elders speak of the right times to harvest each species, and how variability in the weather or other environmental cues can indicate changes in the usual timing, locations, and abundance of game species. Even the position of the moon is said to be meaningful: elders used to report that the "moon cycles correspond to game availability." When it is the new moon with a low crescent, looking like a "cup" that could hold contents, then it is "good, like cup that stays filled." If the crescent is seen in other positions, then it is "bad, for it is spilled."[1] These kinds of hints have served as longstanding teachings that helped people navigate their way successfully to a successful hunt. So too, the elaborate traditional teachings regarding ways of showing "respect" to the game no doubt led traditional harvesters to long-term success.

This section provides a summary of each resource, with descriptions of the spatial extent of harvest based on interviews and available literature. Each section addresses changes over time, as well as offering some details about food use and preparation by *Kuuvaŋmiut.* Their accounts make it clear that not only are animal resources harvested for food, but also for materials such as pelts, still in use for traditional crafts and clothing like hats and mittens.

More information about use is shared at the end of the section, in a short description of how some animal products are used for garments and medicine.

The timeline we address here focuses especially on a period from the 1900s to the present day, though we do include additional information from archeological sources—especially Anderson and Anderson's archeological investigations of the historic village site at *Igliqtiqsiuġvigruaq*.[2] Elders interviewed by the Andersons describe a way of life from the early 1900s through 1980.[3] ANCSA-related interviews carried out in the 1970s and 1980s provide a wealth of information about life on the Kobuk prior to Kobuk Valley National Park's foundation, especially from the early- to mid-20th century.[4] Interviews of elders by Linda Ellanna were carried out in the 1980s and include many stories of growing up in the mid-1900s.[5] ADFG data from interviews conducted in 2006, 2011, and 2021 reflect the contemporary usage of Kiana residents. Information provided during recent interviews with Kiana residents is consistent with existing literature on hunting and fur trapping, with elders sharing considerable Traditional Ecological Knowledge (TEK) relating to the Kobuk Valley and vicinity.

Trapping for Beaver, Muskrat, Hares, and Other Small Game Mammals

The pursuit of small game animals like beaver, muskrat, rabbits/hares, marmot, ground squirrels, porcupine, and lynx, has long been a fixture of the annual hunting round for the people of the Kobuk. This section will provide an overview of how trapping as a source of trade and income has transformed over time. Most specifically, this section will address how trapping techniques and materials have changed so that species are targeted in winter versus summer. Following this, we review information relating to the most frequently pursued small game: beaver, muskrat, and rabbit. The *Katyaaŋmiut* relation to muskrat was particularly formative of traditional ties in the early 20th century, as they were a significant part of the economy as well as a food source. This has changed in three generations. Peoples' relationship to beaver is also changing as the animal expands and multiplies in the Kobuk River Valley.

Trapping as a Source of Trade and Income

For the Iñupiaq families living along the Kobuk River, small game harvesting has provided material for clothing and opportunities for trade. In *Igliqtiqsiuġvigruaq*, occupied throughout the 1800s, the percentage of faunal remains from small terrestrial animals was small, but represented a wide variety of species.[6] VanStone explains the role of furs in trade for inland Iñupiat:

> "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."[7]

Some version of these trade practices continues today. As settlements were integrated into the cash economy through the mid-20th century, trapping became a supplemental income for many adults. It should be noted, trapping remains important in many families, and one of the first harvest experiences for young people.[8]

The ability to hunt or trap furbearing animals to augment one's income has long been a desirable skill. Leo Jackson described how, as a seventh grader, he returned home from school to help his mother care for his ailing father, and "I had to go out hunting caribou, rabbits, ptarmigans, ducks, muskrats, anything I could get. I was still young. My father taught me—I mean talked to me about hunting." At times Leo was lucky, and at other times, he would "[c]ome home empty handed."[9] During interviews with Percy Jackson in 1989, Ellanna noted that, "[Percy] was heavily reliant on trapping as a younger man ... once you had them [meaning the targeted animal] in sight they were fascinated and failed to move as long as you maintained eye contact."[10]

Even if one did not learn trapping skills early in life, it could be sought out later. For example, Ellanna noted that Larry Westlake Sr. did not learn to trap as a young person, but learned while living in Noorvik with his wife Christina: "[T]hat was his only source of income for a long time, as at that time lynx were abundant and got a good price—he also trapped marten, mink, wolverine, some wolf and fox—stopped when prices dropped, lynx became scarce in [the] area. . .."[11]

If done successfully, trapping can be lucrative. Young men still go into the headwaters of the Salmon River Basin and elsewhere in the upper drainages of the Baird Mountains to hunt wolves and wolverines near forest margins. In recent years, a pelt from one of these animals can fetch $1,200-$1,500; sometimes more, if the pelt is well tanned.

Today, the river is often busy with travelers so traplines are set further inland.[12] 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 trapping is becoming less common within the villages of the Northwest arctic.

Changes in Trapping Technique

Setting traplines successfully requires an intricate knowledge of animal behavior and of a wide range of terrain in all seasons—knowledge that has been passed down through generations of *Kuuvaŋmiut* trappers. Over the years, trapping objectives have not changed much, though the traps themselves have changed in significant ways—especially with the introduction of metal traps. Before metal traps arrived in the region, trappers caught small mammals by constructing deadfalls, snares, and other traditional traps. Larry Westlake, Sr., learned how to build a deadfall from his mother. She learned the process from her father.

> "[M]om, like I said, went trapping and hunting with her dad and that's where she learned all of her [trapping skills]. And she taught me how to set deadfall. And you could make it out of trees too, so we had a lot of trees. And you cut a tree—if you could find a place where two trees grow right together, set a trap right in there. Hook one under and another one that's maybe a little heavier, try to get green trees that's heavy in the winter, full of sap and stuff, and slide it up. And this is the measurement that they use, the height where you're going to put—you put a little post with the rounded end up here, so it'd be easy to slip off. And you tie the bait right on it, or you could put a warm piece of meat around it where it'll freeze to the . . . [post]. And the log is on top of it. . . .[T]he animal comes and pull this and. . . Gets up and just drops on his head. Not much suffering or anything. It act[s] like a metal trap."[13]



People harvest beavers in and around the park. This population of the American beaver (castor canadensis) in the northwest arctic is the northern most beaver and "beaver range expansion" is moving further north as the population increases. Above, beavers harvested by Raymond Woods are drying near the Kobuk River in Shungnak, on the upper Kobuk. Emily Creek photo, courtesy of the National Park Service.

Percy Jackson described how he constructed rock traps to catch marmots, a skill he learned from Richard Glover. While the technique has been important to Iñupiaq trappers for generations and remains a viable option for trappers, Percy expressed concern that this skill was not being actively taught to current generations:

> "[I]n summertime, [Richard] showed me how to set a trap on marmots with rocks. Once you learn it, it is easy. . . . Oh, make a little frame on bottom, make it flat, and put a rock on top, just like a trap, and put something in the middle there. When he touch that thing, that thing would fall down on that marmot. But if you make it shallow, that thing would come out. . . . Got to make it kind of deep so he won't push up. Them marmots are strong when they—when you are trying to pull them. I think I'm the only one that knows how to set a rock trap now. Everybody else is gone. Even the Kobuk people, they never teach them about that. They want to learn right now, but we don't have time to go out."[14]

Today, traps are often made of metal teeth set on a spring that closes them when triggered, with chains and nails used to secure them. Trappers must have a high level of skill and technique to disguise such traps in the snow or surrounding debris. David Black describes how he sets his gear in place during the wintertime:

> "He always put nails on the trees where he wants to put his trap. That—he got a long chain and he always put that nail inside on that chain and hammer the nail inside

> and bend it. . . . And after he do that, he always put that trap on his leg and open it up and fix it and he always put it on top of the snow. And boy, he always dig and then after he put it there, he put paper towel and a little bit of snow and go like this—cover it. So they won't see it. And when he get something, he let the bear eat—or wolf. And he always make a house just like—when they step inside, they'll step on that trap. And it'll close, just like that."[15]

Setting traplines has often been a solitary activity, but in the past, some trapping techniques required communal participation. For example, communities traditionally organized drives in pursuit of small game, in which they snared game or corralled rabbits into nets.[16] And men sometimes went out to camps on communal trapping excursions.[17]

Seasonal Trapping Areas and Species

Trapping is done year-round, though areas and targeted species vary by season. In winter, animals' fur thickens in response to colder temperatures, resulting in thicker pelts. In winter, trappers often maintain traplines along the Kobuk River corridor, with traplines traditionally radiating out from a central campsite. In some instances, families have maintained a constellation of smaller camps near rich traplines and other trapping sites where small game animals travel in large numbers, such as near lakes and marshes, or extending up the river drainages of the Kobuk River's 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 small game species. People describe hunting ground squirrel, *siksrik*, in certain hills and bluffs along the river, as well as hunting porcupine in such places in the winter. Porcupine can live in large numbers in certain bluffs, and people revisited these sites frequently. A hill called *Masrun* was said to be such a place.[18]

Trapping in the winter, during especially cold conditions, comes with its own challenges. Speaking of wintertime trapping traditions of the Kobuk Basin upstream from the park, Herbert Custer recalled, "they don't have any tent. They stay out trapping. When a person caught a martin when it frozen what he catch from dead-fall trap. When he went to bed, he put it by him to thaw it. And when it did not thaw it, he wrapped it with his bedding and go again. When he came home to his camp and put that same martin by him to thaw it out. When it thaw out he skin the martin."[19]

David Black's father "does trapping down the river and up there. . . . [His] brother [Robert] always go[es] with him."[20] Black identified where his father placed wintertime traps, describing the process this way: "My dad always puts traps right straight across from our place. Closer to the mountains, almost. They always go on top of the hill. And I—you know where there's lot of trees."

Thomas Jackson remembers that his "brother used to trap that *Napuuraq* for marten. . . . [In an area where y]ou could see them, the two hills."[21] When Larry Westlake, Sr., was a boy, he would "camp out up in Squirrel River with our mother, dad was always up in the coal mine in the summer—but we would set traps out ... [so she could] have her [ground squirrel]. And it was good meat. We got like three and [it was] just—perfect."[22] Coal Mine was good for "[e]very kind of hunting, trapping. I lived there wintertime, trapping. . . . There's wolverine, martin. . .mink. . .."[23] Percy Jackson's grandfather, Frank Jackson, Sr., also trapped near Coal Mine in the past. Percy remembers that occasionally he would "stay up there, [with] two of these other guys. Stay up there for a while [when they were trapping]. My grandpa's brothers and my brother. Pretty up there."[24] Evidence of trapping activities in the Coal Mine area by

people other than Elmer Jackson remains evident in "places where sometimes we find [places where people] leave their traps hanging. . . . They're still there you know; still out there," including places interior to the park.[25]

Interviews from 2016-2023 document that wintertime trapping of small game animals like martin and mink has been an important activity—providing furs for both commercial and personal use. These practices require specific techniques associated with the season. Kiana residents shared that winter traplines are often configured so that trappers take advantage of good winter trails, with safe river crossings and clear routes 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 their traplines by wayfinding and the use of known landmarks. In recent years, the arrival of GPS technology has significantly changed and simplified the navigation of traplines.

Summertime trapping is also widely reported by interviewees. Beaver and muskrat, discussed in more detail below, have long been hunted and trapped along the Kobuk River corridor. Commercial muskrat trapping is documented as a major occupation for residents in the first half of the 20th century.[26] 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 with 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. Muskrats are especially trapped in May and early June. The pelts are sold for cash used to obtain motors, nets, and other items used for resource gathering.

As the weather warms each spring, people also target marmots. Historically, marmots may have become more intensely targeted when primary sources of food, like caribou, became scarce.[27] Larry Westlake, Sr., and Christina Westlake talked about hunting for marmot, or *siksrikpaq,* "in . . . one of the creeks that comes out, quite a ways up from. . . near the place that the road is designated to cross [for the] Ambler Road Project."[28] Larry followed up with "And that's one of the major creeks that comes out of the north, and it was one of the close ones that you could walk, easy walk over to the Noatak, and get it in the Noatak. And good hunting there. . . . Marmot was plentiful there. . .that was one of their food sources. When April finally comes around and they're trapping them."[29]

In addition to marmots, people traditionally hunt squirrel.[30] Ground squirrels, *siksrik*, have been hunted for their meat. Christina Westlake compares the taste of ground squirrel to rabbit: "They're like squirrel. They're like rabbit. They're vegetarians."[31] Larry Westlake, Sr., remembers them being especially delicious when they were caught during the springtime, when they "come out of hibernation and they're good meat."[32] Westlake, Sr., hunted flying squirrels with his friend Harry Baldwin to sell them to "Aana Clara, his Aana Clara Jackson. She would get [a] quarter a squirrel and fifty cents for a flying squirrel. And she made a real nice squirrel parka out of all the squirrels we got. Harry Baldwin—back in the day a quarter could buy two candy bars."[33]

Porcupine were hunted as a source of meat rather than hide.[34] Larry Westlake, Sr., identified that porcupine, in particular the feet, were considered "a delicacy . . . when I was growing up."[35] Thomas Jackson confirms this notion and tells a story in which the feet were

often reserved for his younger brother who needed additional nutrition. This story is included in the following section on medicinal uses.

According to the work of Braem et al., around 2015, Kiana households had a yearly harvest of 1,851 lbs. of small mammals (beaver, snowshoe hare, and porcupine).[36] 33 percent of households used small land mammals in 2021.[37] Beavers were 89 percent of the total small land mammals used for food and snowshoe hares were 11 percent. When including uses other than for food, muskrat comprised 38 percent of the small mammal harvest, followed by beavers at 30 percent, snowshoe hares at 24 percent, wolverines at 6 percent, and lynx at 2 percent. These harvests occurred widely around the Kiana area – focused especially outside of the park, but also including some places in the hills and riparian corridors of the park's western edge.

Many oral traditions mention fox trapping and hunting in the Kobuk Valley region—including for red fox (*Vulpes vulpes*), arctic fox (*Vulpes lagopus*), and the dark and distinctively marked variant of the red fox often called "cross fox." Surveys by ADF&G provide further evidence of the use of fur-bearing animals by the Kiana and Ambler communities. Surveys in the early 2010s indicated that Kiana households took 155 animals in one year, likely for their furs: muskrat, marten, red fox, land otter, wolf, wolverine, lynx, and coyote.[38] Fur-bearing animals harvested by the Ambler community included gray wolves, red foxes, wolverines, marten, and mink.[39]

Beaver

Beaver, *paluqtaq,* are traditionally important both as a source of food and as a source of fur.[40] People often hunted for beaver near their dams when they are most active at dusk or dawn. Trapping small mammals generally happens in late winter and spring, when their fur is thickest, their hides are of the greatest quality and value. Beavers, however, were the exception to this rule because they also were harvested in summer and fall.[41]

The pre-contact patterns of beaver use focused on the animals' importance as a source of both food and warm fur. According to David Black, beavers were particularly popular among Kobuk Valley residents throughout the 20th century for warm winter caps. "[T]hey always cook the beavers when they want some and my mother always makes some caps with beaver skins. After they skin it and dry it."[42] He continues, "I don't know how many caps she makes. . .Even I got a beaver cap."[43]

Black often hunted for beaver as a side pursuit while searching for caribou along the Kobuk River shoreline, taking detours into side channels and sloughs: "we always go up there and stop to the camp once in a while. And when we stop up there, look around, sometimes he always take a ride little farther up. And down.... And you know where there's the slough? We always take a ride inside there, look for beavers."[44] He and his family also trekked along the river while staying at a camp at Onion Portage during caribou hunting season, again harvesting beaver during the waiting period before caribou arrive or during other lapses in the caribou-hunting routine. As he recalled,

> "we always go up there.... We stay up there for a while and look around. Go outside from our camp and look around with our binoculars or when we don't like to look with binoculars we always look around from both sides. Down river and up. ... That last time when we was watching we saw two beavers coming up from that slough. They always come up the river and they always go down by the beach.... And I shoot one and my brother shoot the other one."[45]



One of the many beaver lodges in the riparian zone of Kobuk Valley National Park. Emily Creek photo, courtesy of the National Park Service



Winter coat on a hare. LeeAnn Ayres photo, courtesy of the National Park Service

He recalled that people used several trapping and hunting techniques historically, but by the time of his youth Black and his family used shotguns to hunt for beaver in these places along the Kobuk: "we shoot them on the head," he recalled, which helps avoid damage to the rest of the pelt.[46]

Over the latter part of the 20th century, *Katyaaŋmiut* elders have observed a gradual westward migration of beavers.[47] Larry doesn't remember finding beaver upriver in the Kobuk River Valley. "No, we didn't those days. There wasn't any beaver. The beaver migrated...."[48] Kiana residents suggest that the number of beaver is increasing in some areas of the park. This, they report, is affecting water levels in some of the tributary streams, as the large number of dams and impoundments affects the rate of release of water throughout entire watersheds, interfering with whitefish runs, especially in important places like the Selawik River. Larry Westlake, Sr., explains why he considers beavers to be "a nuisance now. . . if you fly low enough from here to Kotzebue, if you see any little slough, you could see they got about three dams in each slough. And then the whitefish is. . .landlocked."[49] Beaver meat and skins, however, are still desirable, and Kiana residents suggest that continued hunting and trapping may help bring balance back to these waterways.[50]

Muskrat

Though muskrats are found throughout Kobuk Valley and are also abundant both upstream and downstream from the park – in such places as the Kobuk River delta and the Pah River flats of the upper Kobuk. Some lakes in and around the park are so important for muskrat hunting or trapping historically that past elders called them "muskrat lakes."[51] Muskrats excavate underwater dens along steep riverbanks, build dens from mounds of vegetation along the low banks of swampy lakes, or build small dens from vegetation on top of the ice after freeze-up. Muskrats are most available for hunting after ice breakup, when spring floods force them out of their dens.[52] In late March, people tended to move out of their villages into muskrat-hunting camps where they stayed through April, hunting muskrats from waterways, or trying to trap them—at the same time they focused on hunting waterfowl. Animals that had been trapped were worth more, as holes from small-caliber firearms did not mar the skins.[53] Muskrat hunting and trapping was a traditional practice in the Kobuk, for food and for furs. However, muskrat hunting boomed in the first half of the 20th century due to a rapid expansion in the global fur market. The animals were abundant, and traders bought the skins from Kobuk River Basin hunters by the thousands. One season, in 1953, a trader took in 10,000 skins from a single village, dramatically supplementing the income of people in the area. Though the peak trade in muskrat furs seems to have passed, and they are not commonly trapped for commercial sale, nor are they commonly eaten, the species remains important to the cultural heritage of the area.

Some interviewees identified certain areas known to be especially good for setting traps for muskrats. Ruth Sandvik remembered people traveling up the Kobuk, as well as tributaries like Squirrel River in the springtime in search of muskrats.

> "So, every spring, somewhere in April, the last part of April. . .everyone in the village would select a certain place to hunt muskrats. My mother always enjoyed hunting muskrats. So, you take your tent and your food up into a certain area that you decide to camp in, around lakes preferably. Some people went downriver. Some people went up Squirrel River. Some people went down[stream] across from Kobuk—across from Okok Point. And generally, you were [at muskrat camp] for two or three weeks. And

you were there until the ice went out. You'd go—you'd take a boat up. And so, you would hunt muskrats in the lakes there."[54]

In a conversation with Linda Ellanna in 1989, Martha Wells also identified Okok Point – just downstream from Kiana – as a popular base camp for muskrat hunters and trappers operating along the Kobuk: "across Okuk [*sic*] Pt., good muskrat camp, also at Aksik [there] was good muskrat creek by river, on way to Kotz[ebue]."[55] While many went upstream, toward the park, many others went downstream to the especially rich and complex waterways downstream from Kiana. During springtime, for example, Johnson Black and his family traveled downriver as "far as Kobuk Lake. Noorvik [for muskrat hunting]. . . . Springtime we hunt from Kiana to right here all the way to Noorvik."[56]

Another person who spoke of hunting muskrat, Donald Smith, noted that he had been hunting for ducks and muskrat in the same areas since he was approximately 17 or 18 years old, when he accompanied his father on hunting trips.[57] Frequently, Donald camped at Riley Channel to hunt muskrat as well as hunting muskrat along the channel on his way to camp. Like some hunters, he tried to get to the muskrat camp as early as possible in the spring: "we just follow the breakup. Because if you trying to [get] ahead of the people—you get a chance to get more."[58] From this camp, he would travel to many "little sloughs [and] little lakes" throughout the area, looking for muskrat.[59] Generally, he returned to this camp annually, staying for a period of about three days. However, he didn't make the trip when game was sparse, explaining that "...[w]hen there's no game there's no use to go because you spend all your gas for nothing."[60] In the late 20th century, Donald was able to harvest "maybe a hundred or so" muskrats during each two- or three-day trip.[61] Alternatively Donald also harvested muskrat along the channels of the Kobuk River, often downstream but apparently also upstream into the western edges of the park.

Like small mammal trapping, muskrat hunting is a subsistence practice learned at a young age. Often, though not always, this hunting was done by women. As Martha Wells observed, "mother hunted muskrat—females always hunted muskrat."[62] Martha recalled that she began hunting muskrat while a girl, learning the skills while accompanying her mother who would go out in search of muskrats while her father was hunting in the same area.

Many people recalled the details of muskrat hunting from their childhood with great detail – the methods of hunting, the trips and camps associated with the muskrat harvest. For example, Percy Jackson recalled that he "used to get them [muskrats] out on our fish camp during the summer."[63] The first time he remembers killing a muskrat, he used a shotgun: "when I was kid. . .because we don't have .22s at that time. They gave me a shotgun. Took some of those pellets out, leave few of them and then shoot the shotgun. That's how I start hunting muskrat."[64] Later, .22 rifles became more common. Donald Smith described hunting muskrats with a .22 rifle "because the water get real high and their hide is under the water and they always just stay on that drift woods or something else like that."[65] With his sons and sometimes his wife to help, the use of the .22 rifle helped increase the output of the hunt, when the muskrat were available: "[i]t varies on different years. Some years it['s] kind of scarce and some years you just can't keep up with the skinning and stuff like that."[66] A few families still used snares, fishing nets, or other means to trap them too. Pauline Garbin Schuerch, for example, recalled that, "in the springtime when we get muskrats, we used to set nets."[67] Some of these methods were likely chosen, in part, to minimize damage to pelts while also allowing families to catch these small and potentially elusive animals.

Many also spoke about the trade of the pelts, and the importance of the muskrat to their

diet and incomes of their families. For some families, the trade in muskrat pelts provided ready access to cash needed to buy things like ammunition, tools, and foods brought in from the outside. Donald Smith recalled, "that was the only means of money making in those days. To survive. The storekeepers here buy it when I was a kid."[68] When he was older, his wife tanned the muskrat skins after his hunt, so that they could be used for this purpose. Martha Wells recalled that her family traded muskrat pelts for dry goods like flour at the general store run by the Blankenship family. And at "that time it used to be $2.50 or more," sometimes up to $5 per skin if the pelt was of good quality.[69] The price was lower if the pelts were in poor condition. Leo Jackson also recalled catching muskrats as a kid, though he sometimes struggled with the technology: "Kayaks. Traps. That was always a problem when I was a small kid. They set a trap for me."[70] Percy Jackson remembered his parents being pleased when he brought home his first muskrat harvest: "my mom was real glad about it. She skinned it and hang the meat up, for half dried. . . . I think my mother and my dad eat it up. . . . [W]e were only ones that's in the camp."[71] Peter Atoruk also grew up hunting muskrats, rabbits, and ptarmigan; all of these provided food, but the muskrat, in particular, were important to the family income: "they were hunting muskrats for a living. . .. Earlier muskrats were real big. Good price for everybody around here."[72] Donald Smith explained how the value of muskrat fur varied, stating: "Sometime it's two and a half and sometime we just hunt for our own personal use. If it's not—if a guy's got no income, they usually don't sell them to the traders because you have to take them down to Kotzebue."[73]

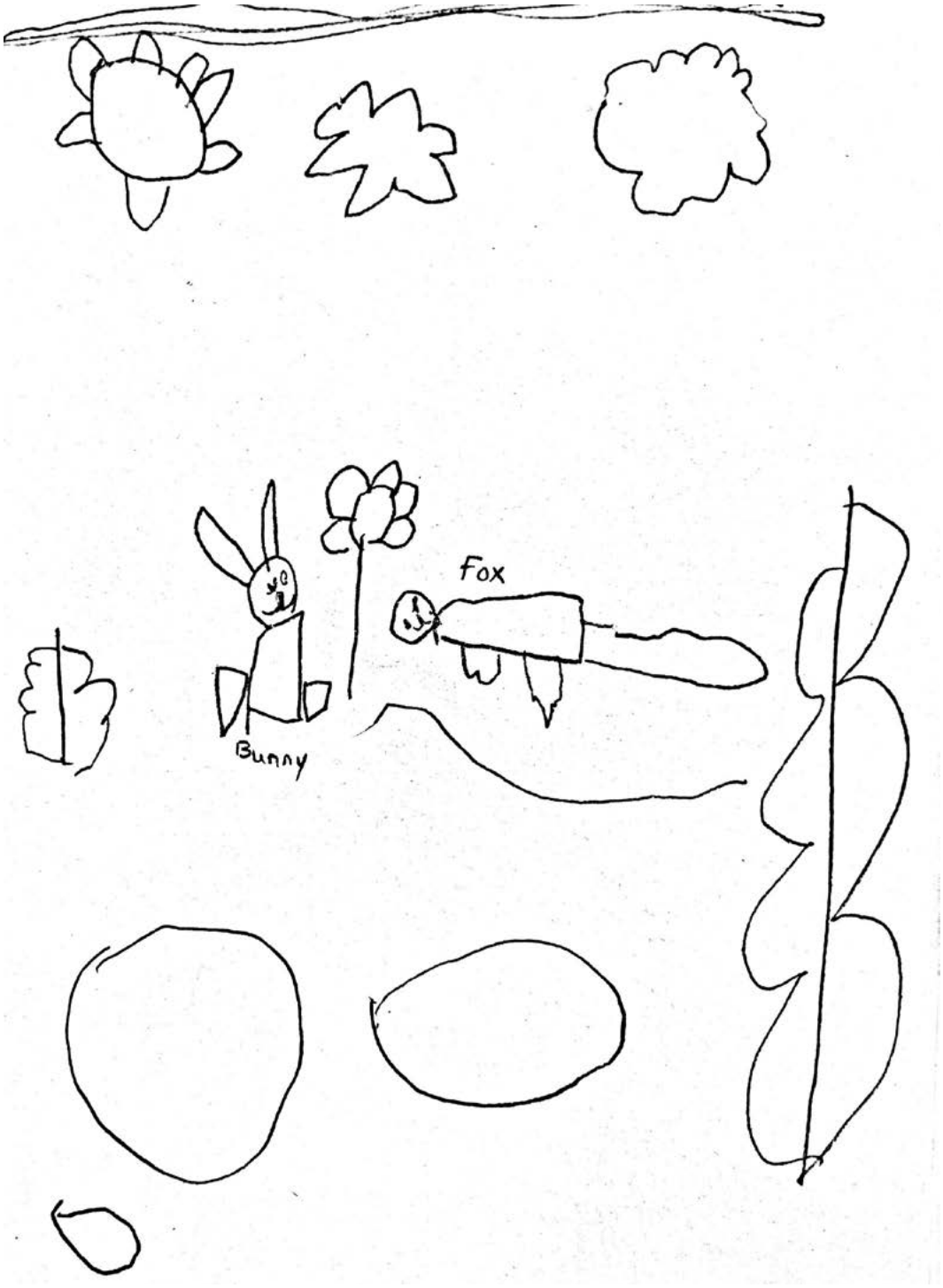
Many pursued muskrats not to sell the skins, but for personal use. For example, Percy Jackson dried muskrat hides on a board, to make mittens and boots and other items for use by his family and friends.[74] People have continued to utilize their meat. And prior to the decline of dog teams, the meat of muskrat was also used as dog food: "cooking and dog feed and whatever. We don't throw them away, we just use them. We use lots of food for dogs when we have dog team, before snowmachines come along. When I was a kid that's why we used to catch them."[75] Today, muskrats are mostly pursued by families for personal use—for the skins that adorn fancy clothing, and sometimes as supplementary food. Commercial trading in the furs is far less common, partly because of declines in fur markets nationwide, and perhaps due to declining muskrat populations.[76]

Hares

Hunting of rabbits, specifically snowshoe hares, has been an important subsistence practice in *Katyaaŋmiut* and *Kuuvaŋmiut* tradition, and a part of their traditional use of Kobuk Valley. Faunal remains from snowshoe hares (*Lepus americanus*) and Alaska hares (*Lepus othus*) were the most abundant small mammals present at the Swift Water Place site.[77] In fact, during the early 20th century when caribou were scarce, rabbits were the main source of winter meat for the community.[78] Much traditional knowledge and many methods were employed in the hunt. For example, before the introduction of rifles: "The women snared for rabbits and ptarmigan using thinner rawhide strips and twisted sinew."[79] One elder commented to Moulton "on the rabbits' 7-year cycle (Western notion) but then tied in the Iñupiaq notion of a fixed recyclable number of animals."[80]

Aside from snaring, people also organized drives with nets to hunt rabbits. Percy Jackson describes these drives:

> "We—that's what we used to do long time ago, drive rabbits. ... When there's a narrow place in those willows. ... Some old people used to put net there, hang the net straight



A Fox stalking a Hare in Kobuk Valley, by Victoria – Kiana, Alaska

across, and hide behind the net there. And lots of guys would drive them down to that, toward the net. Every time when that rabbit hit the net, they just run over and grab it and pull the heart out. It's easy to pull that heart, if you know how to do it. Before they start hollering, they used to do that. Cause when they heard that rabbit holler, them rabbits wouldn't go there. They would go in different direction. ... Lots of fun driving rabbits. Only a few guys used that net. Us, we use rifle. Take two or three guys way on the end and let them shoot. After we drive rabbits, we used to race home. And when you're last one, you pick lots of rabbits. Load up with rabbits, what they drop."[81]

Aside from snaring and driving rabbits, families also hunted them. Typically, rabbits were hunted in the winter. According to Ruth Sandvik, "they had kind of a unique way of—of hunting rabbits. . . . Men would walk through the brush, and they would have a shooter here, now my cousin, excelled there, because he was a very, very good shot. So, they always had him as—as a gunman." Apparently, this hunting took place in or near what is now the National Park, as she continues: "And so if you didn't have rabbits, then you tried to look for caribou up in the Kobuk."[82]

In recent decades, Kobuk residents continue to employ drives for catching rabbits, though without nets. The best shooters are stationed at the end of the drive, where they shoot the rabbits at the end of a narrowing thicket.[83] Year by year, rabbit populations fluctuate drastically, and the population ebb and flow tends to be on a roughly seven- to ten-year cycle.[84]

Trapping and Hunting for Wolf, Wolverine, and Bears

Historically, bears, wolves, and wolverine have been trapped and hunted by the Kobuk River Iñupiat and are valued for their meat and fur.[85] They also hold special cultural significance as predators ranging the country, residing alongside humans at the top of the food chain. It is reported that predators are hunted less than they used to be, which may be the reason populations of these top-tier species have increased within Kobuk Valley National Park. While they are hunted less frequently, interactions with the predators are often the most popular camp stories. This section provides an overview of wolf and wolverine, with attention to certain places they have been sought by Iñupiaq hunters and trappers, and provides a detailed report of bears, including several stories shared by project interviewees.

Upriver areas of the Kobuk Valley, within the national park, are ideal for wolf hunting and trapping, as wolves are more prevalent in this area than in delta regions. During the fall to early spring, wolves range widely, in packs of two to ten animals, and are hunted or trapped during this period. In late spring through summer, wolves are more stationary—busy raising their young—and are less attractive as they shed their valuable coats during this season.[86] Wolves and wolverines are known to congregate in certain areas and are sought in these places. For example, the south end of a long peninsula of tundra near Onion Portage (within the national park) has come to be known as a "wolf crossing" because it is where they pass through on migrations between the Kobuk and Noatak River valleys.[87] Though wolves are highly intelligent and difficult to trap, there have always been skilled wolf trappers among the *Kuuvaŋmiut*. Trappers sometimes packed down snowy trails in wolf migration areas, placing traps near the edges of these packed trails to lure wolves. If a hunter found a carcass partially consumed by a wolf, they used a portion of the carcass in their trap.[88]

Moreover, wolves are a wide-ranging animal that traditionally connects the Kobuk River people to the Noatak. As Roger said: "My father was a wolf trapper, wolf hunter... he

was a subsistence hunter. You know, he used to go out and trap wolf, go up around Noatak River, past Noatak. He took me out two times, and showed me all the names, names of the creeks, trapping areas, you know, ... what animal to get, what animal to trap."[89] During the wintertime, Donald Smith trapped otter, wolf, and wolverine—"any kind of fur bearing animals that we could get."[90] He commonly stayed out at the trapping cabin for a week at a time, returning home for a period, then returning to the cabin, "because you can't very well stay up there all the time. The family don't have that much wood at home."[91]

For some trappers in some years, wolf trapping was a successful business. Again, Roger Atoruk: "my father. . .He was a wolf trapper. He and Oscar Henry used to. . . set traps and be out for about a month. Come back, they'd have a whole bunch of wolves. Wolves and foxes."[92] Occasionally, wolves were harder to come by, requiring trips deep into the Noatak Basin. Roger's father harvested as many as 15-20 wolves some years, and other years, as few as four or five.

Wolverines essentially inhabit the same regions as wolves, though they are more solitary creatures. Wolverines are known to reproduce slowly; some elders observe that they have not rebounded readily when they have been hunted heavily along the Kobuk River corridor. Wolverines are smaller than wolves but can sometimes be taken in wolf traps—their hides valued for trimming parkas and other special clothing. These pelts are traded traditionally within the Kobuk River communities, and on the coast, described in more detail in other sections of this manuscript.[93] Traditionally, "[w]hen trapping for wolverine and wolf, the [*Kuuvaŋmiut*] men made traps from wood."[94]

Wolves prey on game and are potentially dangerous to humans, and during the mid-20th century, there was a bounty for wolves. Thus, hunters and trappers always have a gun at the ready to deal with threatening wolves. Traditional knowledge mentioned by interviewees includes a range of defense strategies, which were taught to children. As Percy Jackson described:

> "If them wolves attack you, if you got mittens, just go inside the wolf's mouth and you could kill it that way, too. That's what them old people used to tell me when I was young—when I started going out. . . . And choke that wolf. . . . [They] told me to carry a short rope with something on the end and let it go around, and that wolf wouldn't go to me. That's what I used to tell these young kids about that, tell them to carry a short rope. And if the wolf start [to] attack them, tie something on the end and let it go around. . . . I think they don't like that noise. . . . When it starts going around. . . . I don't know what they call it. But if you had a little piece of wood on the end. . . . It really make[s] lots of noise. [95]

Another defensive technique relies on traditional knowledge of how wolves see their prey. Again, quoting Percy Jackson,

> "Carry a short rope and if a wolf starts to attack you, if you don't have anything, you just lay down on the ground and put your legs then up and down. And they wouldn't go after you. ... I heard one guy save himself in that way.... Even when you put the dead caribous with legs up, them animals wouldn't touch that thing. Even ravens wouldn't touch it. . . . That's what I used to do when I was hunting, when I got little meat, caribou, just leave them that way."[96]

In fact, Percy comments that caribou could be left for quite a long time in this position, with their feet upright, and not be bothered by wolves and many other scavengers.

While populations of wolves and wolverine have increased within the park over the past few years, and some hunters still pursue them, there have been fewer Iñupiaq hunters pursing these species overall. In the future, this may have interesting ramifications in terms of game numbers and a range of other ecological and cultural variables that might be affected by trophic cascades – causing ripple effects throughout the regional ecosystem.

Bears

In the past, both brown and black bears were tracked in Kobuk Valley. They could be hunted on open ground but were also sometimes hunted upon emerging from their dens. Bear hunting is an ancient practice, and black bear faunal remains were identified as part of the faunal assemblage at *Igliqtiqsiuġvigruaq*.[97] Elders recall that they often hunted bear in the mountains, on known trails and approaches to the major river crossings—often along the same general pathways used by caribou. Groups of hunters might spend several days locating the tracks of bears and following them, waiting for the right opportunity to attack, and only attacking certain kinds of bears—those least dangerous. These excursions can take them well into upper Kobuk Valley, into the park.[98] Sometimes hunters hike miles following a particular bear before approaching it. Hunting in this way, elders have noted it is important not to approach a bear from downslope, and not to approach or corner bears into confined areas. Often bears are sought not long after they emerge in the spring from winter-hibernation dens. At this time, they are well-fattened, a state that wanes quickly. They can be especially risible during this time, but it is prime time for good meat flavor—before the bears have consumed lots of summer fish, which lend an unpleasant flavor to bear meat.[99] According to Percy Jackson, bears emerge from hibernation earlier in the timber of the Noatak River Valley.[100] These bears were a good source of fat. He describes one bear that he harvested as having "maybe about three inches thick of fat. . . . Before they really start walking."[101]



Roger Atoruk's father in the 1940s, with wolf pets hanging on his shoulders. Atoruk family photo.

Spring is still a popular season for bear hunting. Bears are encountered throughout the summer and fall and are particularly known to be found in the tributaries that drain into the Kobuk River from the north – also an area of very active caribou migration.[102] Many families speak of hunting brown bear along the Kobuk and its tributaries, but also of the danger posed by these bears during fishing seasons. Bears are encountered at camp, as well as being seen from the river. Increasingly, they are also coming into town at Kiana.

Interviewees describe more recent bear hunting techniques, while the work of researchers such as Anderson has described traditional methods that existed generations before. In these accounts, there are many references to spear-hunting bears.[103] After pursuing a bear across some distance, spear-hunters chose the time when the animal was most approachable, and then intentionally agitated the bear, causing it to rise up on its hind legs. As the bear reared up, the hunter crouched down, anchoring his spear against the ground and pointing it at the area of the bear's collar bone. As the bear lunged toward the hunter, the bear was speared. Successful bear hunters garnered significant respect among the community but were careful to remain humble—an expression both of good character and of respect for the animal. Thomas Jackson also describes hunting bear with a spear in this way:



Brown bear (ursus arctos) in willows. While polar bears dominate the coastal areas of the Iñupiaq homelands, brown bears are widespread in areas such as Kobuk Valley. Bears are a source of food, hides, and other materials. They can also be a danger to subsistence fishers. Emily Mesner Photo, courtesy of the National Park Service.

> "there's an old way of hunting. They had also a bear spear, maybe foot and a half to a foot there was a stopper. And where a stopper in the bear spear, where it'll stop going through. But the aim is for the heart. They would provoke the bear in chasing them. And at the end of the spear, had another sharp point that you stuck to the ground and they kneel and point while the—to the charging bear. And they would try to aim for the heart. And I said, 'What if the bear attacks you?' He's so busy trying to fight that spear off and it's a fatal shot and yet they live for a while. . . . [T]his is how they did it long ago."[104]

Percy Jackson remembered people chasing bears out of their dens and then killing bears with hatchets: "No, not in the den. They always just go in there and takes them out [chases them out of the den], take them with hatchet. . . . Them old people. . . . always kicks them out [of the den], all of them. And when he's going out, he just hit that bear, knock him down." Elders recall that they were trained to hit the bear a certain way with the spear or hatchet, so that they would incapacitate or kill the bear instantly. Again, quoting Percy Jackson: "I think they know where to hit them"[105]

Thomas Jackson elaborated on this technique, recalling that people used smoke to flush out the bears from their dens:

> "they would make an 'X.' They would. . .know where the den is and mark it. And in the fall before freeze-up they would put an 'X' on the entrance out of logs, where the bear cannot go out. And they would smoke it out with, you know, like just wood lighter that's burning slow. . . . [T]hey liked axe handles out of jade. . . . [T]he people like it because it was really a hard material. And a man would be on top of that [the den] and when the bear put its head out, they would hit it with the axe"[106]

Nowadays, when hunting bears with guns, hunters will often shoot at the left shoulder if a bear is on the attack—an action that stymies the bear's aggression, as bears are said to be typically left-handed.[107] Thomas Jackson recalled that his uncle Percy told him stories about how his grandfather shot a bear in the ear with a rifle. "[He] was more—he was a protector to *Ooiliaq* because he didn't want—he didn't want nothing, bears, to bother him. And in the olden days, they had a single shot rifle. He didn't say what caliber it was, or what kind of rifle it was that he would—with the single shot, walk up to the bear and shoot it in the ear. And that's how he would get them. . . . That's how brave he was."[108] Percy Jackson also hunted bear, drawing on skills learned from the men he knew in his youth.

His advice is that when "you hunt bear, try to get real close to it, instead of trying to shoot it from a long ways. If you try to shoot it from a long ways, that bear could attack you. And when you're close, never, because he knew you're not scared. . . . You just put your breast out, he won't go to you. . . . That's the way some of the people saved themselves. I told them too. That bear won't go to you."[109]

David Black remembers getting a bear from around an area where Rosaline Jackson had a camp, on a small channel up the river:

> "That camp, Rosaline Jackson, I get one [bear] from there too. . .right over here right on the side of that hill. That bear was coming to town. They call us and tell us and we was watching for it. Then I told my friend it was coming and he didn't see it. And then I get ready and I used that .30-06 and I shoot it, right when it get closer about here to that old house. I shot it right on the head. And then when it was gonna get up again I cocked my rifle and I just had only one shell and I load up again. I must've hit it right on the back and it must've come right out the mouth, that bullet. Then I was gonna go see if it's dead, see if it's still alive. . .we always kick it on the back to make sure if it's dead or alive. . .when it's dead we always let them know."[110]

Several Kiana hunters confirmed that spring is traditionally considered a good time to hunt bears, especially before they begin eating fish, affecting the quality of the meat. This is said to be especially true of brown bear: "black bear are preferred to brown bear but brown bear are good in spring prior to their consumption of fish."[111] Interviewees report that they "commonly hunt bear—like brown bear in spring before they eat fish—also black bear [and that it is an] important source of food in [the] area."[112] In his opinion, brown bear is "better in the spring. It's pretty fishy when it's in the fall. But some people like that too, you know, the old people especially. . . . [The old people liked it a little fishy sometimes.] Yeah, well, they ate everything."[113] So too, Lee Barr "hunts brown bear in the spring because the meat is better—both Lee and Eva said they render oil from bear fat to eat with dried fish—they don't like the taste of bear at other times of the year."[114]

The fall, when bears are fattening themselves on berries, their meat takes on a sweeter flavor; this is also widely known to be a good time for bear hunting. Elders said that in the 1940s, when caribou or moose were relatively scarce, people focused on fish, berries, "and

bear. They did a lot of bear hunting. . .Last of August, first of September was black bear. They really went for black bear because right in those, maybe a month, real good meat, mild. They ate nothing but berries, blackberries. And then for that, I think especially for the fat, we'd go in to try to get a brown bear in the major tributaries like Salmon River . . . and Hunt River."[115] An account from Linda Ellanna concurs: "Tommie Sheldon and Carl Henry when got bear—fat is good in fall time when eating berries; meat and fat is better than when [they] eat salmon."[116] During the fall season, bears also become a risk-reducing backup source of food, if fish runs or caribou migrations have proven disappointing.

Some Iñupiaq hunters describe the bear hunt as its own special process, a different kind of hunting with its own unique geography and traditional skill set. Places where bears congregated for fishing or berry foraging are prime bear hunting areas, for example, but extreme stealth and caution are required to successfully hunt a bear in a place with many other bears present. Larry Westlake, Sr., remembers hunting bears under these conditions in his youth. He recalls, for example, hunting for bear up Salmon River:

> "Well, it was nice and quiet when we were going up the river, I mean, going up these tributaries because we just pulled the boat, and we shut off the little five-horse Johnson (laughs). You don't want to break that thing, there's no parts for it (laughs). And sometimes you run into [a brown bear] that's crossing, you know, because you're probably pretty quiet. But in, right before freeze-up, we'd go to areas that has a deep spawning pond, and my older brothers and their friends would pick out the area where there was a—it wasn't wide open. . ..this pond had to be against a big cut bank or something, without any willows on one side, or an opening of some kind. And then you'd go there just before, just when it starts getting dark and sit on the edge of the bank and. . .. It was amazing. Man, I was scared when I first went, tense. Growling coming from all areas. Made a lot of noises. Just like somebody sneezing or something, the growling when they're coming. And then they just walk up to this pond, the pond is just full of salmon like that. And then you come to it. . .my older brothers and their friends, they knew what to get—they'll spot one when they're coming in and try to keep track of him in the pond. And he's the fattest one, or the best meat, or something. So, once it gets dark, before it gets real dark, but dark enough where you had to use a flashlight, like, I would have to turn the flashlight on and he would point it out to me and I would keep the flashlight on him. [That was Larry's job.] Yeah. And then they would shoot him, right there. And we didn't get more than one, because I guess they knew [the bears] would be back to that area right away, soon as we left or something. So, we'd go down and make sure it's hit, put it in the boat. Pitch dark, we'd start down the creek. Use the flashlight when we had to. Get far enough away from that pond and then we'd bed down, skin it out and bed down and spend the night."[117]

Larry Westlake, Sr., goes on to describe how once they had killed a bear, they got away from the area quickly by boat. They typically created a camp in a safe location, such as a river island downstream, on the Kobuk. Here, they first removed the cartilage under the tongue, before harvesting the meat and preserving the hide:

> "[T]hey'd go to any good place, like [the] lower end of sandbar where there was a lot of driftwood [so they can get a fire going quickly.] And oh, man we'd go for that—skin it real easy. . ..Our uncle and those age of people taught us how to dress out a

bear and how to take care of it. The first thing you had to do was, there's a cartilage under the tongue, and it's just like a worm. Depending on how big the bear, I think it'd be this long, three, four inches. And you get your pocketknife, one guy holds the tongue from one side and keep the jaw open and the other guy just cuts it out, cut the edge. You're not supposed to touch the 'the worm,' they called it. And then they cut one edge and reach in and get ahold of it and cut the other side. And there's no meat on it or anything, it's just white. And then you handle it real careful, dig a hole about three inches and bury it. And that's telling yourself and anybody, the meat is ready to eat."[118]

The harvest of a bear was an activity of some risk and weight, as this ceremonial observance suggests. People were trained to be respectful throughout the process. This show of respect is traditionally carried out throughout the process of dressing the bear. Hunters take special care not to puncture the hide, ruin the meat or fat, or waste any portion of the carcass, as one part of this traditional respect:

"And dressing the bear out while the skin was valuable to even us, but before our time, it was more valuable to our ancestors because they use it for everything, any kind of skin they had you know. So, you had to respect everything that you did to—dressing it out. Not to make any holes in it. [Respect everything, not making holes in it, but also being respectful while you're doing it?] Right. And when you get to the meat, try not to make a blade mark on the joint. So, when I think of it, that part of it, I think that they respected it so much. . .They're trying to teach us where to go around that joint with a knife and not touch the bone . . .. Now, I know how to do any kind of joint. . . . [They teach people to do that.] Yeah, and those joints, a lot of different parts got . . . some fat on it and everything. . .they're probably trying to save all that too."[119]

When it comes to preparation, Larry Westlake, Sr., remembers an old way of cutting the fat from the back in strips and hanging it on racks where it could dry. This fat was used for many purposes, including food and medicine. The backbone of the bear was also considered a delicacy. Larry Westlake, Sr., describes how it was prepared and eaten:

"[F]irst of all, they like to eat the backbone, boil up the backbone. And then they get a piece of fat and just cut it up and dice it up, and put it in the frying pan, and fry it slowly, make all that grease and oil, and they eat the backbone by dipping it in that oil."[120]

Larry has not seen anyone do this with the backbone in the last fifty years. It is something people no longer do. "Right, but we got some—guy gave us some meat and fat this year, this spring, got a bear. Right away we fried some up and had some with some meat. You know, when you have grown up on something, anything, you have to have it once in a while."[121]

Bear fat has long held special significance to Kobuk River Basin Iñupiaq families. Historically, it was not only an important food and condiment but provided a needed source of fat when other fats, such as seal oil, were scarce. When going out hunting, Thomas Jackson's mother sent him with food that sustained them the entire trip: "Mom had put bear meat, cooked bear meat . . . and fat. She always makes sure we have fat."[122] During one hunting trip, Thomas forgot to pack Crisco when moving between camps at Coal Mine and *Qaqlikuvik* and substituted bear fat instead. This turned into a story about sibling rivalry between him and his brother Roger, who preferred the taste of Crisco over bear fat.

> "When. . . we pitch up tent, we bump into the Darrell Johnson, Sr., . . . Them boys and ours putting the food away. I said, real low, 'Doggone it.' Roger said, 'What? What you forget?' I said, 'I forgot the Crisco,' you know, for the hotcakes. 'Told you not to forget the sourdough and I even told you at Coal Mine not to forget the sourdough and you forgot the oil?' The [bear] fat mom gave me . . . had fat on it.
>
> So, that night I started shaving and rendering down the fat. . . . Roger still was mad at me for forgetting the Crisco. And when I started making hotcakes with the fat, soon. 'Roger, you're going to eat hotcakes?' 'No ...' Then he walked out. So, get more hotcake, yeah, more for us. He never tell him, it didn't taste like [fat]. . .
>
> So, maybe the third day, Roger got tired of eating the mush or cereal. He finally had one hotcake. 'Oh, it don't taste like [fat]. . .' So, he said, 'Yeah, I didn't want to tell you that' (chuckles)."[123]

Bear meat is prepared in different ways, but traditionally families often cooked it with seal oil. According to Elwood Atoruk in Ellanna, "got—bear, need to eat w[it] seal oil—eat in bear grease is best—otherwise poison."[124] Or according to David Black, it can be boiled: "we eat the bear meat. . .they boil it sometimes. . . . [W]e don't take the skin home sometimes. We leave it up there."[125] Percy Jackson boiled bear meat too: "Yeah, boil. You got to cook it real good. Never cook on an open fire. Got to cook it real good."[126]

Many Iñupiaq hunters like to share stories of encounters with bears. Thomas Jackson's uncle Herbert Adams and Tommy Douglas, for example, talked about when they went hunting in the mountains northeast of the park, where they encountered two bear cubs:

> "when they set up camp, [Herbert] said that a bear with cubs were, two cubs, small cubs. . . tried to bother them, you know, attack them. And they had no choice but to shoot the mother. In that case, you don't shoot the cubs first, you shoot the mother. And they left the cubs alone, but it kept crying and crying, both of them kept crying. . ..[They] said it was like panda, had black eyes, both of them and had black markings around the eyes, he said, just like panda. Even the body was like that. And they tried to sleep that night and the cubs kept crying. . . And he, Tommy Douglas, who was older, from Ambler, he advised Herbert to get that .22 special. That's a higher than a regular .22, to go and get the cubs. When I was younger, the elders used to like eating the cubs when they're fat."

Unusual markings are said to occasionally be associated with brown bear-polar bear hybrids that sometimes appear in the region.

So too, there are occasional accounts by Iñupiaq hunters of encountering polar bears, sometimes disoriented and malnourished, as far inland as Kobuk Valley. A few of these accounts mention polar bears trying to fish for salmon or catch game on Salmon River. As Thomas Jackson recalls, "at Salmon River there was a polar bear up there and [an elder] got that. . .They said it was starving."[127] Ellanna also refers to a story of Larry Westlake pursuing a polar bear:

> "Larry and others had seen polar bear tracks and at first thought they were brown bear which do come out of hibernation on occasion—They could tell from prints that it had a different gait—he, Don Smith, and Lorie [Schuerch] were going to go after it—somehow Larry ended up going ahead of the rest, and encountered the bear on

the trail and ended up shooting it. . .the bear was not in good shape, had eaten some beaver and small animals but seemed in bad health."[128]

There are also many accounts of encounters with bears where people have used traditional methods to dispel the bear and avoid attacks. Percy Jackson, for example, recalled dispelling a bear he encountered while performing duties as a firefighter:

> "One time, I had nothing [no gun or gear], when we were firefighting. . . . When they don't have water. . . I went down to go pack water. When I was going down, there was lots of woods along there. . . . And here was a bear standing up all big. So, I just stand there, never move, look at him, maybe from here to that stove right there. . . . And that bear look at me. I look at him. Even though I could hear my heart. I never move around. . . . put his arms around me. 'Go.' And when you do that, he'll never come back. That's what them old people used to teach me. And I got to that bear, what them old people told me wasn't in my mind."[129]

These were not the only defensive options available to people without firearms. According to Percy Jackson, his grandfather, Andrew Jackson "always wrestled with bears. . . . That's how he saved his mother one time. That bear want[ed] to get his mother, but he wrestled with him. And drag it a long ways. He just let him go and run again."[130] He noted that there is likely to be a growing risk of dangerous encounters with bears if bear populations increase, requiring people to consider a range of defensive options: "when I was younger, there was hardly any bear" but now they are numerous, and sometimes entering the village and camps.[131] Bears at fish camps are said to be a growing concern, drawn to the fish and other aspects of the camp. Percy Jackson recalled that one year they spotted a bear at fish camp and they "called Fish and Game down there and said, 'There's a bear just sitting there watching the kids.' He said, 'Shoot it.' . . . [They] shot it."[132]

Hunting for Geese, Ducks, and Other Birds

Bird hunting in Kobuk Valley is a practice of longstanding importance. *Kuuvaŋmiut* are known to have harvested no fewer than twenty-four species of waterfowl, including geese and ducks in the Kobuk River Basin, especially in the springtime or at the onset of the fall migration. Both seasons are times when birds take flight more often, making them easier targets.[133] Harvest of waterfowl has a significant impact on the relationship to breakup and freeze-up, as hunters travel in the transitioning landscape, and in particular, lakes. For example, the presence of goose and duck faunal remains at *Igliqtiqsiuġvigruaq* indicates that the site was occupied "sometime between early spring and late fall. Ducks and geese reach the Kobuk River in late April and are seen until mid-September (Anderson et al. 1998: 221)."[134] Some traditional methods were centered on lakes. At the same time, hunting of geese and ducks often happened close to town. This section discusses in detail the spring and fall harvest of geese and ducks.



Rock ptarmigan (lagopus muta) on a snowy ridge. This is one of many game bird species harvested in Kobuk Valley. Brendan Doucet photo, courtesy of the National Park Service.

In the days before guns, hunters traditionally hunted waterfowl using bolas, bird

arrows, or snares; or they caught flightless birds during molting season.[135] Historically, one common way to hunt geese involved waiting until they were molting, a season that comes every July and is significant enough to warrant naming the month "*Isavik*" which means molting time. The hunters would use a method of chasing them down in the trees or on the open tundra during molting. [136] Unable to fly, these birds could then be speared, clubbed, or otherwise dispatched with ease. During the fall, ducks experience a synchronous molt, rendering them unable to fly for a short period of time. Thomas Jackson describes how "the people snared the ducks, the molting ducks, because they can't fly. . . . [T]hey would try to find two lakes—and the people knew where they were—the two connecting lakes, [where they raised] poles . . . set out low enough for snares on one end and then the opposite end, and they keep going to where each chance they'll try to snare the ducks."[137]

Hunters also captured geese using snares, though geese required a different type of snare than was used to catch ducks. According to Thomas Jackson, his mother

> "used to, with her father, snare geese, and it was a different type of snare. She said the snares were made out of stretched, dried salmon skin. And once—and the scales are easily removed too, by using something that's sharp, but not sharp enough to cut the salmon skin. And it's made into a string by getting it wet and stretching it. Mom said they would put a willow and bend it and it had a trigger at the end, and that would be a place where she knows that there'd be a lot of geese, where a lot of geese like to be. And a lot of these snares were set, and they would take them that way."[138]

Jackson's mother goes on to describe one type of goose that these snares were unable to catch; this was the *kigiyuk:* "[S]he said that the *kigiyuk* the white-fronted speckle belly goose, they'd like have teeth; they would chew on the string, the salmon skin, and get away that way. . . . *kigiyuk* means 'teeth.'"[139] These geese were named after their teeth.

When snares weren't appropriate, hunters used spears to capture birds. Joe Field recalled they used a "long spear. . .They got three [prongs or barbs] on the point. When they throw it like that, they hit the duck or muskrat. So that's the *nauligaq*, spear."[140] Thomas Jackson also remembers when hunters used "bird spears that had prongs."[141] It was thrown like a "dart spear that can go farther than throwing it by your hand. And it was, it connected—there was a notch that connected to your elbow and a piece where it connected to . . . your pointer finger. And it was thrown, and the men were really good marksmen on that one. And they were more efficient than, because you can throw that – it's like a dart spear, smaller than a regular spear"[142] While these fell out of common use with the arrival of guns, some families kept this practice alive well into the 20th century.

Hunter David Black employed this pattern. He and his mother and sister often tent-camped near Duffy's Camp to hunt a little farther down from Rob Blankenship's camp or to "the right side of the river. ... We stayed overnight down there. We just came up for a little while."[143] Being only ten minutes from the village of Kiana, the campsite is easily accessible. In fact, Kiana is visible from the campsite and David could access the camp by bike: "Even when it [the ice on the lake would] start breaking up in the wintertime, we always go down there [right in the middle of Noorvik and Kiana] and hunt for geese. . . . [W]e don't stay by the camps. We just stay by the trees, just like up here. There's only the trees and we stay right there where there's a lake."[144]

Today, hunters most often use shotguns rather than snares or spears. Today, a household might consume two or three dozen geese in a given year.[145] Harsh weather can affect

the migrations of waterfowl, and thus their numbers and availability to hunters. Meanwhile, egg harvests—especially for geese and other waterfowl—are an enduring part of the traditional subsistence harvest. Small river islands sometimes serve as nesting areas for gulls or other waterfowl, as do sand bars and certain open areas along the riverbank. These nesting areas were sometimes visited for egg harvests during the birds' breeding seasons in spring and summer.[146] Certain special places, especially nesting colonies on river islands, were revisited year after year because they were known to predictably have "lots of eggs."[147]

Birds other than geese and ducks are traditionally utilized by the ancestors of the *Katyaaŋmiut*.[148] Archeological remains at *Igliqtiqsiuġvigruaq* give us some indication of their diversity: the site contained remains of ptarmigan (*Lagopus lagopus* and *Lagopus muta*), eider (*Somateria* sp.), oldsquaw (*Clangula hyemalis*), pintail duck (*Anas acuta*), scoter (*Melanitta* spp.), loon (*Gavia* sp.) 'duck' and 'goose' (family: Anatidae), gull (family: Laridae), owl (family: Strigidae), and goshawk (*Accipiter gentilis*).[149]

Ptarmigan comprises a minor part of the winter meat supply, though their availability is known to fluctuate.[150] Hunters pursue them in the fall when they sport new white plumage, but before the snowfall begins, which makes these white birds difficult to see. Ptarmigan are also less likely to be found in flocks in winter. Because they do flock together in springtime, spring is the best time for ptarmigan hunting—often coincident with rabbit hunts. As with waterfowl, ptarmigan were once hunted with traditional weapons like bow and arrow, but are now taken using guns, specifically shotguns.[151]

At times, Iñupiat in the Kobuk Valley have also caught ptarmigan in snare nets. Percy Jackson explained: "Even with ptarmigan, you could do that like rabbit. Put the net, hang it up, and drive the ptarmigan to that—toward the net. And when they get close to that, they just go to them and let them fly and get to that net. That's what my uncle used to teach us. When we were going out, we used to take old net and get ptarmigans with it."[152]

A subsistence harvest in 2021 shows that birds and eggs were used by 67 percent of Kiana households, with the majority being ducks and geese. This translated to 2,276 lb. of the total harvested foods (6 lb. per capita). More birds are harvested in spring than any other season.[153] Birds were especially hunted at Ekichuk Lake and the shoreline of Hotham Inlet (locally known as Kobuk Lake) as well as south of the Oksik Channel of the Kobuk River, and the confluence of the Kobuk and Squirrel River, while modern hunting inside the park is relatively less common.

Hunting for Moose

Traditions of moose hunting in Kobuk Valley have formed relatively recently, with people often retelling stories of their first encounter with moose, or their parents' first encounter. Since moving into the area, moose have become highly prized as a source of food, though they are not always available. Additionally, harvest of moose requires a targeted approach and careful method of processing, as they are mostly taken by boat along the river corridor and tributaries.

Various sources indicate moose are a relatively new animal to the Kobuk River Valley, appearing in the early 1900s.[154] Thomas Jackson's grandmother does not remember any moose or beaver in the area before that time.[155] Percy Jackson remembers it was "1956; that's the first moose they get around here. . . . Yeah. Young bull."[156] He believes that moose moved into the area from the Colville River area. Larry Westlake, Sr., observed that when moose did move into the area, large numbers were present. "Oh man. You talk about a bunch of meat (laughs). Never see anything like it before that!"[157]



Two bull moose near Onion Portage. Matt Cameron photo, courtesy of the National Park Service.

From boats, hunters stalk moose at near-dusk as the animals visit the river in search of mates or target large stands of willow along the river where they make visible paths, or game trails, through the vegetation creating a game trail, *tumitchauraq*. It is important to dispatch them close enough to the river to reduce the workload, aiming for them to fall on the shore so as to avoid hauling 1,500 pounds of dead weight out of the water, or butchering the animal while it is still in the river.[158] The harvest area, while focused on the riparian corridor, is a larger swath of land and the interviewees shared harvest stories from the Salmon River to the Colville River. Percy Jackson remembers hunting moose near the sand dunes and, as many reported, harvests occurred as close to town as Coalmine.[159] As one resident summed it up: moose are hunted "any place they go."[160]

Thomas Jackson describes how hunters sometimes follow a *tumitchauraq* or man-made *tumitchiaq* or *kiksraq* (two words meaning 'trail') through the willows, sometimes finding *suvainiq*, 'clearings in the willows':

> "*Tumitchiaq* like that could be even the moose trails. And people use them. *kiksraq* is also a trail like that. . . .*kiksraq i*s any trail into the willow trees, mainly willows that goes into a lake. . . . Yeah, *kiksraq,* 'a trail,' or. . . *tumitchiaq* is 'a trail,' also. . . . *tumitchiaq.* And when you go into willows and find a clearing that's around the willows, and it could be huge, it's called *suvainiq.* And a moose like those too. . . . So, those are—*suvainiq*, people know they were often checked. But mainly, I guess, people like to try to get them by the river because a moose is heavy to carry."[161]

According to Thomas Jackson, *Kaŋuqturuaq* was a popular place to go moose hunting: "wherever there's lakes. . . .[His] mother likes to go there because there's trails that you can follow that leads into a lake."[162]

These game trails were both easy to follow on the ground but also made it possible for hunters to track the movement of moose from well-known lookout areas along the riverbanks. Helvi Sandvik remembers hunting moose at "Coal Mine, . . . [He had a place] . . . up on a bluff because you've got all that visibility. And it wasn't so much caribou there, it was bigger [game animals]—it was like the moose."[163] Larry Westlake, Sr., remembers many "places [to get up high and view the area below]. When game was scarce you know, they were mostly on the north side of the river. We would climb those hills and—this time of the year for moose."[164] Those lookouts are useful when trying to hunt moose in such thick brush, though "the wind has a lot to do with it. . . . You got to be downwind from the moment . . . [so that the moose aren't alerted to your presence by your scent]."[165] In other places in Alaska, people will clear away the brush from lookouts to improve visibility while hunting moose but "we don't need to do that. . . . We never even dig out a trail."[166]

With moose arriving so recently, the hunting methods applied to them were largely adapted from other hunting traditions – especially the methods used to hunt caribou. Firearms were already well established in the area by the time moose became a significant component of the subsistence hunt, so that there are few accounts of hunting moose with older methods. Interviewees have described other kinds of innovations relating to the hunting of moose. For example, Amelia Blastenwald and another woman named Mischa, describe how moose could be drawn out of the dense vegetation along the Kobuk, in an interview with Linda Ellanna: "Mischa set a moose trap for Amelia using peanut butter as bait. They ... returned after about five hours" and hunted the moose drawn to the bait.[167]

So too, Larry Westlake, Sr., describes one hunting trip with his brother and cousin Roger, when the three of them worked together in a unique way to capture a moose. After spotting

a moose down below, one man remained at the lookout spot, and two men walked into the willows to track the moose, being directed from above where to shoot:

> "I think they were pie pans. . .we got ahold of those, and we'd climb one of those high places on the north side and look over the lakes and one time we spotted—there was a brother of mine and our cousin, . . . were sitting there watching them and he [the moose] was moving a little bit, eating. My brother came up with an idea and all the sudden he says, 'I know what to do.' He got out those plates, and he says, 'Larry, you stay right here. And Roger and I will go across after him. But you watch him with the binoculars, and we'll have our binoculars. And when we stop, you hold up the two plates. And if he's on the left side, drop the right side. If he's on the right. . . Start a signal.' [He wanted to signal from above so they would know which way the moose was traveling.] It's really brushy here, right there. ... I signaled them right up to the moose and they got it. Took us half a day to get it (laughs). Cut brush and hack it out of there."[168]

The range of moose changed significantly over time, and some families recall oral traditions of Kobuk River Basin families traveling to distant places when there were no moose available locally. Percy Jackson described how his father used to travel to Colville to hunt for moose: "And when you want moose, you got to go to Colville, Colville River. . . .That Colville is a long ways from here."[169]

Hunters often have gone out specifically for moose, but it is also common to hunt moose opportunistically while out traveling for other reasons along the Kobuk and other river corridors. David Black explained how he often hunted for moose "when we feel like it, when we see them crossing down here or up there, we always get them ones with the horns."[170] Elmer Jackson remembers traveling upriver hunting moose, but also in search of larger trees to use as building materials: "Yeah, they have high-powered boats now. . . . But yeah, [back then] we used to go way up the river logging . . . and build a raft and put a tent on the raft and we'd drift home. And they'd make a log cabin with the logs we got. I used to . . . catch fish [on those trips]" in addition to hunting moose while traveling up and down the river.[171] Percy Jackson recalled hunting the Salmon River from his Boston Whaler boat: "One time, one guy and I went up there, . . . two moose were crossing in the area. And [we] just get them there. Cleaned them out, come back with them, put them in that boat. Take me quite a while to get on top [of the water because the moose were so heavy in the boat]. That was in Salmon River."[172]Hunters typically have processed moose where they fell. The meat is then carried home for preservation and consumption. However, there are certain portions of the moose that are traditionally consumed onsite. Percy Jackson remembers learning from his elders to eat a portion of the nose:

> "When I first get moose . . . the old people start asking about the nose. When you're hungry and you get a moose, just cut right in there in front of nose, that white stuff in there. . .. Just take a piece off and eat it—when you're hungry, good. Just like coconuts. . . . Moose nose. Just kind of right there. And that white stuff in there under the skin, eat that."[173]

He also noted that, after falling a moose, he was trained to immediately cut the throat of the animal, especially in "wintertime when you get moose, you got to cut up the throat right away. . . . If you don't do that, that meat will be just like willow, taste like willow. . . . Even in fall time, I always just cut the throat off when I get moose, so I let that blood out."[174]

While moose harvest levels have fluctuated along the Kobuk and its tributaries over the years, the subsistence harvest of moose remains robust in and around the park. Subsistence studies by Magdanz et al. report that Kiana households took 8,629 lbs. of moose in 2006; 21 percent of Kiana households attempted to take moose, and 14 percent succeeded, while 40 percent of the community consumed moose.[175] Though harvests have declined slightly in recent reporting years, moose still represents 12 percent of the total harvested substance meat weight in 2021.[176] In that same year, 10 percent of households in Kiana harvested moose, 50 percent used moose in their homes, and the total taken was 5,226 lbs. (or around 14 lbs. per capita).[177] Harvest areas for these recent subsistence harvests included the Kobuk River from Kiana to Ambler – the heart of Kobuk Valley National Park – as well as along the Squirrel River. The hunters surveyed for this recent study suggested that the moose population has been affected by increased predators, though sightings of moose on the river are increasing in wintertime. In the past, wintertime moose hunting was uncommon; as Henry Jackson, Sr., noted, people only hunted along the Squirrel and Kobuk Rivers in the warmer months: "We don't hunt them wintertime because they're too small. We would if we were hungry, but—we just pass by. We don't touch them wintertime. But then in fall time, that's when we shoot ours. When they're fat."[178] With fewer moose available in those warmer months, the window to hunt moose has narrowed; one resident reported that he does not hunt moose until the middle of September, to target older bull moose. Comparing harvest studies conducted in 1999, 2006, and 2021 it is clear that the number of households hunting moose remains relatively small, with a larger proportion of households still focusing on caribou. Moreover, the resource is not shared between households as broadly as is the case with caribou, perhaps reflecting the relatively recent addition of moose to the hunting repertoire of the region. The use of moose meat, and the timing and extent of the harvest, will surely continue to evolve as the timing and geographical range of the species continues to evolve.

Hunting for Dall Sheep

Dall sheep fill a small portion of the Kiana yearly harvest. Dall sheep range widely in the Brooks Range and have often been hunted around the headwaters of the Noatak River. They are not abundant in the Kobuk River Valley, but in pursuit of them, hunters will travel through the watersheds in the upper reaches of Kobuk Valley National Park, to the north, connecting to the Brooks Range, or to the west of the Bairds in the foothills. Pursuing sheep up the narrow channels of the Kobuk Valley rivers is arduous and for this reason, is not done frequently. The attraction of hunting sheep is related to the availability of caribou, and at times when caribou are scarce, Dall sheep become a more important source of meat and skins.[179]

Peter Atoruk sometimes went sheep hunting in the park, especially in sites around the *Nuna* (Hunt River).[180] Henry Jackson, Sr., and his father sometimes went sheep hunting in an area between the Agashashok (Iñupiaq name *Iġġisisuaq* commonly shortened to Aggie) and Salmon Rivers during the last part of September when the sheep are "prime. Big and fat."[181] Before snowmachines, Dall sheep hunting in this terrain was done by foot. As Henry described: "Yeah, that's before snowmachines. We walked in there, me and Joe Cotter went—went this—head of this creek, that's where he shot his sheep right here. They were travelling to—he said they were travelling cross country to Salmon River. From Salmon River they go back and forth like that. That's what they said."[182] Henry Jackson, Sr., remembers getting lost while hunting sheep to the west, near *Anagagaaq* Creek, when he was about sixteen:



Dall Sheep in the mountains. National Park Service photo

> "[W]e walked, you know. That was in fall time [in late September]. And then Oscar Henry and I, we left from this place, we camped here. ... Anyway, we took a boat out to the mouth of this creek—*Anagagaaq*, they call this *Anagagaaq*. And then we—we walked in—they—we made a mistake. We should've went ... this right here. ... [H]e doesn't know it too well, you know. That's why we made a mistake, we took this wrong course. Which took a long time for us to get to this Aggie [Agashashok] River. ... Half a day."[183]

Elmer Jackson also reported hunting sheep upriver during the fall while on their way to hunt caribou: "Sometimes. Yeah, we go through there on our way to Onion Portage."[184]

Herding 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 Kobuk Basin and other parts of Alaska in the late 19th and early 20th centuries. While not "hunted" per se, these reindeer became an integral part of Iñupiaq subsistence traditions during that period and also interbred with caribou – the main subsistence game species of the region. For that reason, we address the reindeer in this section.

Federal authorities launched the reindeer program with the intention of teaching Iñupiaq families animal husbandry. This was part of broad nationwide efforts to convert the Native

peoples of the United States to sanctioned Euro-American forms of agriculture. The program was supported by the US Bureau of Education and relied on missions to distribute the reindeer and implement the apprentice training system.[185] The US Government's objectives for the program were clear: "Reindeer were an important element of the federal government's plan for the Iñupiat. . . . The reindeer were to be a civilizing and commercializing force."[186] Scholars have identified three developmental periods of the reindeer industry in Alaska. These periods are 1892-1914, when only Iñupiaq families and Sámi owned reindeer; 1914-1939, a period of commercial exploitation that met with limited success; and a slow recovery period beginning in 1939.[187]

In the Kobuk Valley 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 Iñupiat apprentice-training program in 1901.[188] In 1907, the government brought reindeer to Shungnak, closer to Kobuk Valley National Park.[189] 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.[190]

Iñupiaq oral tradition describes how people once herded hundreds, or even thousands of reindeer at a time through the Kobuk River Basin.[191] People had regular reindeer camps, where they stayed seasonally in and around Kobuk Valley. People describe "reindeer corrals" *kaŋiġaqtuġvik* being constructed and maintained in places near Kobuk Valley as part of these traditions.[192] Pauline Harvey shared her memory of the beginning of reindeer herding in the early years of the 20th century: "It must have been 1913, the couple that I stayed with took me out to a reindeer herd which we never seen before. We'd never seen a reindeer herd before."[193] She recalled that reindeer fairs began soon afterwards: "about a year or two after it was put up, they had a reindeer fair right here. Because their reindeer was really popular at the time, those herders and herds. They used to have lots of races with reindeer. I was around 9 years [old, circa 1916] I think when they had that reindeer fair here. . . . When my folks came down to, for that, to go see the fair from Kiana, I was with them."[194]

Moreover, she recalled that people sang special "reindeer songs" and that the herders were people of high status in the community:

> "too bad I couldn't think of that reindeer song they had at that time [laughs]. . . . I used to sing it when I was younger but right now I forgot. I was about nine years old then when they had it, they had lots of reindeer races, foot races, and all kinds of games out on the river. They put up a big, big tent. . .. When we children playing around would look into the tent we'd see some we thought great, great men, the herders, the great herders, we'd see them in there, drinking coffee and whatever they had. Mr. Shields was there: Superintendent, the herders' Superintendent at the time."[195]

In the early 20th century, the reindeer herding program struggled. 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."[196] 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.[197] 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.[198] In the study region, the Kotzebue Quaker mission herd was sold in 1927 to a Native-owned company.[199] The reindeer population crashed in the Kotzebue region in the 1930s.[200]

In 1939, the US Government attempted to revive the reindeer industry by purchasing all non-Native owned reindeer, and by 1949, a recovery seemed to be underway.[201] 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" but not without further complications.[202] People who had reindeer herds in the area observed that some of the reindeer started following the caribou herds: "migrating caribou took the reindeer with them."[203] Beyond this, elders suggest that reindeer and caribou interbred, and that this shaped the migration patterns of caribou herds with reindeer admixture. Leo Jackson commented on this phenomenon, saying, "Of course, reindeer got mixed up, mixed with [the caribou herd]. A lot of reindeer herders lose a lot of reindeer. Like my father, they started out with a hundred, a hundred head, and they lose them all."[204] As other elders of the 1970s recalled, "[w]hen reindeer brought around here, they mixed. Now all are somewhat mixed, but [people] find pure one or other at times. They remember where they are from, thus they come back now [shaping] present migration patterns."[205]

Elders like Percy Jackson remembered when reindeer herding was a core occupation for the *Katyaaŋmiut*. Speaking of his father, Percy said: "[H]e was a reindeer herder when he first started. . . . That's the only way he could make money, reindeer herding."[206] And in notes recorded by Linda Ellanna that likely refer to Peter Atoruk, a similar reference is made: "1916 reindeer herding—herds were here at Kiana—1916-1922, herded at Kiana."[207] Apparently, reindeer herding was undertaken both by men and women, as Bill Schneider inquired with Percy Jackson as to how his mother took to reindeer herding. In reply, Percy answered, "She was doing good. I hardly remember it when I was in reindeer herd on the camps." And "They got quite a few reindeers back when I was a kid. We just keep moving around when I was a kid, move our camps [to] different places."[208] Percy recalled the reindeer herding camp where he grew up, on the bend of the Squirrel River. They called them *qunŋiḷiqiri*, them reindeer herders. . . . I think this one [reindeer herd] here was Kiana." He continued, "[T]here was quite a few [reindeer]. And when—before they—the last time when they checked them, there was 12,000 reindeer. . . . And after that, they all disappear. ... They keep the reindeer at that side, even around Candle area, Kiwalik. . . . My wife's brother had a reindeer herding over there, too, in Kiwalik."[209] Percy thought reindeer herding ceased in the 1960s: "I couldn't remember. I couldn't remember what year. I know it should be around '60s."[210] It is thought the reindeer joined up with the local caribou herds at that time. However, according to Henry Jackson, Sr., in 2002, "Deering just lost theirs [reindeer herd] last year, a bunch of them, go with caribou. Karmun's herd. ... Yeah, there was a quite a few guys [who became reindeer herders for a time]. York Wilson, Louie Commack, Lawrence Gray. Also government herd, Chester Seveck used to be the chief herder there, I guess."[211]

There were reindeer herders in most village communities for a time. Henry Jackson, Sr., recalled other Iñupiaq people who participated in reindeer herding from neighboring communities who also worked in and visited the Kobuk Valley region: "There was reindeer herders here—Erik Wilson down there. Louie Commack. Them over at Selawik, over there them days. And when caribou start coming, they took all them reindeers away."[212] Hazel Apok remarked on reindeer herders as well, saying, "I remember going to Arthur [corrects herself to say Lawrence] Gray's reindeer."[213]

Tommie Sheldon, Jr., remarked that "[s]ome of the local people also worked in reindeer herding. People formed companies in Shishmaref and Deering with the help of the federal government, and the workers earned reindeer for the time they worked."[214] Moreover, according to Ellanna, "Robert Newlin, Sr.'s father, (Raymond Newlin) got him [Peter Atoruk] a reindeer herd which he worked for four years and stayed with Newlins."[215] Ellanna also mentioned that "in 1935 in the birth records, Peter [Atoruk] lists his occupation as reindeer herder and trapper."[216] Apparently, Peter herded reindeer for four years, with some regrets: "He said he made a mistake when he become a reindeer herder. He quit school ... he said he made a mistake."[217]

Hunting for Marine Mammals

Although the villages in the region are some fifty miles from the coastline, the people of the interior are connected by kin and social ties to coastal villages where beluga whales and seals are hunted for subsistence. Whale and seal meats, skins and fats are a part of the overall traditional subsistence harvest for these communities. Percy Jackson describes hunting out at Kotzebue and harvesting a beluga whale with the families in that community. "I don't shoot it, I spear it. . . . Go right through the head. It was about four feet down I think. . . . It was a young one. . . . Them guys sink."[218] He talks about his very first beluga hunt, as a young person: "[T]hat first [time hunting] beluga, I never even taste it. . . . The other people, they eat all. Never say anything to me (chuckles). . . . I learned that way."[219] The first catch is always reserved for consumption by the elders.[220] Percy Jackson's son had a similar experience after his first whale hunt.[221]

In 2006, it was estimated that Kiana households harvested 2591 lbs. of adult bearded seal. The authors report that 51 percent of Kiana households used seal oil; 39 percent used bowhead, 10 percent Belukha, and 5 percent unknown whale; along with 4 percent ringed seal, 3 percent young bearded seal, 1 percent spotted seal, and 1 percent unknown seal.[222] In 2021, seal and bowhead whale were the top marine resources used in households due to trading with coastal communities. 66 percent of households used seal. 61.9 percent of households used bowhead whale.



Bowhead *maktak* (or muktuk, whale blubber) and a pebble from the beach in Kiana. Audrey Paul photo, courtesy of the National Park Service

Animal Products in Traditional Handicrafts and Medicine

Many animal materials harvested in the greater Kobuk River Basin support the production of traditional crafts. Furs and materials made from these animals not only serve as a source of income but remain an important part of cultural identity. In this section is a brief overview

of the traditional uses of wolverine and river otter skins, and items made from materials harvested from loons, owls, and seals.

Parkas, while largely utilitarian, are constructed using patterns, hides and adornments unique to each group within the region—so much so that a certain style, when trimmed with wolverine fur, is referred to as a 'Kobuk style' parka. It is for this purpose that wolverine especially has been a target of the hunt for women: "... But in our [community], we use them for ourselves. Whatever we get, the men use it, or ladies use it. They—that's the one they go after. The wolverine. The women go after the wolverine."[223] According to Thomas Jackson, the pelts were "prized" by Kobuk women, in particular, who used the wolverine as trim on the bottom of distinctively "Kobuk style" parkas.[224] Wolverine pelts were also the preferred material for parkas because, according to Jackson's mother, "the wolverine was good to cut, but when she start[ed] cutting the wolf, she said it just got fuzzy"[225]



Women of Kiana in traditional Kobuk style parkas, made of furs harvested in the region. Photo courtesy Kiana Traditional Council.

Today, parkas are prized possessions, often worn for special occasions and imbued with symbolic meaning. Thomas Jackson's mother made him a parka from the river otter skins he brought her, an item he continues to cherish:

> "My mother, she was a health aid twenty-eight years and I bought, I got otter skins and, 'Mom, could you make me a parka?' And she goes, 'Yeah, I will.' . . . And she said, 'I'm always tired after work.' 'Actually, I could wait until you retire.' Two years later. . .after she retired—I waited two years. And I didn't mind it. . . a month later she finished it, after her retirement. And when she first started, Harry, my brother who's next to me in age, older, you know, he was our main hunter. He came in hunting and mom just started sewing. And Harry saw all the skins there. And he made it, 'Oh! You're making a parka, mom. For who?' 'Thomas.' And I didn't hear it, but mom told me. Mom told me that Harry said to her, 'Always Thomas!' Mom said she turned her head and started smiling. And I still have that parka. A lot of people, I let people sign on it. They sign on the inside the hide part. And they got their names on it."[226]

Muskrat hides were also used in the making of traditional handicrafts. The fur on the muskrats' back is always darker; and the lighter fur from the front of the animal is customarily used in women's clothing and other specialized applications.

Feathers are often collected from various species in the region for the purpose of adornment and the creation of traditional items and bags. These items, and the knowledge of how to create them, have been passed down through generations. Thomas Jackson has "two of them [loon bags] that belong to my grandma. And that's where I learned to make them."[227]

Owl feathers and other parts of the animal may have been used when the animal was found opportunistically rather than hunted. Larry Westlake, Sr., remembers that a woman's husband "got a snowy owl, [and] she used the feathers, the tail, the claws, and the head, it was like mummified, but she cleaned it out really good . . . then dried it. She used, she made some kind of design out of them, and I don't know whatever happened to them."[228]

Seal skins were used for a variety of things and are significant because seals found only in coastal waters indicate lasting connections between seasonal travel and trade. Thomas Jackson's aunt gifted him with a seal skin bag "that she made. And—because her mother

used to do it, and Flora, my aunt, my mom's sister, she's well-known for her sewing too. Just like my mother, she sewed."[229] Boots, when made of caribou skins were a lighter version of boots made from seal skins. Seal oil was used liberally on the hides of both versions to create a waterproof barrier. Christina Westlake remembers that certain boots with a 'stronger waterproof' were therefore more suitable for wet and cold winter conditions:

> "When they skinned seal skins, I think it was, they dried them, took the hair out, took the hair off and they're kind of stiff. And they used a stitch that water doesn't go through where they sewed and they put hard bottoms with the *ugruk*, hard bottoms. And then after they're all done, they oiled the mukluk. . . . With seal oil, all the way; the bottoms and everything. And that waterproofed the skin. So, they used these boots—there's another one for upriver people. They used caribou skins with the hair inside. And they used that waterproof, that stitch to stitch them together and put a lot of oil so that they're oil-proof. They use those and so there was one for coastal. But people managed to get some of the skins from this area and further up to make the *kamiks* the real, the stronger waterproof."[230]

Larry Westlake adds that seal oil had to be reapplied to the *kamiks* to maintain the waterproof barrier:

> "You had to carry it, the seal oil with you and every time you camp out at night, we'd put some—those days in the spring when we were out camping and hunting, we hunt until all night and until the sun is ready to come up, about two o'clock in the morning. . .. That's when we bed down. . . . Just for the heat of the sun to sleep you know. And when we do that, we take our *kamiks* out and stretch them all the way up and rub them with seal oil. They usually put it on a little rag and give them a new coat of seal oil. Now the other ones that had the hair inside, the caribou skin, we called them *mamiliks*. They called them *mamiliks*. You had to do the same, oil them a little bit once in a while. They were spring mukluk that would keep you warm before the weather got real warm, you know. It's still cold. . ..I like that boot—that *mamilik* it is, you know, something that we could use even it got real soft and kind of cold."[231]

Craft traditions using animal products continue to be significant to Iñupiaq families. Items made by family members are often highly valued as physical connections to people who created them, and as representations of cultural identity. Many of these traditional craft skills and cultural associations are highly dependent on the continuation of hunting and trapping traditions in the Kobuk region.

Animal products harvested from the Kobuk Valley are also said to have associated medicinal properties. Porcupine feet, for instance, because of their high caloric content, are thought to have restorative benefits. Thomas Jackson remembers that his ailing brother, when younger, was given the feet as traditional medicinal food to encourage good health:

> "My baby brother was sickly. He had a heart condition. They said he had a small hole in his heart. My mother and him was always away for his appointments and always in Fairbanks. And he liked the porcupine feet. I liked it. So, a lot of the boys would get a porcupine and give it to my grandma, my 'Anna.' She wouldn't say no. She would take it. And like Larry had said that they would bring her a squirrel and she would give them—a lot of boys didn't take the money from the old people, a lot of them. He did, I guess, according to him. But a lot of them brought the porcupine, the ground

> squirrels, the tree squirrels, and my grandma would cook the meat, and she knows because Robert was sickly, she would give him that. Once in a while, most of the time, mom would give me one of the feet, and that was a delicacy to me."[232]

It was good for Robert to eat them "Because he enjoyed eating it [and because it was high in calories and] has fat to it."[233]

Bear fat was also used for medicinal purposes. The fat is traditionally harvested from the animal and hung outside until it turned yellow. It could then be prescribed for sore throats and applied to cuts. Larry Westlake, Jr., explains the processes of preparation:

> "Fall time we went for the brown bear for the fat, I told you. And it was a kind of a special thing that we were taught. . ..when you got a good fat, brown bear they just [gather and keep it]. . . All the fat is back here, all the way you know. It could be that thick, two inches or more in the main, in the fattest part of it. And after you get it off the meat, you just cut it, slit it in half and then they hang it, hang it out. [They hang it on racks.] They hang it, put a piece of rope on it, and hang it up outside on the rack where the birds and stuff won't get to it. And they just keep it there until this—the outside would just turn yellow. And they used that for quite a few things, like—I've forgotten what they use it for, but I think they use it for sore throats. Medicine. And for a certain kind of cut. You cut yourself, they use it. And they could skim that yellow stuff off and eat it raw. . .they're not reluctant to. They don't eat it while it's fresh, they have to cook it. . ..after it's hung like that [you can eat it raw from the outside]. Right, all you do is just skin that yellow stuff off."[234]

Traditional medicines continue to play important roles in the health of the community. Knowledge of and access to harvesting sites remains essential for perpetuating the transmission of cultural values and practices related to the animal harvest, as well as species seasonality, distribution, and many other forms of traditional ecological knowledge.

Endnotes

[1] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[2] Anderson and Anderson (eds) 2019.

[3] Anderson et al. 1998; Anderson and Anderson 2019.

[4] See, e.g., Tickett and Tickett 1976; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976, Custer and Gray 1987.

[5] Ellanna, Ellanna and Sherrod, various.

[6] At Swift Water Place, terrestrial animal faunal remains made up 4.8 percent of faunal remains at House I, and 5.2 percent at House K. However, "a wide variety of species are represented, including hare, marmot, fox, porcupine, beaver, coyote, dog/wolf, vole, mink or marten, unidentified rodents, and caribou" (DeAngelo and Weiss 2019:76).

[7] VanStone 1962:128.

[8] "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).

"They want to send me outside, but I told them I would rather hunt. And start hunting. Toward Noatak. When I first start hunting I think I was about 17-year-old. I was sorry why I quit schooling. . . . Because I can't fill papers. But I know how to live out in the country" (PJ 2003).

Lucy Jackson remembers going trapping with her father in the winter: "I think I did when I was small. I remember I used to stay in the sled, me and my brother" (LJ 1990:17).

Pauline Schuerch's "mother used to trap too and get fox [and mink] once in a while" (PGS 1990:14). She trapped with her son, Pauline's younger brother, while Pauline stayed behind to care for the home.

[9] LJ 2002.

[10] Ellanna and Sherrod 1989a:99. According to Ellanna, during Percy's time "few lynx [were] around anymore and first moose was seen in about 1952 and 1955—hares and their predators have been on a population ebb and are now increasing with intervals of about 4 years" (Ellanna and Sherrod 1989a:99).

[11] Ellanna and Sherrod 1989a:84-85.

[12] HJ 2016.

[13] LWS 2023.

[14] PJ 2003.

[15] DB 1990:13.

[16] HA 2002. "My—like my sister who is 15 years older than I am remember the community as a whole would go out and hunt rabbits because rabbits are harder to catch. They would set up a net, you know, at one end and the different people from the different areas would—I keep wanting to say 'corral the rabbits' until they ran into the net. . . . But that's how they caught—besides snaring them, that's how they would catch rabbits—they eat only rabbits and spruce hens and muskrats and all the small, small game in our area" (HA 2002).

[17] Ellanna and Sherrod 1989a:NA32. In speaking with Martha Wells in 1989, Linda Ellanna noted, "November [was] fur trapping (1930s), wolves, wolverine, otter, mink, lynx—all men go out to tent camps—some close to village [Kiana] in day trip—good prices for furs." (Ellanna and Sherrod 1989a: NA32).

[18] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[19] In Custer and Gray 1987: 2.

[20] DB 1990:12-13.

[21] TJ 2023.

[22] LWS 2023.

[23] EJ 2016.

[24] PJ 2016.

[25] EJ 2016.

[26] Anderson et al. 1998.

[27] At Swift Water Place, marmot faunal remains were "the second most abundant small mammal present at the site, …. [They] likely provided meat, grease, and fur (Burch 2006)" (DeAngelo and Weiss 2019:86).

[28] CW 2023.

[29] LWS 2023.

[30] Ground squirrel remains were found at Swift Water Place: "These species 'form a prominent article for trade' (Nelson 1900)" (DeAngelo and Weiss 2019:87).

[31] CW 2023; Ground squirrels are available all year but are "'best when taken in early spring, soon after [they] have come out of their holes and while they were still in soft, greyish winter fur, highly prized for making light frocks for summer' (Nelson 1900)" (DeAngelo and Weiss 2019:97).

[32] LWS 2023.

[33] LWS 2023; River otter skins were also sometimes used to make clothing.

[34] Remains of porcupines were found at Swift Water Site. "These animals are so slow and easy to kill that 'they could be pursued by young boys learning to hunt, and by people weakened by famine' (Anderson et al. 1998:226-27, 293; Woolfe 1893:150 in Burch 2006:176)" (DeAngelo and Weiss 2019:87).

[35] LWS 2023.

[36] Magdanz et al. 2011:57.

[37] Lamb et al. 2024:65.

[38] Magdanz et al. 2011:57.

[39] Braem et al 2015:46.

[40] Custer and Gray 1987, Tape 2:1-2.

[41] Beaver remains were "an important wildlife resource [at Swift Water Place], utilized for meat, fat, and their prized teeth (Burch 2006). There were eight beaver teeth represented at the site, four of which were considered chisels" (DeAngelo and Weiss 2019:88). The presence of beaver at the site may confirm that caribou were truly sparse at the time and residents were seeking out beaver as a high-density fat resource. One living descendant from *Igliqtiqsiuġvigruaq* "describes how her ancestors subsisted on rabbit, ptarmigan, beaver and porcupine in addition to fish" (DeAngelo and Wiess 2019:90-91, based on data recorded by Wanni Anderson).

[42] DB 1990:9.

[43] DB 1990:9.

[44] DB 1990:8.

[45] DB 1990:10.

[46] DB 1990:8.

[47] Anderson et al. 1998:260.

[48] LWS 2022.

[49] LWS 2022.

[50] Anderson et al. 1998:228.

[51] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np. Spelling of both terms unclear from original.

[52] Anderson et al. 1998:219. According to Stonewall Jackson (Giddings 1961), in spring, the people at Swift Water Place "with bow and arrow, shot muskrats for making fur-skin clothing" (Anderson 2019:266). However, there were no muskrat remains found during excavation of the site. "[O]ral histories, like that of Susie Barr, highlight that 'when spring came in the last part of April, the people always prepared to go to their muskrat camps'" (DeAngelo and Weiss 2019:97). See also Anderson et al. 1998:92.

[53] Anderson et al. 1998:220; Anderson 2019:266, 280.

[54] RS 2002.

[55] Ellanna and Sherrod 1989a:NA33.

[56] JB 1990:2.

[57] DS 1990:5.

[58] DS 1990:6.

[59] DS 1990:2, 4.

[60] DS 1990:3.

[61] JB 1990:3.

[62] Ellanna and Sherrod 1989b:NA12.

[63] PJ 2016.

[64] PJ 2003.

[65] DS 1990:4.

[66] DS 1990:5.

[67] PGS 1990:5.

[68] DS 1990:5.

[69] MHW 1990:4.

[70] LJ 2002.

[71] PJ 2003.

[72] Interpreter for PA 1990:24.

[73] DS 1990:3.

[74] EJ 1990:10.

[75] DS 1990:5-6.

[76] Anderson et al. 1998:220, 260.

[77] DeAngelo and Weiss 2019:86. According to Stonewall Jackson (Giddings 1961), women at Swift Water Place snared rabbits "for their meat and the fur skin. Jackson's information reinforces results of the faunal studies from the site" (Anderson 2019:266).

[78] Anderson et al. 1998:218. At Swift Water Place, the large proportion of "ptarmigan and hare remains at this site supports a primarily winter occupation" (DeAngelo and Weiss 2019:97).

[79] IAB 1992. Hazel Apok also told of setting snares for rabbits, even when she was young: "I remember having my own rabbit snares and going out after school, going. My mom would help me go set them and after that, you know, they were my—my snares. I'd have to go check on 'em and bring them home" (HA 2002).

[80] Moulton 1990:11.

[81] PJ 2003. Leo Jackson describes a similar method: "Well, sometimes I put snares or just shoot 'em with a .22. And then sometimes a whole bunch of us would go out, drive the rabbits. . . . It was a lot of fun doing that. . . . Some people set net on the other end, far end, whole bunch of them driving down. . . . We would leave two people down there on the other end to shoot off them rabbits" (LJ 2002).

[82] RS 2002.

[83] Anderson et al. 1998:219.

[84] Anderson et al. 1998:260.

[85] A number of wolf/dog remains were recovered from Swift Water Place: "A number of canid metapodials, podials and phalanges were . . . present, derived from either hunted wolf or domestic dogs. . . . Wolves, not typically eaten either, provided a valuable source of fur (Burch 2006). The fact that most of the bones present from canid species were podials, metapodials, and phalanges indicates that the animals were probably killed for their pelts" (DeAngelo and Weiss 2019:88).

[86] Anderson et al. 1998:225.

[87] Anderson et al. 1998:253.

[88] Anderson et al. 1998:225.

[89] RA 2002.

[90] DS 1990:14.

[91] DS 1990:14.

[92] RA 2002.

[93] Anderson et al. 1998:226.

[94] IAB 1992.

[95] PJ 2003.

[96] PJ 2003.

[97] Faunal remains from one black bear (*Ursus americanus*) were identified at House I: (0.2 percent NISP of terrestrial mammals from Houses I and K).

[98] Anderson et al. 1998:216.

[99] Anderson et al. 1998:214.

[100] PJ 2016.

[101] PJ 2016.

[102] *Aakataq* is a placename that references brown bear inside park boundaries, Rudy Black's camp.

[103] Anderson et al. 1998; Anderson and Anderson 2019.

[104] TJ 2023.

[105] PJ 2016.

[106] TJ 2023.

[107] Anderson et al. 1998:214.

[108] TJ 2023.

[109] PJ 2016.

[110] DB 1990:14.

[111] Ellanna and Sherrod 1989a:67-68.

[112] Ellanna and Sherrod 1989a:83.

[113] LWS 2022.

[114] Ellanna and Sherrod 1989a:36.

[115] LWS 2022. He continues on to say that early season bear still tastes like the berries and greens that the bears have been eating. "Well, once they start eating berries, they're—especially black bear—they're very good tasting. It's sweet. It's very tasty" (LWS 2022).

[116] Ellanna and Sherrod 1989b:NA20.

[117] LWS 2022.

[118] LWS 2022.

[119] LWS 2022.

[120] LWJ 2022.

[121] LWJ 2022.

[122] TJ 2023.

[123] TJ 2023.

[124] Ellanna and Sherrod 1989b:NA20.

[125] DB 1990:12.

[126] PJ 2016.

[127] TJ 2023.

[128] Ellanna and Sherrod 1989a:82-83. Thomas Jackson also describes an encounter with a polar bear: "When the elders found out, the polar bear, they advise—he was, your father was young then. They advise the men to go up and get it because they're [28:28]]. And that Salmon River always have open water. And that's what it was feeding on, trying to fish, but also it was skinny, starving. Raymond Stoney said he even saw the—it peeked in a window where it put its and they kept the mark of the nose. . . . It was in the wintertime" (TJ 2023). Larry Westlake, Jr., tells about another bear hunting trip with his brother up the Hunt River:

"Yeah, my brother and I, speaking of bear, my brother Dean, used to take me up Hunt River. We didn't go up [Nuno 21:35], we'd go up the other channel because it was the first place caribou would cross and there we so much fish in there. It was a better spot to hunt bear. And he started me out pretty young. I think I was about twelve or thirteen when I. . . And it was just us. We'd pitch a tent way up here somewhere and hunt bear. He had a .357 pistol and a AR-15. And Dean had a .44. He had this big 'bear dropper.' I think it was a .338. Yeah, boy it was fun. We'd go up, camp. One time I forgot to put the anchor out. We set up camp and then it snowed that night. I got up really early, I had to pee. So, I went towards the boat and the boat was gone! And I hollered really loud, 'The boat! The boat!' My brother Dean jumps up and he was pretty upset. He looked down the river and it was just going down passed a bend. Snow on the ground and you know, he was just in his underwear. He jumped in the river and swam down. And man, I was scared. I'm all by myself. I'm thirteen years old. Didn't know what would happen to me if he didn't make it. But then, like 40 minutes later, he drove the boat up (laughs). . . . Really got it good from my brother that time" (LWJ 2023).

[129] PJ 2016.

[130] PJ 2016.

[131] PJ 2016.

[132] PJ 2016.

[133] Anderson et al. 1998:221. According to Nelson (1900), "fall hunting is typically less productive than spring hunting, because birds are not in top condition and are typically less plentiful." (DeAngelo and Weiss 2019:96).

[134] DeAngelo and Weiss 2019:96. Additionally, "In the 19th century, the lower Kobuk was known for its high density of nesting waterfowl, a welcome addition to the Eskimo diet" (DeAngelo and Weiss

2019:221). See also Burch 2006:166.

[135] "Molting birds and juveniles unable to fly were easy to catch (Sturtevant 1978). Gulls were typically hunted with a bow and arrow or a gorget (Burch 2006). Raptors, including eagles, owls, falcons, and hawks, were hunted by bow and arrow, snare, or gorgets embedded in bait (Burch 2006: 183)" (DeAngelo and Weiss 2019:82).

[136] Custer and Gray 1987, Tape 2:2.

[137] TJ 2023.

[138] TJ 2023.

[139] TJ 2023.

[140] Field 1987:4.

[141] TJ 2023.

[142] TJ 2023.

[143] DB 1990:15-16.

[144] DB 1990:15.

[145] Anderson et al. 1998:221.

[146] Field 1987.

[147] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[148] "The Lower Kobuk River drainage is an optimal inland location for hunting a variety of bird species, including nesting waterfowl. Waterfowl were not only eaten but used to make socks, waterproof pouches, and medications" (DeAngelo and Weiss 2019:84). See also Burch 2006:179.

[149] Anderson and Anderson 2019.

[150] At Swift Water Place, ptarmigan "account for the second most abundant resource at both House I and House K. [Over 97 percent of the avian fauna and 11 percent of the total fauna. Another indicator that caribou were scarce at the time.] … People typically snared or netted ptarmigan" (DeAngelo and Weiss 2019:82).

[151] Anderson et al. 1998:221-222.

[152] PJ 2003.

[153] Lamb, 2024:65.

[154] Anderson et al. 1998. Neither of the houses excavated at Swift Water Place had any faunal remains identified as moose (DeAngelo and Weiss 2019:78-79).

[155] TJ 2023.

[156] PJ 2016.

[157] LWS 2022.

[158] Anderson et al. 1998:211-12.

[159] PJ 2016.

[160] JB 2016.

[161] TJ 2023.

[162] TJ 2023.

[163] HS 2023.

[164] LWS 2022.

[165] LWS 2022.

[166] LWS 2022.

[167] Ellanna and Sherrod 1989b:1.

[168] LWS 2022.

[169] PJ 2003.

[170] DB 1990:15.

[171] EJ 2016.

[172] PJ 2016.

[173] PJ 2016.

[174] PJ 2016.

[175] Magdanz et al. 2011:57.

[176] Lamb et al. 2024:65.

[177] Lamb et al. 2024:65.

[178] HJS 1990:16.

[179] Anderson et al. 1998:218. Despite the food scarcity thought to have been experienced at Swift Water Place, neither of the houses excavated had any faunal remains identified as Dall sheep (DeAngelo and Weiss 2019:78-79).

[180] Interpreter for PA 1990:18-19.

[181] HJS 1990:8.

[182] HJS 1990:8.

[183] HJS 1990:8-9.

[184] EJ 1990:10.

[185] VanStone 1976:4; Flanders 1991:47-48.

[186] Flanders 1991:47-48.

[187] Lantis 1950:27–28; Stern et al. 1980:37.

[188] Flanders 1991:49.

[189] Anderson et al. 1988:18.

[190] Stern et al. 1980:17.

[191] Custer and Gray 1987.

[192] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[193] Harvey 1987:11.

[194] Harvey 1987:6.

[195] Harvey 1987:7.

[196] Stern et al. 1980:20.

[197] Lantis 1950.

[198] Flanders 1991:54.a local government employee invited Jesuit missionaries into the community. Over a period of years, the two missionary groups developed similar perspectives on the federal government. The local events described must be understood through the larger shifts in missionary-state relations. In this case, the lack of missionary-government cooperation was the salient feature determining the history of contact in the community. At other times and other places, when missionaries and states cooperate, other institutional relations may be significant.","ISSN":"0066-6939","shortTitle":"Missionaries and Professional Infidels","language":"eng","author":[{"family":"Flanders","given":"Nicholas E."}],"issued":{"date-parts":[["1991"]]}},"locator":"54","label":"page"}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}

[199] Flanders 1991:49.

[200] Burch 1984:314.

[201] Lantis 1950:28, 43.

[202] Stern et al. 1980:46.

[203] B. Sheldon 1987:1.

[204] LJ 2002.

[205] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[206] PJ 2003.

[207] Ellanna and Sherrod1989b:NA11.

[208] PJ 2003.

[209] PJ 2003.

[210] PJ 2003.

[211] HJS 2002.

[212] HJS 2002.

[213] HA in interview with Henry Jackson, Sr. 2002.

[214] TSJ 2001.

[215] Ellanna and Sherrod 1989b:9.

[216] Ellanna and Sherrod 1989b:10.

[217] Interpreter for PA 1990:31.

[218] PJ 2016

[219] PJ 2016.

[220] Woman in PJ 2016.

[221] PJ 2016.

[222] Magdanz et al. 2011:57.

[223] JB 1990:20.

[224] TJ 2023.

[225] TJ 2023.

[226] TJ 2023.

[227] TJ 2023.

[228] LWS 2023.

[229] TJ 2023.

[230] CW 2023.

[231] LWS 2023.

[232] TJ 2023.

[233] TJ 2023.

[234] LWJ 2022.

[235] LWS 2023.

[236] Braem et al 2015:46.

[237] Beaver remains were "an important wildlife resource [at Swift Water Place], utilized for meat,

fat, and their prized teeth (Burch 2006). There were eight beaver teeth represented at the site, four of which were considered chisels" (DeAngelo and Weiss 2019:88). The presence of beaver at the site may confirm that caribou were truly sparse at the time and residents were seeking out beaver as a high-density fat resource. One living descendant from *Igliqtiqsiuġvigruaq* "describes how her ancestors subsisted on rabbit, ptarmigan, beaver and porcupine in addition to fish" (DeAngelo and Wiess 2019:90-91, based on data recorded by Wanni Anderson).

[238] DB 1990:10.

[239] Anderson et al. 1998:220, 260.

[240] TJ 2023.



Youth fishing at coal mine. Emily Creek Photo, Courtesy Of The National Park Service

CHAPTER 7

Knowledge of Fish and Fish Harvest in the Kobuk Valley

Along the Kobuk, fishing is fundamental to subsistence, traditional economies, and many other aspects of daily life. For this reason, fish, fishing traditions, and traditional fishing knowledge, are key to understanding the past, present and future of Iñupiaq communities' relationships with the park. Fish are staple foods, abundant and predictable. When other significant food sources, most notably caribou, become scarce due to migration changes, fish harvesting in the Kobuk River and its tributaries intensifies. For generations, during these times, fish have served as the primary source of food, available virtually year-round.[1]

Historically, several key fishing locations sit along the main river and its tributaries, and many of these fishing areas remain important to this day. These waterways are habitat to a variety of fish including cultural keystone species like salmon and sheefish. In order to catch and process fish, families have established camps that they continue to visit annually. Older camps are thus widespread, especially from the Salmon River confluence downstream, while in the 20th century, many newer camps were established on allotments upstream from there. People adapt fishing locations based on changes in the channels and the movement of fish. As Joe Field observed of people's choice of fishing site locations, "people always change."[2] Many newer allotments have cabins. Using the camps as bases for operation, Kiana residents target salmon, whitefish, sheefish, grayling, smelt, trout, and other species. The following section will describe how fishing practices have evolved over time and ways that fish tie people to place.

The five fish species mentioned in interviews and addressed this report are 1) the five northern species of salmon, called *qalugruaq* in Iñupiaq, particularly chum (*Oncorhynchus keta)*; 2) several species of whitefish, particularly least cisco *(Coregonus sardinella)*, called *qalusraaq* in Iñupiaq; 3) sheefish (*Stenodus leucichthys*), *sii* in Iñupiaq; 4) pike *(Esox Lucius)*, *siulik* in Iñupiaq; and 5) burbot "mudshark", or *tiktaalik* in Iñupiaq.[3] Both anthropological literatures and subsistence technical reports describe the significance of these species along the Kobuk: "Resident whitefish, pike, and shee comprise the major source of fish for the *Kuuvaŋmiut*. They catch and consume even more of these fish than they do of salmon."[4] Relative to other Alaskan rivers, sheefish are uniquely abundant in the Kobuk River, and are discussed in more depth in a separate section below.[5]



Preparing nets for summer fishing, at coalmine, with 2023 Kiana Elders Camp. Emily Creek Photo, Courtesy National Park Service.

This report discusses fishing practices from the perspective of Kiana residents, who fish in the vicinity of Kiana, down to the mouth of the Kobuk River (known as the Lower Kobuk), and up through Kobuk Valley National Park, to Ambler. Fishing areas in tributaries along this stretch of the Kobuk River, including several rivers within the park – especially Salmon River—are also discussed. For families throughout the Northwest Arctic, fish from the Kobuk River are a significant resource. Given their size and taste, sheefish, in particular, (*sii* in Iñupiaq) have been and continue to be appealing for subsistence fishing.[6] Historically, as indicated by faunal remains *Igliqtiqsiuġvigruaq,* sheefish were a significant resource for the people who lived there.[7] Moreover, sheefish continue to be "one of the region's most delectable fish. . . harvested heavily by residents of Kotzebue, Selawik, and the people along the Kobuk River (Noorvik, Kiana, Ambler, Shungnak, and Kobuk)."[8]

Year after year, people have returned to prime sheefish fishing sites to catch these fish by net, often in the spring and early summer. Families also have maintained camps in many of these especially good places for catching sheefish. Later in the season, and into the fall, fishing for whitefish becomes more important, and families also fish for smelt when available.[9] But mudshark, sheefish, and whitefish are often available from the same fishing stations. While all are found and fished in abundance within the park, elders say that the places that are good for harvesting all three together sit largely downstream from the park.[10] *Sii* and other fish from the Kobuk River remain a valuable commodity, both as trade items and in recent times, in the commercial fishery.[11]

Interviews demonstrate that in recent times, fish continue to be a prominent food resource. Relatively recent harvest numbers back this up. In 2011, Magdanz et al. reported that 99 percent of Kiana households used fish and shellfish, and 92 percent 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).[12] In 2012, Ambler households harvested 10,096 lb. of salmon, and 49,411 lb. of other fish species, most predominantly sheefish and whitefish.[13]

Whitefish, a blanket term for a variety of white-fleshed fish like least cisco (also known as skip jacks), broad whitefish, humpback whitefish, Dolly Varden, Northern Pike, and mudshark, were a significant portion of the total annual fish harvests in Kiana in 2021. Kiana residents harvested a total of 63,318 lb. of fish other than salmon, which amounted to 170 lb. per person. Forty-six percent of this was reported as "broad whitefish" (least cisco, *qalusraaq*), 21 percent was whitefish, and 15 percent was humpback whitefish. Dolly Varden, Northern Pike, and burbot were also used by households.[14]

By comparison, sixty percent of households in Kiana harvested salmon in 2021; and the total harvest weight was 27,713 lb., a total largely composed of chum salmon. This means the salmon harvest totaled 65 lbs. per capita – an impressive amount, suggesting that chum from Kobuk River remains a key staple food for Kiana and other communities into the present day. In that year, people also harvested pink salmon, chinook salmon, and sockeye salmon. Almost all are caught with families' seine nets and other gear, but salmon caught in a sampling net established by the State of Alaska near Kiana also fed a number of families.[15]

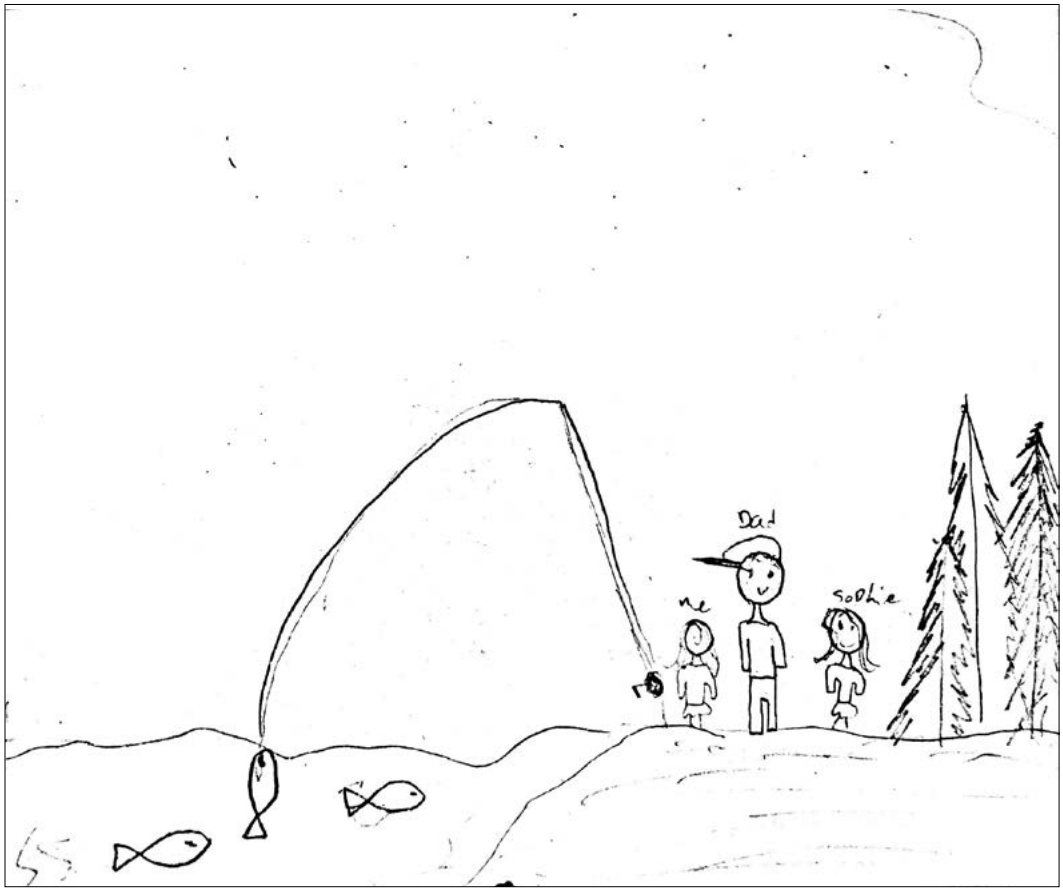
Importantly, interviewees mentioned considerable Indigenous Knowledge (IK) relating to the availability and harvest of fish species. As DeAngelo and Weiss summarize, based on many different accounts from the greater Kobuk region, "In general, successful fishing requires a great deal of ecological knowledge, passed down in the form of oral tradition or learned through an intimate relationship with the minor fluctuations of the local environment."[16] Accordingly, interviewees could describe not only significant variation in the timing and availability of singular species in particular tributaries, but could also describe the distinctive flavors and fat contents that characterize 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 riverbanks to produce fish traps.[17] The following sections give a brief overview of traditional fishing practices within Kobuk Valley organized by season and the evolving methods of fishing and fish use. We also point to the cultural significance for Iñupiaq communities of fish and fishing locations on the Kobuk.

Across the Seasons

Summer to Fall

We now return to the seasonal round as it relates to traditional fishing practices. From mid-May to early June, fish harvesting activities accelerate as ice breaks up along the waterways. As ice moves steadily from the headwaters down toward the mouths of the rivers and melts, water backs up into side streams, sloughs, lowland lakes, and wetlands. This influx of river water into ephemeral channels not only inundates these areas more deeply with water but enhances oxygen levels and enhances vegetation growth in and around these waterways. This makes these places ideal for the early season pursuit of whitefish, pike, and other fish. Eventually, after the snowmelt has passed, many fish move back into the open waters, and the summer fishing season commences. First, in June, sheefish begin migrating up the Kobuk. After Kotzebue Sound is free of ice, sometime in early July, salmon begin migrating up the Kobuk in large numbers too.

Through generations of experience, the *Kuuvaŋmiut* have learned where to find fish in different seasons and, as a result, have developed unique methods to catch them. And as people adapt to altered conditions, fishing locations sometimes shift – even major salmon fishing stations have disappeared over time as the Kobuk River has shifted course, changing the distribution and availability of keystone resources.[18] Still, the seasonal cycle, broadly speaking, includes a spring window and a fall window for catching whitefish and sheefish, with the spring season beginning as soon as ice breakup and extending through late July.[19] From July



Summer Fishing in the Kobuk, by Youth Artist – Kiana, Alaska

to late August, families largely focus on salmon. Summer fishing, Giddings describes this way: "Salmon usually reach the middle Kobuk by the middle of July. . . . Salmon seined were mainly pink, or 'dog salmon,' and some humpbacks. Quantities of whitefish, some prized sheefish, and occasional pickerel were also seined."[20] By fall, people return to fall fish camps to again pursue sheefish, whitefish, and pike through the rest of the ice-free season. Later in the fall, fishers might pursue spawned-out salmon, many of which collect along the shorelines, dead or dying.

The seasonal cycle includes many traditional practices that support the fish harvest, such as use of camps and preparation of fish racks. In a few places, fish racks can be maintained and repaired year to year. But in other places, such as on river sand and gravel bars, they must be largely rebuilt each year. Elder Larry Westlake, Sr., described his process for building a fish rack: "June 10 is my day to cut those poles. June 10th, because they're just full of sap on June 10th. And you start from the bigger part from the bottom and peel it and once you get going with the peeling you just go like this . . .. [When the sap is running you can get the bark right off.] Right, you can just skin them in no time. Put them to dry."[21] He explains that if a person tried to cut those poles a month earlier, that person would be wrestling with the tree for a long time. Fish racks require long poles, and each pole needs to be approximately 25-30 feet long. "[I]f you get a bunch of short ones, you take more room to—and more work to dry the fish."[22] Here, we address several of the key species fished on the Kobuk and its tributaries in turn.

Sii Fish—Sheefish

Sheefish (*Stenodus leucichthys*), or *sii* in Iñupiaq, are an important component of the Iñupiaq diet. A migratory fish, they commonly spend winter months in Hotham Inlet and Selawik Lake before migrating up the Kobuk River in the spring. They will first arrive around Kiana in late June, spawn in late September, and then return downstream toward the coast. Historically at places like Swift Water Place and continuing today, "[s]heefish provide an important subsistence food during both the upstream and downstream migrations," though they are mostly harvested in late August and September when they are most plentiful.[23] Sheefish is an important staple food, eaten fresh or smoked for later use. Their eggs are also collected from harvested fish and are traditionally served in many ways—cooked and sometimes fermented.

People have continued to use nets to obtain sheefish, and some places on the river are so productive that people can harvest sheefish almost continuously throughout the ice-free period of the year.[24]

Those who reside in the Kobuk region possess many memories of catching and harvesting sheefish. And they recall that many parts of the sheefish were used in some way. Elders recalled harvesting and using the stomach of the sheefish.[25] The eggs are also a welcome part of the traditional diet. Ruth Sandvik remembers fall sheefish fondly, saying: "[T]hat's one of their delicacies. They get these great big sheefish ... bulging with roe. And ... usually if any of the people from up there come down here, they bring that. . .as a treat for the people down here."[26] She explained that the community caught enough whitefish to sustain them through winter: "[T]hey got tons of whitefish. And—which pretty much took care of them for the whole winter. I mean, it was that—I mean, that was their protein."[27] She also recalls camping at areas along the Squirrel River, across from Kobuk and Okok Point, to fish for whitefish. But after two or three weeks, families returned to the village to await the return of the beloved salmon: "And then when the salmon came, then you seined all summer. Salmon and sheefish and whatever. And—and most of this was to be dried. Dried and put away."[28]



Emily and Thomas untangle a net. Photo Courtesy Of National Park Service

People traditionally observe a number of prohibitions and prescriptions for human behavior that relate to the fish harvest, and some specifically relate to sheefish. For example, Minnie Gray reported traditional beliefs that "when the fish are coming up," such as during sheefish runs, people shouldn't "sew skins," "tear cloth" or otherwise work on clothing, "maybe can't even work on birch bark." She recalled events in her youth where people did not observe that prohibition and members of her family died.[29]

Qalugruaq—Salmon

The Kobuk region is home to all five northern species of salmon: Chum salmon (*Oncorhynchus keta),* or *qalugruaq* in Iñupiaq, are the primary species harvested by the *Katyaaŋmiut*. Similar to sheefish, salmon will migrate upriver in late June and then return to ocean waters in August and September. In the past, at places like Swift Water Place, salmon harvesting was most often done by women in late summer and fall while men hunted.[30] Today, the task of salmon harvesting may not be divided. For example, Jackie Johnson works with his wife during the annual salmon harvest to, "clean them and freeze them. That's what me and my wife always do. . . . Or give them—half dry them, bag them, and put them away."[31] That way "we can eat it [salmon] any time we wanted to so. . .. We'll get tired of caribou, and we'd have some salmon."[32]

Certain species, grayling among them, are drawn to places with a temporary abundance of salmon, salmon carcasses, and salmon spawn, so that certain kinds of fishing coincide with the salmon harvest.[33] Accordingly, salmon fishing sites are also used for harvesting species such as grayling. Grayling are sometimes caught and eaten as "camp food" at salmon fishing camps; it is best fresh, for if it is not eaten soon after it is caught, grayling can become soft and mushy.



Qalugruaq, salmon cut into strips and hung out before smoking. Emily Creek Photo, Courtesy Of National Park Service

Qalusraaq—Whitefish

Qalusraaq is an Iñupiaq term for one of several species of small whitefish harvested by the *Katyaaŋmiut* that interviewees alternately refer to as 'least cisco' *(Coregonus sardinella).* Interviewees from Kiana sometimes call them 'skip jacks.' They run in late summer just before freeze-up. Harvesters pursue these fish year-round but typically catch them in seines in the fall when they are heavy with eggs. Larry Westlake, Sr., remembers adapting the use of a particular seine to catch the smaller fish he calls, "cisco. We called them *qalusraaq* in Eskimo. And, oh man, with that net you could get, you know, you could fill the net and can't hardly pull it to shore. (laughter) . . . But that would be in late September, those fish."[34] As one elder describes it: "they always catch lot of little fishes. We call them little fishes *qalusraaq* (also called skip jacks). And first they always coming down, first white fishes, then there was [a] lot of mudsharks in the night. They always get into that net."[35] *Qalusraaq* can be eaten fresh but are mostly stored for later use. They can also be used as bait for mudsharks. In an interview with Lucy Jackson, Dolly Smith also refers to *qalusraaq*, saying, "Those are real good eating—frying."[36] During the fall, *qalusraaq* were stored in a bin; then people traditionally froze them as winter approached, for feeding dogs. In addition, she also mentioned their use as bait: "They use them for bait too for mudsharks. Those skip jacks. ... Get the hooks and put them on the ground."[37]

Walter Cook, Sr., offered details about Iñupiaq traditions for constructing whitefish traps: "You can set a fish—set a fish trap out for whitefish with a long neck, maybe 20 feet in diameter, about 20, 70 feet long .... Get a lot of fish with those."[38] Gill netting was another method by which Iñupiaq hunters have harvested whitefish. Some interviewees have mentioned Okak Point— *Tauqsiġñiaġvigruuraq* —as a point historically associated with good gill netting, and historically a site of caches relating to the harvest of this species.[39] And elders speaking with

Linda Ellanna suggested that June fishing at Okak Point focused on seining *qalusraaq.* Notes from her July 1989 interview with Martha Wells state that people fish "from shore—watch for waves from shore, grabbed [with] hands and [wrestle?] the dip nets w[ith] small fish—boats full—string [with] willows thong . . . half dried [with] seal oil or aired them."[40]

Whitefish, such as *qalusraaq,* continue to be caught in large quantities by families from Kiana. For example, Christina and Larry Westlake, Sr., illustrate the number of whitefish their family recently brought home from fish camp after seining close to the western boundary of the park:

> "We just seined I'd say, about ten days ago, right above the cultural camp there in that little eddy, and we got thirteen totes, the regular-sized tote. Thirteen totes full of whitefish. And we, our family, children, and grandchildren that was able to help, all went up to the camp. We cut those for two days and created a big rack for them there in camp that we could take apart every fall when we're through and bring it up on the bank and store it for the winter. And our drying poles is from, probably about three-inch . . . if we could get twenty-five, thirty feet out of that tree, that's what I look for in the spring."[41]

Christina adds that: "We do a lot of seining, for the last twenty years at least. And we have big caches and fill the racks. They're about like eight poles, ten poles. We have to do it all, most of the cleaning and cutting fish in one day because of the warm weather. And get them, one o'clock in the morning wherever (laughs)."[42] In the past, *qalusraaq* harvests clearly played an important part in subsistence strategies employed by the *Katyaaŋmiut.* As the accounts of the Westlake's and other Kiana families make clear, this species of whitefish continues to be an important and dependable resource for people living in the region's villages today.

Tiktaaliq—Mudshark/Burbot

Mudsharks, also known as burbot, or *tiktaaliq* in Iñupiaq, are fished widely in the Kobuk River and its tributaries. These fish are bottom feeders, more common in slow water but found widely throughout the lower Kobuk River Basin. The meat of the fish is an important part of the diet, while other parts of the fish, such as the livers and stomachs, are also a regular part of the traditional diet. These fish also produce many eggs, which are sometimes eaten.[43]

Mudshark is fished in the warm season and also in the fall, around the time of freeze-up. Here we address fishing associated with the summer fishery. There are a number of ways to catch mudshark in the warm months. For example, in recent centuries, Iñupiaq fishermen caught mudshark using a lure called a "'burbot gorge,' a small bipointed object grooved in the middle for the attachment to a line."[44] Examples of these are found archeologically in the villages of the Kobuk, including Swift Water place: "This device, 12 of which were located in House K and two in House I [of that village], was designed to be embedded in meat as bait in such a way that when a burbot (*Lota lota*) swallowed the mass whole, the object would toggle in its intestines, a practice that continued to be used well into historic times."[45]

Jigging is another technique by which harvesters catch mudsharks during the warmer months in and around Kobuk Valley National Park. In one memory, Thomas Jackson described jigging for *tiktaaliq* in the fall (after dark) in an eddy across from Coal Mine:

> "Because there's a big, good eddy across [from Coal Mine]. And at that eddy, Baldwin, Eva Baldwin, they're there. Eva Baldwin and Clyde Baldwin, they were camping with us at Coal Mine. . . . [We prepared to] fish at night, you know when it start to get dark.

> Eva Baldwin saw me with the *aulasraun* I had; *aulasraun* is 'jigger,' not rod and reel. . . she knew what I was going to [go fishing for *tiktaaliq* in] an eddy right there. Jimmy Baldwin was thirteen years old then and he said he's going to follow.
>
> His mom said, 'Dress warm,' because you know, fall time in the dark, it starts to get cold. So, it got a little dark on us. She was in the *sivu*, I was in the *aaka*, you know at the end of the boat. Her and I started hooking with the *aulasraun* and we started getting *tiktaaliq*. Between her and I, we got over seventy. We were having fun.
>
> Them ladies, the next morning, they were working on the fish, taking the liver—of course they had no *suvaaks* then—but they sure cooked the livers and the stomachs."[46]

There are also different techniques used to fish for mudshark in the fall, during freeze-up. Those techniques and traditions are addressed in a later section of this chapter, devoted to the fishing traditions of that season.

Siulik—Northern Pike

Siulik, or Northern pike, are a large carnivorous fish found throughout the arctic regions of the Northern Hemisphere. These fish are ambush predators that consume a diverse diet – and can grow large enough to consume small mammals, waterfowl, and a number of fish species. While at home in the main channel of the Kobuk, they thrive in the murky or vegetated sloughs and side channels, where they can readily ambush prey. They are a popular gamefish throughout their range and have long been harvested by Iñupiaq families in the Kobuk Basin. In the Kobuk, they spawn in the spring, soon after the ice clears. Most Northern pike overwinter in the deep water of the Kobuk and other large rivers. Though pike can be harvested all year-round, Kiana harvesters particularly target them in the early summer when they return to the tributaries of the Kobuk from surrounding marshes and lakes. In summer, they are caught using seines, while in the fall, gill nets are commonly used. While widely harvested, the species is not a staple and also occurs diffusely through the Kobuk Basin rather than in dense schools. Therefore, people generally harvest pike as a side-activity alongside other species of fish, but only occasionally go up the Kobuk exclusively looking for pike.

Winter to Spring

During the winter months, ice fishing becomes an important part of the subsistence harvest in and around Kobuk Valley. Ice fishing has long been an important part of Iñupiaq fishing traditions —especially in the period from November through April, when the Kobuk River and its tributaries and sloughs are frozen. Iñupiaq ice fishing techniques focus on certain species that remain accessible, active, and feeding through the winter months, such as sheefish, humpback whitefish, broad whitefish, and mudshark – all of these being harvested in large quantities.[47] There are a number of fish processing methods for these species, but the winter cold makes short-term preservation relatively easy – the ambient air temperature commonly being as cold as a household freezer for extended periods of time. Harvesters commonly froze the fish in large piles for storage, caching, and later use by both people and, historically, dogs. In the mid-20th century, with the shift from dog team transportation to snowmachines, fishing changed significantly. The wintertime harvests declined with the declining need for dog food. Still, winter fishing, both by net and hooking, has remained an important subsistence activity on the Kobuk River. And traditional fishing practices, still highly efficient in processing a large catch, are now facilitated by snowmachine use.



Going Ice Fishing with My Family, by Celine – Kiana, Alaska

Ruth Sandvik shared: "Fall time ... ice fishing .... You'd fish under the ice and they got gobs of fish."[48] In 1989, Linda Ellanna, in conversation with Martha Wells, noted that fishing for char and blackfish under the ice of small lakes near the village was common in October and November.[49] Elder David Black was an experienced ice fisherman. He often went hooking upriver in the wintertime: "Yeah, we go up there. We wait 'til [the ice] get real thick and then we—we always go up there with a snow machine or sometimes I always walk down the beach and leave my sled down there and I always go down there and hook in the nighttime." Ice-fishing is most active in areas downstream from the park, in places such as the complex channels around Noorvik. Fishing anywhere on the river requires people to employ a large body of traditional ecological knowledge, as fishers work to locate concentrations of different species or to maintain their ice-fishing locations. Percy Jackson was taught how to get fish in the "wintertime through the ice. . . . You gotta have an ice pick to make a hole. You get trout, white[fish]."[50] He was taught this by elders of the Kiana community, but also by an "old man that used to live in Noatak . . . [who showed him] that that's a place to get fish too," when traveling there for reasons such as the caribou hunt.[51] Hazel Apok elaborated on the skills needed to be successful at ice-fishing, stating, "You know, the ice will get real thick when it gets cold. So, you learn how to take care of your water hole so that you're not continually going through thicker ice as it thickens over the winter."[52]

The winter season also involves ice-fishing for sheefish, which is available in certain locations under the ice and becomes increasingly available in those places toward the end of winter. Elders note that many of the same places were fished for sheefish year-round— so that families revisit their summer and fall sheefish harvesting places, fishing sheefish there through the ice in winter. [53] These fish can be frozen temporarily at these fishing stations, but also eaten fresh or processed for use throughout the winter. In some instances, sheefish from these well-established fishing places along the Kobuk can be a risk-reducing subsistence resource, harvested when other subsistence species are relatively scarce.

Aside from the fish already mentioned, mudshark were a common wintertime catch: "In the wintertime. I always get some mud sharks," David Black commented. Graylings are also sometimes fished in winter: "Daytime I always go down there and hook for graylings."[54]

The size of the hole in the ice varies depending on the location, ice thickness, target species, and other variables. As David Black recalled, if the hole is too small, people cannot land the big fish:

> "Boy, that last time when I was hooking down there too, they ask me how I always get them big ones. And they had—they ask me how—how big a hole they gotta make. And I said well, if you make a hole like a coffee can, you'll find out. And they make a hole just like [a] coffee can and they put their hooks down there and they jerk it one time. Boy, that fish couldn't come up the hole [because the fish was too big]. That one was a big mudshark. ... And I told them, now you'll know. You won't have to ask me how to make a hole. They said yeah, they know. And they try to make their hole bigger, and when they make their hole bigger, they get small one. I couldn't stop laughing."[55]

Tiktaaliq—Mudshark or Burbot

After fall caribou hunts wrapped up, families historically moved to special camps or winter houses along the river in locations that provided access to sheefish, but also the *tiktaaliq,* the "mudshark" or "burbot" found in Kobuk River.[56] *Tiktaaliq* spawn in the winter under

the ice. They can be numerous in certain places and are often harvested in the early winter after freeze-up using fish traps. Ruth Sandvik, for example, described traditional knowledge related to mudshark trapping that was passed down to her by elders of the community: "they put trees down, and they put this .... They have ... that great big scoop net... [S]o the mudshark ... have to follow this little chute. And that's fun. I mean, they can get 16 to 100—100 in one scoop. And the liver, have you had the liver? . . . It's a delicacy."[57] She continued: "We had fish traps, ... mudshark traps ... ling cod is what you call them over in Fairbanks, or burbot. ... That was—that was a pretty choice fish."[58]

Many elders have recalled aspects of traditional mudshark fishing on the Kobuk. With respect to trapping mudsharks, Walter Cook, Sr., shared that these fish leave "trails" in the gravel where they pass through shallow water, and people know to trap in these kinds of places. As he observed, "when we go fish for them, sometimes when the ice is clear on the shoreline, you look around down there when it's shallow, you could—you could see [the places where the fish pass along the gravel bottom] like caribou trails. Same thing in the gravel. So, when they come up, they travel like through the same route."[59] Walter Cook, Sr., spoke at length about mudshark traditions, how they would place traps very strategically based on these 'fish trails' on the river bottom, waiting for the ice to freeze over:

> "They are going upriver after freeze-up. Well, they start going up about September and they—they run until about late December. . . . And finally, they want to go inside [the trap] because sometime most of our whitefish or either small *qalusraaq* (Least Cisco) they call them, right after freeze-up, after they go upriver, about mid-September, they start going back down. And these—these fish here, mudshark here ... when they travel to the shoreline, they go inside [the mudshark trap] here. Cause [the whitefish,] they're small, there's no problem with them, they go right in and go back out. ... So, when—when this happens, ... mudshark knows there's fish in there, that's how come they always want to go in. . . . Once they go in there, there's no way they could go back out. . . . They're trapped. The only way."
>
> "And then the only way up here, when the ice gets thick, you're going to have to make at least 10-inch diameter hole maybe, maybe 12 inch, and then get a—get a pole with a gaff on it. And start gaffing them out. ... [I]f your trap is set up right, ... has to be with the current."[60]

Walter Cook, Sr., provided an even more detailed description of how a mudshark trap is used after 'freeze-up' – as well as providing an illustration of the placement of the trap in the river. As he recalled,

> "they put [that trap] underneath the ice ...When they are building a mudshark trap, they—they set it ...maybe four or five feet deep from the shoreline. And they'd make it ...out of . . . [b]irch. Or either cottonwood. And then split them in half when they are thick enough and then stand them up and make them maybe five feet by five feet square, and they'd put this ... like a basket type, this narrow part here, it usually goes inside that square thing there. ... [the wider end] points up, upriver. . . [All along] the shoreline you would have willows over here to block off the current and block off so that fish won't go ... through. On the shoreline, on the deeper side, too, not very much, maybe 20, 30 feet. Just stand up some willows. And then when those mudshark comes up, it's already blocked on both sides. . .They don't have to either go around,



Harold Gooden and Tommie Douglas working on a mudshark trap after freeze-up. Frank Gooden photo, courtesy of UAF Project Jukebox.

> or to go inside that—that square . . . trap. And this side here, it's got an opening. . . That's so when that mudshark goes in, this is small here because it won't go back out. Even though he tried so many times." [61]

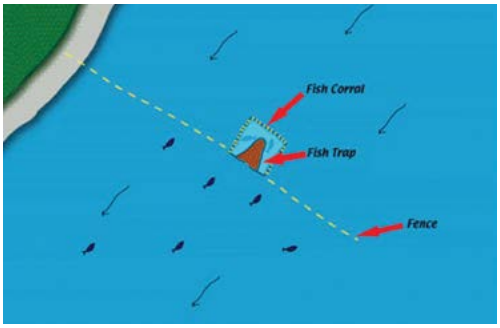
The choice of wood for these traps can be important. Walter recalled that people especially use split pieces of cottonwood. Spruce and other conifers are said to have a "smell" that the fish detect and avoid.[62] Once complete, they are then submerged into the river in a way that funnels the swimming fish into the trap. He elaborates:

> "So, you got to be closed like this because if they are open, they are open like this, the fish going to go out on the side, you know. . . . You have got to make them real close . . .. And you have to sink 'em down, too, maybe at least six to eight inches to the—to the bottom of the—on the river. ...This here's the shoreline. . . . They're standing up, yes. And then in between, you'd put down these cottonwood, maybe about two or three, two or three feet apart, and then with willows, you start laying the willows like this until they're pounded down. . . . Because here there's only three or four feet of water. And then you have to block—block it on the shoreline side. Same way over here. [The willows were piled up.] Yes, like piled up. . . . Packed down. ... And then if they try to float back up, you're going to have to get—cut some willows with a "Y" type on it. And so, the willow's "Y" is like this, and you have to force it down like this, and tie it down to one of these poles here so the willows won't float back up. . . . The trap itself is made out of the cottonwood. At least five feet by five feet square."[63]

The traps are generally made from a combination of different types of wood. When willow bark is stripped from a branch, immediately after harvesting, it's pliable in a way that mimics twine. Using these willow strands, parts of the trap are lashed together and secured in place in the water's current. As Walter Cook, Sr., elaborated:

> "It's made out of willows. . . They peel the willows. . . . And then they are fresh. Before they dry up, they work on these. They—they even wrap it around this with the willows, make the willows thin and tie—tie them down. See, that's what they doing right there, they are tying down . . . that band right there on this here . . . [using what] has to be twine. . . . Store bought probably twine, you know. They are going to have to—that's the only way they are going to do it because there's no way you could use tape, you've got to use twine in order to tie them down. ...
>
> "And then when it's done, when the trap is done, all winter long you could have fresh fish, fresh mudshark. And then you maybe every—every three or four days, or especially fall time, you go down there and check that trap out, and then it's already frozen. You have to make a small hole enough to pull them fish out. And then you got to have a gaff, a gaff-type hook, and then you have to gaff the fish out from that trap there. Just make a small hole, maybe 10-inch diameter hole in order to gaff out the fish. And then if you're—if you're lucky, sometime a trap like this can hold 80 to 90 fish in there."[64]

On a fieldtrip to Kiana in the fall of 2024, report authors discussed the way that Kiana residents now get mudshark. Using an opening in the ice, the last part of the Kobuk River directly in front of the village, fishers set their fishing line along the edge of the ice. The baited hooks are spaced out along this line and are checked regularly.[65]



A diagram of a mudshark trap, showing the placement of the fish fence, corral, and trap within the Kobuk River. Image by Eileen Devinney and Takashi Sakurai of the National Park Service, based on a drawing by Walter Cook as part of UAF's Project Jukebox series on Kiana.

Qalusraaq—Whitefish

Qalusraaq are generally caught year-round but are especially targeted in late winter and early spring. People hooked fish through the ice and had "spring fish camps for whitefish" along the Kobuk. Referring to a photograph, Ruth Sandvik said: "Now, this is—this is the way I recall their getting whitefish. Not only in the summer. And this is to be cut and dried . . . through the ice, of course, they froze them. Roger—Roger [Atoruk] does it in the nets then. But these, by seining."[66] Roger described going with his family to spring fish camp where they caught whitefish in the 1970s: "They used to have a—they have a fish camp up in the spring, spring fish camp. What we call 'slough.' And they would get a lot of fish up there." [67]

Past and Present Fishing Methods on the Kobuk

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.[68] They caught fish with leisters, weirs, and hooks and lines.[69] Artifacts

uncovered at Swift Water Place indicate that different hooks were employed depending on the targeted fish species: "For smaller fish, such as grayling (*Thymallus arcticus*) or pike (*Esox lucius*), they fished with small ivory 'grayling hooks' … of a form in widespread use among other Iñupiaq groups in the region. … For larger species, especially shee, they used a large fish-shaped 'lure-hook' of a distinctive form shaped like a small fish."[70] Cantwell observed the use of seine nets and willow traps in the summer of 1884 along the Kobuk River and noted that residents caught fish through the ice in winter.[71]



Kiana Elders, Malak (Mulluk), Susie Iguġualuk Jackson, Stonewall Uilaq Jackson, and Jimmy Qargiġrauq Hasway, at a fishing station—standing in front of seine nets draped over drying racks. Rachel (Jackson) Adams photo.

Families built various kinds of fish traps, *taluyat* or [especially for salmon], to harvest fish in Kobuk River. Elders recall that "people constructed fish traps near settlements," in particular, providing regular access to fish.[72] These were also constructed at places with reliably good fishing, such as near springs and confluences along the river. In many cases, "you fence it up with wood" to impound fish that can then be speared, scooped, or otherwise caught: "it's made out of wood, and they put sticks from the slough, and there's an opening. And the fish go in through there … it's a fish trap."[73] Furthermore, people sometimes have built temporary impediments to catch fish in smaller streams and side channels. As Albert Sheldon explained this practice, people traditionally "block the river and dip them out with dip net."[74]

Traditional seine nets had weights, *saatqun*, commonly of stone, as well as traditional net floats, called *pupataun*, commonly made of a cylinder of wood with a hole drilled through the middle. The tools have improved with time. According to one elder:

> "In the early fall once the rivers froze over, people would set out fish traps and also dip-net fish. Their tools and implements were not efficient. An ice pick, for example, was made of caribou antlers. When used to chop ice, it probably got dull very quickly. When they wanted to cut down trees to build fish trap weirs, they did not have modern axes like we do today. Their implements and knives were made of jade or flint. Even the women's ulu (Eskimo woman's knife) were homemade. If people got a lot of fish from their fish traps, they had a good winter."[75]

Of the three primary methods of fishing employed by *Katyaaŋmiut*, gillnetting is the most productive, followed by seining. Giddings portrays mid-20th century fishing techniques of the Kobuk Valley Iñupiat; and as in the past, they still used fish fences and Y-net frames to trap whitefish moving downstream in fall, and spruce basket traps when the whitefish return in spring.[76] But people also trapped mudshark in fish fences and used hooks, spears, and possibly fish arrows, for grayling, sheefish, and pickerel. Iñupiaq methods for harvesting fish have used all of these methods, and in more recent decades, rod-and-reel fishing.[77] Rod-and-reel fishing—far less productive—is especially used in pursuit of sheefish.

A great deal of IK, accumulated across generations on the Kobuk, guides the practices of gillnetting and seining. For example, fish net dimensions reflect the target species, but also the location where it will be used. The depth of a net is traditionally different, depending on what part of the Kobuk one regularly fishes. Thomas Jackson recalled how this knowledge has persisted in the conventions of people from villages just above and below the park. Once while making a fishing net for the Kobuk, he sought the advice of Bernice Custer, an esteemed elder of Kobuk Village: "I asked how many meshes to use. She said to make it twenty-four meshes, from



Kids from Kiana Elders Camp prepare a seine net for fishing. Emily Creek photo, courtesy of the National Park Service

the top to the bottom of the net. So that's what I did." When he showed his net to his mother In Kiana, she seemed a little confused, "I asked how many she made [her nets] with. She said thirty-six. . . She was using the Kiana length." This, he determined, reflected the conventions in the two different villages. The water is deeper in Kiana and required a deeper net; "up the Kobuk River, it gets shallower but also faster . . . so their nets are made differently."[78]

Larry Westlake, Sr., describes the net he used to catch whitefish, salmon, trout, and other species of fish: "We had a seine which was—oh, I think them days, about sixty feet. The seine was good enough for whitefish, salmon, or any kind of fish. The mesh was, I think, an inch or inch and a half."[79] It's a pretty tight mesh so multiple types of fish were caught in a single pull: "Yes, white fish and trout and whatever's there."[80] Ruth Sandvik shared recollections of traditional seining: "Tommy and I used to accompany our parents seining. I don't think either one of us was very enthusiastic about it. I remember coming home all wet."[81] Thomas Jackson remembers this about his grandmother Clara Jackson:

> "[S]he . . . her and another older lady, . . . Agnes Smith, she's younger than my grandma. But they had—they wanted, finally went into the slough, but they set nets at the slough, for the slough fish. The whitefish, a type of whitefish, they live in the sloughs all winter long. And they just eat the snails and whatever's in the lake and no current, so they get fat. And they're fat when they're coming out of the slough."[82]

Traditionally, *Katyaaŋmiut* families have constructed weirs across the entire river above *Qala*, which blocked sheefish from migrating downstream; and at the weir, fish were harvested both by seine and spear.[83]

In traditional seine fishing along the river, women tended to dominate. Seining often took place near the village during the early part of the day, as fairly established small-groups—often consisting of family members—seined together. In some places, people installed posts at intervals across the river to install traps or nets. "The Kobuk River. . .. They go up there in the fall time. They put those stick[s] all the way across."[84]

Fish Preparation

In *Kuuvaŋmiut* tradition, detailed traditional knowledge, shared across generations, guides not only the catch, but how the fish is preserved. For the fish harvested from Kobuk Valley, this preservation is done in a variety of ways—from drying to freezing to aging. Food storage was essential for sustenance in the winter and spring months. Thus, salmon, whitefish, roe, and salmon heads were stored for later use,[85] and salmon entrails were rendered for fat.[86] Some of these techniques continued into the 20th century.

Interviewees described a method where, while at camp, fish were eaten fresh while some were packed into driftwood boxes and cached. Larry Westlake, Sr., describes how his family constructed these boxes:

> "[we] build a big, oh, I'd say about ten-by-ten-foot place that we could put the fish in. We built a little box of driftwood. It had to be real close together when the fish start. And sometimes we'd get to, maybe three feet of that in that container. All depends on how many fish we get. We do that—and haul driftwood and that makes a box, and we use spikes to put it together because of the wolverine and bears in the early, early fall. Because those fish start fermenting right away when you do that, you know."[87]

Packing the fish tightly into the box slowed the fermentation process by restricting airflow. Westlake, Sr., describes how the storage box had to be secured to keep it safe from scavenging animals, by making "the cover, the cover was the main one. We had to look around for some heavy stuff, some greenish wood, or waterlogs stuck, you know, to put on top [of the box to keep the cover down because animals might try to get into it]."[88]

During the time spent at fish camp, fish were stored in caches for wintertime consumption. Caches were once widespread in the Kobuk River Basin. Throughout the region, "after they dried up all the fishes, they put them in a cache for winter."[89] Therefore, salmon fishing sites and other fishing places were accompanied by "caches constructed at fish camps," to store the fish for use throughout the year.[90] At especially big camps, "many caches" were found.[91] These included subterranean caches, but also included *qiḷaktaq* caches built on stilts for the storage of food and gear, beyond the reach of most bears and other animals. At these places, the traditional four-post fish drying racks, *paiviich*, have been used.

People harvested ample salmon for people, but also for their dogs, and sometimes extra or separate racks were used to dry dog food.[92] At places like Coal Mine and "all along, wherever there's good fishing . . . late in the fall, the men would—and woman too . . . they would be out making caches like out of wood and put the fish in there for winter use. And they always know where they're at. If they have to dig the snow, they dig the snow, but they knew where they were at. And that was mainly for dog feed."[93] At times, people also buried meat underground, covered with stones, for later use as dog food. And families built drying racks to hang their nets, *iññivik*, at these major fishing stations too. All these fish were commonly filleted before drying. People also sometimes "half-dried" the fish before placing it in caches

or cooking it. Occasionally whole fish were also cooked fresh, often being *qalliuq*— "cook[ed] until eye [turns] white" before eating.[94]

In recent times, preparation and storage have been aided by freezers. Larry and Christina Westlake shared what is in their freezer and how they might prepare it. For example, Christina and Larry Westlake, Sr., currently have four different kinds of fish in their freezer: "You know, we filet most of our fish to put in the freezer. And here we have salmon, sheefish, whitefish and trout. We have four different kind of fish here. But we tried, when I got pike with my mudshark hooks, I told Christine, 'We better try that in our fish chowder.' We had four different—that pike really perked up that fish chowder. Man, it just really tasty with that pike."[95] Christina adds that "the broth, when you boil pike is good. . .like trout, when you boil trout, the broth is good too. But pike is so good. We put milk and garlic salt and whatever, and it's real good."[96]

Traditional fish knowledge also addressed the healthiest ways for people to preserve fish—healthiest for humans, but also for dogs. For example, according to Thomas Jackson: "Fresh fish was never fed to dogs . . . and humans never eat them raw,"[97] for very good reason. When fish are in the process of drying, the worms living in the flesh of the fish will emerge:

> "Yes, it's normal. Yeah, the worms will drop out. . . . Yeah, and that's safe to eat. And that's the reason why raw salmon's never fed to dogs. It'd have to be cooked. People didn't eat it raw. . . . Like this, sheefish, [pointing to a fish rack] it made a crust already, so they're not bothering this. They're going to bother this, so later on, I'll go through with a table knife if they lay fresh eggs, that's when you take them out. And you just scrape it out"[98]

Fish racks comprise an important aspect of traditional fish preservation and preparation in the Kobuk Valley. And at major fish camps, fish racks are numerous. They are also



A fish camp on the Kobuk, white fish drying racks, a cutting table, and other gear. LeeAnne Ayres photo, courtesy of the National Park Service

constructed temporarily on gravel and sand bars where people seine. Cool, dry conditions are best for drying fish on the racks.[99] When it's too warm, the fish "get cooked. They get white and they start spoiling and getting smelly."[100] If the weather is too warm or too wet, fish might be transported from fish camp to home to dry, a factor that is changing rapidly with the increases in temperature.

Preparation of fish eggs is also integral to fishing traditions as well. A portion of harvested fish contain fish eggs, or roe, which traditionally are cut from the fish and dried separately on nets or mesh.[101] 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 slightly decompose and ferment into a substance like "head cheese."[102] As Larry Westlake, Sr., explains, not all fish "carry roe in it, but . . . a lot of them have roe in them, and that roe is maybe about this thick, maybe you know about three-eighths [inch]. And we like it better that way because when it dries, it's crunchy."[103]

In addition to preparing and consuming fish eggs, Iñupiaq people fishing the Kobuk traditionally eat whitefish stomachs, also called 'gizzards.' These were prepared alone, but also with fat, to make oil in which to dip dried fish eggs. Larry Westlake, Sr., describes the process this way:

> "And before that time, well they're—we liked the gizzard, we call it the gizzard, the little stomach in the whitefish you know. . . . Shaped just like . . . the pipe part is what we eat those days. It tasted like some ... clams or something. . .We boil that up, all. . . the gizzards and the little fat we get and just when it start boiling all the oil gets out of it and it floats to the top of the pot. So, we keep skimming that off with a big spoon into a jar or bowl, that, all that oil. And then we'd make it sit about a day, or half a day and then it settles, and they'd pour it into another container to take it home. Now we got the eggs and the oil, and when we're ready with the oil, we got enough oil, we take that roe that dried, and she put in the cookie sheet, preheat the oven and zap it in there for ten minutes to get all the moisture out of it, because you know water and any kind of moist will make that oil strong if we don't get it out."[104]

Whitefish oil is also prized traditionally. Christina Westlake explained how she harvests and stores whitefish oil in jars, saying, "She used these little mason jars and put it away for the winter and we eat a lot of that, and I think that . . . one reason I'm still here myself is because I love that stuff, you know."[105] Oil was also extracted from sheefish. Christina illustrates how she does this, utilizing the sheefish bladder: "[t]here's a balloon in there. You've seen it when you open sheefish. We make a tear in the middle, turn it inside out, put more fat in it, hang it up for a while, boil it, and let it drain, and then put it in the fish oil too, along with the fish oil."[106] Seal oil was also a prevalent commodity.[107] Any dried fish could be dipped in seal (or fish) oil, to make a meal. However, Larry Westlake, Sr., recalls seal oil and grayling being a combination consumed at fish camp, in particular: "we like to eat it fresh/frozen with seal oil, grayling."[108]

Aside from being the key food source, fish have also been an important item for economic exchange.[109] Anderson et al. offer as an example the sheefish catch. Describing observations in the mid-1970s, they write:

> "During the last week of September, schools of migratory sheefish move into the swift clear waters of the river above Kobuk village. When they arrive, the female fish are fat and full of oil-rich eggs ready for spawning. Villages from Shungnak and Kobuk catch

these fish in gill nets and beach seines, then lay them out on willow mats to slowly age and freeze as the weather gets colder. Such fish are considered a delicacy by Eskimos throughout northwestern Alaska. They are used as a medium of exchange for coastal goods like seal oil, bearded seal skins, and muktuk, or in direct cash transactions. Fish are also bartered and sold within the confines of each village."[110]

Transmission of Traditional Fish Knowledge

The cultural aspects of fishing are as important to the people of the Kobuk as the technological or subsistence aspects. For example, people sometimes fish as community groups, and with a division of labor between men and women that allows for gendered multigenerational groups to share aspects of culture while fishing.

Interviewees and archival sources point to a pattern where women team up to run fish camps while men are further from town pursuing other game and economic opportunity. Helvi Sandvik remembers that "Thomas's mother and then Martha Wells, they were fishing partners. But Martha cut her fish there and Lucy cut her fish over there, right below that creek [that runs through town]."[111] Elders like Martha Wells referred to fish camps "owned" by women: "Martha and Myrtle referred to the two fish camps we passed (just downriver from Kiana but not quite to Kittik) by female 'owners.'—Janet Morris and Agnes Smith/Amelia Black (half-sister in-laws). I think women own the nets and manage the fish camps, leaving men to the more solitary (?) activity of hunting."[112] Martha also relayed specific traditional knowledge related to fishing, such as mentioning "fishing isn't good until the sun has passed over the river. The fish move when the sun is directly over the river and stop when it has passed over."[113] She also told a story about how mudsuckers and *siulik* have arrow-like bones, and "[t]hey fought each other, shooting arrows into one another."[114]

Place-based River knowledge of eddies is a significant aspect of traditional Iñupiaq knowledge, especially considering the importance of eddies for a variety of resource harvest traditions, such as seining whitefish. For example, Larry Westlake, Sr., had to learn when different species of fish were present in various eddies along the river and at what time of year: "then we start going for whitefish, the longnose whitefish, and the short nose . . . at that time of year, they split up a little [come in separately]."[115] Larry started to acquire knowledge related to fishing from his earliest times on the river as a boy, and says he began learning seining techniques by "holding the rope for my older brothers when I was nine."[116] He goes on to explain that ". . . [n]owadays . . . the whitefish is kind of a short run, probably about, maybe three weeks if everything—if the water's low enough to do it, you know. We can't seine when the water's high like this. There's too much current. And there's no eddies where they stop and rest. That's where you get most fish, in those eddies. And just with the eighty-foot seine you just go around them like this and pull them in you know. It's just so simple. Yeah, and now we figured out through our life is we need four good days to do that."[117]

Thomas Jackson also learned from his father how to identify eddies where fish could be found—a skill he is grateful to possess. He relates the following story about his brother's attempt to set a seine net in the Coal Mine area:

> "Yeah, this is—because we had to find an eddy. . . . And it was hard to find because the river was high. Where it usually has an eddy. . .it had a current. ... It was a small eddy, but the fish congregate in that eddy to rest. That's what I was told. And my brother, Roger, or Jim, and his girlfriend were at Coal Mine, and they said that

> the—their net is not getting hardly any fish. I said, 'We'll check it.' And when I got there, my question to them was, 'Why did you put it in [the fast current], 'current water'? That's why you're not getting much fish."[118]

Larry Westlake also brought up a specific spot where he learned the way eddies affect fishing: "That A-frame that's across the camp, a little down by the point there, there's an inlet that goes in there, that's one place that they—has an eddy. Once the water is down. The water got to be low enough too, it exposes little shallow spots up ahead. That creates the eddy before it and that's where the fish stops. Now, when the water's high like that, we don't have that. But as soon as the water starts dropping, it'll start an eddy, and we'll start seining."[119]

Today, fish camps continue to be primary locations of generational transmission of fishing and harvesting techniques. Christina Westlake describes the role of kids at fish camp: "The kids, make the kids scale fish, like they're ten, nine, ten and up to thirteen. They scale fish. We take them even though they're not all—because we have so much to work on. And then my daughter and I know how to cut fish. He knows how to cut fish, but he washes and hangs. Brad learned how to cut fish too. It's a family project. . . . And our kids get breaks to swim, play in the water, and have s'mores (laughs)."[120] Larry Westlake, Sr., adds that "we cook for them and make them eat our catch. That's part of the tradition."[121]

Another facet of traditional fish knowledge relates to the hooking of fish. In describing methods of harvesting sheefish, David Black exemplified the passing on of this knowledge. He said:

> "[people need] the better line. So that way when you get the big ones you don't need to break your line. Don't need to take your hook. ... And when you start pulling them in—when you get the sheefish, don't jerk. Don't force it when it's fighting. When it really pull[s] your line real tight. ... Just let it fight for a while 'til it get tired. And when it get tired, you could just start pulling it or when it's not fighting you could walk up real slow. If you walk up real fast, it's gonna jerk your line again. Take your hook away."[122]

David described hooking for sheefish with Johnson Black, his father's brother, stating, "Sometimes when I want to go hooking upriver, I always let him know and we always use our boat .... And even when he want[s] to go out, he always let[s] me know too."[123] They need not travel too far up the river to fish: "Oh, not too far. Just one bend. You know, when we go on the big channel, just one bend. . . . We go a little further up. Or when we don't feel like going up there, we stay down here and hook right down here."[124]

Some interviewees relayed that fish from different areas have distinctive flavors—one more important aspect of traditional ecological knowledge relating specifically to the Kobuk and its tributaries. Understanding the flavor distinctions is important but also personally and culturally significant knowledge, uniquely linking families to place. One woman found that fish from Selawik and Noorvik "are different. There's a different taste. . . . Selawik have more of a muddy taste, [especially fish from lakes around Noorvik]."[125] Percy Jackson voiced a preference for "Colville fish. I like Kiana fish too because they're in—they're on the river, not in the lakes."[126]

Clearly, Iñupiaq traditional knowledge of fishing on the Kobuk River and its tributaries in Kobuk Valley is voluminous. Here we have here covered only highlights, knowing that an entire volume could be written on the subject and still not do it justice. We now turn to the fish camps that have been the venue for this activity, and where the transmission of key cultural knowledge across generations takes place.



Fish drying rack being used to dry life preservers (PFDs) at Kiana Elders Camp. Douglas Deur photo

Fish Camps as Places of Enduring Importance in Kobuk Valley

Fish camps sat at various places along the river, often apart from main winter villages. People relocated to these places during the summer and fall seasons. Here, entire families fished. While some fish were eaten fresh, a large portion of the catch was preserved for the winter months, to be consumed by both people and their dogs—as described above. Today, fish camps are more family-oriented and though some Upper and Lower Kobuk families still make a practice of establishing fish camps, seasonal relocation to camps is nowhere near as customary as in times past, for reasons ranging from necessary school attendance to village-oriented jobs. As a result, fish camps have become increasingly important for the passing of knowledge to the next generation including harvesting and preservation skills. These camps become places that preserve the overall continuation of the seasonal subsistence lifestyle central to the Iñupiat.

Traditional fall fish camps were scattered north up into what is now the Kobuk Valley National Park, all the way to the Salmon River.[127] For obvious reasons, fish camps were situated where fish were plentiful. Helvi Sandvik remembers her family fish camp was

> "about a mile downriver to here, … But they'd go with their dogs; their dog team would pull them up there. And the reason they went up there was because that was a good place to fish. And it's like that where the big village they found [*Igliqtiqsiuġvigruaq*]. That was a good fish place. That was a seining place. And you could—and I remember them talking about the diet. They found lots of fish bones but not big animal bones. So, they weren't eating caribou, they were eating fish. And so, most of those places where they camped were because of that."[128]

Fish camps were also situated in areas conducive to drying fish: "We have to go. . . you know, few miles out like—this one up here, it's a good drying place. You'll always get breeze there, even if you know it's not windy, there's always some kind of little breeze there that help dry the fish."[129] Christina adds that many of these prime fish camping areas were most often located on sandbars or gravel bars, but now "they're underwater, but they're situated where there's good drying, yeah. . . . Where they could dry fish."[130]

Family fish camps, many of which are now allotments, are generally seasonal and returned to annually. In contrast, temporary campsites could be constructed when an individual went out fishing. For example, when Larry Westlake, Sr., went out fishing, he might decide to stay overnight and make a temporary camp shelter. The location of his campsite was strategically placed: "We usually, those days, looked for a good place [with] fairly big trees. Then we made a camp right under a tree and put-up smaller trees to it in the bottom. They were ok. [They cleared a camping place below big trees] and put more small trees like, leaning to that."[131] The smaller, spruce trees lean in over the top of the campsite to provide more cover. Placed in this way, he says that you can "lean them right into the tree, the tops of them, all around so you have enough room."[132]

Several areas have served as popular sites for fish camps, and we turn our attention now to these areas.

Coal Mine and Vicinity

Past interviewees spoke of a slough just upriver from Coal Mine on the north side of the Kobuk River, the reported name of which was *Qalugruaq*, meaning "little creek." This was possibly the same name applied to the entire river bend. This place was known to be good

for "fishing on main channel [of the Kobuk] but not in slough. Good fish."[133] Other places reported with ambiguous descriptions "near Coal Mine" include a place called *Iḷuliaq*. Further upstream, elders have reported *Kavġiñ* as the name of a low bluff, fronting an old, wide channel one large river bend upstream from Coal Mine. A slough called *Kakiaqtuġvik*, used for fishing salmon and sheefish, was also reported in the general area between Coal Mine and Kidways. [134]

According to interviewees, the Coal Mine area is particularly important for fishing, with many families having seined there for salmon, sheefish, whitefish, and other species. Multiple interviewees mention the sheer abundance of fish in the area; 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 them to the bank before they can escape, a playful test of dexterity among youth over the generations. Jackie Johnson's opinion is that at Coal Mine, the fish were "[b]etter and easier [to catch], all you do is just—you don't need no gillnet or something; just got a seine. That's it. You can catch so many of them. But you got to dry them. You just don't throw them on the river. Got to dry them up. . . . You just waste fish when you start throwing them down the river."[135]

Jackie Johnson remembers that "[t]here'd always be people [in the Coal Mine area], they take turns to seine. There'd be, I don't know how many boats up there waiting. . . . Yeah, they like [a lot of dogs] too so they were up there sometimes same time; just take turns."[136] A number of families continue the practice, though perhaps fewer than historically.[137] Coal Mine 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."[138] Elmer Jackson describes Coal Mine as

> "an area full of game and full of fish. . . . Excellent, all kind of fishing was excellent. All kinds of ciscos would come around by the millions and we'd get a lot of them. And springtime the smelts would come here. But we haven't seen the smelts in a few years. I don't know what's going on with them. Used to come after—water go down you know, after breakup time. While you try to sleep in a tent on the beach at Coal Mine, you can't go to sleep so much fish jumping (laughs); all night long. A moose would walk up to your tent. One did walk to my tent, but he just stood there."[139]

More than one interviewee has memories of fishing with family members in the Coal Mine area. Percy Jackson recalled regularly going upriver to Coal Mine to fish with his grandfather, Frank Jackson, Sr., They fished there often, and for all kinds of fish. He remembers how abundant they once were: "Yeah. Fishing. . . . When I was small I used to stay up there with my grandfather [Frank Jackson, Sr.]. [We would catch] [a]ll kinds of fish. Any kind of fish you want is there (laughs). One place up the—when you were staying, you get all kind of fish. You move to another place, nothing but trout. And move further down, nothing but grayling. Me, I used to have a hard time because I was small. Them fish almost take me out one time!"[140]

Jackie Johnson also remembers camping in the Coal Mine area one summer with his grandfather and catching *qallusraaq* from a boat after dark: "There's nothing but fish. That's about all you catch. And right across there, there's these small fish and they call them flapjack or [similar]. . . You catch those in the fall time when it get dark. . . . A little fish about that long.. . . Little things."[141] Thomas Jackson talked about a place that was particularly good for seining these *qallusraaq*:

> "Yes, *Alallauraq* was an island below Coal Mine, and whitefish, . . . in the fall time there's fish there and also *qallursraaq*, that little fish. And they are so tasty fried. And I've also had them kind of fermented. They are really good eating that way. My parents would have put them in gunny sacks, and a—but my father would have to keep turning them until they get good enough to where he can store them for the winter use"[142]

Traditionally, these fish are 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. Helvi Sandvik remembers watching people "hunting and where they go, they'll be going on the other side of the river where there's Tommy Sheldon's cabin up on the hill. And that's a good place for seining, but it's also a good place to watch caribou."[143] 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.

Salmon, just like caribou from the Kobuk Valley, are often taken home and shared with other households—not only within Kiana, but with kin in places like Kotzebue and beyond. It is said that families traditionally seined salmon in the Kobuk until their boats were full, then traveled down to Kiana and contacted various households, saying "take what you need!"[144] Elders such as Jackie Johnson continue the tradition of sharing extra salmon with family and friends: "when we have enough, we give some people, because they wouldn't get salmon. . . . [We send fish] down to Noorvik. . . . Sometimes to Anchorage too. . . . Other than that, we bring some [traditional foods missed with fish and] mix them up with caribou meat."[145]

Fish camps and larger settlements heavily reliant on fishing have been in the Coal Mine area since time immemorial. And a number of attributes contribute to Coal Mine being a great fishing area. For example, springs in this area—some maintaining nearly constant water temperatures where they enter the Kobuk—provide special niches for fish, as well as predictably good drinking water through much of the year. The many fish-bearing rivers, streams, and other waterways that converge at this place also contribute to its remarkable appeal as a fishing place. Today, Kiana residents discuss how the river confluences near Coal Mine make it "a great place to fish. Every kind of fish is there . . . sheefish, whitefish, salmon, and others too."[146] Many families return there every year. For others, it is a predictable fallback place—commonly visited when fishing in other locations in the Kobuk River Basin does not fully meet their needs. Being a place encountered as families descend the river when heading home to Kiana, Coal Mine can be fished when returning home from a disappointing fishing trip farther upstream.

Thomas Jackson described how conditions for drying fish were more difficult at Coal Mine, despite its popularity, because there was less wind. This required people to use other techniques to dry their fish, including making special structures around the fire to channel air, smoke, and heat. As Thomas recalls, "at Coal Mine where there's less wind. I was telling the boys, you—with two. . . metal pieces, you make a 'V,' and have your firepit in the middle and pile up around. . . . And then it feeds itself. . . .There was a part of a drum, a fourth of a

drum, that's where we have our fire. . . . And we always have a top where the flames won't burn all the time, and it won't burn the fish." He goes on to say that "at Coal Mine, we put blocks on both sides so that these would get really smoked. We didn't, at Coal Mine, we don't put them in a smokehouse . . . like this is just as good." [147]

Jackie Johnson also mentions that the Coal Mine area receives a lot of rain, making it difficult, at times, to dry fish there: "Lot of rain, it's kind of hard to dry some salmons."[148] Christina explains that there was "so much rain last summer, we brought them home from camp and put them in the freezer and then a little at a time, we dried some inside our cache with fans."[149] Larry Westlake, Sr., describes the methods by which the fish are dried at home: "We have a screenhouse at home that I built on top of connex and they get enough air there. That's where we put the final drying of that fish."[150]

Salmon River

In addition to fishing on the main stem of the Kobuk, interviewees discussed fishing along the Salmon River. After the breakup of river ice, people traditionally prepare to fish for salmon. Iñupiaq families then "use gravel bars and islands for seining salmon." The larger and more predictable places for this kind of fishing became the venue for longstanding fish camps. Especially good salmon seining beaches have had their own names, such as *Qalugruich*, a salmon seining beach at Raymond Stoney's former allotment.

Salmon were so predictably numerous on the Salmon River that the term for salmon, *Qalugruaq*, was often used as the "name for Salmon River."[151] The placename *Qalugruich* sometimes appears in older ethnographic notes for the river as well. In old text it can look many ways, *Qalirak* or *Qaluġrič*, but also in derivative spellings and forms such as *Qalugrʷitc*, *Qâlugrɔ̀q*, *Q̂alugráġni*, and *Qálugvîč*.[152]

Additionally, some Upper Kobuk Iñupiaq placenames derived from terms related to salmon behavior: *Miŋŋiq* means 'fish jumping out of the water;' *Puuyaaq* means 'salmon finning out of the water,' like *miŋŋiq* except just the fin breaks the water; *Aniiluk* describes salmon causing the water's surface to ripple.[153] All of these places are named in a way that indicates a longstanding relationship with the fish that communicate characteristics of salmon behavior at significant harvest locations.

As a source of salmon, the river was famously important, on its main stem, but especially at its mouth. On the Salmon River, the "best salmon seining [was] at [the] mouth," where the river entered the Kobuk.[154] Near this confluence there were "many fish camps [and] seining." There was once a settlement near this confluence, apparently just upstream on the Kobuk. There were also major salmon seining areas on the Kobuk just downstream from the Salmon River confluence.

William and Daisy Tickett shared that people also seined at a place called *Qalugraitchiaq* —a place with a "swift current . . . right by Salmon River. . . by [a] large sand bar." People often "seine here in front of [the] river." This place is immediately below the mouth of the Salmon River. Nearby but separate is a called place *Qalugraitchauraq* —the "name of [a] slough at Salmon River [with a] swift current [and] many bears." Historically, it was "too swift for [a] gill net," though there was a "good eddy" in this location and people could still "seine in front" of the slough.[155] This place translates to "young salmon." There are additional placenames like *Qalugriivik* (salmon spawning) that also have the root word for salmon.[156]

Many interviewees have memories of fishing along the Salmon River; and some still do. Jackie Johnson remembers that people from Noorvik often have traveled up the Kobuk before

going upstream on the Salmon River to fish for salmon at longstanding fishing stations: "Well that guy from Noorvik they used to go up to Salmon River and camp up there, . . . [try to catch] some fish up there. . . . Catching some salmon."[157] Several families have fished the Salmon River. A number of interviewees spoke of the narrows on Salmon River, well north of the confluence known as a hunting, fishing, and gathering place of importance, for "whitefish, salmon, berries, bear too."[158] Other accounts mention a place called *Alallauraq*, a "riverbank" where people "seine [and] camp [for] whitefish [and] salmon."[159]

Fish camps were significant markers on the landscape. For example, one family was said to have maintained a cabin on the Salmon River—a year-round home long ago, though Lorey Schuerch recalled that, by the 1960s, the family lived on the site only in summer. Helvi Sandvick remembers that fishing areas were identified by the families who camped there: "I mean, we learned the creeks and the names and—but really it was tied to who camped where. And so, like the Stoney family were up at Salmon River and the Samson family from Noorvik were up in that area as well."[160] 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.

The Westlakes were another family that fished in the Salmon River area. During the summertime while his dad worked in the gold mine, Larry Westlake, Sr., traveled with his mother and brothers: "Well, it was mostly with my mom. My dad was mining in the summer. But we didn't do a long travel except maybe our limit was around Salmon River, from here you know. That would take a couple days to get there because we would pull the boat. We didn't have an outboard motor."[161] Larry continues,

> "But we were, I and my two older brothers, we, you know, we'd fit in, do everything pretty good. I was the youngest and I'd have to steer the boat with a paddle while they'd pull it. . . . All that, you had to figure out too, you know, the rope had to be tied in a certain place where it'd be real easy for me to do it. So, they move it back or move it forward where it's easier to pull and easier for me to steer."[162] Jackie Johnson also 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: "Well they're just—only a day or two. While you fill your boat, you're ready to go back, quick. You got work to do before they spoil. You got to hang them up or something. That's when we used to have dogs. . . . Only time we'd go up there is in the summertime."[163]

When asked if he did anything other than fish in the area up by Salmon River, the park area from Coal Mine up further to the east, Jackie Johnson replied: "No, just only for fishing."[164] He elaborates that the river becomes difficult to traverse farther up: "Yeah. Well, . . . I didn't go up. . . [T]oo hard to go up. . . . Yeah, and you gotta know where you can go through."[165]

Interviewees often mention the abundance of fish on the Salmon River. According to Jackie Johnson: "all you do is just seine one time and then you got enough . . . [Y]ou can seine some more and catch some more. It all depends how fast they dry."[166] Larry Westlake, Sr., expressed a similar sentiment, saying, "So, when you get hungry, just set out the net, or do a little dragging with the net and all we needed was a fish to survive on that day, you know, still going up the river to the main source, like Salmon River where there was all kind of salmon spawning. [There was a good place where the salmon and [?] come together.] Just before they start migrating into the creek."[167]

Not only did the Salmon River host large numbers of salmon, but there are sheefish as well: "And then later in July, you go up to Salmon River where there's—they also are obviously salmon, but sheefish place there too."[168] Helvi Sandvik recommends that "if you're doing sheefishing, you think about sheefishing Kiana around the fourth of July, and then you think about sheefish at Coal Mine and by that *Alallauraq* and by *Qalugraitchiaq* by late July. . . . [B]ut the truth is, they come earlier, but that's when they're easy—that's where you can always—go-to places."[169]

Onion Portage and Hunt River

Onion Portage and the Hunt River confluence are famously good fishing areas, especially for the upriver *Kuuvaŋmiut* communities. As Anderson et al. noted:

> "[s]ome of the best places used by the Ambler *Kuuvaŋmiut* [for spring gill net fishing] are in the Kobuk Valley National Park."[170] There are several fishing sites within this eastern end of the park, some mentioned in interviews with Kiana elders, while others are used largely by the Ambler community. 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 named *Siġlauraq* because it is a reliable source of food during the lean time after breakup."[171]

Places used for early summer fishing included "the lower Hunt River and flats to its south," and on both sides of the park are highly productive salmon spawning areas—on the west, along the Salmon River, and on the east, Hunt River.[172] 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 the 1970s.[173]

Fishing Connections with Places Outside the Park

Many places outside of the park still have connections to fishing traditions that long have existed within the park. For example, 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. Elders such as Elmer Jackson recalled going there as a boy with his family, taking three boats up as far to 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."[174] 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 throughout the region. So too, fish were sometimes cached in these outlying areas, more than annual needs to prepare for potential fluctuation in the next year's harvest at the usual fishing stations within the park. To demonstrate the extent of these networks of alternative fishing sites, some interviewees mentioned outlying fish camps in places such as Selawik Lake. In fact, the name of the community of Selawik is a reference to the importance of sheefish in that area: it "mean[s] that sheefish grow [spawn] there . . . *Siilvik.*"[175] Jackie Johnson used to fish there for a month or more some years, catching sheefish and whitefish, which he cached for later use.[176] The diversity of fishing stations ensured that a shortfall on one river system could be readily offset by fishing in other river systems nearby.

People came to the Kobuk Valley to fish from outlying areas too, such as during times of food scarcity in other river basins. Larry Westlake's grandmother told him about a famine in Noatak in the past, for example. The people had "run out of food by March and my grandma told me that she heard her mother was young and her mother . . . were from the Noatak; came down here and survived on catching the fish from that narrow, under-ice fishing, probably mudshark, migrating mudshark or trout."[177]

In addition, many Kobuk River families traveled west, to the coast, for seasonal fishing and hunting during certain times of the year. They did so by following the availability of game species, while also visiting with family and friends closer to the mouth of the Kobuk. Some visited a fall fish camp called *Akłaq* ("brown bear") right after freeze-up each year to catch fish, probably sheefish, through the ice. They may have occupied sod houses at this site each year.[178]

For generations, fishing has been a valuable source of food for the people of the Kobuk, especially when other primary resources like caribou have been scarce. The relationship between placenames and family fish camp locations indicates a long-term relationship between the *Kuuvaŋmiut* and fish, documenting known harvest sites that remain significant to current tribal members. As a constant food source and a symbolic link to identity, subsistence fishing continues to be essential for modern tribal members. Fish camps can be central to the transmission of intergenerational traditional ecological knowledge, bringing men, women, and youth together on the landscape to learn the skills of fishing and harvesting alongside culture-bearers. Moreover, subsistence harvest foods are considered "real food" and deemed vital for health.[179] Changes to fishing practices since the mid-20th century have been documented to some extent, but further documentation and a deeper understanding of Iñupiaq fishing practices in light of decades of change would be useful to assist park staff in their future management of Kobuk Valley. This further research will only serve to enhance their continued relationships with the Iñupiaq communities who still consider Kobuk Valley home.

Endnotes

[1] "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). Mason and Gerlach (1995:115) describe fish as a large part of current and past food bases, a staple on par with corn in other parts of the world, it has even been the main source of dog food.

This transition to fish harvesting can been see in the artifact composition at Swift Water Place. The faunal and artifacts uncovered there indicate that the people who lived there "were clearly heavily engaged in fishing. Fishing equipment, for example, was more than three times as common as equipment for other subsistence pursuits (Table 1.1)" (Anderson and Lutz 2019:20).

[2] Field and Field 1987:5.

[3] Jones 2006.

[4] Anderson 1988:13.

[5] Anderson 1968:26–27.

[6] Georgette and Loon 1990:1.

[7] Anderson and Lutz 2019: 23.

[8] Georgette and Loon 1990:2.

[9] Brown 1987:8.

[10] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[11] Georgette and Loon 1990:2; Burch 1994.

[12] Magdanz et al. 2011:55.

[13] Braem et al. 2015:39.

[14] Lamb et al. 2024:65.

[15] Lamb et al. 2024:60.

[16] DeAngelo and Weiss 2019:80.

[17] ES.

[18] Anderson et al. 1998:260. "It is certain that localized fishing places have marked long-term changes in productivity, caused by alterations in the river and its tributaries. Eddies where gill nets are set can become larger or smaller, appear or disappear, as the river shifts its course, deposits silt, and erodes its banks. A traditional fish camp may become unproductive if the net sites nearby are destroyed...Swift Water Place was most likely a winter village site, with summer campsites dedicated to fishing, located nearby: "We have yet to identify the location of the summer campsites and believe them to be at Igliqtiqsiuġviruk (Little Igliqtiqsiuġvik) located a mile upriver from the winter houses." (Anderson and Lutz 2019:3).

[19] Anderson et al. 1998:161-164. On the Upper Kobuk, the season runs from late-June through August. The primary target of seining in July and early August was whitefish. In mid-August salmon became the target of seining, in the midst of their peak migration.

[20] Giddings 1961:129-130.

[21] LWS 2022. A total of three A-frames are needed to complete the fish rack structure. As Westlake explains, "[I] do an A-frame. I build three A-frames, then we put them ten feet apart. At the top, I put a spike, . . . they're thin (moving items). Yeah, the spike—I just right on top. [Larry asks for a piece of

paper to draw the rack on.] A-frame like this. I first put a cross piece here. Then a ridge pole. . .I don't tie these together until I put the ridge pole up, I mean the post. Put a post right there. And this post is about eighteen inches high. And right on the tip of that, this is tied to this cross-piece. I put a spike in which is about this size in diameter, right on top of this, I nail it in right there. And then, I leave about two and a half inches out, cut the head off. Do that to all three of them. And they're ten feet apart exactly, so I make a ridge pole out of tree that's about three inch—about thirty feet long. So, I cut it—put the ridge—drill a hole the size of the—until about, oh, two and a half inches. And then once we put these up, you just stick that ridge pole and tie them in. Each one fit into a hole. [The hole lines up with each one of those prongs.] Right, and the object is that ridge pole (continues drawing). This ridge pole is keeping the tarp off of the fish .... You got this far enough up so it's not touching the fish that's hanging down here. And then you put the post up here, sticking out from the ground, four, five feet. When you put the tarp over on each side—these are going this direction—and once you get the tarp over, you adjust the height."

[22] LWS 2023. This isn't how racks were made when Larry was a child. At that time, "we just went out and got forks, willows with a fork on it and you just got three [poles] and . . . we put a fork like that from here to brace it in the middle, down to here on each end, just to hold it together because that tarp is thirty-feet itself. When it's windy it's got to restrict it . . .I think they used willows with the leaves and everything. Yeah. But [then] we start getting this cloths, tarps, white tarps. I think they were made for tents, in front of a tent . . .. Once it gets moist[ure] in it, and that—it must expand or something, that gunnysack, and then they can't get any rain. [When the fibers get wet, they swell, and it seals it off.] They were good. . .we didn't ruin the sack because we might need it to pack something out. We just tied the ends, pull a little string from the edge, just on the backside."

[23] DeAngelo and Weiss 2019:95. Eighty percent of the faunal assemblage at Swift Water Place was composed of fish bones. Of this percentage, sheefish and burbot were the most common (DeAngelo and Weiss 2019:74).

[24] Field 1987:5.

[25] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[26] RS 2002.

[27] RS 2002.

[28] RS 2002.

[29] Gray 1987, Tape 2: 5.

[30] Anderson 2019:266.

[31] JJ 2016.

[32] JJ 2016.

[33] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[34] LWS 2022. Larry Westlake describes the abundance of fish: "Yes, every day we'd go for those. All we needed to do was to seine one time for the ciscos [one pull]" (LWS 2022).

[35] MHW 1990:26.

[36] Dolly Smith in LJ 1990:14.

[37] LJ 1990:15.

[38] WCS 2002.

[39] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np. The Westlake allotment is located in the general vicinity of Okak Point.

[40] Ellanna and Sherrod 1989a:NA34.

[41] LWS 2022.

[42] CW 2023.

[43] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[44] Anderson and Lutz 2019:20.

[45] Anderson and Lutz 2019:20. The authors continue, writing: "Interestingly, the simple burbot gorge is a relatively recent introduction into the region, the earliest appearing only in the early-15th-century Ekseavik period (Giddings 1952; VanStone 1955). Although more recent residents used the device for catching burbot, they could have used it just as effectively to catch the carnivorous sheefish (*Stenodus leucichthys*) and, as we know from the practice among their coastal neighbors, also to catch seagulls (Murdoch 1892)" (Anderson and Lutz 2019:20).

[46] TJ 2023.

[47] Jones 2006.

[48] RS 2002.

[49] Ellanna and Sherrod 1989a:NA36.

[50] PJ 2016.

[51] PJ 2016.

[52] HA 2002.

[53] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[54] DB 1990:20.

[55] DB 1990:20-21.

[56] Giddings 1956.

[57] RS 2002. Notes taken by Linda Ellanna during interview with Martha Wells: "Spruce bough weir open in middle—net. . .catch lot of 'little fish' we called it [?]—lot of mud sharks in net in evening and catch and eat them—this is second year they have been allowed to do that" (Ellanna and Sherrod 1989b:NA14).

[58] RS 2002.

[59] WCS 2002.

[60] WCS 2002.

[61] WCS 2002.

[62] As he observes, the insert them in the river bottom, "straight up and down. . .they use cottonwood. Because we don't have birch, we use cottonwood. Later I find out you can't use spruce trees, like the cottonwoods is always the number one. . . . I asked around, and seems like if you use spruce trees, all these fish here, mudsharks, maybe could even smell the pine or something like that, maybe that was the reason. But for—for these cottonwoods is what they usually use—thick, thick cottonwoods, they'd just split them in half and then—and then stand them up, make them square" (WCS 2002).

[63] WCS 2002.

[64] WCS 2002.

[65] Atkinson 2024 fieldnotes

[66] RS 2002.

[67] RA 2002.

[68] A wide variety of fishing implements were found at Swift Water Place; burbot gorges, various sizes and shapes of fishing hooks, ice scrapers, spears, leisters, nets and stone weights. Fishing tools vary by species: "In general, successful fishing requires a great deal of ecological knowledge, passed down in the form of oral tradition or learned through an intimate relationship with the minor fluctuations of the local environment (Anderson et al. 2004; Spearman and Nageak 2005)" (DeAngelo and Weiss 2019:80).

For example: "For smaller fish, such as grayling (*Thymallus articus*) or pike (*Esox lucius*), they fished with small ivory 'grayling hooks' (Fig 1.19a,b) of a form in widespread use among other Iñupiaq groups in the region. . . . For larger species, especially shee, they used a large fish-shaped 'lure-hook' of a distinctive form shaped like a small fish. . ." (Anderson and Lutz 2019:23).

[69] Burch 1984:309–310.

[70] Anderson and Lutz 2019:23.

[71] Cantwell 1890:81,83.

[72] Tickett and Tickett 1976:np.

[73] Cleveland, Gray and Lee 1987:12-13.

[74] Sheldon and Sheldon 1987: 3. The specific places he mentioned as venues for this practice sit outside the park, but his descriptions seem to imply a practice one employed along much of the middle and upper Kobuk River.

[75] IAB 1992.

[76] Giddings 1961:133.

[77] Ellanna and Sherrod 1989a:NA36. Linda Ellanna made these notes while speaking with Martha Wells in August of 1989: "Suparaghrijale] trapping trap where fishes go through weir (not too wide or deep)" (Ellanna and Sherrod 1989b:NA13).

[78] TJ 2023.

[79] LWS 2022.

[80] LWS 2022.

[81] RS 2002.

[82] TJ 2023.

[83] Anderson et al. 1998:163-164, 177. "One of the primary fishing methods the Swift Water Place fishers used was netting, as evidenced by the presence of stone and antler net sinkers in both House I and House K. . . . One net sinker was even made from a tusk of a mammoth . . . the remains of which are constantly eroding out of the high bank muck deposits along the river." (Anderson and Lutz 2019:23).

[84] Field and Field 1987:2.

[85] Giddings 1961:135.

[86] Giddings 1961:155.

[87] LWS 2022.

[88] LWS 2022.

[89] Brown 1987:8.

[90] Tickett and Tickett 1976:np.

[91] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[92] People also traditionally placed fresh fish in caches as temperatures began to fall below freezing for dog food: "when it get cold, we made cache[s], put [in] fresh fish for dog feed" (Brown 1987:17).

[93] TJ 2023.

[94] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[95] LWS 2022.

[96] LW and CW 2023.

[97] TJ 2023.

[98] TJ 2023. Thomas Jackson tells this story about a couple of kids at fish camp who were anxious

to eat the fish hanging from the drying racks: "They were three girls, . . . Roseanne had put the, made string . . . for smoking salmon, they were strips. And so, she wanted them to dry more, and they weren't cured yet. Three camper girls, because they were kind of smoked, they started eating it raw . . . [One of the adults at camp saw that fish was missing.] She said, 'Who's eating the fish? They're not even done yet.' I said, 'Yeah, they have worms.' Watch, in a day or so, you'll start seeing them come out when they start to dry. They grossed out. They asked me what to do and I said, 'Tablespoon of seal oil,' but one of them, I shouldn't have started grinning. And that girl, the neighbor, 'He always lie!' And so, I shouldn't have smiled and give them that oil. You know, the neighbor girl said, 'I'm going to go make myself . . . throw up. So, they went behind the—where we eat our—where we eat. And we could hear them, they were gagging themselves to throw up. I don't know if they ever threw up, but. . .." (TJ 2023).

[99] TJ 2023.

[100] CW 2023. There is a very particular way in which fish are filleted and then prepared to hang dry in on the fish rack: As Larry Westland, Sr., recalls, "in the traditional cutting, this. . .fillet—it's stretched out from the backside. You know, with the back where the meat is. And the backbone comes out. . .that's the most important part of the fish because we don't keep the backbone anymore. We used to keep them for dog feed, to cook and stuff. But on a pole, we get our poles—I got a date of June 10th, when they're full of sap. . .if I could get nice poles that's thirty feet long and maybe three inches in diameter at the butt. . . that skin [bark] just comes off just like that from the end of your cut, you just peel it off. And then we, I stand them up and, probably two-, three weeks before we use them to let them dry out. . .. sap and stuff dry off and. . .. And clear off knots a little better from where their limbs were, you know. So, we used that. And every four hours, if we could—sometimes we were a little late—but we moved that fillet on the pole. . .we wash them and rinse them in salt water before we hang them. And every three hours when the sun and wind is just right and they're drying good, we move them, just a couple inches, about this far, where the pole was dry, we moved them over there. You know, keep working that. So, pretty soon the pole is dry all over, even under the filet. And we have to keep this fillet here stretched out. And try to get the back of it, the back has the skin on it, so once the skin is dry, it holds the fillet there forever, you know. We have to try to get it to that point. Then we don't have to move them as much, until they're dry. Sometimes it takes three and half days, about four days, we like it a little better. . .. I made a little cutter for her. . .from a moose horn, one of the sharp [parts] of it, you know, that's alone. Cut it off up here and leave a little in the back so she could hold it. And she makes a hole about here. . . . Punches a hole up here. . . . And then with the other fillet, that has the tail on it. She folds these two, stick in the hole and they come back out. That's automatically locked itself in there. Four on each side and then she makes a traditional string which is [made of interlocked whitefish]" (LWS 2023). There are no strings or fibers used to string them together, it is made of the fish, hanging together.

"Yeah, uh-huh. We punch a hole right here, where the two fins are. Right in the middle so that we could put this tail through. And then to connect the two strings, we do the same; make a hole here with the other side and let the bone and the tailfins hold it in place" (CW 2023).

[101] CW 2023.

[102] Anderson et al. 1998:171, 173.

[103] LWS 2023.

[104] LWS 2023.

[105] LWS 2023.

[106] CW 2023.

[107] LWS 2022. "Oh, we had it [seal oil] with us all the time. But it wasn't like the seal oil we have today. It was, they put it in seal poke down in Kotzebue. And my mother traded with another Eskimo lady at Kotzebue. She would send down a bundle of whitefish already dried and ready to eat. This lady would send us a poke of seal oil. And those [pokes] they varied in the size of them. They tied the leg part [of a seal hide] and down there, tight, and there wasn't any leaking. So, this poke of seal oil would be—what we call those in those days—in the fish house where we keep all the dried fish and

the frozen fish and our native food. And I don't know how my mom stand it, but she would untie that one leg, put her sleeve up and go down and find some blubber and some meat in it, you know, pull it out. Oh, you put your finger in the frozen seal oil. I don't know if that oil helped anything or anyway, not freezing or fingers or anything."

[108] LWS 2022.

[109] Anderson et al. 1998:144.

[110] Anderson et al. 1998:144.

[111] HS 2023.

[112] Moulton 1990:27.

[113] Moulton 1990:5.

[114] Moulton 1990:5.

[115] LWS 2023.

[116] LWS 2023.

[117] LWS 2023.

[118] TJ 2023.

[119] LWS 2023.

[120] CW 2023.

[121] LWS 2023.

[122] DB 1990:20.

[123] DB 1990:18.

[124] DB 1990:18-19.

[125] WPJ 2016.

[126] PJ 2016.

[127] Anderson et al. 1998:177.

[128] HS 2023.

[129] LWS 2023.

[130] CW 2023.

[131] LWS 2022.

[132] LWS 2022.

[133] Tickett and Tickett 1976:np.

[134] An area in the vicinity of Kidways, on the south bank of the Kobuk, was recalled as a place for spearfishing. Accordingly, it was called Qaqætóġrik, from the root qaqæa, "to spear for fish."

[135] JJ 2016.

[136] JJ 2016. Woman from Jackie Johnson recording [maybe his wife] adds: "Sometimes they moved from one spot to another spot to another spot, like that and seine different parts. . .." (Woman in JJ 2016).

[137] Seining still occurs on the Salmon River: "We still have the seine, summertime" (Woman in Jackie Johnson 2016).

[138] ES

[139] EJ 2016.

[140] PJ 2016.

[141] JJ 2016.

[142] TJ 2023.

[143] HS 2023.

[144] ES

[145] JJ 2016.

[146] Anonymous interviewee, 2023.

[147] TJ 2023.

[148] JJ 2016.

[149] CW 2023. Christina Westlake describes the difficulty rainy weather causes when trying to dry fish: "For a while, but it was down by this time of the year. But we had a lot of rain, so it wasn't good drying weather. So, we look for the weather forecast, and they said, 'Ok, three days.' So, we rushed up there, seined, and that's when rain caught us before we dried, you know. But they were well—dry enough that we could move them damp" (CW 2023).

[150] LWS 2023.

[151] Tickett and Tickett 1976:np.

[152] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[153] Moulton 1990:19, 23.

[154] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[155] Tickett and Tickett 1976, np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[156] The hills immediately around these seining areas were also important for other plant and animal harvests too, and visited during fishing treks and at other times. There were "berries on all the hills around here," and the series of hills along bank on the north side of the Kobuk had "many trees, caribou, fox-trapping in [the] old days" (Tickett and Tickett 1976:np).

[157] JJ 2016.

[158] Tickett and Tickett 1976:np.

[159] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[160] HS 2023.

[161] LWS 2022.

[162] LWS 2022.

[163] JJ 2016.

[164] JJ 2016.

[165] JJ 2016.

[166] JJ 2016.

[167] LWS 2022.

[168] HS 2023.

[169] HS 2023. She goes on to identify a good salmon and sheefish location as "a creek that's called Qalugraitchiaq where the—that's a good salmon place and sheefish place. . .." (HS 2023).

[170] Anderson et al. 1998:37.

[171] Anderson et al. 1998:253.

[172] Anderson et al. 1998:156, 175-176.

[173] Anderson et al. 1998:189-190.

[174] EJ 2016.

[175] Field 1987:2.

[176] JJ 2016.

[177] LWS 2023.

[178] Kagoona 1987:2.

[179] Anderson et al. 1998:240.

[180] Anderson 1968:26–27.

[181] Field 1987:5.

[182] WCS 2002.

[183] WCS 2002.

[184] Atkinson 2024 fieldnotes



Alaska blueberries (Vaccinium Uliginosum) on the Kobuk River Shoreline. Douglas Deur Photo.

CHAPTER 8

The Importance of Plants in and Around Kobuk Valley

In the diets, craft traditions, and traditional medicines of Iñupiaq people, and in countless other cultural ways, plants play an enduring role. Both historically and today, the diverse ecosystem of Kobuk Valley provides plant harvest opportunities. Even early national park proposal documents noted that the unique geography of Kobuk Valley has resulted in a diversity of 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."[1] Overall, as Swadesh writes: "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.[2] A remarkable number of those plant species were not only known but actively utilized by ancestral Iñupiat families. As Hazel Apok remarked, "My parents ... were rich in that they gathered [plant] food."[3] Today, that richness persists in the diets and in the other traditional practices of Kiana residents.

The most significant plant materials harvested in and around the park have been berries. Several places in Kobuk Valley are widely known as good berry-picking areas and are called *asrialiviks* (lit. "berry places"). Salmonberries (*aqpik*) and other berries were said to be found in the riparian areas along the Kobuk riverbank and harvested in large quantities. Named places along the riverbank, such as *Qaliaġruaq*, described as a "bank for berries," reflect this use.[4] 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."[5] This includes, but is not limited to, wild blueberries (*Vaccinium uliginosum* and others), nangoonberries (*Rubus arcticus*), salmonberries or cloudberries (*Rubus chamaemorus*), "blackberry" or crowberry (*Empetrum nigrum*), wild cranberry (*Vaccinium oxycoccos*), highbush cranberries (*Viburnum edule*), wild currants (*Ribes* spp.), and other berry-producing species.[6]



Picking Blueberries, by Victoria – Kiana, Alaska

Edible Berries

Beyond the riparian areas, many of the hills and bluffs close to the river are visited for berry picking. The open tundra is also considered exceptionally good for berries, such as those found on the hills, bluffs, and mountain slopes rising from the edge of the Kobuk River floodplain. Elders of the past have reported places such as *Tiitaġaariq,* which was visited for berry picking. A location with "three knolls, together" called *Piŋuqsruq* also was said to have good berries. A number of allotments reportedly sit nearby—possibly a reference to the north bank of the Kobuk between Kavet Creek and Kallarichuk River.[7]

Women and children have a prominent role in the berry harvest. Women and children, for example, sometimes go berry gathering while men are busy fishing—a treasured and shared activity for some families each year. Certain areas along the river are known to be especially good for picking and are visited during family fishing trips. The Westlake allotment, for instance, is widely known to be "good for berries."[8] Indeed, Christina Westlake is familiar with numerous areas along the Kobuk River that are good for berry picking—namely salmonberries, blueberries, and cranberries—and especially spoke of these berry-rich places near her family's camp. "Yeah, down on the Kobuk Delta, where we can, there are numerous places where we go [to gather berries] on the main river. Some of the side rivers. It just depends what kind of ground you see. For salmonberries, and then there are other places not necessarily where the salmonberries grow, where the blueberries, usually on higher ground. Cranberries down . . . the river."[9] Bears are fond of such places, and feed on berries there, so that people have to be cautious when picking near brushy areas. Again, quoting Christina Westlake, "around here, you know, there are places that are brushy, and there's bears in the brush (laughs)."[10]

Salmonberries, blackberries, blueberries, and cranberries are traditionally hand-picked and placed into a berry basket, *aimmaq*, for transport back to home or camp. Traditionally, families have taken wooden banging sticks with them for knocking berries into these baskets. Though leaves get mixed into berries with this method, it is still considered efficient. Others gather berries using both hands. Some berries are eaten fresh, but others are preserved in various ways for later use. For example, people traditionally pulverize berries with a scoop or other utensil, producing a mash that can be eaten with oil or dried for later use.[11]

Certain places were exceptional for specific kinds of berries. At times, cranberry harvesting areas sat apart from other berry-picking areas and were visited each year just for cranberries—in the fall, when the berries ripened and became sweet. Pauline Schuerch described picking cranberries as a child: "Well, we used to go riding and look for cranberries. . . . When I was a kid, too. We picked [a] lot of berries there. We used to follow my mother."[12] Helvi Sandvik often picked cranberries during the fall at her family's allotment: "[M]y mom has an allotment about forty miles up the river, and we have a cabin back in the woods, you can't really see it from the river. And you know, these places that we have our native allotments, were places that my mother's family used, and that was a place where you go hunting [in] the fall time and go picking cranberries. It's a good cranberry spot."[13]

Furthermore, the edges of the Great Kobuk Sand Dunes and other sand dunes in the park have been important cranberry-gathering places in the lower Kobuk Basin. Of all the berries, Christina Westlake prefers to pick cranberries because they "keep better, we don't need to freeze them. And those are, to my way of thinking, are real preferable to a lot of the berries. We like to get a supply, a good supply of cranberries."[14]

When camping along the Kobuk, families often gather large quantities of wild blueberries to eat fresh or bake into pancakes at camp. Before making blueberry jam, Larry Westlake's mother sent her boys out to pick blueberries that were not yet ripe, because the greener berries contain higher levels of natural pectin, which causes the jam to 'set.'[15] "And, we had to do it for our school too. The school kids would go out and pick a bunch of blueberries, and they would make jam—for our lunch in the school those days."[16]

The seed-bearing "hips" of wild roses (*Rosa acicularis* and other *Rosa* spp., *igruŋnaq*) are also traditionally harvested along the Kobuk. These are processed in various ways but, in recent times, are popular as a source of tasty jam: "Another berry we used to go after is rosehips …. Oh man, they make good jam."[17]



The hips of Arctic Rose (Rosa Acicularis) on the banks of Kobuk River, sometimes harvested to make jam and other foods. Douglas Deur Photo.

Some places, including the edge of the sand dunes, are said to be visited for *tinnik*, commonly called bearberries (*Arctostophylos alpina* and possibly also *A. uva-ursi*).[18] Elders interviewed throughout the early and late 20th century have memories of gathering these berries in lands now within the park, especially on the Great Kobuk Sand Dunes and their margins.[19] Sometimes called 'tundra caviar,' Helvi Sandvik describes *tinnik* as a red berry that turns brown in color: "they're not sweet … and they're not plentiful either. It's not like cranberries or blueberries where they're plentiful."[20]

Larry Westlake, Sr., observes that the *tinniks* grow in "sandy places …. Especially on the ridges off the river … and up around the sand dunes they get more in that creek that goes into the sand dunes. There are knolls with the birch trees and regular trees on it and some of [those places], the sand is exposed. That's where they get most of the *tinnik*, right there."[21] They are widely found along the edge of the Great Kobuk Sand Dunes and other dunes in the park, where it looks "like someone took a shovel full of sand and turned it upside down …. [T]here's a creek that runs right under it and the creek is on the downriver side of the dunes. And going in that creek, when it's deep enough, just before you get to the sand dunes on the—going in on the left side—there's little hills in there. That's where they get a lot of those bearberries." [22]

Many people reported that they and their family gathered *tinnik* at the sand dunes and in other sandy deposits along the Kobuk each year. For example, Larry Westlake, Sr., remembers



Tinniks, bearberries, on the Great Kobuk Sand Dune margins. The harvest of these berries has been among the main reasons for longstanding Iñupiaq visitation to the sand dunes of Kobuk Valley. Amy Martin Artist-in-Residence photo, courtesy of the National Park Service

that when he was a kid, people from Kiana went to the sand dunes to pick the *tinnik* that grow on the tundra and in the dune area: "Yes, they did. They went over there to pick a special berry. They call it *tinnik*. It's a—what they call it in English? . . . Bearberry. . . . They got to be in sand. That's the only place they grow. . . . [T]he ones that grow at the sand dunes, they're kind of like a nut, more like a nut than a berry [in the way they taste.] Yes, they're kind of chewy and crunchy."[23] Percy Jackson's daughter and her mother also picked both *tinnik* and cranberries at the dune margins in the fall: "My mom and I used to go up there every fall to pick what they call *tinnik*, bearberries. . . . My favorite fall was like, leave here for the weekend, go up there and pick."[24] On occasion, Helvi Sandvik and her mother also visited the sand dunes to pick *tinniks*, "it's an interesting place. And yeah, you go to pick *tinniks* there."[25] In fact, she suggests that the *tinnik* harvest was the primary reason people visited the Great Kobuk Sand Dunes and other dune formations historically:

> "[W]hy would you go there other than to, if you weren't getting *tinniks*? Because there's sand and it's kind of cool when you walk on it, but that's all. Because it's not a place to go hunting. You know. . . everything was about sustaining yourself."[26]

As mentioned, elders often describe the flavor of *tinniks* as "nutty" rather than sweet; and *tinniks* were not generally eaten alone but were added to bear fat or seal oil where they would soften and become more palatable.[27] As Thomas Jackson recalls, "My grandma told me never

to eat them the way they are. It have to be seal oil, or in bear fat. But they were never eaten raw. . .. And when they're put in seal oil, or fish oil, they turn like a maroon color. And they get very sweet and soft and they are very tasty."[28] Similarly, Helvi Sandvik's family preferred to eat *tinnik* in combination with bear fat: "They're a brown, kind of crunchy berry. They're not sweet . . . you usually eat them in bear fat . . . and I think it's because they're kind of crunchy. Maybe they have a little bit of a nutty taste to them . . .. They're brown and about the size of a smaller blueberry. Not a big blueberry. . .. They're low to the ground."[29] She adds that they should be eaten in moderation, "you don't want to eat a whole ton of that."[30] Thomas Jackson also remembers eating *tinnik* with seal oil, making *akutuq* and other mixtures. Additionally, people often dip fish into these *tinniks* and oil mixtures: "And when we're picking berries . . . when we stopped to eat, my grandma's or my mom's *akutuq*, they would put oil . . . mainly seal oil in there and . . . every person would dip their own food into it. When we stopped to eat, it . . . was always mainly fish."[31]

Juniper berries (*tulukkam asriaq*; *Juniperus* spp.) were commonly harvested in Kobuk Valley and used for medicinal purposes. For instance, juniper berries were used to treat stomach ailments. According to Larry Westlake, Sr., the berries have often been steeped in water "for our teas when one of us get it you know. It just really helps you."[32] Christina Westlake recalls that she picked juniper berries for her mother, often while other people were nearby picking *tinniks*.[33] Elders also recall that caribou graze on juniper at times and also eat the juniper berries.

Many elders spoke of happy times picking berries, and how these practices reconnected them each year with family, traditions, and special places. Some suggested that picking berries could be considered its own form of medicine: "My mother loved to berry pick, and in fact, the year our father died . . . that was her way of getting through the grief, was to pick hundreds of gallons of berries. We used to go out . . . it is therapeutic you know."[34]

Most years, berry picking commences when the berries ripen in August, and extends into the fall: "Then fall time, a lot of berry picking for the winter, you know, gather for the winter."[35] Donald Smith commented that when the willows produce ample amounts of cotton, that indicates plenty of berries will be available to harvest: "That's a good sign. When you see that cotton. . . . That comes from the willows."[36] As soon as willow leaves appear, kids have traditionally eaten the leaves. Moulton also recorded that: "Don Smith told us that a lot of those cottonweeds are a good indication there will be a lot of berries."[37]

Edible Plants

People have also harvested many different shoots and greens in the Kobuk Valley corridor, commonly dipping these into seal oil or other kinds of rendered grease.[38] As Elmer Jackson says of Kobuk Valley, "we pick greens there that are edible."[39] Harvesters frequently consume wild greens such as sour dock (*Rumex arcticus*) and Alaska wild rhubarb (*Polygonum alpinum*) in conjunction with visits to hunting and fishing areas. Beyond being eaten fresh, these two species are often processed and frozen for later use. When she can, Christina Westlake continues the practice of picking rhubarb alongside the harvest of sour docks: "Down the river too, we pick sour docks, you know. Up here, they pick wild rhubarb for the same. We used to go and pick rhubarb, but we didn't this year."[40] Long stalks of wild rhubarb, placed crosswise in layers, is also widely used to create impromptu mats or clean working surfaces, such as when butchering fish or game. While this plant is widespread along the river, there are certain places along the Kobuk that are known to have wild rhubarb in abundance. One

gathering place of importance has been *Qusrimmaqtuuq*, named specifically for *qusrimmaq*, the wild rhubarb; this place is a slough, sitting a short distance below *Qalugrich*, the Kobuk River outlet of Salmon River.[41]

Root digging for "Eskimo potato" or *masru* (*Claytonia tuberosum*) and other species is another traditional harvest practice commonly reported. Thomas Jackson describes the sweet taste of a tuber he believes belonged to the horsetail plant: "Yeah, and the white tubers. They're like tubers. The white ones are the sweetest. And they also picked these, get these round little black balls . . .. And Esther Curtis showed me, she peeled the black off and she said, 'Try it, Thomas. Do it like mine.' And real sweet. And I think those came from the horsetails plant."[42]

Masru is often gathered from mouse holes. Larry Westlake, Jr., remembers the fun he had as a boy collecting *masru* in this way: "Boy, those were the days. Lot of fun. We'd follow mice to their homes, fall time and dig up their homes for *masru.*"[43] Thomas Jackson describes how, as children, they would go hunting for these caches:

> "I used to—I was—*aana* [grandmother], at a young age showed me how to find the caches. You could always find the mice where their homes are because of the digging. And they have caches. You use your feet. And when it's soft, you know it's a cache right there or there are nests. When they find the nest, it's never bothered. They left it alone. We would get *masru* out. And they would also put food back inside. They'd trade with the mouse. They never steal. That's stealing if you didn't trade with them, but with other food. And they always put [Iñupiaq term for dried fish] in there."[44]

Larry Westlake, Jr., remembers he'd put bread or crackers back into the cache. As Thomas stated, it is important to replace the *masru* with an alternate food offering. "It's always been done. My *aana* [grandmother] just told me that if you don't put food back, you're stealing from them. And out of respect, they put back, because you take their food and you give them other food."[45] Larry adds: "Not only that, but you want to—so you don't have to look again next year, you know, where it's at, where the food is."[46] After removing the *masru*, twigs would be placed on top of the mouse cache. "They were real careful about putting the top layer of the ground back into the [mouse cache so] they could store more. Once the bears find them, I've seen it a lot, they'll dig around and eat . . . because they ate *masru* too"[47]

After mushrooms are collected, they are washed and preserved. "Our *annas* [grandmothers] would clean them real good, wash them up."[48] Traditionally, the elders submerged masru in seal oil as a means of preservation.[49] Larry Westlake, Jr., told this about the time the mice stole the masru back:

> "[women from Kiana] gave my dad's mother a lot of masru and she stored it in a barrel in her cache down in Noorvik, down below the hills. There used to be a big fence, and at the end of it was her cache. Wintertime, when she went to get it, no masru. It was gone. She started looking and she turned the barrel upside down, there was a little hole in the bottom, and the mice took them all. And she said that the barrel was full."[50]

As Donald Smith remarked, "It all depends on what year it is. Sometimes the berries are plentiful. Different kind of berries, different years."[51] Since berry picking is often coincident with summer fish camp, the proportion of each berry in the diet is partially shaped by what is ripe when people mobilize to these camps.[52] Greens, tubers and other plants found near fishing camps also figure prominently in the diet, depending on their availability. For example, speaking of gathering plants around the *Qargiġruaq* (Lit: Men's house, a summer

village camp) Elmer Jackson recalled a wealth of plant foods, eaten as available each year: "There were many edible plants and sweet roots growing near the shoreline of the camp: *masru* (sweet roots or wild potatoes), *qusrimmaq* (rhubarb), *quagaq* (sourdock) and *patitaaq* (wild chives [onion])."[53]

Some plant gathering areas are geographically distinctive and possess unique cultural significance. Cranberry bogs are an important example of this. According to elders' descriptions, bogs of wild cranberry (probably *Vaccinium oxycoccos*) are 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; and people still gather berries in this location.[54] In future research, a full account of this event and of the general importance of cranberries deserves attention.

Past research among Kobuk River Basin villages has underscored the importance of plant foods in the diet. Anderson, for example, observed that although the relative proportion of plant food in the diet was small compared to fish and mammal foods, it included a wide range of species: "Considering the small amount actually consumed, the number of native [plant] species used is surprisingly large."[55] Preparation techniques for plant foods were diverse, as reported by Iñupiaq elders speaking with Anderson:

> "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."[56]

These elders also recalled that many plant products were stored for later use, with plant foods being consumed through 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."[57]

From the late 19th to late 20th century, Kobuk River Basin families gathered an extraordinary diversity of plant foods in the summer and fall, storing these for later use—including berries, tubers, and vegetables.[58] These foods supplemented the diet, with berries being the most important plant food gathered by the Kobuk people, as already mentioned.[59] Like other researchers, Giddings describes plant use among the Kobuk people, but in Giddings' case, emphasizing blueberries: "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."[60] As the Iñupiaq elders speaking with Giddings observed, blueberries keep well; beaten with fat, they can be made into *akutuq,* a midwinter treat. People also reported to Giddings eating polygonum roots, wild onion, wild rhubarb, and other berries.[61] Common food plants



Wild onion or chive (Allium Schoenoprasum) on the banks of Kobuk River. These onions abound in many places of the park, including onion portage, which is named for the plant. Douglas Deur Photo.

reported by researchers along the Kobuk River have been blueberries and lowbush cranberries,[62] already covered here in detail, but also saxifrage, sourdock, wild spinach, and wild onions or "chives."[63]

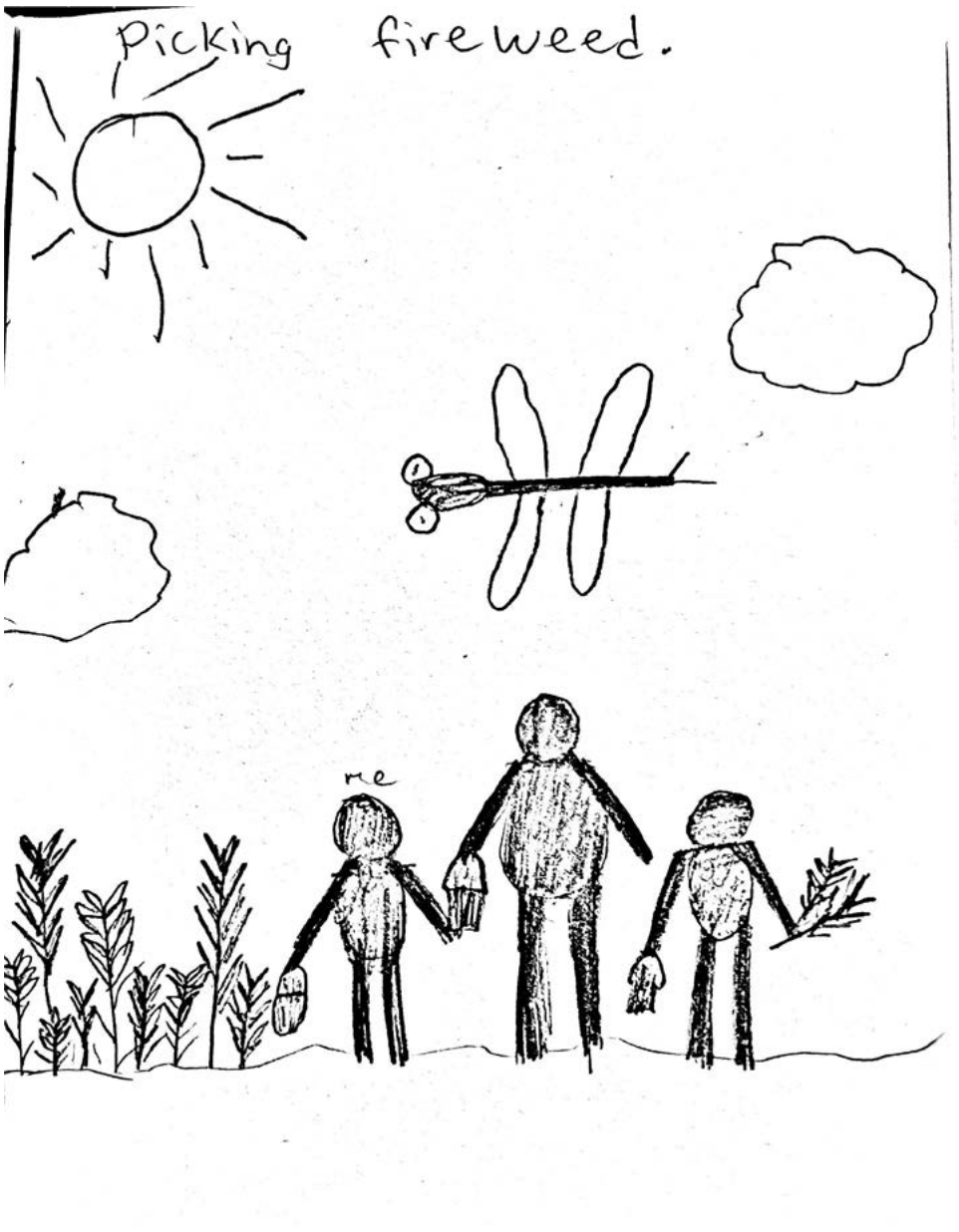
Elders report that, in the last century, their families have planted gardens containing a variety of cold-tolerant vegetables. Larry Westlake, Sr., describes the garden they would plant in town: "And later on, we always had a big garden growing. Dad taught us to do that, and we would put one in every spring. We had cabbage, lettuce, turnips, radishes, and a couple different kinds of cabbage, couple different kinds of lettuce and also turnips. There was the yellow turnip and a white turnip."[64] People would also plant gardens up near the mining areas. Larry Westlake, Sr.'s father,

> "had a garden too, up at the mine. And the miners did have gardens up there too. It must have been good soil because when we were growing up, my oldest brother, packing down a turnip from the—bringing it down to mom: eleven pounds, one turnip. Eleven pounds. . . . That must have been huge. In the picture it looked like—they

didn't take it out of the pack but—he was packing it. He must have been, eleven, twelve, thirteen-years old, I guess. We lost that picture. I don't know where."[65]

Some families had gardens upriver on the Kobuk, on allotments. Garden vegetables were occasionally items of trade. Larry Westlake, Sr., speculates that this may be how gardening practices were introduced into the area: "[T]he white people did [have gardens]. I don't know if they did it when they first come in or, you know, our native culture, mom was here all in the summertime, so she shared with her friends from up the river when they come by going down to Kotzebue to trade, by giving them turnips and some lettuce and stuff like that. I don't know if they caught on from those things that happened."[66]

Presently, some traditional Iñupiaq plant foods remain staples, while some are treats. Plants provide essential nutrients while sustaining cultural traditions of deep antiquity.[67]



Picking Fireweed, by Aleena – Kiana, Alaska

Today, many traditional greens are now eaten in salads. Yet traditional preparations continue as well: 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.[68]

Indeed, as is the case with animal resources, almost all Kiana and Ambler households still use subsistence plant foods today. The most recent harvest survey, conducted in 2022, showed that Kiana residents harvested 12 lbs. of plants and berries per capita with 82 percent of that total being blueberries. The authors estimate Kiana households took 1,649 lbs. of blueberries, 1,137 lbs. of cloudberries, 524 lbs. of low-bush cranberries, 403 lbs. of stinkweed, and 239 lbs. of crowberries. Tundra tea, wild potato, sourdock, wild rhubarb, and juniper berries were also harvested.[69] Ambler households harvested 2,772 lbs. of vegetation, of which 2,384 lbs. were berries, primarily blueberries, cranberries, and salmonberries. Other harvested plants included Hudson's Bay tea, wild rhubarb, wild celery, Eskimo potato, sour dock, wild rose hips, stinkweed, and puffballs.[70]

Plants and other uses

Aside from plants used as foods, there is a class of plants used as materials. Many plants, in particular trees, have provided construction materials for structures, tools, crafts, and other items—as well as providing fuel for modern tribal members, as they did for past generations. For example, interviewees widely reported firewood cutting, as well as the gathering of firewood from shorelines and gravel bars, as an important and enduring traditional activity. Within the documentary record, for generations in the nineteenth century, firewood procurement was described as "the single most time-consuming cold winter activity."[71] Larry Westlake, Sr., remembers cutting spruce widely in the Kobuk River Basin:

> "Especially back toward the mountain area. Better wood in there because there's some knolls, you get on top a knoll it's—you look for the ones that didn't—you get to learn by the branches how much sap there would be in the, you know. If you didn't know anything about it, and you get sap about an inch thick all the way around. That's hard to burn. So, we look for sap that's only about a quarter inch. And oh man, that quarter inch would help you split the block, split real good with it. And a lot lighter to handle. Good wood, they said burned longer in the stove."[72]

Many places in Kobuk Valley have good timber, and elders note that these places are often chosen for camps, hunting, or other activities for these reasons. The trees provide shelter from the elements, a source of firewood, and many other benefits. The term *napaaqtuq* applied to spruce or as a general term for conifer trees, is sometimes applied to places with spruce trees in Kobuk Valley.[73]

Felling trees along a riverbank to make rafts for temporary use is another traditional use of timber. As Herbert Custer recalled,

> "[t]hose who hunt in summer, when they reach where they could make raft, they don't have axe, they only have flint to start fire, rock and the cotton from willow or cotton tree [prob. Balsam poplar, *Populus balsamifera*]. When they are ready to make raft they start fire under the tree, dead tree, and burn the tree—and that's how they cut trees. Sometimes they burn more than one to cut. They have a poke of a stick while it is burning and let it fall. And when the tree fell, they take a heavy stick and start beating the branches and take them off . . .. That's how they make raft."[74]

Along the Salmon River, driftwood was used for this purpose in the summertime—specifically to make rafts for transporting harvested salmon to fall and winter camps. According to Larry Westlake, Sr.,

> "[A] lot of people would, like Noorvik and some people there would come up and the place I told you about, Salmon River, and get all that salmon. They would stay up there all summer and dry salmon. And they would make a big raft with the driftwood. And they use it for wood. They sell it or whatever they want to do with it [referring to people from Noorvik but also people from Kobuk participated.] Yes, and there's families that, they stayed up all summer and dry salmon up there."[75]



A woman from Ambler treats a caribou hide with red/orange alder bark dye in preparation for making winter mukluks in 1974. Robert Belous Photo, courtesy of the National Park Service

Driftwood has also served innumerable other purposes among the residents of Kobuk Valley—as firewood, as a source of tools and materials, and for many other uses. Driftwood gathering along the shoreline has been a regular part of Iñupiaq life during the warm months of the year. Driftwood brought down from high water and spring breakup flushes downriver and is traditionally gathered, especially to be used for firewood. Larry Westlake, Sr., describes this process in Kobuk Valley: "[I]f we have a good highwater spring breakup, and it would bring all this wood out of the creeks and wherever they'd fall over you know, along the river. [The river carries it all down.] Right, and if you have a low water breakup, you don't get that."[76]

And pieces of driftwood are employed for countless purposes beyond firewood. For example, pieces of driftwood with hollow ends have been repurposed as scoops, or as containers for food preparation, while long, straight driftwood poles sometimes serve to create temporary camps or fish racks.[77] Moreover, people seek out different woods for different purposes. Spruce driftwood can be used for making tools or quick fires. Deciduous trees such as alder, *nunaŋiak*, found in the riparian corridor as driftwood or as standing trees, can be used for cooking or smoking food, because it burns with few sparks and with smoke that does not impart

heavy or unpleasant flavors to the food.[78] The reddish inner bark of alder has many traditional uses, too, such as for the creation of dyes used in coloring mukluks and other traditional attire.

Elders note that, with the abundance of timber and driftwood found in Kobuk Valley, woodworking crafts were an important part of Iñupiaq life along this part of the river, and an important plant use. Woodworking tools were said to be commonplace among the villages of this area. Tools such as adzes, mitlik, of wood and bone, and later metal, were used in all major settlements to produce items of native woods.[79] Indeed, in the past, people used plants, in particular trees and shrubs, for "cordage, watercraft, traps, [and] hostelry,"[80] and in these efforts, many methods were used.

About a half-century ago, Swadesh noted, "most tree and shrub species [in Kobuk Valley National Park] are of importance to the residents for a variety of subsistence purposes, such as sleds, firewood, boats, fish drying racks, and snowshoes."[81] Among the most popular species for some of these purposes has been willow—its bark and withes being particularly useful for making fishnets, rope, and snowshoes.[82] When ice fishing, people made a platform made of cut willow laid together on the ground, to create a floor and insulation against the cold. This kind of willow floor was also made in temporary structures built for other purposes along the river corridor.[83]

Another particularly important material in Iñupiaq handicrafts was birch bark. For example, at such places as *Qakłikuvik*, people picked birch bark for fire starter and crafts. Typically, people peel birch bark in June, when the sap is running and the bark is easier to peel: "Yeah, June we get bark right in the middle part of June. That's the only time you have to pick birch bark. [By mid-July] it stick[s] already. It's hard to peel."[84] On trees without lower branches or large knots, people could peel long strips—women sometimes making the initial cut from above head height, then peeling a length of the tree as long as the women were tall.[85] People sometimes had specialized camps that were largely devoted to birch bark harvests.[86] If done right, the birch tree is not permanently damaged and, in time, regrows the bark. As Minnie Gray of Ambler recalled, "if you never press it too hard it comes back;



A woman from Ambler in the 1970s, woman in Ambler makes a berry basket from birch bark—a culturally important skill continues to be passed down across generations until today. Rober Belous photo, courtesy of the National Park Service.

right down here there's a tree … they peel off [a few years ago] and its covered already. Sometimes it come back alright but sometimes if you press too hard [with the knife, cutting too deep] it can't."[87]

Historically, people used birch bark "for waterproof buckets, baskets, what they'd make an *aimmaq*, a birch bark basket for picking berries, but you have to have [cut it off with] could be a caribou antler with a sharp turned blade."[88] And historically, containers were made from the "natural root, like in the hills when the tree grows and then it turns, you know, curves, and they would find that natural curve and make a [container] out of it."[89] Women have continued to make birch bark baskets, a culturally important skill that is passed down largely along maternal family lines.[90] Birch bark canoes—made of large sheets of peeled bark, stitched and sealed together—were once widespread, but have been all but supplanted by modern boats. Birch bark could also be woven into strands, to make mats or other items, or wound to make twine and rope. Elder Thomas Jackson described how the fibers would be looped around the big toe to provide leverage for twisting and braiding them into twine.[91]



Peeled birch tree, the outer bark has been removed to produce traditional items. Douglas Deur Photo.

From birch trees of the riparian area, people have cut *ikik,* wooden boards used to line the hallways and rooms of the old winter houses along the river corridor.[92] Accordingly, one finds these birchwood boards archeologically, in places like the historic winter village of *Igliqtiqsiuġvigruaq*; here, evidence suggests that the interior walls of one house were lined with "large slabs of birch bark, stitched together, that extended out a ways onto the floor itself. The central areas of the floor may have been partially covered with spruce boughs."[93] Another house shows evidence of framing with spruce logs, though the roof was constructed of birch bark, then covered by sod blocks, and the floor carpeted in spruce boughs and willow saplings.[94] Additional wooden items found at the site include tinder rolls of birch bark and various stone blade knives with wooden handles.[95]

Interviewees recall that many people also formerly used spruce bark and birch bark for boats, such as kayaks on the Kobuk, as suggested above.[96] Some routinely used spruce pots, and birch bark baskets served as cooking vessels, even in recent times.[97] Kobuk Valley people also historically utilized spruce for making equipment and shelters. Furthermore, structures of various types have been constructed using willow and other wood, bark, moss, sod, and grasses.[98] Temporary structures are still sometimes found along the Kobuk, their frames made of cut willow or birch. Some of these branches and stalks take root in the ground or are attached to living trees—becoming living parts of seasonal structures built along the Kobuk.

To this point, mosses have been mentioned as materials used in buildings. But elders report a remarkable diversity of uses for lichens and mosses found in Kobuk Valley, especially in the tundra. For example, *ipiġaq*—a moss that is burned like a wick in oil to create a lamp. Moss is useful in home-building, as can be seen in the construction of *ivrulik*—"a kind of house . . . with lots of moss all over," the moss being a significant source of insulation, chinking, or even thatch for warm-season structures.[99] Moss used for chinking and insulation is called, *amuaqun* while the moss used on the sides of the house and roof is called *ivruq.* Moss is also helpful for subsistence. For example, there is a lichen called *niqaaq*, "the white moss is food for caribou," which found in abundance where caribou graze and is an indicator used by hunters as good places to harvest.[100]

So too, grasses have traditionally been harvested for various purposes. For example, to make insoles for mukluks. Thomas Jackson recalled that his mother commonly did this when he was a child:

> "[A]s children growing up, she made mukluks. That's all we wore were mukluks, growing up. She knew I liked the hard bottom, and we use grass for the insole. And at a young age, she told me, and she brought me out to where the grasses, what kind of grass to pick and so every week at a young age she always told me to change my insoles. So, I'd have to do it after she—all she would say is 'Change your insoles.' So, I had to learn to pick the grass at a young age, really young age."[101]

Many other species of plants have been traditionally used for medicinal and ceremonial purposes. This includes the Narcissus anemone, *Anemone narcissiflora*.[102] These medicinal and ceremonial uses persist yet are often sensitive and thus are not addressed in detail here. Existing written sources, such as the work of Burch and J.P. Anderson, address additional uses of plants in the Kobuk Basin and beyond.[103] Oral traditions also point to these purposes. And oral traditions remind Iñupiaq people of the transformer, *Qayaqtagugnik*, who determines all the uses of plants as he travels along the Kobuk at the beginning of human



Camp instructor shows youth The frame of a temporary shelter, made from partially cutting and bending living birch branches. Douglas Deur photo.

time. Indeed, almost every plant in the Kobuk Valley has a role, and almost every plant has its significance in the enduring traditions of the *Kuuvaŋmiut*.[104]

Access to all the forest resources has remained culturally and economically significant. As Anderson et al. have written, especially focused on the *Kuuvaŋmiut*:

> "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."[105]

An area with forests thus provides significant opportunities for the Kobuk Valley Iñupiat, with an abundance of plant life that has been integral to their diets, toolkit, economies, and ceremonies in myriad ways.

Endnotes

[1] Swadesh 1975:18-19.

[2] Swadesh 1975:46.

[3] HA 2002.

[4] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[5] ES

[6] Christina hasn't seen nangoonberries growing in the area but has seen raspberries: "A few raspberries. I don't know what nangoonberries are really" (CW 2023).

[7] Tickett and Tickett 1976:np.

[8] Tickett and Tickett 1976:np.

[9] CW 2023.

[10] CW 2023.

[11] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[12] PGS 1990:8.

[13] HS 2023.

[14] CW 2023.

[15] "And talking about jams; mom would make us boys pick blueberries with some green, unripe berries and they would be specially for jam. I think there's more, I don't know what you call… Pectin. … When they're green" (LWS 2023). Christina adds: "They have natural pectin when they're kind of green" (CW 2023).

[16] LWS 2023.

[17] LWS 2023.

[18] Cranberries also grow in the sand dunes: "There's some cranberries on the side" (PJ 2016).

[19] Gray, Cleveland and Lee 1987.

[20] "Bearberry. That—I was going to say, it's bearberry. … Um, found in all regions, edible, should be used in moderation …. [T]hey're also saying 'kinnickinnik' berry. …*Tinnik* berries, tundra caviar, he's calling it. He's kind of dramatic in that regard …. [T]hey turn brownish" (HS 2023).

[21] LWS 2023. These berries are also gathered in sandy areas outside of the park, such as up Squirrel River.

[22] LWS 2022; You can get in there easily and there's a little bit more water there, so they grow well along the edges. "Probably, yeah. And if you just want to see the dunes, the lower side is better. Just about, maybe 500 yards downriver from that creek on the same side, there's some knolls there and some sand showing in front of those knolls. There's a little opening there, down from the river, from the upper edge of those knolls. You come down rolling like this. And if you could hit that opening and climb up, you could see a lot of old dugouts. And then you go up and you follow, you get on top of that ridge, then you start going east, out of the ridge, you get over, oh, maybe 500 yards or so, you could see the sand dunes, but if you go downhill to your right and see that other ridge. Go on that other ridge and follow it to the end, that's where you could cross to the dunes" (LWS 2022).

[23] LWS 2022.

[24] PJ 2016.

[25] HS 2023. Christina Westlake also recalls going "to Squirrel River where they picked *tinniks*, yeah. There's a place there where they grow" (Christina Westlake in Westlake, Sr. and Westlake 2023).

[26] HS, 2023.

[27] Gray, Cleveland and Lee 1987. Kiana resident, Helvi Sandvik describes the berries this way: "Not tinnik but 'berries of the North' or something like that. I wonder if it's even a berry, you know, because it's not sweet" (HS 2023). According to DeAngelo and Wiess, "On the Kobuk River

in 1975, seal oil was a 'major part of every meal' (2019:89). See also Anderson et al. 1998: 245. It is likely that seal, whale and walrus oils have always been an integral dietary addition. For example, at *Igliqtiqsiuġvigruaq*: "Though sea mammals make up less than 3 percent of the assemblage, it is difficult to know how essential they were in the diet since seal oil, *muktuk* (whale), and *kauk* (walrus) cannot be seen in the faunal record" (DeAngelo and Weiss 2019:89).

[28] TJ 2023a.

[29] HS 2023.

[30] HS 2023.

[31] TJ 2023.

[32] LWS 2023.

[33] CW 2023.

[34] HS 2023.

[35] WCS 2002.

[36] DS 1990:18-19.

[37] Moulton 1990:10. "Cottoning" plants, those with white fluffy tops, long green stems, and no leaves are said to be "good indicators of berries nearby (or that the amount of cottoning plants are proportional to the amount of berries)" (Moulton 1990:3).

[38] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[39] EJ 2016.

[40] CW 2023.

[41] NANA 1994.

[42] TJ 2023.

[43] LWJ 2023.

[44] TJ 2023.

[45] TJ 2023.

[46] LWJ 2023.

[47] TJ 2023.

[48] TJ 2023.

[49] LWJ 2023.

[50] LWJ 2023.

[51] DS 1990:18.

[52] NAES 1991b:13.

[53] Jackson 2000:9.

[54] VM.

[55] Anderson 1939:714.

[56] Anderson 1939:714–715.

[57] Anderson 1939:715.

[58] Anderson et al. 1998:231.

[59] Anderson et al. 1998:231, 233.

[60] Giddings 1961:155.

[61] Giddings 1961:135.

[62] Anderson et al. 1998:232.

[63] Anderson et al. 1998:234.

[64] LWS 2022.

[65] LWS 2022.

[66] LWS 2022.

[67] Jones 2010:vii–viii.

[68] Jones 2010.

[69] Lamb et al. 2021: 57.

[70] Braem et al 2015:54.

[71] Anderson et al. 1998:238.

[72] LWS 2022.

[73] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[74] Herbert Custer in Custer and Gray 1987:5.

[75] LWS 2022.

[76] LWS 2022.

[77] Field 1987.

[78] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[79] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[80] Mason and Bigelow 2008:60.

[81] Swadesh 1975:59.

[82] Anderson et al. 1998:235.

[83] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[84] Gray 1987:1.

[85] Ibid.

[86] Cleveland, Gray and Lee 1987:4.

[87] Gray 1987.

[88] TJ 2023.

[89] TJ 2023.

[90] Ticket and Gray 1987.

[91] "Put it on . . . your big toe, make a loop. That's how I would do it" (TJ 2023).

[92] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[93] Anderson and Lutz 2019:5.

[94] Anderson and Lutz 2019:11. Finding large sections of birch bark at *Igliqtiqsiuġvigruaq* poses some interesting questions regarding the environment condition along the Kobuk River at that time: "Also recovered in the cultural remains in and around the houses were 35 large sheets of birch bark apparently used by the residents to cover roofs, walls, and floors . . .. The abundance and size of the birch-bark sheets have definite climatic implications since nowadays birch trees are relatively rare in the lower Kobuk area, and even where present are small. Either environmental conditions in the lower Kobuk River area have changed considerably since the time of occupation or the occupants of the village had obtained the birch bark from distant regions, most likely from the upper reaches of the Kobuk" (Anderson and Lutz 2019:53).

[95] Anderson and Lutz 2019:32. "Wooden objects, owing to poor preservation, were obviously greatly underrepresented in the assemblages, though sheets of birch bark, especially from trees of a size that now only grow far upriver, were surprisingly common."

[96] Anderson 1974:74; Giddings 1952:59.

[97] Anderson et al. 1998:235-236.

[98] Burch 1984:307-308.

[99] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[100] Ibid.

[101] TJ 2023.

[102] Anderson 1939:715.

[103] Burch 1984:306. Plants mentioned by interviewees are consistent with those recorded in pre-

vious 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 work offers scientific names, local and common names, and details of use and preparation (Anderson 1939).

[104] Gray 1987.

[105] Anderson et al 1998:28.

[106] Christina hasn't seen nangoonberries growing in the area but has seen raspberries: "A few raspberries. I don't know what nangoonberries are really" (CW 2023).



Navigating the dynamic waterways of the Kobuk region requires skills and an in-depth knowledge of ever-changing conditions. Here two boats are parked at the Hunt River dunes. Douglas Deur photo.

CHAPTER 9

Traditional Modes of Travel in and around Kobuk Valley

Historically, the Iñupiaq subsistence way of life depended on travel by foot, dog team, and watercraft to navigate their homelands through the boreal forest to the tundra and to the riparian wetlands and oxbow lakes. When hunters journeyed north toward the mountains through what is now National Park Service lands, they tended to make trails through river valleys. When they packed out and headed home, historically using specially crafted rafts loaded with items from the hunt, dogs assisted with pulling the loads through the waters. Sometimes multiple trips were needed between campsites for this laborious hauling-out. All these topics, from trails to dog teams to Iñupiaq-invented modes of travel like boats, are treated in more depth in this chapter.

A tremendous amount of traditional knowledge is needed to travel safely and efficiently across the *Kuuvaŋmiut* homeland.[1] No matter the landscape being traversed, travel in the Kobuk Valley required innovative methods of navigation—and these navigation techniques, sometimes referred to as wayfinding, were important elements of traditional knowledge. For instance, Hazel Apok described how elders used stars in wayfinding: "[The Elders] know just from looking at the stars . . . which direction to go. What we might look at for . . . miles or not knowing in the dark which way we are going, they—they look at the stars. They learn, they observe everything around them. And as I'm growing older, I've learned how to observe. I'm learning more, you know, about my own life around me."[2] As an example of how elders observed the world around them and used their observations while traveling, she commented that subsistence users did not need to pack water: "They don't know how to pack water. They don't know how to make a hole . . .. You know, the way the river flows, they just know where the best water is."[3] Donald Smith mentioned the importance of landmarks for traditional navigation by subsistence users, saying: "I was raised—born and raised out in the boonies. If I get to [a] big city, I bet you I'd be lost. Because I got landmarks in this area up here and if I can see the trees, I can know where I'm at. Even without compass. When we were kids, we don't use compass. We use landmarks. . .I start using compass, when I go to the army."[4]

Localized knowledge of the landscape and its seasons is required to successfully navigate through the Kobuk Valley. Kiana elders have remarked on specific methods of navigation around Great Kobuk Sand Dune and other sand dune areas within the park. Helvi Sandvik

remembers how difficult it was to locate the trail to the Great Kobuk Sand Dunes from the Hunt River – a widely used travel corridor that was nonetheless poorly marked:

> "[T]here never was a real distinct trail. You know, it's not visible from the river. . . . My brother was talking about going back with my dad a couple times, you know, hiking through. But . . . from the river . . . they're . . . people who know it better, know their right spot and know how to get through. But it's not like a marked trail. It's hard to find from the river. So, you really have to know what you're doing and where you're going. I mean, to me, it's fascinating. It's a huge landmark."[5]

Paths through sand dunes are so difficult to find, people had to triangulate their location off of distant mountains; today, if people lack such knowledge or a clear line of sight, you have "to be in the right spot, and you know, nowadays, you probably need GPS."[6] In addition, multiple trails exist in the area, making comprehensive knowledge of the landscape even more integral for travelers. Larry Westlake, Sr., describes two different types of trails he's familiar with in the dune area:

> "The only trail I know is that—where I just described . . . just below that mouth of that creek, about five hundred yards or so. But you could notice it, how those hills right there, they're sandy hills, they cut towards the river. They come over and gradually go down like this, right to the end of that. They're real close from the river. If you could find that opening there, then you follow that ridge and, like this, and go to that other ridge that goes east. That's a better place to get close up to. Good walking."[7]

Yet this trail is not the same one used to access bearberry harvest areas: "No, they have to take the other side of that creek to get to those bearberries. [The previous trail is a] . . . sightseeing trail."[8] Each major landmark that held special navigational challenges is accompanied by a similarly detailed body of traditional knowledge regarding how and where to successfully navigate through or around the landmark, and how: by foot, by dogsled, and today by snow-machine or ATV.

Prior to the early 20th century, *Katyaaŋmiut* elders described the importance and methods of boat-making, as boats were essential to the subsistence cycle in the Kobuk Valley. Indeed, several interviewed in the late 20th century remembered a time when their boats were all hand-constructed of gathered materials. No motorized boats existed in the community until relatively recently.[9] As Inez Ayagiaq Black reported, "Long ago boats were made of a wooden frame covered with birch bark. They had no outboard motors, so they used paddles and poles. Some towed their boats with a rope from the riverbank."[10] Tommie Sheldon, Jr., remarked on the same, saying,

> "We—they don't have any good boat, outboard motors, no nothing. All they had is rowboat made out of birch bark. And you have to take care of that, keep it wet. If it's already—don't leave it in the sun but it will crack open. Nets, same thing. They have net they weave from willow bark. After they done . . . seining, they bring—put it back into the water and keep it there for next time use, maybe like tomorrow. If you leave it out in the open, it'll break to pieces. So, it was—it must have been a hard life. No guns, nothing. Bow and arrow, they—that's all they have."[11]

Larry Westlake, Sr., remembers his elders speaking of travel in birch bark boats on the Kobuk River: "The men, all along this—the river, they would travel by their kayaks, Kobuk River.

They're different than that of the coastal [people]. [Their boats were made of caribou hides.] . . . Yeah, and they—my *aana* [grandmother] also talk about the birch bark canoes. . . . They had to be really careful with that."[12] Traditionally, hand-crafted boats were used not only for travel, but also for hunting from waterways, aided by structures made from stone called Inuksuk. The stacked stones would be placed strategically in a landscape to drive animals into key locations in the rivers or lakes and from there it was easier for hunters to take the animals with long knives in kayaks.[13]

The arrival of modern boats allowed residents greater mobility and extended their range, while still employing traditional skills to navigate a highly dynamic waterway. Through the second half of the 20th century, families rapidly adopted aluminum and fiberglass boats and gained access to motors with evolving levels of speed and power. Navigating the river still required tremendous skill, and the ability to avoid hitting gravel bars, submerged logs, or other obstacles at speed. Speaking of boats navigating the river, Helvi Sandvik speaks of the challenges of places like Tuutaksraq, for example: "Hitting the bottom (laughs). That's a tricky spot in the river. Yeah, when the river's low, you have to know where you're going and the course of the channel always changes."[14] An intimate knowledge of the river, transmitted from generation to generation and refined every year by the lived experiences of boat operators, allows the residents of Kiana and other nearby villages to navigate the Kobuk quickly and efficiently, linking them to places of enduring importance for subsistence, solitude, and social gatherings along the river corridor. Indeed, an intimate knowledge of the waterways of Kobuk Valley is, in part, why residents of Kobuk Valley prefer navigating the rivers of their homeland over traveling to the coast for subsistence harvests. Speaking of his father, Walter Cook, Sr., shared, "[O]ne thing he used to mention, he don't like to go out to the coast, especially in September when the water gets pretty rough, because he's not used to the coastal side there. He would rather stay up here where he can go back and forth in our rivers. . . . [H]e knows where—the river up here, like going up to Selawik, Buckland, and all the way up to Kobuk."[15]

During travel along well-trodden routes, the *Kuuvaŋmiut* have often relied on caches, storing preserved foods to be used in travel or retrieved at the end of subsistence-gathering journeys. Recalling how caches were reliable food sources for people traveling over many seasons and how they helped feed dog teams, Elder Hazel Apok said, "I remember when we used to go way up and pick berries and leave the berries up there. . . . Wintertime go up and go get them. . . . So, they would have different caches of food."[16] Elders such as Henry Jackson, Sr., and Percy Jackson, Sr., shared memories of specific caches their families kept in different parts of the Kobuk Basin, which sustained their families as they would travel each year.[17] The amount of food needed to feed busy hunters, gatherers, and dog teams was immense, and caches along known travel routes helped with this demand. Hazel described the food demand involved in subsistence-resource gathering: "I used to have a rabbit sleeping bag where my feet—I would keep our sourdough so that we would have—we were huge eaters because we hunted and fished and did a lot of hard work. We had, like, four squares a day. Huge breakfasts. We would stop and have maybe a—a light lunch somewhere. Maybe a, a light dinner, and then . . . just before we went to bed we would have, you know, another meal."[18] With all of this as background, we turn to the modes of transportation employed, historically and today, in Iñupiaq travel in and around present-day Kobuk Valley National Park.

Dog Teams

For centuries, the *Kuuvaŋmiut* people made use of dog teams to travel the land, especially in winter. At the time of contact with Europeans, the size of these teams was modest, but they became larger over time—until the use of these teams was increasingly eclipsed by snowmachines and other transportation technologies in the late-20th century.[19] Different elders have reported their experiences with dog teams, emphasizing the large size of the teams as they remember them. For example, Henry Jackson, Sr., remembers that in his "young days they had nothing but dogs, you know, no machines, no snowmachines. Only dogs to travel with." Henry remembers having sixteen dogs at a time. These dogs could be assembled into either one team to pull heavy loads, or into two smaller teams for lighter loads. Dog teams generally consisted of anywhere from ten to fifteen dogs. At times, families had up to around twenty dogs to feed throughout the summer and winter. Procuring enough food for that many dogs is hard work. For example, Hazel Apok's father "had twenty dogs and my brother had twenty-two dogs. We had huge dog lots. We had to catch food for—for our dogs. Prepare their own foods on top of our own."[20] Andrew Black once owned nine to eleven sled dogs. During the summers, when he found employment in the neighboring mining camps, his wife remained at home, fishing around Kiana to support herself and the dogs: "And while I'm working summertime, you know, *shiifish*. And we have—'cause we have a bunch of dogs, nine or ten, eleven dogs tied up, you know. And she took care of them all summer long by fishing."[21]

For much of remembered human history, dog teams were among the main ways residents of Kiana and other villages traveled to and within the lands managed today as part of Kobuk Valley National Park. Based on this tradition and with the added forces of the burgeoning cash economy, there was a boom in Kobuk Valley dog teams in the late 19th and early 20th centuries. Anderson et al. explain the shift this way: "A number of factors led to the increase



Dog teams were integral to winter travel in the Kobuk Valley. Annie Carlson photo courtesy of the National Park Service

in size of teams: the introduction of firearms, use of cotton fish nets, improved harnesses and sled styles, development of voice-trained lead dogs, the shift from nomadic living to village living, and, most important, the rise of trapping for commercial trade."[22]

As suggested, large dog teams were not without accompanying challenges, especially food-related challenges. They consumed extraordinary amounts of calories to run and pull heavy loads—but also just to stay warm when settled at a camp or village. A working dog could require several pounds of food per day, especially in winter. Elders often speak of how their families had to catch significant amounts of fish, beyond the amount needed for human consumption. Families fished for longer periods, and more intensively, than they did after the decline of dog teams, simply to meet the demands of dogs. The quantity of food needed to sustain a dog team during winter meant that separate, additional fish drying racks were required at fish camp.[23] As Jackie Johnson recalled, "Yeah, it's because we got dogs to feed. . . . Every day you go out seining, try to catch as much as you can. . . . [Y]ou need [a lot of food in the] wintertime for the dog and for the family."[24] Once the fish were dried on the racks, harvesters stored these fish in caches of fish in preparation for winter months when food sources became scarce—strategically placed where families lived or traveled with their dogs. These practices both intensified fishing in what is today the park but also left subtle signatures on the land—old caches, and drying racks related to the dog food harvest.

In some places, caches associated with winter villages and camps were numerous—as mentioned above. For example, evidence of an extensive cache system is found at the historical winter village of *Igliqtiqsiuġvigruaq*. Anderson and Lutz describe an area in the village that, prior to contact, housed "numerous dogs: [there were] numerous concentrations of dog feces around House I, indications of a large dog yard on the outskirts of the village, and dozens of cache pits scattered throughout the village likely used for storing salmon as dog feed."[25] At other times, travelers established food caches at strategic locations on the landscape, most often at fish camps during the summer or fall. As Jackie Johnson recalled of these caches, "We'd save them for dog food . . . dry them good, we'd take them home with us. . .. In the wintertime, we'd go down with the dog team and pick some up."[26]

The construction of dogsleds is a special travel-related skill, passed down between the generations. People had special places in the forest along the Kobuk River where they gathered wood that was uniquely suited for manufacturing dogsleds. One such place was mentioned by past elders along the Kobuk River riparian, *Napagsraġniaġvik* or "place where you get birch posts or stanchions for sled."[27]

Archeological evidence of these long-term traditions of dogsled use is found along the Kobuk. Notably, of the two houses excavated at *Igliqtiqsiuġvigruaq*, both contained sled runner fragments of sea mammal bone and caribou antler thought to be used on the bottom of sled shoes:

> "As is attested by the presence of sled runners and sled shoes in both house middens, one mode of travel in winter was by sled, most likely the platform variety. . . . Except for two possible sled runner fragments of sea mammal bone . . . all were made of caribou antler. . .. The presence of sled shoes strongly suggests that the sleds were used for dog traction, since slow-moving hand-drawn sleds do not require protected runners."[28]

These uses of dogsleds continued through the contact period, even when a drop in the fur trade shortly after the Depression precipitated a decline in trapping as a source of income. This is because the consolidation of communities into key village sites by the 1940s led to a

need for dogs for subsistence activities out in the wider perimeters around villages like the Coal Mine area.[29] It was not until the 1960s that dog-team use fell off dramatically due to the rise of snowmachines as travel vehicles for subsistence activities.[30] Yet dogs were not only used to hunt and trap. They were also used for hauling wood to keep fires going in the wintertime. Jackie Johnson remembers that in the 1950s: "We had no snowmachines, then all we had was dogs; dog team. That's the only thing we got in the wintertime to haul some wood."[31] And dogs provided other advantages as well, such as warning people of danger like approaching bears. As Larry Westlake, Sr., recalled, elders taught people to observe and take heed of dogs' barks and other warnings: "Dad always say, 'You pay attention to the dogs' actions.'"[32]

Often, people trained their working dog teams to take part in sled dog races. Larry trained his dogs not only for long-distance travel and hunting treks, but for the races around Kiana: "I'd just train around here, yeah." Rather than conducting formal training runs with his dogs, Larry sought to train the dogs while going about his normal trapping activities: "We did activities. And we still did a lot of hunting with them, and you know, other things that we needed for transportation."[33] This often involved having the dogs haul heavy loads, while also feeding them large amounts of high-protein foods. This often occurred in cycles, accentuating the dogs' strength for one phase, their speed of pulling in another. Again, quoting Larry Westlake: "I had [them] do everything I could, like hauling wood and stuff . . . so I would cut off my dogs from all hard work a month before the race and train them for speed instead of pulling, just pulling you know. That's a different [form of activity for the dogs] . . .. You had to feed them certain kind of food [for how you were] training with them."[34]

As a result of constant traveling and training, strong bonds formed between owners and dogs. Dog team leaders were chosen when dogs reached nearly six months of age.[35] Larry Westlake, Sr., tells a lengthy story of one dog he trained when he was a child:

> "And I learned how to train the leader, you know, very young when we first got dogs. . . . But we had a litter. I must have been about eight or nine years old, maybe ten. Had one white puppy. And oh man, I just fell in love with that. And I begged mom to keep it, you know. I said, 'I need a dog to get that stuff over that you want to get over. Every time you go to church, I could train him to pull that little sled of mine.'
>
> She finally said, 'Ok.' So, when he got old enough to pull, run around, he was probably four, six months old, mom said, 'We'll make a harness for him. I'll help you make a harness for him.' We got some webbing and made a harness for him and tried it on and, oh man. He didn't like that (laughs). She says, 'Ok, just lead him around. Lead him. Get some rope and just lead him around, let him get used to that harness.' Well, he was used to it in no time.
>
> 'Now you go out there with him, get a block of wood about this long and nail that harness, the towline, to that block. Let him pull it around.' He didn't like that either. He didn't even want to start even! (laughs).
>
> But she said, 'Well, get something—give him a little piece of dried fish or something. Let him get started.' So, he did that, and he learned how to pull that way early on. So, pretty soon he started pulling mother's sled every time we go to church. And one trip, mom told me, 'When we get home, you ask your dad how you could teach him to gee and haw.' Dad said, drove horses when he was young, so he must know.

So, I asked my dad when we got home and he says, 'Ok, I'll tell you what to do.' So, I got that little pup, he started up and he was so attached to me by then, you know, growing up. And I hollered and the 'gee,' and stopping, helping over that way, the right way. And go a little ways and say 'haw,' and go over and. . ..

It took a while for him to catch on. He start turning without me going over and. . . Dad told me after that, 'Well, you just keep that up for a while. I'll tell you when to slow down.' It was oh, maybe half in the winter, he got pretty good and I told dad, 'I think Whitey is, he's ready to do whatever you want him to do.' He says, 'Ok. Now, you lower your voice.' He says, 'Don't raise your voice to him any more with gee and haw. You're almost whispering, and he'll hear you.'

So, I started that and, oh man, that little guy, he would start jumping he wanted to turn so bad (laughs)! So, I became the trainer of our leaders in the dog race."[36]

As a result of the close bonds between dogs and their owners, dogs were well cared for in their old age. As an example, Larry Westlake, Sr., remembers that his father "had Siberian Huskies, and I would—Mom and I, when he was gone, we were the main caretakers of them. But before that, before that team, Mom and Dad had two dogs. One of them was that of an old dog that he had, one of his best dogs that he cared for, that he kept. And it lived to be very old . . .. It was black, I remember that . . .. When it was loose, Mom would say, 'Billy, go home!' Sure enough, it would go home and all Mom had to do was just shout. That's why it was favorite."[37] Larry Westlake credits the close relationship between his father and lead dog 'Billy' with saving the entire team one winter when it fell through the ice:

"He said he got it to—in the dark, while coming home, the team broke through the ice and there was kind of an open water here. And . . . he said it was the leader that really listened to him. All the other dogs were panicking, and that leader went to him; and Dad, he didn't stand on the ice. . .. And that's when [Billy] . . . pulled the whole team. . . . And he was—thank God he was close to Kiana. . . . [Dad] had to bring the dogs inside the house to dry them up because they were wet [they needed to get dry to survive]."[38]

Aside from use for subsistence activities, dog teams were critical for the delivery of mail in the 19th and early- to mid-20th centuries. Some *Katyaaŋmiut* elders had memories of mail carriers and their dog teams traveling in the Kobuk Valley region. For example, Henry Jackson, Sr., describes how the mail route would run "[from] Kotzebue to Noorvik, from Noorvik . . . from here to Selawik, I guess. Then up to Shungnak, Kobuk, and then back again. That's a long trip, you know. Hardly any trail, the [mail carriers] had to break their own trail. When ... storm comes, you know, they spent a few days in one tent, I guess."[39] Henry describes how dogs were central to the operation: "I was about 9 or 10 years old when the mail carrier came in. Bunch of dogs, lots of dogs. Sixteen, twenty dogs, I guess. I think his name was Murphy. Some Eskimo from Kotzebue. . . . I forget his last name."[40] Inez Ayagiaq Black shared recollections of early mail service by dog team, and of the man she designated as the "first mailman":

"Back then there was no landing field for airplanes. Mail did not come by plane in those days. In the winter they brought mail by dogsled. I have heard that the one who brought mail from Kotzebue was Qaiyaaqpak. During the winter he brought mail all the way up the river once or twice by dog team. He stopped at different settlements

along the Kobuk River all the way to the Upper Kobuk area. That mailman indeed left a legacy. Today, some Eskimos teasingly call anyone named Qaiyaaqpak 'mailman,' because they bear the same name as that first mailman."[41]

According to Tommie Sheldon, Jr., the mail route was long and tremendously arduous: "So that mail carrier will be right here spending the night. And from there, next day they will head for Kobuk, Shungnak, and Ambler. [Then] Ambler, Shungnak, and Kobuk. And from there I don't know where they go, but that's a long trip with the dog team. Heavy, deep snow. That's how they travel. It's—it's a long wait."[42] Households along the route hosted mail carriers, and those that did, hosted their dog teams as well. "[T]hey have like stops, like here in Kiana, Noorvik, and along the line, like I say, there will be people living year 'round. Supposing you have no kids and nobody to go to school from your family; they will be living up there when I was a boy. So, the [mail carrier] stopped there."[43]

Dogs were also useful during rescue operations. Larry Westlake, Sr., describes two instances where dogs were used to successfully locate people who had become lost in the landscape between Selawik and Kiana:

"We created the first search and rescue team in our region, in Kiana. We had a plane crash between here and Selawik. Hit the mountain in the nighttime, after dark. We still had dog teams those days, so they went out with dog teams, found the guy, and saved him. . . . Then, right in that same year, we had a guy from here visiting over Selawik and he had a girlfriend over there. They were coming over, coming back over to Kiana with his girlfriend, and a little girl and got stormy that night and they missed the trail. I had to go and look for him. He was my brother's—in their age-group . . . and they found him ok. He had run into some trees and made a fire, and they were nice and warm there, but you know. And the storms would last a week, like those days. Not like they are now."[44]

In the summer, dog teams were especially helpful in pulling boats during subsistence activities—a task somewhat different from other work done by dog teams.[45] Dogs were trained to pull boats up the Kobuk as well as tributaries such as the Squirrel, to camping sites utilized in the summer months. Henry Jackson, Sr., for example, remembers training dogs to perform this task:

"Once they are trained with the team, you know, they—all you need is a good leader. That leader will lead them, you know. The man behind the rope, pulling—holding the rope . . . mushing all day long. Pulling the boat all day long. I was about 16 years old when I took my mother and dad up the river one summer. We have nothing but dogs, you know. Swift current there. Hard work sometimes. . . . If you got three or four dogs, well ... if they are not strong enough, you could add more dogs to that—to the—to the team, you know. Four, five. That will pull a heavy load ... five dogs."[46]

Dogs were used similarly to pull boats on the Salmon River, even after the arrival of motorized boats. Helvi Sandvik recalls that the

"First outboard she remembers is Percy's father's. It was a little three-horse outboard motor. And my brother had a little six-horse outboard motor, and it took him over an hour to get from our camp, which is about a mile downriver to here, in the six-horsepower motor. So, if you can imagine a three-horsepower motor (laughs).

> Tory might have been out in the middle of the river, who knows. But they'd go with their dogs; their dog team would pull them up there."[47]

Dogs ran along the banks of the river with the boat in tow: "Well, the bank, yeah. Once you had a good leader on, no problem. But with no leader, you have a problem right there. We use—we used to have [a] good leader, though. All day long, in hot sun, month of August, run all day long."[48] Henry describes how dogs swam across the river or ride in the boat when the open bank shifted to the other side: "Well, sometimes we put them in the boat and then row across. And sometime we just let them go swimming across. Turn them loose, you know. . . . Just the harness on. And watch your dogs, follow them across the river. We used to have sixteen dogs sometimes."[49]

During the wintertime, Larry Westlake, Sr., used to travel through the river valley, through the park. In this effort, he had to transition from using a dog sled team to using a snowmachine for transportation:

> "Well, I sold my team. I was in dog racing too. [The Kiana Dog Mushers Club.] We created that, but I raced in the North American and Fairbanks and. . .in Anchorage. Won two races in Nome. You know, and I had to work in the summer, and here I had twenty dogs by then, we always had extra dogs. And then we had two boys in the same year, 1960. And I had to go—I had to be working in the summer. Christine and the two boys and stuff and I just couldn't put the burden on her. And snowmachines coming out. I could—it could take the place of the dogs and all that. So, I sold my dogs in '67, centennial year. [That was a major change for Larry.] It was hard to do, but I had to do it."[50]



Although dog teams are not used often anymore for travel, long distance and sprint racing remain popular. The Kobuk 440 is an annual race that leaves Kotzebue and passes through the Kobuk River communities, following the winter trail system and going through the heart of Kobuk Valley National Park. NPS staff often stay at the *Tutasraq* (Ambler/Kiana) Shelter Cabin making sure there is enough wood and hot water for the mushers and their teams. While many of the races are visitors to the region, there is a growing number of local kennels and interested young racers. Brendan Doucet photo courtesy of the National Park Service

Some lament the transition from dog teams to snowmachines, and the cultural changes it brought. Thomas Jackson and his brother traveled to winter camp together with a dogsled team and enjoyed the experience and the pace of the journey. Indeed, several elders retain fond memories of riding in the dogsleds when they were children. For example, Thomas Jackson knows a woman who "remembered the dog trips, yet they were covered in … canvas or caribou skin. Of course, caribou skin is always put in the sled for warmth. She said her father took out the covering to see the Northern Lights. She said they were spectacular. She said you could even hear them. She stopped the dog team and let them look out. And she can recall it was very, very cold. And yet, they traveled."[51] Larry Westlake also remembers fondly what it was like to ride in a dogsled with his brother and sisters when they were children:

> "I know it was behind Kiana. I'm not sure exactly where below the mountain. Because of the rocking of the sled—I was up in front, Annie in the middle, my youngest brother in the—by mom. And Dad gave me, gave me—used to stand on the handlebars you know, and mushing the dogs. I tried to stay awake, but I fell asleep. … And the rocking of the sled… [put him to sleep]. The creaking of it. … Hear the dogs panting, and … [w]e didn't wake up until the tent was pitched, up with tree branches at the bottom on the snow. And the wood stove going and the light was up. Because I remember waking up in the dark, Mama waking us up and bringing us inside the warm tent."[52]

The pace and quiet of dogsled travel allowed for more education in the midst of travel—a sort of "traveling school," where locations and landmarks were learned, as well as the spiritual lessons of the land and the hunt.[53]

In the 1960s, even during the transition away from dog-sled use for travel, Kiana had a Dog Musher's Club. According to Roger Atoruk: "We used to have a big dog race here in Kiana. People from Noorvik… Selawik and Kotzebue, they used to come to Kiana for—for that dog race. There used to be a men's race and a women's race during Christmas week. There used to be a lot of activities." [54] He goes on to say, "There's no more dog teams in Kiana. Not even one. Not even one dog team in Kiana. Only snowmachines."[55]



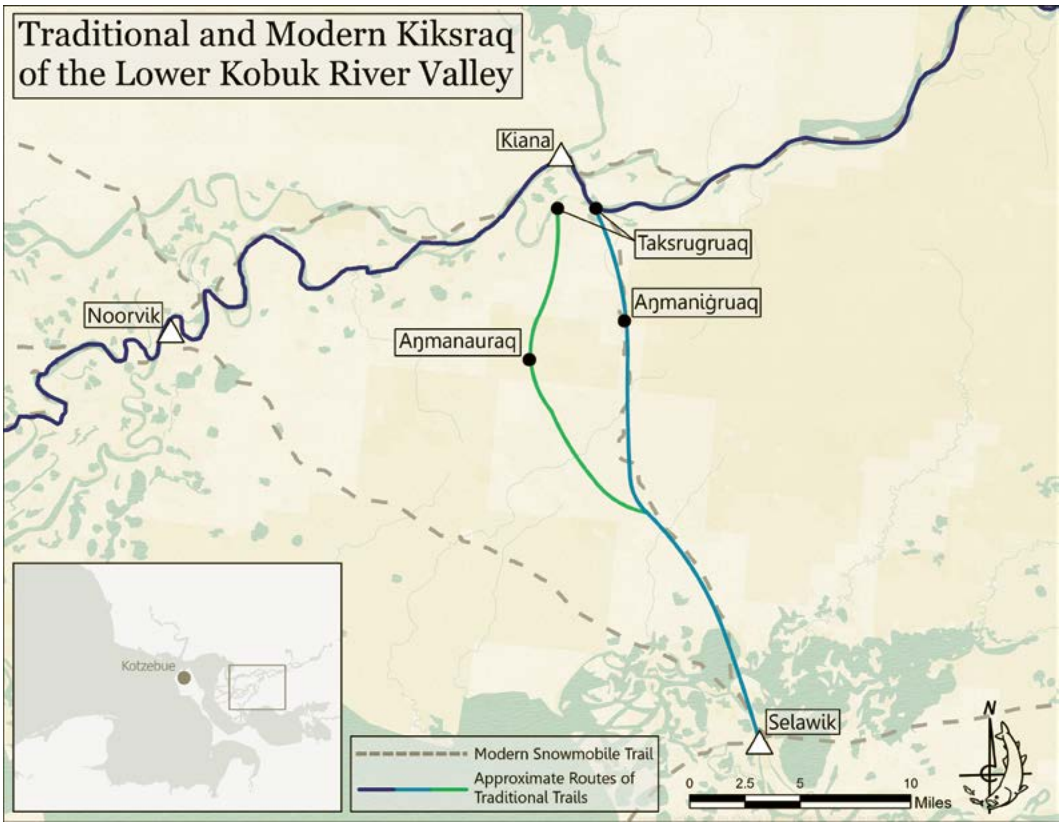
The first snowmachine arrived on the Kobuk (in Noorvik) in 1968. Families quickly began to use these alongside dog teams for several years, before snowmachines eclipsed the use of dogs. Photo courtesy of UAF Kiana Project Jukebox.

Trails and Other Travel Corridors

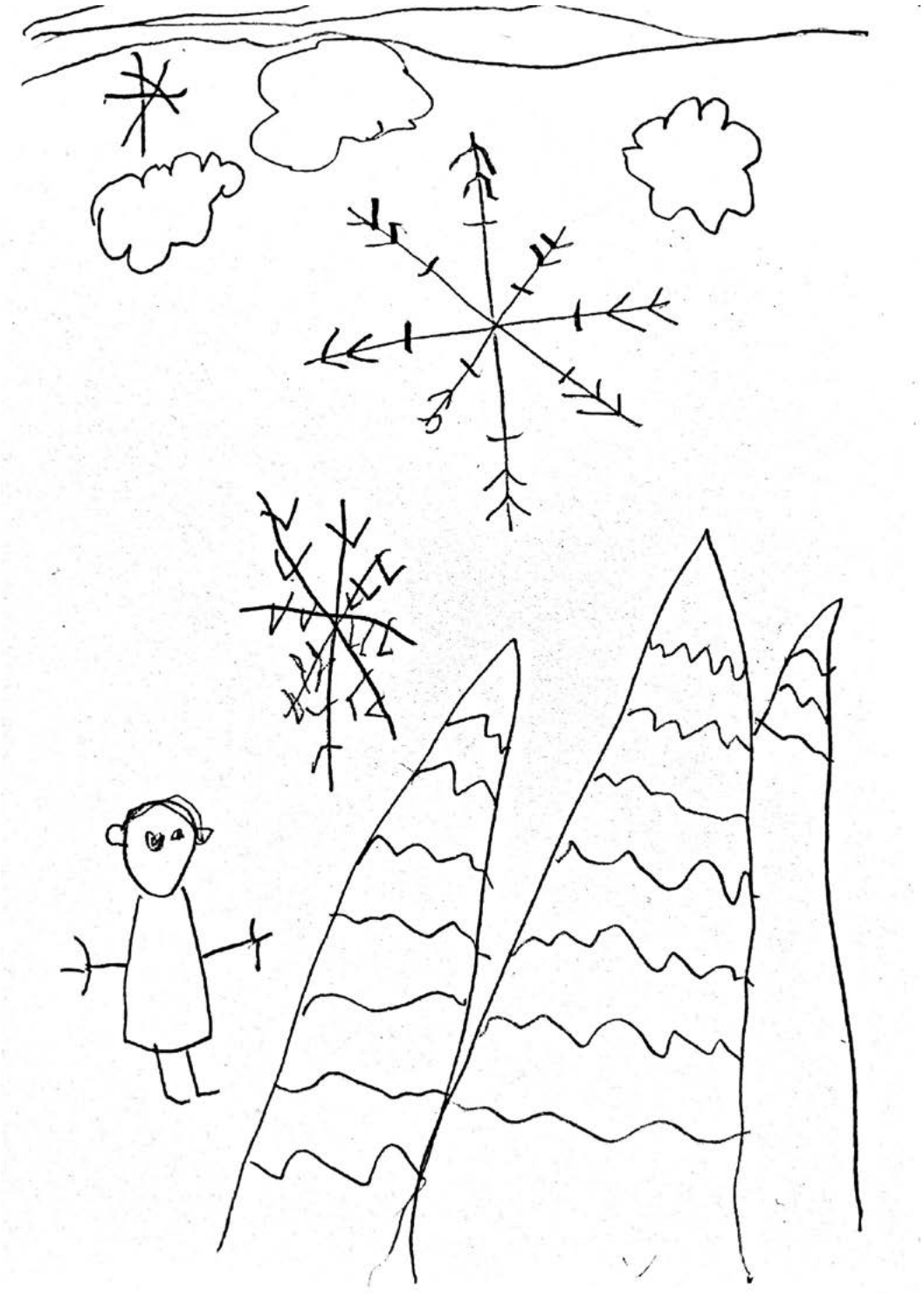
Elders describe a network of trails that historically linked every settlement and major use area within Kobuk Valley—made up of major trails sustained across generations, as well as newer trails sometimes formed by recent travels and activities. Elders shared the term *kiksraq,* for some of these, a term for "any trail you use or make."[56] Historically, major summer trails linked all of the settlements along the Kobuk River corridor with one another, as well as with villages downstream (such as Kiana), upstream (such as Ambler), and those to the south and north of the Kobuk River Basin (such as Selawik).[57] Some of these summer trails also served as winter trails, but a separate network of winter trails could be found in places, roughly paralleling the summer trails along routes more readily passable by dogsled and snowshoe.

The trails through the region are reflected in placenames mentioned by Kiana elders. Longstanding trails have names. There is *Aŋiḷġaġiaq* (lit. "homeward bound trail"), a pathway for dog teams and people packing by foot. This is also a winter trail leading to "winter hunting for caribou, fox, wolves, wolverine" in the Noatak River Basin. There is *Aŋmanaqrauq,* reported to be a "trail to Selawik" for Kobuk Valley residents, or *Qakkiaq* (lit. "overland pass") where travelers take a more direct route overland between riverbank and floodplains.[58] Through the Baird Mountains and other high places, there are passes traversed by these trails, such as *Aŋmanauraq* (lit. "a small pass") and *Aŋmaniġruaq* (lit. "a big pass") and, in an especially steep part of the terrain, *Mayuaqtuaġiak* (lit. "climbing pathway") – a name for steep places that must be climbed over mountain passes to hunt caribou, such as en route to the Noatak Basin.[59] The frozen Kobuk River served as the main regional artery of this wintertime network. As one exited the river, one encountered trailheads along the river such as *Taksrugruaq*, the "start of [the] Selawik trail."[60]

This vast trail network in, around, and through the Kobuk River Valley connects the Kobuk River villages with almost every other part of northern and central Alaska. Trail systems across the sprawling *Kuuvaŋmiut* traditional lands have connected these villages with other outlying communities—from the plains of the North Slope to the wooded banks of the Koyukuk River.[61] Over generations, these trails were developed to minimize danger and to be navigable for as much of the year as possible. For this reason, most trails follow streams and cut across open country. The use of trails through mountain passes or over freezing rivers is sometimes necessary, but these areas are avoided whenever possible due to the precarious nature of the routes.



NPS map showing how traditional and modern kiksraq (trails) through Kobuk Valley National Park follow, in many instances, the same routes. These are only a small sampling of the maps used in the past and today.



Person in the Snowy Mountains at Kobuk Valley, by Victoria – Kiana, Alaska

Trails provide access to many hunting and gathering areas. Others connect communities, such as a trail that stretches from the upper Kobuk River over Norutak Lake to the Alatna River, connecting *Kuuvaŋmiut* peoples to the Koyukuk Athabaskan Indian community across the Koyukuk River.[62] Important trails also connect modern *Kuuvaŋmiut* villages. Trails also extend up into the Brooks Range, providing access to subsistence resources in this mountain range. With the advent of snowmachines, some trails came to be used more frequently. On the other hand, some of these trails are so treacherous or dangerous due to avalanche risk that they are rarely used today.

Interviewees also describe a network of major trunk trails that connect villages, linking them to key subsistence areas, as well as secondary trails that connect 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 for on-foot and dogsled travel. These pathways are more than just trails. They connect travelers to ancestors and lifeways that are ancient and sacred. Portions of some trails have been transformed into modern-day roads, yet they are still imbued with significance as remnants of pre-modern times scattered throughout modern settlements. As Larry Westlake, Sr., remembers: "We had nice gravel knolls out there before we knew anything about roads (laughs). Now they're all, our little knolls are spread all around town now (laughs). Got nice roads."[63] Several older trails are still in existence and still used and augmented to accommodate ATVs and snowmachines.

Modern passageways, whether built upon old trails or not, have eased travel in Kobuk Valley. For example, when traveling across the river corridor using snowmachine, Kiana families typically reach their allotments in only an hour, two, or three—roughly half (or less) of the time formerly required for dogsled travel. Subsistence-oriented travel in Kobuk Valley has also been hastened using airplanes. Airplanes are used at times to access the areas within the parklands, landing on river gravel bars or other flat surfaces. When space is limited, airplanes even take off uphill on low, gradual slopes.

Yet in earlier times, when transportation was slower, people stayed longer in the country and relied more on camps spaced throughout the river valley because moving between places was so difficult.[64] As Larry Westlake, Sr., observed,

> "These are mostly traditional trails that we still have. . . . From village to village, they're mostly the same. Now, some of these that go into the mountains and things like that, up to the Noatak, they're different. You could find that shorter because these places that, like to the Noatak, I think they were designated where you could have an overnight stop, where there's wood and stuff like that, water where you could—usually open waters and those . . . rivers."[65]

People are no longer required to find these campsites; nonetheless, the routes up the river are roughly the same.[66]

Today, some subsistence activities are easily based out of a single location. Some families have even moved fish processing to their homes, in light of transportation efficiency and the convenience of processing fish in home kitchens with plumbing and electricity. But the innovations pose a trade-off. Some suggest the decline in older, slower modes of transportation was hastened by the emergence of regulations—especially regulations restricting the dates/seasons for hunting and fishing for certain species.

Despite these changes, elders can still easily describe trails following most of the major drainages, especially north of Kobuk River—Salmon River and Hunt River being important



Often traveling historical mushing trails, snowmachines continue to provide access for families hunting, fishing, or traveling to and from their camps and cabins. Annie Carlson photo courtesy of the National Park Service

corridors both to hunting areas and to villages north, east, and west of the park. The ridges and valleys along the western edge of the park, for example, are used extensively for wintertime travel and have a number of well-kept snowmachine trails traversing low passes between drainages and over open, clear ground. Trunk trails link the Kobuk area to villages west of Kiana, including major trail routes that pass along the base of the hills, keeping the traveler out of the complex and marshy floodplain below.

In interviews and other venues, elders have conveyed a wealth of traditional trail knowledge. For instance, the configuration of summer trails is designed to avoid marshy areas. Past elders noted the hazards of marshes and bogs in the summer, inhibiting travel.[67] No matter the season, travelers also try to avoid the sand dunes because they are hard to walk in summer and in winter are a mess of mixed snow and sand that can bog down machines and strand travelers if they are not careful. As mentioned earlier, there are trails through sand dunes that are known and sometimes used. Traveling by water requires similar careful attention, as 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."[68]

Wintertime travel by trails requires an entire domain of related, but seasonally distinct, knowledge. Elders recall that walking, and possibly also dogsled travel, was easier on winter trails when there was a layer of what is called *miḷik* a gritty snow layer below the top layer of snow cover.[69] This could be formed by a number of phenomena, such as the thawing and refreezing of snow prior to another period of snowfall. 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 know storms are moving in.

Navigation in all seasons requires detailed knowledge of the landscape and seasonal conditions. People often used known mountain peaks, both in and outside of the park, as navigational reference points as they traveled across complex terrain, marshes, or waterways. A number of peaks in the Baird and Waring Mountains served this function, such as *Aasriġraġaaŋiq* or Hotham Peak.[70] Another, just beyond the western edge of the park is *Uman* or Umar, meaning "heart," or "heart mountain," named because it looks like the heart of a caribou. This peak is said to be the origin of the name of the Omar River that drains the lands just west of the park.[71] Another key landmark was the Jade Mountains, *Iñġisgruich*, a place of jade gathering often mentioned in Iñupiaq oral traditions. The areas beyond these mountains (from the vantage point of the river) were called *Iñġich Tunuat.*

Wooden markers along trails were widespread beacons for wayfinding. Travelers marked trails traditionally with wooden tripods, to make the routes navigable even in snowy or stormy conditions. This method is still used today, along with reflective stakes that make it easier for travelers to find their way in the dark or during ground storms. Since the installation of the tripods, many markers have deteriorated so that they are no longer visible or functional along the entire lengths of trails and can be missing for miles.[72] Yet Thomas Jackson mentions that to aid in navigation, individuals placed other markers as well. He shared a story about bear skulls being placed in trees so travelers could, "use them as even landmarks. . . . [J]ust find where they're going or where they're at."[73] These, and many other navigational markers remain commonplace on the landscape—helping travelers navigate unfamiliar terrain, or familiar terrain that had suddenly become unnavigable in poor weather conditions.

Aside from trails on the landscape, waterways are important routes for travel in the Kobuk Valley. We now turn to the topic of boat travel, an important mode of transportation to this day.

Boats and other river gear

Elders spoke of traditions of floating, paddling, and poling the Kobuk River by boat. This was done by vessels handcrafted using a variety of resources, including animal skin, birch bark, and other traditional materials. As Anderson et al. summarized,

> "The Kobuk people used a variety of other watercraft prior to the 1940s. These included birchbark or skin-covered kayaks, large skin-covered umiaks, spruce bark-covered boats, double-ended plank boats, square-sterned plant boats, and broad shovel-nosed river boats. With the introduction of new boat building materials and outboard motors, the variety of watercraft has been reduced to a few basic designs.
>
> "The open-decked kayak (or kayak-form canoe) is still used occasionally on the Kobuk River, but instead of birchbark it is now covered with painted canvas."[74]

Elders recall waterproof gear also used to navigate waterways. The term used for seal skin waterproof boots is *qaqlik*. There are places named *Qakłiquvik* along the river, literally meaning "place where you leave your seal skin boots"—referencing landing places regularly used as stopovers "when traveling, fishing, wood gathering."[75] People stored these boots here so that they could travel across Kavet Creek without getting wet, a precursor to today's waders.

Oral traditions describe how some families traveled in and through Kobuk Valley in traditional boats in the spring during breakup, to visit, hunt, fish, and trade near the coast. They descended the river by boat as the ice broke up. Speaking of two brothers who often made this journey by skin boats historically, Herbert Custer recalled, "When spring breakup, they follow the ice down. When they come to jammed ice, they stop and wait. They have passengers . . . people to help when they start coming [back] up the river."[76] When they come back up the river, it is a slow process, with camping along the way: "they start coming up, camping, and there's people dragging the boat with rope."[77] When people had sled dogs with them, they often "let the dogs pull the boat."[78] Historically, they used "*ugruk* rope," rope made of seal skin or sometimes other animal skins, to pull the boats.

Even well into the 20th century, people often crafted their own kayaks and boats—increasingly using introduced materials in the process, including tarps, sawed wood, and metal. Leo Jackson mentioned that people bought kayak-making materials from Blankenship's store: "They used to get these tarps, canvas tarps, ten ounces. And make the frame themselves and cover it up with that canvas, 10-ounce canvas, and use paint, maybe two or three coats of it."[79] Frames were made of "spruce trees. And of course, they had to dry that too, you know. And make it lighter."[80] Henry Jackson, Sr., recalls that "[i]n my young days they [traveled in the] . . . summertime by boats. Hardly any outboards either. I mean, two, three of them have five-horse boats and some of them had outboard boats alright, but not all of us—[often traveling] with dogs, in the boat with dogs."[81] By the 1970s, only a few families still had these homemade kayaks and boats, as people increasingly purchased boats from outside manufacturers.[82]

Leo Jackson's father was one of the first people in Kiana to own a motorized boat. He had a tugboat with a 30-horse Palmer engine that he used for "hunting seals, walruses, [and] beluga whale . . . out in the ocean. [He also used it to transport] people around from Kotzebue, Noorvik, or Kiana, or to camp."[83] By the latter half of the 20th century, motorized boats had



Motorized boats have replaced traditional birch bark and skin boats—but the importance of boating skills has not diminished. Annie Carlson photo, courtesy of the National Park Service

become the norm. For example, regarding Amelia Henry Blastenwald, Linda Ellanna noted in 1989: "Amelia has two boats. One is aluminum with a canopy made of canvas, about twenty-four feet, with large Evinrude (70 hps?) lifted hydraulically. This is the boat they took to camp. The other boat was fiberglass, ten feet [or] so in length, with a large outboard that could be also lifted hydraulically"[84]

Placenames reflect the knowledge and experience of people who often traveled the Kobuk by boat. There is, for example, the named place called *Nuiḷauraq* (lit. "point of appearing/becoming visible while traveling by boat") which comes into view as people turn a certain bend in the river. These names help sustain knowledge of the river's complex configuration in various ways, and information required for its safe navigation. Elders observe that a close familiarity with the river is key to successful travel in a boat. Many dangerous places must be navigated, and these vary depending on river conditions. Portages are also widely mentioned by elders—such as in places in the upper basin where the river is hazardous, or in the lower basin where it is sinuous and one can reduce time and distance by crossing between reaches at narrow points.[85] Numerous portages also link waterways, including the Kobuk River and its tributaries, as well as area lakes and marshes. Most famously, people used to portage their boats around the bend at *Paatitaaq*, Onion Portage, which was faster than traveling by river along this reach.

No matter the method, travel through and around Kobuk Valley was necessary for the Iñupiat people to maintain their seasonal round. We now turn to the changes and challenges of modern life along the Kobuk River.

Endnotes

[1] As another example of travel-related IK: Richard Glover taught Percy Jackson how to pack supplies in a way that they could be carried in a bundle on his back during summertime travel, with the least amount of effort. As Percy reported: "When I make those packs by myself, just like they are heavy. But when he showed me how, everything get light. Got to know how to make those pack. … Oh, we tie them, make—make them round and tie them, pile them up in the back. Put the heaviest one on top, not in bottom. That's the way they are easy to pack when you put those heaviest one on top. I started going out with them when I was a young—while I was young, in summertime. [The packs were made of] caribou skins. … After you make rolled up skins first, and kind of tied them a little bit and make them round, put another one on top and another, one on top. And when they are real heavy, you got to put one to your forehead and tie it down to your pack. It's easier when you pack them like that. I bet lots of guys never see those yet, when they put that thing out on forehead and tie it to their back. You got to adjust it right, though. Can't make it too tight. That thing always help you when you start getting up. … [The straps would be made extra wide] "so they will be easier to pack them" (PJ 2003).

[2] HA 2002.

[3] HA 2002.

[4] DS 1990:20.

[5] Helvi Sandvik 2023.

[6] Helvi Sandvik 2023. She continues on to say that: "Robin, my sister, talks about, she, a few years ago, they had an elders' camp and I think Thomas was there, and they all were going to go on this jaunt up to the sand dunes, and they didn't find them" (Helvi Sandvik 2023).

[7] Larry Westlake, Sr. 2022.

[8] Larry Westlake, Sr. 2022.

[9] See also section on "Boats".

[10] IAB 1992.

[11] TSJ 2002.

[12] Larry Westlake, Sr. 2023.

[13] Ellanna and Sherrod 1989a:67.

[14] Helvi Sandvik 2023.

[15] WCS 2002.

[16] HA in an interview with Henry Jackson, Sr. 2002.

[17] HJS, PJS 2003.

[18] HA 2002.

[19] Anderson and Lutz find that dog traction was first introduced to the region in the 16th century: "When dog traction was introduced into the region has been a matter of discussion for years. The weight of opinion places the introduction in the mid-16th century (Giddings 1952:62ff) …" but it might have been introduced earlier than that. "At any rate, certainly by the end of the 18th century, dog traction was the most common mode of winter travel in Northwest Alaska" (Anderson and Lutz 2019:53).

[20] HA 2002.

[21] AB 1990:13.

[22] Anderson et al. 1998:128.

[23] Brown 1987:17.

[24] Jackie Johnson 2016. She adds that if the "dirt spoil them, you put them on the dog rack. And they're good well you keep them for yourself" (Jackie Johnson 2016).

[25] Anderson and Lutz 2019:53.

[26] Jackie Johnson 2016.

[27] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[28] Anderson and Lutz 2019:53. "Numerous pits, both large and small, are interspersed between the house depressions in such profusion that we have been unable to associate many with particular houses. Most of the pits are circular in outline and were likely fish storage caches for dog food" (Anderson and Lutz 2019:4).

[29] Larry Westlake "traveled, went up to Coal Mine with them …. With the dogs. Thank God wolves didn't follow. Mom, wouldn't allow me—she thought I would get into trouble by, you know, some kind of hardship on the trail" (Larry Westlake 2023a).

[30] Anderson et al. 1998:129; NAES 1991a:4.

[31] Jackie Johnson 2016.

[32] Larry Westlake 2023a.

[33] Larry Westlake, Sr. 2022.

[34] Larry Westlake, Sr. 2022.

[35] Larry hunt and trap with his dog team: "And the way we pick out our leaders were—another thing that dad told us is to, when they got about six months old and just ready to be tied up, we'd keep them in a pen that we, dad and us built with willows across the river here, got a bunch of willows and put them in the fence. … And we had to do that to the—put our females in the—came in heat in the fall and into summer. Mom wouldn't let us have a litter of pups in the summer. They had to be born in the winter. 'That's going to be their life, in the winter.' They had to be born in the winter. [The dogs had to be kept apart when litters weren't desirable.] It wasn't easy [to keep them apart]" (Larry Westlake, Sr. 2022).

[36] Larry Westlake, Sr. 2022.

[37] Larry Westlake 2023a.

[38] Larry Westlake 2023a.

[39] HJS 2002.

[40] HJS 2002.

[41] IAB 1992.

[42] TSJ 2002.

[43] TSJ 2002.

[44] Larry Westlake, Sr. 2022.

[45] NAES 1991a:4.

[46] HJS 2002.

[47] Helvi Sandvik 2023.

[48] HJS 2002.

[49] HJS 2002.

[50] Larry Westlake, Sr. 2022.

[51] Thomas Jackson 2023b.

[52] Larry Westlake 2023a.

[53] Anderson et al. 1998:132.

[54] RA 2002.

[55] RA 2002.

[56] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[57] Documenting traditional overland travel routes in northwest Alaska, Burch mentions important routes between the Kobuk River Valley and various locations, including those in the Noatak and Selawik regions. See Burch 1976:5-6.

[58] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[59] NANA 1994.

[60] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[61] Anderson et al. 1998:138.

[62] Anderson et al. 1998:138.

[63] Larry Westlake, Sr. in Westlake, Sr. and Westlake 2023.

[64] J.B.

[65] Larry Westlake, Sr. 2022.

[66] Larry Westlake, Sr. 2022.

[67] See Burch 1975, 1976.

[68] ES.

[69] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[70] Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[71] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[72] Anderson et al. 1998:138.

[73] Thomas Jackson 2023.

[74] Anderson et al. 1998:118-119.

[75] Tickett and Tickett 1976:np.

[76] In Custer and Gray 1987:2.

[77] Custer and Gray 1987:3.

[78] Custer and Gray 1987:7.

[79] LJ 2002.

[80] LJ 2002.

[81] HJS 2002.

[82] In the 1970s, Anderson et al. (1998:118-119) reported that "[a]lthough most adult men still have the experience necessary to build and use kayaks, they are disappearing. In 1974, there were about six canvas-covered kayaks in the upper Kobuk villages, and about the same number in the downriver communities."

[83] LJ 2002.

[84] Ellanna and Sherrod 1989b:1. According to a 1990 interview, Pauline Schuerch wanted a new boat, as the one she currently had was metal with rivets: "Not so good, 'cause when it's freezing up it start leaking. . . . I'd really like to get a different kind alright. But I want the type that's like my boat because it's a very good boat in the rough water. It's only 16 foot but I want an 18 foot one next" (PGS 1990:12).

[85] Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.

[86] Larry Westlake, Sr. 2022.

[87] RA 2002.

[88] Larry Westlake, Sr. 2022.



Adult and Child together on the Kobuk River, by Aleena – Kiana, Alaska

CHAPTER 10

Challenges and Opportunities on the Modern Kobuk

The *Kuuvaŋmiut* elders speaking through the archival sources and in interviews for this project shared a wealth of experience on the land that makes them very well-suited to observe and document changes of many kinds. They observe variations over the years in patterns of fish and animal movements, and phenomena such as weather and water levels, among many other things. They have witnessed, for example, changes in the timing and intensity of the yearly breakup of ice on the rivers in the spring that affect boat travel and summer fishing camps, and they are familiar with the cycle of fire and vegetation patterns that directly influence the location and abundance of plant and animal populations.[1] Distinct alterations in the weather, particularly warmer annual temperatures, have been observed by many people in the region. Elders across generations have spoken of many topics, such as the need to protect ancestral sites, modern allotments, and camps from erosion; maintaining the integrity of natural resources on which subsistence traditions depend; and the urgency of sustaining knowledge of their way of life for the benefit of generations to come. Here we begin by offering an overview of some of the challenges mentioned frequently by elders in the community, descriptions of certain recent changes that they have witnessed, such as increased fire activity, river erosion, and the growing pressures of visitation to the park and nearby lands. We then draw on the traditional practices, wisdom, and values of the people of the Kobuk to share opportunities to address these challenges identified by elders and others.

Erosion and Changing River Conditions

Of course, to some degree, change has been a part of the broader picture in the Kobuk Valley throughout remembered time. Yet almost every elder who took part in this study spoke of significant recent changes in the weather patterns of the region, and the effects of these increasing rates of river erosion and fluctuating water levels on the Kobuk. Elders such as Percy Jackson and Roger Atoruk agreed that the weather in the Kobuk Valley is warming. Percy explained, "I think the weather is changing that way, it's warming up. Not like when I was young, when I first start hunting."[2] Roger added, "Yeah, used to be cold, too. Colder than it is right now. We used to have real cold spells, long cold spells during winter. . .and we used to have big snowstorms, too. But now we hardly have any snow, big snowstorms. Not very cold. Like right now



The many waterways in the Kobuk Region freeze-up (Sikuvik) in the fall and breakup (Sikuigvik) in late spring. when there is no significant snowfall in the winter, ice becomes very thick, making the springtime Sikuigvik unpredictable. here you see the Kobuk after Sikuvik. National Park Service Photo

it is warm out there, it's about 20 degrees out there now [during this winter interview]. I think right—in the old days, it used to be 40, 30, 40 below."[3] Elder Jackie Johnson expressed concern about unpredictable amounts of snowfall each year as a result of changing weather: "I worry about a lot of snow. I don't know what will happen again so . . . never know."[4]

During the winter months in the Kobuk region, the surrounding waterways freeze. Warmer winters, those with little significant snowfall, bring conditions that are generally characterized by an increase in the thickness of the ice.[5] As the ice breaks up in the spring, it is carried downstream, carving new pathways into the landscape and depositing soil in new areas, causing shifts in currents and sandbars, and altering conditions for vegetation that precipitate changes in populations of foraging species.[6] Interviewees describe changes in the Kobuk River Valley in terms of shifting channels, beaches, and sandbars; unusual ice breakup in the spring, and erosion of significant sites.

These annual patterns are ancient and have shaped Iñupiaq life in the Kobuk Valley since the beginning of remembered time. The dynamism of the river can often be helpful; for example, families from Kiana have often used sandbars and beaches as landing areas from which to hunt, fish, and sometimes camp. Yet, it is the accelerated rate of change that has been a source of challenges within the last 20 years. Rates of erosion seem to be intensifying as the weather and the development of river ice continue to fluctuate. At one time, melting of river ice was a gradual process. But today, people in Kiana comment that the ice breaks up all at once. When the ice flushes out quickly, it alters the topography of the river corridor and causes profound riverbank erosion. As Elmer Jackson said, "Yeah, lots of erosion. All the little lakes, there's no more water in them; they're dry."[7] Elmer also points out that changes in the river seem to be happening faster than in the past: "We tend to have early breakups now. . . . We're starting to have a lot of rain in wintertime . . .. [I]t rains in December now, November,

springtime, towards spring. . . . It happens all at once. . . . And the river seems to be more quiet than usual. Usually, you hear a lot of roar and the ice, but. . . [that has changed]."[8] Jackie Johnson agrees that the change in the winter weather has altered the timing of breakup and the way it happens in the spring: "Yeah, the more snow you had, the more water you got . . .. And you don't have much water; it doesn't overflow or something like that."[9] He, and other elders, agree that these events are becoming less predictable and that they have to be prepared for conditions to be different every year.

Cabins, such as the Jackson family cabin at Coal Mine, are in danger of collapse due to increased erosion.[10] In such situations, families have assembled crews to move cabins in their entirety, repositioning them farther from the water's edge. According to Christina Westlake: "This is actually the second time that Jackson's cabin got [moved]—it wasn't very long ago that they had to move it back. So, [the eroding bank] caught up with the cabin again." She observes that this is not just occurring on the Kobuk, but on some of its tributaries as well: "Lee and Heanie's house up in Squirrel River, have had to be moved this summer too, for the second time. Yeah, they pulled it up two, three years ago and [the erosion] caught up with the house again."[11]

Larry and Christina Westlake's cabin is similarly suffering the effects of erosion: "We built a camp, a cabin, Larry [Jr.] did—our son—built the cabin and just recently, you know this right in front of our front window, there's this little depression, but it kept going down, down, down. Now, it's pretty [saggy]—so we finally figured out it's an old house pit with very little ground over it. And we don't [know] how to—what to do. I want Larry to dig it out."[12] Larry would "rather fill it in, and you know, put markers around it or something. . . . [S]ince the climate change, it's getting pretty deep there and it's right in front of the window."[13] There is fear of a future when large portions of allotments wash away before structures can be moved. In some cases, cabin users are elderly or few in number, sometimes making it difficult to assemble a work group that could successfully move an imperiled cabin.



The Jackson Family Cabin Hangs Off The Eroded Riverbank At Coal Mine. Photo By Emily Creek, Courtesy Of National Park Service

Some Kiana families have simply had to give up their traditional camp and cabin sites when erosion undermines the site.[14] Thomas Jackson remembers that "Tina [Russel]'s parents, grandparents, had a camp up, just around the bend [up past Coal Mine]. Now that camp was moved to *Qaqłikuvik*. And Tina pointed out to me yesterday, that there was a pole that her father had put. She said, 'Now it's gone.' It eroded. . . . Yes and just like at *Qaqłikuvik* where we usually park [the boat], you can't park there now because of the erosion."[15] These kinds of relocations were said to have happened historically, but they are said to be happening more frequently now. Complicating matters, the present system of Native allotments, NANA land, and NPS land ownership effectively "locks in" people's location on the landscape and reduces their options for relocation when their property has been undermined. Traditional patterns of land tenure accommodated adaptive strategies in a way that the Euro-American system of land tenure does not. This is a barrier baked into ANILCA legislation, which restricts permanent structures on public lands. In a case in Noatak National Preserve, where a subsistence user with documented traditional ties to the land wanted to build a public cabin to process fish closer to the fishing grounds, the NPS drew up a public use cabin permit that was unique to the considerations of the traditionally affiliated subsistence user. Still, it took NPS management ten years to draw up a permit.[16] This complication reduces the adaptability and resiliency of communities who depend on their allotment footholds in the park for subsistence and a range of other traditional activities.

River channels, too, can change annually—even larger ones. This was clearly the case historically, as addressed in earlier chapters of this report, but elders say this process has accelerated in recent decades. Places that look like well-established land masses become large channels over the course of only a few years. As Jackie Johnson observed of major channels near the west side of the park, "even this big channel.. . . There's a couple of piles of rocks right on the deep part" because, until recently, that deep channel was a rapidly eroding portion of the shoreline.[17]

As a result of these changes, navigating ever-changing rivers in boats can be challenging year-to-year – it can even be dangerous.[18] Illustrating how rivers can change dramatically or subtly with spring ice breakup, Jackie Johnson says: "It changes a lot though in springtime. You figure it might be the same river you used last summer, but goes through, switched around a little bit." [19] The first boat trips up the river in the spring are undertaken with an abundance of caution. Speed is reduced, as channels, currents, and water depth are of major concern. Jackie Johnson warns that "you have to slow down and see which places are deeper or . . . watch the current. You notice taking the current is swift yeah, that's a good channel you can go through. And when it's nice and calm like this, you avoid that because it's shallow over that way."[20] One interviewee recalled navigating these kinds of newly formed channels: "Me, Jack, my dad . . . [we went] hunting, [and] we was almost [to] one of those sandbars. Jack just barely turned in time. . . The starboard was out of the water. Water barely going over it. Those are hard to see. . . . When we turn, I looked down and that sandbar was right there. I was scared."[21]

Because of these factors, navigating the dynamic rivers of the Kiana region requires an in-depth knowledge of the landscape and waterways, including river channels. Growing up, Helvi's mother would allow her and her siblings to pilot the family boat from Kiana to Noorvik unassisted during the summer months. But Helvi admits she would not attempt the same trip today: "I mean, when we were growing up, we went down there all the time and even as, like I said, our mother would just send us off. For the Fourth of July, my older sisters

and I would just you know, jump in the boat and go down to Noorvik. I'd be worried about my ability to, you know, not hit bottom—this year. . . . [I]f you don't do it on the regular basis, you get fuzzy, and you lose it."[22]

Shallow waters often form where there were once deep channels, creating hazardous conditions and often limiting or prohibiting boat travel. Jackie Johnson commented that in some areas in recent times, the water is too shallow to accommodate a large boat: "Well, all the rest is too shallow to go up there with a motor. . .You gotta have a jet boat."[23] Elmer Jackson recalls people who have used jetboats rather than outboards in the river above Coal Mine, stating, "Sometimes it's too shallow for [a boat to pass through safely]—like last summer, . . . they had a hard time coming down. And it was shallow in places where it shouldn't be. Like across here where it used to be deep, there's a sandbar now. Changes you know."[24]

Beyond these changes caused by riverbank erosion, the river is now experiencing higher water levels during certain times of the year. This often coincides with subsistence hunting and fishing seasons, which negatively impacts the use of family allotments, camps, and cabins. For example, Helvi Sandvik's family has a cabin upstream from the Salmon River confluence. In the past, the area had always had a "big beach normally and it's good because there's good visibility, you can see if the bears are coming because there's a lot of bears in that area"; but in recent times, Sandvik reported that rising water levels have covered this beach, making the area less accessible but also raising the potential for inadvertent encounters with bears while traveling this riverbank.[25]

Rising water levels can make these places less reliable or secure for these uses. Helvi describes a sandbar at *Alallauraq* that her family had returned to each year for many years. Suddenly, everything changed. Shifting river channels alter the landscape as well as the vegetation: "This is all changing out here quite a bit," she said. "There's a channel cutting through what used to be a solid sandbar. In fact, we never had willows. . .across the beach [at the] river—that was all just one giant sandbar that I remember— [in her youth, her family would] deposit us over there and we'd play all day. And now, the willows would interfere with that."[26]

Besides causing damage to structures, erosion along riverbanks also has the effect of revealing previously buried settlements and camps, as well as other archeological materials. For example, Larry Westlake, Sr., observes that increasing rates of erosion have caused past settlement sites to be lost:

> "We lost a few of those [old settlements] and a few are just getting close. Up in that upper area, you know, . . . it must have been a river before there, years and years of having that river, I guess, created all the gravel and that gravel is right under say about twelve inches of sod, which is the top layer here, [which] the trees and all the wood[s] . . . grow on. When that erodes, . . . the trees fall over into the water."[27]

This is a recurring concern of Kiana elders throughout the Kobuk River corridor—the specific details of site locations and contents are not being addressed in depth here, in part to protect the integrity of sites that are being actively compromised along the Kobuk River corridor. In the lifetime of interviewees, for example, the bank in front of *Igliqtiqsiuġvigruaq*, Swift Water Place, is said to have lost no less than 20 feet due to erosion, exposing archeological materials and possibly human remains. The issue of exposed artifacts is also reported by interviewees who know Kiana residents, children especially, who have found cultural objects while walking the shoreline and gravel bars. Some actively look for projectile points and other artifacts, while others ignore or even try to avoid them.

Burials and associated grave items exposed by bank erosion are especially concerning. Elmer Jackson encountered some of these in the past while harvesting greens in the bluffs and high hill areas: "there's ancient graves there. We've come across them a few times. The bones are white, bleached white, but we never touched them. We just look at them. . . . [The bones become exposed when the bank erodes away.] They, yeah that erosion you know. They're on top of the ground."[28] Burials found in these areas of erosion are respectfully left alone for a variety of cultural reasons. Oral traditions relating to shamans living along the river corridor amplify this concern due to the spiritual potency of their gravesites. "You never know, it might be a powerful shaman"[29]

The tribe has worked in collaboration with the NPS to protect former village sites and areas where burials have been exposed.[30] In the case of *Igliqtiqsiuġvigruaq*, the Kiana Traditional Council worked cooperatively with archaeologists to learn more from the artifacts and human remains found in one of the house-pits. Yet elders note that this erosion has complicated their relationship with this place in other ways. The site is no longer as accessible by river as it once was; in spite of growing interest in the site due to the archeological research, the reduced access has compounded the effects of the erosion and inhibits direct personal familiarity with the site in a number of ways. In this light, many elders feel that NPS collaboration with the community must expand, perhaps quickly, to respond to the many cultural effects of accelerated erosion. Larry Westlake, Sr., for example, expressed concern that the NPS has not taken the fundamental step of tracking erosion with the resources and intensity required under these changes: "I ask it pretty nigh every year, how does the Park Service monitor that—if anything? Do they monitor that erosion problem? . . . And historical sites that we're losing. . . . They don't seem to do it."[31]

To address this issue, some suggest that there may need to be efforts to mitigate the river's effects – with Kiana residents making organized visits to the site or being involved in active data recovery as the site continues to erode away. This former settlement, and many others like it, will clearly require collaboration and communication between the National Park Service and the Kiana Traditional Council to find appropriate management strategies and to offset the many negative effects of archeological site erosion. Elmer Jackson anticipates that increasing erosion will continue to expose cultural areas: "But you know, there's a lot of settlements up there. Our culture has been thriving for thousands of years. . . . [T]here might be many places where [artifacts may become exposed], especially where it's eroding."[32] Jackson suggests that these artifacts "should be documented and illustrated. Like I said, have the students be involved. And maybe one of them is an illustrator and they can—so they could be in a workbook or educational [text]."[33]

Elders are also expressing growing concern about changes in water quality. They note that certain tributaries of the Kobuk have changed color or become turbid, and they attribute this, in part, to melting permafrost and other recent environmental changes. In some places the water is said to turn orange, in other places gray or black. They describe these as often being dead zones, where fish, birds, and other life become unusually scarce. As Elmer Jackson observed of one trip up a Kobuk tributary: "In the springtime, you're supposed to hear ducks, geese, and birds [but it was] completely silent. As I started to get in closer to high mountains my hair starts to [stand on end]. As I got closer, it got worse. . .The water didn't look right. There was a little water, but black."[34] These kinds of changes, likely complicated by algal blooms, reductions in dissolved oxygen, and other water quality impacts, are still under investigation by the park at the time of this writing and are clearly of concern to Kiana residents.



At Almost Rapid-Fire Speed Researchers From Uaa, Nps, And Usgs Have Formed A Large-Scale Collaborative Project To Understand What They Call "Rusting Rivers" In Kobuk Valley And Across The Brooks Range. At Kiana Elders Camp In 2023, Youth Welcomed These Researchers Paddling From The Salmon River On Their Way To Kiana To Be Picked Up. These Researchers Were Treated To Salmon Chowder And An Iñupiaq Dance Performance. In A Rare Confluence Of Cultural And Natural Resource Preservation, Folks In Kiana Had The Opportunity For Real-Time Research Updates While These Biologists Had The Chance To Experience Passed Down Cultural Practices That Enhance The Motivation Behind Their Work. It Is Recommended That This Research Continue And Outreach In Kiana And Other Communities Increase. Emily Creek Photo, Courtesy Of The National Park Service.

Aside from the landscape changes, people in the Kobuk Valley note a number of changes in species' habits and availability as a consequence of landscape or environmental changes. We turn now to a discussion of how different weather patterns have impacted key species, like fish and caribou.

Changes in Fish and Fishing Access

As mentioned, Kobuk Valley has experienced increased rainfall, which can affect many aspects of the subsistence harvest, very notably, fishing. Tommie Sheldon, Jr., noted that it is harder to catch and dry fish when water is high. Hunting and fishing must be done during certain seasons and "some years it's very hard to get those things. Like rainy season, high water [will] prevent us from having good, dried fish ... And . . . sometime we have too much high water, we hardly get anything at all."[35] Short-term scarcity can result from these temporary disruptions to harvest and storage: "Rain or damp weather for a period of several days can ruin for human consumption hundreds or even thousands of drying fish."[36]

All in all, shifting weather patterns, variable water levels in the rivers, and increasing water temperatures has affected the availability of fish and the ability of people of Kiana to obtain fish in sufficient numbers. As mentioned above, high water levels have sometimes covered sandbars and riverbanks that were once used as prime fishing spots. One interviewee mentioned that her grandsons would ask her "'When's the best time to go fishing?' [But last]

. . . summer with all the high water and stuff, they won't be able to [fish at all]."[37] She goes on to say that "we hardly had any whitefish because the high water. And last fall . . .we stayed [at camp] once and we didn't get very much."[38] Christina Westlake voiced similar concerns about the number of whitefish she was able to catch last year. Her traditional fishing spot was totally submerged when she arrived: "Yeah, by now we would have had a lot of fish put away. But we don't have a single—our racks aren't even up because our beach was underwater. So, we have to do a lot of fishing once the water goes down. And it's not only us we fish for, there's so many people who really love that dried whitefish."[39]

There are growing concerns about the health of [salmon], salmon, a keystone species on the Kobuk. It was with grave concern that people observed dead salmon floating down the rivers in 2014, the result of a spontaneous die-off of salmon early in the spawning cycle due to a combination of factors. Elders report that this was the consequence of riverbank erosion and was confirmed to be caused, in part, by record high water temperatures.[40] Kiana resident, Jackie Johnson, observed this event, and reported, "I don't know how many summers ago we got . . . salmon start floating down. Two, three years ago? ... I think the water was too warm up there."[41] She added that they appear to be coming from "way upriver." Johnson suggests that perhaps the salmon are dying before they travel far enough to reach their traditional spawning grounds: "Yeah, never made it up to the places. . . . Way up—they came past Kobuk and Squirrel River and Omar."[42] Johnson reflected, "we were wondering how come they were floating down. I thought they were getting sick or something like that [and] the water was getting warmer too."[43] These environmental changes contribute to a sense of urgency within the Kiana community to document the natural heritage of the park and its links to the tribe's cultural heritage, and to take steps to minimize or offset these shocks to the natural systems and resources on which they depend. With that in mind, we turn next to a discussion of changes observed in caribou populations in Kobuk Valley. Like salmon, a certain amount of change is endemic with regard to caribou, who have changed migration courses over and over again across centuries—yet certain recent changes are impacting the subsistence cycle of hunters around Kiana in ways that seem new and disruptive.

Changes in Caribou Populations

Differences in the climate, such as changing rainfall levels, are also said to have affected caribou subsistence harvests. This phenomenon is not unique to Kobuk Valley but is true for many places throughout the Iñupiaq homeland. As the Western Arctic Caribou Herd Working Group reported: "Many [caribou] hunters are facing challenges, from high water and rough ice making travel harder, to predators coming near towns, and development bringing changes to the landscape."[44] In 2014, the Working Group found various climate-related changes affecting caribou, including "[l]ate rain and windy fall, compared to decades ago (when ice was usually solid between Kotzebue and Sisualik by the end of October.) Most hunters in this region were happy with the fat caribou they were able to harvest that year, despite being delayed by a later migration. Wide agreement that they are seeing more brown bears than in the past."[45] And in 2016, the Working Group reported that weather precipitated the late arrival of caribou along with other changes, some of which increase hunting potential around Kiana: "Weather is different than normal-dry summer, then fall consisted of cold to warm to cold spells, which contributed to the ice not packing very thick in places. The caribou arrived later in the year, with some coming along the coastal route. Most communities were able to harvest caribou, and many observed the caribou in good health."[46] Moreover,

they observed that "[f]reeze-up occurred late, with no snow as of December 14, 2016. Last winter, the ice was thicker due to lack of snow. The caribou first arrived in late September and October looking very healthy. Larger males were observed, and the Kiana area saw a lot of cows with calves."[47]

Indeed, the vast majority of comments regarding environmental changes around Kiana have—as in these statements—related to caribou. This is understandable, as caribou are so crucial to meeting the subsistence and cultural needs of Iñupiaq families. As noted in chapter 5, the migratory patterns of caribou have shifted notably during the lifetimes of the elders, so that caribou are now present in much greater numbers close to the village of Kiana.[48] Elder Ruth Sandvik commented that she "didn't grow up with caribou. In fact, my father had the mail contract, and he took mail up from Kotzebue clear up ... to the village of Kobuk. And I don't ever recall seeing a caribou on—on the trip all the way up there [because back then] caribou had different migration routes."[49] More recently, places that sometimes abound in caribou, such as Hunt River, have gone without caribou for many years within the living memory of Kiana residents.[50]

While it is broadly recognized that migratory routes of the caribou herds change each year, observations made by hunters and Kiana residents indicate that multiple elements have been added to the equation in modern times, determining where and when the caribou will shift on the landscape. Some elders relate the shift in migratory variability to environmental factors like increasing river-water levels. Helvi Sandvick, for example, observes that if water levels are unusually high on the Kobuk, which is often the case in recent years, the herd will find an alternate crossing point:

> "Although my mother said there were no moose in this area when she was growing up. She also said the caribou didn't migrate as close to Kiana back then as they do now. . . . Bert Cleveland was saying he hadn't seen a caribou in three years. Well, yeah, the water was high. It was different. The caribou, I think, migrated further north and later. . . . [S]o they came closer to us later than they normally do. . . . [Y]ou see their trails all over when you fly over. So, the migration changes all the time. But Kidways was a place. And then the upper cabin, that one that's forty miles up, right above Tuutaksraq, . . . that was another good hunting place."[51]

Henry Jackson, Sr., also recalled his childhood days in the early 20th century when caribou were scarce around Kiana: "[T]hem days we didn't have any caribous at all. All we had was rabbits and ptarmigans for meat. Muskrats and all that, you know. No moose, no caribou. And starting forties, late forties, I guess, that's when the caribou, [and] moose start coming from—from Fairbanks, they say that the smoke [from forest fires], . . . drive them over this way, I guess. And then caribou start migrating, too."[52] When the caribou started coming closer to Kiana in the 1950s, Larry's family stopped going to the Noatak to hunt: "Yes, we stopped going there. No used to going out there (laughs). . . . [T]hey start getting more caribou [closer to the village]."[53] As Michael Moulton put it, "Yeah, it's a lot easier nowadays with the caribou coming close to the community. You have—especially the older people [in the past had to] make trips hunting all the way up to Noatak, Akumaiaq, all the way up."[54] Elder Leo Jackson reported in more detail on how caribou moved closer to the village, and how this contrasts with the past: "a lot more caribou and wolves. You don't go very far to hunt those. . .they come in a lot closer than they used to. In them old days, they go way out. Sometimes be gone for a month or two, month and a half with a dog team. Summertime, they

go on foot .... Must be way out past Noatak somewhere. Walking. Packing. Caribou. They come home with good caribous, though. Caribou hunting was very hard in them days. And now they come to us."[55] Similarly, Andrew Black commented on the gradual migration of caribou from the northern region toward the village of Kiana, stating: "Yeah, that's how we lived when we were young. Now—nowadays, you know, the caribou start migrating ... from north. In fall time ... these hills around here just full of caribou. Even our airport here is full of caribou and all the way up the Kobuk to Onion Portage, Ambler, Hunt River. . .Salmon River, they're all full of caribou."[56]

Andrew Black speculates that in the future, caribou may again migrate northward, at which time, knowledge of the area around Noatak will once again be vital. Therefore, he laments that children in Kiana are losing valuable knowledge of traditional subsistence practices that would be needed at such a time, stating that "they don't even know how to put up a camp .... And how to try and survive and stuff like that. Lot of young people that don't know about that."[57]

Granted, if there is anything predictable about caribou migrations, it is their unpredictability.[58] Each community may have a different perception of caribou due to their meandering wintering locations. The WACH Working Group recently reported on this changing nature of the caribou migration, writing:

> *"'Ugh! Where are all the caribou?" "Hey! Look at all the caribou!'* These two different reactions occur all the time in northwestern Alaska, even in the same year. Why? The simple reason for this is the caribou follow different migration paths all the time. For the past few years, migration variations have left the village of Noatak wondering *where are all the caribou?* For many years, Ambler continually watched caribou cross the Kobuk River during the fall migrations, despite the population decline from 490,000 caribou in 2003 to 201,000 caribou in 2016.[59]
>
> "... Last fall, caribou did what caribou do, and that's do something different. Instead of migrating south after crossing the Noatak River in September and October, much of the herd turned west towards the village of Noatak. While the community of Noatak enjoyed the bounty of the herd, residents in Ambler waited and waited. Even as the herd increased in numbers to 259,000 in 2017, some communities were left wondering *where did all the caribou go?*"[60]

The Western Arctic Caribou Herd Working Group newsletter includes several statements assuring that such fluctuations in the caribou population are to be expected and are not cause for great alarm.[61] Additionally, a report from the *Northwest Areas Ethnographic Study* reminds readers that fluctuation in species availability has long characterized the subsistence diet of the Iñupiaq people. The report states: "the use of different species through time has varied in association with multiple factors, such as population cycles (both human and non-human), environmental change, socioeconomic conditions, and many other variables."[62] These fluctuations have always prompted adaptive responses that are themselves an integral part of the subsistence lifestyle. Christina Westlake exemplified these strategies succinctly, stating, "So, we don't even know if we're going to get caribou this fall, if the migration will come our way. . . . So, moose becomes important to us."[63]

Yet longer-term scarcity does at times occur because of cyclic population oscillations that characterize the availability of many game species. For example, with regard to hunting, scarcity is endemic to the eight- to twelve-year-cycle fluctuations in hare and

ptarmigan populations.[64] Similarly, caribou are likely on a 60-, 80-, or 100-year population cycle.[65] The impact of these cycles on caribou populations is still unclear, however, as "caribou demography, although much studied, is still poorly understood."[66] These cycles of population fluctuation may be normal, to some degree. But because caribou are such an important dietary staple in Iñupiaq communities, years of caribou scarcity create hardships. As Anderson et al. observe in their history of subsistence by the Iñupiaq people: "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."[67]

Observations by Kiana hunters indicate that increasing hunting pressure on the caribou has affected more than just the migratory path of the herd. In the past, the bulls would lead the way across the river to safe passage. Now, it appears that the cows are in the lead. As one hunter reports, "[I]t was always the cows that [were first to cross the river]—because they're the ones that lead the migration. The cows come first and then the bulls later. And when we hunt, . . . we go after the young bulls, real young bulls then the cows; never the big bulls. They're in rut."[68] Conversely, Larry Westlake, Jr., remembers a time when the bulls were leading the way. He has seen this change within the herd occur gradually: "One thing that I've noticed differently about the caribou crossing: When I was growing up, it was always bulls in the front. Now, I see a lot of females and calves crossing first. . . . To make sure it's safe. . . . When I was growing up, it was always the bulls in the lead. . . . And it's not like that anymore."[69] Larry postulates the reasons for the change stem from the fact that "[t]he bulls are being shot at first thing. I think they just learned, you know, that—to send the females and the calves first to make sure. . . . That there's no boats going to come."[70]

One other climate-related factor with profound impacts on the migration of caribou involves changes in caribou forage as a result of historical patterns like fire, or through more recent weather shifts. For example, fire can make an area unattractive to wintering caribou for 50-100 years.[71] According to the WACH Working Group: "[C]aribou avoid burned boreal forest . . . [they] also avoid burned tundra areas in mid-winter—often for many decades. Caribou particularly avoid the interior portions of large burns. The wide-ranging habits of caribou usually allow them to locate suitable unburned winter range."[72] The decreasing availability of lichen as a primary food source for caribou during the winter months is a rising concern.[73] As migrations of the caribou change over time, the lifestyle of the Iñupiaq people can be affected dramatically. Because migrations of caribou are at present sufficient near Kiana, it is no longer necessary for men to spend winters far to the north hunting for caribou to feed their families. However, the people of Kiana are concerned that a combination of factors like the improper hunting practices mentioned above, and factors like rising water levels, will push the caribou further from the village, requiring the people of Kiana to shift to alternate sources of game like moose, or to once again travel long distances to obtain caribou.

Changes in Other Game

Aside from changes in fish availability and caribou migrations, the elders have observed changes in other animal populations, and in the health and abundance of those species.[74] For example, changes in the weather affect waterfowl migrations and ease of hunting.[75] Many of these effects are very direct and clear. Variations in the weather, for example, can delay sheefish and salmon migrations, as "late breakup of the ice in Kotzebue Sound or Hotham Inlet will delay their arrival in the Kobuk River."[76] Weather also clearly impacts fish by altering



A region-wide increase in wildfires has contributed to fluctuations in animal populations and migrations. In the summer of 2025 over 35,000 acres in Kobuk Valley burned prompting the fires to be 'complexed' with the arrival of a Type III team doing point protection on people's camps between Ambler and Kiana. National Park Service photo.

stream temperatures. Warmer or cooler water can lead to declines in fry survivorship, for example, or cause changes in dissolved oxygen levels that can lead to fish success or die-off.[77]

Yet many factors affecting the abundance and migration of various species are relatively mysterious.[78] For instance, residents of Kiana have seen fluctuations in moose populations on the lower Kobuk, with a noticeable influx in the mid-20th century, and the causes of this are not entirely understood. Moose availability is described as changing rapidly in recent years, a fact attributed to regionwide increases in forest and tundra fires – which at once repel moose during the fire events and draw them abundantly into burned areas as successional vegetation occupies the burnt landscape.[79]

Around 1990, Myrtle Jaycox reported that rabbits had become scarce in the Kiana area, perhaps because of rising water levels in the river.[80] So too, muskrat populations have fluctuated noticeably. Elder Percy Jackson reported that many muskrats were present around Kiana when he was growing up, only to subside and then return:

"When I was a kid, there was lots. . . . I heard they start coming back again."[81] Andrew Black remembered when he would trap muskrat around Kiana during the springtime months of his youth: "And we come home; those days you know we hunt muskrat for a living too. No jobs."[82] In describing the hunt, he told how they traditionally "wait for ice to pass by Kiana when we're gonna hunt [muskrat]."[83] Once the ice broke on the rivers, Andrew and his wife took their small boat and "food for a week or 10 days and take off and follow the ice down. And when—every time we catch up to the ice—moving ice, we ... start hunting around. Wait for that ice to go further down and then start following it again. And ... we can get way ... way down, all these lakes. ... Just roam all over down there."[84]

Other species affected by weather fluctuations include beaver. Beaver populations are thriving in the Kobuk area, to the detriment of fish populations, particularly whitefish. Whitefish tend to winter in sloughs along the rivers. So, when a beaver constructs a dam, blocking these sloughs, whitefish sometimes become trapped and die. Larry Westlake, Sr, explains that if "you don't get highwater in the spring and they don't get outside of the dam. That's the only way they could get out. [They get stranded in there.] Right, low water."[85] He goes on to describe how "one year, there was a whole bunch of dead fish [because they were trapped there]. They can't get out."[86] This problem not only affects whitefish, but also mud-suckers. It's possible that a long time ago, a few fish would get stranded because of sandbars, but now there are more and more getting stuck. "And I think we—it worries us quite a bit because whitefish is just before the salmon. That's our main fish drying for the winter."[87]

Some people note changes in animal interactions over time. Several elders commented on how ravens seem to increasingly cooperate with wolves in finding game—flying back and forth between wolves and game species as if to alert the wolves to hunting opportunities—a type of mutualism reported in other contexts for raven-wolf interactions.[88] And Kiana hunters note seeing ravens doing the same with brown bears, which they say is new—and perhaps a response to changing game availability or other environmental changes. So too, some Kiana residents note that bears and wolves sometimes seem to be hunting cooperatively and suggest that this is a relatively recent development. Hunters report observing packs of wolves chasing game toward thickets where bears are waiting to ambush—then both wolves and bears eating the prey killed by bears. As more than one Kiana hunter has observed, "the animals are starting to work together to hunt." Unfortunately, residents also report a greater incidence of rabies, causing animals such as wolves, foxes, perhaps lynx and even bears, to become more aggressive and to enter camps and villages more often than they did historically.

When it comes to plants harvested by the people of Kiana, significant changes were not mentioned as often. An exception is berries found in the Great Kobuk Sand Dunes area. One interviewee noted that the quantity has decreased: "I'm noticing a big change in the berries. There's hardly [any, but in the past] all summer there was a lot of berries in here."[89] She also believes that high bush cranberries and nangoon berries are new to the sand dunes area: She finds "currants, but then I notice . . . some high bush cranberries. . . . And what they call . . . raspberries but I know them as *nangoon*."[90]

Park Visitors and other outside pressures

In this section, we share concerns from the Kobuk River communities about the Kobuk River Valley as a whole, which is a patchwork of land ownership with varying regulations related to visitor use. The only hunting within the boundaries of Kobuk Valley National Park is ANILCA Title 8 subsistence use: a federally qualified subsistence user is defined by rural residence near the parklands. The archival and interview sources suggest that the area is experiencing a gradual increase in the presence of non-Native visitors and non-Kobuk river hunters which has created new challenges and pressures for Kiana residents. Several issues under this heading are hunting pressure on the Kobuk river, illegal activities by visitors, plane and boat traffic, and other development.

Subsistence users from across northwest Alaska have access to subsistence harvest in Kobuk Valley National Park. However, each sub region has its own traditions, and folks who have moved to Northwest Alaska from other areas may not know Kiana's traditions, Elders are concerned about seeing an influx of hunters from outside of Kiana. These elders believe

that these hunters' methods may be 'pushing' caribou toward alternate migratory routes—a social change rather than an environmental one. Certain other accounts also suggest that these non-Kobuk hunters from across Northwest Alaska have disrupted subsistence hunting and fishing in the upper Kobuk region.[91] This has happened since at least the 1980s.[92]

Up until 2019, the number of people hunting on the Kobuk River was increasing to uncomfortable levels. These pressures are especially felt at traditional hunting places, such as where the caribou herds approach river crossings. These areas act like a funnel, compressing the herd and hunters into one small space. According to Helvi Sandvik, just in the

> "last fifteen, twenty years, [outside hunters] have come awful close to Kiana. I mean, some people go in this small channel and just, you know, hang out there … you can, you know, really corral the caribou in that small channel. We always went further [away from town to hunt.] … Now, some of the elder-types like Larry and others are critical of people who hunt in the small channel. They say, 'Let them go. Get them on the other side.' Because you want to encourage the herd to keep going and we can let them cross there and get them across the island and then come out on the big channel."[93]

She adds that: "[I]f you were to come in the fall time when everybody's out on the river hunting … [y]ou know, we never had the traffic that we have now, growing up."[94]

Helvi Sandvik also describes other complications, noting that traditionally, people traveling from Kiana and Noorvik have converged at Onion Portage to hunt caribou. Now she sees many boats from Kotzebue, sometimes carrying hunters without family ties to the Kobuk River, which creates further pressures for Kiana harvesters. As she recalls,

> "people from Kotzebue never came up here hunting. It was too far. They had much smaller boats, not so fast so they couldn't cover as much land or water as they do now. They all went the easier path from Kotzebue. They all went on the other side. They went up the Noatak and thereabouts, but now we see a lot of Kotzebue boats. We never did before."[95]

In part, due to the checkerboard of landownership within the National Park boundary, recreational visitors are said to sometimes trespass on allotments. Visitors are said to camp on or vandalize allotments, cabins, and camps interior to the park. This has been reported by the NANA Regional Corporation's resource protection officer for the Kiana community, who visits allotments along the river to check on their condition, to assess and sometimes address visitor impacts on allotments, and more. The number of visitors to the lands and waters within Kobuk Valley National Park has risen since its inception in 1980. However, Iñupiaq conflicts with park visitors have been relatively few compared to many other national parks around the nation. And, of these tourists, almost all are concentrated in predictable places in the park – the Great Kobuk Sand Dunes, and a few other places along the river. As Helvi Sandvik observes, "we don't have the volume of tourists that ever interfere with [us]. You have a few clueless people every once in a while, but usually they're very respectful and we just don't have [issues]. It's not like Denali where you've got masses of people… it is interesting that the tourists all seem very fascinated by the sand dunes and that's cool. But they don't bother local people."[96]

Others interviewed had a variety of concerns and viewpoints on the threats posed by increasing numbers of visitors. Some elders suggest that visiting hunters from other areas



A float plane flies over near Onion Portage. Emily Mesner photo, courtesy of the National Park Service

in Northwest Alaska can make the Kobuk River corridor unsafe – people have to be careful where to hunt and also may need to avoid shooting where there may be recreational visitors.[97]

Those visiting the park for sport fishing, by some accounts, add pressure to the subsistence lifestyle. This is because sport fishing often involves catch-and-release fishing, which raises concerns about fatal damage to sheefish, for example, and the many negative consequences of showing disrespect to the fish.[98]

The management of other users, like sports fishermen, floaters, and aircraft in the National Park, has had various impacts on subsistence access and traditional uses of the park.[99] Some recommend documenting and broadcasting the locations of Native allotments and NANA lands to river visitors, and to disseminate information regarding Native uses and protocols around visitation and allotments. Elders observe that documentation of traditional uses of Kobuk Valley National Park can guide management of subsistence and commercial uses – including the mapping of allotments and sharing this information with visitors in appropriate ways and with their input. As Jackie Johnson observed, "that'd be nice so they [visitors] could see on a map, well, they could check whose place is that and all that."[100] They also note that this would be of much value to residents of the villages. Again, quoting Jackie Johnson:

> "we need to show our young people whose allotment is there and—because a lot of them don't—[they] just go in there and cut a tree; nobody knows which allotment is there. And they got to know where—our young people got to know where to set up their tent and stay overnight on the beach. It's kind of something that we just can't go in there and say, "We'll set up a camp right there," because we need to know if it's allotment or not. We don't know if it's somebody's or if it's the Park Service's, because that Park Service has a lot of places up there too."[101]

In some cases, traditional knowledge also may be used to augment regulations; for example, seasons of harvest have been changed to reflect traditional harvest times.

Occasionally, the displacement of Iñupiaq families by non-Native activities has intensified use of the Kobuk. An example of this displacement is the Selawik airport. The demolition of fishing and hunting camps for the construction of that airport and associated Federal Aviation Administration facilities, was said to push families from Selawik and other Kobuk River villages out of that area and into other portions of their traditional resource territories. As a result, many appear to have increased their use of inland resources, spending more time in seasonal camps in the upper Kobuk.[102] Elders also express concerns about potential development on lands just beyond the park boundary that may have unknown effects upon the fish and game harvested within the park.

Interviewees expressed concern about outside hunters that do not know or respect the traditional protocols that have allowed Kobuk River families to hunt successfully for generations. For example, speaking about lands outside of the park, Thomas Jackson has seen numerous hunters being dropped off from planes directly into the migratory path of the caribou, which directly opposes traditional protocols prescribing that some caribou must cross the river before hunting can begin. He states, "Well, there's places that you know is the usual migration route, but that's changed. There's too many hunters being dropped off of planes. They get dropped off a lot I hear on the migration trail. So, really scarce. There wasn't even—we didn't catch any caribou last fall."[103] Traditionally, hunting in 'front' of the migration is known to be detrimental to the herd and is traditionally prohibited by the community, as described. Elders notice a lack of education when it comes to traditional practices. Larry

Westlake, Sr., is concerned that if hunters continue to pressure the caribou, and disregard traditional protocols, the herd will eventually scatter, making hunting much more difficult in the future. Elders have impressed this upon the community, such as when the caribou began to arrive back in the Kobuk during Larry Westlake, Sr.'s youth:

> "we didn't have city councils and groups like that, but we were dependent on the elders in those days to make decisions for us in our way of life and …. So, right away, [the elders] called a meeting with the whole town and—like myself, I was pretty young—and talk to us about caribou migration. 'They're moving into your country now and if you let them cross the Kobuk River, you'll have caribou all your life,' they told us. 'And never after that, hunt before the migration, in front of the migration. Let them make their route and their pattern before you start hunting and they'll be here forever,' they told us. And like myself, I think that's what ruined most of our herd right now is people hunting in front of the migration. Because when they come to a river, they got to cross that. And if you don't let them cross where they usually cross, they're going to cross in other places, they told us. And it's happening now. That's why the herd is all split up and all over this area in the winter now. And hard to get."[104]

Traditional practices also warn against camping on the north side of the river in certain places along the caribou migration paths, as this can disrupt the herd's movement and keep them from safely crossing the river. Thomas Jackson is concerned that hunters from Kotzebue and other outside places are not following these traditional protocols, and that they are causing undue pressure on the herd: "we were brought up to always huntwhen the [southward] migration's coming. We were brought up to always camp on the south side of the river. But that Kotzebue boat [we saw on the river], right at Nuiḷauraq, they put up tent on the north side. And I know people went over there and told them to move. They didn't."[105] The Kiana Elder's hunting ethics guide is discussed more in Chapter 5.

In many instances, like those mentioned above, Kiana residents are finding ways to combine efforts with current management paradigms to integrate Iñupiaq knowledge and ways of knowing the landscape. This has not been done without some inherent difficulties. When Kiana Traditional Council expressed interest in a government-to-government consultation, this Traditional Use Study became a top priority of the National Park Service. During research, it became 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 impeding collaboration between the National Park Service and the community.

Organizations such as the Western Arctic Caribou Herd Working Group have sought to support the villages in navigating these challenges; quoting their newsletter,

> "Being a good hunter is no longer just about keeping your rifle, boat and snowmachine in good working order, and watching the weather and signs of wildlife. If there is to be game to hunt in the future we also have to pay attention to developments planned for the land our wildlife depends on. ...Being a good hunter now also means reading, listening, and talking about things we never used to have to think about. Sometimes it means going to meetings instead of hunting and speaking before a group of people even when it feels uncomfortable.

> "Knowledge and involvement are now critical hunting tools. We need to learn to use them wisely in order to protect the future. We need to understand the needs of wildlife and see that they are taken into consideration when development is planned."[106]

Kiana residents and park visitors will continue to intersect on the lands and waterways of Kobuk Valley National Park. Involvement of the *Kuuvaŋmiut* can impact current management decisions implemented by the National Park Service. This is needed for the protection of Native allotments and camps, as well as the resources on which the *Kuuvaŋmiut* depend for the continuity of their culture and subsistence lifeways. We now turn to describe steps being taken by Kiana elders to promote the transmission of their cultural heritage to future generations, and the many challenges they face.

The Challenges and Opportunities of Youth Learning

Interviewees expressed the importance of preserving the cultural heritage of the Kobuk River. The documentation of cultural heritage has broad implications for the community of Kiana. There is an urgency to document the old ways, as the region faces significant changes in land use, language, and additional types of knowledge being lost to time. Interviewees throughout the decades have been clear that cultural preservation must be used to engage younger generations in the continued use and stewardship of the region and the park's many resources.

Most interviewees expressed the wish to maintain unimpeded access to their traditional territory in the Kobuk River Valley. As part of this sentiment, they noted a desire to have historical trails and other routes of access documented by the National Park Service in future projects. They also requested that those routes be maintained, protected, marked, and interpreted so that they are not forgotten. Continued access to the places and resources of traditional significance in Kobuk Valley National Park allows subsistence practices and cultural traditions to persist. And, if Iñupiaq youth do not have ready access to Kobuk Valley, the transmission of traditional knowledge about this important place will not occur. The loss would be felt by the entire community with the risk of losing their shared knowledge of this place, and how to thrive in it as their ancestors have for millennia.

There are many reasons why families go into the Kobuk Valley less than they might have a generation or two ago. Kids are not allowed out of school as readily as they once were "because they get behind" if they are away at their family's Kobuk River camp or cabin for extended periods.[107] Some must stay behind to look after elders or children needing extra help.[108] And many people simply have to stick with a regular work schedule to pay the bills. Helvi Sandvik expresses a common sentiment:

> "I was laughing about . . . retirement, you know, if I ever get to that point in life. But I'll be able to stay at camp for more than two days, because I don't have to worry about getting back to work on Monday. You know, I'll be able to actually go out there. [In the past] the clock didn't dictate. . .you stayed out there until you [were done] hunting and fishing. I guess [these are] conflicts that "time" brought to people."[109]

Though elders use camps far less frequently than in their early lives, they do try to return to camps on a somewhat regular basis. For example, in 1980 Pauline Garvin Schuerch and her husband built a cabin at their campsite. Though her husband passed away in 1984 and she no longer utilized the cabin after that, Pauline would return to the area each year in late July and August: "We berry pick back there now. . . . About July, last part of July and August. We berry pick there. Stay for few days.... Right on the flats. We have a boat inside in that slough

and we go up a little ways and stop there where there's tundra and start berry picking."[110] As an explanation for not using the cabin more frequently, Pauline cited, "All our kids have school. We don't do that anymore."[111] In the 1990s, it was reported that some elders, such as Lucy Jackson, took "Subsistence Leave" from work, which allowed them to maintain certain subsistence practices and certain elements of the seasonal round.[112]

The erosion of traditional knowledge due to scheduling conflicts and other outside influences has been a concern within Iñupiaq communities for generations. In the 1970s, for example, Anderson et al. acknowledged these challenges but remained optimistic that subsistence traditions would persist in *Kuuvaŋmiut* communities even as modern conveniences came to dominate people's lives, more adults turned to wage labor, and the older generation of elders passed on. The shift of high school education to local regional schools—as opposed to the transfer of teens out of the community to boarding schools—had the effect of increasing young people's interest in and knowledge about subsistence and other traditional practices too. Most young people in the community in the 1970s had learned to hunt and fish at a young age and were enthusiastic about these harvest practices, viewing them as endemic to their identity as Iñupiaq people. Surely, traditional methods of travel and harvest had been replaced by modern technologies—the axe replaced with the chainsaw, the dog team replaced with the snow machine, the simple rifle replaced with the modern high-powered hunting rifle, the handmade parka and tent replaced with high-tech winter gear, but while these replacements come with trade-offs—many being expensive and requiring deeper engagement with the wage economy to allow people to afford them, they also improved life dramatically, lessening the hardships associated with a very austere lifestyle in a demanding environment.[113]

But environmental and developmental changes have continued to mount since the 1970s and have altered the outlook for subsistence. Recent decades have seen an increase in roads, mines, increased visitation and occasional competition with outsiders, dependence on wage labor for the necessities of life, and the increasing encroachment of information and other technologies that dominate the lives of individuals the world over.[114] These factors affect subsistence and other traditional practices among younger generations. As Elder Donald Smith expressed around 1990, "Times have changed."[115] He did not participate in subsistence activities with his sons the way his dad did with him. "A man can't make a living off of the land the way he used to."[116] Donald used to trap during the winter months with his father, and after his father died, he continued to trap on his own. But when asked if he planned to bring his sons along, he responded: "No, this is altogether [a] different world. . . . See, one of my boys is a mechanic and he don't—there's not much money in trapping. Unless you want to try to survive. And one guy is down in California. I don't think he wants to go trapping."[117]

There is also indication that the Iñupiaq language may be in danger of decline during this period, as people began shifting away from its everyday use. As Helvi Sandvik observed,

> "a daughter of a friend of mine. . . somebody asked [her], 'Why don't you know the language?' And she said, 'Because my dad never bothered to teach me.' And that's the reality, why the language is getting lost. It's not completely lost. It's because, for whatever reason, the homes thought, the parents thought, 'We need to equip our children with the tools we're going to need in the future,' as opposed to the tools we're going to need in the past. And so, that's why they stopped speaking it in the home. And if you don't speak it in the home, you're not going to retain the language."[118]

Language revitalization, including the recovery and expanded use of Iñupiaq placenames, is still a high priority for the community today.

Elders present in the community in the 1990s also expressed concern about the lack of basic survival skills among young people, as subsistence lifeways have defined the lives of villagers less and less by generation. As Hazel Apok expressed, "Today I see our young kids, they are not lazy, they just don't know, you know, how we lived. They ... grow up just flipping a switch and their lights are on. They go turn a few knobs and the water flows. ... They don't know how hard it was for us to get water into our homes or to heat our own homes."[119] She continued: "We used the dogs to travel to go gather more food. We don't have that anymore in our community . . . we want to travel fast and get there quickly. We want to do things—everything is a quick fix. Everybody wants instant satisfaction."[120] This difference in perspective is bound to affect the ways young people relate to subsistence and other traditional tasks. Even Hazel felt the pull of the outside as a young person:

> "I think we thought as we were growing up that life was pretty hard. We wanted to escape. We would have high school [students] coming home [from boarding school] in—in the latest styles and listening to the latest music, you know. And I think that the—the grades just above me were the ones that would come back with all of this; is where my age group wanted to be like them. We wanted the latest hairstyles and the latest clothes and, you know, the latest foods that they learned to eat, you know."[121]

This effect of "comparison" is that much stronger with the roles entertainment and social media play in the lives of today's young people.

According to many elders, such as Hazel Apok, the greatest challenge for the younger generation is: "Learning the basic skills of survival. They've got to learn that, you know, pretty soon we are not going to be able to afford the price of fuel. . . the price of everything has gone up. And I don't see the cash economy in our community to pay for these things."[122] Hazel also lamented the loss of young people's connections to the oral traditions that undergirded many traditional practices:

> "I mean there's stories and myths about why we did certain things and we've lost it, you know, we've lost that knowledge, I think. ... You know, there's so much that we could be doing for ourselves. And the kids ... are not thinking ahead about . . . what it's going to take to survive. And those of us that are a little bit older that have experienced how our world changed in such a short time. In the 20 years that I've been around, or the 50 years that I've been around, so much has changed and our children aren't seeing that. They've grown up, you know, with—with what we have today. ... So, it's going to be a long, hard struggle, I think, to get our kids to think differently because we raised them differently, you know. That's the challenge I see. ... You've got to get trained. Something is lost somewhere, something is not sticking with our kids. They are not going off to get trained, they are not doing the things they should be whether they want to be working, you know, as teachers or doctors or biologists."[123]

Daily life in the village also has changed dramatically over a short span of time, which can affect the timing and ways that traditional knowledge is shared between generations. "[T] here's been a lot of changes," stated Elder Roger Atoruk. "Like I said, there was no electricity, no water and sewer [when we were young]. We have to haul our own wood. ... There used to be flour and sugar and coffee in the stores, but now we have about everything. Like frozen foods,

eggs, and vegetables. That's a lot of change. And we have TV, telephones. There's been a lot of changes in my lifetime."[124] Elder Ruth Sandvik placed responsibility for declining cultural and subsistence knowledge on parents, including herself; and when asked what she would like to see for children in the community, Ruth said, "Well, I'd like—I'd like a miracle. . .I'd like more structure in families here. ... I think everything begins in the home."[125]

Elder Tommie Sheldon, Jr., pointed out how different the lives of older generation people were from those of the younger generation: "But these people, these people are different, completely different way of life from today, because depend—they are depending on the seasonal animals they hunt all through—all through the year."[126] The difference in perspective among the generations is hard to bridge. "When the young men started working, their life-style changed," said Inez Ayagiaq Black,

> "They didn't eat only Eskimo food. Their clothing changed. They didn't use winter furs all the time, like the fur pants they used to wear. Our ancestors used all fur clothing, no cloth. When the white man came, people even acquired canvas tents. All this made life easier for the Iñupiaq people. They even started eating white man's food. ... When the first miners came looking for gold, they brought all sorts of things with them, like guns, tents, and all kinds of hunting gear. People began to acquire these kinds of things and it made life easier for them. If we still tried to live the way people used to, we would starve to death because people don't do much fishing in the summer anymore. We all know that when the weather gets harsh in the winter, it's really not possible to do anything . . . would also be a good idea if the students were taught how to make mukluks and parkas. This would make it possible for them to survive just in case something happens to the supply of imported clothing we get from the outside. After all, the old Eskimos have predicted that someday life will get hard again. It would be a good idea if our children were able to be self-sufficient so that they could clothe themselves and survive."[127]

Above all, Elders simply want the young people to know how to survive—the same thing all parents and grandparents want for their children. When talking about the kids growing up in Kiana, Henry Jackson, Sr., stated: "Well, they should learn how to survive. That's the main thing.... Hunt, fish, and work at home, you know." He laments what he calls "too much vandalism" by young people. But Henry seemed optimistic in saying, "...if you teach them, they learn."[128]

Transmission of Knowledge

Those people who had the opportunity to grow up on the river, and regularly visit their family's camps and allotments, feel fortunate as well as secure in their ability to navigate the landscape. As Helvi Sandvik recalled:

> "we know the creeks by their Native name. And yeah, so we actually, I think, our family, the children in our family probably know this. . . because we spent so much time on it. And [the parents] they would tell us to go, young, ten years old, no life preservers, nothing; take the boat and go upriver, here's a gun. And because to our mother, that was a good, healthy activity that was important stuff. And you know, knowing the river and knowing people and what families were connected was really important to her, and so she, in turn, tried to pass that on to us. . . you pass on lessons. You know, learning the river, we needed to know because you need to know how



Youth leader learning from elder Thomas Jackson and building a fish-drying rack at Kiana Elders Camp in 2023.
Douglas Deur Photo.

> to navigate the river. But in terms of knowing what family was connected to who, and who did what where, that was just because she was interested in that and so we therefore should be too."[129]

Some elders take their grandchildren with them on subsistence outings and see these as opportunities to pass along subsistence and other forms of traditional knowledge. Hazel Apok credited Walter Cook for such efforts: "[T]here are a few elders that will take their grandchildren out and they are teaching them. There's Walter Cook Sr., and he's teaching ... the proper procedures in how you set up camp and where you take care of your waste, ... different things."[130] She continued: "We [the elders] feel sad about all that we've lost, but we also know that we have to begin somewhere. And I think the biggest challenge will be to open our grandchildren's eyes and let them know why we continually push education to 'em."[131] In the 1990s, Linda Ellanna mentioned the names of Peter Atorak and Truman Cleveland as individuals working to educate community young people about Iñupiaq ways. She wrote: "Truman Cleveland and some of [the] other men have been working independently to map out trails by season, particularly winter trails so kids can learn."[132] Tommy Wells remembers one year in high school when "we brought about ten snowmachines" for a school organized event called Iñupiaq Days.[133] Elders Johnson Black and Roger Atoruk chaperoned the excursion. Also, in the 1990s, the Youth Action Committee organized sewing sessions in which Elders Martha Wells and Laura Jackson helped young people to make and sell fur hats, knit socks, and *atikłuk* (a pullover dress or outer shell) to raise money for the Youth Action Committee, and as diversions from unhealthy activities.[134]

Some elders educate *Kuuvaŋmiut* young people in traditional lifeways through venues like the Western Arctic Caribou Herd Working Group. This includes Larry Westlake, Sr.: "Now that he is an elder himself, Mr. Westlake is helping give guidance to younger hunters. Through his involvement with the Kiana Elders' Council, Larry has worked to bring forward elder wisdom and practical guidance to the many hunters who come to the Kiana area each fall."[135] As part of these efforts, the Elders' Council produced a 'Caribou Hunter Success' flyer that was

> "widely distributed across Northwest Alaska. This effort grew, through the inclusion of more regional residents, agencies, and organizations, to become the 'Caribou Hunter Success' working group. One main goal of this group is to document and share elders' knowledge on caribou and caribou hunting to inform younger hunters of today, following in the example set by Mr. Larry Westlake and the Kiana elders."[136]

The Western Arctic Caribou Herd Working Group strives to promote caribou education, and specifically to promote understanding and appreciation of the herd, through "scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all other users, while recognizing that education is a relationship between state and federal agency staff and users. The group also strives to develop programs to share traditional ecological and scientific knowledge about the herd."[137] Their school programs draw in agencies such as Alaska Department of Fish & Game, Bureau of Land Management, National Park Service, and U.S. Fish and Wildlife Service whose staff implement lessons and activities about caribou, teaching kids traditional and scientific information with a multicultural approach. All of these groups support student and community involvement in field studies. Agencies are supporting the educational goals of the Working Group by developing materials, websites, and social media to communicate with villagers about regulations, and changes in caribou populations.[138] Other methods used by the group and cooperating agencies include:

"Classroom visits, field projects, culture camps, hunter education, summer programs, and field trips.... Youth learn about WAH migration patterns, population growth and change, harvesting and regulations, natural history, physiological adaptations of caribou and play fun games."[139]

Another important educational effort was the involvement of students in subsistence and biological work at Onion Portage. Onion Portage is a significant site for subsistence, archaeology, and other kinds of research, and up until 2019, the base for these activities: "It is common for elders to join students and biologists at Onion Portage. When elders travel with students to Onion Portage, students learn subsistence skills such as how to hunt, butcher, cut, and cook caribou. They also learn skills for camping and about traditional hunting values."[140] The working group talks about Onion Portage as a place where western science and traditional practices meet. An example of this is "the Onion Portage collaring project [that] continues to be successful from both a scientific standpoint as well as being a great hands-on learning experience for students ... [i]ncluding elders in student groups while working with biologists...."[141] The research at Onion Portage draws young people both from Kiana and Ambler. Students from these communities "learned how biologists track caribou using the VHF receiver and antenna. These students did a great job showing everyone how patience is key when it comes to caribou!"[142] Unfortunately, since the herd's decline and change in migration the biological work no longer occurs by boat at Onion Portage. Biologists, educators, and communities alike all hope for the day this program can take place again.

Traditional ecological knowledge is often taught in local classrooms. Efforts have been underway since the 1990s to increase Indigenous education in the schools. The Iñupiaq regional coordinator for the schools in the 1990s, Elmer Jackson, took steps to "assist in establishing a high school chapter of the American Indian Science and Engineering Society (AISES) in each of the districts [including the development of] Iñupiat village science curriculum textbooks, workbooks, and teacher guides for use in the classroom. Elders, teachers, and other resource people will be involved in planning and developing the curriculum."[143]

In the early 2000s, when Hazel Apok moved back to the community after being away, she mentioned seeing a "trend" of elders wanting to teach young people more about the lifeways they grew up with:

> "I left for twenty-eight years from my home, from my region due to marriage and going to school and raising a family. And I—I didn't stay home to learn how to do—how to make *akutuq*—how to, you know, prepare foods that I really like. And that's what I'm spending time doing right now, just with basics, you know, with dried fish and dried meat right now. Eventually, I want to—I want to get back to—and me and my cousins will get together and compare notes about, you know, 'how did your mom do it?' and 'my mom, I think, did it this way.' So, we are teaching ourselves and we want to go back to how it was when we were growing up. ... And somebody like me that remembers all the hard work, you know, just to survive in the past, we want our grandchildren to know. We want them to learn because our world is constantly changing, and we want them to learn the basic survival skills that we grew up with. We want them to—to learn how to hunt and fish and, you know, maybe go back to wood stoves or—because of the high price of living out there. The fuel costs, the electricity. Everything costs money. And we don't have all—a lot of jobs in our village to pay for these things. So, it's like an ever-changing world that, you know, I know that the elders that I live with now want—want our grandchildren to acquire these

> basic skills because we know soon we won't—maybe we won't be able to afford fuel. And then we'll—that way our kids—our grandkids won'' know how to heat their homes and how to survive. And I think that's a trend that we are going into now, and I hope to be a part of it. ... So, I'm back home now and I'm really enjoying it. I really—I look around in the community now and wonder why I ever left or why I ever stayed away for so long."[144]

Since the 1990s, organized youth summer camps have been an important conduit for revitalizing traditional lifeways and teaching young people about subsistence and other aspects of their culture—

> "Activities included preparing and setting a net for salmon, building fish racks, and cutting and hanging fish to dry. Other activities included survival skills, gun safety, target practice, hiking, storytelling, games, berry picking, and prevention activities. The students were also involved in day-to-day chores such as packing water, gathering wood, and keeping the camp area clean."[145]

These activities are reflected in the Kiana Elders Camp, which is held most summers on the Kobuk River just downstream from the park's western boundary. These educational events bring together large numbers of Kiana youth with knowledgeable elders – exploring the landscape both in and outside of the park, learning traditional fishing techniques and fish knowledge, experimenting with traditional crafts, exploring the science behind traditional game species and their habitats, and carrying out many other activities meant to impart both a knowledge and a personal interest in traditional skills. These camps also invite teachers, including teachers from Kiana who can bring this traditional knowledge back to the classroom when summer is over. As Elmer Jackson observed,

> "I did some science lessons there one time with the kids. . . . We were studying beaver dams, and the habitat and beaver's dams were not too far away from us, so we read about them, study them that week. But they, when we get teacher survey before the school starts, teachers are there also in the village. . . . And that might be another asset."[146]

The authors of this report took part in the 2023 Kiana Elders Camp, and this was the highlight of the entire research project. For people who have the opportunity to learn these ancestral skills in new settings, combining traditional knowledge with schoolroom science and other skills, these are often transformative experiences for Native youth. As with a prior generation who was so fortunate to combine those experiences well, these prepare people for the times ahead – as Hazel Apok noted, what members of her family "learned from the outside and what my parents knew about surviving, you know, made me who I am today."[147]

Iñupiaq Values as Tools for Teaching

The interviews and archives are rich with observations and wisdom about adaptation to social and environmental changes. The materials included in this report must be accessible to Kobuk River communities so that generations can learn from the stories of their elders. The stories are rich with examples of the Iñupiat values, documented during a cultural revitalization project by NANA Elders Council in 1990: *The Iñupiat Ilitqusiat*, "what makes us who we are." [148] Here, we give a few examples of values exemplified by the stories of Kiana elders about how life used to be.

Family roles

In regard to family roles, traditional *Kuuvaŋmiut* lifeways required a robust work ethic and a division of labor between the genders that assured all work tasks got done. Men tended to look after big game hunting as well as trapping. Women were deeply involved with fishing, particularly gill-netting and seining. The gendered division of labor was not especially strict and allowed for men and women to take on roles when needed. Women and children did most of the berry-picking. Yet sometimes women went along on the hunt (or took over the hunt if husbands died or were injured); and sometimes when they were present at the right time, men helped with fishing and preparing fish. Often a man will take over the cooking and cleaning for a family if his wife must be away from the village. Traditional boat building was split between genders. Men collected birch bark while women collected the spruce pitch, and after men had constructed the boats, sewing together the pieces of bark, women were tasked with sealing the seams with pitch. Women also prepared the hunt when men brought it home, and crafted clothes for an entire family.[149] During times when men were away for long periods hunting, all household tasks fell to women and children, such as the gathering and chopping of firewood. Tommie Sheldon Jr. remembered helping his mother with firewood as a child: "Another memory of my mother is when she would take us out to get firewood. Our father would be out hunting for caribou in the Noatak area.... We used a handsaw to cut a tree down. It would take all day to bring home one log using one dog and toboggan to haul it home. Our house was not very well insulated and there were cracks in the wall."[150] When members of a community reach old age, they may participate in subsistence through advising, while doing less activity themselves; this advisory role is highly valued. Finally, all traditional skills are passed on to young people by letting them do the jobs from a young age. Skills are taught by trial and error and observation more than by explicit training, and young people are given leeway for making mistakes along the way.[151]

Hard work and cooperation

Traditional subsistence lifeways required a tremendous amount of hard work and cooperation. Elaborating on these values, Elder Hazel Apok described, "We worked from the time we got up until the time we went to bed. We—we worked to survive."[152] She continued,

> "[Otherwise], I mean we can't have the kind of food that my mom prepared. My father did all of the hard work outside the house, hunting and bringing it home, and my mother did all the hard work preparing it, harvesting it, and putting it away. ... [A]ll of these things that we did took manual labor. I mean, they kept us busy from morning until night. And today we just continually see our kids being bored, and that's because we don't keep them busy from the time they wake up 'til—'til they go to sleep. So, we have to get creative and find ways to keep them busy."[153]

Larry Westlake, Sr.'s father taught him to work hard: "Yeah, 'Work hard,' he says. 'Do what you're told and [said with some humor] be good to the cook when you're out in the camp'" (LWS).

Hunter Success

Harvesting was done with a sense of purpose. Resources were gathered for the health of the family, of the community; no energy was wasted on superfluous activities.[154] Helvie Sandvik expressed a similar sentiment, adding that children were expected to be productive when sent out to hunt or harvest:

> "[O]ur mother would get mad if you didn't come home with something because you were goofing off. Because obviously there was something to get. And you know, it's – there was an expectation that you came home with some meat or something" (HS).

Everyone, including children, had a job and was expected to contribute to the task at hand, whether that be berry-picking, fishing, or hunting – and that these tasks were expected to be done to completion. Helvie Sandvick was taught very young that "you don't shoot a duck unless you're going to pluck it. You don't bring a duck home not plucked" (HS).

Lifestyle changes requiring many *Kuuvaŋmiut* people to seek employment would be impossible without technologies compressing the time needed for subsistence harvesting, such as caribou hunting: "Alaska has seen great change and the harvest of caribou from the Western Arctic Caribou Herd has changed too. Many hunters have jobs and are limited to a short time-period to harvest caribou. Boats and high-powered rifles are often used to harvest caribou during the fall migration."[155] But these modern subsistence technologies bring with them demands for things like gasoline and expensive repairs. It is a trade-off.

Knowledge of language

Knowledge of language not only prepares people for life on the land, but it also maintains cultural pride through times of change. Elders like Hazel and Tommie expressed gratitude for growing up as they did. Hazel said: "I'm forever grateful that I grew up with an elderly couple that's keeping the language alive through me, our language, that I can remember things about how I grew up and what it took to survive them days. And it's all about survival in a harsh environment."[156] Tommie said: "[I]f I was living like today, like these kids live, my health would be a little different. My—my childhood days were—were complete[ly] different. Cultural—cultural and traditional ways were different. ... You can't live on Eskimo life ... and white man food alone, you have to combine them."[157]

Responsibility to tribe

The combination of modern and traditional Iñupiaq ways of life is a core theme with elders describing the challenges facing their community. Larry Westlake, Sr., describes his childhood as 'the survival days,' a time when his father would work the coalmine while his mother remained at home to harvest, fish, and hunt.[158] The Elders express a sense of gratitude despite the difficulty of the traditional lives of their youth. Many remember times before motorized boats and power tools, times when hunting trips required hauling the catch home with dog teams rather than snowmachines. Johnson Black, for example, remembers walking to hunting grounds prior to snowmachines: "We get our food. After—we go the hard way. We go without snow machine—snowshoe, right. ... Walk them times."[159]

According to Elder Pauline Garbin Schuerch, "Them days, the government don't take care of us like he does with people now. We had to make our own living. . . . Yeah. We had a—kind of a hard time but we were happy. Happier than not."[160] Walter Cook, Sr., remembered hauling wood with dogsleds in his early teens: "They hauled wood by dogs before—no snowmachines in them days. I used to go out, 13—when I was 13, 14 years old. . .."[161] David Black described the pleasure of boyhood subsistence activities, exclaiming: "Boy, we sure had a lot of fun when we were out there hunting."[162]

Elders regularly express concerns that loss of the strictness of traditional lifeways has not served young people well. When asked what he thought younger generations should learn in Kiana, Elder Leo Jackson responded:

> "Well, a lot of them are drinking, smoking, stealing. In [the past] we didn't have no VPSO (Village Public Safety Officer), nothing. Only the council, city council. Or a group of men that will straighten you out if you don't. They have to—to punish you, you have to do something like cutting wood, hauling wood. No jails. They don't take you off to jail. ... And my—my father always tell me not to steal."[163]

Henry Jackson, Sr., also learned traditional values from his father: "Yeah. Yeah, my dad told me not to smoke, not to play cards. ... When he found out I was smoking, I had my—some stain was from smoke—from smoking, you know, he saw my hands. What did you do, you smoking? I tried to lie, but can't lie, you know. I got big spanking for that."[164] Henry remembers he was about "nine years old, I guess" when he was reprimanded for smoking.

Henry Jackson, Sr., commented on the importance of punishment for kids committing vandalism: "He told some men ... that kids should be made to pay or work to make amends for their vandalism. He's made comments to others that if his grandkids are involved in vandalism he would like to know and make his grandkids pay accordingly (pull a sled of groceries whatever)."[165] Parents wanted to be the ones to punish their children, not to leave it to authorities. Ruth Sandvik expressed how some elders felt about the local police program that came along in later years, saying: "Any time we have any—the VPSO program, we're not too supportive of the Village Police Safety Program."[166]

Respect for nature and spirituality

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). [167]Thomas Jackson described a sacred site in the Coal Mine area where four bear skulls had been placed amongst the tree branches[168]

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. Other dangerous entities in the oral traditions of Kobuk Valley Iñupiat 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 Iñupiat.[169] Burch's 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.[170]

Some of these entities inhabited the study area, and people employed techniques for protection against them. Burch notes the presence of wild babies, *iraaq* or *naaluniq,* along the Kobuk.[171] 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.[172] People traveled together in pairs to intimidate the trolls. According to Burch, dangerous giant birds, *tinmiaqpak*, lived in all of Northern Alaska.[173]

People avoided areas frequented by these beings and only rarely attempted to eliminate them.[174] 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.[175] 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."[176]

When Burch interviewed Native consultants in 1969-1970, older people had the most experience with these entities, and these beliefs and experiences decreased with the age of the informant.[177] 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.

Elmer Jackson describes an encounter he has had with entities he refers to as 'little people.' "This is the where I see those little people. [In a channel just across from Kallarichuk.] . . . Yeah. And this goes all the way to the river; below Salmon River" (EJ). However, he doesn't consider them to be malignant beings and doesn't take precautions to avoid them:

> "But I noticed there's another channel when you're going up the river on the right side, last three years when I've gone up there, when I was going up there used to talk about the little people. And I didn't know whether to believe it but now I do. A couple times when I was there, I heard their children. I see a beaver swimming down. So, I happened to stop, look to the ground. Just when I turned my motors off, kids, like how kids are, having fun laughing, talking real loud and clear. But I never heard. One, two, three seconds, then silence. But couple times I noticed that. And I never did before. . . . I think they [little people] can be [found] anywhere. . . . I think they can be anywhere. My aunts always have told me if you come across, don't be afraid of them. They're not going to hurt you" (EJ).

Finally, there are stories told about the 'Mysterical Man,' who could be seen kayaking. Not much more is known about this particular entity, but Larry Westlake, Sr., recalls that his mother "would tell me short stories of him. But there's a lot of stories about the men that kayak. Mom would just only tell the short one. I think they call him the 'Mysterical Man'" (LWS).

Conclusion

The changing landscape and communities of the Kobuk Valley can be tracked through the materials included in this report. The environmental changes described are river erosion, changes in caribou movement, and changes to the water levels which impact fish. Interviewees across the generations also described social changes such as more impacts from visitors, less time on the land, and a breakdown in transmission of traditional knowledge. This section has shared comments about the challenges and opportunities of changes in the Kobuk River Valley. With access to these materials, residents of Kiana and other communities can apply the traditional practices, wisdom, and values of their ancestors to the challenge of adapting to a changing landscape.

Endnotes

[1] Viereck 1973:170; Anderson et al. 1998:261, 262.

[2] PJ 2003.

[3] RA 2002.

[4] JJ 2016.

[5] Working Group 2017e:4.

[6] Anderson et al. 1998:262.

[7] EJ 2016.

[8] EJ 2016.

[9] JJ 2016.

[10] LWS 2023.

[11] CW 2023.

[12] CW 2023.

[13] LWS 2023.

[14] PJ 2003.

[15] TJ 2023.

[16] Magdanz, 2012.

[17] JJ 2016.

[18] In JJ 2016.

[19] JJ 2016.

[20] JJ 2016.

[21] In JJ 2016.

[22] HS 2023.

[23] JJ 2016.

[24] EJ 2016.

[25] HS 2023.

[26] HS 2023. The high-water levels on the river have also caused problems for recreational rafters who generally camp on sandbars during their trip downriver. Early in the summer, Helvi encountered three or four rafters finishing up their river run: "The river was horribly high. They had a miserable trip, I know it. I see them down there; I just feel sorry for them, so I always offer them a ride up the hill with—because they always have all this stuff they've got to get up the airport and it's a long trek. But they were saying there was no place to camp, you know, the sandbars weren't there" (HS 2023).

[27] LWS 2023.

[28] EJ 2016.

[29] EJ 2016.

[30] "Our tribe has done that [tried to protect burials exposed by erosion] … it's called the Kiana Traditional Council. … And they have an elders' council too. They make decisions on … you know … [p]robably have to go through NANA Regional Corporation, and the tribe; reach tribal offices" (EJ 2016).

[31] LWS 2023.

[32] EJ 2016.

[33] EJ 2016.

[34] EJ.

[35] TSJ 2002.

[36] Moore 1979; Anderson et al. 1998:174.

[37] In PJ 2016.

[38] Woman in PJ 2016.

[39] CW 2023.

[40] Selawik National Wildlife Refuge, 2014; FWS 2014.

[41] JJ 2016.

[42] JJ 2016.

[43] JJ 2016.

[44] Working Group 2013:5.

[45] Working Group 2014:12.

[46] Working Group 2016:8.

[47] Working Group 2017e:4.

[48] "Donald Smith, an elder from the Kobuk River valley described the many changes he has seen in his lifetime. The group heard how hunters would travel 60-70 miles in search of caribou, and that both they and their dogs carried backpacks on the journey" (Working Group 2008b:8). And: "Donald [Smith] recalled that long ago they saw only a few caribou in Ambler, but that now the caribou go much farther south. He noted that they make many trails over time because their hooves cut a ditch in the tundra which eventually caves in and creates a creek" (Working Group 2008a:4).

[49] RS 2002.

[50] PJ 2016.

[51] HS 2023.

[52] HJS in Jukebox 2002.

[53] LWS 2022. Bear hunting also decreased as there were more caribou.

[54] Michael Moulton in EJ 1990:10.

[55] LJ 2002.

[56] AB 1990:12.

[57] AB 1990:12. Recalling his own hunting as a young person from 1945-56, Andrew said, "That's the most time we usually hunt every spring, you know. We enjoyed liv[ing] outside" (AB 1990:10).

[58] This is borne out by caribou herd census data from the 1970s through the early 2000s, as reported by the Working Group: "In the 1970s the caribou population declined again. Biologists documented 243,000 caribou in 1970 which then dropped rapidly to 75,000 animals in 1975. Restrictions were placed on caribou hunting and the herd was able to increase again, rising throughout the 1980s and 1990s to a peak of 490,000 caribou in the Western Arctic Caribou Herd photocensus of 2003. The last census shows about 235,000 in this herd, close to where it was in 1970" (Working Group 2015:10).

[59] Working Group 2018g:10.

[60] Working Group 2018g:10. The Working Group also reports: "After getting close to Noatak, most of the herd retraced their route back to the east, where they started. A few finally did turn south, but most of them stayed north and did not cross the Kobuk River" (Working Group 2018h:10).

[61] "Over the past 20 years, migration patterns consisted of a majority of the herd crossing the Kobuk River during their fall migration, leaving only a few scattered groups to overwinter near Point

Lay or Wainwright. For many years, the Nulato Hills were commonly used as a winter range. Migration patterns are ever changing and in recent years many caribou have been wintering in the central and western parts of the Seward Peninsula" (Working Group 2018h:10). Additionally, the working group reports: "Although the herd has declined in recent years, prompting changes in hunting rules and management decisions, hearing the stories of our elders can help us all realize that caribou populations have changed over time and will continue to do so in the future" (Working Group 2015:10).

[62] NAES 1991b:15.

[63] CW 2023.

[64] Anderson 1988:1.

[65] Anderson 1988:5; Mason and Gerlach 1995:122; Anderson et al. 1998:259.

[66] Mason and Gerlach 1995:112.

[67] Anderson et al. 1998:22.

[68] TJ 2023.

[69] LWJ. 2023.

[70] LWJ. 2023.

[71] Anderson et al. 1998:261.

[72] Working Group 2008b:8.

[73] Working Group 2006b:12. Mason and Gerlach (1995: 113) explain that "recent evidence indicates that climate change does affect the forage of large herbivores such as caribou, and thus affects the subsistence of arctic peoples." They note that A variety of climatic factors, such as moisture stress or icy conditions, can decrease the availability and accessibility of forage for caribou. Other changes can occur with weather shifts related to the snow. For example, calving success is negatively impacted by delayed snow melt, while early fall snow can trigger migrations. Young (1992) and Magdanz et al. (2011) note other ways that climate change has repercussions on caribou populations and thus imperils the food base.

[74] Hazel Apok mentioned deformities in fish as a notable change: "We find a lot of lesions, a lot of bugs, a lot of things in them today that we never had when I was growing up. I don't recall, you know, having deformed fish. Just this past summer Fish and Game has a project in Kiana where they collect fish and then they would distribute it to the—to the community. And that fish does not look like something I remember when I was growing up. So, I know there is changes in our animals" (HA 2002).

[75] Anderson et al. 1998:258.

[76] Anderson et al. 1998:163.

[77] Mason and Gerlach 1995:115.

[78] Anderson et al. 1998:261.

[79] Anderson et al. 1998:261.

[80] Moulton 1990:1-2.

[81] PJ 2003.

[82] AB 1990:10.

[83] AB 1990:10.

[84] AB 1990:9-10.

[85] LWS 2022.

[86] LWS 2022.

[87] LWS 2022.

[88] See, e.g., Heinrich, Stahler and Smith 2002; Vucetich, Peterson and Waite 2003.

[89] Woman in PJ 2016.

[90] In PJ 2016.

[91] Braem et al. 2015:14-15.

[92] Braem et al. 2015:14-15.

[93] HS 2023.

[94] HS 2023.

[95] HS 2023.

[96] HS, 2023.

[97] 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.

[98] Georgette and Loon 1990.

[99] Georgette and Loon 1990.

[100] JJ, 2016.

[101] JJ, 2016.

[102] Sheldon and Sheldon 1987:9-11.

[103] TJ 2023.

[104] LWS 2023.

[105] TJ 2023.

[106] Working Group 2005:1.

[107] CW, 2023.

[108] EJ, 2016.

[109] HS, 2023.

[110] PGS 1990:4-5.

[111] PGS 1990:4.

[112] Moulton 1990:24.

[113] Anderson et al. 1998:274-275.

[114] Working Group 2005:1. "... Used to go hunting on food, walking in August out for caribou. Young people don't do that now. Used to dry the meat, make a raft and float it back down river to home. Men have to work (for wages) now and don't have time to take the kids out" (Respondent CODE[187-47-121394] in Georgette 2000: 122).

[115] Moulton 1990:9.

[116] Moulton 1990:9.

[117] DS 1990:15.

[118] HS, 2023.

[119] HA 2002.

[120] HA 2002.

[121] HA 2002.

[122] HA 2002.

[123] HA 2002. Hazel also said, "I think my rearing was unique in that I grew up with an older couple. I only knew how to speak Eskimo until I had to go to school. Just listening to the other elders and the different timelines would jog my memory because I have vivid memories about things that happened as a—a baby, literally, and I believe it was because my parents talked to me, you know, all the time and kept that memory alive about different things that happened" (HA 2002). And "people are forgetting how to sew, and people are forgetting how to—how to dress themselves to keep warm" (HA 2002). What was once everyday foods are now considered 'delicacies': "Some of the white people, like the Friends Church, missionaries that came along, used to come and request certain foods from my mom because she knew how to prepare these, what are now delicacies" (HA 2002). She especially regretted the loss of certain traditional foods: "[O]ne [traditional dish] I remember that I liked was blueberries mixed with whitefish eggs and a little bit of seal oil, and the white people really liked that. I mean, there's different ways of preparing our foods that I grew up with that I don't know how to do today, you know, and that's because life has changed so much" (HA 2002). Finally, Hazel also said: "Flip a switch, turn a knob. And because we see things changing, we—we think that they are going to have to go back to their basic skills of wood heating and packing water. Something's got to give somewhere unless our kids suddenly decide one day that they are going to train to be teachers, they are going to train to—what I would like to see is our own surveyors, our own operators—heavy equipment operators, our own—instead of always importing these skills to our community, I try to tell our kids younger than me to get trained, you know" (HA 2002).

[124] RA 2002.

[125] RS 2002.

[126] TSJ 2002.

[127] IAB 1992.

[128] HSJ 2002.

[129] HS, 2023.

[130] HA 2002.

[131] HA 2002.

[132] Ellanna and Sherrod 1989a:20.

[133] TW 1990:6.

[134] Moulton 1990:2-3.

[135] Working Group 2018:11.

[136] Working Group 2018:11.

[137] Working Group 2014:13.

[138] Working Group 2014:13.

[139] Working Group 2014:14.

[140] Working Group 2015:6.

[141] Working Group 2015:6.

[142] Working Group 2018e:9.

[143] Jackson 1996a:13.

[144] HA in Jukebox 2002.

[145] Jackson 1996b:12.

[146] EJ, 2016.

[147] HA 2002.

[148] Alaska Newspaper Inc 1996

[149] Anderson et al. 1998:67.

[150] TSJ 2001.

[151] Anderson et al. 1998:68-69.

[152] HA 2002.

[153] HA 2002.

[154] Helvie Sandvik: "I don't know if you ever – have ever talked to like or read anything about Matthew Nicolai. He's from the Calista region. Interesting guy, he was Calista, president of Calista Native Corporation for many years, but he talks about, somehow or another, the Boy Scouts were introduced in his little village. He's Yup'ik from the Kuskwim, or Calista region, and he was raised by his grandmother. And so, Matthew really got into it. It was really cool. They get to earn all these badges. He was really into it. And one of the – there was a hiking badge or something, and so the plan was to go hiking up the mountain or something. And so, he's telling his grandmother that he's going to go hiking up the. . . And she said, 'Why?' And basically, he wasn't allowed to go hiking unless he brought back firewood. Because why would you go do that unless you were bringing something that would be useful to the family? And so that's sort of the way it is here. You go out for a reason. You know, you go out for, not necessarily joy riding, you know, you go fishing, or you go hunting, or you go do something. And I think that's frankly, why I have a hard time relaxing. You know, I can't go to Hawai'i and hang out at a beach. You got to go do something" (HS).

[155] Working Group 2017d:3.

[156] HA 2002.

[157] TSJ 2002.

[158] Larry Westlake: "mother that knew all the subsistence way of life. And those were the survival days. And my dad, white, from Calumet, Michigan. . . . he was a successful coal miner, you know. We never ran out of food during the winter. But I'll never forget beans (laughter). And I ate beans even though we got tired of it when we were young. It was mainly in the winter. We had all kind of other food in the summer that we'd catch out of the river and hunting" (LWS).

[159] JB 1990:10. "We have good times. Everybody usually have good time. Christmas time, Thanksgiving time. Then we have a lot of good times like when we never look for [things]—if you buy TV tomorrow, I also want one TV. See, we're not thinking that way. We live whatever we have at this moment, and we don't expect too much for tomorrow and the rest of the season. As long as we're healthy and be able to move around. Health come first. No doctors, no hospitals, just a nurse once in a while. Like I say, no alcohol, no alcohol and drugs. ... Like, right now you can be able to go out anywhere you want with a fast machine and caribou hunting one day way on the other side of the country and come back same night, same evening. Not that kind of a life it was them days. It was tough."

[160] PGS 1990:8.

[161] WCS 2002.

[162] DB 1990:12.

[163] LJ 2002.

[164] HJS 2002.

[165] Moulton 1990:12.

[166] RS 2002.

[167] You know used to be in the spring, when there's high water there's current you know. I went way up Squirrel one time and just beautiful. But in the springtime, you're supposed to hear ducks, geese and birds; completely silent. As I started to get in closer to high mountains my hair starts to . . . [thin out, or stand on end]. As I got closer, it got worse. I decided I better go back, but when I turn back, I don't know which way I came from. So, I kept going after I turn around and I stopped. The water didn't look right. There was a little water, but black and my boat stayed still. I wonder what would happen if I go to the land by the mountains" (EJ).

[168] "Yes, my – when we were walking, Jimmy, my older brother, Roseanne, his girlfriend, and my oldest sister, her daughter, Renee, and her husband Tesso . . . and I think Annie was there, my youngest sister – [I] was lagging behind because my knee. I always give up, you know, I have problems with my knee walking in the – and so, I lag behind. . . . I was maybe twenty, fifteen or twenty feet behind them, and they – I looked up and I said, 'Hm.' And just precisely 'That's funny, why is that bark like that?' And when I – they walked right underneath it. And I kept an eye on that, and when I looked, they were four bear skulls. The tree was cut, and the bear skulls were put and later on, the branches grew into trunks, so it was both sides where the bear skulls were protected, and they stayed. And I could tell they were very old, because the moss was even growing on them" (TJ).

My – I went to them and asked my dad and he said he doesn't know; he wasn't raised up in that area. He was mostly raised at the Squirrel River area, but he said, 'You go ask your Uncle Percy.' That's my mom's brother. So, he always had his head down because he couldn't see very well, or partially blind. He put his head down and hum, and I loved visiting him because he would tell me stories.

And I asked – I told them – I asked about the bear skulls. He put up his head, started smiling and said, 'You found them.' And I knew, because he was smiling. Because he was smiling and I knew he knew something about them.

I said, 'Do you know who put them?'

'Mmhm (yes), my grandpa.'

I did not ask them why he put them there and I should have"..."and some people wanted me to show them, [where the bear skulls are] but I – it was put there for a purpose, so I don't show a lot of people" (TJ). It's generally regarded as a place to avoid "especially if my great-grandfather put them there" but not because of any specific warning: "I'm sure Uncle would have told me if something to be cautious or careful about" (TJ).

[169] Nelson 1900:441.

[170] Burch 1971.

[171] Burch 1971:153

[172] Burch 1971:152–153

[173] Burch 1971:155–156

[174] Burch 1971:155–156, 159

[175] Burch 1971:154–155

[176] Burch 1971:161–162

[177] Burch 1971:162–163

[178] JJ 2016.

[179] Anderson et al. 1998:261.



Drumming at Kiana Elders Camp, on the banks of Kobuk River. Douglas Deur Photo

CHAPTER 11

Looking to the Future on the Kobuk: Conclusions and Recommendations

The lands and waters now managed as part of Kobuk Valley National Park are places of unique significance to the Iñupiat. While the ancestral settlements were spread throughout the river valley, residents of the modern communities of Noorvik, Kiana, Ambler, Shungnak, and Kobuk still access this vast traditional use area through camps along the river valley and tributaries. As the park's founding legislation acknowledged, Kobuk Valley is not a wilderness without habitation, it is a place shaped and reshaped as Iñupiaq homelands. Enduring many changes that have occurred since the passage of ANILCA in 1980, the river and valley are still seen as a place of great natural abundance, and a desirable place to hunt, fish, socialize, camp, and more.

The landscapes of this park, the fish, game, plants, waters, and minerals have all helped sustain these communities in many ways—culturally, socially, economically, dietarily, and spiritually. The elders of these communities and the many young people hold intricate knowledge of the landscapes of this park, including the placenames, the changing river channels, the movement of fish and game, the story cycles tied to specific landmarks, and many other forms of traditional knowledge. Continued access to the lands and resources of the park helps sustain this wealth of cultural knowledge, as well as providing subsistence foods; recreation, refuge, and respite; opportunities for family and community gatherings centered around seasonal cycles; and a sense of connection with the shared Iñupiaq heritage in this place. Everywhere the Iñupiat travel on this landscape, they know they travel in the footsteps of their ancestors. The results can be summarized and sorted into four conclusions.

1. Kobuk River Iñupiat Identities
2. Traditional Use Extends Beyond the Boundaries of Kobuk Valley National Park
3. Key Points of Access to the Parklands
4. Indigenous Knowledge about Ecological Changes and Evolving Traditional Use

Kobuk River Iñupiat Identities

The findings of archival research and recent interviews add to our understanding of the cultural identity of Kobuk River Iñupiat. The term *Kuuvaŋmiut* has come to be used, generally, for

the people of the Kobuk River. Each of the modern communities of the Kobuk River has their distinct cultural identity and heritage tied to the Kobuk Valley. The collaborators for this project, Kiana Traditional Council and Kiana community members, identify as *Katyaaŋmiut* which refers to the location of the settlement, at the confluence of rivers. Interviewees tied their heritage to *Igliqtiqsiuġvigruaq* and other sites on Kobuk River, and the people of Kiana are widely dispersed within the region and beyond.

Chapter 2 shares the story of *Qayaqtagugnik*, told by Minnie Gray, and is an origin story for the *Kuuvaŋmiut*[1]. This is followed by the story of the Kiana Twins, as told by Thomas Jackson: tales of *Katyaaŋmiut* ancestors battling with neighboring groups and living off of the land.[2] Interviewees spoke frequently about ancestral ties to the *Amiḷġaqtauyaaq*, who lived at *Igliqtiqsiuġvigruaq.* The emphasis on this site may be due to the recent research and publications about the site and is only one example of the cultural significance placed on the heritage sites of the *Katyaaŋmiut.* While this is not conclusive or definitive, the way that cultural heritage and identity is discussed in this report may lead to further research and can inform National Park Service management in their consultation.

Archived accounts of the *Kuuvaŋmiut* and interviews with the *Katyaaŋmiut* add to the documented history of colonization and relocation on the Kobuk River. Chapter 2 discusses the forces of change on the Kobuk River, which resulted in the modern-day settlements and use patterns: trade with European explorers, mining, schools, missions, cash economy, and the western concept of land ownership. Importantly, this section introduces the Native allotment act which undermined the existing relationships to land that were not based on ownership. Allotments and camps are key to the other findings and recommendations about traditional use.

Traditional Use Extends Beyond the Boundaries of Kobuk Valley National Park

This report finds that traditional uses extended beyond the boundaries of Kobuk Valley National Park, adding evidence that the *Kuuvaŋmiut* are traditionally associated with Noatak National Preserve and other areas managed by state, federal, and Native entities. Archival records and interviews shared in Chapter 3 show that people traveled to the Noatak River Valley for a variety of hunting and gathering, and in multiple seasons. Travel routes between the two remain culturally significant.

During the long days of late winter and early spring, when there is still snow on the ground, long distance trips for hunting and trapping were possible and some went as far as *Itimniġruaq* Creek in the upper Noatak[3]. Each year in early fall, hunters traveled to the upper Noatak for sheep and caribou, while other family members remained at fish camps on the Kobuk River. [4] The migration of the Western Arctic Caribou Herd largely determined seasonal rounds, with some sources suggesting that hunters go just as far as they need to, to find the herd. [5] Larry Westlake Sr. recounted taking sled dogs into the Noatak River Valley by way of the north fork of the Squirrel River. [6] The *Niaquligauraq*, a tributary of the Noatak River, is among fall hunting locations, and up until the mid-1960s fall hunting and trapping took place in the upper Noatak as far as the Colville and Anaktuvuk Pass.[7] *Kuuvaŋmiut* also traveled to the Upper Noatak River valley for trapping and winter caribou hunting, some staying out in the country until breakup. [8] The *Ninŋuqtuuq* River was used in this way. [9,10] The record of traditional seasonal rounds includes detailed descriptions of the long-distance travel, an insight into what it took to cover this much country by dog and human power.[11]

Placenames within the archival record can be mapped out to show the extensive trail system between the Kobuk and Noatak River Valleys. Places and trails named by interviewees include *Ingoksruk*,[12] *Naulik,* and *Niaquligauraq*.[13] Destinations in the upper Noatak included *Ninŋuqtuuq* and the Midas Creek.[14] Caching meat along the journey was a critical part of the hunting strategy for Kobuk River people traveling to the Noatak. [15]

The methods of this report were inclusive of traditional use of the land regardless of border, and the findings reaffirm that the use of the land and the cultural significance is not contained by modern land-ownership boundaries. The Squirrel River valley and sites along the river down to the delta are all described as a part of a way of life. For example, after breakup, another period of travel, the Kobuk Delta is another important use area beyond the boundaries of Kobuk Valley National Park. The delta is known for spring camps that were used for muskrat hunting until the mid-1900s, as well as some shee fishing.[16]

Key points of Access to Parklands

The *Kuuvaŋmiut* interviewed describe a strong pattern of accessing the parklands through key points along the Kobuk River corridor. Use is not limited to the corridor, but interviewees described a reliance on family camps for access to the parklands. Camps are often private property through the Allotment Act, but not always. Points of access were discussed in relation to activities such as moose hunting, fishing, and caribou hunting, and were described during field outings on the Kobuk River. Many of the key access points are also at risk of river erosion or beaver dams.

Indigenous Knowledge about Ecological Changes and Evolving Traditional Use

This report has gathered Indigenous Knowledge from a variety of sources, some published and some unpublished. The contribution of this report is, firstly, sharing new insights. Secondly, the report gathers Indigenous Knowledge about ecological changes and evolving traditional use in a way that shows enduring traditional ties to the Kobuk Valley National Park (within the larger landscape). Chapter 3 presents Indigenous Knowledge about rivers, with Iñupiaq terms from the archives that may not be published in other sources. The results include *Kuuvaŋmiut* use of stones, but the findings are limited and constitutes an area for further research into use and cultural significance.

There are several topics that arose in the report as culturally significant and revealing of change. In Chapter 4, muskrat camps emerge as a traditionally significant part of spring. In the early 1900s a focus on trapping muskrat in the Kobuk and Selawik River deltas, spurred by the fur trade, dominated the spring season.[17] The generation of *Katyaaŋmiut* elders interviewed in the 1970s and 1980s recalled this time period, where muskrat hunting camp was a large part of the seasonal subsistence cycles. People stopped trapping muskrat in the late 1950s, and it is no longer a common activity in the spring. This report also includes some *Katyaaŋmiut* describing their first encounter with moose, when they arrived in the area in the late 1900s.

While much has been documented about Iñupiaq knowledge of caribou distribution, harvest methods, and use, this report contributes key points of harvest in the Kobuk River Valley, as well as harvest patterns that took hunters into the Noatak. It is widely documented that the Iñupiaq hunters harvest caribou as they cross the river – where they move slowly and can be readily hunted from the shoreline. Onion Portage is the most well-known example

of this. Other areas along the river are also known for caribou and are places with a deep associated Indigenous Knowledge –places such as Kidways, Tuutaksraq, the Salmon River drainages, and Coal Mine.

As such, Kobuk Valley could be described as a "cultural landscape," formed by generations of human activity and holding meaning within the families and living culture of the Iñupiat. The signs of pre-contact human activity are subtle on the land. Many former settlement sites have been abandoned, becoming archeological features lying below the ground and under dense vegetation, some eroding into the river little by little each year. Yet, allotments, camps, and cabins persist along the river corridor, many at the same locations of former villages and camps. Key fishing and hunting places that were used millennia before the arrival of non-Native explorers and miners are still used today. Many landscape features within Kobuk Valley National Park are rooted in oral histories that continue to provide information and guide folks today. This continuity demonstrates how a cultural landscape that was well-established on the eve of contact continues to evolve—affected by the history of Euro-American settlement and park creation, but not wholly disrupted or displaced by those changes.

While outside park visitors are a relatively new phenomenon, their numbers do not eclipse this Native presence. A large proportion of the "visits" taken to Kobuk Valley today are visits by Iñupiaq people—from Kiana, but also Ambler, Noorvik, Kobuk, Shungnak, and other communities. They visit as part of seasonal treks to hunt for caribou; to fish for salmon, sheefish, and many other species; and to carry out many other subsistence tasks. They visit for a moment of solitude away from the village or for family gatherings related to subsistence harvests. A few come for other reasons—for example, as guides or trespass officers, or as part of organized cultural events like the Kiana Elders' Camp, which brings Kiana youth to places in and near the park to learn about their heritage in this place. Whatever the reason, the human presence in the park is still significantly Iñupiaq.

This is not to say that visitation and other dimensions of park management have not had their impacts. Increased visitation by park visitors has created additional traffic that affects the experience of this place for local users, the safety of hunting, and the movement of game. Recreational fishing and catch-and-release practices affect fish survival. Trespass on allotments has increased gradually with time, and residents feel the effects of wildlife regulations. And there are significant environmental changes underway that are largely beyond the control of the National Park Service. There are changes in the water quality of tributary rivers and streams, a more aggressive ice breakup that accelerates erosion in places, high water events that submerge traditional use areas along the rivers, and broad changes in fish and game movements—most notably caribou. And there are broader changes in villages that affect the use of the river, such as new economic realities that place constraints on long-term stays on the river, and various barriers to getting youth to places in the park or learning about their culture and heritage.

In other words, to use the terms employed in *National Register Bulletin 38 (Traditional Cultural Places)*, there is a growing threat to the "*integrity of condition*" of certain places of cultural significance along the Kobuk River corridor—as those places are undermined by erosion and other physical disturbances. However, elders note that they also face growing challenges in sustaining what *Bulletin 38* calls the "*integrity of relationship*"—the enduring cultural connection between Iñupiaq communities and this area of unique significance. All of these things affect the ability of Iñupiaq families to sustain connections to the Kobuk and

to use lands in the park as their ancestors did. The Kiana community's appreciation of these challenges underlies many of the comments made by elders about the fate of the river and their hopes for its future. Some of these challenges the NPS can help to reverse, minimize, or mitigate through collaborative efforts with Kiana and other Iñupiaq communities with enduring ties to the park.

The National Park Service and Iñupiaq communities, while not always in agreement on every detail, share many interests. They share mutual concerns about the status of fish and wildlife, the potential negative effects of erosion, the effects of trespass on allotments, and a range of other concerns. By finding areas of mutual interest, all parties might forge a collaborative future that helps sustain the interests of all parties. It is not hard to envision a future in which the National Park Service and the Native communities that treasure the Kobuk work collaboratively toward shared objectives—for the good of the river and surrounding lands, and for the good of the people who have called it home for countless generations.

Together, these facts call for innovative management strategies that respond to the unique significance, history, and modern changes of Kobuk Valley – strategies that are informed by Iñupiaq perspectives and developed in collaboration with park-associated Iñupiaq communities. Here, we outline just a few of the many possibilities for how the National Park Service can pursue this important goal:

1. Maintain Broad Consultation with Federal Tribes and Native Corporations
2. Assess Barriers to Iñupiaq Use and Access Over Time, Collaborate on Solutions
3. Continue to Collaborate with Villages to Address Dynamic Subsistence Needs and Challenges
4. Facilitate Ongoing Discussions and Cooperative Actions Related to Environmental Change.
5. Monitor Potential Visitor Effects in Allotments and other Places of Special Concern, Collaborate on Needed Responses
6. Continue to Develop Educational Opportunities Related to Kobuk Valley, Especially for Iñupiaq Youth
7. Expand Interpretation and Public Education as a Tool for Cultural Landscape Protection
8. Develop Archival Spaces and Capacity for NPS and Iñupiaq Community Use
9. Explore National Register Options, Including TCP Criteria and a Riverscape Nomination
10. Continue Archeological Monitoring, Survey, Research, and Protection

In the pages that follow, we address each of these recommendations in turn, knowing they are only a starting point for the efforts and conversations ahead.

Recommendation 1: Maintain Broad Consultation with Iñupiaq Villages and Native Corporations

Many Iñupiaq people possess unique and enduring ties to Kobuk Valley. This is principally true of residents of villages situated on the Kobuk River corridor, including Kiana, Noorvik, Ambler, Kobuk, and Shungnak. Others who hold such ties to the park may be found in places like Kotzebue and communities more distant still. The ancestors of the *Katyaaŋmiut* and other neighboring villages have lived in communities along the Kobuk River; and many of their

residents still own allotments along this sizeable river reach, actively harvesting subsistence resources and participating in many other traditional activities. These communities possess oral histories and lifetimes of personal experience linking them with the Kobuk River Valley. Today, they continue to visit and value lands within the park for many reasons.

In this context, the National Park Service has a special responsibility to continue to communicate, collaborate, and formally consult with these communities into the imaginable future. Moreover, under a range of laws, policies, and regulations too numerous to review here, the National Park Service holds a clear mandate to consult with the tribal governments that represent these people in any activity that might affect the Kobuk River corridor, or any other part of Kobuk Valley National Park. To some degree, this consultation has been ongoing since park creation and has arguably increased in quality and frequency in the subsequent years. These trends reflect changes in National Park Service policy guidance and agency culture, as well as changes in the staffing and management at Kobuk Valley—such as the hiring of park Cultural Anthropologists in the Western Arctic National Parklands office.

Present levels of consultation should continue and might need to expand for certain reasons explained more fully in the pages that follow. There is a persistent need and a legal mandate to directly engage Iñupiaq knowledge-holders in documentation and planning efforts regarding resources of concern to the community. And there are many examples in which direct collaboration between the NPS and the village communities will result in better outcomes for all parties: collaborative youth education, cultural documentation, and interpretive efforts, collaborative monitoring of fish and game, or the designation of new National Register properties within the park. If the National Park Service is to pursue any of these collaborative and mutually beneficial efforts, this also raises the bar for staff engagement and consultation with the Kobuk River villages.

There has been extensive consultation relating to subsistence practices within the park. The continued viability of subsistence harvests in the park remains a paramount concern. Fluctuations in fish and game populations and continued concerns about access will remain an important focus of consultation. Yet, clearly, subsistence means much more than obtaining food. Subsistence is a way of life that shapes Iñupiaq communities culturally, socially, economically, and otherwise. As such, subsistence harvests remain key to Iñupiaq community survival and to Iñupiaq cultural survival. As such, the many traditional subsistence practices described in this report are protected by law, policy, regulation, and ethical considerations conventionally relating to subsistence, but may also be protected under a range of other legal mechanisms relating to cultural resources, civil rights, and other domains that pertain to Alaska Native communities. This also suggests that both National Park Service and Iñupiaq interests may be best served by a broad interpretation of the park's consultation mandates, and by ongoing conversations about a range of subsistence interests and concerns.

The gradual rise in visitor pressures in parts of the park, recent and rapid changes in water quality, and other emerging management challenges may call for tribal consultation that meets or even expands upon what has occurred in the last decade. The appropriate scale and scope of consultation with park-associated tribal governments must be determined in direct collaboration with those governments in each village.

Consultation may also need to range beyond its former scope for other reasons. Clearly, consultations and other village outreach will need to address the usual topics of natural and cultural resource management and interpretation. With their unique knowledge and connections to this cultural landscape, *Kuuvaŋmiut* communities are certain to have useful

perspectives on the "integrity of condition" of culturally significant places and resources within the park—their physical condition and factors that may affect them positively or negatively. They know this place intimately and witness both short-term and long-term changes that may not always be obvious to park staff.

Yet, to support the larger mission of sustaining the "integrity of relationship" between tribes and the park, these interactions must also involve active discussion of factors that might affect ongoing access, use, and youth educational opportunities specific to Kobuk Valley. If in these exchanges the National Park Service and *Kuuvaŋmiut* villages address factors that potentially undermine Iñupiaq access to and knowledge of the park, all parties will be better prepared to identify ways to minimize, mitigate, or eliminate those barriers.

With these kinds of issues in mind, Kiana residents who have participated in this study sometimes note the need for continued and deepened coordination between the National Park Service, Kiana Traditional Council, and other park-associated village councils—as well as the involvement, where appropriate, of NANA Regional Corporation and other Native entities. At the discretion of tribal governments, this consultation will be most successful if it continues and increases involvement by subsistence users, allotment owners, and others who are regularly on the land and inside the park. This will ensure that their specific concerns and local knowledge can be factored into these efforts. In some cases, certain goals may be advanced by expanding National Park Service efforts to hire or contract with Iñupiaq residents of the villages under the ANILCA hiring authority and learned professional exemption for a range of potential roles in the park that simultaneously support National Park Service and Iñupiaq interests.

Ideally, communications will continue to be frequent and to extend beyond the letter of consultation required by law, policy, and regulation. A trip to Kiana to speak face to face, or a phone call, can make all the difference when it comes to this exchange. They can address opportunities for collaboration in advancing the mutual interests of both parties in the stewardship of the park. Topics for focused attention might include, but not be limited to, addressing sensitive sites and potential visitor effects—and establishing mutually acceptable protocols and public education to prevent adverse visitor effects on allotments, archeological sites, or culturally sensitive places especially along the Kobuk River corridor. National Park Service staff and tribal representatives might continue to discuss opportunities for collaboration with Native allotment owners, KTC, and BIA on matters of access, the protection of cabins and other infrastructure, and other shared interests. Moreover, the National Park Service and tribal governments might develop more formally articulated protocols for documenting erosion of allotments, heritage sites, and human burials, which elders have described as numerous along the corridor. Additionally, Kiana residents point out that many opportunities exist for collaborative development of educational materials—for Iñupiaq youth, and certain circumstances, for the public. Other opportunities involve collaboratively scoping future research projects, such as the research summarized in this report, to ensure that future research is designed to meet Iñupiaq needs as much as it meets National Park Service management needs. Many of these points are addressed in the sections that follow.

Recommendation 2: Assess Barriers to Iñupiaq Use and Access over Time, Collaborate on Solutions

While Iñupiaq communities continue to visit and use Kobuk Valley, there are a number of barriers to their access to Kobuk Valley National Park. Based on current trends, it is also worth considering what additional barriers may come up in the future. Some of these

emerging barriers are well beyond the control of the National Park Service, such as those resulting from economic or weather shifts—though the Park Service might see opportunities to help minimize or mitigate the negative effects of these changes. Other emerging barriers are materially affected by park management, interpretation, and consultation practices. As a park abiding by ANILCA legislation, which protects the right of ongoing subsistence use of park lands for rural residents, Kobuk Valley has clear mandates to identify these types of barriers, and to work collaboratively with the villages and their tribal governments to eliminate, minimize, or mitigate them when possible. As rapid changes are dynamic, it is only through ongoing conversations, consultation, and collaboration with the Kobuk River villages that the National Park Service can identify barriers and address them appropriately.

Recommendation 3: Continue to Collaborate with Villages to Address Dynamic Subsistence Needs and Challenges

While subsistence resource management decisions fall to many agencies, the National Park Service has an important role in these decisions. Kobuk Valley National Park has semiannual meetings with the Kobuk Valley Subsistence Resource Commission. "The Commission is established in accordance with the Alaska National Interest Lands Conservation Act. The Commission is regulated by the Federal Advisory Committee Act." (Kobuk Valley SRC charter, 2023). These nine-member commissions make advisory recommendations to the National Park Service, Federal Subsistence Board, and Secretary of the Interior. Subsistence hunting, fishing, and gathering remain at the heart of Native diets and traditional economies as well as the heart of cultural, social, and spiritual practices.

Changing patterns of caribou movement, changing fish numbers, changes in the river course, and other factors have required dynamic responses from Iñupiaq subsistence users since time immemorial. Subsistence users in Kobuk Valley have long taken an adaptive approach to these changes—making such steps as the rapid relocation to alternative hunting and fishing sites, and shifting emphasis from one species that is abruptly unavailable to another.

As stated in earlier chapters, Kiana elders observe that many of the changes today are occurring more rapidly and seem less predictable. Caribou numbers have fallen sharply. River erosion sometimes eliminates fishing options in one place, sometimes creating fishing options in another. Changes in water levels and the timing of freeze-up and breakup are affecting access to longstanding hunting and fishing sites, as well as the many camps, cabins, gravel bars, and other places used as venues for the harvest. Federal management and regulation can sometimes, often inadvertently, complicate villages' longstanding adaptive strategies and undermine their ability to respond expeditiously to these changes. The "locking in" of land ownership and jurisdiction—through federal ownership, but also due to the introduced concept of bounded private allotments and ANCSA corporation land—places new limits on communities' mobility and adaptive options under these circumstances. Discussions between villages, families, the National Park Service, NANA, and the Bureau of Indian Affairs, for example, might reveal opportunities to respond to some of these adverse effects. Understanding how much land is being lost will be the first step toward approaching opportunities for recouping land and hunting access. Beyond this, outside hunters, park visitors, and development near park lands, can also potentially affect fish and game availability. For example, requests to develop visitor services at the Kobuk Valley sand dunes are sensitive due to the risk that it would add congestion to the river. To reduce the adverse effects of park management on Iñupiaq communities, the National Park Service and village representatives

can continue to collaborate in actively monitoring, analyzing, and developing solutions for obstacles to these subsistence practices. National Park Service engagement with other land management agencies, as well as organizations such as the Northwest Arctic Subsistence Regional Advisory Council, rusting rivers and beaver researchers, the inter-agency Hunter Success meetings, and Western Arctic Caribou Herd Working Group will also be essential to forming subsistence and natural resource management responses that are timely and in alignment with the interests of all parties.

Recommendation 4: Facilitate Ongoing Discussions and Cooperative Actions Related to Environmental Change

Among many Kiana residents, the effects of environmental change on the Kobuk are a topic of growing concern. As with other topics addressed in prior sections, appropriate responses include active monitoring of environmental changes and their effects, open communication, and reporting of findings between the National Park Service and Iñupiaq communities, and collaborative efforts to minimize or mitigate negative changes over time. The highly detailed "on the ground" knowledge of Iñupiaq subsistence harvesters and allotment owners will be of value in these communications—providing a wealth of firsthand observations of change inside the park that would be elusive without their participation. Because the effects of future environmental change can only be understood or predicted in very general terms, these efforts should be ongoing and should adapt based on ongoing observations of changes.

Changes in the timing of river freeze-up and breakup, as well as changes in permafrost and surface hydrology are certain to affect transportation options for Iñupiaq families who regularly travel this landscape by boat, ATV, and snowmachine. There are a number of options for remote measurement of these factors. Establishing a monitoring program, led by Indigenous Knowledge, would aid in adaptation to the rapid change. The National Park Service staff will likely witness and, under the terms of ANILCA, may need to accommodate the uses of these modes of transportation at times and in places that are novel, as all parties adapt to emerging challenges and opportunities in accessing traditional harvest areas, allotments, cabins, and camps. The movement, timing and availability of fish, game, berries, and other resources are sure to affect traditional activities in numerous ways as well, causing subsistence users to abandon some longstanding harvest areas in whole or part and adaptively move to new areas in order to continue traditional resource harvests. Similarly, changes in the annual cycle of river levels, including the flooding of traditional harvest sites and allotments, seem likely to prompt subsistence harvesters to move to other locations along the river corridor that are less prone to flooding or other negative hydrological effects. These potential changes underscore the need for candid and direct communications between the National Park Service and Iñupiaq communities over time.

Changing environmental conditions bring other needs for coordination and communication as well. For example, Kiana residents note a need for the active monitoring of the riverbank for accelerated erosion that might expose sensitive archeological sites, or inadvertently expose human remains. Gravesites are described as numerous along the river, as interment along riverbanks has been part of Iñupiaq cultural practice for the recoverable history of the river corridor. Regular monitoring will help both groups identify the exposure of sensitive materials in a timely fashion, as well as rapid coordination of responses that are consistent with both NAGPRA and other federal laws, and tribal protocols. If erosion rates accelerate in the years ahead, this coordination might be aided by a standardized

park-wide programmatic agreement for inadvertent discoveries of archeological sites or human remains, developed specifically in response to this emerging threat in consultation with Iñupiaq villages and NANA Regional Corporation.

Similarly, Kiana residents note that private allotments are losing land to erosion and increased wildfires, and, in some cases, structures are being undermined. Owners have difficulty pulling cabins, smokehouses, and other camp infrastructure back from the riverbank when they are threatened by erosion. River users are often elderly, and the groups who visit the allotments to assist are often small, making it difficult to move structures. Visitation to allotments can be sporadic, or dramatic erosion occurs in just a single season—so that damaging erosion is not detected until the effects are significant, and little time remains to respond. Coordination between the National Park Service, BIA, tribal organization, and allotment owner could be established for identifying these challenges. By being a part of the solution for structures that need minor relocations on private inholdings within the park, the NPS would materially assist river users and help foster relationships of cooperation and enduring trust with nearby villages.

Environmental change also has the potential to accelerate the erasure of the Iñupiaq presence in certain ways that might call for additional efforts, too. Mitigation of these effects can be challenging. The National Park Service and tribal governments might take steps, for example, to document places threatened by erosion and other transformative change—so that these places can be preserved, or at minimum documented, as part of the historical record of Iñupiaq peoples in the park. A *Cultural Landscape Inventory and Assessment*, documenting the history and integrity of camps, structures, and other cultural features along the Kobuk, might be one appropriate response. The number of cabins and other built landscape features like camps, caches, and trails, visible intact or in remnant form along the Kobuk River riparian is impressive. At the time of this writing, we still have access to a generation of elders who have lived for months at a time in Kobuk Valley—who can still recall fine-grained detail of the cultural landscape's genesis and human history. With their assistance, the National Park Service and resident zone communities might yet develop not only documentation, but preservation standards that would foster continued use and bolster the overall integrity of the cultural landscape of the Kobuk.

Recommendation 5: Monitor Potential Visitor Effects on Allotments and other Places of Special Concern, Collaborate on Needed Responses

Kiana residents sometimes observe negative visitor effects on places and resources in the park. Most of this occurs along the Kobuk River corridor, most often in the form of trespassing on allotments. These effects are usually described as minor, reflecting the modest visitor numbers within the park. Park rangers seek to contain these few negative effects, and NANA hires trespass officers who seasonally patrol the river to monitor for trespass or other negative visitor effects on allotments and NANA lands set aside for shareholder use. Kiana residents also report a growing number of hunters and fishers from communities outside of the Kobuk River Basin.

While park visitation remains very modest in Kobuk Valley National Park, it is reasonable, based on current trends, to expect that Kobuk River use by tourists, recreationalists, and harvesters (from communities within the region but outside of the Kobuk River communities) will increase over time. In other parks across Alaska, the effects of rising visitation often create new opportunities but also new challenges affecting traditional users in complex

ways. For example, growing motorboat traffic has the potential to amplify wakes that can accelerate erosion, a growing issue in some Alaska national parks. In these other parks, that rise of recreational use also brings increasing trespass, vandalism, accidental fires, human waste, and other encroachments on allotments. In areas with growing visitation, potential impacts on fish, game, berry-picking grounds, and other resources and resource harvest areas are numerous. With more people concentrated in the Kobuk River corridor, traditional uses like hunting can become riskier and more complicated. Users describe effects on game movements and pressures on the hunter operating in crowded spaces. Federally qualified subsistence hunters from other communities beyond the Kobuk region can have potential effects on game location, availability, and health. Similarly, outside fishers can have effects on the availability and health of fish in the Kobuk, while traditional practices such as river seine fishing can be complicated by an increase in recreational boaters passing through river reaches that are actively fished. All of these changes can, in turn, have secondary effects that reflect changes in traditional use and visitation in response to visitor pressures. Thus, the potential effects of increased visitor pressure may be understood to be "direct," such as the accelerated erosion of Native allotments or increased competition for certain fishing or hunting sites—or "indirect," such as the avoidance of the river by traditional users, increased subsistence use of alternative areas, and declines in culturally-rooted knowledge pertaining to the Kobuk.

While at the time of this writing the worst of these threats remain largely hypothetical, park visitation has been gradually increasing in recent decades. In collaboration, the National Park Service and village representatives can monitor visitor interactions with the park and its resources over time, especially in areas with growing visitation, and can develop solutions to address growing visitor numbers and patterns of visitor behavior that create obstacles to Iñupiaq use of NPS managed lands over time.[18] In a way, Kobuk Valley National Park's remoteness prevents unlimited visitor growth compared to other National Parks in the country, or even parks along the road system in Alaska. The cost of commercial airfare alone is a limiting factor. Visitors must find a place to stay in Kotzebue, which is limited to one hotel and a few small BnBs. The cost to fly into the park is incredibly expensive by vendor aircraft, and landing is limited to available gravel bars or strips. Very few visitors will have access to a boat to get them into the park, and if they do, this may mean an additional flight to a Kobuk River village which ranges from 350-600 dollars. These visitor hurdles provide a buffer from growth and impacts to resources and traditional use. Visitor numbers have not changed much at all in the last decade as a result.

In light of the possibility of negative visitor effects on "integrity of condition" largely along the river corridor, National Park Service staff will monitor tangible visitor effects upon cultural sites and resources, such as littering, looting, camping on cultural sites, trampling vegetation or accelerating bank erosion, the digging of "cat holes" to contain human waste, firewood cutting by park visitors, and a range of other activities. Yet, the need may arise for all parties to monitor and discuss visitor effects upon less tangible aspects of the "integrity of relationship" between Iñupiaq families and the Kobuk River corridor. A number of Kiana residents, for example, described the Kobuk River corridor as a place where they seek the relative solitude of their cabins and camps, and sometimes hold family activities and gatherings—all practices that date from pre-contact times and endure into the present day. Clearly, these activities are not usually carried out with a public audience and would be complicated by rising visitation or the gaze of tourists. Some Village residents may opt to take part in the

tourist economy as well, as guides or as lodge owners, for example, infusing those businesses with Iñupiaq perspectives that can help offset some of these potentially negative effects. So too, the movements of game are important to these cultural uses of the landscape in myriad ways, and to the intergenerational transmission of cultural knowledge in this place. If outside visitors might somehow affect the movement of game, they can also inadvertently affect the transmission of culture. While present visitor traffic does not significantly affect these traditions, a growing visitor presence in the future may affect these practices in many ways. For this reason, monitoring of change, and proactive, collaborative problem-solving may require attention to both the tangible and intangible values of Kobuk Valley.

These potential changes require a long view, and a long-term approach that involves the villages, allottees, and the National Park Service monitoring visitor effects, and sharing these observations with each other. The candid, open, and timely reporting of findings will allow all parties to have information on these effects, so that they might be able to respond in real time and collaborate in developing appropriate responses. Erosion, trash and human waste, trespass, and fish and game effects can all be addressed through dialogue. In addition, the National Park Service will continue to monitor archeological sites and other places of cultural significance, especially along the Kobuk River corridor, for changes that might undermine the "integrity of condition" of culturally significant park resources or the "integrity of [Iñupiaq] relationship" with this culturally significant landscape.

As one possible component of a larger response to these potential effects, the National Park Service can continue or expand coordination with private landowners and might also collaborate with or even consider co-funding trespass officers with NANA when it is in the mutual interest of all parties to aid in the monitoring and possible prevention of these kinds of impacts. National Park archeologists, while completing required conditions assessments, can communicate changes during regular consultation with Iñupiaq communities, which also can be used to solicit Iñupiaq concerns about observed negative effects on natural and cultural resources of significance. In the event that NPS staff or Iñupiaq representatives identify adverse effects or imminent threats to tangible cultural resources, KOVA managers can develop impact minimization or mitigation measures—working collaboratively and in consultation with Iñupiaq village representatives.

Ideally, responses to adverse effects will not be solely reactive, addressing damage that is already done, but in some cases should be proactive—to avoid the impacts of the future. Visitor education efforts aimed at instilling a "leave no trace" ethic and respect for the integrity of the cultural landscape might be considered as proactive management strategies. Similarly, Kiana residents sometimes suggested producing maps or installing signs so that people might see where private allotments sit within the park—along with guidance on how to respect and avoid damage to those places.

Recommendation 6: Continue to Develop Educational Opportunities Related to Kobuk Valley, especially for Iñupiaq Youth

The National Park Service has many opportunities to expand collaborations with Kiana and villages in developing educational opportunities related to Kobuk Valley and its rich human heritage. Native youth have many reasons to learn about this area, which is so important to their shared history and their living cultural heritage. For those who visit Kobuk Valley, there are many lessons to be learned there—regarding traditional practices; the biology and behavior of fish, plants, and wildlife; climate; soils; riverine processes; and so much more.

The park therefore serves as a venue for traditional learning, as well as a source of inspiration for students during their formal academic training. Proceeding with deference and respect for village needs, the NPS has the potential to generate educational opportunities and media that can have lasting benefit for youth in local villages as well as the park visitor.

Many Kiana youth are fortunate enough to visit during family subsistence hunting or fishing trips, or in the context of formal programs such as the Kiana Elders' Camp. Still, others do not have a chance to visit Kobuk Valley. A personal, firsthand knowledge of Kobuk Valley has slowly been fading over time within some families impacting their cultural knowledge and familiarity with this place. This is of concern to Kiana elders, who recognize that this knowledge is an integral part of their shared heritage of Kobuk Valley. There are formal mandates for the National Park Service to assist in ensuring that these connections persist with time. For example, if the cultural landscape of the Kobuk River riparian is eligible for National Register listing using, in part, "Traditional Cultural Property" criteria as we argue below, the "integrity of relationship" (the connection between Iñupiaq people and the Kobuk) is integral to its National Register eligibility. This designation can prompt management actions to protect and even enhance the area as part of the National Register mandates.

National Park Service staff and Iñupiaq communities therefore have a mutual interest in creating opportunities for Iñupiaq people—and youth in particular—to learn about and sometimes visit Kobuk Valley. Such educational opportunities may be developed either onsite or offsite. Onsite opportunities involving visits to the park are especially appealing but might also involve greater costs and logistical challenges—so a combination of strategies might be most effective. There are ways to bring Iñupiaq youth to Kobuk Valley, but there are also ways to potentially bring the lands and resources of Kobuk Valley to the youth of Kiana and other area villages. This could be accomplished through presentations, educational media, and a range of other educational tools.

Accordingly, Kiana elders often noted the need for educational opportunities and materials that can support in-person or remote learning about places like Kobuk Valley. The National Park Service has staff with expertise in interpretation and public education, as well as a number of specific resource fields, and sources of funding that might allow for the development of such media in coordination and consultation with Kiana and other Kobuk River villages. A number of other documentation efforts and educational media could be envisioned and developed in consultation with Kobuk River villages to advance educational efforts. And, while we propose that the National Park Service develop educational opportunities largely for and in cooperation with Iñupiaq peoples, the products and outcomes may also benefit non-local park visitors and park staff. Redacted and village-approved media could be used for these kinds of visitor education opportunities. Meanwhile, the villages and Native corporations also have considerable in-house expertise, and access to funds, including grant sources, that might support such initiatives.

The NPS might facilitate, through funding or staff time, the expanded documentation of Kobuk Valley history, or specific landmarks of cultural significance. This might include assistance in the continued assembly of historical images of Iñupiaq life in and near Kobuk Valley. The National Park Service might also help to amass photos, even drone footage, of places in the park to be used in educational media—to help Iñupiaq people retain familiarity with features that are difficult to access, or otherwise beyond their reach. Other media to support educational efforts, such as interactive "Story Maps," could be developed as part of



Kiana youth and camp leaders pulling a seine net to shore. Emily Creek photo, courtesy of the National Park Service

this larger effort—such as for the teaching of Iñupiaq placenames and related place-based knowledge for landmarks within the park.

Beyond this, educational media derived from the contents of this report could be employed for educational uses. For example, the National Park Service and villages might collaborate in the development of youth-oriented handbooks containing information about the attributes and traditional uses of different fish, game, or plant species. For older kids, this could take the form of field guidebooks with cultural content, for example, and for younger kids, this could take such forms as coloring books. With a little additional research, cookbooks of traditional cuisine found in Kobuk Valley would be appealing, allowing young people to engage their heritage in entertaining but practical ways. While Kiana elders and families have expressed interest in such materials for household use, our communications with teachers and other school staff over the course of this study have also confirmed a clear demand for materials of this nature in the villages' public schools. In each case, it is essential to coordinate with the Kobuk River villages to be sure that the medium and message of the materials are topically appropriate, readily intelligible, and appealing to Iñupiaq youth. Through consultation with these communities, the National Park Service also might determine that some portions of these materials—whether in whole or redacted—could also support public interpretation or other park mandates.

For Iñupiaq youth seeking to understand Kobuk Valley and its broad significance within their heritage and culture, on-site activities are especially valuable. In recent years, the Kiana Elders Camp has become an important place for traditional education related to the Kobuk Basin, including lands within Kobuk Valley National Park. Supported by grants and other temporary funding sources, this camp allows groups of school-aged children from Kiana to camp along the Kobuk—a camp only a short distance west of the park's western boundary—and to learn from elders with specialized knowledge of the land traditions Here, kids learn



Lifejackets hang to dry on a fish rack. Emily Creek photo, courtesy of the National Park Service

Iñupiaq traditional songs, dances, stories, language, and placenames; fish harvest practices; craft traditions; and more. As part of the educational experience, the elders and students take trips together away from their camp, sometimes venturing into the park for the day to observe and learn about key landmarks and natural resources. The camp helps to sustain Iñupiaq knowledge of and attachment to Kobuk Valley. To the extent possible, traditional education involves knowledge-holders and youth being on the land together, learning from the land and each other. In this camp, elders and youth are engaged in almost constant discussion of the history, cultural significance, and natural and cultural resources of Kobuk River Basin. As such, culture camp is arguably one of the most effective tools in supporting the "integrity of relationship" between Iñupiaq communities and Kobuk Valley.

For some Native youth, these camps are becoming increasingly important to fostering their connections to Kobuk Valley, and to their learning and retention of place-based cultural knowledge. These camps have also served as venues for the education of new teachers, who have sometimes attended the camps and then can bring the lessons from camp back to the classroom. Non-Native subject matter experts, such as agency fish biologists or public education specialists, have also been welcomed into these camps to share knowledge with youth participants—creating opportunities for staff from the National Park Service to share knowledge too, at the discretion of Kiana's camp organizers. Each year, these camps need funding to pay for food, fuel, pay for assistants and teachers, and a range of other expenses. The absence of funding for these efforts can be a limiting factor in the community's ability to mobilize an Elders Camp each year. In the course of the study summarized in this document, we used project funding to help offset some of these costs for the 2023 Kiana Elders Camp—recognizing that the Elders Camp was an important venue for our own learning, including many field visits and interviews with participants such as Thomas Jackson and Larry Westlake, Jr., of Kiana. In the future, the National Park Service might consider continuing to contribute funding to support the Kiana Elders Camp, or to provide other resources such as boat transportation along the Kobuk or improvements to the modest camp buildings that sit just west of the park. The National Park Service helps to fund comparable Native youth education camps in other Alaska parks, such as the Dena'ina *Quk' Taz'un* ("The Sun Is Rising") Outdoor Leadership Camp at Lake Clark, Bering Straits Archaeology Camp, and Native Village of Kotzebue's Camp Sisualik, and Arctic Travelers camp at Cape Krusenstern National Monument. Camps like these may serve as a model for how NPS staff might collaborate with villages to create on-site educational opportunities for Native youth.[19] Such events provide tremendous opportunities for learning, fun, and goodwill among Native youth, and clearly help advance the interests of both the National Park Service and the village communities in numerous ways.

Recommendation 7: Expand Interpretation and Public Education as a Tool for Cultural Landscape Protection

Kiana and park representatives recognize the need for public education related to the cultural and historical significance of Kobuk Valley. In some respects, this reflects an appreciation of the basic fact that the park has a dual mission to provide for recreation as well as cultural and natural preservation. The National Park Service audience is a far-reaching public. Yet, interpretation and publication can have broader value too. They can augment the protection of resources and Native interests within the park by invoking respect in visitors. Park staff and Kiana residents have a shared concern about potential adverse visitor effects on camps,



Kiana's OPT-in Youth Dance Group during the Grand Entry of Qatŋut: Northwest Arctic Trade's Fair in Kotzebue July 2025. Emily Creek photo courtesy of the National Park Service

cabins, and allotments; sensitive cultural resources such as archeological sites; living creatures including subsistence fish and game; and many other things that matter within the park. In Kobuk Valley National Park, these kinds of potential impacts can, in part, be addressed through public education efforts that might instill respect and encourage respectful behavior among park visitors. In some respects, the goals of public interpretation and the protection of sensitive places and resources are distinct; yet, both Iñupiaq and National Park Service representatives appreciate that these goals are complementary and fundamentally linked. This is true whether the information is in print or online media, or additional interpretive content such as videos or displays at the Northwest Arctic Heritage Center (Visitor Center) in Kotzebue, or other kinds of interpretive media.

With these considerations in mind, we recommend collaboration between the National Park Service and Kobuk River village representatives in developing appropriate interpretive media and public education opportunities that achieve interpretive mandates of the agency while aiding in protecting Iñupiaq interests. Within any public account of the Native history

of Kobuk Valley, the National Park Service can find opportunities to instill respect and foster the protection of sensitive sites and resources. Interpretive media can encourage visitors to apply a "leave no trace" ethic when traveling through the park's natural and cultural landscapes; they can help foster respect for both Iñupiaq traditions and the lands and resources on which those traditions depend. As appropriate, opportunities might also exist to share the oral history of specific places, imparting the deeper cultural meaning of the landscape and allowing the visitor to connect to the place as well. This planning requires the active co-production of interpretive plans and media, for only Iñupiaq knowledge-holders can speak with authority as to what stories are appropriate and what stories are too sensitive for public disclosure. This work can occur alongside activities outlined earlier in this chapter, as the NPS engages Kobuk River villages in the development of educational opportunities for Native youth. Drawing again from the language of *National Register Bulletin 38*, interpretation can help protect the "integrity of condition" of the park by fostering respectful behavior among future Kobuk Valley visitors, while also protecting the "integrity of relationship" by sustaining shared Iñupiaq knowledge and reducing disruptions to living traditions of Iñupiaq land and resource use within the park. This is not only ethically appropriate and consistent with the legal mandates of the agency, but is also more likely to foster empathy and respectful response from visitors than conventional interpretation—fostering improved visitor respect for the Iñupiat and their traditions. This can enhance visitor experience while, at the same time, helping to reduce visitor behaviors like looting or littering that might adversely impact the most visited parts of the park.

Discussions of specific Iñupiaq cultural practices or village locations are inherently sensitive, and the application of this knowledge requires review by Iñupiaq representatives before being included in any public materials. However, topics such as Iñupiaq traditional resource use and values may provide a useful point of departure for public stewardship messages—emphasizing themes of respect, the need to leave few traces on the land, and shared obligations to transmit the land in good condition for the benefit of future generations. Brochures and publications describing these stewardship values and their implications for visitors may also be warranted for both visitors and commercial operators. Again, to protect allotments from trespass and to instill respect, interviewees sometimes recommended developing clear land ownership maps and posting or distributing these at likely points of visitor access. Finding a campsite on park managed lands, between all the allotments and NANA lands, is likely difficult for the small but growing number of backcountry park visitors on some river reaches. Maps might highlight plausible camping areas, specifically on park lands, to assist future visitors.

The National Park Service also might work proactively with commercial operators who interact with park visitors, including guides or lodge operators, to ensure their employees appreciate the cultural importance and resource-protection issues associated with the park, as well as specific NPS rules regarding topics like archeological site protection. These operators might receive orientations to the park's cultural and historical significance, and to the laws, policies, and regulations protecting cultural resources, as well as natural resources of cultural significance. Additional information, such as the history and modern use and ownership of Native allotments interior to the park, might also be included as part of this orientation. These commercial operators might also have opportunities to distribute engaging, pertinent materials related to the park's cultural and historical significance, which have been developed and approved by Iñupiaq partners with the park—allowing them to share this information clearly and accurately with clients.

Public education regarding Kobuk Valley's remarkable archeological heritage, such as the sites at *Paatitaaq* (Onion Portage) and *Igliqtiqsiuġvigruaq* ("Swift Water Place"), is a unique challenge. Especially as visitor numbers increase, it may prove difficult to protect the park's archeological heritage without public awareness of its existence. Still, revealing too much of that archeological heritage to the public potentially places cultural sites at risk, and could intensify public visitation, possible looting, and other impacts. In this context, public education must strike a delicate balance. To provide optimal protection to Kobuk Valley's cultural resources, interpretation can be guided by an adaptive approach, with interpretive media being developed and amended in coordination between Iñupiaq knowledge-holders, the park's cultural resource specialists and park rangers, NANA trespass officers, and others. Certain general guidelines apply to public discussion of the park's archeological resources. In describing park archeology to visitors, geographical coordinates and other location information must remain intentionally vague. Interpreters can impress upon visitors and commercial guides that archeological sites are non-renewable resources and deserve protection under both federal law and Iñupiaq cultural protocols. It is appropriate to note that archeological resources are of profound cultural meaning and sacredness to Iñupiaq people who live in the area today—who often travel the park and observe visitor activities with much interest. If that is not enough, interpretive media can also accentuate the fact that archeological sites and features within the Archeological District are of incalculable but largely untapped scientific value, so long as they remain intact and *in situ*, and that stiff legal penalties are in place for those who damage archeological sites.

Recommendation 8: Develop Archival Spaces and Capacity for the National Park Service and Kiana Community Use

There will always be a need for information, as Iñupiaq communities like Kiana and park staff seek to understand the historical and cultural significance of Kobuk Valley and to protect the places and resources of cultural significance within the park. Therefore, access to materials regarding the historical and cultural significance of the park is essential, such as oral history audio and video recordings, historical documents, photographs, archival records, archeological and other technical reports, and other materials. Kiana representatives frequently reminded our research team that over many decades, researchers had passed through, recording information and gathering materials of much interest to the community—then left without providing durable copies of those materials for future community use. In many cases, village residents are not even sure where to look for those materials elsewhere in the state, across the U.S., or around the world. Yet, access to those materials is important in sustaining their own sense of history, in helping them understand and protect places and resources of concern, and in continuing to hear and learn from the voices of elders and ancestors no longer available to them today.

Interviewees note they have some fragments of this record, but that the National Park Service and its collaborators possess a greater portion, as well as the ability to help locate and return those materials to the park and the communities. To an extent, the present study has done this. But more work is clearly needed to bring the words, images, handwork, and knowledge of the ancestors back home. Some interviewees called for the creation of archival collections within tribal or National Park offices. Some, such as the late Lorry Schuerch, proposed designating a small museum in Kiana to house records that would contain family photos and records alongside the archeological works of such researchers as Giddings and Anderson, ethnographic notes, thematic reports such as the present document, artifacts, and



Hannah and Thomas Jackson reviewing report findings and asking questions in NPS's Kiana office. Emily Creek photo, courtesy of the National Park Service

other materials. While the details and appropriate mechanisms can be sorted out through conversations within communities, little doubt remains regarding the need for this record of Iñupiaq culture and heritage to be returned and made more accessible to people living and working in the villages.

Therefore, as interviewees sometimes observed, one of the most important things the National Park Service can do to help protect the cultural legacy of Kobuk Valley is to help pull together materials about people, places, and things within the park—so that these can be readily accessed by families and communities with ties to the park. An archival collection of such material will help the Kiana community to sustain and build upon their rich knowledge of Kobuk Valley, and for young people to learn of their heritage. These materials may include their family histories, family photos, and other items of personal significance included alongside more general and technical documents. A well-maintained archival collection can help to sustain the "integrity of relationship" between Iñupiaq communities and the cultural landscapes of Kobuk Valley, in a manner that—if aided by National Park Service staff or resources—might help the agency meet a range of formal and informal obligations.

Beyond this, gathering materials together in one (or more) place would aid other people with interests in the park as well. Resource managers and interpreters require access to these kinds of materials in order to support the management and protection of cultural resources and culturally significant places and resources within the park. With the consent of village representatives, these materials could potentially benefit outside researchers or the public—though certain items (such as archeological reports or personal data) would require much more restricted access due to their sensitivity and legal protections.

For this to work as intended, organization is key. Materials must be organized so that they are readily available, accessible, and navigable to interested Iñupiaq individuals, families, organizations, and governments. This could involve organizing paper and digital materials in accessible ways and housing them, for example, in the office of the Kiana Traditional Council

and other interested village council offices among Kobuk River villages. This could involve housing a full set of paper and digital archival materials at the Northwest Arctic Heritage Center in Kotzebue, or even the Alaska Regional Office in Anchorage—with easily accessible and navigable, yet password-protected, remote access for individuals, schools, and tribal governments from Kiana and other villages. Variations on these arrangements would also be possible—such as the National Park Service and villages making copies of materials, housing materials both in places, and sharing future materials as appropriate. The National Park Service might even consider mechanisms for helping fund small museums or repositories in the villages—especially if these collections also benefit the agency mission.

Other forms of sharing and collaboration would be necessary, along with formal general agreement. The sharing of materials in both directions might proceed under a data-sharing agreement of some kind. Beyond this, park staff with professional archival training and experience might provide guidance and materials that might help village residents curate their own materials in ways that preserve them and make them navigable to future generations. Similarly, archivists might consider offering one or more training workshops for representatives of the Kobuk River villages, so that people in these communities might gain or enhance their skills in preserving these records for the long term.

There is also work to be done with the materials already in the collections of the National Park Service archives, as well as the files of specific programs and individuals. Cumulatively, there is a vast collection of materials related to the culture and history of Kobuk Valley. Over time, this collection continues to grow. Yet, there is a need to support archival work internal to the agency as well, in support of the preservation of Kobuk Valley cultural and historical information. The NPS collections are incomplete. Materials related to Kobuk Valley exist in separate collections; and materials already in collections are not yet fully organized and integrated. Some important materials are not yet located in the National Park Service collections, but sit in distant university collections, for example. Certain items such as historical photos are held in the National Park Service collections but without clear formal permission from the original repositories to use them. Beyond this, the development of digital materials in recent years has created a large quantity of digital images, GIS layers, digital audio files, and other materials that require organized archiving—of materials in hand, but also of those that continue to arrive each year. Scanning historical photos to produce digital backup copies is likely to be an ongoing need. We also recommend producing a searchable digital-collection guide, so that materials can be navigable by keyword searches related to place, people, and other themes addressed in the materials. Additionally, the park may need to develop and streamline archival access for users who are not professional researchers and who may lack formal training in the navigation and use of archival collections. In particular, there is a need to develop a data management system that will allow for Iñupiaq users to access and navigate collections—requiring additional staff time for the development of a user interface suitable for Iñupiaq elders, youth, and other members of traditionally-associated Iñupiaq communities.

Furthermore, continued archeological work, as well as inadvertent discoveries of archeological materials, may create future needs for the appropriate curation of artifacts and other recovered items. The accession needs for Kobuk Valley are growing, and will require funding, staffing, and space to obtain and organize available materials related to the park. Continued archiving and curation will allow park-related materials to be in one place, to be accessible, and to be able to grow with time for the benefit of all parties with interests in

preserving, understanding, and celebrating the historical and cultural significance of Kobuk Valley National Park.

While this work is being done, it will be important to maintain suitable precautions for sensitive materials like documents containing archeological site information or details pertaining to burials or spiritual practices. Matters of data sensitivity are well-known to the National Park Service staff, several privacy laws can be refined through consultation with tribal governments. As with all such collections, standards for material use as well as intellectual property and copyright restrictions and procedures should be articulated clearly, in language intelligible to non-specialists in any future agreement.

Recommendation 9: Explore National Register Options, Including TCP Criteria and a Riverscape Nomination

As the pages of this document attest, a remarkable number of places in Kobuk Valley National Park are of cultural significance, particularly along the Kobuk River corridor. A few sites are already listed on the National Register of Historic Places, such as Onion Portage. As part of the nomination process, the National Park Service produced a *Cultural Landscape Inventory* for Onion Portage, containing information about this place and its significance, especially focusing on archeological resources. Several archeological sites along other parts of the Kobuk River corridor have been documented and determined to be eligible for listing on the National Register.

The enduring ties between Kobuk River village communities and the cultural landscape of Kobuk Valley are a big part of what makes this place unique and significant. Kobuk Valley, especially the Kobuk River corridor, remains a uniquely significant and storied place within the shared heritage and living culture of the people of Kiana and other communities. Many places within the Kobuk River corridor therefore unambiguously meet the standards for National Register listing as a "Traditional Cultural Property" (TCP), as described in *National Register Bulletin 38* and other NPS National Register Program guidance.[20] As defined in *National Register Bulletin 38*, "Traditional Cultural Properties are places that are eligible to the National Register because of their "association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community."[21] Kobuk Valley—and the Kobuk River riparian corridor, in particular—fits that description well.

While these are necessary and positive steps, we contend that other places within the park also meet the criteria for National Register eligibility. And, by the mandates of the federal law, these places should be documented and considered for eligibility and potential nomination. The cultural landscapes of Kobuk Valley cannot be thought of simply as an archeological complex. Nor can they be thought of solely as a collection of "historic places." Today, Kobuk Valley remains very accessible to modern Iñupiat and subsistence users, the descendants of its former inhabitants. Thus, the area remains integral to subsistence hunting and fishing, social and ceremonial events, and the cultural education of Iñupiaq youth. We therefore recommend the creation of a new nomination that captures all contributing resources known to exist as part of the Kobuk River corridor. The nomination should include archeological sites, but also—in light of the Kobuk River riparian's clear Traditional Cultural Property eligibility—historical sites and natural features of cultural significance to living Iñupiaq communities. Any consideration of these alternatives would first require consultation with Kiana and other park-associated Iñupiaq communities, along with their consent



The Cabins and camps of Kiana Elders Camp, just downstream from the western boundary of Kobuk Valley National Park. Douglas Deur photo.

and support—as well as coordination with Alaska Regional historic preservation staff who oversee nominations to the National Register. Many places in Kobuk Valley National Park including named places, historic and modern trails, gravel bar fishing stations, caribou crossing places, and reindeer herding sites could qualify. Additionally, many archeological sites are significant to Iñupiaq people for reasons not "archeological" but related to the importance of those places as, for example, spiritually significant sites, keystone locations in Iñupiaq oral history, or loci of connection to ancestors. Clearly, a National Register strategy that can accommodate places of both tangible cultural resources and intangible cultural significance is required.

Within the context of *Bulletin 38* and other National Register guidance, much of the landscape along the Kobuk River corridor is significant under National Register Criterion A—in that the place is associated "with events that have made a significant contribution to the broad patterns of [Iñupiaq] history."[22] This fact is well supported by many lines of evidence, many of them presented in the current document—with almost every aspect of *Kuuvaŋmiut* history being linked to the river corridor now within the park's external boundary. And, though Criterion A alone would be a sufficient basis for applying TCP status to the Kobuk River corridor within the park, one could convincingly assert that many places within the corridor could also be considered under Criterion B ("association with the lives of persons significant in [the Iñupiaq] past") due to their association with key figures in Iñupiaq oral history, including known residents of the corridor or even spirit beings such as the transformer *Qayaqtagugnik*. Moreover,

Criterion C might also apply, due to the Kobuk Valley's centrality in the rich oral literatures of the Iñupiaq, the importance of jade mining and trade centered on Jade Mountain, and other craft and artistic traditions linked to the corridor. However, a National Register strategy that identifies cultural places solely as significant under Criterion D—due to their potential to yield information through primarily archeological survey, excavation, and analysis—seems entirely insufficient in light of the cultural realities of the Kobuk River corridor. We might contend that a National Register strategy that only recognizes this landscape as significant under Criterion D is looking at this place primarily through a Eurocentric lens, pursuing objectives that serve largely non-Native researchers with insufficient attention to the meaning of Kobuk Valley to past and present *Kuuvaŋmiut* communities. For Iñupiaq families tied to Kobuk Valley, the significance of this place is vast and extends well beyond the scientific potential of the park's archeological resources. A nomination that combines archeological resources with less tangible but nonetheless culturally significant landmarks, therefore, seems to be in order. And *Bulletin 38*, addressing the documentation and nomination of places significant as part of a living cultural tradition, offers key guidance required to support this effort alongside National Register guidance related to archeological sites and features.

Beyond this, while National Register eligible sites are often considered in isolation, the Kobuk River corridor contains an almost continuous distribution of historic and archeological village sites, fishing and hunting stations, caribou crossings, named places, sites of significance in Iñupiaq oral tradition, and more. National Register mechanisms allow for the documenting of all these features in a single unifying effort. These groupings of associated places can be nominated as one or more National Register districts, comparable to what has been established at Onion Portage. Districts typically consist of groupings of several individual properties that are linked by some common historical or cultural theme—the theme being defined within a nomination context statement that explains the cultural and historical significance of all property types included within the district. When these districts cover large areas and have a number of dissimilar contributing features, they are often documented and treated as "Cultural Landscapes" under National Register guidelines.

> With the involvement and consent of park-associated Iñupiaq communities, then, all of these different types of places along the Kobuk River corridor might be included within a single large "district" nomination that encompasses all of these elements within the Kobuk River cultural landscape. This nomination would then include an overarching context statement that describes the cultural and historical significance of these places as a whole. This report could be a resource for writing significant portions of this context statement.

As a whole, the river reach has its own intrinsic cultural and historical significance and is inextricably linked to almost every aspect of *Kuuvaŋmiut* identity. For this reason, the river corridor could appropriately be treated as a district incorporating both archeological and intangible landmarks of cultural significance. Considering how the places of cultural and historical significance are so concentrated along the Kobuk River corridor, there would be advantages to approaching this as a "riverscape" nomination that incorporates both intangible resource types. In other contexts, around the United States, rivers have sometimes been found to be lined by an almost continuous distribution of culturally and historically significant areas much like the Kobuk. In these cases, a growing number of agencies and tribes are embracing a "riverscape" approach to National Register properties, in which a district

includes a culturally significant river reach, as well as key cultural and historical sites along the river corridor. Emerging from compliance-driven National Register efforts on such rivers as the Klamath and Colorado in the Lower 48, this approach is also being applied to Alaska waterways that possess unique levels of cultural significance.[23] After careful review, the data presented here support the concept of a "riverscape" nomination that might encompass the nearly continuous distribution of cultural and historical landmarks along the reach of the Kobuk River passing through Kobuk Valley National Park. Beyond that, the river itself holds cultural and historical significance, and might be considered one of several contributing resources within such a district.

As appropriate, the National Park Service might consider engaging private allotment owners or NANA regional corporation to discuss potential inclusion of discontinuous contributing resources on private lands in a future nomination. Throughout this document, we discuss places that are significant to the human history of Kobuk Valley but sit on private lands and would therefore be "non-contributing" to any future cultural landscape nomination. These include some of the most culturally and historically significant places within the Kobuk River riparian, such as former village sites, longstanding fishing stations, and special named places. As appropriate, park staff might engage private landowners regarding the potential National Register status of the riverscape, as well as consulting with tribal governments concurrently. Allotment owners clearly appreciate the cultural and historical significance of the Kobuk River riparian.

There have been many archeological sites documented in Kobuk Valley National Park by academic and agency archeologists that have not yet been listed on the National Register. A district approach of the scale proposed here, then, would have added benefit in addressing the backlog of nominations for archeological sites in the park and pulling these together under a single coherent National Register mechanism.

With all of these factors in mind, we recommend that the National Park Service—in consultation with Kiana and other park-associated tribal governments—consider establishing a National Register nomination at a District scale, that incorporates TCP criteria and affirms National Register significance under Criterion A, in addition to addressing archeological resources primarily under Criterion D. Alternatively, the National Park Service may, in consultation with tribal governments, determine that another National Register mechanism is more appropriate to capture these important layers of significance for the Kobuk River corridor, such as a Multiple Property document.

Understanding a Kobuk "riverscape" district to be eligible for TCP status, in addition to its archeological significance, has important implications. The "integrity of condition" will be significant to the Kobuk River corridor's National Register status, meaning that the landscape and the archeological sites will be managed to remain basically intact and allowed to persist in their "location, design, setting, materials, workmanship, feeling, and association" (36 CFR 60). Yet, being TCP-eligible, the district's National Register eligibility and significance will also depend on the continued "integrity of relationship" between Iñupiaq communities and the Kobuk River corridor over time, and across generations.[24] In this way, the unique cultural, social, and spiritual connection that modern Iñupiaq families possess with this place of cornerstone historical significance to their people becomes a contributing factor to the Kobuk River corridor's National Register eligibility.

Accepting that *National Register Bulletin 38* Traditional Cultural Property considerations apply to this site, Iñupiaq perceptions and assessments of the Kobuk River corridor's



Trip upriver from Elders Camp 2023. Douglas Deur photo.



Tina Russel standing at a former house site at *Qakłikuvik* village in Kobuk Valley National Park. Douglas Deur Photo

"integrity" also will serve as an important reference point in ongoing NPS monitoring and maintenance of this part of the park. If Iñupiaq representatives contend that the Kobuk River corridor's cultural value and meaning are being significantly eroded for reasons such as changes in NPS management or increased visitor impacts, for example, this would represent an adverse effect upon the integrity of a National Register property. In this sense, an acknowledgement of the TCP eligibility expands the range of factors to be considered as the NPS seeks to minimize or mitigate future adverse effects to the riverscape and requires the NPS to consult with Iñupiaq communities in ways that are more inclusive than would be the case with a strictly "archeological" district.

While raising the bar for consultation, this approach might save time and resources for park staff in the long run, while being more reflective of the cultural significance of the landscape as understood by Iñupiaq people—providing a streamlined mechanism for addressing sites and landmarks of significance to the *Katyaaŋmiut* and the larger *Kuuvaŋmiut* identity in a single, coherent National Register nomination.

Recommendation 10: Continue Archeological Monitoring, Survey, Research, and Protection

The archeological heritage of Kobuk Valley National Park has already contributed significantly to the world's understanding of Iñupiaq cultural traditions. Archeological research attributed to J. Louis Giddings, Douglas Anderson, and others in the mid-1900s was made possible by the knowledge of Iñupiaq field guides. It has illuminated over 10,000 years of Kobuk Valley's human history in ways that concur with, and sometimes build upon, the knowledge transmitted through Iñupiaq oral tradition.[25] While the landscape continues to hold tremendous cultural and historical importance to Iñupiaq communities, the "tangible" dimensions of the cultural landscape are relatively few and are undocumented. From the river you may see old cabins, culturally modified trees, and fish racks. Along the riverbanks, old house pits and village sites are only apparent when walking through them. The areas outside of the Kobuk River corridor remain under-researched. To continue archeological monitoring, survey, research, and protection efforts, a collaborative approach that includes the direct involvement of the *Kuuvaŋmiut* is required.

The Kobuk Valley's rich archeological heritage has served as the principal impetus for past National Register nominations and determinations of eligibility, including the nomination of *Onion Portage Archeological District National Historic Landmark.* Many other sites within the park remain unnominated, but potentially eligible, to the National Register. Beyond this, these archeological resources hold great potential for future research that could illuminate past Iñupiaq lives, for the benefit of the public and for the Iñupiaq communities seeking to understand their own deep and unique history in this place. And yet, the National Park Service manages these lands at a challenging time, when riverbank erosion seems to be accelerating, exposing new sites, casting archeological materials into the river, and occasionally revealing human remains. To continue to protect and document this rich but imperiled archeological heritage, the park should continue to support archeological reconnaissance and research, working in coordination with Iñupiaq villages and corporations.

There are several reasons to continue archeological survey and research within the park. Not only is the archeological heritage of the park internationally known for its time depth and richness, but more urgent needs exist as well. Within this context, park staff should continue to undertake routine reconnaissance and survey, especially along the river corridor,



Hunt River Dunes in Kobuk Valley National Park. Annie Carlson, courtesy of the National Park Service.

to continue filling unsurveyed gaps while also identifying eroding and imperiled archeological sites in a timely fashion. The National Park Service and partners will need to continue monitoring known sites and documenting newly discovered ones, while implementing site protection or stabilization protocols on an as-needed basis.

As part of this effort, the NPS may carry out archeological survey at several places identified in this document as contributing landmarks lacking archeological sites, recognizing that these were venues of focused human activity. It is reasonable to anticipate that many sites and features remain undocumented, especially but not exclusively in the riparian corridor. It is anticipated that National Park Service staff, partners, or contractors will carry out radiocarbon dating with samples obtained from known or newly identified sites. Then archeologists will need to carry out analyses of any newly recovered artifacts to seek diagnostic features that might allow these artifacts to be placed into known typologies and established chronologies. In turn, these findings may help illuminate the human history of the park for the benefit of Iñupiaq communities as well as the public, while also pointing toward a range of compliance and site protection needs. One added advantage of integrated National Register district nominations on a landscape scale is that sites newly identified in the years ahead can be readily added to these existing nominations as additional contributing resources rather than generating new National Register nomination responsibilities for each new site.

Recognizing that the landscapes of Kobuk Valley are still actively used by subsistence harvesters and other Iñupiaq traditional users, archeological surveys might also document landscape features of relatively recent cultural activities. For example, this could include documentation of culturally modified trees, recent camps and trails, and other relatively ephemeral site features that tend to be under-reported in archeological surveys yet are clear indicators of Iñupiaq use and might be included as "contributing resources" to a more inclusive National Register district nomination. These features clearly affirm the enduring Iñupiaq presence on the land, but may also provide analogues to archeologically detectable patterns of Iñupiaq use and occupation of the land from long ago, and can be cross-referenced with available ethnographies and oral histories summarized in the present document.

As part of these efforts, surveyors or monitors might assess archeological sites' general condition, noting for example, new riverbank erosion at or near known sites, or the effects of game trails or visitor trampling that could affect vegetation, exacerbate erosion, or expose cultural materials. They can also assess such factors as erosion, hydrological changes such as increased flooding, or other geological events that may affect potentially vulnerable cultural sites. At present, site stabilization measures for natural erosion would be expected only infrequently and under exceptional circumstances. However, the National Park Service may wish to assess what criteria might trigger site protection or stabilization measures, working in consultation with Kobuk River villages to ensure that these measures are not only consistent with federal law, policy, and regulation, but also with Iñupiaq cultural values and protocols.

Still, in truly exceptional hypothetical cases, such as if a major village-scale archeological site were at risk of imminent destruction due to extreme events, intervention might be required. In such cases, a need for engineered site stabilization measures might exist. Barring those measures, the National Park Service should consider options for rapidly mobilizing cultural resource specialists, to quickly recover archeological data before erosion or other processes permanently damage the site and eliminate the possibility of future data collection. Under these conditions, the identification and appropriate treatment of any human remains will also be of elevated priority and concern. The park archeologist and managers will need



Kiana OPT-in Dancers perform at Qatŋut in Kotzebue in July 2025. Elder Thomas Jackson smiles as he leads the group. Emily Creek Qatŋut 2025.

to consider such scenarios on a case-by-case basis and only do so in consultation with Kobuk River village representatives. A general protocol regarding the thresholds for site protection actions or emergency mitigation excavations might be useful, generated in advance of future events of this magnitude, with reference to appropriate federal laws as well as the preferences of Iñupiaq communities as expressed through consultation.

There is a history of local participation in large-scale archeological work on the Kobuk River. Interested people from the villages may wish to be involved in some of the archeological surveys and other related work described here. Through consultation, Kobuk River villages can be informed of survey plans and whenever appropriate invited to participate in archeological investigations conducted within the park. Traditional users may be able to help bring their own unique knowledge, values, and protocols to these archeological efforts. The participation of Iñupiaq youth in archeological survey and related efforts has value, providing

young people with opportunities to learn about their heritage, as well as the skills required to play meaningful roles in future care of cultural resources on their traditional lands.

Many successes and positive collaborations between the National Park Service and *Kuuvaŋmiut* have already taken place. Enduring partnerships between the National Park Service and the villages might allow for co-management, collaborative monitoring, the scoping of future research needs, the active co-production of educational materials for Iñupiaq youth and interpretive materials for the public, and sufficient funds to make these efforts possible. These partnerships might also aid all parties in establishing protocols for information sharing, for site stabilization criteria or for guidelines for the appropriate treatment of human remains. To establish and sustain such partnerships, the National Park Service and tribal governments will need to keep talking, candidly and with mutual respect, into the imaginable future. All parties can help ensure that the cultural resources, culturally significant natural resources, and cultural landscapes of Kobuk Valley National Park will endure, and will continue to sustain, educate, and inspire future generations.

Of course, the recommendations put forward here are just the starting point for discussion. Only through ongoing communication and consultation between the National Park Service and the tribal governments will challenges, concerns, and opportunities come into focus. While village tribal governments have a unique government-to-government relationship with the National Park Service, and consultation is required under a wide variety of laws, it is not just through consultation that all parties can rise to some of the most challenging problems facing Kobuk Valley National Park today. That will be achieved through the creation of an ongoing and meaningful rapport around shared interests and concerns.

Many Kiana residents have been eager to share their knowledge, hopes, and concerns about Kobuk Valley National Park with our research team. That willingness to share extends to other park staff who also wish to come, to listen to these stories, and to help build lasting relationships of mutual trust with the villages of the greater Kobuk region. Interviewees were often eager—not only for government-to-government consultation—but also for an enduring and less formalized relationship between their communities and the National Park Service. Both entities are here for the long term and will need to find ways of accentuating mutual opportunities. There is much to discuss as they seek to maintain the integrity of Kobuk Valley, "unimpaired for ... future generations." It is our sincere hope that this report will serve as a resource and help foster this long-term conversation—sustaining, in turn, enduring positive relationships between the National Park Service and those Native communities that still know and care deeply for Kobuk Valley as part of their past, present, and future homeland.



Tommy Sheldon's map of Kiana made for Project Jukebox, 2001.

Endnotes

[1] Gray 1987:10

[2] TJ 2023

[3] NAES 1991a: 5.

[4] Anderson 1972:68.

[5] Anderson et al. 1998:263.

[6] LWS 2022.

[7] NAES 1991a:8.

[8] DS 1990:8.

[9] Moulton 1990: 18. Linda Ellanna made this notation regarding camping arrangements in Martha Wells' family: "[S]ome families (2 or 3) camp together or 4 in Martha's family . . . some both families and fires camped together—stay until breakup" (Ellanna and Sherrod 1989a:NA34).

[10] AB 1990:5.

[11] AB 1990:7.

[12] Ingoksruk, Kiana. Sometimes we'd follow this trail. Winter trail. All the way this way, you know. And then we'd cross Spruce Creek. And then out to Timber Creek. [Inaudible] and then from here, over to Omar." HJS 1990:17.

[13] Winter trails between Kiana and the Noatak HJS 1990:17.

[14] NAES 1991a:9-10.

[15] LWS 2022.

[16] HJS 1990:2.

[17] https://jukebox.uaf.edu/things-themes/muskrat-hunting

[18] For examples of rising visitation causing these issues in other Alaska national parks, see e.g., Deur et al. 2025, Deur et al. 2013.

[19] See Deur et al. 2025.

[20] NPS 1990.

[21] NPS 1990:1.

[22] NPS 1990:11.

[23] King 2004; Boraas et al. 2015.

[24] NPS 1990:10.

[25] Anderson and Anderson 2019.

Interviewees (and codes)

Hazel Apok (HA)

Albertha Atoruk (AT)

Eldwood Atoruk (EA)

Mary Atoruk (MA)

Peter Atoruk (PA)

Roger Atoruk (RA)

Vera Atoruk (VA)

Wilbur Atoruk (WA)

Eva Baldwin (EB)

Annie Barr (AN)

Josie Black (JO)

Rudy Black (RB)

Inez Ayagiaq Black (IAB)

Andrew Black (AB)

David Black (DB)

Johnson Black (JB)

Esther Brown (ES)

Mark Cleveland (MC)

Joe Carter (JC)

Walter Cook, Sr. (WCS)

Herbert Custer (HC)

Dan Douglas (DD)

Joe Field (JF)

Amelia Gray (AG)

Minnie Gray (MG)

Pauline Harvey (PJ)

George Hasaway (GH)

Martha Hasaway (MH)

Elmer Jackson (EJ)

Henry Jackson, Sr. (HJS)

Leo Jackson (LJ)

Lucy Jackson (LJA)

Percy Jackson, Sr. (PJS)

Percy Jackson, Jr. (PJ)

Thomas Jackson (TJ)

Jackie Johnson (JJ)

Helen Kagoona (HK)

Clara Lee (CL)

Helvi Sandvik (HS)

Ruth Sandvik (RS)

Lorenz "Lorry" Schuerch, Jr. (LS)

Marie Schuerch (MR)

Pauline Garbin Schuerch (PGS)

Tom Schuerch (TS)

Albert Sheldon (AS)

Billie Sheldon (BS)

Ella Sheldon (ES)

Minnie Sheldon (MS)

Tommie Sheldon, Jr. (TSJ)

Donald Smith (DS)

Daisy Tickett (DT)

William Tickett (WT)

Martha H. Wells (MHW)

Tommy Wells (TW)

Christina Westlake (CW)

Larry Westlake, Jr. (LWJ)

Larry Westlake, Sr. (LWS)

Louise Wood (LW)

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APPENDIX A

Source Language and Modern Orthography Table

The following table is a composition of Iñupiaq words spelled the way they appear in source materials (transcriptions), description of the word, source, chapter, page number, and the current NANA region spelling or accepted placename. We wanted to ensure that any regional and linguistic distinctions that may be detectable from the phonetic spellings in the source materials are still searchable and cross-referenceable with the way the language has evolved. The modern orthography is used for the most part throughout the report. In some cases, there are words that the authors could not find in the dictionary or other sources. Those are in this table as well for any interested language learners, though they do not appear in the report.

Source spelling	Context	Source	Chapter	page #	Modern orthography spelling as seen in report
uki·vik	winter houses dug into the ground	Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np	2	36	*ukiivik*
tuksruk	tunnel entrance	Atoruk, et al 1976	2	36	*tuqsruk*
napaaġtóq	a door that was often not made of wood, but of skin	Atoruk, et al 1976	2	36	*napaaġtuq*
iualóq	window of animal gut	Atoruk, et al 1976	2	36	*igalaaq*
iglusik	houses partitioned into two separate rooms	Atoruk, et al 1976	2	36	*iglusiit*

Source spelling	Context	Source	Chapter	page #	Modern orthography spelling as seen in report
sitloraq	house for women, childbearing	Atoruk, et al 1976	2	37	No like word found in modern dictionary. R. Nelson and N. Sheldon Towarak in chapter 12 of *Kuuvaŋmiut Subsistence* give us *uqquutaq* "Small frame hut for birth" women gave birth alone. This word is found in the report. And the After-birth snow house: *quŋuq* where women go for 4 days postpartum before returning to main house
ivraligoraq	temporary seasonal structures	Atoruk, et al 1976	2	37	*ivruligauraq*
nəpaqtuqâmIq	wide round house—spruce covered with skin	Atoruk, et al 1976	2	38	*napaqtaq* (circular tent with one central pole)
itčət	hide-covered willow in birch frame for water hunting, hot summer	Atoruk, et al 1976	2	38	*itchalik*
qanik	frame of temporary house	Atoruk, et al 1976	2	38	*qanak* (tent pole) *qanaich* (tent frame for winter tent)
kîktaġæt	mosquitos	Atoruk, et al 1976	2	38	*kiktuġiat*
oqotək	wind break[s], used [when a person had to stay in the same place a long time, such as] when fishing	Atoruk, et al 1976	2	38	*uqquutaq*
Puilgich	Kidways	IAB2002	2	40	*Puivlich* (placenames data)
kuuġuqpak	big river		3	54	*kuuġuqpak*
qIkÍqtâq	Sand bar		3	49	*qikiqtaq*
amičoq	very long, thin islands or sloughs (metaphorical; lit. "a slender twig")	Atoruk et al 1976	3	55	*amitchaq*
Iglək tək sêgvIġrak	longstanding place with swift water		3	55	*Igliqtiqsiuġvigruaq*
illulmukmaans	side channel temporarily flowing backward from the main current		3	55	*iļutmun*

Source spelling	Context	Source	Chapter	page #	Modern orthography spelling as seen in report
iɬɬuvilik	bar or island with much gravel (lit. "place with gravel")		3	55	*iɬɬuvilik*
itimnIq	riffle currents, running quickly over rocky shallows		3	55	*itimniq*
qogruk	Ridges, formed by river erosion		3	55	*quagruk*
OktuteɬuqI.	placename		3	59	*Uqtutaiɬaq*
katyaak	lit. "river fork" - also the name of a specific village at a fork		3	55	*kaytaak*
kiléñək	bank erosion due to migration of river channel (lit. "current cutting a bank")		3	60	*tilaiñiq*
talizaġvik	Open but closed, sand bar/island in a lake	Atoruk et al 1976	3	55	No word found. Removed from report.
tpligǽq	sand or gravel bar	Atoruk et al 1976	3	59	*tapqaġnaq*
tunutkgčor·ək	Side channel	Atoruk et al 1976	3	55	*tunutauraq*
qasunIqrq	*Large eddy that has been in its current position for a long time*	Atoruk et al 1976	3	55	*qasunigruaq*
qik'qtačiak	*Peninsula that was formerly an island (generic term and place)*	Atoruk et al 1976	3	55	*qikitaġruk*
qIkIqtaġIqrq	*Small island*	Atoruk et al 1976	3	55	*Qitiqɬiuraq*
qIkIqtaġcæq	*New small island*	Atoruk et al 1976	3	55	*Qikiqtatchiaq*
qIkÍqtâq/ qIkIqtat	*General terms for island or sand, gravel bar*	Atoruk et al 1976	3	55	*qikiataq*
akí	*Places where there is a "Willow bank on the outer edge of the river"*	Atoruk et al 1976	3	60	No word found. *Ikpik* is bluff Placename with root word: *Akiqqiɬauraq or* *Akiqqiɬaq* Akilik (USGS) river
ulIqtoq	High water conditions	Atoruk et al 1976	3	55	no word found, removed from body of report

Source spelling	Context	Source	Chapter	page #	Modern orthography spelling as seen in report
Máġġaqtut	Consistently muddy place	Tickett 1976 Atoruk et al 1976	3	62	*Maqqatlaq* (CW)
Máġaġlaq	Certain muddy ponds, sloughs, and other waterways along river corridor	Ticket et al Atoruk et al	3	61	*maqatlaq*
isoqtóq	isuq-muddy are applied to certain muddy sloughs, ponds, and other waterways of this kind along the river corridor		3	61	*isuaġayak*
QItIq	series of bluffs, a placename	Atoruk, et al	3	60	Kitlik
ivrulgich	Sod houses	Inez Ayagiaq Black	4	69	*ivrulik/ivruliich*
Qala/Qallami/Kalla	Prominent site for camp. Multiple spellings	NAES 1991 b:6	4	62	*Qala*
Qanigak	"Duck camps" down from Oskik Creek	Thomas Jackson 2024	4	74	no placename found
Naulik/ Naquligauraq	Two winter trails from Kiana to Noatak	Henry Jackson Sr, 1990	4	80	*Naquligauraq*
Sapragikchiaq			4	80	*Sapusrigaitchiaq*
panaqtaq	Dried meat	Thomas Jackson, 2023	5	100	*paniqtaq*
Takpalaruq	Camp visited in December while on hunting trips	Donald Smith, 1990	5	105	Cannot find in the placenames data, left as is in report
Məsrün	Hill where porcupine live in large numbers	Tickett et all 1976	6	112	*Masrun*
Ooliach	Stonewall Jackson	Thomas Jackson, 2023	6	133	*Ooliaq* (Christina Westlake, 2025)
qaniġígaqtoġvik	Reindeer corrals	Tickett et al 1976; Schuerch et al 1976	6	172	*kaŋiġaqtuġvik*
kughmiahak	Reindeer herder	Percy Jackson 2003	6	172	*qunŋiliqiri*
tə^lujət	Fish trap for salmon	Sheldon et al 1987:3.	7	181	*taluyat* (Christina Westlake, 2025)
sa·tgotit	Weights for seine net	Inez Agnes Black 1992	7	181	*saatgun* (CW, 2025)

Source spelling	Context	Source	Chapter	page #	Modern orthography spelling as seen in report
Nəpaqtoq/puptən	Net floats	Inez Agnes Black 1992	7	181	*pupataun* (CW 2025)
ŭyelúraq	Caches built on stilts for the storage of food and gear, beyond the reach of most bears and animals		7	185	*uyagruaq* cache made with rocks *qiḷaktaq*, above ground cache as seen in the report.
pévik	Four post drying rack. Anderson: Used for large and heavy fish		7	185	*paiviich*
ikaġək	Drying rack to hang net	Atoruk et al 1976	7	185	*Iññivik*: net used for anything including nets
qjrorlq	Whole fish cooked until eye turns white	Atoruk, et al 1976	7	185	*qalliuq*
Qâlugreček	Immediately below mouth of Salmon River	Tickett et al 1976	7	231	*Qalugraitchiaq*
Qâlugrečógaq / Qaluġrečoruk / Qâlugrečóraq	Place on Salmon River meaning young salmon.	Tickett et al 1976	7	231	*Qalugraitchauraq*
Ílulæq	A place near Coal Mine	Tickett, et al 1976	7	228	*Iḷuliaq*
minik	Fish jumping out of water	Moulton 1990: 19,23	7	196	*minŋiq*
puuyaq	Salmon finning out of water	Moulton 1990: 19,23	7	197	*puuyaaq* (Christina Westlake, 2025)
Okok Point	Place where you intend to buy, old trading post. Camping areas across could for whitefish	Ruth Sandvik	7	196	*Uqaq*
Toqsinéġrikrúrəq	Okak (Uqaq) Point	Atoruk et al Tickett et al	7	197	*Tauqsiġñiaġvigruura*
QávaġIn	a low bluff, fronting an old, wide channel one large river bend upstream from Coal Mine	Tickett and Tickett 1976:np	7	38	*Kavġñ*
Qâpesrluk	used for fishing salmon and sheefish, was also reported in the general area between Coal Mine and Kidways	Tickett and Tickett 1976:np	7	228	*Kakiaqtuġvik* Spear fishing place

Source spelling	Context	Source	Chapter	page #	Modern orthography spelling as seen in report
ə^/ə/óġaq and âləóġaq	Narrows on the Salmon River, well north of the confluence known for hunting and fishing	Atoruk, et al 1976	7	197	*Alallauraq*
Qâlugráq	Salmon		8	232	*qalugruaq*
Pən^aqtoruk and Piyosraqcéq and pən^aqtoruk	Place for berries	Atoruk et al 1976 and Tickett et al 1976	8	206	*Piŋuqsraq*
Qáġoġêq	Bank for berries/ berry picking place	Atoruk et al 1976	8	243	*Qaliaġruaq*
akutaq	Eskimo ice cream (berries, fat, and sugar)	Thomas Jackson, 2023	8	240	*akutuq*
Nəpáqtoq or nəpaqtuq	(white) spruce		8	240	*napaaqtuq*
Núnənêk	Alder	Atoruk, et al 2976	8	240	*nunaŋiak*
ikeəqsək	Boards used to line hallways and rooms of old winder houses	Tickett et al 1976; Atoruk et al 1976	8	240	*ikik*
ipəraqsaq	A moss that is burned like a wick in oil to create lamp	Atoruk et all 1976	8	240	*ipiġaq*
ivruk	Moss used in chinking houses	Atoruk et al, 1976	8	240	*ivruq*
nIqat	"the white moss is food for caribou" and found in abundance where the caribou are hunted	Atoruk et al, 1976	8	240	*niqaat*
asrialivik	berry place	Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np	8	243	*Asrialivik*
ænraq	berry basket	Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np	8	243. 259	No word found, in report we use "*aimmaq" which is a birch basket.*
núnənêk	alder	Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.	8	258	*nunaŋiak*

Source spelling	Context	Source	Chapter	page #	Modern orthography spelling as seen in report
atteqsək	a platform made of cut willow laid together on the ground	Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.	8	255	No word found. *Alliat*: floor made of willows *Alliatchiaq*: tent made of willows
ikeəqtət	boards used to line the hallways and rooms of the old winter houses along the river corridor	Tickett and Tickett 1976:np; Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np	8	261	*ikik*
ipəraqsaq	a moss that is burned like a wick in oil to create a lamp	Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.	8	262	*ipiġaq*
ivruk	a moss used in roofing	Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.	8	262	*ivruq*
No word	A moss used in chinking and insulation		8	262	*amuagun*
ivrulik	a kind of house … with lots of moss all over	Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.	8	262	*ivrulik*
qanək	house with moss on side	Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.	8	262	No word found, removed from report.
nIqat	"the white moss [*nIqat*] is food for caribou" and found in abundance where caribou are sometimes hunted.	Atoruk, Atoruk, Black, Schuerch, and Schuerch 1976:np.	8	262	*niqaaq*
Napâqsrəynəeġvik	"place where you get posts for sleds"	Tickett et al 1976 and Atoruk et al 1976	9	274	*Napaqsraġniaġvik*
ə ̂yîləgaġǵék	a winter trail leading to "winter hunting for caribou, fox, wolves, wolverine" in the Noatak River Basin.		9	281	*Aŋiłġaġiaq*

Source spelling	Context	Source	Chapter	page #	Modern orthography spelling as seen in report
əˇgmaˇnIġeɔq	a "trail to Selawik" for Kobuk Valley residents		9	281	*Aŋmanaqrauq*
qakœk	meaning, a trailhead along the river, which was a "place to get off the river [such as when taking the] winter trail to Noatak."		9	281	No word found, removed from report, still referenced.
Taksrogrɔk	the "start of [the] Selawik trail."		9	282	*Taksrugruaq*

APPENDIX B

Place Name Compilation

The following table is a composition of locations located within Kobuk Valley National Park as part of the Northwest Alaska Study (NAS): Kuuvaŋmiut Place Name Inventory completed by the Department of Anthropology at the University of Alaska, Fairbanks.[1] Please note that in an attempt to highlight information pertinent to this project, this table represents only a selection of data/headings found within these place name forms.[2]

[1] NAS n.d.a.; NAS n.d.b.; NAS n.d.c.; 1991a; 1991b; Kuuva*ŋ*miut n.d.a, Kuuva*ŋ*miut n.d.b.

[2] Within the Linda Ellanna field notes housed by the National Park Service, there are eight files of images related to the Northwest Alaska Study: Kuuvaŋmiut Place Name Inventory Project completed by the Department of Anthropology at the University of Alaska, Fairbanks (NAS n.d.a.; NAS n.d.b.; NAS n.d.c.; 1991a; 1991b; Kuuvaŋmiut n.d.a, Kuuva*ŋ*miut n.d.b.). Each file contains individual images of place name forms created as part of that project. While some of the file names suggest page numbers will be present, there are no page numbers associated with each image. No date is associated with the place name forms but some file names may indicate that some of the data could be labeled as 1991. However, it appears that the place name forms consist of data added over multiple years by multiple researchers and perhaps cannot be attributed to only one year. Much of the data is handwritten. A best effort has been made to decipher correct spellings.

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Aatut	N/A	N/A	Riverbank	Section of riverbank and archaeological site; 39 miles northeast of Kiana on the south shore of Kobuk River just down-stream from the mouth of Kavet Creek.	N/A	Burch #2357	
Aki.guq	Brooks range, 52 miles north-west of Shungnak—Eastern Baird Mnts	Akiak Creek; Aqirum kuurua (Burch no AMB, B-6, 2130)	Creek	Stream which flows 20 miles to Hunt River; 11 miles north of that stream's junction with the Kobuk River	"Branch" (Burch translates "Tree branch creek"	Orth 1971:56; Burch #2130; Merrill Morena 1989; KVM #102	Orth recorded this name in Shungnak in 1956. The trans-lation presented in Orth (1971:56) reads "Its oppo-site (equivalent)" on in another sense "fork of the Hunt River."
Aksraksia.gvik	Central Kobuk	Akszaksiarvik (Burch no. AMB, A-6, 2111)	Slough	Slough, in low wetland; 2.5 miles southeast of mouth of Hunt River	"Rolling place"	Burch #2111; Merrill Morena 1989; Art Douglas 1989	
Alallauraq	N/A	N/A	Riverbank	Riverbank opposite the island	N/A		
Alallauraq	N/A	N/A	Riverbank	Riverbank opposite the island	"Little Allallak" (person's name?) (Burch)	Burch #2360	
Amaqtuq	Central Kobuk	(Burch no. AMB, A-5, 2116)	Creek	Section of river and end of Paunraqtaugzuk hill; 2.5 miles southeast of mouth of Hunt River	"Humpbacked fish" (Burch says "Humpback salmon")	Burch #2116; Peter and Effie Atoruk 1989	Same place as *Qaqiaqtuurvik* (Burch)
Anaktuaq	N/A	Anaktok Creek	Creek	Stream in Baird Mts; flows northeast and southeast 15 miles to Salmon River; 49 miles northeast of Kiana, Brooks Range	"Feces"	Orth 1971: 73	Eskimo name obtained in 1955 by US Army Corps of Engineers

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Angmaluq	Central Kobuk River	N/A	Knoll	28 miles north-east of Kiana and 1.5 miles northwest of junction of Kobuk River and Salmon River	"Amulet"	Burch #2374	
Anu.gituut	Central Kobuk	Anuritut (Burch no. AMB, A-6, 2121); Ahnewetut Creek; Anuritutkuurua	Creek (Burch says lake)	Stream, heads in Great Kobuk Sand Dunes; flows north 14 miles to Kobuk River, Brooks Range (ORTM). Stream mouth, northwest of Ambler, 26 miles on Kobuk River.	"Strong wind" (Burch says "Windy place")	Burch #2122; Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Merrill Morena 1989; Art Douglas 1989; Orth 1971: 53	Ahnewtut Lake is at the wrong place on the USGS map. Eskimo name reported in 1956 by USGS. Lots of fish in this creek (Burch).
Anu.gituut	Central Kobuk	Anuritut (Burch no. AMB, A-6, 2121); Ahnewetut Lake	Lake	20.5 miles northwest of Ambler, south of Kobuk River; Lake, 2 miles long, drains west to Ahnerwetut Creek; 3 miles southeast of that stream's junction with Kobuk River, Brooks Range	"Strong wind" (Burch says "Windy place")	Burch #2121; Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Merrill Morena 1989; Art Douglas 1989	See also #209 above. Ahnewtut Lake is at the wrong place on the USGS map.
Aŋayakakszaq	N/A	Mt. Angayukaqsraq	Mtn.	Mountain, 4,760 ft; 63 miles north-north-east of Kiana, Baird Mts.	"Old man"		Not in Orth. Same as or different from the following?
Apikuilik	Central Kobuk	Apikiilik (Burch no. AMB, A-5, 2127)	Burial site	Burial site named after a person who is buried there, on right bank of Kobuk River; 3.5 miles south-east of mouth of Hunt River	Personal name	Burch #2127	
Aqia.guq	Tributary of Hunt River	N/A	Tributary	Tributary of Hunt River; Stream, flows 8 miles southeast to Hunt River; 19 miles north-west of Onion Portage	"Stomach"		

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Aqirum kuurua	Eastern Baird Mts	Akiak Creek	Creek	Stream, flows southeast 20 miles to Hunt River; 11 miles north of that stream's junctions with Kobuk River; 52 miles northwest of Shungnak, Brooks Range	"Treek branch creek"/"Its opposite" (Orth)	(#838) Orth 1971: 56	Eskimo name meaning "Its opposite (equivalent)" or in another sense "fork of the Hunt River." Obtained at Shungnak in 1956 by Orth.
Aquirum nakszaya	Eastern Baird Mts	N/A	N/A	Pass at the head of [Akiakm?]] Creek	"Tree branch pass"		
Ashiganok	N/A	Jade Mountains; Ashiganok, Green Stone Mtn., Jade Mtn.	N/A	Mountains, 3350 ft, at southeast end of Baird Mts.; Extend north-west-southwest 11 miles; 4 miles wide; 9.5 miles northwest of Ambler; 33 miles northwest of Shungnak, Brooks Range	"Green-stone mountain"	Orth 1971: 469	This name is mentioned by Lt. Stoney (1900: 56), USN, who probably named this feature on his visit there in 1884 when he obtained samples of jade for the Smithsonian Institution. Lt. J.C. Cantwell, USRCS, called it "Ashiganok," meaning "green-stone mountain," in 1884 (Healy 1886: 59). "Ashiganok" is the same as the Eskimo name "Shunguak."
Ataniql/i.giik	Central Kobuk—in the Brooks Range, 3 miles SE of the junction of Ahnewetut Creek and the Kobuk River	Ataniql/iriik (Burch no. AMB, A-6, 2133); Ahnewetut Lake	Lake	Two mile long lake drains west to Ahnewetut Creek. 21.5 miles north-west of Ambler, south of Kobuk River, Lake, 3 miles southeast of Ahnewetut creeks, junction with Kobuk River (ORTM)	"Two lakes together"	Burch #2133; Merrill Morena 1989	Name on map: Ahnewetut Lake. Eskimo name reported in 1956 by USGS; Wrong location on USGS maps.
Igl.ukisaaq	N/A	N/A	Boulder	Boulder at the river's edge	N/A	Burch #2388	
Igliqtiqsiu.gvigruaq	N/A	Igliqtiqsiiviqzuaq	Riverbank	Archaeological site; stretch of river and a little island	"Place you pass by"	Burch #2386	Old Akumivmiut fall/ winter settlement of 3-4 houses

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Il.uliaq	Central Kobuk River	N/A	Riverbend	27 miles northeast of Kiana on northern shore of Kobuk River; 2.5 miles downstream of its junction with the Salmon River	"Big bend"	Burch #2395	
I'~n.gisugruich	Central Kobuk	Jade Mountain(s); I"nrisugzuic (Burch no. AMB, A-4, 2154)	Mountain(s)	Mountains, 3350 ft, at southeast end of Baird Mts.; Extend northwest-southwest 11 miles; 4 miles wide; 9.5 miles northwest of Ambler	"Big mountain(s)"	Burch #2154; Mark Cleveland 1989; Art Douglas 1989	The name "Jade Mountains" is mentioned by Lt. Stoney (1900: 56), USN, who probably named the feature. Lt. J.C. Cantwell reports it as "Ashiganok" (Healy, 1886: 57) (ORTH)
I~nukil.isuq	N/A	N/A	Campsite	Campsite named for a white prospector who lived here long ago; on Akiak Creek; 7 miles northwest of junction with Hunt River.	"Funny-faced man"		
Isingnam paanga	Central Kobuk; mouth of Jade Creek	Burch no. AMB, A-5, 2165	Creek mouth	Mouth of Jade Creek; 2 miles east of Onion Portage	"Jade Mouth"		
Isingnaq	Central Kobuk	Jade Creek; Isingnam kuurua (Burch no. AMB, A-5, 2163)	Creek	Stream, heads in Jade Mts, flows southwest 12 miles to Kobuk River; 2 miles east of Onion Portage—stream, heads in Jade Mts at 67*14'N, 158*o1'W, flows southwest 12 miles to Kobuk River; 33 miles northwest of Shungnak, Brooks Range	"Jade" (Burch translates as "Jade Creek")	Burch #2163; Mark Cleveland 1989; Art Douglas 1989; Sun 1983: 18—Orth 1971: 469.	Named by Mendenhall (1902:5) USGS, after the Jade Mts.

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Israqa.gliq	N/A	Iszarqarlik (Burch no. AMB, A-6,2166)	Lake	Lake frequented by numerous white fronted geese during summers when the adults are undergoing molt. Round shaped, 1 mile in diameter; 8 miles northwest of Onion Portage	"Molting place"		Same as Iszaqarlik (Burch #2167)?
Israqa.gvik	West of Hunt River	Iszarqarlik (Burch no. AMB, A-6,2168)	Dry Lake	Formerly a lake west of Hunt River used by molting geese in summer, now overgrown. Dry Lake 5 miles long; 2.5 miles north of Kobuk River; 21 miles N.W. of Ambler.	"Has molting geese"		
Kakiaqtu.gvik	Central Kobuk	Kakiaqturvik	Slough	N/A	N/A	Burch #2415	
Kapuqqaa.gvik	Central Kobuk	Kapukaarvik (Burch no. AMB, A-6, 2180)	Bluff	Cabin site; Bluff (215'); VABM Bluff; 2.2 miles southeast of mouth of Hunt River	"Fish spearing place"	Burch #2180; Merrill Morena 1989: Art Douglas 1989	Art Douglas put it in the wrong place
Kiggaich	Central Kobuk	Hunt River Dunes (?); Kiigaic (Burch no. AMB, A-6, 2186)	Dunes	Hunt River Dunes, across from mouth of Hunt River	"Tree stumps" (Burch)	Burch #2186; Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Art Douglas 1989	
Kiksraq	Central Kobuk River	Kikszaq	Beach at the end of a portage	Beach at one end of the portages along the winter trail; 23 miles northeast of Kiana on northern shore of Kobuk River; 2 miles east of its junction with Kallarichuk River.	"Path over a portage"	Burch #2424	

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Kilva.gia.gruaq	Central Kobuk	Kilvariarzuaq (Burch no. AMB, A-4, 2187)	Creek	Stream, flows north 2 miles to Kobuk River; 4 miles southeast of mouth of Hunt River	"Place for a long walk back away from the water"	Burch #2187	Appears to be same feature as #191?
Kilva.giayaaq	Central Kobuk	Kilvariayaaq (Burch no. AMB, A-5, 2188)	Creek	New creek, stream, flows north 2 miles to Kobuk River; 4 miles southeast of mouth of Hunt River	"Place for a short walk back away from the water"	Burch #2188	Appears to be same feature as #191?
Kitlium kuuŋa	Central Kobuk	Kitlik River	Stream	Stream, in Baird Mts; flows south-east 21 miles to Salmon River; 8 miles northwest of its junction with Kobuk River; 28 miles north-east of Kiana, Brooks Range	N/A	Orth 1971: 526	Eskimo name obtained in 1955 by US Army Corps of Engineers
Kuu.gu.gaqiatchiaq	Central Kobuk River	Kuururaqiatciaq	Riverbend	24 miles north-east of Kiana on the Kobuk River; 3 miles northeast of its junction with the Kallarichik River.	N/A	Burch #2432	
Kuugruaq	Central Kobuk Valley	Kuugzuaq (Burch no. AMB, B-6, 2198)	River	Stream, heads east of Akiak Mts, flows south 43 miles to Kobuk River; 11 miles north-west of Onion Portage	"Big river" (Burch translates as "old river")	Burch #2198; Frank Glover 1970; Robert Cleveland 1970; Mark Cleveland 1989; Peter and Effie Atoruk 1989	Used to be an old Akunirmiut fall/ winter settle-ment, with more than 10 houses, near the mouth of the Hunt. No one has lived here during the 20th century.
Kuvri.gvik or Kuugruivik	Central Kobuk	Kuzirvik or Kuuqzuivik	Riverbend	Fish camp, bend of river and fish camp	N/A	Burch #2435	
Mangnguq	Schwatka Mts	Nuna Creek (Burch no AMB, B-5, 2208	Creek	Stream, flows southwest 19 miles to Akillik River; 12 miles north of Onion Portage; 43 miles northwest of Shungnak, Brooks Range	"Last of trees" (Burch)/"Land" (Orth)	Burch #2208 and #2209; Mark Cleveland 1989; Art Douglas 1989; Orth 1971:710	Eskimo name reported by Orth in 1956.

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Maql/uk	Central Kobuk	Burch no. AMB, A-5, 2210	River channel	River channel named after person who died there; 5 miles southeast from mouth of Hunt River	Personal name	Same as Burch #2210	
Masrutuuq	Central Kobuk	Burch no. AMB, A-5, 2211)	N/A	At river bend, on Kobuk River across from Onion Portage; 13 miles north-west of Ambler	"Lots of masru" (Burch translates "lots of maszu"	Burch #2211	
Milugiuvik	N/A	Mil.ugiivik (Burch no. AMB, A-6, 2214)	Slough (Burch)	Campsite. Slough, across from mouth of Hunt River	N/A	Burch #2214; Merrill Morena 1989	
N/A	N/A	Sheep Creek	N/A	Stream in Baird Mts; flows southwest 10 miles to Salmon River; 14 miles south of Kanatok Mtn; 49 miles northeast of Kiana, Brooks Range	N/A	Orth 1971: 862	Local name reported in 1955 by the US Army Corps of Engineers
N/A	N/A	Niaktuvik Creek	Creek	Stream, heads to Waring Mts at 66*59'N, 158*50'W, flows northeast 20 miles to Kobuk River; 41 miles northwest of Shungnak, Brooks Range	N/A	Orth 1971:686	Eskimo name reported by Orth in 1956.
N/A	N/A	Kavet Creek; Kauvet Creek	Stream	Stream, flows 10 miles north-north-west to Kobuk River; 7.5 miles southeast of its junction with Kaligurichearк River; 39 miles northeast of Kiana, Brooks Range (ORTM)	N/A	Orth 1971: 503	Eskimo name shown as "Kau-vet Creek" on a 1901 field sheet by D.L. Raeburn, USGS. However, the name was spelled "Kavet" when published (Mendenhall 1902: 5).
N/A	N/A	Waring Mts	Mountain Range	Mountain range, 1,800 ft; bends east 65 miles from Hotham Peak; south of Kobuk River, Brooks Range.	N/A	Orth 1971: 1028	Named in 1886 by Lt. Stoney (1900 map), USN, possibly for Howard Scott Waring, USN.

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
N/A	N/A	Baird Mountains	Mountain Range	Mountain range, extends east-west 120 miles at south-west end of Brooks Range; separated from Schwatka Mountains on east by Amakomanak Creek and Redstone River and bounded on west by Valley of Noatak River	N/A	Orth 1971:100	Named in 1886 by Lt. G.M. Stoney, USN, for Spencer Fullerton Baird
N/A	N/A	Akiak Mts	Mountain Range	Ridge, elevation 2,000—4,040 ft in Baird Mts; extends north-north-west 16 miles from junction of Akiak Creek and Hunt River, Brooks Range		Orth 1971: 56	Eskimo name obtained at Shungnak in 1956 by Orth
N/A	N/A	Great Kobuk Sand Dunes	Dunes	Sand dunes; 11 miles long and 3 miles wide in Kobuk River Valley; 45 miles northwest of Shungnak		Orth 1971: 389	Descrip-tive name given by Orth in 1956. See Little Kobuk Sand Dunes
N/A	N/A	Nigeruk Creek	Creek	Stream, flows 8.5 miles to Kobuk River; 1 mile west of its junction with Kaligurichearк River; 34 miles northeast of Kiana, Brooks Range	N/A	Orth 1971: 687	Eskimo name shown on a 1901 field sheet by D.L. Raeburn, USGS.

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
N/A	N/A	Kobuk River; Holoaka, Holooaká, Koorwak, Kowak, Kowuk, Koak, Kopak, Kubuk, Kuvuk, Kubuck, Putnam	River	Stream, flows west 280 miles to Hotham Inlet; 25 miles southeast of Kotzebue	"Big River"	Orth 1971: 534	Eskimo name meaning "big river" first transcribed by John Simpson in 1850 as "Kowuk." Explored by Lt. G.M. Stoney, USN, in 1883-1886, who wrote the name "Ku-buck," but proposed that it be called "Putnam" in honor of Master Charles Flint Putnam, USN, officer of the Rodges, who was carried to sea on the ice and lost in 1880. Lt. J. C. Cantwell, USRCS, also explored the river in 1884 and 1885 and spelled the name "Koowak" on his map and "Kowak" in his text. Ivan Petroff spelled the river name "Kooak" in 1880 and W. H. Dall spelled it "Kowak" in 1870. Lt. H.T. Allen, USA, obtained the Koyukan Indian name in 1885 which he spelled "Holooaka" and "Holoaka."
N/A	N/A	Elaroniluk Creek	Creek	Stream, head in Waring Mts; flows north and west 9.5 miles to Kobuk River; 5 miles south of its junction with Kallarichuk River; 17 miles northeast of Kiana, Brooks Range	N/A	Orth 1971: 307	Eskimo name obtained in 1955 by US Army Corps of Engineers

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
N/A	N/A	Tefilesook Creek	Creek	Stream, flows north-northwest 7.5 miles to Kobuk River; 1 mile southeast of its junction with Kallarichuk River; 21 miles northeast of Kiana, Brooks Range	N/A	Orth 1971: 957	Eskimo name obtained in 1955 by US Army Corps of Engineers
name unknown	Central Kobuk River	N/A	N/A	39.5 miles northeast of Kiana on the south shore of the Kobuk River	N/A		
name unknown	N/A	N/A	N/A	23.5 miles northwest of Ambler on the north shore of the Kobuk	N/A		
name unknown	N/A	N/A		Cabin site	N/A		
Napaaqtusrugruatchiaq	Central Kobuk River	N/A	N/A	36 miles northeast of Kiana on the southern shore of the Kobuk River; 2.5 miles upstream of Kaligurichearк River mouth.	N/A	Burch #2443	Used to be one house here occupied by two old people early in the 20th century. Used to be a shelter cabin here. Lots of graves here.
Napuuraq Qikiqtatchiaq or Nappuurum Qikiqtatchianga	N/A	Napuuzam Qikiqtatcia	Island	N/A	"Bent (thing)"	Burch #2444	
Nasrirvik	Central Kobuk	Naszizvik (Burch no. AMB, A-6, 2230)	Locality	3 miles north of Kobuk River; 22 miles northwest of Ambler	"Lookout place"	Burch #2230	
Nasritchu.gvik	Schwatka Mts	Naszitcurvik (Burch no AMB, B-5, 2229)	Mountain	Small mountain located between Akillik River and Nuna Creek; 13 miles north of Onion Portage	"Lookout place"	Burch #2229; Mark Cleveland 1989; Art Douglas 1989	
Nasrutchauraq	Central Kobuk	N/A	Beach and adjacent bluff	N/A	N/A	Burch #2446	
Natatquqtu.gvik	Central Kobuk	Natatqaqturvik (Burch no. AMB, A-6, 2231)	Island	Island in the Kobuk River; 25 miles northwest of Ambler	"Place for eating willow shoots" (Burch translates "Place with lots of Natatqaq (willows)"	Burch #2231; Peter and Effie Atoruk 1989	

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Niaqquk	Central Kobuk River	N/A	Hill	Two hills on east bank of river; 39 miles northeast of Kiana on north shore of Kobuk River; 5 miles downstream of Kavet Creek.	"Two heads"	Burch #2449	
Niaqutchialik	Central Kobuk	Nakochelik Creek (USGS); Niaqutcialik (Burch no. AMB, A-5, 2238)	N/A	Stream, flows northwest 11 miles to Kobuk River; 12.5 miles west of Ambler—35 miles northwest of Shungnak, Brooks Range	"Supplied with a new little head"	Burch #2238; Orth 1971: 671	Eskimo name reported by the US Army Corps of Engin-eers in 1955
Nigaqtu.gvik	N/A	Niaktuik Creek (Niaktuvik Creek?); Niaktuvik Creek (USGS); Nigakturvik (Burch no. AMB, A-5, 2240)	Creek	Stream, heads in Waring Mts., flows northeast 20 miles to Kobuk River; 5 miles north-west of Onion Portage	"Snarking place" (Burch translates "Caribou snaring place")	Burch #2240; Merrill Morena 1989	
Nigraq	Central Kobuk River	N/A	Slough	Slough on south side of Kobuk; 29 miles northeast of Kiana; south of Kobuk River at its junc-tion with the Salmon River	"Fringe"	Burch #2456	
Niq'aaq	Central Kobuk	Nikok River	Stream	Stream, flows east 15 miles to Salmon River; 35 miles north-east of Kiana, Brooks Range	"White lichen"	Orth 1971: 688	Eskimo name obtained in 1955 by US Army Corps of Engineers
Niqakturvik	N/A	Niaktuvik Creek	N/A	Stream, heads in Waring Mts at 66*59'N, 158*50'W, flows northeast 20 miles to Kobuk River; 41 miles northwest of Shungnak, Brooks Range.	"Caribou snaring place"	Orth 1971: 686	Same as #183?; Eskimo name reported by Orth in 1956.

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Nuna	Central Kobuk; Brooks Range; 44 miles NW of Shungnak	Akillik River (Burch no AMB, B-5, 2250)	River	Stream, heads in a lake, flows SW 35 miles to the Hunt River; 2.8 miles northeast of that stream's junction with the Kobuk River.	"Land"	Burch #2250; Mark Cleveland 1989; Art Douglas 1989	Same as AMB, A-6, 200. Orth recorded the name in Shungnak in 1956. Orth 1971: 56 records the name as meaning "something on the other side" or "across." USGS has this name on the wrong river.
Nuna	Brooke Range, 44 miles north-west of Shungnak	Akillik River; (Burch no. AMB, B-5, 2250)	River	Stream, heads in a lake, flows southwest 35 miles to the Hunt River 2.8 miles northeast of that stream's junction with the Kobuk River	"Land"	Burch #2250; Mark Cleveland 1989; Art Douglas 1989	Same as AMB, B-5, 96. Orth recorded the name in Shung-nak in 1956. Orth 1971: 56 records the names as meaning "something on the other side" or "across." USGS map has this name on the wrong river.
Nuqaqti	Baird Mts	(Burch no AMB, B-6, 2255)	Creek	Stream, flows south-south-west 19 miles to Akillik River; 12 miles north-west of Onion Portage, Baird Mts.; heads at 67*29'N, 158*19'W; 45 miles northwest of Shungnak, Brooks Range.	"Bow string"	Burch #2255; Mark Cleveland 1989; Orth 1971:679	Eskimo name reported by USGS in 1956
Paatitaaq	Central Kobuk	Onion Portage; Paatiitaaq (Burch no. AMB, A-5, 2258)	Portage	Portage, across a neck of a meander of Kobuk River; 11.5 miles west of Ambler; 35 miles northwest of Shungnak, Brooks Range	"Wild chives" (Burch translates "Onion")	Burch #2258; Joe Sun 1970; Mark Cleveland 1989; Merrill Merino 1989; Art Douglas 1989; Peter and Effie Atoruk 1989; Sun 1983:18; Orth 1971: 725	Local name reported by Orth in 1956.

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Paun.gaqtua.gruk	Central Kobuk	N/A	Slough	Slough, on Kobuk River; 5 miles northwest of Onion Portage	"Crowberry picking place"		See also KVM #193
Paun.gaqtua.gruk	Central Kobuk; on inside of Kobuk River (c.f. 187)	Paunraqturvik (Burch no. AMB, A-5, 2262) Paunraqtuarzuk (Burch #2261)	Bluff	Steep bluff along inside of Kobuk River: an area known for its powerful north winds. Series of bluffs on the sorth [*sic*] side of the Kobuk; 4 miles southeast of mouth of Hunt River	"Crowberry picking place" (Burch translates "Place with lots of blackberries")	Burch #2262, 2261; Peter and Effie Atoruk 1989; Mark Cleveland 1989; Art Douglas 1989; Sun 1983: 18	Several white people lived here from about the mid-1960s to the early to mid-1980s. Also known as Paunraqtuarzuq. The area is known for its powerful north winds
Pil.agvik	Central Kobuk	(Burch no. AMB, A-6, 2263)	Creek	3.5 miles long creek flowing south through two small lakes, into the Kobuk River; 22.5 miles northwest of Ambler	"Butchering place"	Burch #2263	
Pituqqiq	Central Kobuk; at Onion Portage	Burch no. AMB, A-5, 2267)	Trail	Place where portage trail across Onion Portage formerly reached the river, on Kobuk River; 13 miles northwest of Ambler	"Portage"	Burch #2267	
Qal/hag	Central Kobuk River	N/A	Grave site	Hill covered with vegetation; 31.5 miles northeast of Kiana on southern shore of Kobuk River; 2 miles upstream with the junction at Salmon River, Brooks Range (ORTM)	Personal name	Burch #2481	Grave here. Good berry picking place.

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Qalugraitchauraq	Central Kobuk River	Kaligurichеark River; Kalegurichеark River	Slough	Stream, flows south 26 miles to Kobuk River; 5.5 miles northeast of its junction with Salmon River; 35 miels north-east of Kiana, Brooks Range (ORTM)	"New little salmon"	Burch #2473; Orth 1971: 489	Eskimo name, probably referring to "some kind of fish," spelled "Kal-e-gu-ri-che-ark" by Lt, Stoney (1900 map), USN, in 1885 and applied the name to the present-day "Kallarichuk River." The name was reapplied to this stream on a 1901 field sheet by D.L. Raeburn, USGS, and given its present spell-ing (ORTM). Used to be an Akunivmiut fall/ winter settle-ment of 2-3 houses near the mouth of the river.
Qalugraitchauraq	Around confluence of Kobuk and Salmon Rivers	N/A	River	Portion of Kobuk River at and immedi-ately below the mouth of the Salmon River	"New Salmon"	Burch #2475	There used to be an Akumivmiut fall/ winter set-tlement located here with 10 houses
Qalugriivik	N/A	N/A	N/A	29.5 miles northeast of Kiana on Salmon River; 2 miles upstream from its junc-tion with the Kobuk River	N/A	Burch #2476	
Qalugriivik	Baird Mts; side on mid-dle Akillik River	Qalugziivik (Burch no AMB, B-5, 2271)	River	Site on middle Akillik River where salmon spawn; 14 miles north of Onion Portage, Baird Mts.	"Salmon spawn-ing place"		

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Qalugruaq or Qalugruich	Central Kobuk River	Salmon River; Kal-la-gu-nick, Qalugzuaq	River mouth	Salmon River. Stream, in Baird Mts, flows south 60 miles to Kobuk River; 2 miles southwest of its junction with Tutuksuk River (ORTM); 24 miles northeast of Kiana, Brooks Range	"Many salmon"	Burch #2478; Orth 1971:831	In 1885, Lt Stoney (1900 map) USN, reported the name for this stream as "Salmon, or Kal-la-qu-mick River" (ORTM); Eskimo, probably meaning "Salmon."
Qaluqziatcauzam	Central Kobuk	Kaligurichearк River	N/A	N/A	"Qalugziatcauzaq River"		(same as #457); Orth 1971 = 489
Qaluqziatciam kuurua	Central Kobuk	Kallarichuk River, Kalegurichearк River, Kallareechuck River, Reed Creek, Reed River	Stream	Stream, head in Kallarichuk Hills of Baird Mts; flows southeast 25 miles to Kobuk River; 21 miles northeast of Kiana, Brooks Range	"New Salmon River"	Orth 1971: 489	Along this stream, in 1885, Lt. Stoney (1900, map), USN, recorded the spelling "Kal-e-qu-ri-che-ark (Reed)." D.L. Raeburn's field sheet of 1901, USGS, retained the name "Reed River," applying the Eskimo name to a stream farther east. In 1910, P.S. Smith, USGS, applied the name "Kallareechuk River" to its present location.
Qaluqzuitpaaŋat	Central Kobuk	N/A	N/A	Mouth of the Salmon River	"Salmon [River] mouth"		The area right around the mouth of the Salmon is too low for a village; too easily flooded. It's good summer place because there are lots of fish here.

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Qaql/ikuvik	Central Kobuk River	Kavet Creek; Kauvet Creek	Creek	Stream, flows 10 miles north-north-west to Kobuk River; 7.5 miles southeast of its junction with Kaligurichearк River; 39 miles northeast of Kiana, Brooks Range (ORTM)	"Sealskin boot place"	Orth 1971:503; Burh #2484	Name on map: Kavet Creek. Eskimo name shown as "Kau-vet Creek" on a 1901 field sheet by D.L. Raeburn, USGS; however, the name was spelled "Kavet" when publish-ed by Mendenhall, (1902:5) (ORTM); Lots of kiŋniklemes here. Got its name because people going toward the dunes to pick berries used to go up the west side of the creek, they crossed it wearing water boots. When they go to the dunes they switched to slippers of some kind. Th name on the USGS maps was put on the wrong creek.
Qava.gi~n	Central Kobuk	Qavarin	Bluff	Low bluff	N/A	Burch #2487	
Qaviat	Central Kobuk Valley	Greak Kobuk Sand Dunes	Dunes	Sand dunes; 11 miles long and 3 miles wide in Kobuk River Valley; 45 miles northwest of Shungnak	"Sands"	Orth 1971: 389	Descriptive name given in 1956 by Orth. See Little Kobuk Sand Dunes.
Qaviat kuurua	N/A	N/A	N/A	Creek on east side of Great Kobuk Sand Dunes = Ahnervetut Creek; stream, heads in Greak Kobuk Sand Dunes; flows north 14 miles to Kobuk River, Brooks Range	"Sand Dunes Creek"	Orth 1971:53	Incorrect on USGS maps. Eskimo name reported in 1956 by USGS (same as #209).

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Qaviurat	Central Kobuk	Little Kobuk Sand Dunes (USGS); Qaviizat	N/A	Sand dunes; 3 miles long and 1 mile wide, in Kobuk River Valley; 12.5 miles southwest of Ambler; 32 miles northwest of Shungnak, Brooks Range	"Little sands"	#2292; Orth 1971: 584	Descriptive name given in 1956 by Orth. See Big Kobuk Sand Dunes.
Qayaaq	Across from Onion Portage	N/A	Sandbar	Sandbar toward Ambler, across from Onion Portage, on left side of Kobuk River; 9 miles west of Ambler—Burch says south section of the Kobuk River.	"Kayak"	Burch #2293	
Qazaviic	N/A	N/A	Mountain	Mountain, 2,088 ft; UABM Rich?	"Slanting hills"		
Qitiql/iuraq	Central Kobuk River	N/A	N/A	24 miles north-east of Kiana on southern shore of Kobuk River; 3 miles upstream of its junction with the Kallarichuk River	"Little one on the middle"	Burch #2493	
Qusrimmaqtuuq	Central Kobuk River	Quszimmaqtuq	Lake	An oxbow lake; 25 miles northeast of Kiana; 4 miles west-southwest of Kobuk River and Salmon River junction; 1.5 miles north of Kobuk River	"Has lots of wild rhubarb"	Burch #2496	Same as or different from #2495 and/or #2497?
Qusrimmaqtuuq	Central Kobuk River	Quszimmaqtumnuliaŋa (?)	Riverbend	Bend of the river and a sandbar; 24.5 miles north-east of Kiana on northern shore of Kobuk River; 3.5 miles from its junction with Kallarichuk River.	"Has lots of while rhubarb" (translation for above)	Burch #2495?	Same as or different from #2496 and/or #2497?

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Siiqsiniq	N/A	N/A	N/A	Site of heavy winter over-flowing on Hunt River; 19 miles north-west of Onion Portage; 3 miles northeast of junction with Akiak Creek	"Overflow"	Burch #2316	
Siksrikpak or Siksrikpaich	Central Kobuk	N/A	Bluff	Bluff at bend of river; 39 miles northeast of Kiana on north side of Kobuk River; across the river from the mouth of Kavet Creek	"Many marmots"	Burch #2503	Eskimo name for the "Many mar-mot," Macmota caligata brower. There are some very old igloos here.
Sisit	Central Kobuk	N/A	Riverbank	N/A	"Fox den"	Burch #2502	
Sisuaq	Central Kobuk River	N/A	Archaeological Site	Bluff and archaeological site. 39 miles northeast of Kiana next to Kavet Creek; 1 mile south of Kobuk River.	"Beluga"	Burch #2507	
Siulikturuaq	Central Kobuk River	N/A	Riverbank	High bank of river, south side: 33 miles northeast of Kinana on southern shore of Kobuk River; 3.5 miles upstream from junction with Salmon River.	"Has lots of pike"	Burch #2501	
Tittaaliqsuuq	Central Kobuk	N/A	Slough	N/A	"Has lots of burbot"	Burch #2514	
Tluksi	Kallarichuk Hills	N/A	Mtn.	Mountain, 3,485 ft	N/A		
Tulukkaat	Central Kobuk	N/A	Locality	24 miles north-west of Ambler on the north shore of the Kobuk River	"Young ravens"	Burch #2335	Used to be an Akunivmiut fall/ winter settle-ment here of 2-3 houses just west of the creek mouth.
Tunutam akia	Central Kobuk	N/A	Sandbar	Large sand-bar, on Kobuk River, at river bend; 2.5 miles west of Onion Portage	"Across from Tunutaq"	Burch #2336	

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Tunutam paaŋa	Central Kobuk	N/A	N/A	Mouth of Tunutak River	"Tunutak (River) Mouth"	Burch #476)	Also known as Kuurzizvik
Tunutam paaqtanga	Creek below Onion Portage	Tunutuk (?) Creek (USGS)	Creek	Creek below Onion Portage, misnamed Tonutuk, heads on west side of Little Kobuk Sand Dune, flows north 8 miles to Kobuk River, Brooks Range	"Circles around"	Burch #2337; Orth 1971: 991	Eskimo name obtained by Mendenhall (1902:5), USGS, in 1901.
Tunutaq	N/A	N/A	N/A	N/A	"Comes back around"		
Tunutaq	N/A	N/A	Dry slough	Newly dry slough	N/A	Burch #2517?, #2518	
Tunutauraq	Central Kobuk River	N/A	N/A	24 miles north-west of Ambler on the south shore of the Kobuk River	"Little one comes back around" (See no.208)		
Tunutauraq	Central Kobuk River	N/A	Slough	22.2 miles northwest of Ambler; 2 miles south of the Kobuk River	"Little one comes back around" (See no.208)	Burch #2339	
Tuttullu.gvik	Central Kobuk	N/A	Beach	Gravel beach, hill right along the river (Burch); 36 miles northeast of Kiana on the northern shore of the Kobuk River; 2 miles upstream of Kaligurichearк River mouth.	"First caribou kill"	Burch #2519	
Tuun.givik	Central Kobuk	Coalmine	Riverbank	N/A	"Devil place"	Burch #2522	Dangerous place to stay
Tuunnutkut	Central Kobuk	Kallarichuk Hills	Ridge	Ridge, elevation 1,600—3,400 ft, in Baird Mts; extend south-south-east 15 miles between Kallarichuk River and Klery Creek; 11 miles northeast of Kiana, Brooks Range	"Caribou back fat"	Orth 1971: 489	Local name reported in 1955 by the US Army Corps of Engineers

Iñupiaq Place Name	General Location	Other Names	Geological Feature Type(s)	Description and Approximate Boundaries	Translation(s) of Names	Source	Notes
Tuutaksraq	Central Kobuk River	Tutuksuk River; Labret River; Too-look-sook River; Tootooksook River; Tuutakszam kuuŋa	River	Stream, head in Baird Mts; flows south 45 miles to Kobuk River; 2 miles northeast of its junction with Salmon River (ORTM); 36 miles north-east of Kiana, Brooks Range	"Material for labrets"; "Caribou pelt" (?)	Burch #2523; Orth 1971:996	In 1885, Lt Stoney (1900 map) USN, gave the name for this stream as "Labret or Tootooksook River' W.C. Mendenhall, USGS, in 1901, wrote the name "Tootooksook" and says it means "caribou pelt" (ORTM).
Tuutakszam nakszaŋa	Baird Mts.	N/A	Pass	Pass on the head of the Tutuksuk River	"Tuutakszam pass"		
Tuutakszaq	Central Kobuk	N/A	N/A	Area around the mouth of the Tutuksuk River	"Material for labrets"	Burch #459	Old Akumivmiut fall/winter settlement of 10 houses
Uliksuq	Central Kobuk	N/A	Creek	N/A	N/A	Burch #2528	
Uniq	N/A	N/A	N/A	N/A	"Armpit"	Burch #2352	

APPENDIX C

Place names that appear both in Burch and NAS documentation

Burch compiled a list of Inupiaq place names in the Ambler River, Baird Mountain, Selawik, and Shungnak quadrangles as being within the boundaries of the Kobuk Valley National Park.[3] Data found in these documents appear to have been incorporated into the Northwest Alaska Study conducted by the Department of Anthropology at the University of Alaska, Fairbanks.[4] However, it appears that perhaps not all areas identified by Burch were identified by NAS researchers.

A comparison was made; all Burch place names that appear in the NAS documentation have been included in the following table. All place names with a * should be subject to further scrutiny. For example, *Atauqaqtuaq** is identified by Burch as being located in the Kallarichuk Hills but was not identified as being within park boundaries in the NAS.[5]

[3] Burch 1989a, 1989b.

[4] NAS n.d.a.; NAS n.d.b.; NAS n.d.c.; 1991a; 1991b; Kuuvaŋmiut n.d.a, Kuuvaŋmiut n.d.b.

[5] Burch 1989b:7.

Place Name	Location	Coordinates	Description	Translation	Comment	Source	Citation
Aatut	?		A section of the riverbank and archaeo-logical site			Kaplan #435	Burch 1989b: 1
*Akiviaq**	Central Kobuk	T19N; R5E	Section of the main Kobuk River	"Big hook"		Art Douglas 1989	Burch 1989a: 2
Akszaksiarvik	Central Kobuk	T20-21N; R1-2E	A slough	"Rolling place"		Merrill Morena 1989; Art Douglas 1989; Kaplan #197	Burch 1989a: 2
Amaqtuq	Central Kobuk	T21N; R2E	Section of river and the end of Paunraqtaugzuk hill	"Hump-back salmon"		Peter and Effie Atoruk 1989; Kaplan #195	Burch 1989a: 3
Anaktuaq	Baird Mts.	T26-27N; R6-7W	Anaktak Creek	"Feces"		Peter Atoruk 1989	Burch 1989b: 3
Anuritut	Central Kobuk	T20N; R1E	Lake	"Windy place"	Ahnewtut Lake is at the wrong place on the USGS maps	Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 19889; Merrill Morena 1989; Art Douglas 1989; Kaplan #209, 211	Burch 1989a: 5
*Anuritut kuurua**	Central Kobuk	T20-21N; R1E	Creek	"Anuritut Creek"	The name is on the wrong creek on the USGS maps. Lots of fish in this creek.	Merrill Morena 1989	Burch 1989a: 5
*Aŋattaq**	Central Kobuk	T19N; R4E	A sandbar on the south side of Kobuk River			Kaplan #170	Burch 1989a: 6
Aŋayukakszaq	Baird Mts.	T27N; R3W	Mt. Angayukakaszak	"Old man"	Same as or different from the following?	Peter Atoruk 1989	Burch 1989b: 4
Aŋayukakszaq	Baird Mts.	T25N; R6W	Mountain (3130' VABM Mist)	"Old man"	Same as or different from the foregoing?	Percy Jackson 1989	Burch 1989b: 4
Aŋmaluq	Central Kobuk	T20N; R4W	The end of a knoll	"Amulet"		Kaplan #464	Burch 1989b: 5
Apikiilik	Central Kobuk	T20N; R3E	Locality			Merrill Morena 1989	Burch 1989a: 6
Apikiilik	Central Kobuk	T21N; R23		Named after a person buried here		Kaplan #192	Burch 1989a: 7

Place Name	Location	Coordinates	Description	Translation	Comment	Source	Citation
*Apqugaarzuk/ Apqugaarzum nakszaŋa**	Eastern Baird Mts	T24N; R6E	Pass between the Redstone and Cutler Rivers	"Old Pass Trail"	According to Joe Sun (1970), the pass that people used was not the one listed as 'Ivishak Pass' on the USGS maps, but the one just to the west. It was a winter pass since it was possible to get a sled over it. In summer, people used the more direct but steeper route. Akilliq, just to the west	Sun 1970; Kaplan #87	Burch 1989a: 7
Aqiarurluuk	Central Kobuk		Hill, n. side of river	"Stomach"	Lots of really old houses here.	Peter and Effie Atoruk 1989	Burch 1989b: 6
Aqirum kuurua	Eastern Baird Mts	T23-25N; R1W-1E	Akiak Creek	"Tree branch creek"		Merrill Morena 1989; Kaplan #838, cf. #102	Burch 1989a: 7
*Aqirum nakazaŋa**	Eastern Baird Mts	T25-26N; R1W	Pass at the head of Akiak Creek	"Tree branch pass"		Merrill Morena 1989; Kaplan #838	Burch 1989a: 8
Ataniqliriik	Central Kobuk	T20N; R1E	Ahnewelut Lake	"Two lakes together"		Merrill Morena 1989; Kaplan #210	Burch 1989a: 8
*Atauqaqtuaq**	Kallarichuk Hills	T22N: R7W	Mountain (3039')		Lots of marmots here	Percy Jackson 1989	Burch 1989b: 7
*Iluksi**	Kallarichuk Hills	T21N; R7W	Mountain (3485')			Percy Jackson 1989	Burch 1989b: 9
Iḷuliaq		T20N; R4W	A bend in the river and a sandbar	"Big bend"	Right in front of Kunulaq.	Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Kaplan #465	Burch 1989b: 10
*Iniqzuic**	Central Kobuk	T20N; R11W	A little below Salmon River, on the north side, under a hill		Two old houses here	Peter and Effie Atoruk 1989	Burch 1989b: 10
*Iñriaŋuluk**	Central Kobuk	T20N; R6W	A mountain (565')	"Small but solid mountain"		Peter Atoruk 1989; Kaplan #494	Burch 1989b: 11
Iñrisuqzuic	Central Kobuk	T21-22N; R3-4E	Jade Mountains	"Big mountains"		Mark Celeveland 1989; Art Douglas 1989; Kaplan #147	Burch 1989a: 13
Iqliqtiqsiirviizaq	Central Kobuk	T20N; R4W		"Little place you pass through"		Merrill Morena 1989; Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989	Burch 1989b: 8

Place Name	Location	Coordinates	Description	Translation	Comment	Source	Citation
Iqliqtiqsiiviqzuaq	Central Kobuk River	T20N; R4W	Stretch of river and a little island	"Place you pass by"	Old Akunirmiut fall/winter settlement of 3-4 houses	Robert Cleveland 1970; Frank Glover 1970; Art Douglas 1989; Peter and Effie Atoruk 1989; Merrill Morean 1989; Kaplan #471? #475; Sun 1983: 16	Burch 1989b: 8
Iqlukisaaq	Central Konuk	T20N; R5W	A boulder at river edge			Kaplan #479	Burch 1989b: 8
Isiŋnam kuurua	Central Kobuk	T20-21N; R3	Jade Creek	"Jade Creek"		Mark Cleveland 1989; Art Douglas 1989; Sun 1983:18; Kaplan #179	Burch 1989a: 15
Isiŋnam Paaŋa	Central Kobuk	T20N; R3E	The mouth of Jade Creek	"Jade mouth"		Kaplan #178	Burch 1989a: 16
Iszaqarlik			A lake	"Molting place"	The lake is frequented by white fronted geese during the molting season	Kaplan #194	Burch 1989a: 16
Iszaqarlik		T21N; R9E	Lake	"Molting place"	Lots of ducks here during The molting season	Sun 1983:123	Burch 1989a: 16
Iszaqarlik			A lake	"Has molting geese"	There used to be lots of geese here during molting season, but the lake is now overgrown	Art Douglas 1989; Kaplan #201	Burch 1989a: 16
*Iyaraq**	Central Kobuk	T19N; R6W	Big rocks right in the Kobuk River, on the north side of an island, right at Napuuzaq	"Rock"		Kaplan #486	Burch 1989b: 14
Kapukaarvik	Central Kobuk	T21N; R2E	A bluff (215'. VABM Bluff)	"Where people spear fish"	Art Douglas put it in the wrong place	Merrill Morena 1989; Art Douglas 1989; Kaplan #196	Burch 1989a: 20
Kiigaic	Central Kobuk	T21N; R1E	Hunt River Dunes	"Tree stumps"		Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Art Douglas 1989; Kaplan #199	Burch 1989a: 21
Kikszaq	Central Kobuk	T20N; R5W	The beach at one of the portages along the winter trail	"Path over a portage"		Kaplan #470	Burch 1989b: 16
Kilvariarzuaq	Central Kobuk	T21N; R2E	A creek	"Place for a walk back away from the water"		Kaplan #191	Burch 1989a: 21
Kilvaríayaaq	Central Kobuk	T20N; R2E	A new creek	"Place for a short walk back away from the water"		Kaplan #190	Burch 1989a: 22
Kitlim kuuŋa	Central Kobuk	T21-23N: R6-7W	Kitlik River			Peter Atoruk 1989	Burch 1989b: 17

Place Name	Location	Coordinates	Description	Translation	Comment	Source	Citation
*Kunulaq**	Central Kobuk	T20N; R4W	Low hills (237')	"Coal"		Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989	Burch 1989b: 18
Kuugzuaq	Central Kobuk	T19N; R5E	Section of the Kobuk River	"Old River"		Art Douglas 1989	Burch 1989a: 24
Kuugzuaq	Central Kobuk valley	T21-25N; R1-2E	Hunt River	"Old River"	Used to be an old Akunirmiut fall/winter settlement, with more than 10 houses, near the mouth of the Hunt. No one has lived here during the 20th Century	Frank Glover 1970; Robert Cleveland 1970; Mark Cleveland 1989; Peter and Effie Atoruk 1989; Kaplan #101	Burch 1989a: 24
*Kuuvzizvik**	Central Kobuk	T20N; R5W	Mouth of Tunutaq River	"Old place to set a net"	Apparently also known as Kuuvzirvirzuaq. Good place for sheefish and salmon in the summer.	Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Merrill Morena 1989; Sun 1983:16?	Burch 1989b: 18
Kuzvirvik or Kuuqzuivik	Central Kobuk	T20N; R5W	A bend in the river and fish camp			Kaplan #577	Burch 1989b: 19
Maŋŋuq	Schwatka Mts	T22-23N; R3-4E	Nuna Creek	"Last of trees"	Cf. the following place name	Mark Cleveland 1989; Art Douglas 1989; Kaplan #95	Burch 1989a: 27
*Maŋŋuq**	Central Kobuk	T21N; R2-3E	A creek	"Creek goes inside mountains"	Cf. the previous place name	Merrill Morena 1989	Burch 1989a: 27
Maqłuk	Central Kobuk	T21N; R2E	A channel		Named after a person who died there	Kaplan #189	Burch 1989a: 27
Maszutuuq	Central Kobuk	T30N; R1W	Locality with lots of maszu	"Place with lots of maszu"	A white storekeeper used to live here	Peter and Effie Atoruk 1989	Burch 1989a: 28
Miḷuqiivik		T20-21N; R1E	A slough			Merrill Morena 1989; Kaplan #198	Burch 1989a: 28
*Napaaqtuqtum Kuurua**	Central Kobuk	T19N; R7W	Creek—see Selawik quad for more info	"Napaqtuqtuq Creek"		Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989	Burch 1989b: 20
*Napaaqtuqtuq**	Central Kobuk	T19N; R7W	Mountain (2264'; VABM Trinity)	"Has lots of spruce"		Merrill Morena 1989	Burch 1989b: 20
Napaaqtusuqzuacciaq	Central Kobuk	T21N; R3W	Used to be one house here occupied by 2 old people early in the 20th century. Used to be a shelter cabin here. Lots of graves here			Peter and Effie Atoruk 1989; Sun 1983:17; Kaplan #455	Burch 1989b: 21
Napuuzam Qikiqtatcia a	Central Kobuk	T19N: R6W	A little island	"Bend (thing)"		Peter and Effie Atoruk 1989; Merrill Morena 1989; Kaplan #481, 489	Burch 1989b: 21
*Naquaziayaq**		T20-21N; R3-4E	A creek, tributary of Jade Creek	"No pass"		Art Douglas 1989	Burch 1989a: 31

Place Name	Location	Coordinates	Description	Translation	Comment	Source	Citation
*Naraiic**	Central Kobuk	T20N; R3E	Tiny lake at the eastern end of Onion Portage	"Frogs"		Merrill Morena 1989	Burch 1989a: 31
Naszitcurvik	Schwatka Mts.	T22N; R3E	A small mountain	"Lookout place"		Mark Cleveland 1989; Art Douglas 1989; Kaplan #94	Burch 1989a: 32
Naszizvik	Central Kobuk	T21N; R1E		"Lookout place"		Kaplan #202	Burch 1989a: 32
Nataqaqturvik	Central Kobuk	T21N; R1E	An island in the Kobuk River	"Place with lots of Natatqaq (willows)"		Peter and Effie Atoruk 1989; Kaplan #206	Burch 1989a: 32
Niaqquk	Central Kobuk	T21N; R2W	2 little hills on the east side of the Kobuk	"Two heads"		Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Merrill Morena 1989; Kaplan #454	Burch 1989b: 22
Niaqutcialik	Central Kobuk	T19N; R3E		"Supplied with a new little head"		Kaplan #175	Burch 1989a: 34
*Niaquuzak**	Central Kobuk	T20-21N; R1E	Two little hills	"Two little heads"		Sun 1983:17	Burch 1989a: 34
Niqaaq	Central Kobuk	T23-24N; R6-7W	Nikok Creek	"White lichen"		Peter Atoruk 1989	Burch 1989b: 25
Niqakturvik		T19-20N; R1-2E	Niaktuvik Creek	"Caribou snaring place"		Merrill Morena 1989; Kaplan #183?	Burch 1989a: 35
Niqaqturvik	Baird Mts	T27-28N; R14-15W	Ahaliknak Creek	"Place to use caribou snares"		Foote #185	Burch 1989b: 24
Niqzaq	Central Kobuk	T20N; R4W	Slough on the south side of the Kobuk	"Fringe"		Peter and Effie Atoruk 1989; Kaplan #462	Burch 1989b: 24
Nuna	Central Kobuk	T22-24N; R2-4E	Akillik River	"Land"	USGS map has this name on the wrong river	Mark Cleveland 1989; Art Douglas 1989; Larry Kaplan #96, 200	Burch 1989a: 37
Nuna	Central Kobuk	T19N; R7W	A hill			Kaplan #497	Burch 1989b: 25
Nuqaqti	Baird Mts	T21-24N; R2-3E	Nekakte Creek	"Bow string"		Mark Cleveland 1989; Kaplan #98	Burch 1989a: 38
Paatiitaaq	Central Kobuk	T20N; R3E	Onion Portage	"Onion"		Joe Sun 1970; Mark Cleveland 1989; Merrill Merino 1989; Art Douglas 1989; Peter and Effie Atoruk 1989; Sun 1983: 18; Kaplan #180	Burch 1989a: 39
Paunraqturvik	Central Kobuk	T21N; R2E	Series of bluffs on the north side of the Kobuk	"Place with lots of black-berries"	Several white people lived here from about the mid-1960s to the early to mid-1980s. Also known as paunraqtuarzuq. The area is known for its powerful north winds.	Peter and Effie Atoruk 1989; Mark Cleveland 1989; Art Douglas 1989; Sun 1983: 18; Kaplan #187, 193	Burch 1989a: 40

Place Name	Location	Coordinates	Description	Translation	Comment	Source	Citation
*Paunrariaq**	Central Kobuk	T20N; R5W	Mountain (2487'; VABM Klery)	"Blackberries"		Peter and Effie Atoruk 1989	Burch 1989b: 26
Piłaqvik	Central Kobuk	T21N; R1E	A creek	"Butchering place"		Kaplan #203	Burch 1989a: 40
Pituqqiq	Central Kobuk	T20N; R5E	An old portage trail from Ambler village to Ambler River	"Portage"		Kaplan #154	Burch 1989a: 41
Pituqqiq	Central Kobuk	T20N; R2-3E	The place where the portage trail across Onion Portage formerly reached the river	"Portage"		Kaplan #186	Burch 1989a: 41
Qałhaq		T20N; R3W	Hill covered with vegetation		Grave here. Good berry picking place	Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Merrill Morena 1989; Kaplan #460	Burch 1989b: 30
Qaluqziatcauzam kuuŋa	Central Kobuk		Kaligurichеark River	"Qalugziatcauzaq River"		Merrill Morena 1989	Burch 1989b: 28
Qaluqziatcauzaq	Central Kobuk	T21N; R2W	A slough	"New little salmon"	Used to be an Akunirmiut fall/winter settlement near the mouth of the river. 2-3 houses	Merrill Morena 1989; Peter and Effie Atoruk 1989; Sun 1983: 17; Kaplan #475	Burch 1989b: 28
Qaluqziatciam kuurua	Central Kobuk	T19-23N: R5-6W	Kallarichuk River	"New salmon river"		Frank Glover 1970; Robert Cleveland 1970; Merrill Morena 1989; Peter Atoruk 1989; Sun 1983:16	Burch 1989b: 28
Qaluqziatciaq	Central Kobuk	T20N; R4W	A section of the Kobuk River immediately below the mouth of the Salmon River	"New salmon"	There used to be an Akunirmiut fall/winter settlement located here with 10 houses	Frank Glover 1970; Robert Cleveland 1970; Peter Atoruk 1989; Sun 1983:16-17; Kaplan #478	Burch 1989b: 28
Qaluqziivik	Baird Mts	T22N; R2E	A site on the middle of Akillik River where salmon spawn	"Salmon spawning place"		Kaplan #97	Burch 1989a: 42
*Qaluqzuam Nakszaŋa**	Baird Mts	T27N; R6W	Pass between Sapun Creek and Salmon River	"Salmon Pass"	Good winter trail; best winter pass between the central Kobuk and the upper Noatak basin. Very gentle sl[?] on both sides of the pass	Frank Glover 1970; Isaac Coffin 1970; Peter Atoruk 1989	Burch 1989b: 29
Qaluqzui	Central Kobuk	T21-28N; R3-5W	"Salmon River"	"Many Salmon"	Also known as Qalugzuaq	Frank Glover 1970; Merrill Morena 1989; Kaplan #461	Burch 1989b: 29

Place Name	Location	Coordinates	Description	Translation	Comment	Source	Citation
Qaluqzuit paaŋa	Central Kobuk	T20N; R4W	Mouth of the Salmon River	"Salmon [River] mouth"	The area right around the mouth of the Salmon is too low for a village; too easily flooded. It's a good summer place because there are lots of fish here	Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989	Burch 1989b: 29
*Qaqiaqturvik**	Central Kobuk	T21N; R2E	Section of the Kobuk at the end of a hill	"Spear fishing place"	Locality also known as Paunraqturvik	Peter and Effie Atoruk 1989	Burch 1989a: 45
Qaqłikuvik	Central Kobuk	T19-20N; R2W	Kaviat Creek	"Water-proof boot place"	Lots of tiŋnik berries here. Got its name because people going toward the dunes to pick berries used to go up the west side of the creek, the crossed it wearing water boots. When they got to the dunes they switched to slippers of some kind. The name on the USGS maps was put on the wrong creek	Peter and Effie Atoruk 1989; Merrill Morena 1989; Art Douglas 1989; Kaplan #449	Burch 1989b: 31
Qaumaŋianaq	Kallarichuk Hills	T22N; R7W	Mountain just north of Gold Pass Creek			Percy Jackson 1989	Burch 1989b: 31
Qavariñ	Central Kobuk	T20N; R4W	A low bluff			Kaplan #473	Burch 1989b: 31
Qaviat	Central Kobuk valley	T19-20N; R1-2W/1E	Great Kobuk Sand Dunes	"Sands"		Art Douglas 1989; Merrill Morena 1989; Sun 1983: 17	Burch 1989a: 47
Qaviat kuurua		T19-20N; R1W-1E	creek on east side of Great Kobuk Sand Dunes = Ahnewetut Creek	"Sand dunes creek"	Incorrect on USGS maps	Merrill Morena 1989	Burch 1989a: 47
Qaviizat	Central Kobuk	T19N; R3E	Little Kobuk Sand Dunes	"Little Sands"		Art Douglas 1989; Mark Cleveland 1989; Kaplan #174	Burch 1989a: 47
Qayaaq		T20N; R3E	Section of the Kobuk River	"Kayak"		Merrill Morena 1989; Kaplan #177	Burch 1989a: 47
Qazaviic		T22N; R1W	Mountain (2088'; VABM Rich)	"Slanting hills"		Merrill Morena 1989	Burch 1989a: 48
*Qiłhiriaq**	Baird Mts.	T22N; R2W	River			Merrill Morena 1989	Burch 1989b: 32
*Qiqut isua**	Central Kobuk	T20N; R5W	Cut bank of conglomerate rock	Qiqut—"conglomerate"; isua "end of something"		Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989	Burch 1989b: 32
Qitiqliuzaq	Central Kobuk	T20N; R5W		"Little one in the middle"		Kaplan #468	Burch 1989b: 33

Place Name	Location	Coordinates	Description	Translation	Comment	Source	Citation
Quszimmaqtum nuliaŋa	Central Kobuk	T20N; R4W	Inlet to a slough	"Wild rhubarb inlet"	Same or different from the two following?	Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Kaplan #467?	Burch 1989b: 33
*Quszimmaqtuq**	Central Kobuk	T20N; R4W	An oxbow lake	"Wild rhubarb"	Lots of wild rhubarb here. Same as or different from the foregoing and/or the following?	Merrill Morena 1989; Kaplan #466	Burch 1989b: 33
*Quszimmaqtuuq**	Central Kobuk	T20N; R4W	A bend of the river and sandbar		Same as or different from either or both of the foregoing?	Kaplan #467	Burch 1989b: 34
Siiqsiniq	Baird Mts	T23N; R1-2E	A site of heavy winter overflowing	"Overflow"		Kaplan #99	Burch 1989a: 53
Sikzikpaic	Central Kobuk	T20N; R2W (check against Sun map)	Low ridge (235')	"Many marmots"		Effie Atoruk 1989; Merrill Morena 1989; Art Douglas 1989; Mark Cleveland 1989; Sun 1983:18, 235.	Burch 1989a: 54
Sikzikpaic	Central Kobuk	T20N; R2W	A bluff	"Many marmots"	There are some very old iglus [*sic*] here	Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Merrill Morena 1989; Kaplan #452	Burch 1989b: 35
Silliktuqzuaq	Central Kobuk	T21N; R3W	A high bank on the south side of the Kobuk	"Has lots of pike"		Peter and Effie Atoruk 1989; Merrill Morena 1989; Kaplan #458	Burch 1989b: 35
*Sirlauzaq**	Central Kobuk	T20N; R3E		"Little cache"		Kaplan #176	Burch 1989a: 55
Sisit	Central Kobuk	T19N; R5W	A river bank	"Fox den"		Peter and Effie Atoruk 1989; Kaplan #485	Burch 1989b: 35
Sisuaq	Central Kobuk	T20N; R1E	Bank (not a creek)	"Belukha"		Mark Cleveland 1989; Art Douglas 1989; Sun 1983:17	Burch 1989a: 55
Sisuaq			A bluff and archaeological site	"Beluga"		Kaplan #450	Burch 1989b: 36
*Tikłikat**	Central Kobuk		Bank cut through by people's feet		Ralph Blankenship has a house there now	Peter and Effie Atoruk 1989	Burch 1989b: 38
Tittalliqsuuq	Central Kobuk	T20N; R4W	A slough	"Has lots of burbot"		Kaplan #472	Burch 1989b: 38
Tulukkaat	Central Kobuk	T21N; R1E	Locality	"Young ravens"	Used to be an Akunirmiut fall/winter settlement here of 2-3 houses just west of the creek mouth	Joe Sun 1970; Merrill Morena 1989; Peter and Effie Atoruk 1989; Larry Kaplan #205	Burch 1989a: 58
Tunatam Akia	Central Kobuk	T20N; R2E	A large sandbar	"Across from Tunutaq"		Kaplan #184	Burch 1989a: 58

Place Name	Location	Coordinates	Description	Translation	Comment	Source	Citation
*Tunutam nuliaŋa**	Central Kobuk	T20N; R4W	Inlet of Tunutaq River	"Tunutaq inlet"		Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989	Burch 1989b: 38
Tunutam paaŋa	Central Kobuk	T20N: R5W	Mouth of Tunutak River	"Tunutak [River] mouth"	Also known as Kuuvzizvik	Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Kaplan #476?	Burch 1989b: 39
Tunutam Paaqtaŋa	Central Kobuk	T20N; R2E	A creek below Onion Portage, misnamed Tunutuk	"Circles around"		Kaplan #181	Burch 1989a: 58
Tunutaq	Central Kobuk	T20N; R2E	A slough	"Comes back around"	Spring camping area	Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Merrill Morena 1989; Sun 1983: 18; Kaplan #183	Burch 1989a: 58
Tunutaq	Central Kobuk	T19-20N; R4-5W	Section of river			Merrill Morena 1989; Kaplan #476	Burch 1989b: 39
Tuttulurvik	Central Kobuk	T21N: R2W	Hill right along the river, n. side. Kaplan say a gravel beach	"First caribou kill"		Merrill Morena 1989; Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Sun 1983: __); Kaplan #456	Burch 1989b: 39
Tuunnutkut	Central Kobuk	T20-22N: R6-7W	Kallarichuk Hills	"Caribou back fat"		Peter and Effie Atoruk 1989	Burch 1989b: 40
Tuunrivik	Central Kobuk	T20-22N; R6-7W	Locality	"Devil place"	Dangerous place to stay. Also called "coal mine"	Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Kaplan #474	Burch 1989b: 40
Tuutakszam kuuŋa	Central Kobuk	T2-26N; R3-4W	Tutaksak River	"Tuutakszak River" Named after Tuutakszaq)		Joe Sun 1970; Kaplan #459	Burch 1989b: 40
Tuutakszam nakszaŋa	Baird Mts.	T26; R3W	Pass at the head of the Tutakszak River	"Tuutakszak Pass"		Peter Atoruk 1989	Burch 1989b: 40
Tuutakszaq	Central Kobuk	T21N; R3W	Area around the mouth of the Tutaksak River	"Material for labrets"	Old Akunirmiut fall/winter settlement of 10 houses	Frank Glover 1970; Peter and Effie Atoruk 1989; Kaplan #459; Sun 1983:17	Burch 1989b: 41
Uliksuq	Central Kobuk	T19N; R5-6W	Slough			Peter and Effie Atoruk 1989; Thomas Sheldon, Jr. 1989; Kaplan #487	Burch 1989b: 41
Uniq	Central Kobuk	T20-21N; R2E		"Armpit"		Kaplan #188	Burch 1989a: 62

*These locations were not identified in the Northwest Alaska Study as being located within the KVNP boundaries but have been included here for further review.

APPENDIX D

Katyaak, Iñupiat Placenames in the Kobuk Valley National Park

The following table is a composition of locations located within Kobuk Valley National Park developed by the NANA Regional Corporation and the National Park Service in 1994.[6] Please note that in an attempt to highlight information pertinent to this project, this table represents only a selection of data/headings found within the larger dataset produced as part of that project.

Iñupiaq Name	Description or Meaning
Aakataq	Rudy Black's Camp
Alalauram Qikiqtaŋa	An island with a gravel bar. A seining area in the fall season.
Aŋmaluaŋat	There are low hills here.
Iɬaŋiaġruaŋuluk	A short river located across from Sisit.
Iɬaŋiaġruaŋuluuraq	N/A
Iɬuliaq	A bend.
Igliqtiqsiuġvigruaq	A legendary place. Refer to legend, Lore of the Iñupiat, Vol. 1, 1989.
Igliqtiqsiuġvigruaq	Lit. igliq, 'travel.' Some parts of the river is shallow and some parts of the Kuuvak River is deep. There is a strong current in this area.
Imaiġñiq	A lake.
Kakiaqtuġvik	Lit. place so spear fish.
Kavġiñ	A persons name who may have lived there.
Kurviġvik	Lit. set netting place.
Kuugauraġraitchiaq	Lit. a big slough
Kikłikkat	A small knowl [sic] or hill where war farers went down on the bank which was thick with willows. Kikłliġniġaat. 'They cut through the bank.' (Joe Sun)
Napaaqtusrugraitchiaq	Lit. a fairly large spruce tree. And old shelter cabin.
Napuuram Qikiqtaŋa	Lit. Napuuraq Island
Nasrutchauraq	A small gravel island below Qalugruich River.
Niaquq	Lit. head.
Nigraq	A slough.
Nunavaitchiaq	Qałhaq's grave is located here. A shallow area. Seining and berrypicking [sic] here.
Qałhaq	A person's name who may have lived there.
Qalugraitchauraq	Lit. A young salmon.
Qalugraitchiaq	A river.
Qalugruich	Lit. Salmons. A river.

[6] NANA Regional Corporation 1994

Iñupiaq Name	Description or Meaning
Qakłikuvik	Lit. a place to shed skin pants. Bearberries are harvested in this area.
Qikuġruich	Lit. clay. Cliff rocks.
Qitiqłiuraq	Lit. middle one, or smaller finger.
Qusrimmaqtuuq	Lit. Qusrimmaq 'rhubarb.' A short slough below Qalgruich.
Siksrikpaich	Lit. ground squirrels. A bank. There are siksrikpak around these mounds. An old site.
Sisit	Lit. burrow.
Sisuaq	Lit. belukah. In this area is a large rock located across from Kikłikkat.
Siulikturuaq	Lit. abundant with pike. A river.
Tiitaġaariq	A mountain abundant with blueberries.
Tiktaaliqsuuq	Lit. mudshark place. Located inside Tunutaq channel.
Tunutaq	An old channel. An old village site. On the mouth of the river is a fishing spot. Historically been used for hunting all kinds of game. (Joe Sun)
Tuttullugvik	Lit. lucky for killing a caribou. Across from Qalugraitchauraq is aplace where a person successfully killed a caribou. (Joe Sun)
Tuunġaum Sissa	N/A
Tuunġivik	A beach on the Kuuvak River. There is an eddy here where Katyaaŋmiut seine for fish.
Tuutaksram Qikiqtaŋa	Lit. Tuutaksraq Island.
Tuutaksraq	Lit. for a labret. This place is named after a place where Iñupiat searched for rocks for their labret farther up river. A white rock. (Joe Sun)
Uliksuaq	A creek which leads to a lake. There are lakes here which empties during dry season and usually becomes lakes after spring break-up. A grassy area where moose live. This place is known to be Ivaluilaq's summer camp.
Ullaaġraitchiaq	A beach.
Umiaġruaq	Lit. big old boat.

APPENDIX E

Kiana Households Data, December 1939

Part of the Linda Ellanna Collection stored at the Alaska Regional Office by the National Park Service, are several "Native Family Record Cards" issued by the Department of the Interior, Offices of Indian Affairs in Alaska collected in December of 1939.[7] Each card lists the "Surname Head of Family" and the "Number of persons in family or consumption group." The name of each of these persons is listed on the form, along with the relationship to the head, sex, date of birth, age, place of birth, if non-Native or mixed, linguistic stock, degree of Native blood, if they can speak or read English and grade completed. This information has not been included on the table below but is available within this dataset.

Below these family data are information relating to dwelling, household equipment, livestock, native store shares, and other property – each with a dollar value included. For the purpose of this study, the following data has been entered into table form: dwelling type, number of boats, number of nets, number of traps, livestock/reindeer numbers, number of dogs and a list of other property.

[7] Office of Indian Affairs 1939. There are two cards recorded in January of 1940 and one in January 1939 – it is unclear if these belong with this dataset or are clerical errors.

Surname Head of Family	Number of Persons in Family or Consumption Group	Date: December , 1939	Dwelling	Boats	Nets	Traps	Livestock/ Reindeer	Dogs	Other Property	Location
Hasway, Jimmy	6	14	Log cabin	2	5	25	10	13	Guns; dog harness; tools; [?]]	Kiana village
Hasway, Billie	1	17	Log cabin	1	3	8	15	4	Tools; kayak; guns; cache	Kiana village
Glover, Richard	1	15	Tent in summer	0	0	65	115?	0	6 guns	Kiana village
Gooden, Lucy	5	16	Log cabin	1	1	15	25	9	4 guns; tent cache; dog harnesses; kayaks; sleds	Kiana village
Geffe, Mrs. Laura	6	18	Log cabin	1	3	0	0	2	Sled; 2 guns; harness; [?]]	Kiana village
Davidovics, Jackson	1	29	Log cabin	0	0	24	0	2	None	Kiana (Klery Creek)
Cook, Harry	5	13	Sod igloo	2	3	25	0	14	3 tents; 6 guns; tools; dog harness; [?]]	Kiana village
Coff[?]in, Nellie	3	24	Log cabin	1	2	0	0	5	N/A	Kiana village
Reed, Charlie	7	24	Log	2	2	120	0	9	Kayaks; guns; horses; tents; caches; tools	Kiana village
Russell, Irvin	5	13	Log igloo	2	6	225	40	12	Motor; guns; tools	Kiana village
Scott, Richard	3	13	Frame house	0	0	25	220	1	Sled; tent; tools; dog harness; guns; kayak	Kiana village
Smith, Duffy	3	13	Log cabin	1	6	75	0	10	Sled; dog harness; tent; guns; tools; seine	Kiana Village
Smith, Johnny	4	11	Log cabin	1	2	75	0	10	Outboard motor; guns; bob sled; dog sled	Kiana Village
Stoney, Felix	5	14	Log cabin	1	4	10	0	3	Tent; guns; dog harness	Kiana village
Wilkins, Sam (Evluyok)	1	25-Jan-39	Log cabin	2	2	30	0	3	Kayak; guns; cache; sled	Kiana village
Katuk, Frank	1	N/A	Igloo	2	1	20	0	2	Guns; harness; tent; tools; etc.	Sort of a hermit living outside of Kiana village
Westlake, Thoedore	6	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Kiana village
Wright, John B.	6	29	Log igloo	2	8	24	?	11	Guns; sleds; tents; cache; furs	Kiana village
Atoruk, Ben	4	16	Log	1	5	17	0	6	Guns; kayak; cache; dog harness—Earned $447 at [?]] and $166 at trapping	Kiana village
Atoruk, Peter	7	16	Log and tent in summer	2	2	35	0	10	Sled; 4 guns; snowshoes; tent [?]]	Kiana village
Jackson, Tom	9	16	Log cabin	0	2	15	70	5	2 kayaks; sleds; tent; tools; dog harness; guns	Kiana village
Johnson, Jacob	5	14	Log cabin	2	3	30	0	8	Sled; tent; tools; dog harness	Kiana village
Barr, Arthur	6	14	Log	0	2	5	0	8	Tent; sled; harness; etc.	Kiana village
Baldwin, Harry	4	12	Log	0	5	60	0	7	5 guns; sled; harness; tools	Kiana village

Surname Head of Family	Number of Persons in Family or Consumption Group	Date: December , 1939	Dwelling	Boats	Nets	Traps	Livestock/ Reindeer	Dogs	Other Property	Location
Beaver, Joseph	4	11-Jan-40	Igloo	1	1	0	0	13	4 guns; 1 kayak	Kiana village
Beaver, Pauline	2	16	Log cabin	1	0	0	0	0	Tent; etc.	Kiana
Black, Mae	8	13	Sod igloo	2	5	2	0	6	Sled; 5 guns; tent; tools	Kiana village
Blankenship, [?]].R.	4	16-Jan-40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Kiana village
Haury, Oscar	8	13	Log house	1	4	40	20	9	Sled; guns; tent; tools	Kiana village
Hobson, Mrs. Effie	5	13	Sod igloo	1	6	0	0	9	Tent; sled; harness; guns; tools	Kiana village
Holland, Maria	1	12	Log	1	5	0	0	1	Guns; tools	Kiana village
Jackson, Frank	9	15	Log cabin	2	2	60	0	12	Engine; sled; tools; tents; etc.	Kiana village
Wright, John Dudley	3	14	Log house	0	2	30	0	8	N/A	Kiana village
Bernhardt, Hannah	2	16	Frame	0	0	0	0	0	Tools	Kiana village
Jackson, Isaac	10	15	Log cabin and tent	2	3	60	14	14	Dog harness; 5 sleds; 8 guns; 2 tents; tools; 4 kayaks	Kiana village
Jackson, Ooluck (Stonewall)	2	29	Log cabin	2	3	75	0	7	2 kayaks; guns; caches; sleds; tent; etc.	Coal Mine, via Kiana
Mouse, Charlie	4	27	Sod igloo	2	6	40	0	13	Kayaks; guns; cache; tent	Kiana
Mullock, Charlie	4	14	Log cabin	1	5	15	0	9	Sled; dog harness; tent; tools; guns	Kiana

