

## **Environmental and Cultural Overview of the Yukon Flats Region**

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### **Introduction**

With a substantial population of Native people residing in their traditional homeland and living a modern traditional lifestyle, the Yukon Flats Refuge and all of the Alaskan Interior is a dynamic and living cultural landscape. The land, people, and wildlife form a tight, interrelated web of relationships extending thousands of years into the past. Natural features and human created “sites” form a landscape of meaning to the modern residents. The places and their meanings are highly relevant to modern residents, not just for people and culture but for the land. To many Gwich'in people culture is not distinct from their homeland. Although only minimally discussed in this overview, this dynamic living cultural landscape should be considered and discussed when writing about this area.

### **Environmental Setting**

Containing the largest interior basin in Alaska, the Yukon Flats Refuge encompasses over 11 million acres of land in east central Alaska. Extending roughly 220 miles east-west along the Arctic Circle, the refuge lies between the Brooks Range to the north, and the White-Crazy Mountains to the south. The pipeline corridor runs along the refuge's western boundary while the eastern boundary extends within 30 miles of the Canadian border. The Yukon River bisects the refuge, creating the dominant terrain. As many as 40,000 lakes, ponds, and streams may occur on the refuge, most concentrated in the flood plain along the Yukon and other rivers. Upland terrain, where lakes are less abundant, is the source of important drainage systems. These bodies of water are the dominant landscape of the Yukon Flats Refuge (USFWS 1987).

### Topography

The refuge includes three features: the Yukon Flats at the center, surrounding uplands, and all-encircling highlands. The Yukon Flats, consisting of 6.5 million acres, is mostly flat to undulating lowlands dotted with shallow lakes, sloughs, and meandering and braided streams. Elevation is about 300 feet in the west and 600 to 900 feet in the north and east. Local relief, on flood plains, well-developed river terraces, and alluvial fans, generally does not exceed 150 feet (Williams 1962). The Yukon River only drops about 200 feet in elevation in 300 miles as it meanders across the Yukon Flats as a complexly braided stream. The lower stretches of the Yukon's tributaries are intricately braided streams with meandering channels, swelling in flood stage to a labyrinth of reticulated waterways (USFWS 1987).

The Yukon Flats are surrounded by older river terraces, alluvial fans, and flood plain deposits that rest on bedrock. These deposits are mostly flat lying and are separate from the Yukon Flats by 100 to 500 foot marginal escarpment (Williams 1962). Overall topography is that of a rock-floored bench, covered with gravel and silt. Elevations generally do not exceed 1,200 to 1,300 feet (USFWS 1987).

Encircling the Yukon Flats are highlands and mountains. The Porcupine Plateau, an area of low ridges with gentle slopes and rounded summits, lies along the northern and eastern boundary of the refuge. Elevations reach to 2,500 feet with a few domes and mountains rising to 3,500 feet. The Chandalar, Sheenjok, and Coleen Rivers, which originate in the Ogilvie Mountains south east of the refuge, drain the area south of the Porcupine River. Along the western boundary of the refuge are Hodzana Highlands, an area of 4,000 foot ridges drained by the Hadweenzic, Hodzana, and Dall Rivers. The eastern Brooks Range lies north of the Hodzana Highlands and Porcupine Plateau, north to the refuge boundary. Bounding the Yukon Flats to the south is the Yukon-Tanana Uplands, of which the White and Crazy Mountains are the Northern extension. Summits in the White and Crazy Mountains range from

4,000 to 5,000 feet in elevation. Birch and Beaver Creeks are the major drainages on the northern side of these mountains (USFWS 1987).

### Geology

The majority of the Yukon Flats consists of unconsolidated alluvial Quaternary age silts, sands, and gravels transported by the Yukon and other rivers. The geology of surrounding uplands, and all-encircling highlands are slightly more complicated. The Porcupine Plateau appears to consist of a mix of Mesozoic age intrusive igneous rock and Mississippian through Permian age sedimentary rocks. The Ogilvie Mountains to the south east of the refuge are a mix of Mississippian through Permian and Mesozoic age sedimentary rocks, Paleozoic and Precambrian age Metamorphic rocks, and Paleozoic and Mesozoic age igneous intrusive and volcanic rocks. The Hodzana Highlands are a mix of Mesozoic age intrusive igneous rock, and Paleozoic and Precambrian age metamorphic rock. The Brooks Range is a mix of Cambrian through Devonian age sedimentary rocks, Paleozoic and Precambrian age metamorphic rock, Mesozoic age intrusive igneous rock and Mississippian through Permian age sedimentary rocks (USGS 2016). No glacial deposits extend into the refuge, though recognizable moraine remnants and erratics of up to four separate glaciations occur north of the refuge (USFWS 1987).

### Climate

The Yukon Flats Refuge has a continental subarctic climate characterized by great seasonal extremes of temperature and daylight. Fort Yukon holds the state record high temperature of 100 degrees Fahrenheit, and comes close to the record low at -75 degrees Fahrenheit. Warm summer temperatures are augmented by essentially continuous sunlight, while extreme winter colds are prolonged by long hours of darkness (USFWS 1987; Selkreg 1976).

### Current Biological Environment

The Yukon Flats is within the northern boreal subzone of central Alaska. Vegetation patterns on the refuge are complex – primarily the result of fire history, sediment deposition during periodic flooding, a braided drainage system, and discontinuous permafrost. As previously touched upon, this region can be roughly summarized and divided into three physiographic zones: Riparian and Wetlands (the flats), Uplands, and Mountains. All of these factors influence the local vegetation and animal communities within the refuge (USFWS 1987; Selkreg 1976).

Forests predominate at lower elevations with the timberline at 2,300 to 3,000 feet. *Picea glauca* (white spruce) reaches its optimum growth adjacent to stream channels, but is also found on a diversity of sites up to treeline. *Picea mariana* (black spruce) typically grows in open stands and is common to areas of restricted drainage like muskeg and north-facing slopes. *Betula papyrifera* (white birch) is characteristically an upland species and often occurs mixed with spruce. *Populus tremuloides* (quaking aspen) predominates on well to extremely well drained south-facing slopes, while *Populus balsamifera* (balsam poplar) is primarily a riparian species forming forest communities often associated with *Picea glauca*. Shrub communities of *Alnus* (alder) and *Salix* (willow) are most abundant in riparian areas. Dwarf shrubs, *Betula glandulosa* (glandular birch), *Ledum decumbens* (blueberry), and *Dryas octopetala* (mountain avens), are common above timberline. Dwarf shrubs, such as *Chamaedaphne calyculata* (leatherleaf) and *Andromeda polifolia* (bog rosemary), are typically of poorly drained organic soil, while other like *Rosa acicularis* (prickly rose), *Viburnum edule* (highbrush cranberry), and *Shepherdia Canadensis* (soapberry) are characteristic of well drained mineral soils in forests. Herbaceous plants, *Eriophorum vaginatum* (sheath cottongrass) and *Carex bigelowii* (bigelow sedge), are most abundant in dwarf shrub-graminoid tussock tundra. Herbs also predominate as emergent on pond or lake margins, such as, *Carex aquatilis* (watersedge) and *Equisetum Fluviatile* (water horsetail). Aquatics such as *Nuphar* (pond lily) and *Potamogeton* (pondweed) are also present. Steep, treeless, south facing hillsides often support *Artemisia* (sagebrush) (USFWS 1987; Selkreg 1976).

Land animals in this region of the include moose, deer, caribou, wolves, coyotes, fox, black and brown bears, mink, marten, muskrats, lynx, land otter, wolverine, weasels, squirrels, snowshoe hares, and rodents . Waterfowl and other migratory birds of various species are common on rivers and major streams, tributaries, wetlands, and inland lakes

during certain seasons. All five species of Pacific salmon come into the Yukon River and its tributary watercourses to spawning grounds, along with Arctic char (USFWS 1987; Selkreg 1976).

### Paleoenvironment

During the late Wisconsin glaciation (approximately 25,000 to 10,000 years ago), Alaska and Siberia were joined as a single land mass called Beringia. This land mass was extremely large, and comparable in size to the whole of Europe or Australia. Much of northern Alaska, including the Yukon Flats National Wildlife Refuge, was ice-free during this period. Continental glaciers occasionally filled the intermountain (Cordilleran) plateau to the south, and alpine glaciers carved valleys and protruded into the Yukon Flats from the Brooks Range to the north and the Alaska Range to the south, until climactic warming caused their retreat. Today, this huge Pleistocene landscape no longer exists and can only be reconstructed on the basis of paleoenvironmental records (Heidenreich 2014).

Beringia was unique during the Late Pleistocene, as most other high-latitude regions in the northern hemisphere were covered by ice during glacial periods. This unglaciated peninsula sandwiched between the Brooks Range and the Alaskan Range provided a refuge for high-latitude flora and fauna during the late Pleistocene (Glushkova 2001; Clague et al. 2004; Hoffecker and Elias 2007:50; 60).

According to pollen records from Alaska, Eastern Beringia was a step-tundra landscape with sedge-Salix (willow) meadows in floodplains, tundra meadows and mixed grasslands on terraces, and tundra on pediments and foothills (Schweger 1982; Schweger 1997; Zazula et al. 2003). This landscape was inhabited by large, diverse megafaunal mammal populations, including large grazers as well as mixed feeders and browsers. Species such as woolly mammoth (*Mammuthus primigenius*), horse (*Equus*), bison (*Bison priscus*), caribou (*Rangifer tarandus*), musk ox (*Bootherium bombifrons*), wapiti (*Cervus elaphus*), moose (*Alces alces*), and Dall sheep (*Ovis dalli*). Predators and scavengers such as lions (*Panthera leo spelaea*), wolves (*Canis lupus*), a variety of bear species, and anatomically modern humans (*Homo sapiens*) subsisted on these before mentioned species. Many of these species became extinct at the end of the last at the end of the Pleistocene or Early Holocene, and their Paleontological remains are extremely prevalent at some locations (Heidenreich, 2014).

## **Cultural Environment**

### **Overview of Regional Prehistory**

As few sites in the region have been dated using radiocarbon methods, sequences in cultural history must be inferred on a regional scale from comparisons of changing tool inventories and relative dating methods based on the positions of key artifacts in the stratigraphy of sites. Quite often, these sites are located long distances from the refuge. There are few documented prehistoric sites in the Yukon Flats National Wildlife Refuge (ADNR OHA 2006). The lack of documented prehistoric sites or cultural resources in the Yukon Flats region is due to several factors. The primary factor is the limited number of surveys conducted there as compared to other regions, which is partially due to the challenging topography and the difficulty in excavating in wetlands and frozen soils. It should be noted that the archaeology of the interior is complex and difficult to interpret as many older sites are found in relatively thin deposits of fine grained windblown silt. This makes it difficult to stratigraphically separate different periods of occupation and can result in mixing of artifacts from different ages and levels (J. Dixon 2013). An additional factor may be the cultural practices of the prehistoric people living in the region. Researchers have commented on the paucity of artifacts and archaeological features in Interior Alaskan sites (Shinkwin 1977; Workman 1996). Some elders say that the reason for the paucity of artifacts is that “the people before them ... were always on the move. They carried little and didn’t need a lot of material things to make a living because whatever they needed was already provided for by the land.... Also, to leave tangible things behind on the land was a sign of disrespect to the Earth” (Matthew et al. 1999). The lack of abundant material remains has partly contributed to the lack of interest in Interior archaeology by researchers.

Based on the early sites in areas surrounding the Yukon Flats area, the potential exists for locating early cultural sites along the Yukon and Porcupine rivers and in other parts of the Refuge. Bluffs, caves, and fluvial and lacustrine terraces and benches along the rivers and sloughs are landforms with good potential for well-preserved early sites, as well as more recent archaeological materials (Thorson and Dixon 1984; Dixon 2013).

#### Prehistory: The Earliest Period

The prehistory of the Yukon Flats area may be characterized as being similar to the general interior Alaskan sequences seen virtually elsewhere throughout the State. Interior Alaska has some of the earliest sites in the state, as much of this region was ice free during the last Pleistocene glaciation. This unglaciated peninsula sandwiched between the Brooks Range and the Alaskan Range consisted primarily of shrub tundra, and was a likely corridor for early peoples. As the ice front retreated, by 10,000 B.C., people gradually penetrated previously glaciated lands. Dated material from the Yukon Territory, Canada, less than 100 miles northeast of the refuge, may indicate the presence of people in the area 27,000 years before present; although, the association with humans is tenuous.

No one knows exactly when humans first came to Eastern Beringia and Interior Alaska, but the oldest reliably dated site thus far has been at Swan Point, located 100 miles south of the refuge in the Upper Tenana Valley, and dating to 13,950 years ago. The materials from this and other early sites include microblades (small stone flakes used as weapon insets or as blanks for other tools) and bifacially-flaked projectile points. These respective technological traditions have been associated with the Denali Complex (microblades present) and Nenana Complex (generally lack microblades); however, these may in fact be functionally different aspects of a single Paleoarctic Tradition which spans the time between 12,000 and 6,000 years ago, as these technologies appear to coexist at some sites. It has also been proposed that the Nenana Complex is instead associated with the Paleoindian Tradition. Regardless, the archaeological record of these early sites tend to be highly variable, and all these sites appear to be connected somehow (Heidenreich, 2014). These people used a variety of stone implements, most notably, microblades and larger blades, projectile points, bone and antler-working tools called burins; and various unifacial and bifacial knives, scrapers, and other tools. Archaeological evidence indicated that these people were semi nomadic generalists, and focused their subsistence activities seasonally on both large and small terrestrial and aquatic resources.

From 11,500 BP to 9,500 BP the Paleoindian Tradition is present in the Alaskan Interior, although. It is unknown if this cultural tradition arose in Alaska, or south of the Cordilleran and Laurentide ice sheets. This cultural tradition and the preceding cultural tradition appear to coexist in the interior of the state until the Paleoindian Tradition becomes indistinguishable from the Paleoarctic Traditions based on artifactual assemblages (Dixon 2013). This could indicate cultural exchange and the adoption of new technologies between different peoples. The Paleoindian tradition is widespread throughout the rest of the continent, and is generally characterized by the lack of microblades and large fluted projectile points. These people have been classically portrayed as big game hunters; however evidence elsewhere in the Americas indicates that these people were generalists as well and seasonally relied on both large and small terrestrial and aquatic resources. After 9,500 the Paleo Arctic tradition and its variations once again becomes dominant in Alaska.

The next occupation of the area is indicated by sites dating from 6,000 to 3,500 B.P. containing artifactual assemblages consistent with the Northern Archaic Tradition. People from this period fabricated micro-blades but shifted from wedge-shaped to tubular cores for their production. The toolkit included micro-blades, well – developed side-notched bifacial projectile points, knives unifacial scrapers and graters and the first appearance of notched net sinkers. This stage is thought to be an adaptation to the boreal forest that was becoming the dominant vegetation type in the interior. This new tradition either represents immigration from the south and east of North America, or the diffusion of this more well adapted technology. This tradition was very widespread, and observed in the Brooks Range in Gates of the Arctic National Park and Preserve, at the Palisades in Cape Krusenstern National Monument, in the Graveyard Point site in Katmai National Park and Preserve, and in the northern Yukon

of Canada. The Twelve Mile Bluff site, located downstream from Circle on the Yukon River, is the location where the only diagnostic Northern Archaic side-notched projectile point in the Yukon Flats area was found. This tradition continued with minor variations until about 3,500 B.P (USFWS 2008). Whether by migration and/or diffusion, this enigmatic cultural tradition appears all over the interior of the state, and may represent the root for the later Athabaskan cultures in the Interior of Alaska (USFWS 1987).

After this time, the regional specializations continued in the interior with developments that further foreshadow the Athapaskan peoples. About 3,500 years ago the climate became cooler and there was a resurgence of microblade use in the Alaskan Interior. People living in the interior may have adopted the use of the bow and arrow for the first time about 2,000 years ago. There is a gap in the Alaskan archaeological record between the late prehistoric/early historic Athabaskan components of the last 1,000 years and the most recent of the Northern Archaic tradition sites. This gap results from a number of possible causes, including limited field survey, inaccessible sites because of depth below loess, loss of sites from erosion, cultural proscriptions against behaviors that would create visible sites, and historical depopulation because of climate change or volcanism (Moodie et al. 1992; West and Donaldson 2002; USFWS 2008). As people returned to the area about a thousand years ago, they brought with them a tool kit that included the small, tapered-stem Kavik-type projectile point, thought to be one of the earliest indicators of Athabaskan culture in Alaska (Reynolds and Jordan 1982). Historic Gwich'in groups are likely descended from the Kavik peoples.

To the east of the study area in the Yukon Territory, the late prehistoric period of the northern Yukon and other areas of the western Subarctic are represented by sites along the Porcupine River such as the Rat Indian Creek site. This stratified Athabaskan site contained two phases of occupation: the Old Chief Phase (900 B.C. to A.D. 700) and the Klo-kut phase dating from circa A.D. 700 until the arrival of Euro-American traders (Morlan 1973; Le Blanc 1984). Athabaskan tradition sites include those ranging roughly in age from A.D. 1000 to the period of historic contact with Euro-Americans in the nineteenth century (Workman 1975 in Shinkwin 1979).

The Athapaskan tradition refers to the ethnographically identified Athapaskan cultural pattern that followed the Northern Archaic tradition; this usage is distinct from the concept of a prehistoric ethnic group from which modern-day Athapaskans developed. One important characteristic of historic Athapaskan groups was cultural diversity, flexibility and local specialization in land use and subsistence; thus, the "Athapaskan cultural pattern" is hard to isolate and difficult to trace in the archaeological record. In general, the more recent the site, the more definitive the identification of the cultural pattern. A general statement of the pattern would include evidence of a trade network (obsidian and copper); a greater reliance on bone and antler tools than on finely worked lithic tools; decorative items such as beads, buttons and quills; the use of tchi-thos (a type of boulder-spall scrapers); unilaterally barbed bone points; bone gaming pieces; caribou tibia fleshers; the geometric decoration of bone and antler items, and funerary practices focusing on human cremation (Workman 1975; Shinkwin 1979; USNPS 2014).

During work conducted in the early 1970s, researchers located and mapped the remains of late prehistoric and historic caribou fences in northeastern Alaska and the adjacent Yukon Territory (Roseneau 1973; Warbelow et al. 1975; Andrews 1977). These fences funneled caribou into semicircular surrounds during their spring and fall migrations through the foothills of the Alaska Range. The use and construction of these structures was described to McKennan during his ethnographic work in the region (McKennan 1965). Dating of these fences placed the earliest year of construction at A.D. 1789, with mean dates of construction falling between approximately A.D. 1830 and A.D. 1860, and associated with Athapaskan peoples (Blazina-Joyce 1989).

### **Overview of Ethnohistory**

The communities and people of the mid-Yukon region share a long history of interaction. The settlement patterns and activities varied depending upon the season, geographic location, type of activity, and the social units involved. The size and composition of social units varied throughout the year. A few related individuals, families, or

households dispersed across the landscape in semi-permanent winter settlements within each band's territory. Larger aggregated groups, such as summer fish camps, consisted of members of one or more bands and included a small number of related families living together, pursuing trade or harvesting resources such as caribou and salmon. Some resources could best be harvested by larger cooperative groups who could then process and divide the larger harvest allowed by efficiencies of scale. Smaller groups of hunters made trips from the more sedentary settlements to hunt caribou and moose in winter, and women and children pursued small game, berries, and plants in the summer. During transition seasons in spring and fall, the larger groups dispersed, and single families or small groups hunted, trapped, and fished (USFWS 2008).

Athabascan Indians speaking the Gwich'in (formerly written Kutchin or Kutcha-Kutchin) language occupied a large portion of interior Alaska and the Yukon Territory in the late prehistoric and early historic periods. The Yukon Flats National Wildlife Refuge study area is smaller than the area originally occupied by the Gwich'in. The seasonally utilized territory of the five Alaskan Gwich'in populations traditionally included some portions of the study area.

**Figure 1** depicts approximate mid-nineteenth century locations of Gwich'in territories based on the work of Richard Slobodin (1981). Research on the historic boundaries of languages and tribes in the region is an ongoing issue for researchers, and there has been confusion about the names of peoples and languages (Raboff 2001). **Figure 2** depicts approximate boundaries for Gwich'in tribes in the late historic period, approximately 1900-1935, based on other contemporary research (Osgood 1934, 1936; West 1959; USFWS 2008).

The Dihaii Gwich'in occupied the upland region between the middle fork of the Koyukuk and the Chandalar rivers south to the hills just north of present day Stevens Village and Beaver (**Figure 2**). No traditional settlements of the Dihaii are known and no modern Gwich'in villages are located within the former territory of the Dihaii. The population was forced to the east because of warfare with neighboring Iñupiat groups (Burch and Mishler 1995; Raboff 2001). A small number of refugees from this warfare resettled among the Netsi Gwich'in between 1875 and 1900 (McKenna 1965; Andrews 1977; USFWS 2008).

The Netsi Gwich'in ("residents of the north side") lived in the region along the Chandalar River East Fork, the middle sections of the Christian, Sheenjek, and Coleen rivers and the surrounding hills (**Figure 2**). They traditionally used seasonal camps and semi-permanent settlements, such as Arctic Village, Christian, Venetie and Sheenjek in pursuit of fish and game. The Netsi Gwich'in traded with the Iñupiat on the Arctic coast. In 1863, Archdeacon McDonald of Fort Yukon observed that the Chandalar Gwich'in were important providers of caribou meat for the residents of Fort Yukon. Reverend Albert Tritt, a Netsi Gwich'in born in 1880, wrote that his people led a nomadic life, traveling to the Arctic coast, Rampart, Old Crow, the Coleen River and Fort Yukon in the 1880s and 1890s. With the advent of firearms in the early 1900s, family groups began to gather more permanently at several locations (USFWS 2008).

The Kutcha Gwich'in inhabited the east-central portion of the Yukon Flats from the lower limits of the Chandalar and Sheenjek rivers, and along the Yukon River southeasterly to the vicinity of Circle (**Figure 2**). Semi-permanent camps were located throughout the area even as the people began to live year-round at the Fort Yukon trading post starting in the mid-1800s when the Hudson Bay Company established itself in the region. The Tranjik Gwich'in occupied settlements and camps along the Porcupine and Black rivers in Alaska, as well as in the hills and along the larger lakes of the region (**Figure 2**). Traditional semi-permanent camps in the early historic and historic period were located at Shuman House, Burnt Paw, Old Rampart, Bluefish Lake, Ohtig Lake, Salmon Village and Chalkyitsik. Chalkyitsik is the only remaining permanent settlement in the traditional territory of the Tranjik Gwich'in (Nelson 1973). The Dendu Gwich'in traditionally occupied the Yukon Flats south of the Yukon River as far as the Crazy, White, and Steese mountains (**Figure 2**). The area east and south of the modern village of Beaver was part of Dendu Gwich'in territory at one time (Schneider 1976). Semi-permanent camps were focused in the area of Birch Creek, on larger lakes in the region, and at the lower mouth of Birch Creek. Before 1900, a community called Old Village existed downstream from the present Birch Creek community. The Athabascan Indians of the mid

Yukon region, specifically the Gwich'in, began to participate in the fur trade in the first-half of the nineteenth century. Trading posts downstream of Gwich'in territory at Nulato on the Yukon River, where a Russian trading post was built in 1839, and Fort Yukon in the Yukon Flats, as well as traditional trade at the Tanana and Yukon river junctions encouraged some Gwich'in to operate extensive traplines during the winter. Trade goods exchanged for furs enabled the Gwich'in to acquire desirable items such as kettles and cooking implements, firearms and ammunition, metal tools, beads, and cloth. Whymper (1966) and Dall (1970) reported that the few bands of the Tennuth-Gwich'in, or Birch Indians, who may be the Birch Creek Gwich'in residing between the mouth of the Porcupine and the Tanana rivers (**Figure 2**; Slobodin 1981), had succumbed to scarlet fever. Dall (1970) recorded an abandoned Gwich'in settlement near the present location of Stevens Village. Whymper (1966) described the first Gwich'in village above the "Ramparts" as Chief Senitee's (Senati or Shanyaati), a legendary Gwich'in trading chief and shaman. In 1880, Petroff reported Senati's village near the mouth of the Tanana (de Laguna 1947). In 1883, the U.S. Army explorer Lieutenant Schwatka (1900) described Senati's village as being at the rapids on the north bank of the Yukon River. During the nineteenth century, the Koyukon-Gwich'in boundary was probably downriver from its present location, and in the vicinity of the "Ramparts" (de Laguna 1947; VanStone and Goddard 1981; Sumida 1988; USFWS 2008).

Knowledge of the exact locations and distributions of Interior Athabascan groups in the nineteenth century is complicated by historical factors. For example, few written records accurately or consistently identify individuals or groups. Interior Athabascan groups moved frequently throughout the century, in response to the new economic forces of the fur trade, population changes resulting from diseases, the attraction of life at settled communities around trading posts and stores, and the disruptions to wildlife resources caused by the gold seekers entering the region. The gold rush also provided economic opportunities not previously available to Natives. Athabascans were employed as guides or pilots on riverboats. Trapping income, the sale of firewood to steamboats, and the sale of market hunted meat and handicrafts were only some of the new opportunities (Raboff 2001; USFWS 2008).

During the late prehistoric and early historic period, a number of conflicts between Iñupiat and Athabascan people resulted in changes to their residential areas. For example, two Gwich'in bands were forced to move from the Brooks Range because of conflicts with Koyukon and Iñupiat groups, with the Gwich'in survivors retreating to the Yukon Flats following a significant battle at Anaktuvuk Pass in 1844. Koyukon groups moved into the vacated territory, as did Kobuk and Upper Colville River Iñupiat, forming a new border at Allakaket between Koyukon and Iñupiat and between the Stevens Village Koyukon and Beaver's multiethnic population (Japanese-American, Euro-Americans, Iñupiat, Koyukon and Gwich'in) along the Yukon River (Raboff 2001; Sumida 1989). Before the establishment of the village of Beaver in 1910, the influence of the Iñupiat was indirect, with conflict on the margins of territories as noted above as well as trade relations between the Iñupiat and Gwich'in (USFWS 2008).

### **Russian Period**

Early Russian forays into the Yukon River region may have begun in the late-eighteenth century with expeditions overland from Lake Iliamna through the upper Kuskokwim River. By the early nineteenth century, the Russian American Company made efforts to access the new trade possibilities by building trading posts along the coast and at Nulato, a Koyukon village on the Yukon side of the Unalakleet portage. Russians and Creoles working for the Russian American Company began exploring the Yukon River from the mouth in the early nineteenth century and proceeded up river as far as the confluence with the Tanana River. Nuklukayet, at the confluence, was where trade between the Gwich'in, Tanana, Koyukon, and Iñupiat took place. Russian expansion along the Yukon River was limited to establishing a few trading posts, the community of Nulato, and seasonal ventures upriver (USFWS 2008).

While the Russians had territorial claims in Alaska from 1741 to the 1867, the Hudson Bay Company, was working at usurping Russia's monopoly on trade within Alaska and along its coast. From the Canadian side, the British explored the eastern part of the mid-Yukon region in the mid-nineteenth century. John Bell explored the Peel River in 1839, building Fort McPherson in 1840. He explored to the west in 1842, locating the Rat (or Bell) River, a

tributary of the Porcupine River. In 1844, he continued down the Porcupine River to its junction with the Yukon River. The Hudson Bay Company was steadily establishing trading posts closer and closer to Russian territory along river drainages until 1847 when Alexander Hunter Murray of the Hudson Bay Company established Fort Yukon at the confluence of the Porcupine and Yukon rivers, despite his suspicions that it was in Russian, and not British, territory. The Hudson Bay Company operated at Fort Yukon from 1846 until 1869, when the post was moved out of American territory (Caulfield 1983).

### **American Period**

Early American influences in the Yukon Flats region likely included changes in the number and type of trade goods available to the people of the interior region in the 1850s. These goods were traded through intermediaries from whaling ships along the Arctic coasts. In 1866, the Western Union Telegraph expedition began to explore and clear land along the Yukon River for a proposed telegraph cable to cross the Bering Straits. The project was never completed. The purchase of Alaska in 1867 changed the ownership of the trading posts from the Russian America Company to the Hutchinson, Kohl and Company, later known as the Alaska Commercial Company (ACC). The ACC moved quickly to monopolize the fur trade throughout Alaska. Other American fur and trading companies sought markets in the Yukon district because the Yukon Flats was, and continues to be, an important furbearer habitat. For a brief period, competing companies challenged the monopoly of Hutchinson, Kohl and Company/ACC, sometimes resulting in armed conflicts (USFWS, 2008).

Following the 1867 sale of Alaska to the United States, the U.S. Army sent an expedition to Fort Yukon to determine the longitude of the fort and evict the British to the Canadian side of the border. In 1883, ACC purchased the Western Fur and Trading Company and Parrott and Company, acquiring the steamer Yukon in the purchase (Mercier 1986). These acquisitions effectively ended competition on the Yukon River for furs, causing prices to collapse and making fur trapping less appealing to the residents of the area. Between 1880 and 1890, harvests dropped from 75,000 skins to 20,000 skins (VanStone 1979). Slow and steady fur trading was encouraged by the advent of steamboats in the 1880s, and whaling along the Beaufort Coast increased the range of trade goods available to Interior people along traditional trade routes. Little change occurred in the Yukon River region until the 1897 discovery of gold in the Klondike created a mass movement of people into the interior of the Yukon Territory that spilled down the Yukon River (VanStone 1979). The Klondike Gold Rush necessitated establishing government services in the interior of Alaska (VanStone 1974, 1979; USFWS 2008).

### **Mining History**

Throughout the last 30 years of the nineteenth century, individual prospectors and small groups of men explored for gold throughout the mid and upper Yukon River region. Prospectors found small amounts of gold at Pitka's Bar at the confluence of Harrison and Birch creeks as well as numerous tributaries. Prospectors filed claims at some locations, but most of these claims were prospected and then abandoned. A typical pattern for miners was to spend summers exploring and prospecting for gold and winters engaged in fur trapping or drift mining. In 1894, Manny Hill from Old Portage and Jack McQuesten from Fortymile established a store at Circle City (now known as Circle). U.S. Geological Survey (USGS) geologists Spurr, Goodrich, and Schrader investigated the Birch Creek country in 1896 (Spurr 1900). Most of the Birch Creek gold mining took place in the upper reaches of Birch Creek, upstream of the study area (USFWS 2008).

Despite the Klondike Gold Rush of 1897 and 1898, gold production continued in the Birch Creek district with approximately 200 miners working 60 to 80 claims in 1906 (Brooks 1907). Gold extraction techniques became increasingly mechanized and required greater capital investment than the earlier methods. Ditches were constructed for hydraulic mining operations on Mammoth Creek by 1908, and a hydraulic giant was operating on Eagle Creek by 1909. Gold mining companies bought up and consolidated blocks of mining claims. Dredges were freighted into the district in the winter over frozen creeks and trails. Bulldozers were introduced in the 1930s. During World War

II, gold production was closed down as nonessential to the war effort. Since that time, mining activity has risen and fallen in response to gold prices and costs of operations under stricter environmental requirements (USFWS 2008).

The Yukon Flats region is bordered by mountainous regions where mineral exploration took place. The Wiseman and Coldfoot district, located northwest of the Yukon Flats and Livengood, Fairbanks, and Birch Creek districts to the south of the Yukon Flats, were the locations of gold exploration and development throughout the twentieth century. The Yukon Flats was more of a transportation corridor between these districts than the site of any sustained exploration or development. From 1909 to 1911, the ARC built a winter trail and shelter cabins along the Chatanika to Beaver route. Beaver is located at the end of an ARC trail connecting the Yukon River with Caro, which served the gold fields on the Chandalar River. After the Chandalar gold rush ended, Beaver became a center for trade for fur trappers. North of Beaver, a wagon road and 17 shelter cabins continued to the Wiseman and Coldfoot district. The ARC later built shelter cabins along the trail that ran parallel to Beaver Creek itself (Alaska Board of Road Commissioners 1912). The 1926 ARC annual report depicted seven shelter cabins along the Chatanika to Beaver trail (Alaska Board of Road Commissioners 1926). The Beaver Creek river ice was rarely used as a trail because warm springs and overflow made the ice unstable (Alaska Board of Road Commissioners 1931). The Yukon River was used in summer and winter as a transportation route. Mid-twentieth century USGS maps depicted the approximate location of three portages between the Yukon River and Birch Creek, which roughly parallels the Yukon River upstream from Fort Yukon to Circle (USFWS 2008).

Prindle (1910) reported that the valley of Victoria Creek was the site of a gold stampede in 1905; however, not enough gold was found to maintain the gold rush. The valleys of Washington, Faith, Preacher, and Victoria creeks and their tributaries were noted as areas where most work had been done on gold-bearing gravels outside of the Fairbanks district. Mining cabins and relics from the twentieth century are located throughout upper Beaver Creek. Most are dilapidated, and the Bureau of Land Management (BLM 1988) did not consider any of the sites within the Beaver Creek Wild River to be eligible for the National Register of Historic Places as of the mid-1980s. Land transportation affected gold mining economics and logistics, not only in the Birch Creek District, but also in the Livengood, Tolovana, and Beaver Creek districts to the west and the Coldfoot and Wiseman districts further north. Some routes followed Native trade trails, such as the route between Circle City (Circle) and the Tanana Valley, which eventually became the route of the Steese Highway (Ducker 1983). Other routes, such as the Fairbanks-Livengood Trail, developed as prospectors and miners sought the easiest and least time-consuming routes to the gold fields. Parker (2003) describes three overland routes that were used until the Elliott Highway was built in 1938 to replace the Olnes Trail. Roadhouses, where meals and shelter could be obtained, were operated a day's travel apart along the trail. Another route to Livengood required travelers to go by boat up the Tolovana River, and then proceed by a tramway to reach a wagon trail. Air transportation also played an increasing role throughout the twentieth century. The 1:1,000,000 scale USGS base map that West et al. (1965) used to depict their archaeology survey locations shows the remnants of the trails built earlier in the century (**Figure 3**; ADNR, LRIS 2001). West et al. (1965) did not investigate any of these trails or sites, as they were limited by boat transportation to the Yukon River and its immediate environs (USFWS 2008).



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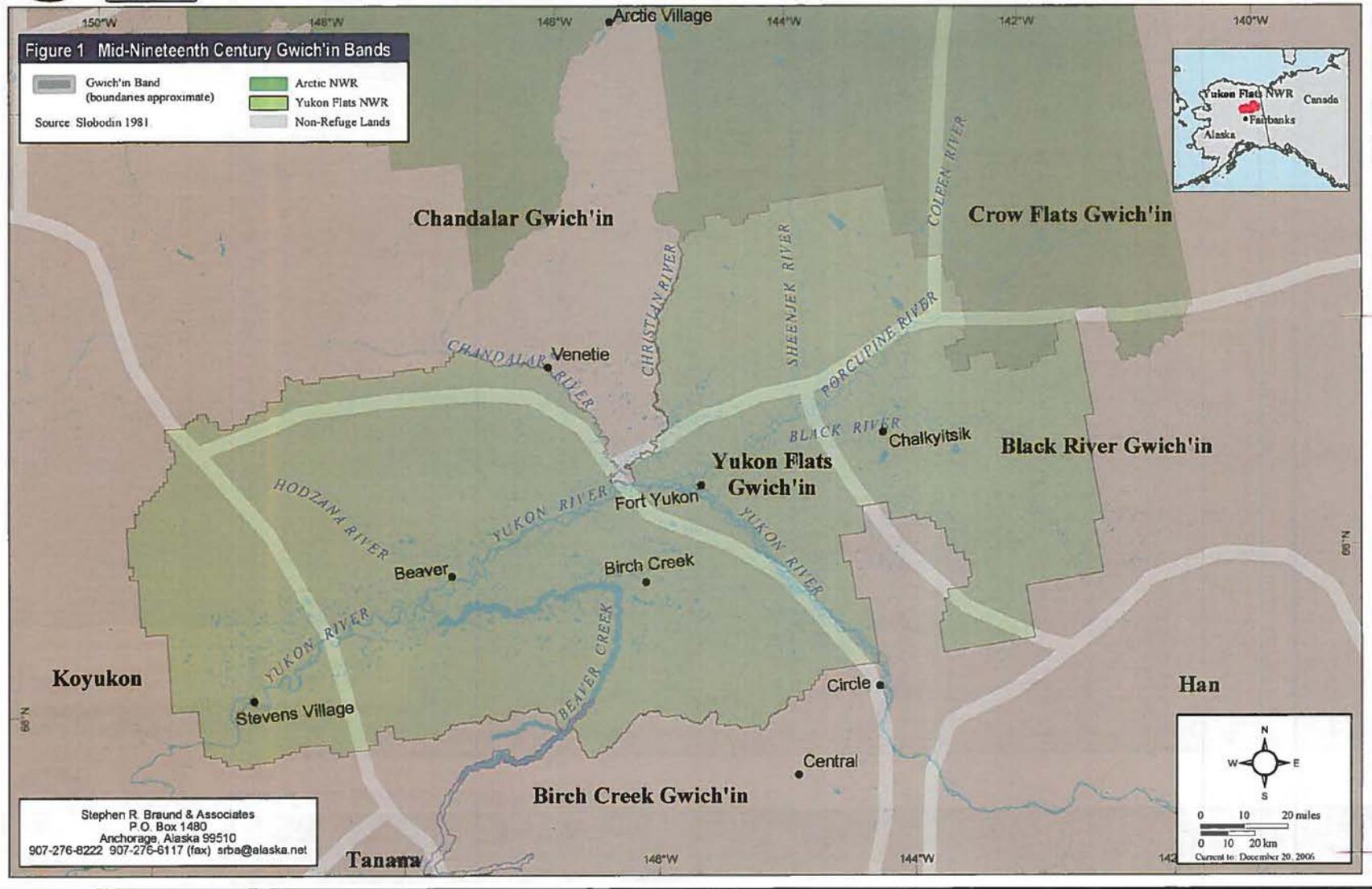
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Figure 1 Mid-Nineteenth Century Gwich'in Bands

	Gwich'in Band (boundaries approximate)		Arctic NWR
			Yukon Flats NWR
			Non-Refuge Lands

Source: Slobodin 1981.



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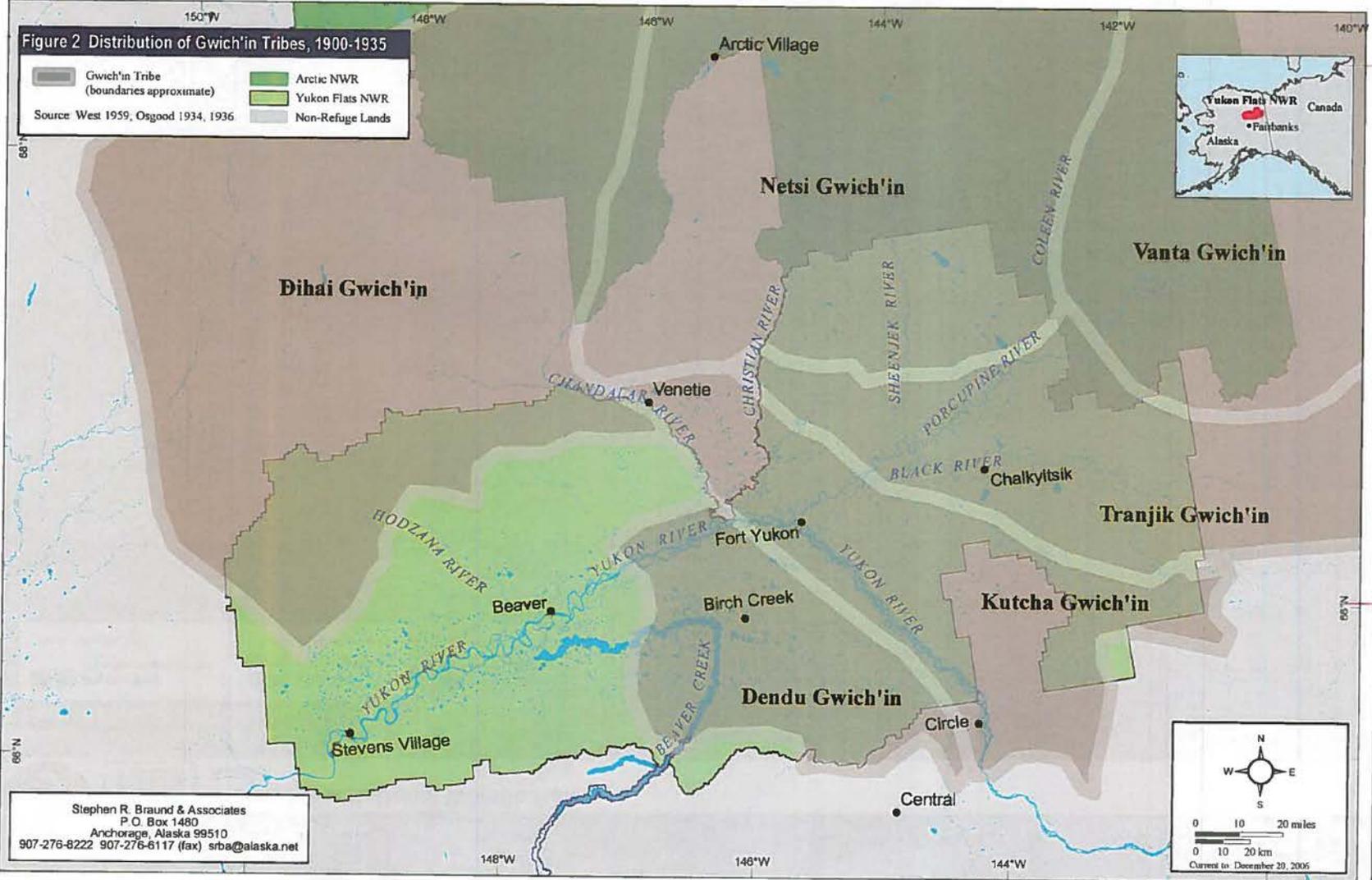
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Figure 2 Distribution of Gwich'in Tribes, 1900-1935

	Gwich'in Tribe (boundaries approximate)		Arctic NWR
			Yukon Flats NWR
			Non-Refuge Lands

Source: West 1959, Osgood 1934, 1936



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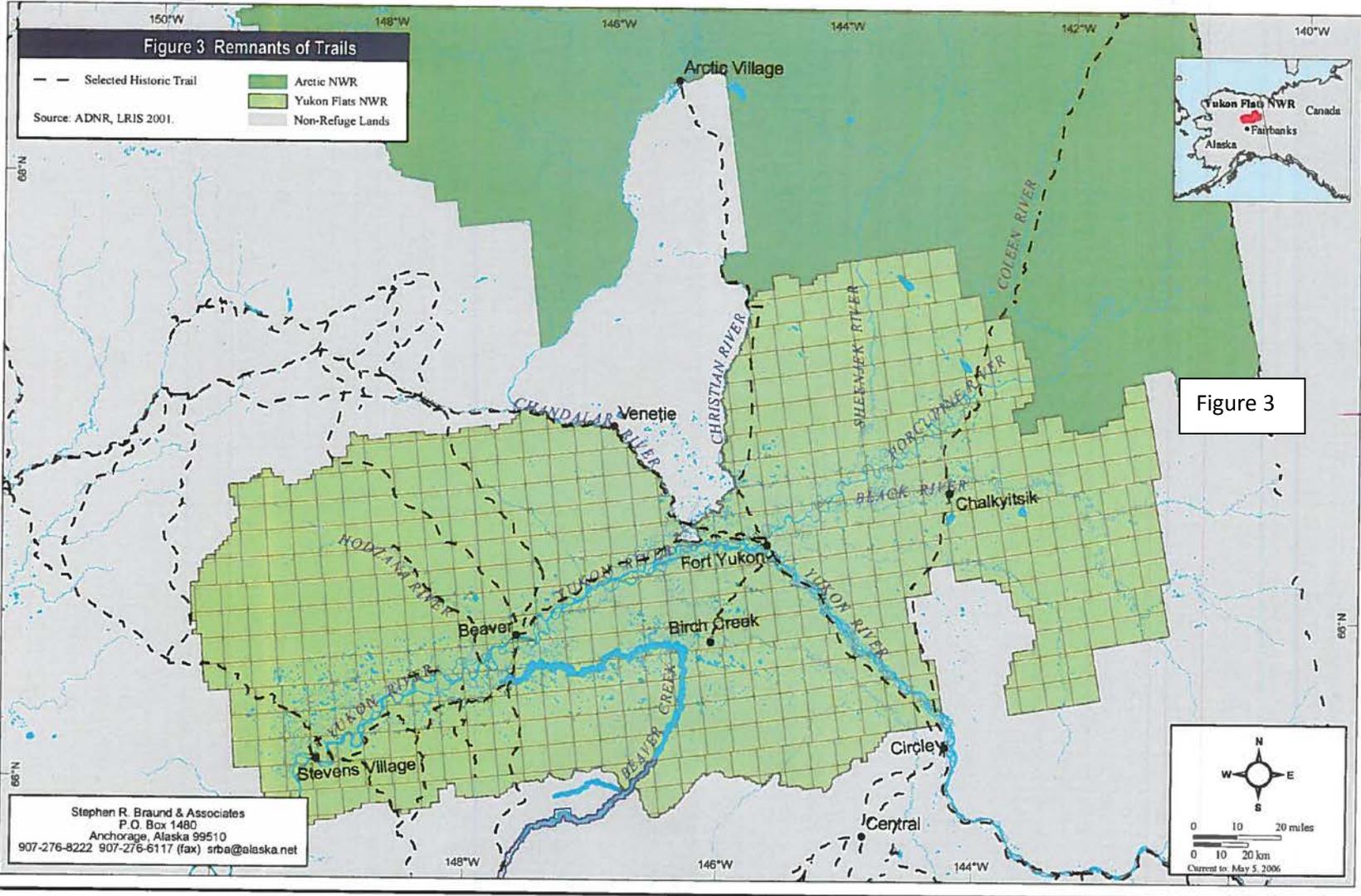


Figure 3

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