

Progress Report – 1999:
Incidental Observations and Aerial Muskox
Surveys in Gates of the Arctic National Park
and Preserve, Alaska



GAAR – 99 – 04
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1999 INCIDENTAL OBSERVATIONS AND AERIAL MUSKOX SURVEYS IN GATES OF THE ARCTIC NATIONAL PARK AND PRESERVE, ALASKA

PROJECT REPORT September, 1999

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SUMMARY:

Survey dates: April 26 - April 28 (winter survey)
June 21 - June 23 (summer / calf survey)

Total distance: 1,293 km (winter survey)
2,297 km (summer survey)

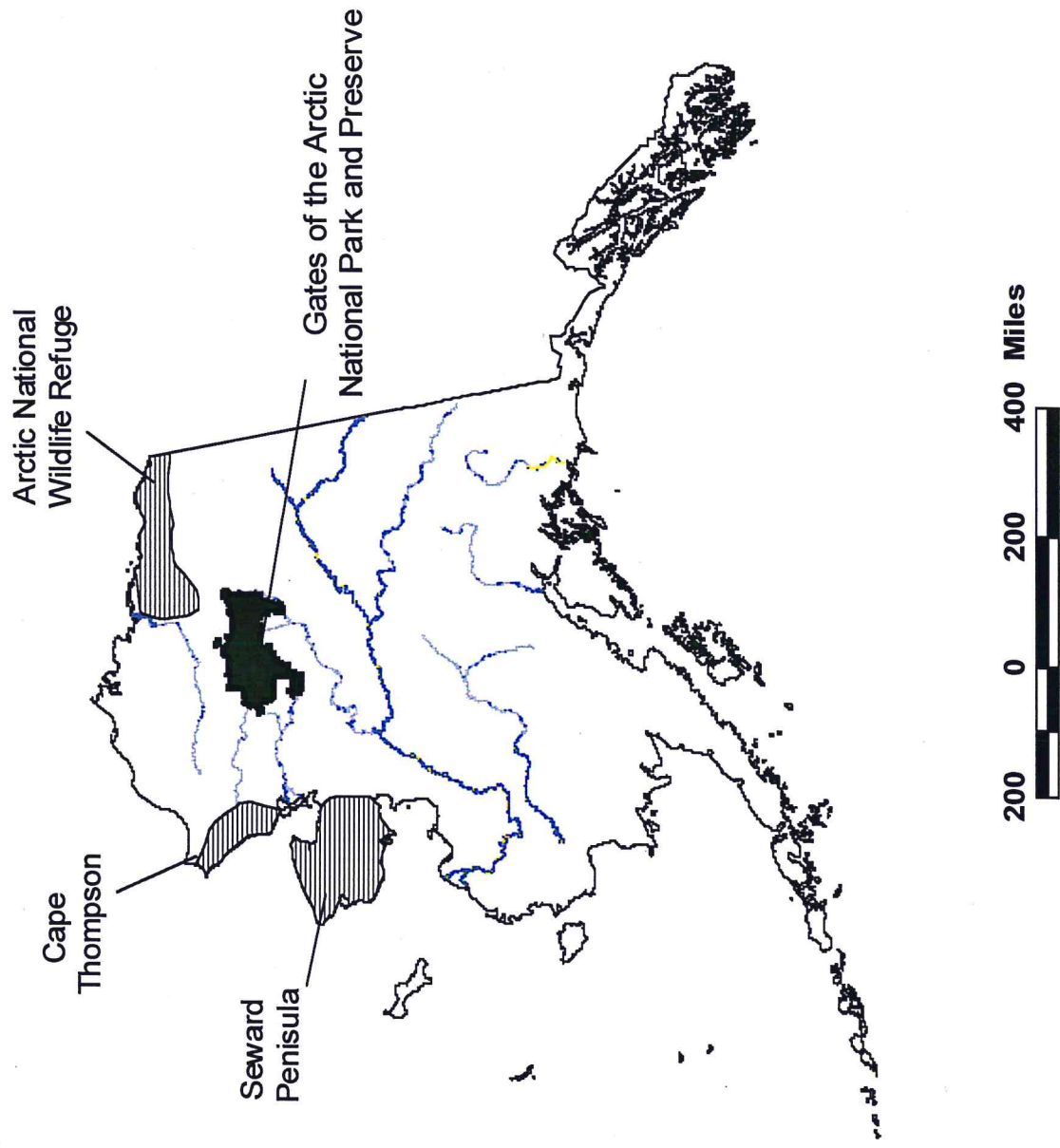
Total muskoxen observed: 0 (winter survey)
0 (summer survey)

Total incidental muskox observations within GAAR, 1999 (year to date): 11

INTRODUCTION:

Muskoxen (*Ovibos moschatus*) were extirpated from northern Alaska in the middle of the 19th century (review in Lent 1999). Historical information indicates muskoxen were found in small numbers in the mountains and foothills of the Brooks Range (Raush 1951, Ingstad 1954) and that these populations were the last to disappear from the state (Reed 1946). Muskoxen were reintroduced into northeastern Alaska in 1969 and 1970. Following their release, these muskoxen populations have increased and expanded rapidly (Reynolds 1998, J. Dau, Alaska Dept. of Fish and Game, personal

Fig. 1. General location of muskox populations that may be sources of muskoxen observed in Gates of the Arctic National Park and Preserve.



* Locations of muskox populations were derived from Smith (1987), Reynolds (1998), and Dau (Alaska Department of Fish and Game, personal communication).

communication)(Fig. 1). Muskoxen were also released in northwestern Alaska in the Cape Thompson region in 1970, 1977, and 1981 (Smith 1989) but growth and range expansion of this herd is occurring at slower rates than those observed in north east Alaska (J. Dau, Alaska Dept. of Fish and Game, personal communication).

Reestablishment of populations of muskox into Gates of the Arctic National Park and Preserve (GAAR) would be a desirable outcome of the natural dispersal and range expansion currently taking place in muskox populations in Alaska.

Current muskox distribution within the state is generally limited to arctic regions characterized by low snow levels. In alpine areas, with greater amounts of snowfall, available habitat may be patchy in distribution since muskoxen are poorly adapted to travel through deep snow (Nellemann 1998). Therefore, data collected on muskoxen distribution patterns and habitat use in other locations in Alaska may not be applicable to GAAR due to the mountainous characteristics of this Park. However, the ability of muskoxen to use this habitat in Alaska is supported by historical records. The last two reported mixed sex groups of indigenous muskoxen in Alaska were killed in mountainous terrain in the eastern Brooks Range in 1892 / 1893, and 1897 / 1898 (Reed 1946).

Management of muskox populations has been a controversial issue for many years in northern Alaska. Many residents of the North Slope Borough (NSB), which includes GAAR, have concerns about muskoxen. Some feel muskoxen have a detrimental effect on caribou populations and caribou hunting (North Slope Muskox Harvest Plan 1998).

Muskoxen have been designated by the Federal Subsistence Board as a species of customary and traditional use by residents of the communities of Anaktuvuk Pass, Atkasuk, Barrow, Nuiqsut, Point Hope, Point Lay, and Wainwright (Federal Subsistence Management Regulations 1999). Game regulations within GMUs 26 and 23 have the potential to influence muskox dispersal into Gates of the Arctic National Park and Preserve. Under 1999 federal subsistence regulations, no muskox were to be harvest on federal lands in the areas immediately adjacent to the Park. Under state regulations, 9 Tier II permits were available for muskox harvest on state and private lands in GMU 26B west of the Dalton Highway and north of the park. In addition, in GMU 26A to the north west of the park and around the community of Anaktuvuk Pass located within the park boundaries, muskox could be harvested under emergency order of the Alaska Department of Fish and Game. Interest in increasing these harvest levels is strong. Proposals for harvest were submitted by the North Slope Regional Advisory Council in 1997 (Proposal # 97-108) and 1998 (Proposal # 98-99) to allow the subsistence harvest of up to 2 muskoxen per person. Implementation of the proposed harvest level has the potential to undermine the reestablishment of the species in the Park. At this time, the National Park Service lacks basic information on historical and present extent of muskoxen habitat within Gates of the Arctic National Park and Preserve. This information is needed for informed decisions regarding this species within the park.

Information collected on muskoxen in Gates of the Arctic National Park and Preserve has been opportunistic and basic. Sightings have been collected from a variety of sources including word of mouth from park visitor, park employee trip reports, and

reports from the residents of Anaktuvuk Pass. Muskoxen were observed along the Anaktuvuk River as early as 1986 (P. Reynolds, US Fish and Wildlife Service, personal communication). The first reported observation of a muskox in Gates of the Arctic National Park and Preserve was in 1989. A number of years followed without any recorded observations. In 1997, muskox observations were frequent enough that the National Park Service began maintaining a database of observations and locations of muskoxen within GAAR.

METHODS:

Beginning in 1999, incidental observations of muskoxen within Gates of the Arctic National Park and Preserve were tabulated in a database. From 26 –28 April, an aerial survey was conducted to identify resident groups of muskoxen in the park. Major river drainages on the north side of the park were surveyed with a Cessna 185 piloted by Sandy Hamilton (Arctic Air Alaska). Park biologist John Burch was the observer on this survey. Another aerial survey was conducted 21 - 23 June over a larger area from a Cessna 185. In this instance, drainages on the west and north side of GAAR were surveyed. This survey was conducted to document the presence (or lack of) current year calves within the park boundaries. The pilot on this survey was Don Glaser (Arctic Wings) and the observer was park biologist Jim Lawler. Survey dates were chosen to approximately coincide with muskox survey dates conducted by other natural resource agencies (P. Reynolds, US Fish and Wildlife Service, personal communication; B. Lenart, Alask Department of Fish and Game, personal communication).

Surveys were conducted by flying straight up one side of river drainages and down the other at low altitudes. In some instances, the size of the drainage required a zig-zag flight pattern to adequately cover the terrain. All surveys were concentrated in valley bottoms since these areas were expected to be the most likely locations to find muskoxen.

RESULTS:

The majority of muskox observations within GAAR occur in the summer months when the greatest number of visitors and staff are in the park. Currently thirty observations of muskoxen have been recorded in GAAR (Fig. 2). Observations along the Noatak River account for 53 % of the total and observations near Anaktuvuk Pass account for 17 % (Table 1). These figures are misleading however in that most observations on the Noatak are from small parties of recreationists likely resulting in multiple records from a single animal. In contrast, information from Anaktuvuk Pass has tended to be more community-based in nature and although multiple people may have observed muskoxen in specific areas, only a few records have resulted. However, both sets of sightings are likely multiple observations of 1 or 2 animals in each location. In very few of the reported observations of muskoxen was the sex of the animal noted. Out of 30 records, 5 report seeing bull muskoxen.

Aerial surveys conducted to systematically locate muskoxen covered 1293 km in April and 2,297 km in the June. Weather conditions during the April aerial survey were generally good with some low clouds and light turbulence. Snow cover was complete

enough that sightability was excellent. This survey was conducted entirely on the north side of the park (Fig 3).

The June survey covered the same large drainages as did the winter survey and also included some of the smaller valley bottoms. In addition, the Noatak River was included in this survey (Fig. 4). Flying conditions for this survey were excellent with high broken clouds and calm wind conditions. However, sightability on this survey was much lower than the April survey due to the lack of snow. No muskoxen were observed during either survey.

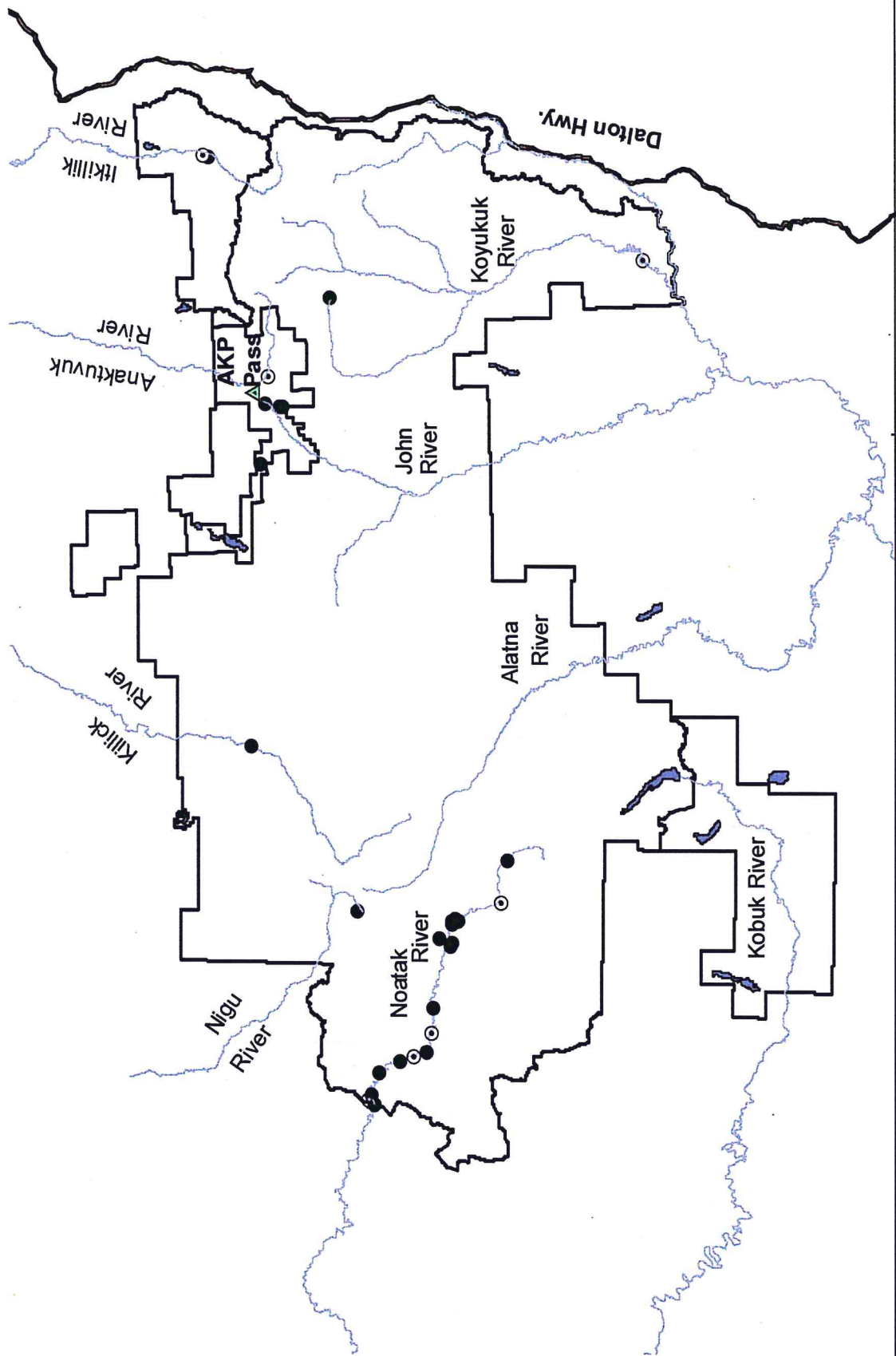
Table 1. Summary of incidental muskox observations in Gates of the Arctic National Park and Preserve, Brooks Range, AK.

Year	General Location	# of observations	Greatest # of muskoxen observed at one time
<u>1989</u>	Tinayguk	1	1
<u>1994</u>	Noatak	1	1
<u>1997</u>	Noatak	4 ^a	2
	Anaktuvuk	1	2
<u>1998</u>	Noatak	7	2
	Anaktuvuk	1	1
	Nigu	1	1
	Itkillik	2	1
	N.Fork Koyukuk	1	1
<u>1999*</u>	Noatak	7	1
	Anaktuvuk	3	1
	Killik	1	1

*Year to date (8/30/99)

^a One of the four observations was of a muskox carcass.

Fig. 2. Muskox observations Gates of the Arctic National Park and Preserve.



Map Location



10 0 10 Miles



- Specific location
- ⊙ General / location or unconfirmed

Fig. 3. Flight path for muskox survey conducted from 26-28 April.

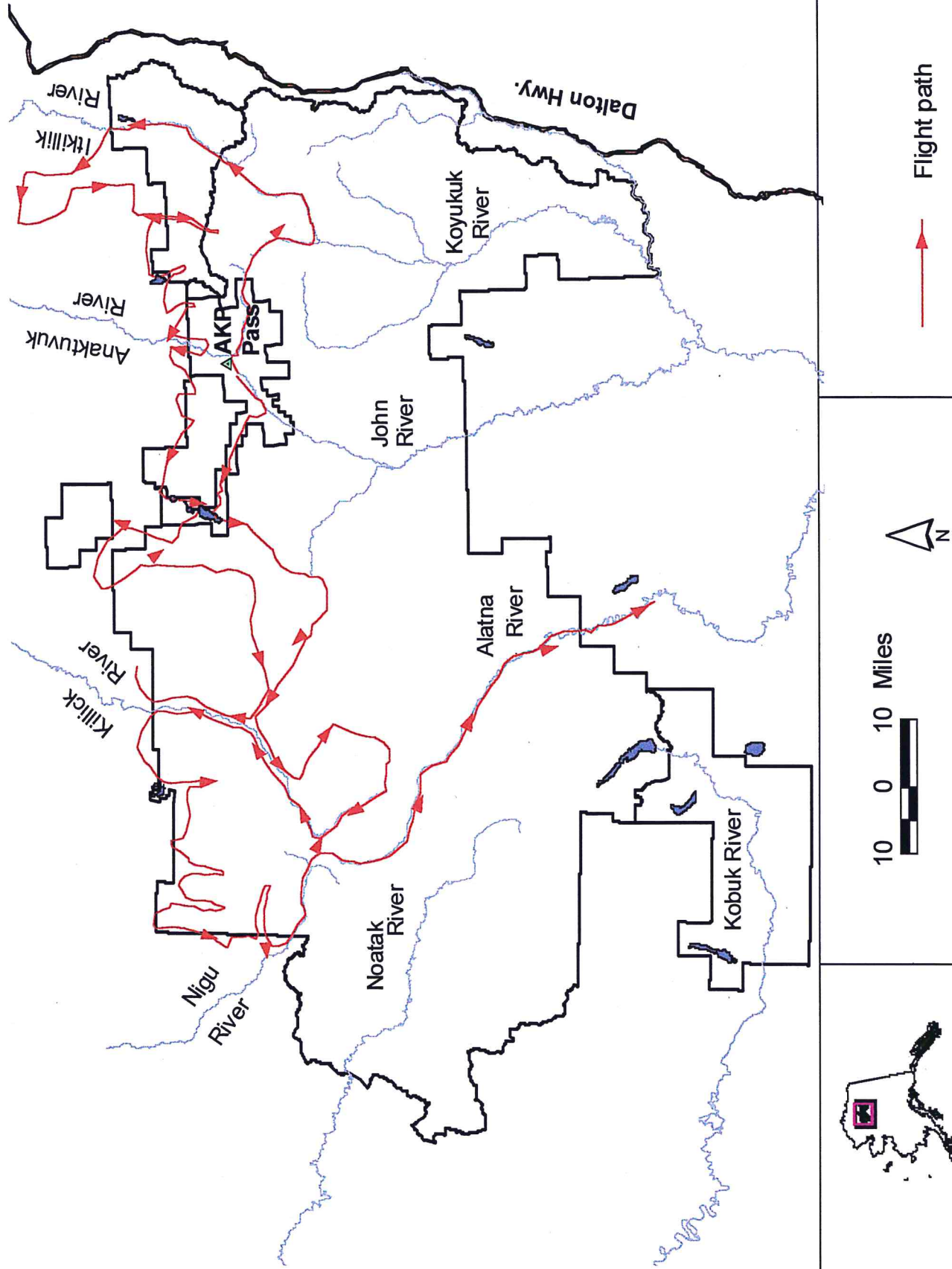
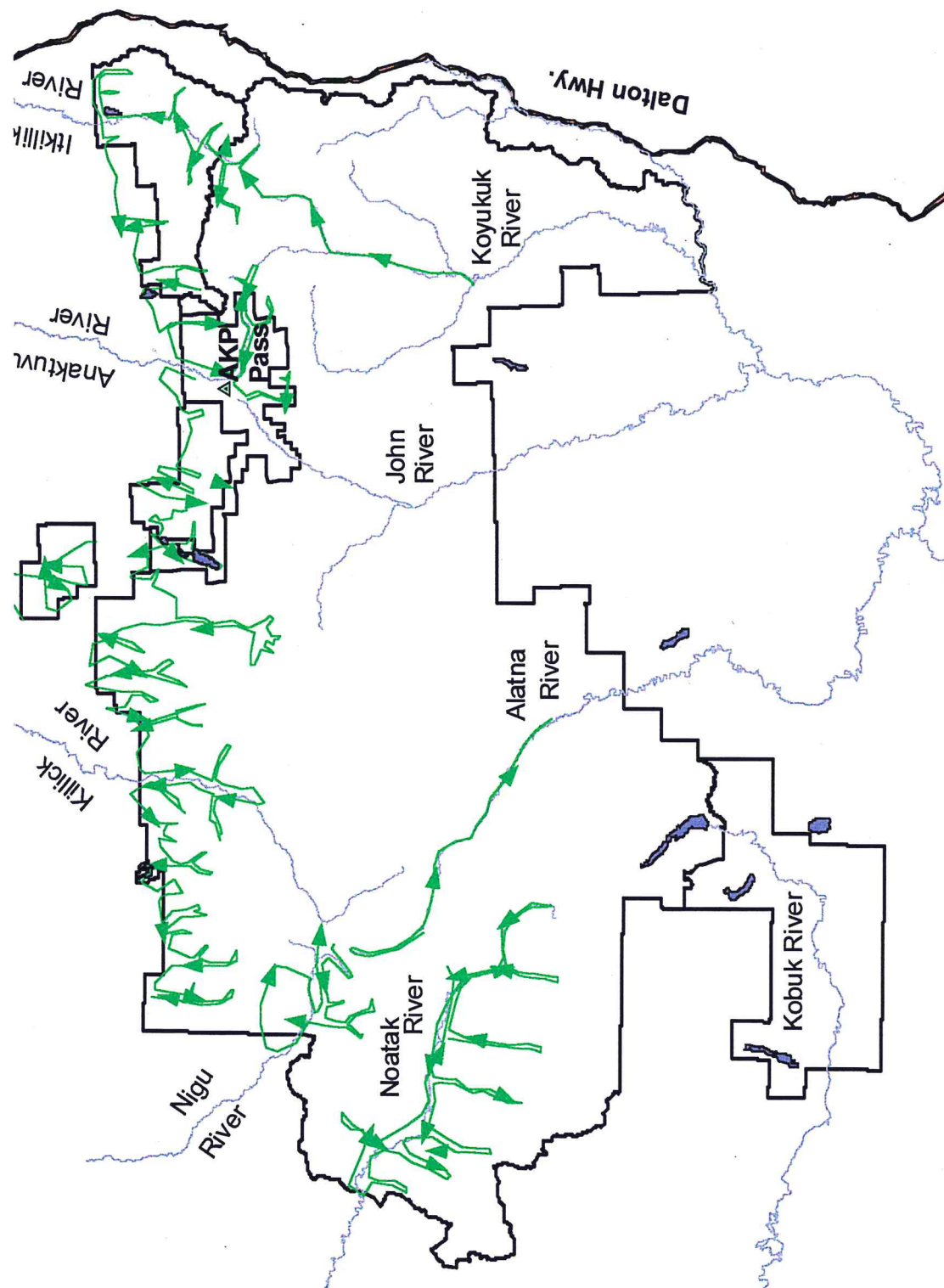


Fig. 4. Flight path for muskox survey conducted from 21-23 June.



10 0 10 Miles



Flight path



DISCUSSION:

Based on observations gathered in 1998, a conservative estimate of 6 muskox were occupying portions of Gates of the Arctic National Park and Preserve. It appears 2 animals were along the Noatak River, 2 animals were near Anaktuvuk Pass, 1 was on the Itkillik River, and 1 was on the Nigu River. In addition, there was an unconfirmed sighting of a muskox on the North Fork of the Koyukuk River.

Thus far in 1999, a minimum estimate of 3 muskox have occupied the park. A single muskox has been repeatedly observed along the Noatak River, and a single animal has been repeatedly seen near Anaktuvuk Pass. There has also been one observation of a single muskox along the Killik River.

These estimates are conservative in that observations are occurring in areas of the park with the most intensive human activity. Animals occupying less frequented portions of the park would be much less likely observed and therefore would not be reported in this form of data collection. It is most probable that animals being observed in Gates of the Arctic National Park and Preserve are mature adult males since this class of animal is more likely to disperse into non-traditional areas and pioneer new habitats. During 1998 in Alaska, bull muskox were observed in areas far from established herds such as along the Yukon River near Ruby, Galena (T. Seaton, Alaska Department of Fish and Game, personal communication), Rampart (S. Hamilton, Arctic Air Alaska, personal communication) and fifty miles downstream from Eagle (S. Swanson, National Park Service, personal communication). This has been suggested as a primary mechanism by

which muskoxen colonize discontinuous habitat (Smith 1989). Although females are rarely seen alone or far from other muskoxen (P. Reynolds, US Fish and Wildlife Service, personal communication), caution should be used in assuming all animals observed in the park are dispersing males as most people observing muskoxen in the park are not capable of differentiating between the sexes. In addition, small mixed sex groups of muskoxen have been known to colonize habitats prior to observations of bulls in these areas (J. Dau, Alaska Dept. of Fish and Game, personal communication).

From the results of the aerial survey work, it is highly unlikely, that any large groups of muskoxen currently occupy Gates of the Arctic National Park and Preserve. Singles and small groups however, could easily have been missed, particularly in June with no snow cover. Although it is unlikely that breeding groups of muskoxen presently occupy the Gates of the Arctic National Park and Preserve, the potential for them to do so exists in some of the larger and wider drainages on the north and west side of the park. At present, mixed sex groups of muskox occur 30 miles to the north east of the park along the Ribdon drainage (B. Lenart, Alaska Department of Fish and Game, personal communication). Dispersal of animals from this group may eventually lead to the presence of breeding populations within the park.

RECOMMENDATIONS:

The largest barrier to muskox re-establishment in Gates of the Arctic National Park and Preserve is the perception from members of local communities that muskoxen and caribou are incompatible. Attention needs to focus on the basis of this perception,

and local historical knowledge of this species needs to be documented and examined. In addition, information from scientific studies looking at muskoxen / caribou interactions needs to be made available to local residents in a visual format such as a poster, series of posters or a simple brochure.

Landscape characteristics of current muskox habitat in northern Alaska will soon be available in a GIS format (F. Danks, Department of Biology and Wildlife, University of Alaska, personal communication). Information from this map in conjunction with data on local snow cover characteristics has great potential for identifying areas of the park suitable for muskoxen reestablishment.

Intensive aerial surveys throughout the northern and western portion of the park are difficult to justify at this time given the low density of muskoxen. More profitable would be focused surveys in specific areas of the park such as the Noatak and Anaktuvuk Rivers. These surveys should be done in the winter while snow covers the ground to provide the best sightability. Sex determination should also be possible at this time given the low density of muskoxen in the park resulting in the likelihood that muskoxen observed will be single animals or small groups of animals.

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