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MUSKOX

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Project Title: Interior Muskoxen Population and Habitat Management

Project Location: Subunits 26B and 26C

Project Objectives and Activities:

1. Manage muskoxen harvest so that it does not appreciably restrict population growth or dispersal.
 - a. Review information obtained by the U.S. Fish and Wildlife Service (USFWS) on population size, sex-age composition, and movements of radio-collared muskoxen.
2. Maintain a bull:cow ratio of at least 50:100 and an adult bull:cow ratio of 35:100.
 - a. Monitor results of the muskoxen registration permit hunt.
 - b. Conduct aerial surveys to determine distribution of muskoxen in Subunit 26B.
3. Maintain direct communication with local residents of Nuiqsut, Kaktovik, and Barrow about management decisions concerning the reintroduction, conservation, and hunting of muskoxen.

Work Accomplished During the Project Segment Period: The area biologist reviewed information on population size, composition, and dispersal of muskoxen collected by the USFWS.

ADF&G issued 11 "Tier II" subsistence permits in Subunits 26B and 26C and monitored the registration permit hunt. Seven permits were issued to Kaktovik residents and two each went to residents of Nuiqsut and Prudhoe Bay. No muskoxen were harvested during the October 1991 season because of weather restrictions, but five were harvested during the March 1992 season. All muskoxen harvested were taken by residents of Kaktovik.

The USFWS flew muskoxen surveys during October 1991 and counted 390 muskoxen in and to the west of the Arctic National Wildlife Refuge. Numbers are stable within the Refuge but are increasing to the west. ADF&G did not conduct any surveys.

Progress Toward Meeting Project Objectives: The harvest of less than 15 bull muskoxen per year ensures that dispersal and population growth are not being affected by hunting. The small number of permits and the fact that virtually all are issued in Kaktovik ensures nearly total compliance with regulations and further provides an opportunity to communicate directly with local users about muskoxen management. The majority of muskoxen in this area inhabit the Arctic National Wildlife Refuge. The

USFWS manages most of the hunting effort and conducts field management activities on the Refuge. ADF&G has no field activities related to muskoxen planned for FY93.

Segment Period Project Costs:

	<u>Personnel</u>	<u>Operating</u>	<u>Total</u>
Planned	5.1	3.0	8.1
Actual	0.0	0.0	0.0
Difference	5.1	3.0	8.1

Explanation: Arctic National Wildlife Refuge staff conducted field work. This project was not funded at the ADF&G regional level because of reductions in budget allocations.

Submitted by:

Kenton P. Taylor
Management Coordinator

Project Title: Western Alaska Muskox Survey and Inventory

Project Location: Unit 18 (42,000 mi²)
Yukon-Kuskokwim Delta

Project Objectives:

1. Maintain a post-hunt, pre-calving population size of 200-250 muskoxen on Nelson Island, and a post-hunt, pre-calving population size of 500-550 muskoxen on Nunivak Island.
 - a. Conduct aerial and ground surveys on Nunivak and Nelson Island to estimate the population size, and sex and age composition of the 2 muskox populations.
2. Monitor the population size, distribution, and dispersal of muskoxen onto the mainland of Unit 18.
3. Finalize development of a muskox management plan for the Nunivak Island population.

Work Accomplished During the Project Segment Period: We completed aerial and ground surveys on Nunivak Island during March 1991 in cooperation with staff from the Yukon Delta National Wildlife Refuge. We counted 407 muskoxen and the sex and age composition was as follows: 117 4-year-and-older males, 68 4-year-and-older females, 45 three-year-old males, 45 three-year-old females, 27 two-year-old males, 26 two-year-old females, 60 yearlings, and 19 unclassified animals.

We completed an aerial composition survey on Nelson Island during March 1992. We determined a post-hunt, pre-calving population of 183 muskoxen, and a pre-hunt population of 215 muskoxen. Twenty-eight animals were taken during the legal hunting season, 2 cows were taken out-of-season, and 2 cows died of natural causes. The composition on Nelson Island after hunting was 42 adult males, 33 adult females, 16 3+ year-old males, 20 3+ year-old females, 14 2+ year-old males, 16 2+ year-old females, and 42 yearlings.

We continued to monitor the dispersal of muskoxen from Nelson Island to the mainland through periodic aerial reconnaissance flights, observations reported by the public, and reports from air taxi pilots.

Drawing and registration permits for hunting muskoxen on Nelson and Nunivak Island were issued during fall 1991 and spring 1992. The fall harvest on Nunivak Island was 1 cow taken by registration permit and 7 bulls taken by drawing permit. The spring harvest on Nunivak Island was 30 cows taken by registration permit and 38 bulls taken by drawing permit. Twenty-eight of the 30 individuals issued registration permits for Nelson Island succeeded in harvesting a muskoxen.

Progress Towards Meeting Project Objectives: Minimum post-hunt, pre-calving populations of 500-550 muskoxen on Nunivak Island, and 200-250 muskoxen on Nelson Island were maintained, along with some fluctuation above and below the target population size. We completed ground surveys for sex and age composition on Nelson Island during March 1992.

We estimate the population on the mainland at 100-150 animals ranging over an area of approximately 20,000 mi². We base this estimate on groups of muskoxen observed during periodic reconnaissance flights, and from sightings reported by the public and aircraft pilots. Muskoxen were sighted near Dall Lake, Kusilvak Mountain, the Andreafsky Mountains, and the tundra villages west of Bethel during the report period.

In the future, we recommend using satellite telemetry and more frequent tracking flights of animals with conventional collars to monitor the mainland muskox population.

Public meetings have been held annually in Mekoryuk to finalize development of a muskox/reindeer management plan for Nunivak Island. We are conducting this management planning effort cooperatively with the local public, and with staff from the Yukon Delta National Wildlife Refuge, U. S. Soil Conservation Service, Bureau of Indian Affairs, Bering Sea Reindeer Products, Alaska Soil and Water Commission, and the local Mekoryuk (NIMA) corporation. As part of the management plan agreement, reduction of the reindeer herd began during the report period. More than 2,000 reindeer were slaughtered and processed at a privately-owned, State-inspected slaughterhouse facility near Mekoryuk. Also, increased harvest levels of muskoxen began during the 1989-90 regulatory year, and continued during 1991-92 in order to reduce the herd size to 500-550 animals after hunting and before calving. All indications from aerial survey work and ground counts is that we have achieved that goal. Proper management of both reindeer and muskoxen will hopefully improve the range carrying capacity of Nunivak Island. However, possible overgrazing of available habitat on the island by reindeer is still a concern to all parties.

Project Location: Unit 22 (25,000 mi²)
Seward Peninsula and that portion of the Nulato Hills draining west into Norton Sound.

Project Objectives and Activities:

1. Allow the re-introduction of muskoxen onto suitable Unit 22 ranges and provide for their use and enjoyment by all members of the public.
2. Monitor population size, herd growth, and range expansion.
 - a. Maintain a pool of radio-collared animals.
 - b. Monitor movements of radio-collared animals.

- c. Conduct aerial photocensuses at 5-year intervals.
3. Develop a Unit 22 muskox management plan in consultation with the public, interested local organizations, and other agencies.

Work Accomplished During the Project Segment Period: We conducted several flights to ascertain the number of active radio collars on muskoxen in Unit 22. Tabulated results from these flights indicated that, at a minimum, 21 radios remain active. We conducted an intensive survey of the western portion of the unit during April 1992 before calving which indicated at least 700 muskoxen were present on the Seward Peninsula. Sex and age composition data obtained after calving indicated a ratio of 64 calves:100 adult cows, and 33 adult bulls:100 adults cows. As in past years, members of the public continued to provide information on muskox locations.

We held meetings with reindeer herders and others to discuss ways of dealing with perceived conflicts between muskoxen and reindeer, the need for a muskoxen management plan, and the steps which need to be taken to develop and implement a plan.

Progress Towards Meeting Project Objectives: Since their reintroduction in the early 1970s, muskox numbers on the Seward Peninsula have increased significantly, and the herd is now estimated to be one of the largest in Alaska.

In past years, operating funds for survey-inventory activities and research were provided by the National Park Service (NPS). Even though specific funds to conduct muskoxen work were not available, cooperation from NPS and the Bureau of Land Management (BLM) staff allowed us to conduct an intensive survey over much of the western portion of the Seward Peninsula.

Interest among local residents and others in hunting Seward Peninsula muskoxen remains high. However, no proposals requesting hunting seasons were submitted for consideration to the Board of Game during its spring 1992 meeting.

Concern over feeding competition between muskoxen and reindeer continues to be voiced by reindeer herders. Subsistence berry pickers occasionally complain of harassment or intimidation by muskoxen. These concerns need to be dealt with. Development of a muskox management plan is essential in Unit 22 before implementing any hunting season and developing long-term population goals. Land ownership status throughout most of the unit is divided among State, NPS, and BLM jurisdictions. A meeting of these different agencies to discuss specific goals and objectives before developing a management plan is scheduled for this coming fall.

Project Location: Unit 23 (43,000 mi²)
Kotzebue Sound and Western Brooks Range

Project Objectives:

1. Maximize population growth of muskoxen in Unit 23.
 - a. Conduct a population census of muskoxen in the Unit 23 portion of the Seward Peninsula.
 - b. Relocate radio-collared muskoxen periodically to assess distribution and population trend.
 - c. Improve communication with the public to reduce illegal harvest.
 - d. Conduct a census of the Cape Thompson-Rabbit Creek muskox population during 1993 or 1994.

Work Accomplished During the Project Segment Period: We observed eight groups totaling 134 muskox in the Unit 23 portion of the Seward Peninsula during an extensive census that included most of the Seward Peninsula. Radio-collared muskoxen in the Cape Thompson herd including those in Cape Krusenstern National Monument were relocated 8 times during the report period. We assessed herd composition and size. We collected sightings by local residents of individual muskox in areas other than those of established herds (upper and middle Kobuk, upper and middle Noatak River drainages).

Progress Toward Meeting Project Objectives: Observations of dispersing individuals, primarily older males, have increased during this report period. However, there has been no indication that new, productive herds have become established in unoccupied habitat. The muskox population in Unit 23 is comprised of approximately 110-140 individuals near Cape Thompson, and 135-150 individuals in that portion of the Seward Peninsula within Unit 23. The Unit 23 muskox population appears stable. Productivity, natural mortality rates, and the magnitude of illegal harvest are unknown.

Of all muskox reintroductions into their historical ranges in Alaska, the Cape Thompson transplant has been the least successful. Snow conditions during the last 4 years suggest that availability of winter habitat may be the primary factor limiting muskox populations in Unit 23. The dispersal of exclusively males, probably subdominant individuals from established populations, is consistent with the belief that habitat may be limiting population growth. Although wolf and brown bear numbers are relatively high in Unit 23, mortality among collared adults has been extremely low since at least 1988. Illegal harvest of muskoxen by local and nonlocal hunters has been a chronic problem in this unit; however, the biological importance of the illegal harvest is unknown. Carcasses of three adult females from the Rabbit Creek herd were found frozen in close proximity to one another in a stream bed. None of the meat from these animals had been salvaged, although their heads had been taken. Cause of death could not be established. We recommend additional investigations into herd status in the Cape Thompson area.

Segment Period Project Costs:

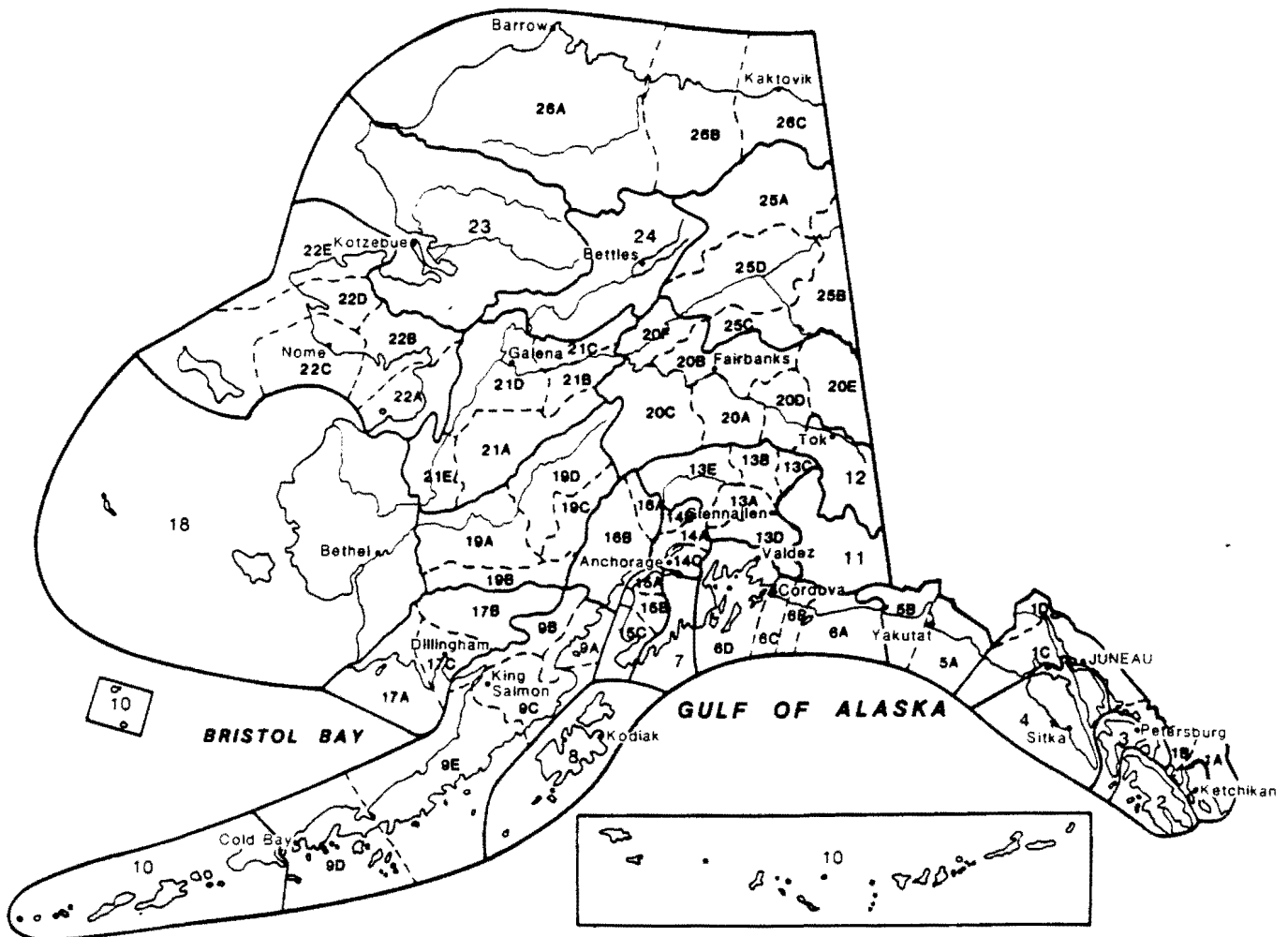
	<u>Personnel</u>	<u>Operating</u>	<u>Total</u>
Planned	40.9	17.0	57.9
Actual	40.9	15.9	56.8
Difference		-1.1	-1.1

Explanation: The cost of completing the census in Unit 22 was less than anticipated. Use of state-owned aircraft, and additional charter aircraft supplied by BLM and NPS served to reduce costs.

Submitted by:

Steve Machida
Survey-Inventory Coordinator

Alaska's Game Management Units



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