

Summary Report- November 2021

Kuskokwim River Moose Composition Survey on the Yukon-Kuskokwim Delta, Alaska, 2021.

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ABSTRACT: The Yukon Delta National Wildlife Refuge conducted compositional moose surveys within the Kuskokwim tributaries on November 3, 4, 8, 9, and 10, covering all major drainages in year 2021. In total, we observed 639 moose: 187 bulls, 340 cows, and 112 calves (11 sets of twins): Calculated ratios were 55 bulls: 100 cows and 33 calves: 100 cows. Compositional data coupled with population data helps managers determine harvest quotas.

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Key Words: Alces, Alaska, composition survey, moose, Yukon Delta National Wildlife Refuge

Introduction

Moose are thought to have colonized the Yukon-Kuskokwim drainages in the 1940s. Local subsistence hunters started using moose as an important subsistence food increasingly from that time forward. In recent years, salmon subsistence fishing has been regulated often with limited openers for Chinook salmon. Hunting for caribou from the Mulchatna caribou herd is closed for conservation purposes. With these limitations, moose hunting has become much more important for subsistence needs.

The Yukon Delta National Wildlife Refuge conducts both compositional and population moose surveys when conditions permit within the Yukon Delta National Wildlife Refuge and Unit 18. Weather and snow conditions, staff and pilot availability, and funding determine the success of moose surveys each year. There are currently 5 survey units within the refuge and as many as 3 survey units have been completed in one season. However, this is uncommon and surveying 1 or 2 units per year is typical with some years having no surveys completed. Units are surveyed every 3 years on a rotational basis. The data generated from moose surveys are used for regulatory changes for hunting and assessing the health of a population. The last time moose composition surveys were conducted within the Kuskokwim Tributaries (Zone 2) Survey Unit was in November 2020 (Fig 1).

STUDY AREA

The Kuskokwim Tributaries Survey Unit includes the Eek, Kwethluk, Kisaralik, Fog, and Tuluksak Rivers which are found within the Yukon Delta National Wildlife Refuge between the Kilbuck Mountains and the Kuskokwim River in hunt Unit 18 (Fig. 1). This area is often referred to as Zone 2 in hunt Unit 18, an area that is comprised of mostly refuge lands but includes limited State of Alaska-managed lands. Habitat variability was wide and ranged from alder/cottonwood/willow stands to spruce/birch forests within the riparian areas. Open tundra was found between drainages and generally little time was spent surveying these areas.

METHODS

The goal of the composition survey was to count a minimum of 100 bulls, 100 cows, and 100 calves in Zone 2 while at the same time surveying all major drainages in Zone 2. Snow cover is usually the limiting factor for this survey; fortunately there were favorable conditions during much of November to conduct the surveys. Robert Sundown was the pilot of the supercub we used, and Aaron Webber and Bryan Daniels were the observers in the back seat of the airplane. Generally, our strategy was to concentrate our effort over the best habitat for moose in each drainage (riparian areas, willows etc.) and not spend considerable time in less favorable areas or areas that are difficult for moose detection (open tundra, heavily timbered forests). We would fly from the boundary of Zone 1 and 2 of each drainage and work our way up the drainage until the headwaters, and then work our way down the next drainage until we had covered all the major drainages in Zone 2. One observer watched one side and the other would watch the opposite side. Each area was surveyed at approximately 60-70 mph and at 300-500 feet in altitude. To the best of our ability, we would categorize the moose into the following: cows, calves, twins, spike/fork, small bull, medium bull, large bull. A global positioning system loaded with the survey boundaries was used to ensure complete coverage of all the drainages. For each individual or small group of moose, we marked a waypoint to help to distinguish moose we had already counted if there was any confusion for possibly double counting.

RESULTS

In total, we observed 639 moose: 187 bulls, 340 cows, and 112 calves (11 pairs were twins). This made a ratio of 55 bulls: 100 cows and 33 calves: 100 cows (Table 1).

DISCUSSION

Favorable snow conditions allowed us to conduct composition surveys in November 2021. During many years, there is insufficient snow cover to allow for composition surveys during November through mid-December. After mid-December, bulls shed their antlers making bull categorization unreliable (Alaska Department of Fish and Game 2021).

The bull to cow and calf to cow ratios indicate a healthy moose population. In 2020, we counted 568 total moose: 177 bulls, 280 cows, and 111 calves for a bull to cow ratio of 63:100 and a calf to cow ratio of 40:100. In 2015, a composition survey was done in Zone 2 and resulted in ratios of 83 bulls to 100 cows and 62 calves to 100 cows, although the sample size for these survey results was only 245 total moose. The current bull quota of 110 has not been met before, potentially allowing for additional season opportunity to meet it.

MANAGEMENT IMPLICATIONS:

This composition data helps us better understand the moose population dynamics and gives us more information to make informed decisions on season lengths and harvest quotas.

ACKNOWLEDGEMENTS

Thank you to Robert Sundown for his role as the pilot for this project and Bryan Daniels for helping with observations.

LITERATURE CITED

Alaska Department of Fish and Game. 2021. Moose: Wildlife Notebook Series.
<https://www.adg.alaska.gov/static/education/wns/moose.pdf>

Table 1. Total moose observed by category and bull:cow and calf:cow ratios for Kuskokwim Tributaries Zone 2, Unit 18, November 2020.

DATE	CATEGORY			RATIO		TOTAL MOOSE
	BULL	COW	CALF	BULL:COW	CALF:COW	
11/2015				83:100	62:100	245
11/2020	177	280	111	63:100	40:100	568
11/2021	187	340	112	55:100	33:100	639

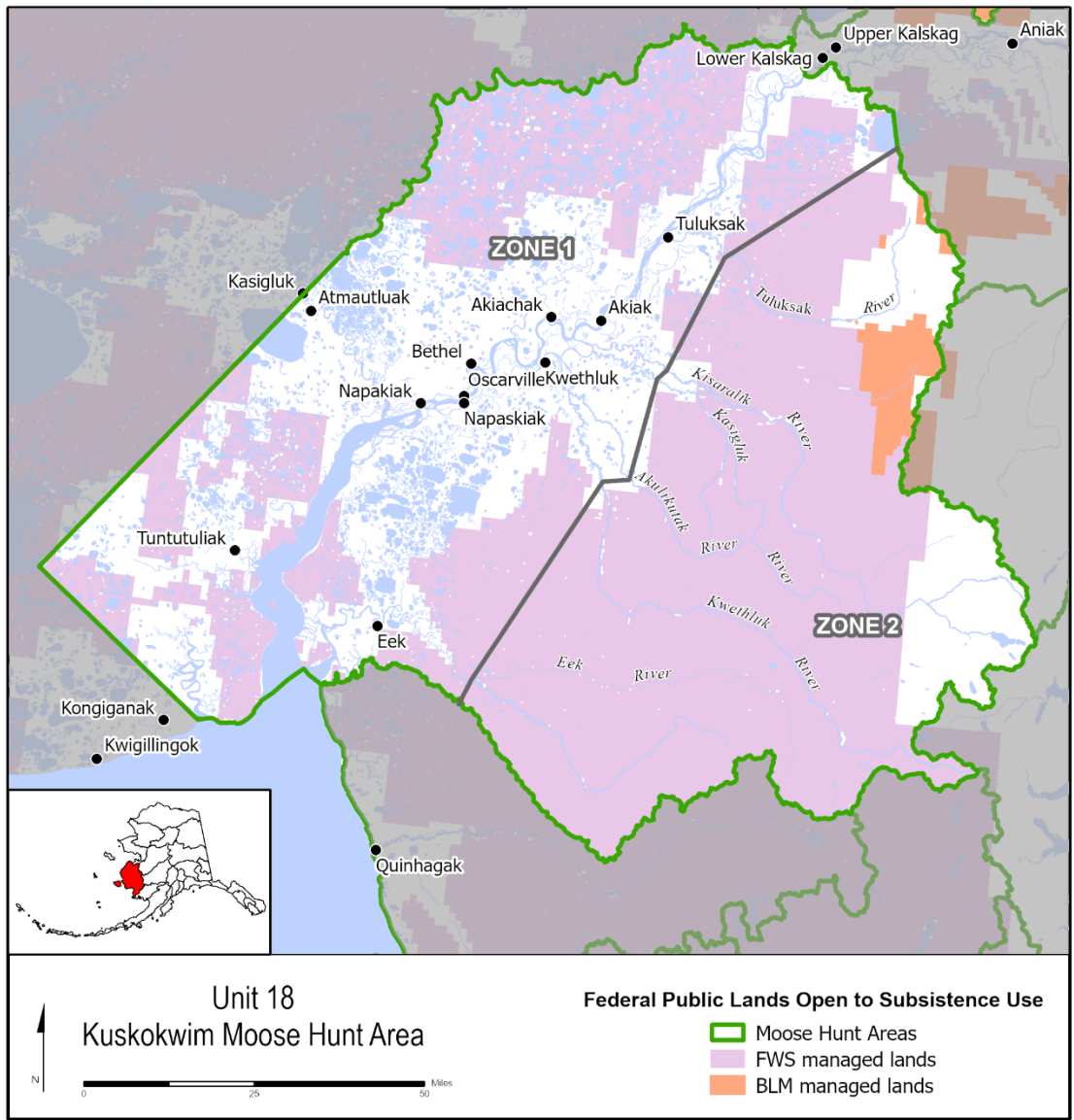


Figure 1. Map of the Kuskokwim Tributaries Survey Unit 18 (Zone 2).