

# Moose Populations and Status Trends in Katmai National Park and Preserve



## Background

Moose populations on the Alaska Peninsula were scarce until they dramatically increased in the 1950's and 60's. As the population peaked, evidence of range damage from overbrowsing became evident which may have resulted in nutritional stress and caused poor calf survival. Hunt opportunity was expanded to allow greater harvest, and by 1973 population growth had slowed and eventually began to decline. Even during high growth periods calf:cow ratios were considered low and as the population decreased these ratios dropped even lower. With moose being an integral part of subsistence to local Native Alaskans, tracking densities and bull:cow ratios to provide information on reproductive success and population status and trends has been considered vital. National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), and the Alaska Department of Fish and Game (ADFG) have collected age and sex composition of moose since 1969.



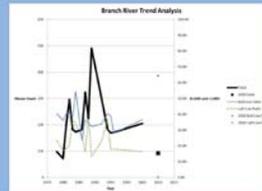
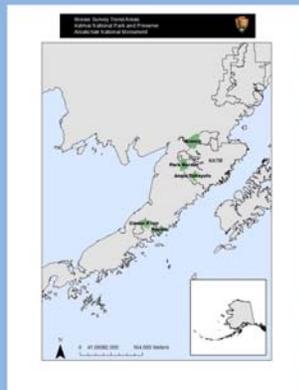
Moose herd found in Katmai National Park

## Objective

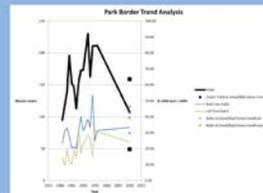
In 2010, a pilot study was conducted to evaluate a new protocol to also obtain density. Double-observer aerial surveys were used to collect group numbers, age/sex class, snow depth and coverage. The line-transect approach with two observers allows calculation of sightability, which traditional counts did not incorporate. Also, in 2010, multiple surveys were performed in the Park Border trend area to examine repeatability in different snow conditions and to compare to a count done with the traditional methodology. We hope to maintain continuity with the historical data while using the new approach to expand our knowledge base in poor snow years.

## Discussion

Surveys in established trend areas are conducted November through the first week of December, snow dependent. Trend area surveys on the Alaska Peninsula have been surveyed less consistently in recent years as weather conditions have been poor and snowfall sporadic. Initial testing with the new protocol indicated that future surveys needed to be done using the same pilot and experienced observer for the data to be comparable to historical data. During a survey effort, the transect is flown and animals that are seen are overflown to mark their locations. During these off-transect legs, additional animals are sighted that were not identified from the transect. The density estimation procedure only makes use of the animals identified from the transect, while the off-transect counts help to expand the total observed counts to make them comparable to the traditional trend area counts.



Records of moose trend area surveys for three areas associated with Katmai National Park and Preserve, with results from trial efforts of a new survey approach shown as unconnected points in 2010.



In 2010, survey efforts were conducted in the Park Border trend area three times in different weather conditions with two surveys performed by the KATM pilot with different observers and one survey was performed by ADFG. Chart totals for 2010 are based on the ADFG survey.



Moose herd in Katmai National Preserve

## Status

The ADFG objectives in areas that currently have moderate densities (0.5 – 1.5 moose/mi<sup>2</sup>) are to maintain those densities as well as a bull:cow ratio of no less than 25 bulls:100 cows and to increase low-density populations to 0.5 moose/mi<sup>2</sup>, with a bull:cow ratio to be at least 40 bulls:100 cows. Based on 2010 data, the Park Border trend area, had a density of 0.56 moose/mi<sup>2</sup> with a bull:cow ratio of 30 bulls:100 cows. Branch River had a bull:cow ratio of 64 bulls:100 cows. This area is heavily wooded and a density level could not be correlated. Angle-Takayofa was surveyed in poor snow conditions and few animals were seen. The ratio between bull:100Cows was 140 but only 42 moose were seen.



Bull Moose in Katmai National Park (KATM)