RESOURCE BRIEF 3

SMALL BUT STABLE MOOSE POPULATION IN YUKON-CHARLEY RIVERS

MOOSE MONITORING IN THE CENTRAL ALASKA NETWORK: YUKON-CHARLEY RIVERS

YUKON-CHARLEY RIVERS NATIONAL PRESERVE'S 6TH AND MOST RECENT MOOSE SURVEY WAS CONDUCTED IN THE FALL OF 2006. PARK SCIENTISTS FLEW OVER 841 SQUARE MILES, OR 151 SURVEY UNITS, AND COUNTED THE NUMBER OF MOOSE SEEN FROM THE AIR.

After a statistical analysis of the results, the verdict is in: though low in numbers, the population of moose in Yukon-Charley Rivers is stable.

Every three years, biologists monitor moose populations in Yukon-Charley Rivers National Preserve. Surveys are conducted by air over a 3000 square mile area in the Yukon River Valley between Eagle and Circle. All of the land in the study area is divided into 555 units that equal about 5.5 square miles each. Since the area is so vast, biologists survey a randomly selected group of units that equal about a quarter of the total study area. From this sampling of units, biologists are able to extrapolate with a high degree of certainty (90% reliability) population estimates for the entire 3000 square mile survey site.

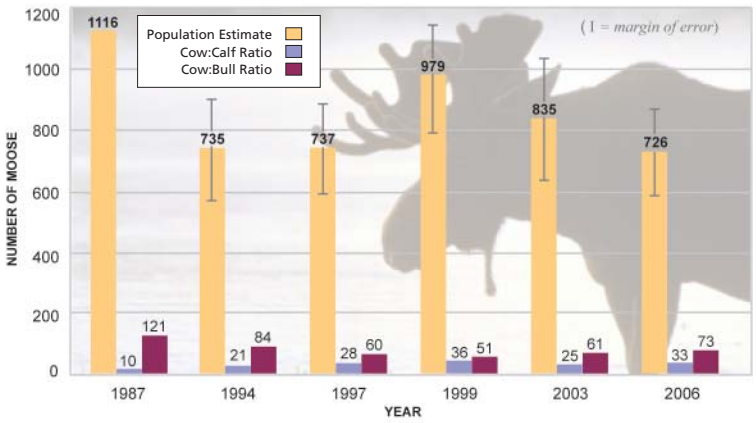
The total number of moose in Yukon-Charley Rivers for the fall of 2006 was 726, give or take about 140. This is roughly equal to about 1 moose for every 4 square miles of the preserve. Of the population, 37% were bulls, 48% were cows, and 15% were calves. When these numbers are compared to past survey results, it is evident that there is a low density but stable population of moose in Yukon-Charley Rivers National Preserve. Moose harvest numbers were stable as well.

29 moose were harvested within Yukon-Charley's boundaries in the fall of 2006. Over the past 20 years, bulls hunted in the preserve have averaged 26 per year. Because we know from monitoring that the bull to cow ratio is good and increasing slightly, it's unlikely that human harvest is having any detrimental affects on the population. Some Alaskan's believe this area can support many more moose than currently exist. Moose populations in this region are affected by predation from wolves and bears. Predator control throughout Alaska is controversial and has not been proven to increase moose and caribou numbers in most cases. If predator control surrounding Yukon-Charley Rivers does influence an increase in the number of moose, long-term success of the larger population is not known. No thorough studies have been conducted to measure the quantity and quality of food available for moose in Yukon-Charley Rivers National Preserve.

What do we want to understand about moose?

1. Determine changes in abundance, distribution, and composition of moose in each park every 3 years.
2. Estimate calf survival and recruitment success for moose in each park every 3 years.
3. Estimate annual human harvest of moose in the Central Alaska Network.

YUCH Moose Population Estimates 1987 - 2006



Why Are Moose Important?

Moose are strong indicators of ecosystem health because they require so much from the environment.

Moose (Alces alces), are of special interest to each of the parks in the Central Alaska Network. They are considered good indicators of long-term habitat change within park ecosystems because they require a large quantity of resources from their habitat year-round. As a result, populations have the potential to respond dramatically to changes in resource conditions. Moose are crucial to many subsistence communities as a primary source of food throughout most NPS parks in Alaska, in addition to being harvested by the general public on NPS preserve lands.

The Central Alaska Network has identified fauna (animal) distribution and abundance as one of its top 3 areas of interest. In general, the network wants to know where fauna are located across the landscape and to monitor change in their distribution and abundance. Moose will be monitored in each CAKN park every 3 years. In addition to answering monitoring questions, the data will provide insight into other research issues such as how change in plant communities or predator populations influences moose distribution and abundance.

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PARKS BEING MONITORED:

DENA: Denali National Park & Preserve

WRST: Wrangell-St. Elias National Park & Preserve

YUCH: Yukon-Charley Rivers National Preserve

How Are We Monitoring Moose?

Aerial surveys for moose take place as soon as adequate snow cover exists in the fall, usually late October for Denali and Wrangell-St. Elias and early to mid-November for Yukon-Charley Rivers. Surveys occur once every 3 years for each park on a rotational schedule. During surveys, biologists fly over a randomly selected group of units across the park and count moose seen from the air. From this sampling of units, a population estimate can be extrapolated for the park as a whole.

Monitoring of moose populations in the Central Alaska Network utilizes an aerial survey method developed by the Alaska Department of Fish and Game. The methodology, using a stratified random design, has been used by most agencies in Alaska and the Yukon as the standard for estimating moose populations over the past 20 years.

CENTRAL ALASKA NETWORK

USING SCIENCE TO PROTECT OUR PARKS

THE CENTRAL ALASKA NETWORK (CAKN) IS ONE OF 32 NATIONAL PARK SERVICE INVENTORY AND MONITORING NETWORKS. EACH NETWORK EXISTS AS PART OF A NATIONAL EFFORT TO BETTER UNDERSTAND AND MANAGE PARK LANDS USING SCIENCE-BASED INFORMATION.

In order to focus this effort, 270 national park units with significant natural resources were grouped into 32 regional networks.

The Central Alaska Network is made up of 3 parks: Denali National Park and Preserve, Wrangell-St. Elias National Park and Preserve, and Yukon-Charley Rivers National Preserve. Together, these 3 parks contain over 21.7 million acres and makeup 25% of all the land in the National Park Service. They represent a great diversity of climate and landform, from temperate coastal rainforests to glaciated mountain ranges. What they share in common are their largely wild and unaltered landscapes.

In order to track the condition of our parks, Central Alaska Network scientists have chosen 37 key indicators, or "vital signs," to represent the overall health of the network. Each vital sign falls into one of 4 categories: animal life, physical environment, human use, or plant life. Underlying these 4 vital sign categories is a focus on habitat change.

CAKN VITAL SIGNS:

Animals

- Arctic Ground Squirrel
- Bald Eagles
- Brown Bears
- Caribou
- Freshwater Fish
- Golden Eagles
- Macroinvertebrates
- Moose
- Passerines
- Peregrine Falcon
- Ptarmigan
- Sheep
- Small Mammals
- Snowshoe Hare
- Wolves

Environment

- Air Quality
- Climate
- Fire
- Flooding
- Glaciers
- Land Cover
- Permafrost
- Rivers & Streams
- Shallow Lakes
- Snow Pack
- Soundscape
- Tectonics & Volcanoes

Humans

- Human Population
- Human Presence
- Natural Resource Consumption
- Trails

Plants

- Exotic Species
- Forage Quantity/Quality
- Insect Damage
- Plant Phenology
- Subarctic Steppe
- Vegetation Structure/Composition