



Large Mammals... How many are there?

Exact counts aren't possible, but estimates and trends are – they help managers conserve natural populations of bears, wolves, caribou, moose, and sheep in Denali's wilderness landscape.



Rick McIntyre Photo

Animal Census 2000? A Word of Caution

With the exception of the road corridor and the front country around park facilities, Denali National Park and Preserve is more than 9,000 square miles of wild terrain. That's enough space for large animals to roam, rest, migrate, spar, sleep, avoid predators, browse, and do all the other things that large animals do in wild, unencumbered landscapes. Park wildlife biologists aren't able to knock on taiga and tundra doors and get the animals to fill out a census form. Grizzlies

and wolves did not participate in Census 2000. Innovative sampling techniques are used but the results are only estimates of population sizes. Therefore it's unrealistic to know *exactly* how many large mammals there are in Denali National Park and Preserve at any given time. Knowing about population *trends*, as well as about the quality and distribution of habitat for cover and food, is as important as knowing population size.

Estimates of Population Sizes

Aerial surveys are the primary means to estimate the size of large mammal populations. Imagine you're the trained observer counting wildlife while the pilot flies the small fixed-wing plane over standard survey routes. You might track signals from radiocollared animals to locate non-collared ones in the same group. Knowing the number of animals per square mile from your survey, and how much of the Park's suitable habitat you covered, you can estimate the population size for the entire Park.

Population sizes are often estimated separately on the north and south sides of the Alaska Range's inhospitable spine of rock and ice. The timing of surveys makes a big difference in population estimates. Wildlife biologists working in the park provide these estimates of population sizes for Denali's large mammals.

Grizzly Bear



Karen Ward Photo

On the north side of Alaska Range, there are approximately 300-350 grizzly bears. This number is based on densities determined using radiocollaring of bears south and west of Wonder Lake, then extrapolating to all grizzly bear habitat.

On the south side of Alaska Range, the density of grizzly bears is unknown at this time. However, a 3-year study to determine bear density on the south side was initiated in 2000. The south side bear habitat, which includes salmon streams, is likely to support a higher density of grizzlies than the north side.

Wolves

Wolf abundance is estimated twice a year based on the pack size and the home-range size of wolf packs in which one or more individuals are radiocollared. In October 2000, approximately 135 wolves in 23 packs inhabited Denali. In March 2001, Denali's wolf population numbered about 105 wolves. On the average, pups account for about 40% of the fall population estimate.

Black Bear



NPS Bear Management Photo

Observations indicate that there are black bears throughout the park particularly in forested areas.

However, no formal surveys have been conducted on the north side of the Alaska Range.

Black bear density on the south side of the Alaska Range will be determined by the survey work currently in progress. The south side includes areas where the habitat for black bears is particularly good.



NPS Photo

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Caribou



Tom Walker Photo

Caribou are surveyed annually. The parkwide estimate in Fall 2000 was approximately 1,700 caribou. The estimated sex-age structure was 1,200 cows (70%), 80 calves (5%), and 420 bulls (25%). For every 100 cows, there were 7 calves, and 35 bulls. Caribou numbers have declined over the last decade from about 3,200 animals in 1990.

Dall Sheep



NPS Photo

Parkwide there are approximately 2,500 Dall sheep (estimate from 1996). Population numbers may be different now. Future surveys are planned, pending the development of techniques in northwest Alaska parks.

Moose



Stephen Kraseman Photo

Moose surveys are attempted annually in Denali on the north side of the Alaska Range. However, these surveys can only be conducted between mid-October and late November and require complete snow cover throughout Denali. The last successful survey was in Fall 1999 when the population size was estimated to be 1,866 moose.

On average, in every 10 square miles (25.9 km²) of moose habitat, there were 6.7 moose. The estimated sex-age structure was 977 cows (52%), 215 calves (11.5%), and 674 bulls (36%). For every 100 cows, there were 22 calves and 69 bulls. Eighty percent of cows were without calves, 19% of cows had one calf, and 2% of cows had two calves.

On the south side of the Alaska Range, trend counts were made in the early 1990's at the Broad Pass and Yentna River areas. Information was gathered about age class and sex ratio, but no population estimates were made.

More About the Challenges of Counting

Even *estimates* of population size are difficult to obtain. The challenges of estimating how many bears, wolves, caribou, Dall sheep, or moose are in the Park include:

- Births and deaths cause fluctuations in numbers.
- Animals don't recognize the Park boundaries so numbers may fluctuate as animals travel.
- Estimates made in one part of the Park are extrapolated to other parts, assuming habitats are similar.

There are limits to the accuracy of those assumptions.

- Some population estimates are based on multi-year counts (each year in a different location), so estimates are ready only when all the counts are completed.
- Poor weather conditions (can't fly) or lack of snow cover (need white backdrop to see animals) makes sampling difficult in a particular year.

Conservation of Large Mammals in Denali

Population estimates are an important part of the information needed to conserve populations of large mammals in Denali. Surveys are conducted frequently enough to estimate population sizes and identify population trends. But wildlife researchers also collect data on animal movements,

productivity (number of young), survivorship, food preferences, and mate selection. Along with population trends, this information helps resource managers understand and manage these species in the Park. The goal is to maintain natural and healthy populations of wildlife.

For More Information



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When Denali was established in 1917 (as Mt. McKinley National Park), it was the first National Park to be established for the protection of wildlife, rather than for scenic beauty. Outstanding opportunities to view large mammals as a part of naturally functioning ecosystems will continue to be among the key values of Denali National Park and Preserve.