



Large Mammals...How many are there?



Exact counts of wildlife such as Dall's sheep aren't possible, but population sizes can be accurately estimated using tools such as surveys and radiotracking.

On the evening of June 24, 1926, at the head of Savage River, a flock of from 50 to 60 sheep was observed feeding along the lower edge of a melting snowbank.

—Joseph Dixon

Birds & Mammals of Mount McKinley National Park

With the exception of the road corridor and the area 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 sizes.

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

Photo Credit: Lucy Tyrrell



Wolf

Photo Credit: Gordon Haber



Caribou

Photo Credit: Lucy Tyrrell



Moose

How many large mammals do you see in each of the photos?

Grizzly Bear

On the north side of the 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 the Alaska Range, brown bear density is about 72 bears per 1000 mi² (28 bears per 1000 km²). Habitat south of the Alaska Range includes salmon streams and is likely to support a higher density of grizzlies than the north side.

Black Bear

Black bears have been observed throughout the park, particularly in forested areas. No formal surveys have been conducted north of the Alaska Range. The Alaska Department of Fish and Game estimates that there are about 2,700 black bears in Game Management Unit 16, or about 334 bears per 1000 mi² (131 bears per 1000 km²). Based on the proportion of GMU 16B that is in Denali National Park and Preserve, that translates to about 200 black bears in the Park and Preserve on the south side.

Wolves

In April 2008, there were approximately 97 wolves in the 18 packs being regularly monitored by park biologists. The estimated density of wolves in Denali (about 14 wolves per 1000 mi² or 5.5 wolves per 1000 km²) was very close to last year's estimate. As of April 1, 2008, 20 wolves in 18 packs in and around Denali wore conventional radio collars (tracked by plane) and another eight wolves carried GPS collars that determine the animal's location once per day, store the data, and upload it via satellite.

Caribou

Caribou are surveyed annually. The parkwide fall 2007 estimate for the Denali Caribou Herd was 2080 (compared to 2150 in 2006, 2050 in 2005, 2030 in 2004, 1810 in 2003, 1960 in 2002, and 3100 in 1990). During the last 4 years, calf:cow ratios and estimated calf numbers have averaged about 2x that of 1998-2003, while estimates of adult females are stable and bull numbers have increased slightly. Herd trend over the next few years will depend largely on whether the increases in calf recruitment continue.

Moose

Aerial moose surveys require complete snow cover and should be conducted between mid-October and late November. Denali now follows the monitoring protocols of the Central Alaska Network (CAKN). Moose surveys are scheduled for November 2008 and every three years thereafter for the northern part of the park. The last north side survey was conducted in 2004, when the estimate was 1104 moose in the 3862-mi² (10,002-km²) survey area. In 1999, the population estimate was 1,866 moose

for the same survey area. Additional surveys are planned for November 2008 in two areas south of the Alaska Range, the Cantwell area (as far south as the West Fork of the Chulitna River) and the upper Yentna River (Denali National Preserve, south portion).

Dall's Sheep

In July, Denali wildlife biologists hope to resurrect the tradition of periodic Dall's sheep surveys in Denali. Staff will conduct an aerial survey of all sheep habitat between the eastern park boundary and the Muldrow Glacier. Ground surveys may also be used to determine ram, ewe, and lamb counts. The last sheep survey in the park was in 1996 (estimates of 2,500 Dall's sheep parkwide).

More about the challenges of counting

Even estimates of population size are difficult to obtain. The challenges of estimating numbers of large mammals in the park include:

- Births and deaths cause fluctuations in numbers.
- Animals don't recognize the park boundaries so numbers may change as animals travel in and out of the park.
- Estimates made in one part of the park are extrapolated to other parts, assuming habitats are similar. There are limits to the accuracy of these 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.
- Sampling may be suspended when there is a lack of snow cover (to serve as a backdrop for seeing animals) or poor weather grounds aircraft.

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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