Central Alaska Network

National Park Service
U.S. Department of the Interior

Alaska Region
Inventory & Monitoring Program

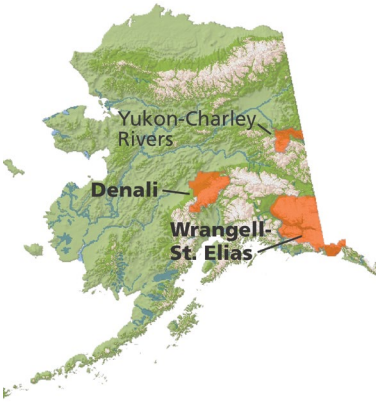
Denali NP & PRES • Wrangell-St. Elias NP & PRES • Yukon-Charley Rivers N PRES 2022



Caribou Resource Brief

A caribou and calf, Denali National Park & Preserve, NPS Photo.

The Status of Central Alaska Network Caribou in Denali National Park & Preserve



Map: Caribou are being monitored in 2 of 3 Central Alaska Network parks: Denali National Park & Preserve and Wrangell-St. Elias National Park & Preserve.

The preliminary herd size estimate for September 2022 was 1,510 caribou, a decrease from the 2021 estimate of 2,060. Productivity of cows ≥ 1 year old was estimated at 83.7% in mid-May 2022, based on 43 radio-collared females in the age-structured sample, greater than the long-term average from 1987-2021 of 77.8%. During the mid-June 2022 post-calving surveys, we noted 22 calves:100 cows; by the late September composition count that ratio had declined to 8:100. Based on these measures of calf production and survival, and accounting for adult female survival between mid-May and late September, fall calf survival was estimated at 10% for 2022 calves. For comparison, fall calf survival has averaged ~25% from 1986 - 2016, calf survival has been below average since 2018. For the third year in a row, cow mortality was notably high. During October 2021-September 2022, we estimated an annual mortality rate of 22% for adult females, notably greater than the long-term study average from 1986-2016 of 11%.



Caribou in spring, Denali National Park & Preserve, NPS Photo.

Why This Vital Sign Is Important

Caribou are one of six large mammal species in interior Alaska and are of great importance to these ecosystems and to people for both consumptive and non-consumptive uses. Denali National Park has been the site of continuous, intensive research on the Denali Caribou Herd since 1984, with systematic efforts to monitor this population stretching back over 70 years. This work provides an unmatched opportunity to investigate caribou populations where caribou and the large carnivores that prey on them are largely unaffected by human harvest.



Caribou on the Park Road, Denali National Park & Preserve, NPS Photo.

What We Want To Know About This Vital Sign

The key objectives for monitoring caribou are to determine changes in herd size, distribution, age structure, and adult survival with a focus on estimating calf survival and recruitment.

Specifically we aim to:

- Estimate the population size in late September.
- Determine age-specific calf production and herd productivity.
- Assess calf recruitment (calf:cow ratios) and adult sex ratios in late September.
- Determine adult female survival patterns and age structure.
- Determine trends over time for the above 4 population metrics.
- Document seasonal distribution of caribou throughout the year.

How We Monitor This Vital Sign

- Our approach involves monitoring a sample of radiocollared adult females that is representative of the herd's age structure. We assess the reproduction and survival of these individuals each year. We also use our ability to locate these collared animals to conduct annual counts and age/sex composition surveys of the entire herd.
- Young caribou are collared each year to recruit into the age-structured sample. We affix radiocollars, weigh, measure, and then release the animals.
- All collared females ≥ 2 years old are located in mid-May to determine if they are pregnant, not pregnant, had a calf or lost a calf in order to determine the reproductive status for all caribou cows in the sample.
- Surveys in late September provide information on how many calves have survived until the fall, and on adult sex ratios in the herd.
- Caribou are also radio-tracked 8 times a year to determine survivorship and seasonal distribution patterns, and to facilitate other surveys.
- We estimate herd size each year based by estimating cow numbers in early June and extrapolating that estimate to a fall herd size using summer survival rates of radiocollared females and fall age/sex composition ratios.

How Monitoring This Vital Sign Can Help Park Managers

Management of large carnivores and ungulates in Alaska and throughout North America engenders debate about the influences of predation on ungulate populations. Research on Denali's large carnivore - ungulate system serves as an important benchmark for comparison to hunted populations. Further, the caribou research and monitoring provide objective information on the status and long-term trends of the Denali Caribou Herd and understanding of the causes of population changes.

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https://www.nps.gov/dena/learn/nature/caribou.htm