# Arctic Network

National Park Service
U.S. Department of the Interior

Alaska Region
Inventory & Monitoring Program

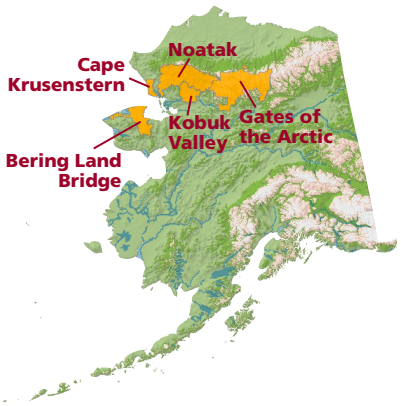
Bering Land Bridge N Pres. • Cape Krusenstern NM
Gates of the Arctic NP & Pres. • Kobuk Valley NP • Noatak N Pres.

April 2017



# Caribou Resource Brief

## The Status of Caribou in The Arctic Network




Caribou are being monitored in all 5 Arctic Network parks: Bering Land Bridge N Pres., Cape Krusenstern NM, Gates of the Arctic NP & Pres., Kobuk Valley NP, and Noatak N Pres.

National Park Service (NPS) monitoring of Western Arctic Herd (WAH) caribou began in 2009. Since that time, over 175 GPS (Global Positioning System) collars deployed in conjunction with the Alaska Department of Fish and Game (ADFG) collected well over 370,000 caribou locations. Collared caribou use all five Arctic Network (ARCN) parks. The WAH has increasingly used Bering Land Bridge National Preserve during winter. New analyses confirm lichens are important winter forage for WAH caribou. Spring migration takes the herd north through Kobuk Valley National Park and Noatak National to reach their calving grounds. Caribou cross the Kobuk River at the historic Onion Portage site each fall during their southward migration. Recently, the fall migration has been concentrated at the eastern end of the Noatak River, far from many large subsistence communities (Kotzebue, Noatak, Kiana, Selawik, and Noorvik). Caribou migrating further west encounter an industrial road, which delays migration of some caribou by a month. The herd walks about 3,100 km (1,900 miles) each year during its annual migration cycle – one of the longest migrations of any terrestrial animal. Additional studies and reports are available at: http://bit.ly/CaribouMonitoring, including an analysis of the effects of cow harvest on the trajectory of the herd.



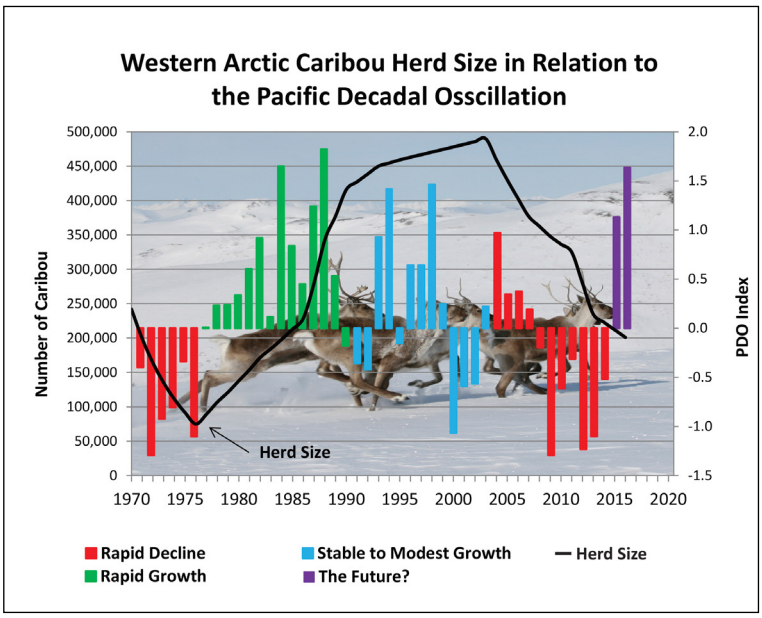




Images: (top) Caribou and the Waring Mountains, (left top) caribou and fall colors in Kobuk Valley NP, (left bottom) caribou during fall migration at sunset, (far right) wintering caribou near Bering Land Bridge N Pres.

## Why This Vital Sign Is Important

Many Alaska Natives in this region identify themselves as "caribou people". Caribou are ingrained in their history, traditions, and psyche. Approximately 15,000 caribou are harvested annually from the WAH by local rural residents living a subsistence lifestyle. Herd size naturally oscillates, which may be related to climatic cycles such as the Pacific Decadal Oscillation (see graphic). In 1976, the herd reached a population low of 75,000 animals. It quickly rebounded to become one of the largest herds in the world, nearing 500,000 animals in 2003. Since that time, it has steadily declined to 201,000 in 2016 resulting in restrictions in sport and subsistence harvests. Despite the decline, the WAH continues to have a significant role in the structure and function of ecosystems in northwest Alaska. The effect of the herd on its ecosystem is still not fully understood. A herd of this size can substantially affect its habitat, which covers all of northwest Alaska (over 360,000 km$^2$), its primary predators (wolves and grizzly bears), as well as a suite of other animals through cascading trophic effects. For example, decreasing abundance of caribou could lead to fewer wolves, which could impact the abundance of the foxes or beaver.




## What We Want To Know About This Vital Sign

Our goals are to monitor the movements, distribution and health of WAH caribou in ARCN parks. The timing and spatial pattern of the herd's migration is critical in the harvest of caribou by rural residents. Changes to these patterns may affect these subsistence users, the vitality of the herd, and the ecosystem as a whole.

**Objectives:**

- Radiocollar WAH caribou to maintain a sample size of 30-40 GPS collars.
- Obtain frequent (>2/day) location data via GPS-satellite telemetry.
- Define seasonal ranges (calving, insect relief, summer, winter).
- Define migratory routes.
- Detect changes in range distribution over time.
- Detect changes in adult survivorship over time.
- Detect changes in migration routes and movement phenology over time.

## How We Monitor This Vital Sign

Our primary tool for monitoring caribou is the GPS collar. Collars are deployed on adult, female caribou as they swim across the Kobuk River at Onion Portage within Kobuk Valley National Park. The collars record caribou locations and transmit the information via satellites to biologists. We use location data to define seasonal ranges, migration routes and timing, and survivorship of adult females.

## How Monitoring This Vital Sign Can Help Park Managers

The WAH is one of the most critical subsistence resources in northwest Alaska. Monitoring the herd helps develop subsistence and sport hunting regulations that conserve the resource, protect critical habitat, and reduce conflicts among user groups.

## Contact Information

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ARCN Caribou webpage:
http://bit.ly/CaribouMonitoring