



# Nelchina Caribou News

Like most large caribou herds, the Nelchina caribou herd (NCH) has experienced large population swings. This herd, however, is unique in that it spends summer and fall in a highly accessible and popular area of Alaska: Game Management Unit 13.

Unit 13 is located on the road system between the large population centers of Fairbanks, Matanuska-Susitna Valley, and Anchorage, and is an important hunting area to many Alaska residents.

Management of the NCH is uniquely challenging because of the popularity and accessibility of Unit 13. Managers aim to maintain the herd at or near the population objective and minimize NCH population fluctuations through hunter harvest.

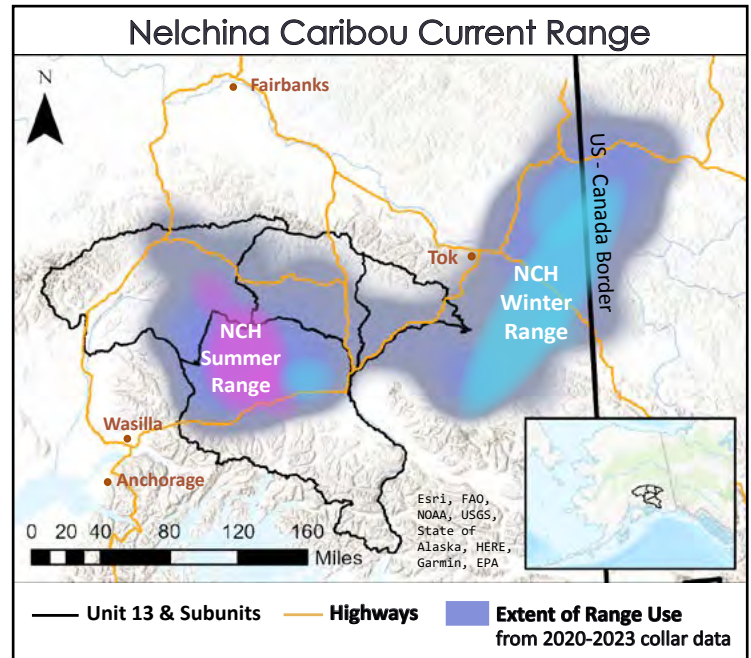
## 2023 hunt closures

On June 30, 2023, all state caribou hunts in Unit 13 closed by emergency order due to a decline in the NCH population.

Closed hunts include:

- Tier I (RC561/RC562)
- Community Subsistence Caribou Hunt (CC001)

This hunt cancellation releases all Tier I and CSH caribou permit holders and household members from the Unit 13 stipulations associated with their NCH permit. CSH Moose (CM300) hunters may hunt caribou outside of Unit 13 but remain bound by all other permit conditions.



## Monitoring the Nelchina herd

Each summer, biologists track radio and GPS-collared caribou regularly, waiting for them to group into post-calving aggregations. Large aggregations are counted using aircraft-mounted cameras. Smaller groups are counted by observers in aircraft, using hand-held digital cameras to document groups when necessary. These minimum counts have traditionally been used to monitor the **abundance** (number of caribou in the herd) through time. When caribou are well-aggregated a statistical analysis may be used to estimate how much larger the herd is compared to the minimum count.

Composition surveys are also conducted via helicopter to determine herd **composition** (ratio of bulls, cows, and calves in the herd).

## Newsletter highlights:

- Hunt closures
- Monitoring the Nelchina herd
- Concerns for herd health
- Road to Recovery
- Future of Nelchina caribou hunts

For more information, please visit or call the Glennallen ADF&G Office.

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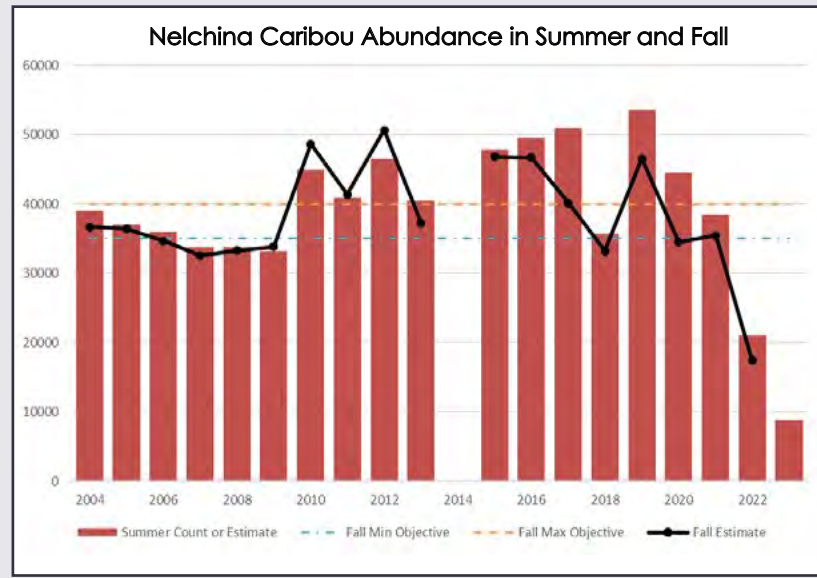
*Monitoring cont.*

Biologists monitor indices such as abundance, composition, **herd productivity** (number of cows that give birth), calf growth, use of winter range, and overwinter survival to assess herd health.

In 1996 the Alaska Board of Game set the current fall abundance objective of 35,000 – 40,000 caribou. The objective was derived by reviewing the history of herd abundance, nutritional metrics, and habitat condition data collected by biologists over decades of herd management.

**Concerns for herd health**

If a herd grows too large, nutritional resources on the landscape can be degraded and the herd may begin to exhibit signs of **nutritional limitations** (insufficient food to meet energetic needs). Nutritionally limited cows may not be able to bring a pregnancy to term, and calves that are successfully birthed can be smaller and less developed. Nutritionally limited cows produce less milk and the milk that is produced may be lower in quality which can limit calf growth. Smaller calves typically have lower survival rates compared to larger calves. In extreme cases, nutritional limitations can also reduce adult survival, especially if animals are not able to build enough energy reserves in the summer and fall to endure severe winter conditions, or if winter food resources are not sufficient. When winter food resources are limited, caribou may shift to new wintering areas. For the NCH, wintering areas have become increasingly variable in recent years.



*Concerns cont.*

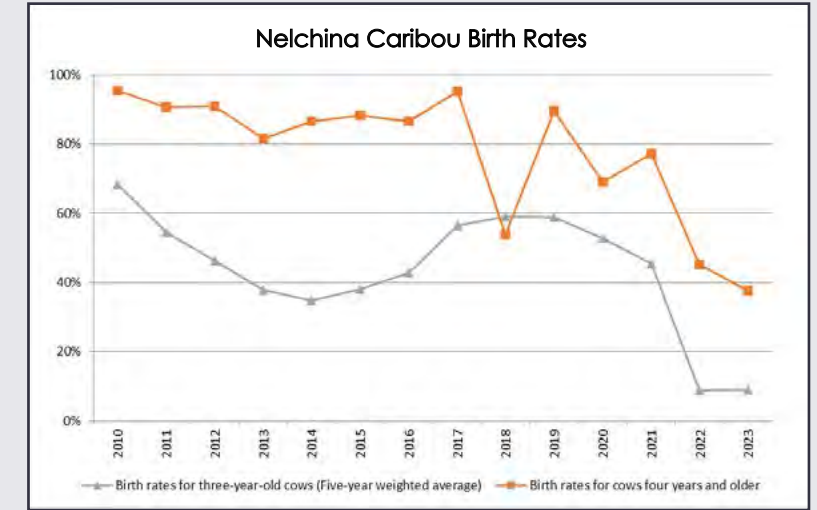
**Calf weights:** In the spring of 2022 and 2023, a combined sample of 22 newborn female calves weighed an average of 14.8 pounds and the lightest calf weighed 9.9 pounds. These weights are lower than the average weights during the last period of relative low herd abundance (1996–2003) when 207 newborns averaged 17.4 pounds. During that period, the lowest average female calf weights were in 2000 when 31 newborns averaged 15.4 pounds, and the lightest calf weighed 14.8 pounds.

The average weight of four-month-old female calves began to decline in 2014, dropping below the long-term average of 118 pounds in 2015 and declining to 112.7 pounds in 2019.

**Birth rates** can be used as an index for herd health. Three-year-old cows in a healthy herd will typically have a five-year weighted birth rate above 55%, but this metric has declined in the NCH since 2019.

The birth rate for NCH cows four years old and older has declined since 2017.

The recent decline in NCH abundance was driven by two severe winter seasons, but ADF&G biologists hypothesize that density-dependent factors such as nutritional limitations may have contributed to the severity of the decline. *See timeline below.*



**Winter 2021–22**

Severe winter followed by a late spring coincided with late migration and a late calving period for the herd. Overwinter mortality of adults and calves was high, resulting in a population decline and low **recruitment rate** (percentage of calves that survive greater than one year) of 2021 calves into the population.

**Fall Hunt 2022**

Based on summer composition surveys, a limited number of bulls were available for harvest and state hunts were held with bull-only bag limits and limited quotas for each hunt. The fall population estimate was 17,433 with a ratio of 26 bulls per 100 cows, and a ratio of 16 calves per 100 cows. All winter state hunts were closed. Federal subsistence hunts remained open allowing for continued take of cow and bull caribou.

**Winter 2022–23**

Deep snow occurred again in the winter of 2022–23, as well as another late spring, late migration, and late calving period. Winter mortality of adult cows was relatively high for the second winter in a row. Only two of the 15 collared calves survived to the end of the winter.

**Summer 2023**

Survey efforts in July 2023 resulted in a minimum count of 7,384 caribou with a total abundance estimate of 8,823 caribou. With abundance below objectives and a bull-to-cow ratio of 23 bulls per 100 cows there is no harvestable surplus of Nelchina caribou for the 2023/24 hunting season.



2021–2023 Timeline: Challenging migration conditions, severe winters, and nutritional limitations may have been factors in the recent NCH decline.

**Summer 2022**

In the spring of 2022, monitoring efforts on the calving grounds suggested that productivity and newborn calf survival was low. The summer composition survey observed 31 calves per 100 cows compared to the previous 3 year average of 52 calves per 100 cows. The summer 2022 estimate for the NCH was approximately 21,000 caribou, well below the 35,000–40,000 objective.

**Fall Migration 2022**

The 2022 NCH fall migration coincided with swollen creeks and rivers that were difficult to cross and up to 18 inches of snow fell along the migration route. Roughly half of the 15 collared calves of the year, representing the already small 2022 cohort, did not survive the fall migration.

**Spring 2023**

Conditions on the calving grounds in spring of 2023 were poor, with low productivity and low neonate survival. The calf-to-cow ratio observed in the 2023 summer composition survey was 13 calves per 100 cows, the lowest recorded for the NCH. The very small 2021, 2022, and 2023 cohorts will impact future productivity of the herd.

**Fall 2023**

The herd is below the abundance objective of 35,000–40,000 caribou, and will remain below objectives in RY23. There is no anticipated harvestable surplus. All state caribou hunts in Unit 13 closed by Emergency Order on 6/30/2023. The Federal Subsistence Board closed the fall 2023 federal hunts on 7/26/2023 and may close the winter hunt through a Temporary Special Action.



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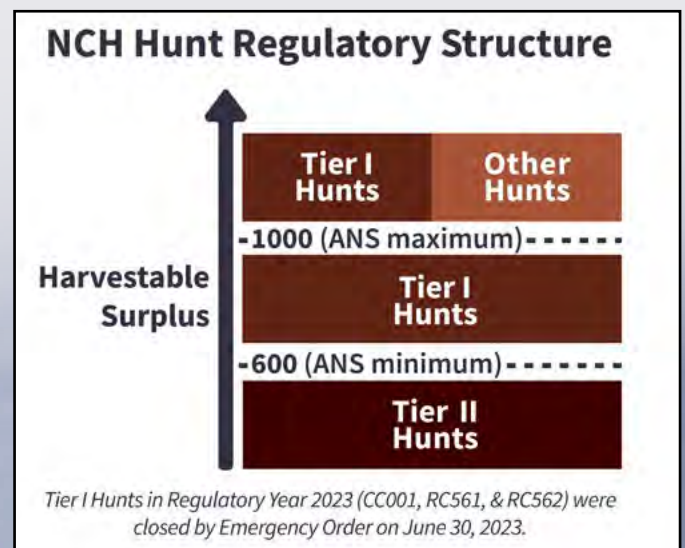
## Road to recovery

With the Nelchina caribou herd's current low abundance, combined with low recruitment in recent years, there may be a long recovery period as the herd builds back up toward objectives. The NCH last experienced a long recovery period in the 1970s and 80s, and a similar recovery period of up to 15 years could be ahead of us. During this recovery it will be important to protect cows from harvest, as they represent the reproductive potential of the herd. This recovery period will allow forage on the range to recover if it has been negatively impacted by caribou use. Wolf control is intermittently conducted in Unit 13 for the intensive management of moose, and these efforts will benefit the NCH on the calving grounds and summer range. Brown bear studies in and near the calving area have shown an overall decline in brown bear abundance since 1998. Caribou recovery will likely benefit from lower brown bear densities. Biologists are working to assess current range conditions, and will continue to watch for signs of herd recovery by tracking caribou winter mortality, productivity, and calf survival.

## Future of Nelchina caribou hunts

State hunts will not open until there is an anticipated **harvestable surplus** (quantity of caribou that can be harvested without affecting long-term abundance). ADF&G will continue to request that federal hunt administrators close federal hunts when there is no harvestable surplus. When a harvestable surplus does exist, state hunt opportunity will likely be bulls-only to protect the reproductive potential of the herd while it grows toward the lower end of the population objective (35,000 caribou). If the harvestable surplus is below the minimum **ANS** (Amount Reasonably Necessary for Subsistence Uses: a quantity determined by the Board of Game), state hunt opportunity will be offered through the Tier II system.

Tier II permits are used when it is anticipated that a reasonable opportunity to engage in subsistence use cannot be provided to all eligible residents who wish to participate. Applications for Tier II permits are scored on two factors: the applicant's customary and direct dependence on the game population for human consumption as a mainstay of livelihood, and the ability of a subsistence user to obtain food if subsistence use is restricted or eliminated.



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Learn more about  
 Tier II hunts