Caribou Trails

News from the Western Arctic Caribou Herd Working Group

Summer 2021 Issue 21

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Herd remains at 'conservative declining'

Alaska's largest caribou herd continues to show mixed signals: calf survival is steady but the death rate of adult cows remains high. At the December 2020 annual meeting, the Western Arctic Caribou Herd Working Group (WACH WG) chose to keep the herd management status at "conservative declining." This is the same management level as 2019-2020, which recommends a voluntary reduction in calf and cow harvest. The key herd indicators below – are the main factors in deciding herd status.

What are the key indicators of herd status?
Biologists use a combination of surveys and data collection to monitor the Western Arctic Herd (WAH) throughout the year. Comparing annual data to findings from previous years enables biologists to project if the herd will grow, decline, or remain stable. The latest findings for the WAH are below.

Number of Caribou: Photocensuses take place to track changes in herd numbers. The most recent photocensus took place in July of 2019. Alaska Department of Fish and Game (ADF&G) biologists estimated the WAH population to be at 244,000. ADF&G will attempt to conduct the next census during the summer of 2021.

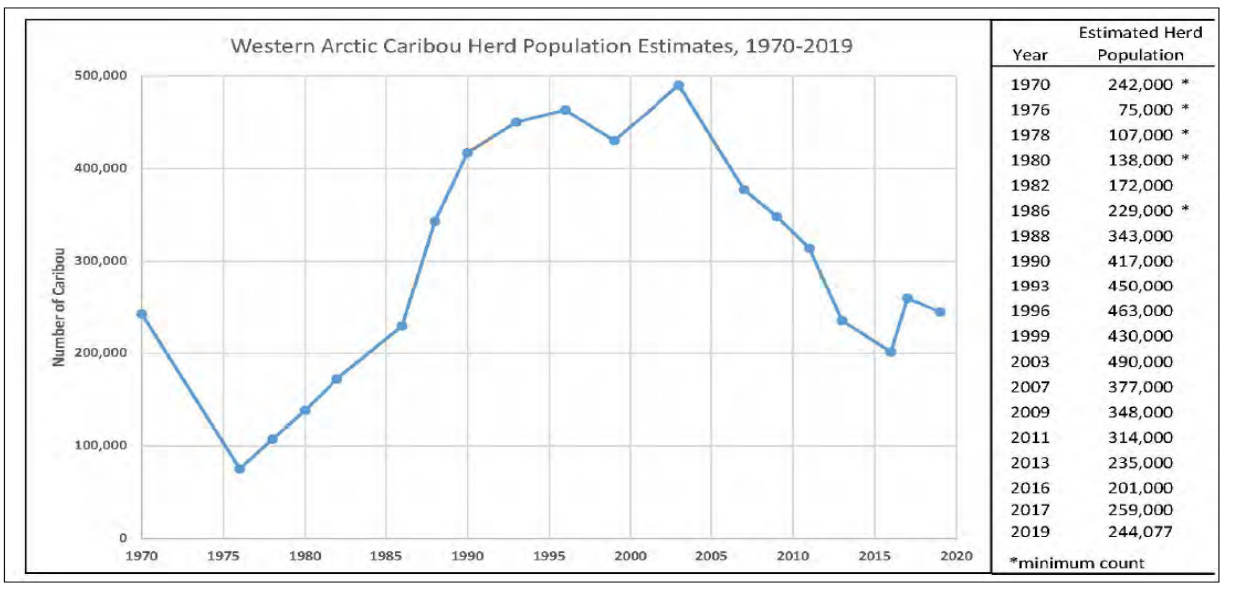
Over the past four years, the population has been at or around the herd's minimum population objective of 200,000. A successful census this summer will provide an update on the number of caribou in the WAH. The results of this survey will be available later this year. To learn more about the photocensus process, turn to page 11.

Deaths of Adult Cows: For the past three years, the adult cow death rate (mortality) has been higher than average, this is a concern. Adult female caribou are a major factor in the health and growth of a herd because they produce and nurture the next generation of the herd. The herd's long-term annual average for adult cow mortality is 18%. Growth is unlikely when adult cow mortality rates are between 12 and 20%, and a decline becomes more likely when rates are above 20%. In 2019-2020, adult cow mortality was 25% of collared cows; this high rate would suggest a decline since the last survey.

Number of calves in the population: The number of calves being born each spring shows that a high number of cows are in good health and are reproducing. Of those calves being born, from 2017-2019 an average of 37% survived their first winter. This is relatively high compared to many other herds in Alaska. In addition, the number of calves observed in late winter has been above average for the past five years. These are all signs that the number of calves being born and surviving might be offsetting some of the high adult cow mortality that is taking place. For more on calf survival, turn to page 3.

Biologists will continue to closely watch the status of the herd. Information from harvest reports, subsistence surveys, and research projects provide biologists with valuable information to understand how caribou populations are changing.

You can learn more about management levels in the Working Group's management plan at *westernarcticcaribou.net/herd-management/*



Year	Estimated Herd Population
1970	242,000 *
1976	75,000 *
1978	107,000 *
1980	138,000 *
1982	172,000
1986	229,000 *
1988	343,000
1990	417,000
1993	450,000
1996	463,000
1999	430,000
2003	490,000
2007	377,000
2009	348,000
2011	314,000
2013	235,000
2016	201,000
2017	259,000
2019	244,077

*minimum count

NOTE: Some of these population points are minimum counts (see asterisks), and others are based on Rivest modeling. For more details on estimates, including confidence intervals, see Dau 2015.

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QUYANNA

The Western Arctic Caribou Herd Working Group would like to say a big QUYANNA to those who take time to fill out Caribou Registration Permits RC907 (Units 23 and 26A) and RC800 (Unit 22). Permits provide valuable information on harvest, behavior, and caribou distribution. By providing this information you are helping biologists better understand the caribou to support hunting now and for future generations.

Updates from the Working Group Meeting

In memory of Joseph Ballot

Joseph Ballot of Selawik passed away in August 2020. Mr. Ballot was an early chairman of the Working Group, from 2000 to 2002. His impact as a leader was crucial to helping steer the process of crafting the first Working Group-approved management plan for the Western Arctic Caribou Herd. Mr. Ballot served his community and region over many decades in a variety of roles, including as a pastor, president of NANA Development Corporation, and 3rd Battalion Commander of the Alaska National Guard in addition to his participation in the Working Group.

Photo courtesy Ballot family

In memory of Ron Moto Sr.

Ron Moto Sr. of Deering passed away in January 2021. Mr. Moto was a long-serving member of the Working Group representing the communities of Deering, Buckland and Selawik. According to long-time ADF&G biologist Jim Dau, "Ron joined the Working Group immediately after we developed the structure of voting representatives." Former ADF&G educator Meghan Nedwick noted "I will always remember Ron for his leadership, humor and good common sense while working with him on the WACH WG."

Photo from 2019 WACH WG meeting

Working Group Meeting Highlights

There are currently 20 seats on the Western Arctic Caribou Herd Working Group (WACH WG) which are made up of community members from within the Western Arctic Herd range, representatives from reindeer herders, Alaskan hunters, hunting guides, transporters, and conservationists. In December 2020, the working group met by teleconference with management agencies to discuss the current status of the WAH, proposed development within the herd's range and updates on research projects.

Key points of the meeting included:

Status of the herd
WAH population has declined, but not at a rapid rate. At the December 8, 2020 meeting, the WACH Technical Committee recommended to the Working Group that the Western Arctic Herd be considered "Conservative, Declining" as defined by the 2019 Western Arctic Caribou Herd Cooperative Management Plan found at *westernarcticcaribou.net/herd-management*

This is the same designation that was given to the Western Arctic Herd at the 2019 Working Group meeting. The Technical Committee believes this designation to be appropriate given the small decline from 2017 to 2019, the last photocensus taking place in 2019, and lower than average adult cow survival. The motion to designate the WAH as "Conservative, Declining" carried unanimously by the Working Group.

Proposed development
The Working Group's Executive Committee will work with the Resource Development Committee to submit letters if there are opportunities to comment to the Bureau of Land Management (BLM) regarding oil and gas leasing in the NPR-A on the calving grounds and regarding the Ambler Road project. See page 5 for more information on proposed development within the range of the herd.

Federal Subsistence Board
The Working Group supported submitting a proposal to the Federal Subsistence Board to allow calf harvest on federal lands on the Seward Peninsula in Unit 22. The the proposal was submitted this spring and will be reviewed this fall. For current Federal Subsistence Management Regulation visit *doi.gov/subsistence/wildlife* and for current Alaska Hunting Regulations visit *adfg.alaska.gov*

For the latest updates on the Working Group visit *westernarcticcaribou.net*

Ron will be missed in the working group and we would like send our condolences to the families of Joe Ballot and Ron Moto. Taikuu for their service!!

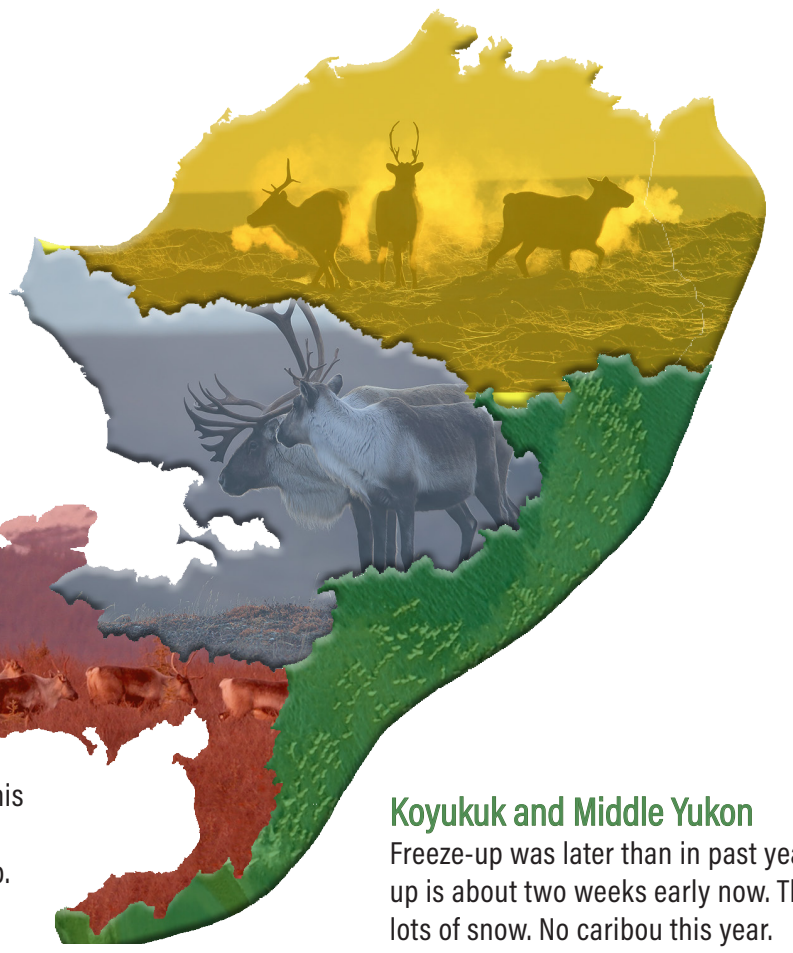
-Vern Cleveland,Chair

Caribou in your Region

Each year, members of the Western Arctic Caribou Herd Working Group share their observations during the "Caribou Round Table." Below is a summary of the 2020 discussion.

North Slope
It has been a normal year with lots of snow and cold temperatures. The North slope communities have been hunting caribou all throughout winter. The Western Arctic Caribou Herd was in Anaktuvuk Pass then moved south.

NANA Region
Freeze up very late. Getting later and later. Break up is earlier and earlier every year. Ice is thin does not get thick anymore. We seem to be seeing smaller and smaller bunches of caribou cross here and there, compared to the large herds of 50 or so that crossed the river 20+ years ago.



Seward Peninsula
Rivers are staying open much later. Less frequent migration routes in this area. The past years, caribou were scatted in the area in a larger group. Caribou have been lean that the hunters have harvested.

Koyukuk and Middle Yukon
Freeze-up was later than in past years. Break-up is about two weeks early now. There was lots of snow. No caribou this year.

Caribou updates

Calf survival study

Caribou calves are born to move. Within minutes of birth, they are walking and within hours, they are on the run keeping up with their mothers and the herd. These calves are the newest members of the herd and biologists have long sought to understand what part of the first year of life determines if and how long they will survive.

From 2017 to 2019, a calf survival study took place in the WAH range. Each year, 70 plus radio-collars were put on caribou calves to determine how many calves survive their first year and to better understand the causes of deaths on the calving grounds.

Caribou calves are collared when they are one to two days old. Once a collar is placed on a calf, they are monitored through radiotracking until the next calving season the following year. According to ADF&G biologist Alex Hansen, "putting out the collars and keeping track of the calves for the first few weeks was the easy part, after that, they really spread out making it challenging to keep tabs on them all."

Unlike GPS collars used on adult caribou, the tiny calf collars are VHF only and have to be located using aircraft. During the study, many hours were spent flying to track the collared calves. If a collar stops moving for a set amount of time the sound of the transmission will change to a mortality signal. When a mortality signal is heard, biologists travel to the location of the collar. Evidence and clues left behind such as placement of the carcass, animal tracks, scat, feathers, and hair are used to determine the cause of death.

During the first year of the study on the calving grounds, predation was a contributing factor in calf mortality. Out of 78 collared calves, ten were killed by brown bears and three by golden eagles. Interestingly, the following two years of the study told a very different story; a single calf was killed by a brown bear in 2018 and there were no recorded predation events in 2019. One possible explanation for this is that the calves were collared slightly farther to the southeast during the first year, which overlaps more with brown bear home ranges. Other causes of death that were observed during the study were birth defects, dehydration, drowning, and abandonment.

> Surviving until your first birthday as a caribou calf is no easy task.

Surviving until your first birthday as a caribou calf is no easy task. Over the three-year study the results varied more than expected. Calf survival was high during the first week of life at 86 percent surviving. On average, the survival rate through the first year of WAH calves was 37 percent. This was within the range expected by biologists and higher than that of the nearby Teshekpuk herd, which had a 28 percent survival rate during a similar study that took place between 2012 to 2014.

This calf survival study has reinforced the importance of the calving grounds. It seems clear that the calving grounds provided a sanctuary from predators during this sensitive period in the yearly cycle of the WAH.

Shift in caribou collaring

For almost forty years, ADF&G biologists have gone to Onion Portage on the Kobuk River each fall to deploy radio collars on caribou. Since the early 1990s federal agency staff and students from schools within the range of the WAH have accompanied state biologists to work on this project. As caribou swim the river, a boat drives alongside a chosen group where biologists and students hold on to an adult caribou, place a collar on, take a blood sample and record its body condition.

As caribou fall migrations have shifted, the caribou collaring program at Onion Portage has become much less reliable. In the past four years, only 2019 yielded decent results, with 49 collars deployed. The other three years only had a total of 7 collars deployed (2017 = 4 collars; 2018 = 3; 2019 = 49; 2020 = 0). Without the ability to consistently get collars out at Onion Portage, biologists are faced with an ongoing challenge and have sought out other methods.

The region presents few other good options for boat-based collaring. A suitable spot needs a good lookout point and a wide, deep river channel for effective capture of swimming animals. Because there is no other reliable location for boat captures, helicopter collaring is becoming a more reasonable option. From helicopters, biologists can either use net-guns or chemical immobilization darts to capture caribou.

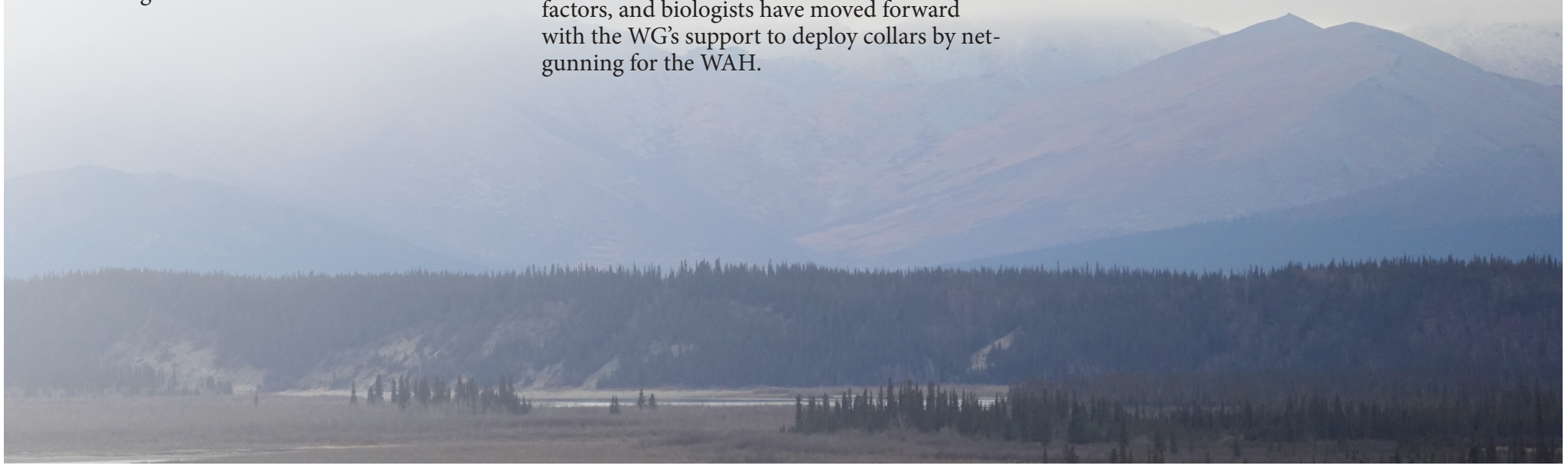
Net-gunning has the advantage of being drug-free but is more dangerous for the human crews and can have a slightly higher rate of caribou injuries. Chemical immobilization darts are a good option, used in many parts of the state, but the chemicals may stay in the caribou's system for a short period of time, raising concerns if caribou are harvested shortly after collaring.

At the Working Group meeting caribou users and biologists had a good discussion of these factors, and biologists have moved forward with the WG's support to deploy collars by net-gunning for the WAH.

This past spring 54 new collars were put out on caribou by net-gun. Alex Hansen, Caribou Biologist with the ADF&G in Kotzebue, said "the captures were very successful. The caribou appeared to be in good body condition." Hansen added that "this collaring method will likely be used again in coming years unless river capture becomes feasible again." This successful effort should set the stage for a successful photocensus caribou count this summer.

Turn to page 6 for more on caribou collars.

> As caribou fall migrations have shifted, the caribou collaring program at Onion Portage has become much less reliable.



Caribou Harvest

Have questions on how caribou are doing?

RC907 and RC800 can help!

Registration permits collect information provided by hunters to understand the time of year, type, access to and amount of harvest. Information from hunters helps answer questions about the population, subsistence needs, and herd movements. Knowing the number of animals harvested, time of year, type of hunt, access to animals and amount of harvest is important information to help guide the public, advisory committees, managers, and the Alaska Board of Game.

If years are difficult with harsh winters, delayed spring, or disease, RC907 and RC800 permits give the ability to monitor short-term changes in harvest to ensure that the herd is not losing caribou faster than it can replenish them. Being able to take a closer look at harvest helps monitor the WAH successfully.

Registration permits are available for free online www.adfg.alaska.gov, at ADF&G offices and local license vendors.

Thank you for reporting by July 15 –even if you did not harvest or hunt.

Subsistence Surveys and Interviews

Local and traditional knowledge provides many valuable insights for caribou management and we thank you for sharing your knowledge with us. The ADF&G Division of Subsistence staff look forward to interviewing more people during 2021 and 2022.

Project Updates:
This spring, the Division of Subsistence has been remotely conducting harvest surveys for the 2020-2021 study year in four communities in Units 22 and 23. These survey efforts could not have been successful without the participation and involvement from the Native Villages of Deering, Kobuk, Noatak, and Shishmaref, along with the local research assistants and residents in those communities. The Division researchers would like to say taikuu to all of those who participated in the project. ADF&G Subsistence staff plan to follow up with the ethnographic interviewing component of this project in the coming fall and winter when it is safe to travel to communities. Interviews are intended to further document local knowledge and observations about the herd; in addition to other concerns local subsistence users may have.

The Division of Subsistence would also like to inform interested parties that the annual WAH subsistence harvest monitoring project, which began in 1999, will not be publishing annual reports for the study years beyond 2017-2018. Data for years 2018-2023 will be published in a larger report and will include traditional and local knowledge from interviews conducted in study communities in addition to harvest data. Anyone needing access to harvest data before this report is published can contact the Division of Subsistence in Fairbanks.

What people are seeing:

Caribou migration routes are changing and fall migration is delayed. In some communities, caribou used to arrive before bulls entered rut, but now that fall migration is occurring later, bulls are often already in rut by the time they arrive.

"You know, waiting for caribou, and caribou should be here. Coming from up the north. But lately they've been about a month or so behind. We'd seen some in September and early October. Now it's kind of late November now, we see, I guess we seen a few. It's been later and later for whatever reason. Climate change and, yeah their route…We used to always go looking for bulls. Now by the time they come we're looking for, we have to look for females."
-Buckland interview, 2019

Changes have negative effects on subsistence users and cause hunters to travel farther in pursuit of caribou because of the delay.

"In fall 2017 many people got skunked, wondering why they were late, went out every day. Many people from the Kobuk River villages waiting and waiting. Used so much gas to try and harvest."
-Noorvik interview, 2018

Hunters must travel farther for caribou when caribou do not move to the southern extent of the winter range.

"We end up having to call our buddies that are further, and further away to where the caribou go by you know. I mean the first time we had to do that this year [in 2019]. Even the Elim people all went to Buckland to go get their caribou. So, it's different this year."
-White Mountain interview, 2019

"They were either by Buckland or up by Shishmaref area, yeah, those were, you got to go one way or the other." *-White Mountain interview , 2019*

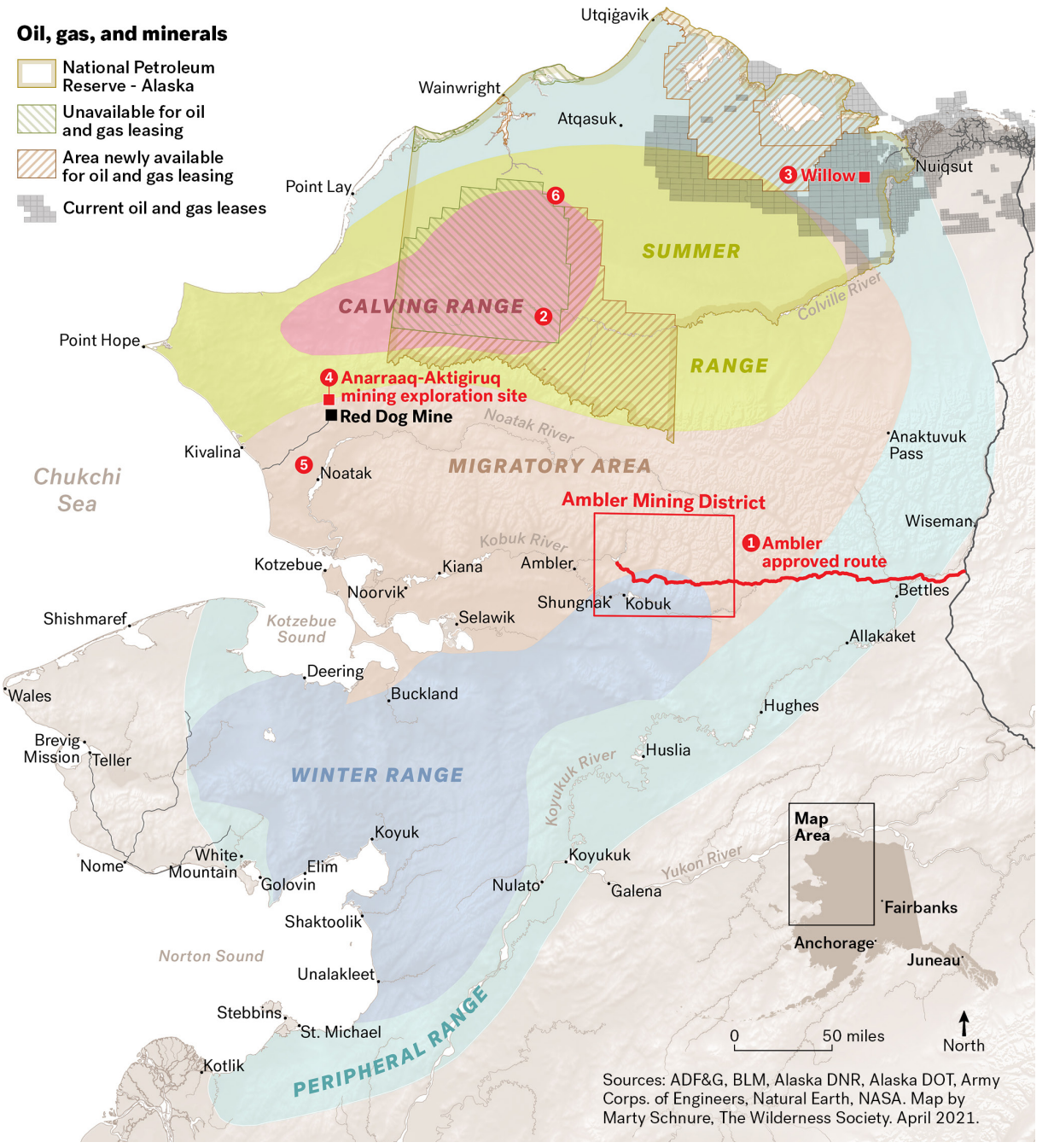
Proposed Development in the Range

1. Ambler Road Project
In 2020, the Bureau of Land Management (BLM) approved permits for constructing the Ambler Road along the northern route. A right-of-way agreement was signed in January 2021, but two lawsuits objecting to the permits are pending by the Tanana Chiefs Conference and conservation organizations. If completed, the road would cover over 200 miles between the proposed Ambler Mining District and the Dalton Highway, crossing WAH migration and winter areas. The Working Group opposed the project in comments on the draft Environmental Impact Statement in 2019 and voted in 2020 to submit another letter reiterating the group's opposition.

2. National Petroleum Reserve in Alaska Integrated Activity Plan Revision
The BLM finalized a new Integrated Activity Plan (IAP) in 2020 that altered land use within the National Petroleum Reserve in Alaska (NPR-A). The Working Group asked BLM to maintain existing protections for calving grounds and other important habitat for the WAH and Teshekpuk Caribou Herd. Instead, the new IAP greatly reduces restrictions on oil and gas leasing and development for both herds.

3. Willow Master Development Plan
BLM approved this project in 2020. It will expand development west in the NPR-A, closer to core Teshekpuk Herd calving areas than existing NPR-A developments in the Alpine and Greater Mooses Tooth units. Gravel mining was proposed but is currently on hold.

4. Red Dog Mine
Plans for exploration of the Anarraaq – Aktigiruq mineral deposits about 8 miles north of the current Red Dog Mine are on hold as the applicant reevaluates its plans. The Working Group is keeping an eye on future proposals.



5. **Noatak – Red Dog Road** -Alaska Department of Transportation and Public Facilities is considering four alternatives for a gravel road between the Red Dog road and the village of Noatak. You can provide input at *www.noatakpel.org/survey.html.* The Working Group submitted comments in 2019 that urged avoiding negative impacts to caribou and their users but has not taken a formal position on the project.

6. Arctic Strategic Transportation and Resources-This project seeks to develop plans to support the creation of roads and other infrastructure between communities and resource development areas on the North Slope. It is still in the planning and analysis stages, and no concrete proposals have been made. The Working Group is paying close attention as previous maps showed roads through WAH calving grounds.

Comment Writing

How to provide good comments on proposed projects or land management plans

Do research, stay informed

- Attend in-person or on-line meetings or read project documents to learn more about the proposal and alternatives
- Feel welcome to call or email agency staff if you have questions or would like more information about a proposed project or management plan

Be specific

- Statements of support or opposition are not enough; identify a particular problem and recommend solutions or additional ideas
- Refer to specific parts of the proposal document by section or page number when possible
- Provide detailed information to support your comments based on your experiences, perspectives, Traditional Knowledge, scientific understanding, and/or cited sources

Make it unique

- Identical comments, including form letters or emails, often count as one comment so make your comments stand out and constructive to the process

For more information, see the Bureau of Land Management's guide to "How to make a Substantiative Comment" at blm.gov

Caribou Movements

Changes in Caribou Movements

The Western Arctic Herd (WAH) occupies roughly 157,000 sq. miles in northwestern Alaska and at times has provided harvest opportunity for nearly 40 communities that live within its range. In recent years as caribou populations have shifted, hunters and biologists are seeing changes in how far caribou are going, where they are spending their time, and when they are making their seasonal migrations.

Recent observations and collar data show the WAH is moving less than in previous years –covering about 1,577 miles per year. In comparison, a decade ago some WAH caribou would travel over 2,735 miles. WAH caribou still have one of the longest land-based migrations in the world, yet the current distances that are being traveled are the lowest amount so far recorded for this herd. It is also the sixth year in a row in which the distance traveled by collared animals have been shorter.

One of the biggest changes in caribou movements is where they are spending winter months. Just five years ago, nearly 75 percent of collared caribou overwintered on the western side of the Seward Peninsula. However, not a single collared caribou has traveled there since the winter of 2018-2019. The majority of caribou are now wintering further to the north and east.

Annual wintering areas makes a significance difference for caribou hunters because it determines the distance and path of fall migrations. Besides becoming shorter, fall migrations are also occurring later. In the early 2010s, collared caribou would start to cross the Kobuk River in late August, with most of the animals crossing by October 10th. Starting in 2017, the crossings have been closer to the end of October or into November–this is later than has ever been documented. In 2020, the first collared caribou did not cross the Kobuk River until the beginning of November, a full two months later than when they would cross 10 years ago. For communities that typically harvest caribou during the fall migration, this has been a real challenge.

How have caribou movements changed over time?
Traditional knowledge and recent research tell us that WAH caribou have calved in the Utukok uplands, east of Point Lay, for at least 100 years. This area of the Utukok and Colville Rivers is crucial for the WAH and shifts little from year to year. Twice a year, caribou journey between their summer and winter range. A variety of factors influence the timing and route of their migrations. In the fall, they are largely driven by the availability to lichen-rich areas. Lichens makeup over 70 percent of the WAH caribou diet during winter and over time areas can be grazed down. Caribou must move to other ranges to find lichen since they are slow to replenish and can take 20-25 years to regrow following grazing.

When the first radio collars came into use in the 1970s, wintering caribou were typically located in the Kobuk, Selawik and Buckland drainages. Starting in the mid-1980s, the Nulato Hills became the most frequently used wintering area, with the Kobuk and Selawik River areas still remaining important. By the mid-1990s, caribou movement patterns gradually shifted toward the Seward Peninsula, which was the prime wintering ground by the early 2010s. During each of these eras, while a certain area was seeing the heaviest use, smaller numbers of caribou could still be found in most parts of the range. Only the coastal plain and foothills of the North Slope, and the Noatak drainage, were infrequently used with less than 15% of the collared caribou in any given winter.

Since the winter of 2018-19, the central Brooks Range, coastal plain of the North Slope, Nulato Hills and the Kobuk, Selawik and Noatak River drainages have seen increasing presence of wintering caribou.

As wintering locations have shifted, some communities have had increased access to caribou at times, while others have largely been missed. It is difficult to predict which of these areas might turn out to be most frequently used in the years to come, but it does seem clear that when a herd as large as the Western Arctic Herd is roaming across the landscape, no winter destination can remain heavily used forever.

Frank Quñuyuk Berry, Sr. Selawik Elder

It was only in the winter when people hunted for caribou. Long ago they us to go way north to hunt. They also us to hunt near Kiana. They were gone f however long they needed to be.
-From Uqausriptigun
In our own words by Selawik Elders

Daniel Sipahk Foster, Selawik E

The caribou were far. In the e
our fathers went hunting pas
They would be gone for weel
That's how far the caribou w
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fall time,the caribou didn't m
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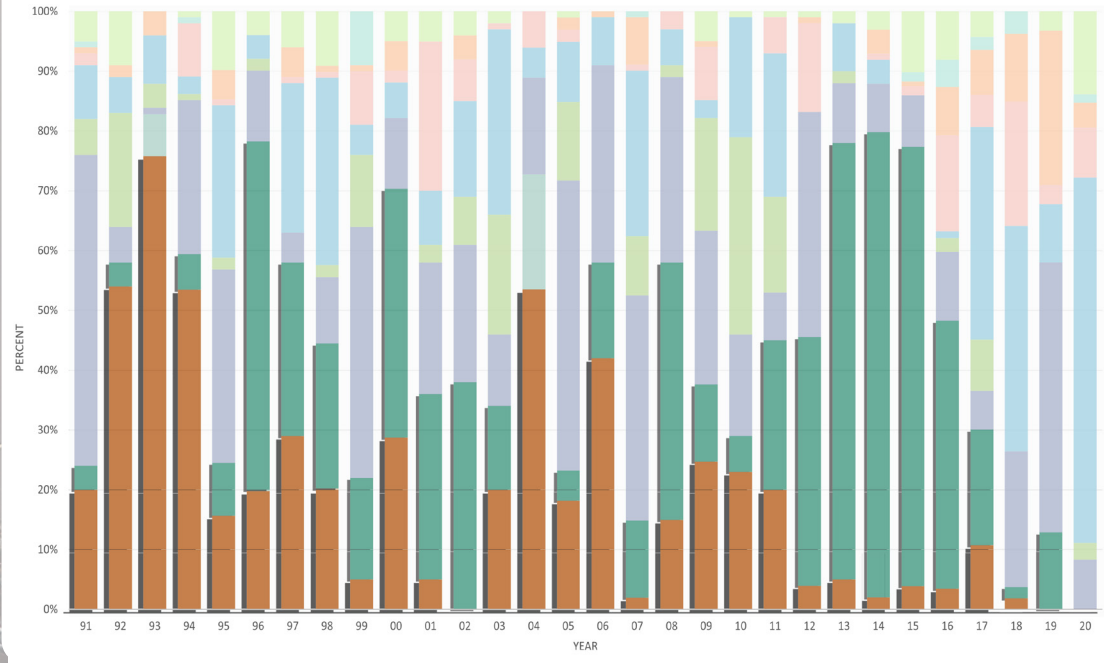

Ralph Ayyata

My mom us
our grandfa
the Brooks
-From Uqaus
In our own w

Over the years Elders and Working Group members have shared their knowledge of caribou movements and availability to caribou.

2003
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ed
or

Guest Elder Nathan Hadley, Buckland 2019

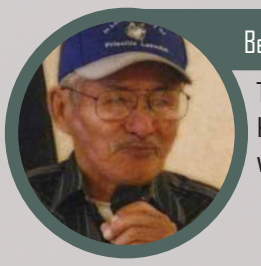
There was no caribou around. But around 1955, fall time, we were helping my father round up his reindeer but there was one big bull with big horns with the herd. It was a caribou. There was no caribou for a while but later on big bunches started coming in from the north.

Rub Ayaqiñ Foster, Selawik Elder 2003

Around my time there were no caribou. We just ate fish, ptarmigan, and rabbit That is all. There were no caribou around during that time—absolutely none. There was no moose and not much bear.
-From Uqausriptigun, In our own words by Selawik Elder

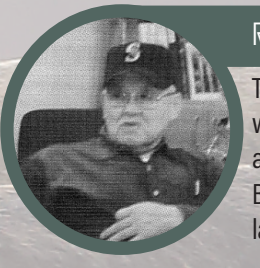
Guest Elder Ben Sampson, Noorvik 2018

In the 1960s in Selawik, people had just started to harvest caribou. In the 1960s-1970s I would go with my uncles by dog team over to the Noatak area and hunt for a couple of weeks. It took two days to get there and there were lots of good caribou. We worked so hard but we didn't know it was hard work.



Benedict Jones, Middle Yukon River Chair 2002

The caribou herd wintered between Koyukuk and Huslia in 1942 but the were not seen again until 1985.



Raymond Hawley, Kivalina & Noatak Chair 2001

There were not as many caribou but they were big, too big. One man could not handle a caribou. Our family usually hunted over the Brooks Range on the North Slope during the last part of July or August.

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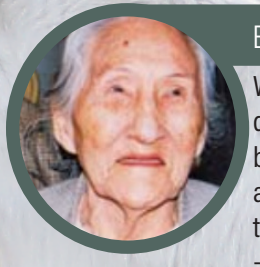


Eva Kitik Henry, Selawik Elder 2003

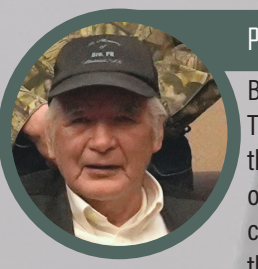
We had no caribou around here during those times, and we had no beaver or moose. Just fish, ducks, and jack rabbits. This was during the 1930s and 1940s.
-From Uqausriptigun
In our own words by Selawik Elders

Delbert Qigñak Mitchell, Sr, Selawik Elder 2003

Long time ago people hunted in the Noatak River area before the caribou started coming around here. We were always gone for several weeks primarily to hunt for caribou. We had to travel by dog team taking tents and other things we need.
-From Uqausriptigun, In our own words by Selawik Elders

Guest Elder Larry Westlake, Sr. of Kiana 2017

The caribou herd was I'd say 100 miles up from where I live in Kiana, on the Noatak valley. It takes a couple days to get there with a dog team—our only transportation those days. The caribou wasn't a very big herd at that time, but with the help of our elders and knowledge of the land and the herd – they were the best managers on earth because they knew that the herd had to survive so they could survive themselves. They [the elders] were a big part of the growth of our caribou herd.



Pollock Simon Sr, Koyukuk River Chair, Caribou Round table 2020

Before 1974 there used to be lots of caribou around Allakaket. They started pushing north with the oil pipeline. That year, the caribou didn't come back for 12 years. The Haul Road was open for public use shortly after (Dalton Highway). People came up and down the road, and the caribou stayed more to the west. Hunters came up the road and started shooting at caribou. After that, the caribou stayed to the west of the haul road. The caribou did not cross over to our area again.
- Pollock Simon Sr, Koyukuk River Chair, Caribou Round table 2020

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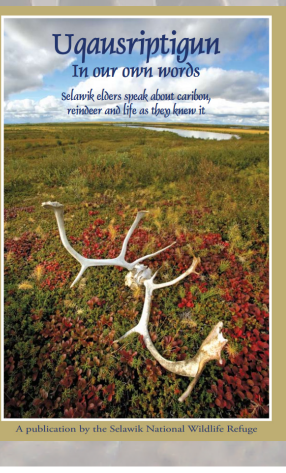


Uqausriptigun- In Our Own Words is a collection of interviews of Selawik elders as they speak about caribou, reindeer and life as they knew it. Based on interviews done by Hannah Paniyavluk Loon and published in 2007 by the Selawik National Wildlife Refuge

Caribou Collars

Caribou are always on the move and are a challenge to monitor. That is why almost every caribou herd across Alaska has active tracking collars. For over 40 years biologists have placed collars on caribou in the WAH. As technology has advanced, so have the collars. There are a variety of collars these days, each designed to limit interference to the caribou and to provide valuable information that may otherwise not be known.

Types of collars

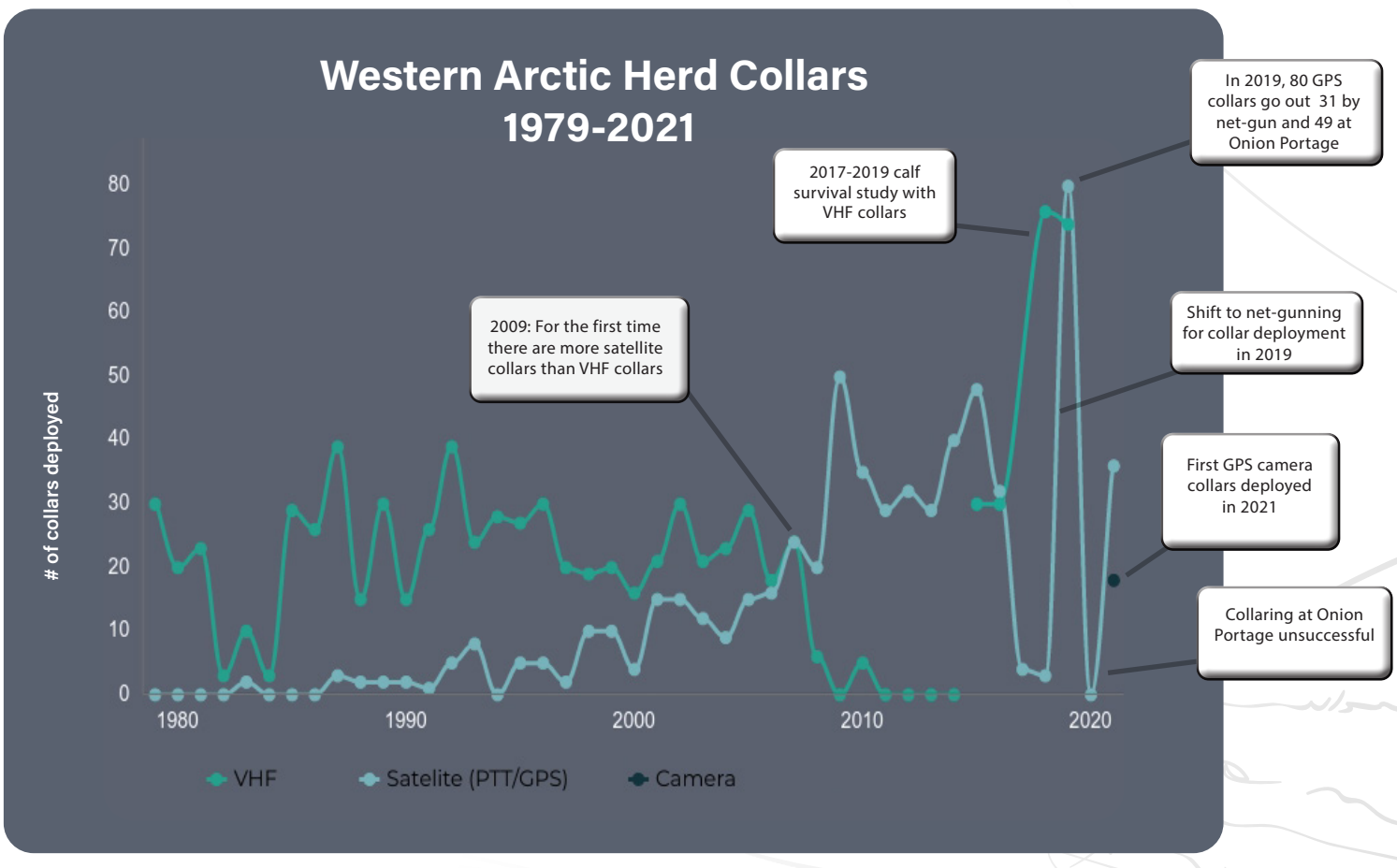
VHF collars: Since the 1960s VHF (Very High Frequency) collars have transformed the ability of wildlife biologists to conduct research and monitor caribou. VHF collars are essentially mini radio stations that broadcast a repetitive beep, beep, beep. Biologists listen to this signal and home in on the collared animal. The distance that a collar signal can be detected depends on the terrain and location of the animal. The signal becomes stronger and louder as the collared animal gets closer. The collar can also detect if the caribou is alive or not. If there is no movement, the signal will change.

To find the signal, directional antennas connected to an aircraft or a handheld antenna on the ground are used through a process called telemetry. This can be time-consuming and dependent on the weather and terrain. Even as newer types of collars are developed, the VHF capability is still used to allow biologist to radiotrack collared animals on a fine scale or for smaller animals like calves. For any activities that require biologists to look at the animal or to recover a collar, the VHF component is essential.

Platform Terminal Transmitter (PTT) Collars: In the late 1980s a new type of collar was developed. This collar carried a transmitter that sent a signal that could be detected by orbiting satellites. The technology used doppler shifts, the phenomenon that you notice in the sound of the siren as a police car or fire engine approaches and then moves away, to triangulate an approximate location. The locations were not always very accurate depending upon how many satellites detected the signal. But for the first time, biologists knew approximately where individual caribou were without flying to listen for the VHF signal. This helped biologists narrow down where to look for caribou. The first collars of this type were deployed on caribou in the WAH in 1988. At the time, they were quite expensive and not that many were used–they are now outdated technology.

Global Positioning System (GPS) Collars: For the WAH**,** GPS collars were first deployed in 2009 and are now the most used collar type. Although more costly than VHF collars, GPS collars allow for location and movement to be sent to a biologist at set intervals regardless of weather and access to the herd. The GPS unit connects with satellites that transmits a location which is delivered to biologists in their office. The transmission rate of locations can be changed so biologists are able to track caribou more closely at certain times of the year. If a collar stops moving for a period of time, it most likely indicates that an animal has died. In most cases, the collar can be recovered to provide more information and then reused.

Each year, biologists attempt to maintain a sample of at least 100 collared caribou in the WAH. There are currently around 120 active collars in the herd. The graph below shows how many collars have been placed on caribou each year in the WAH since 1979.

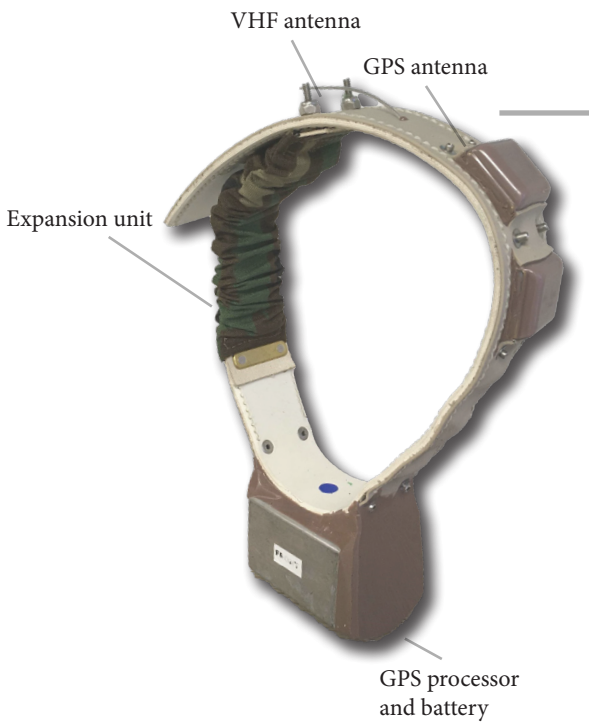


Collars are an important tool allowing biologists to find animals, count the herd, estimate the number of males to females, monitor habitat use, and provide data on births and deaths–all of which contribute to herd management.

Cow collar

The highest number of collars put out are cow collars. Cow caribou are the drivers of the population and give biologists the ability to monitor survival and reproduction.

Did you know?
VHF and GPS can help biologists tell if a female has had a calf or not by locating the cow post-calving for visual observations. This provides an estimate of how many calves are being born each year in the herd. More calves being born in the spring indicates that the cows are doing well nutritionally, and the herd is in good condition.



Bull collar

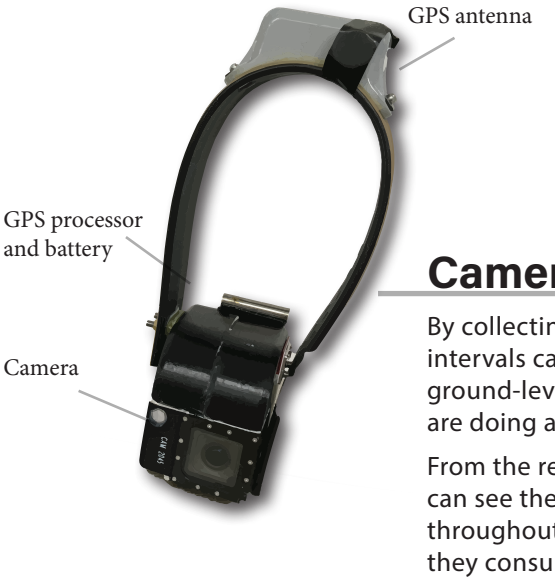
Bull collars incorporate an expansion unit to allow it to flex and expand during rut as their necks begin to swell. As the rut approaches, bull caribou go through a hormonal process where their necks get thick and strong.

Did you know? Bulls separate away from the herd at different times of the year. Having collars on bulls ensures that all groups of caribou are counted when a photocensus takes place, keeps track of where bulls and cows are during rut and allows biologist to compare different habitat use.

Calf collar

Calf collars are VHF and do not give daily locations. They are placed on calves that are less than 4 days old and are radio-tracked through airplanes and telemetry.

Did you know?
Calf collars are expandable and are made to break away as the calf grows. The information gained from calf collars allows biologists to monitor the rate of calf survival and cause of calf death. See the update on the calf survival study on page 3.

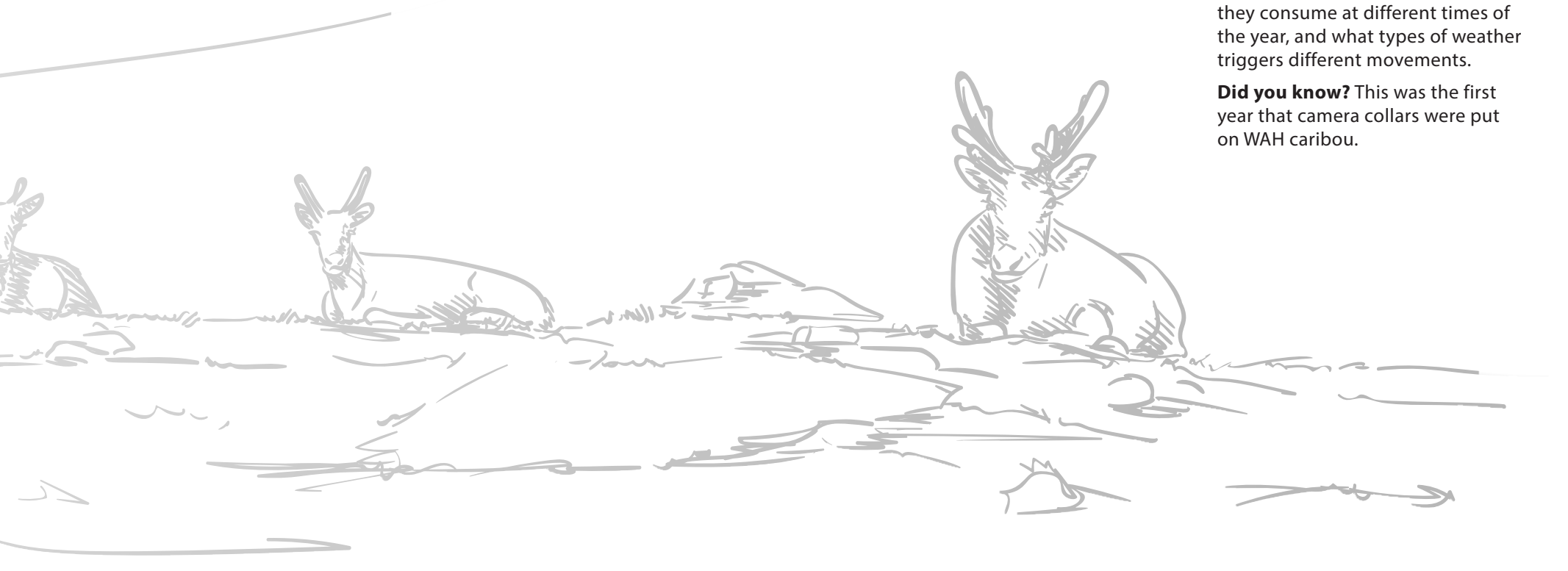


Camera collar

By collecting short videos at set intervals camera collars provided a ground-level view of what caribou are doing and what they are eating.

From the recordings, biologists can see the caribou's activities throughout the day, types of foods they consume at different times of the year, and what types of weather triggers different movements.

Did you know? This was the first year that camera collars were put on WAH caribou.



Don and Mary Williams in 2019. Photo by China Kantner

Don and granddaughter Brandi looking at an aerial photo of caribou in the early 2000s. *Photo courtesy Don and Mary Williams.*

Don counting. *Photo courtesy Don and Mary Williams.*

Join us in celebrating Don and Mary Williams of Ambler, Alaska for receiving the ADF&G Division of Wildlife Conservation Director's Award for Public Stewardship.

Don Williams, with the support of his wife Mary, has worked with the ADF&G Division of Wildlife Conservation for 39 years, sometimes as a seasonal Fish and Wildlife Technician, but more often as a dedicated member of the public. Through this time, Don and Mary have contributed greatly to the Western Arctic Herd research program, and some of the annual activities would be almost impossible to complete without their wisdom, commitment to work, and support.

Don and Mary's award was featured in the February 2021 issue of the Alaska Fish and Wildlife News. To view the article, visit Alaska Fish & Wildlife News Monthly Online Magazine at *www.adfg.alaska.gov*

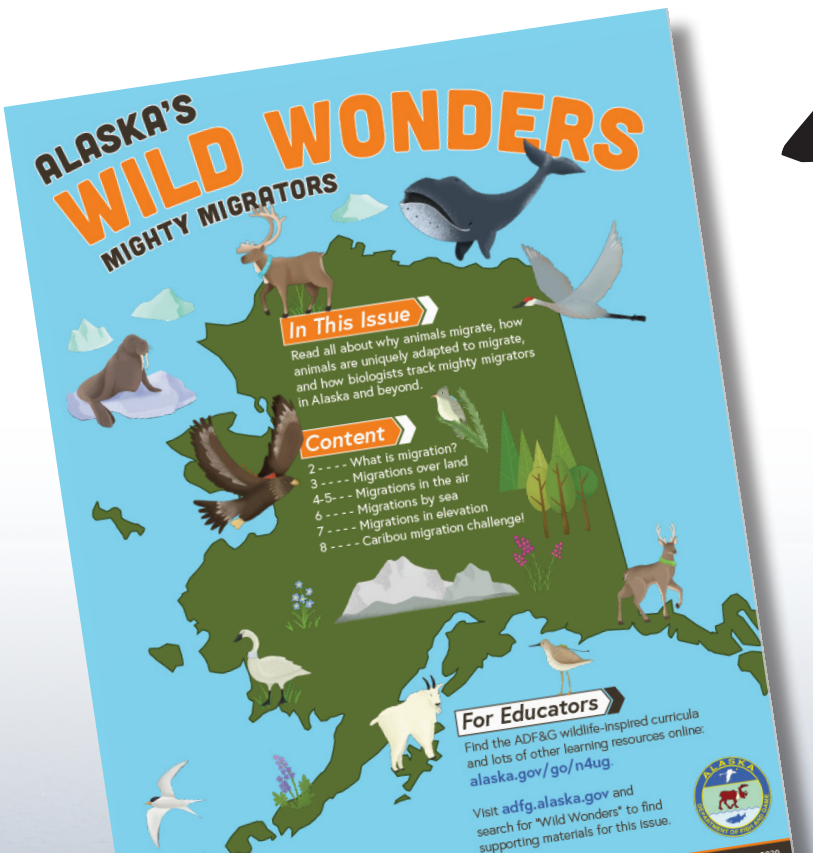
Alaska Archaeology Month poster for 2020

Antlers

Alaska Archaeology Month is an annual event that recognizes Alaska's rich cultural heritage and urges preservation of historic sites. Each year an original art design is created, and a poster is sent to hundreds of schools, museums, and libraries across Alaska, and the world. Last year's poster focused on the important role that caribou antlers play as a vital raw material for Alaskan cultures over the past 15,000 years. Valued for its great strength and flexibility, antlers have been made into snow goggles, combs, net shuttles, arrowheads, snowshoe needles, fishhooks, fish spears, war clubs, armor, harpoon heads and more.

Antlers are still used today in tools, artwork and handicrafts. Scientists have also found new uses for caribou antlers. Because female caribou shed their antlers shortly after calving, the location of shed female antlers can map the history of the herd's calving area. Antlers can last hundreds of years, even up to a thousand years on the tundra, especially in cool dry locations. Shed antlers contain a record of the nutrients which the caribou consumed during its growth. These nutrients, such as strontium, vary across the landscape. So, the amounts of various nutrients can help scientists map where that caribou spent its time, even if those antlers are ancient.

For more information on the poster visit
www.nps.gov/articles/000/akarchposter2020.htm



Have you ever wondered about migrations?

Pick up the Alaska's Wild Wonders magazine for kids at any ADF&G office or view it on-line at www.adfg.alaska.gov

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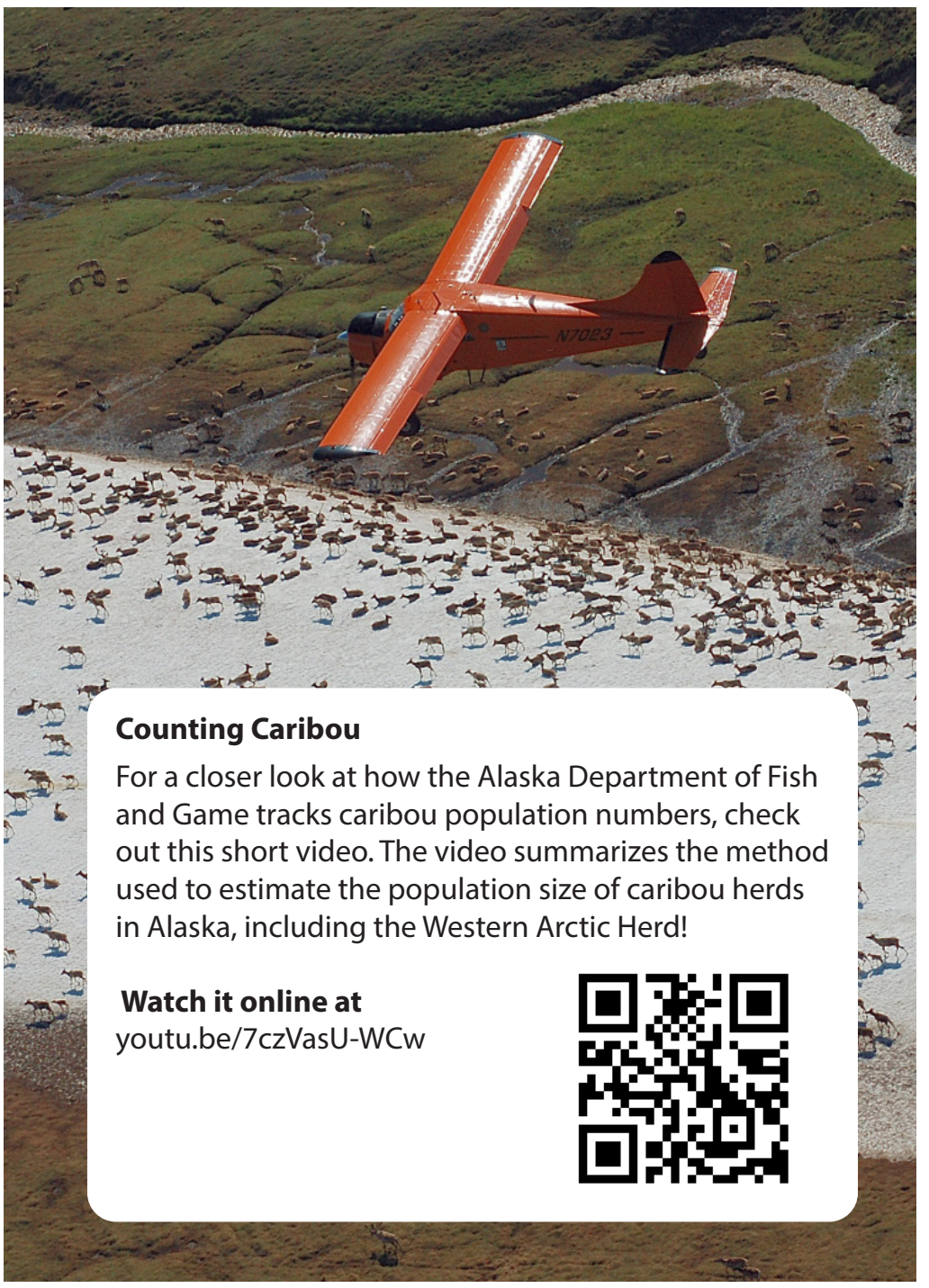

Counting Caribou

For a closer look at how the Alaska Department of Fish and Game tracks caribou population numbers, check out this short video. The video summarizes the method used to estimate the population size of caribou herds in Alaska, including the Western Arctic Herd!

Watch it online at
youtu.be/7czVasU-WCw

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Your feedback is important.

Scan below or visit *www.surveymonkey.com/r/HRQPNBS*, e-mail, mail or call the editor to take a quick survey to let us know what you would like to hear most about.

Western Arctic Caribou Herd Working Group

Back Row L-R: Matt Moore (alt.), Bill Bernhardt, Elmer Seetot, Jr, Tom Gray, Tim Fullman, John Siegfried (alt.), Brad Saalsaa (alt.), Charlie Lean, Vern Cleveland, Sr, Front Row L-R: Ron Moto, Sr., Eli Nukapigak, Wanda Kippi, Willie Goodwin (alt.), Pollock Simon, Sr., Michael Stickman (alt.), Jake Jacobson, Morris Nassuk.- Decemnber 2019

Working for you and caribou!

Contact your local Working Group representative or one of the agencies to share comments, concerns or to get involved.

Voting Chairs	Representatives	Alternates
Anchorage Fish & Game Advisory Committee	Neil DeWitt	Matt Moore
Buckland, Deering, Selawik	vacant*	Percy Ballott
Anaktuvuk Pass & Nuiqsut	Eli Nukapigak	Mary Hugo
Elim, Golovin, White Mountain	Charles Saccheus	Morris Nakaruk
Fairbanks Hunters	David Kilbourn	John Siegfried
Hunting Guides	Jake Jacobson	John (Thor) Stacey
Kivalina & Noatak	Enoch Mitchell	Daniel Foster, Sr.
Kotzebue	Cyrus Harris (Vice-Chair)	Willie Goodwin
Koyukuk River (Huslia, Hughes, Allakaket, Bettles, Wiseman)	Pollock Simon, Sr.	Jack Reakoff
Lower Kobuk River (Noorvik & Kiana)	Vern Cleveland Sr. (Chairman)	Kirk Sampson
Middle Yukon River (Galena, Koyukuk, Nulato, Kaltag)	Micky Stickman	Arnold Demoski
Point Hope & Point Lay	Steve Oomittuk	Caroline Cannon
Nome	Charlie Lean	Jacob Martin
Conservationists	Tim Fullman	Alex Johnson
N. Seward Peninsula (Teller, Brevig, Wales, Shishmaref)	Elmer Seetot, Jr.	vacant*
Reindeer Herders Association	Tom Gray	Harry Karmun
S. Seward Peninsula (Koyuk, Shaktoolik, Unalakleet, Stebbins, St. Michael, Kotlik)	Morris Nassuk	Leo Charles, Sr.
Transporters	Brad Saalsaa	vacant
Upper Kobuk River (Ambler, Shungnak, Kobuk)	Bill Bernhardt	Oscar Griest, Sr.
Atqasuk, Utqiagvik & Wainwright	Wanda Kippi	vacant

* The Working Group will be contacting the communities about a new representative prior to the 2021 meeting

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Please send questions regarding Caribou Trails to:

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To Report Violations call:
1-800-478-3377

This publication was released by the Alaska Department of Fish & Game to support the Western Arctic Caribou Herd Working Group and is printed in Anchorage, Alaska.