

Caribou Trails



News from the Western Arctic Caribou Herd Working Group

Summer 2019, Issue 19

Western Arctic Caribou Herd Working Group

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Herd Status to Remain at 'Conservative Stable'

What is the size of the Western Arctic Herd (WAH) right now? The answer is not entirely clear. Biologists reported both positive and negative signs of growth at the 2018 Western Arctic Caribou Herd Working Group Meeting held in Anchorage last December. After considering all of the available information, the Working Group has decided the herd's size is most likely stable and that management actions need to remain conservative.

Biologists were unable to complete a photocensus in 2018. Caribou did not aggregate in large enough groups for quality photographs. Cool temperatures, high winds, and limited insect harassment were the likely reasons caribou did not aggregate. As a result, biologists were unable to collect reliable counts. All is not lost, however, because biologists have valuable information on the herd from research that took place during 2017-2018.

In the absence of a photocensus, biologists consider two key factors in assessing if the herd is growing: adult cow survival and calf recruitment. The adult cow survival rate is an estimate of how many cows make it through the winter and have the opportunity to give birth to calves in the spring. The calf recruitment rate is an estimate of the number of calves that make it through their first winter. When both of these survival rates are estimated to be high the herd's size is most likely growing.

Adult cow survival rates were concerning during 2017-2018 because they were lower than estimates from previous years. Adult cow survival was estimated to be 71% during

the winter of 2017-18, which was lower than the estimate of 84% during the winter of 2016-2017. Although adult cow survival was lower in 2017-2018, calf recruitment rates have been consistently high since 2016.

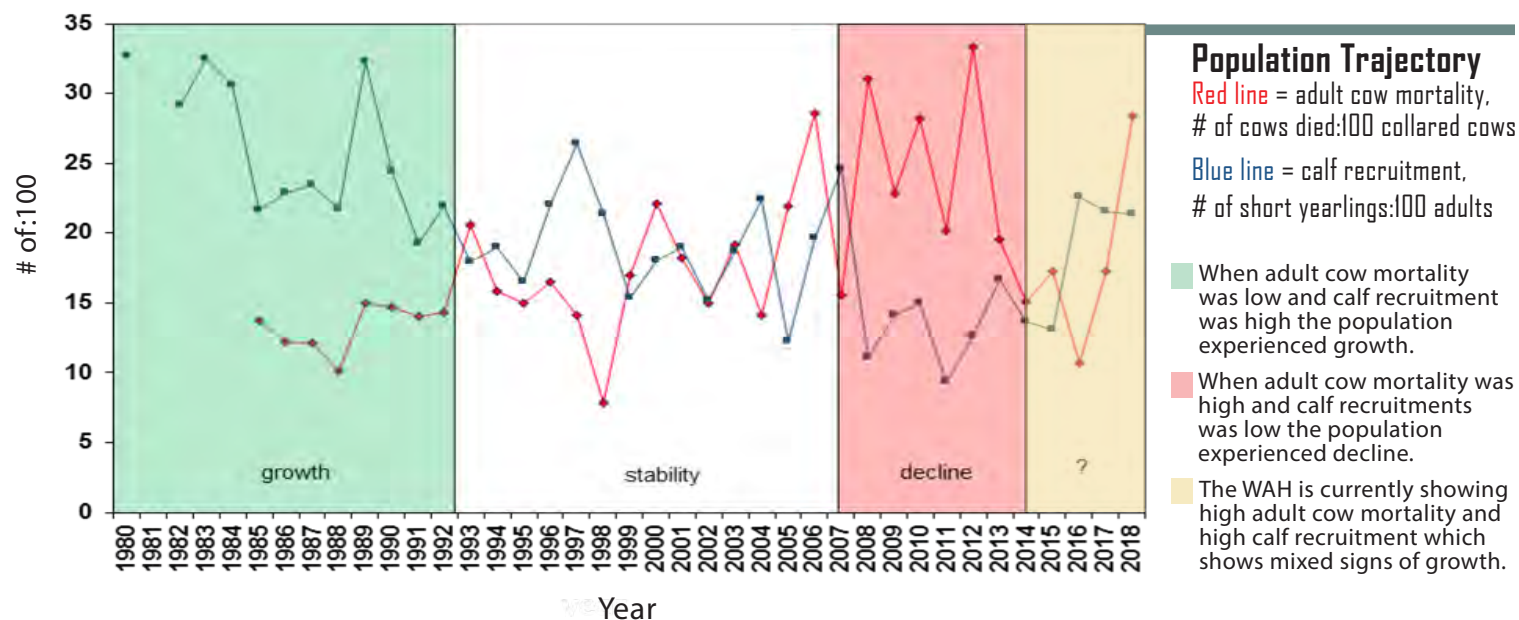
The low adult survival and the simultaneous high calf recruitment are somewhat at odds with one another. The general thought is that the herd has likely experienced a temporary setback in growth that may be compensated for by more young animals recruiting into the herd in the years to come.

Adult cow survival rate
and calf recruitment
show mixed signs of
growth.

The most recent photocensus in 2017 resulted in an estimate of 259,000 caribou, which is an increase from 201,000 caribou estimated in 2016. The next photo census is scheduled for 2019. For more on "Tracking Changes" see page 4.

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TAIKUU

The Western Arctic Caribou Herd Working Group would like to say a big TAIKU 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 ensure hunting now and for future generations.

Updates from the Working Group Meeting



Guest Elder Ben Sampson at the Western Arctic Herd Working Group in December 2018.

Listening to Our Elders

Mr. Ben Sampson from Noorvik opened the meeting, sharing information about his family's and community's subsistence use of caribou. The guest elder focused his address on the importance of subsistence in the Western Arctic Herd range and how throughout his lifetime he has seen many changes to what that means.

In the 1950s and 1960s, Mr. Sampson lived with his family in the Selawik area. It was hard living. In winter, his Pop would put the whole family in the sled and they would travel to Shungnak. There were not many caribou there in those days. They would go without food some nights and it was hard to feed the dog team; if they didn't go out and catch food at that time, they would run out of food for dogs and people.

In the 1960s in Selawik, people had just started to harvest caribou. From then on, the caribou began to increase in numbers and were hunted more. In the 1960s-1970s, Mr. Sampson's family moved to Noorvik and the caribou had started coming to that area. He would go with his 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. Sampson reflects, "We worked so hard but we didn't know it was hard work."

We worked so hard but we didn't know it was hard work.
-Ben Sampson, Guest Elder

In the 1980s, Mr. Sampson married a woman from Kiana and moved there. More caribou were arriving there at that time. More recently, there have been many caribou through Kobuk River and Noatak River areas, crossing through Kiana and Noorvik, and upriver to Ambler and Shungnak.

However, the fall of 2018 was rougher than ever near Noorvik. Everyone got less and less. The caribou used to migrate right through Noorvik, but now they've changed their route and moved closer to Kotzebue. This fall no-one in the Noorvik area got caribou. People went out in boats to where the caribou used to cross the Kobuk River but came back empty. It's worrisome. People need to eat. There are also fewer fish than ever before, and people are worried.

Growing up, it was a hard life. Mr. Sampson noted that they had no phones, no CB, no radio, but they were happy. They were out all day looking for food and that was a happy life. Now, Mr. Sampson is a parent and grandfather. He has twin great-granddaughters and is so happy to see them. What is coming, it's not easy. He is glad to have the Working Group and knows that they are doing their best for the caribou herd.

Working Group Meeting Highlights

Western Arctic Herd Working Group

As the largest caribou herd in Alaska, the Western Arctic Herd (WAH) has greatly shaped the heritage and traditions of the communities that depend on the herd for subsistence. The Western Arctic Caribou Herd Working Group is comprised of representatives from communities within the Western Arctic Herd range, other Alaska hunters, guides, transporters, conservationists, and reindeer herders. In December of 2018, they met in Anchorage with management agencies to discuss topics that included herd management, regulation proposals, climate change and development in the herd's range.

Herd Designated as 'Conservative, Stable'

After much discussion, the Working Group voted to maintain the status of the herd as 'conservative stable' with hopes of a 2019 census. Members expressed concerns of not having a census to inform the management decision and took into consideration the positive and negative indicators of the herd's status.

Caribou Collaring

Biologists have collared caribou crossing the Kobuk River at Onion Portage for 40 years. Caribou movements are often unpredictable and inconsistent, but in recent years, very few caribou have crossed before rivers froze. This reduced opportunity has resulted in few new caribou being collared in the past two years. The Working Group noted the importance of scientific data as a factor to consider in the management of the herd by unanimously

supporting the proposal to put collars on more caribou in 2019 by the use of net guns. This is in response to the limited number of collars on caribou in recent years and will provide means to gather more information.

Revisions to Cooperative Management Plan

The Working Group revised the 2011 Cooperative Management plan to include climate change and resource development within the range of the herd. With mixed signs of stability and unforeseen pressures on the herd, the Working Group voiced concerns about climate change and the ability to protect caribou from development within the range. Working Group members responded to these concerns by voting to include the topics in the revision of the 2011 Cooperative Management Plan, which will be presented at the December 2019 meeting. For more on proposed development within the WAH range, *turn to page 5.*

You can view the current Management Plan on our website at www.westernarcticcaribou.net

Calving grounds need to be looked at seriously if there is going to be development and take this climate change serious because it is going to affect all.

-Vern Cleveland, Chair

Caribou In Your Region

North Slope

Freeze-up was way too late. It has been about the same for about 3-5 years. Rivers remained high during July and August and could not be crossed. Plant growth was poor; no blueberries, cranberries, salmonberries and blackberries, and other vegetation.

Changes of migration direction of the herds, resulting in caribou being farther to hunt. Seeing different types of birds in our area and seeing different insects.

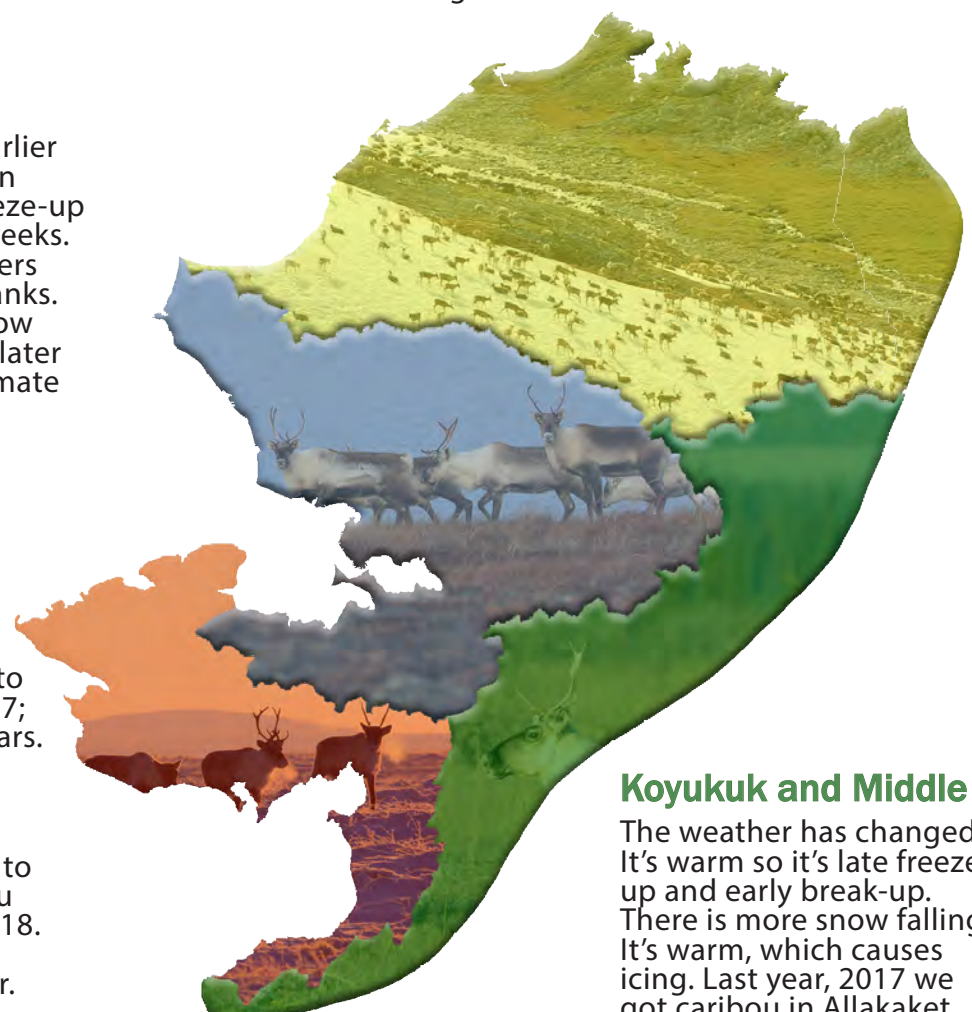
NANA Region

Later freeze-up and earlier breakup than before. In general, snow and freeze-up were delayed by 2-3 weeks. Lots of algae in the rivers and erosion on riverbanks. The second year in a row caribou have traveled later than before due to climate change.

Seward Peninsula

The freeze-up has not been as fast as it used to be. Lots of snow in 2017; more than past 20+ years. Permafrost is melting very fast, will change vegetation.

Climate change seems to be noteworthy. Caribou have yet to arrive in 2018. In the past, they have arrived by mid-October.



Koyukuk and Middle

The weather has changed; It's warm so it's late freeze-up and early break-up. There is more snow falling. It's warm, which causes icing. Last year, 2017 we got caribou in Allakaket that travel west from Kobuk River—no caribou yet this year.

Conducting Science in the Range

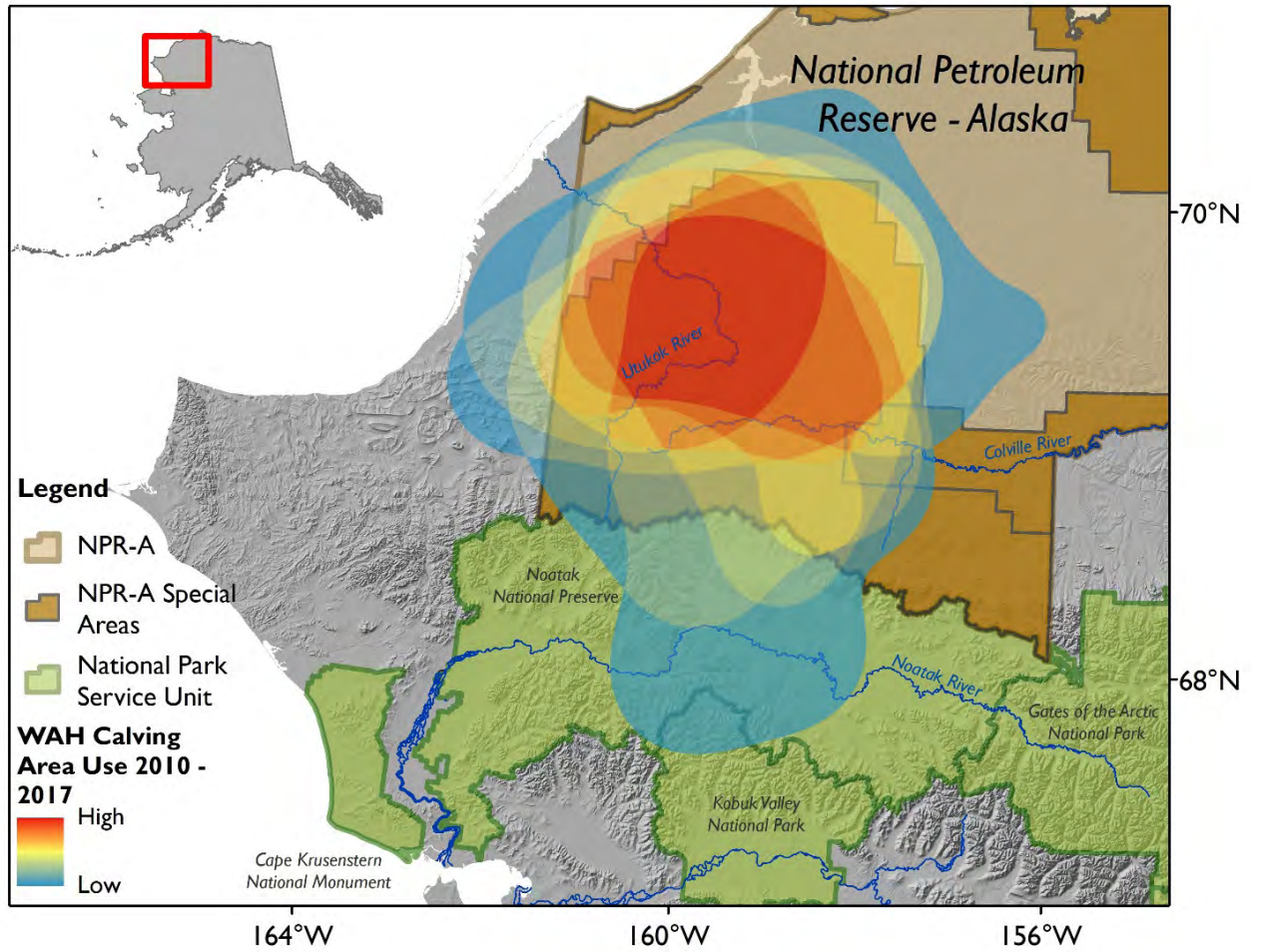
Mapping Calving Grounds

Each spring, female caribou typically travel hundreds of miles north, crossing the snow-covered mountains of the Brooks Range to give birth to their calves in the headwaters of the Colville and Utukok Rivers. This time of year is important for females since their body reserves are low after a long winter. Once calves are born, they must provide nutritious milk while regaining energy stores themselves.

Biologists wanted to understand how large of an area female caribou in the Western Arctic Herd (WAH) use each year for calving. To do this they analyzed GPS data from the satellite collars and identified when and where a female had her calf. From 2010 to 2017, biologists mapped the calving ground and compared how the area used for calving varied or overlapped between years.

They found that the herd returns to the same general area for calving, but that it varies somewhat each year. You can see this on the map, where the red area in the middle was used every year, and the herd relied on surrounding areas less frequently.

Findings from these data are supported by previous research over the past 50 years, as well as traditional ecological knowledge. Both highlight that this area of the Utukok and Colville Rivers is critical for the WAH. This information is timely because the calving grounds fall predominantly in the National Petroleum Reserve – Alaska (NPR-A), and its Integrated Activity Plan will be re-evaluated this year by the Bureau of Land Management (BLM). The WAH calving grounds almost completely



cover the Utukok Uplands Special Area and therefore any changes to this designation could have negative impacts on the herd as caribou are especially susceptible to disturbance during calving.

The map was well received by the Working Group, who showed support for the ability to share the significance of the calving grounds for

land management purposes, and upcoming development and mining proposals.

Maps show the world where our most important resources are.

-Cyrus Harris, Vice Chair

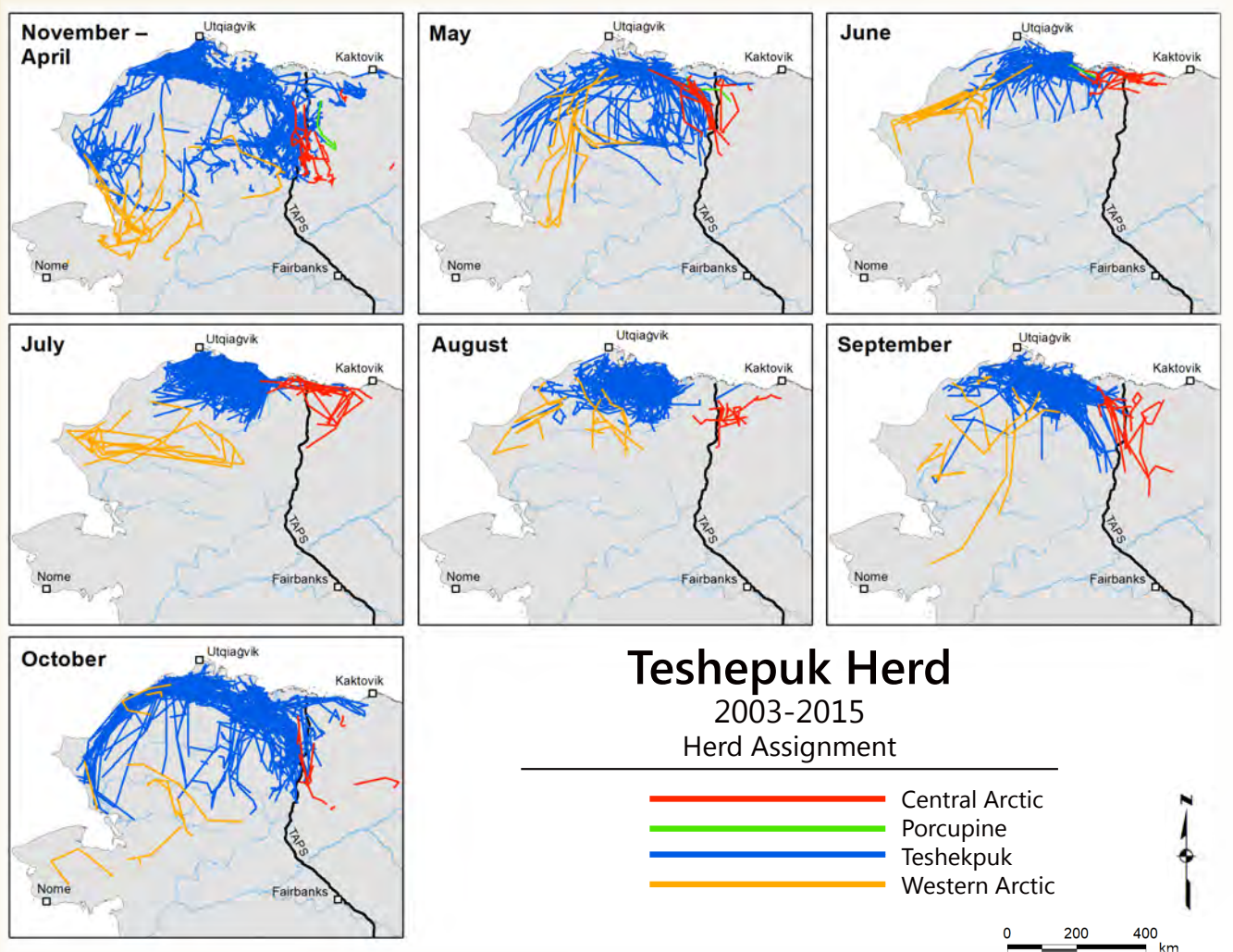
Movement of Caribou Between Herds

Measuring movement of caribou between different herds in the Arctic has been somewhat of a mystery until now. After several decades of collecting locations from satellite collars on caribou, researchers have gathered enough location data to measure how much movement is taking place between different caribou herds.

In the 1960's biologists began to name herds based on where they gave birth to calves. Today, to figure out the movement of caribou between herds, researchers used roughly 65,000 satellite collar locations from 2003-2015, of caribou in the Western Arctic, Teshekpuk, Central Arctic, and Porcupine herds. With the collar locations of an individual caribou, researchers could identify the typical range of that herd and the distance from other collared caribou in their herd. With collar location information, researchers tracked when the caribou moved to a different herd and how long they were away from their original herd.

Results showed that movement of caribou between larger herds (Western Arctic and Porcupine Herd) was rare (<2% of weekly locations) and usually only happened when caribou herds overwintered near each other. On the other hand, movement between the two smaller herds was more common and lasted for longer periods of time, sometimes up to a year. Over the long-term, caribou from the Teshekpuk and Central Arctic herds were found with other herds 6-9% of the time.

By using data collected from satellite telemetry collars, researchers now have a greater understanding of caribou movement between herds and changes in herd size. Caribou herds are managed individually, but by understanding how caribou move between herds, considerations can be made to manage them more accurately.



Blue lines show caribou that were collared with the Teshekpuk Herd in typical Teshekpuk Range. Lines in yellow show the movements of caribou that were collared with the Teshekpuk Herd but were traveling with the Western Arctic Herd. Lines in red show Teshekpuk caribou that were traveling with the Central Arctic Herd and lines in green show Teshekpuk caribou that were traveling with the Porcupine herd.

Tracking Changes

Information from harvest reports, subsistence surveys, and research projects provide biologists with valuable information to understand if caribou populations are increasing, decreasing, or staying the same. With limited collars out and no census this year, these additional factors can indicate population strengths and whether the population is changing.

Harvest Reporting

The Western Arctic Herd (WAH) resides in one of the most remote places on our continent. The scope and scale of this great shared resource challenges the ability of managers to track herd changes. Here is where and how **you can help**. By providing biologists and managers with harvest information, you can help make better-informed decisions that will help preserve the WAH for generations to come.

Over 40 communities rely on the WAH for subsistence. Tracking access and usage through up-to-date harvest reports gives researchers an on-the-ground view of the current status of the herd. By sharing your harvest story through harvest reporting, you are connecting your experience to the larger picture of how caribou are used throughout the year and region.

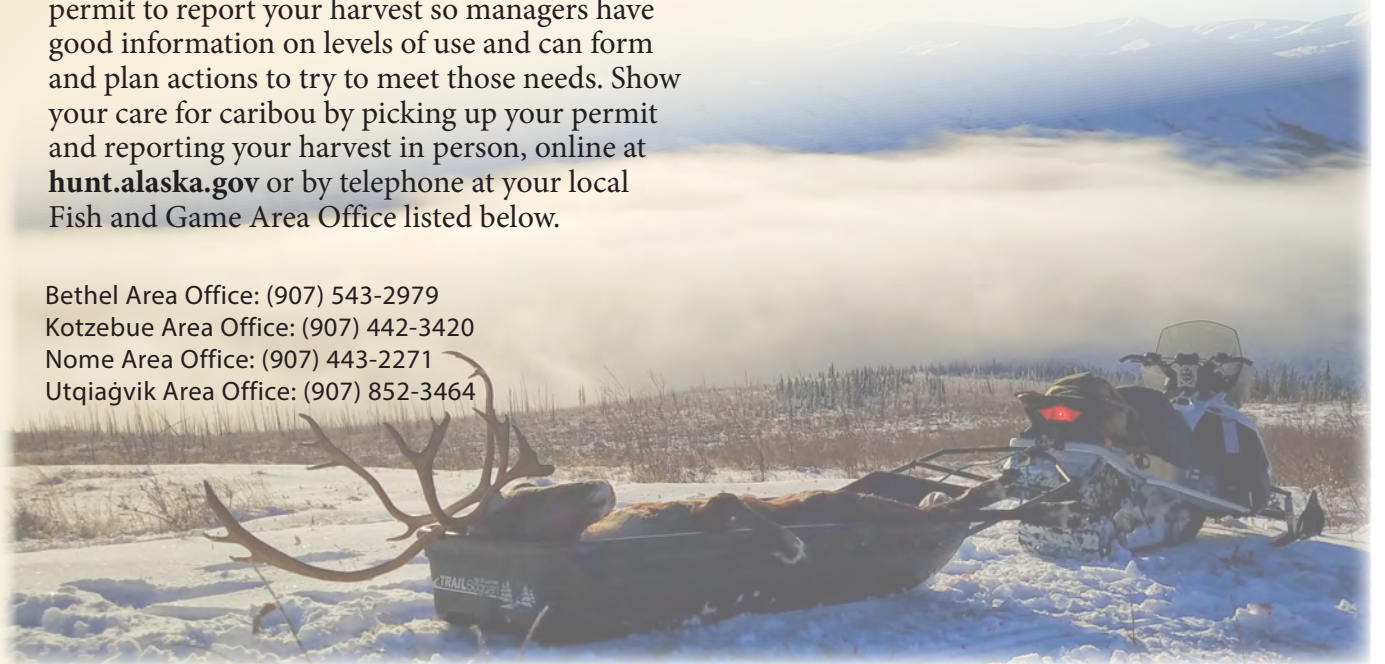
When harvest reports are submitted, they provide a crucial step in the management process. Hunters are the only source of information on where and when caribou harvests happen. This valuable information is a critical part of the information needed to inform management of herd populations. The information gathered from harvest reports is then provided to communities across the

range to make informed decisions about the harvest levels and management. The process of harvest reporting demonstrates the collaborative investment and management role you have for your herd.

Do your part and report your harvest. The more complete information managers have the better-informed decisions can be made. Use your permit to report your harvest so managers have good information on levels of use and can form and plan actions to try to meet those needs. Show your care for caribou by picking up your permit and reporting your harvest in person, online at hunt.alaska.gov or by telephone at your local Fish and Game Area Office listed below.

- Bethel Area Office: (907) 543-2979
- Kotzebue Area Office: (907) 442-3420
- Nome Area Office: (907) 443-2271
- Utqiagvik Area Office: (907) 852-3464

We don't know the count and we need to know more, which informs decisions for our people.
- Vern Cleveland, Chair



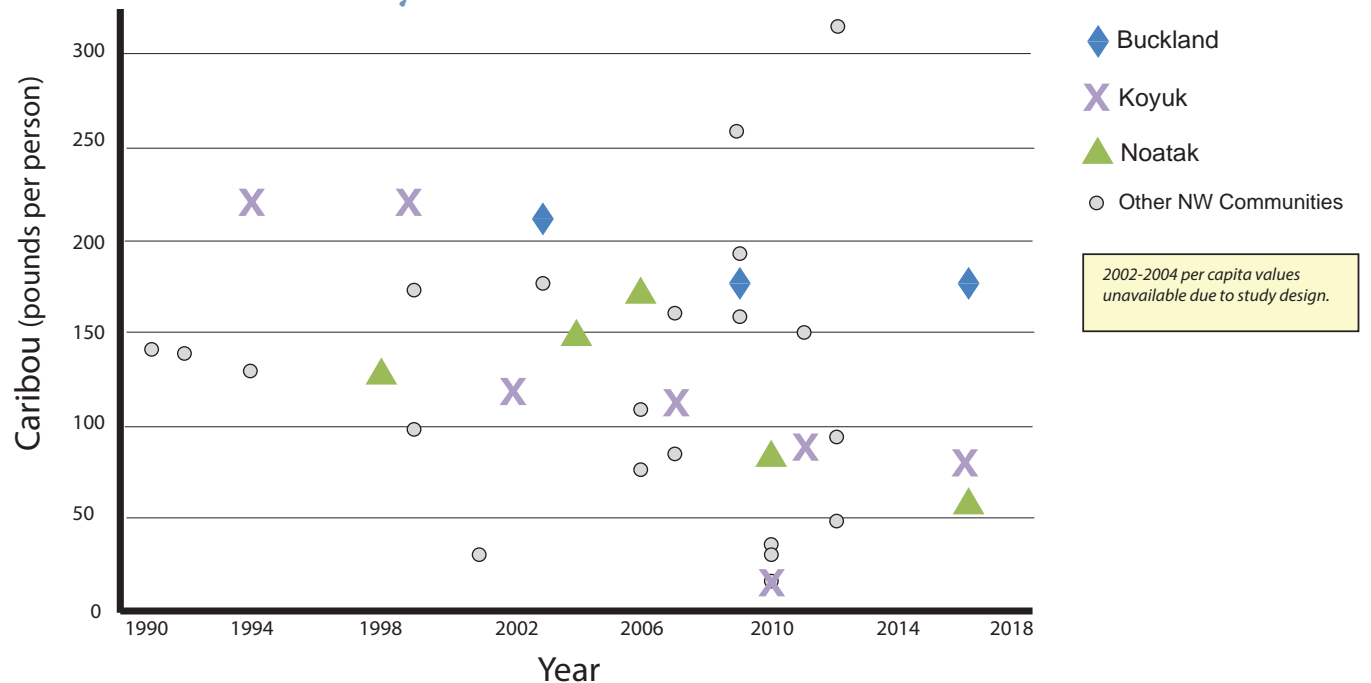
Filling in the Blanks

Why are adult female mortality rates high when other indicators seem positive? One possible explanation might be that the age of collared cows is older than the age of the average cow in the population. This is because slow and unpredictable passage of caribou at Onion Portage recently have left biologists unable to collar as many new caribou as they would like.

Biologists have had enough collars for up to 40 adult caribou each year at Onion Portage but due to the change in caribou migration only four cows were collared in 2017, and three in 2018. Following the 2018 capture project at Onion Portage there were fewer than 70 active collars in the WAH.

With fewer collars being deployed in the last two years and the higher-than-normal adult cow mortality rate, the total number of collars in the herd is down considerably. As a result, data from the currently collared females may be over representing the older cows and not the full range of age classes. The lack of collars in the herd following two years of limited success at Onion Portage prompted biologists to adapt their collaring methods to include helicopter net gun capture techniques. During the spring of 2019, 30 new collars were deployed on adult female caribou with one collar being deployed on an adult male.

Subsistence Survey Results



In 2017, ADF&G completed caribou harvest surveys in Buckland, Koyuk, and Noatak. Division of Subsistence researchers directed the survey effort, contracting with 15 local residents to conduct 244 household harvest surveys. Participation rates were high in each of the three communities, with sample sizes of 69% of households in Koyuk, 78% of households in Noatak, and 83% of households in Buckland. Local residents were instrumental in conducting the surveys, and ADF&G researchers could not have completed the work without them.

The figure above shows harvest estimates of caribou over time in Buckland, Koyuk, and Noatak. These estimates are shown in number of pounds of caribou harvested per person, which makes them comparable over multiple years since this controls for changing population sizes in communities. Buckland harvests were lower during the 2016-2017 study year (179 lbs per person) in comparison to 2003 (212 lbs), but higher than 2009 (168 lbs). Harvests over time have remained fairly stable. Koyuk harvests (58 lbs per person) were the lowest harvests recorded

over the past five study years; harvests in earlier surveys ranged from a high of 168 lbs in 2006 to a low of 84 lbs in 2010. Noatak harvests in 2016-2017 (80 lbs per person) were the second lowest recorded, with the lowest harvest occurring in 2010 (16 lbs). Harvests in other study years ranged from a high of 224 lbs per person in 1994 to a low of 90 lbs in 2011. Overall harvests in Noatak have been declining since the early 2000s.

These harvest surveys provide critical information for managing these important resources, and they offer an opportunity for open dialogue between local subsistence users and managers. Survey respondents shared perceptions about nonlocal user groups, management of the resource, intensive management, and changes to abundance and migratory patterns of the WAH. One common theme mentioned by respondents in Buckland, Koyuk, and Noatak was the dependence of their communities on big game resources and the overwhelming importance of subsistence to their households.



Proposed Development in the Range

Working Group Opposes Ambler Road

After years of discussion about the Ambler road project, the Working Group voted at its 2018 meeting to oppose the road. Concerns included impacts to caribou migration, culture, food security, and potential increases in hunters from other areas. Opposition was substantial, though not unanimous, and some opposed the current road proposal because they believe it should be open to the public and not just industry. The Working Group will remain engaged as the planning process continues.

Our Elders knew traditional knowledge. For when you disturb migration there is a price to pay. Their statements are alive and well today.
- Caroline Cannon,
Point Hope & Point Lay Representative

1. Ambler Road Project

The Ambler Mining Industrial Access Road Project proposes about 200 miles of road between the proposed Ambler Mining District and Dalton Highway, crossing WAH migration routes. A draft Environmental Impact Statement (EIS) is expected July 2019 with opportunity for public comment. Contact project manager Tina McMaster-Goering at (907) 271-1310 or tmcmastergoering@blm.gov.

2. National Petroleum Reserve – Alaska Integrated Activity Plan Revision

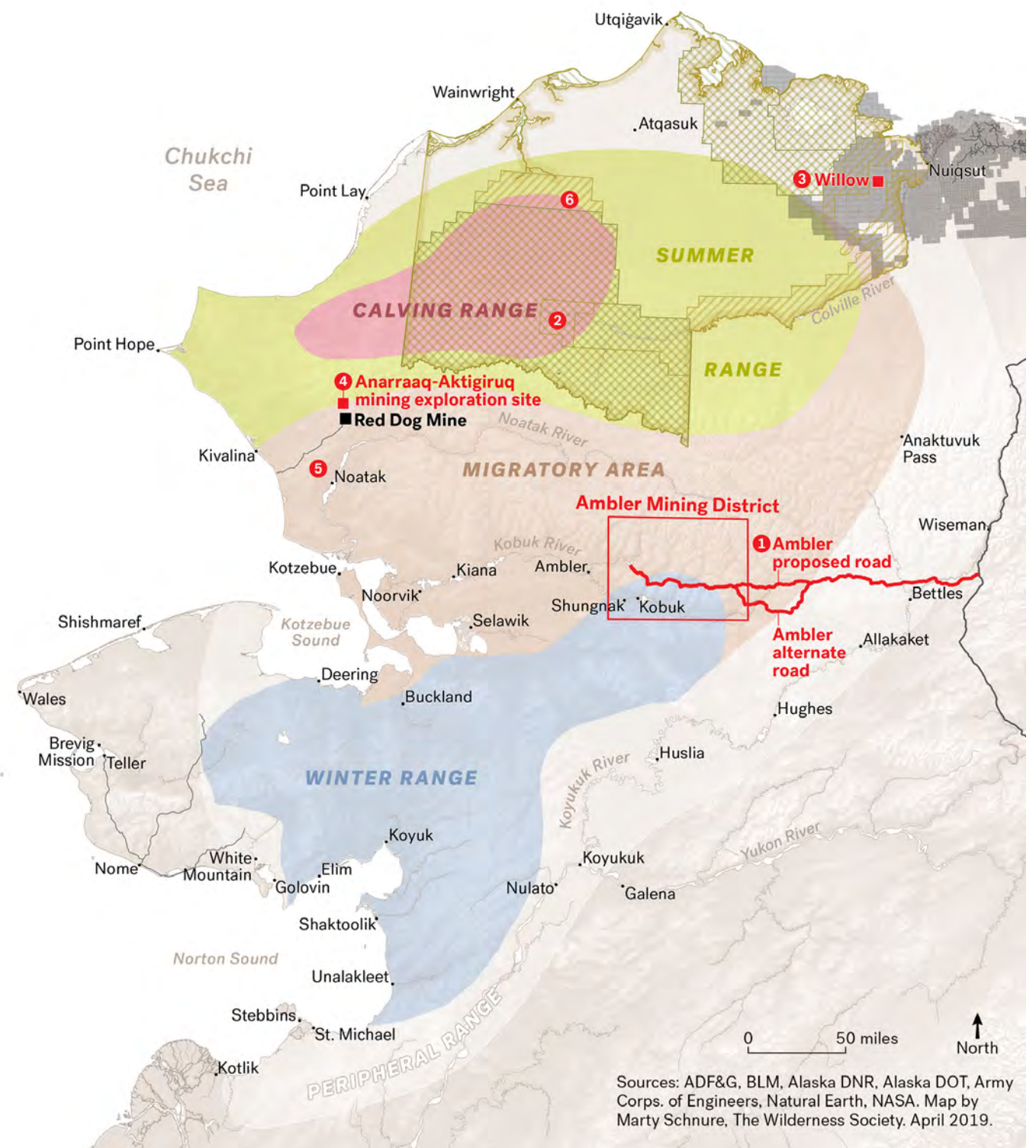
The Integrated Activity Plan (IAP) of 2013 which guides land use within the National Petroleum Reserve – Alaska (NPR-A), opens about half of the land for oil and gas development while setting aside the other half to protect wildlife, subsistence, and other values. This plan protects the calving grounds and other important habitat for the WAH and Teshekpuk Caribou Herd. The plan is being revised and the removal of some protections is being considered. The Working Group submitted detailed scoping comments asking the Bureau of Land Management (BLM) to maintain or strengthen existing protections for caribou habitat. A draft revised IAP is expected in Fall 2019 with opportunity for public comment. For details contact Stephanie Rice at (907)271-3203 or srice@blm.gov.

3. Willow Master Development Plan

A draft EIS is expected in 2019 for the Willow development project within the Teshekpuk Caribou Herd's range in the northeastern NPR-A, and there will be opportunities for public comment. This project would expand development west into the Bear Tooth Unit from existing NPR-A developments in the Alpine and Greater Mooses Tooth Units.

4. Red Dog Mine

In addition to continuing mining operations at the Red Dog Mine, Teck American Inc. has requested permits to conduct exploration of the Anarraaq – Aktigiruaq mineral deposits about 8 miles north of the current Red Dog Mine. Exploration will include



Western Arctic Caribou Herd

- Calving range
- Summer range
- Migratory area
- Winter range
- Peripheral range

Oil, gas, and minerals

- National Petroleum Reserve - Alaska
- BLM Special Areas
- Unavailable for oil and gas leasing
- BLM Special Area and unavailable for leasing
- Current oil and gas leases

Area of focus



building a gravel road and surface exploration facilities. The Alaska Department of Natural Resources (DNR) has approved the permit request. The U.S. Army Corps of Engineers is still considering the application. The Working Group submitted comments about potential impacts to caribou to inform the permitting process.

5. Noatak – Cape Krusenstern Road

A road is proposed from Noatak to the Red Dog road to haul fuel for Noatak and move gravel and equipment for airport improvements. The proposed route passes through Cape Krusenstern National Monument. Limited information is available and there has not yet been an opportunity for Working Group involvement.

6. Arctic Strategic Transportation and Resources

This project seeks to develop plans to support creation of roads and other infrastructure between communities and resource development areas on the North Slope. The project 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 have shown roads passing through WAH calving grounds.

YOUR INPUT IS NEEDED FOR PUBLIC COMMENT

Your voice matters! Comments from the public are an important part of development decisions. They are considered along with scientific information to guide which projects should be approved or how they should be done to minimize harm to caribou, other wildlife, the environment, and people.

Did you know the Working Group has a Resource Development Committee that keeps track of development proposals across the range of the herd and provides input? Visit the new Development tab on the Working Group website at www.westernarcticcaribou.net to keep up to date on development in the WAH range and opportunities to comment.

Every Map Has a Story- The Great Migration

Western Arctic Herd

The Western Arctic Caribou Herd (WAH) is one of the largest caribou herds in the world. With a population estimate of 259,000 caribou in 2017, they range over a territory of about 157,000 square miles in Northwest Alaska. To put this in perspective, that is roughly the size of California.

Calving Grounds

The calving ground is described as the heart of the herd, the point from which the caribou herd expands or retracts with the growth and decline of its population. In spring, pregnant cows instinctively head to this area as calving time approaches. These areas typically have a low predator population and offer quality areas for feeding. Calves are typically born during a three week period from late May to mid-June. Just two days after birth, they can travel over 10 miles per day. Within six weeks, antlers begin to grow!



Caribou Drive Lines

For centuries, Alaska Native hunters have depended on their familiarity with the landscape and the seasonal movement of animals to survive in a harsh environment. Common and strategic hunting methods involved the use of drive lines, craggy lava fields, lakes, and even dogs.

To create drive lines, stacked rock features were placed equal distance from one another to form a fence and keep the caribou in one area. Hunters and other participants used rhythmic movements and gestures to steer caribou within the confines of the drive line towards the water. A second group of hunters waited in kayaks ready to harvest the caribou. Examples of caribou drive lines can be found near lakes and lava fields in the southeast portion of the Bering Land Bridge National Preserve.



Did you Know?
Both male and female caribou have antlers. In late fall adult male caribou shed their antlers after the rut while females will often carry them until they give birth in the spring.

Winter Range

Winter blankets the tundra with snow. To the untrained eye, it can appear there is minimal food for the caribou. Lichen, their primary winter food, can be buried beneath feet of snow. Caribou gravitate towards windy mountain tops, ridges, and other windblown areas in search of shallow or snow-free cover. Their crescent-shaped hooves allow them to scoop snow to obtain the lichen.





Summer Range

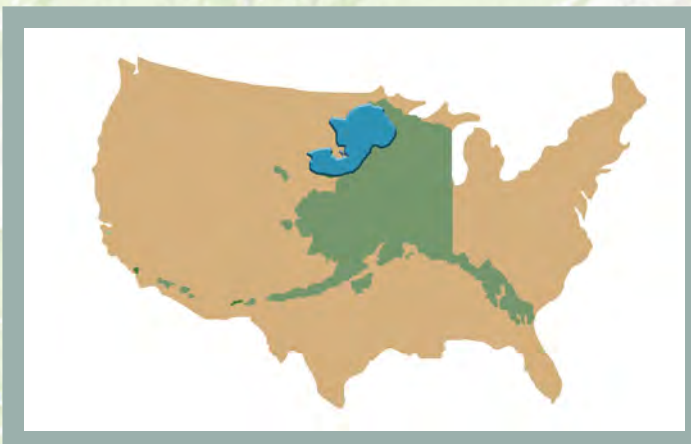
Mosquitoes begin to emerge in late June and early July. To take refuge from these noxious pests, caribou form massive groups, called aggregations, in attempts to shelter from the ceaseless swarming of the blood-sucking insects. This small window of time is vital to biologists who are tasked with counting caribou as it is the only time the herd is grouped tightly enough for the whole herd to be counted.

Did you Know?
A caribou can lose about 4.4 pounds of blood to mosquitoes each year!



Migration

Twice a year, caribou begin their journey between their summer and winter range. A variety of factors influence the timing and route of migration. In a single year, most WAH caribou walk over 2,000 miles. One WAH caribou walked over 2,700 miles which is the longest recorded annual movement to date.



Did you Know?
The WAH Range (shown in blue) is over 100 million acres.

Take a LOOK

Want to see this map come to life? For videos, fun facts and more visit the interactive story map available on the Working Group website at www.westernarcticcaribou.net.

Traditional Stewardship of Caribou

Hunter Success Working Group



Changing times change caribou hunting

Have you ever heard the phrase “hunt for the future”? Every hunter has a role to play in conserving caribou for the long run. While regulations play a part in determining a hunter’s behavior, a hunter’s own knowledge, beliefs, and values also guide their actions.

“Hunting ethics” or “hunting values” are widely agreed upon principles that outline proper behavior for the harvest and use of animals. These principles are typically deeply rooted in culture and reflect long-standing traditions. Specific practices and behaviors considered ethical can vary among cultures. For instance, the concept of “fair chase” is deeply embedded in Euro-American ethics, while humility, efficiency, and success are more central to many indigenous hunting cultures in Alaska.

In Northwest Alaska, the Caribou Hunter Success Working Group seeks to perpetuate traditional Iñupiaq hunting values. The region’s “Iñupiat Ilitqusiak” values include many items that relate to caribou hunting: sharing, humility, respect for nature, hunter success, spirituality, and responsibility to tribe. One project of the Caribou Hunter Success Working Group has been to document and share traditional knowledge specifically relating to caribou hunting practices.

Inupiaq culture, like any living culture, continues to adapt to new technologies and different perspectives. Modern tools and transportation may have largely replaced historical tools like dog teams and spears, but many concepts and traditional hunting practices carry on. What one might view as a contradiction might be understood by others as the difference between “traditional” and “historical.” For example, the historical practice of spearing multiple caribou from a kayak is carried on in a tradition of shooting multiple swimming caribou to maximize efficiency and reduce meat damage and wounding loss.

Many Inupiaq hunters believe in showing respect to animals and thanking an animal that gives itself to the hunter. A young Iñupiaq hunter driving a fast machine, wearing the latest high-tech gear, and using a modern rifle and scope can still be adhering to traditional hunting ethics rooted deeply in time and culture.

In 2018 Kotzebue elders and experienced hunters discussed how winter caribou hunting has changed. In past decades, caribou wintered far to the north of where they over-winter now, and hunting parties traveled long distances for days or weeks at a time to reach caribou. These hunts were often conducted in a group rather than by

individuals. Now, with caribou wintering closer to many villages and with widespread ownership of snowmachines, hunts are typically shorter and more individualistic.

The Kotzebue Elders offer guidance for caribou hunters on proper practices that should be maintained. They advise hunters to take their time, observe caribou carefully, and select prime animals for harvest. If caribou are migrating, they say, be smart: get ahead of their route and let the caribou come to you. If the animals are wintering and not migrating, you can approach them slowly or work with a partner to move them into a good harvest location. Show respect for the caribou by bringing home all the meat and edible parts of every animal you get, and don’t shoot into groups where you might kill or wound more animals. These are traditional hunting values in the context of modern hunting techniques.

Kiana Elders Council offer traditional guidelines for hunting along the Kobuk River in fall time. Although hunters have faster, more powerful equipment than their ancestors did, proper hunting ethics must still be observed. In the case of river hunting, this means to share and take turns. If your boat already has caribou, give other

boats a chance to approach swimming caribou. Consider the flow of the migration and the other hunters who await their chance to harvest. Always wait on the south side of the river to hunt, and allow caribou to start crossing the river before pursuing them. Leave the land, water, and camp sites clean after your visit.

Traditional knowledge comes from deep (multi-generational) understandings of the land and in this case caribou, and is not easily learned through one person or through one experience (Wray, 2018). The guidance from the Kiana Elders Council and Kotzebue Tribal Council, summarized in the above paragraphs, should be understood as summary to communicate concepts of the deeper body of Iñupiaq traditional knowledge.

For further exploration of some of these topics, see: Wray, K. Ways we respect caribou: a comparison of rules and rules-in-use in the management of the Porcupine caribou. Pages 173-189 in Parlee, B. L. & Caine, K.J. (eds), When the Caribou do not Come: Indigenous knowledge and Adaptive Management in the Western Arctic. UBC Press, Vancouver, BC, 2018.

Thank you for
your respect
and abiding
our traditions.

-Kiana Elders Council



Sharing Knowledge

Paatitaaq, Onion Portage

For the past forty years, biologists have gone to Onion Portage each fall to deploy collars on caribou. Since the early 1990s agency staff have used this opportunity to bring students to share with them current research in the field. Every year one or two schools are selected from within the Western Arctic Herd's range and this year students from Kotzebue and Point Lay participated. Although not many caribou were spotted crossing the Kobuk River during the fall of 2018, each school collared a caribou and students learned from biologists about the natural history of caribou and the historical use of the area.

Upon their return Point Lay students worked hard on sharing their experience with their community and the Western Arctic Caribou Herd Working Group. In December of 2018, four of the Point Lay students traveled to Anchorage to attend the Working Group meeting. The students shared information about their culture, the importance of caribou to their community and their experience working with biologists to collar caribou.

Biologists were only able to collar three adult caribou at Onion Portage in the fall of 2018. Collaring data is critical for inventory and management. With fewer than 70 active caribou collars in the herd biologists elected to adapt collaring methods to include helicopter net-gunning. During the spring of 2019, a total of 31 collars were deployed using the net-gunning method bringing the collar count up to an acceptable level.

Incredible experience! Thank you! I think that this was a very powerful learning opportunity for them all that they will never forget.

-Zach Stenson, Principal Kali School, Point Lay



BRING YOUR CLASSROOM TO LIFE WITH LESSONS FROM THE WESTERN ARCTIC HERD

Show your care for caribou by sharing it with others. There are many educational resources on the Western Arctic Herd for childcare providers, teachers, mentors, and parents alike!

Curriculum



Interactive and aligned to the Alaska State Standards and Next Generation Science Standards.

Classroom Visits



Educators are available to come and teach in your school.

Outreach and Education

Contact information:



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Teacher Workshops



Available for professional development and integrating science-based inquiry into your classroom.



Tech-tuttu

At Western Arctic Caribou Herd Working Group meetings, experts from a variety of backgrounds sit together around the table. Field biologists, researchers, experienced hunters and traditional ecological knowledge holders share their perspectives. While some of the discussion draws on decades or even centuries of knowledge, the conversations are also informed by what we learn through modern technologies. In this article we'll explore some current and potential future technology that might be used to help us better understand the Western Arctic Caribou Herd.



Remote sensing satellites – some already in use and more potential for future use

Satellites which capture images of snow and ice conditions, timing of “green up” in springtime, and more are used to help biologists study habitat, timing of food availability, and other conditions that affect caribou. Many of the places that Western Arctic caribou spend time are remote and far from any communities. This means there is not much weather data or on-the-ground observations of where the caribou are spending time. Remote sensing through satellites can help fill these knowledge gaps, especially as imaging tools improve over time.

GPS satellites

– currently in use for multiple years

Much of what we know about caribou locations and migrations comes from the use of satellite collars. Caribou collars in the Western Arctic Herd include both satellite and VHF transmitters. The satellite transmitters send a signal every 8 hours, which is received by satellites orbiting the earth and beamed back down to biologists. This type of information helps us understand when and where caribou are moving, how quickly they travel, and where they spend their time – even when weather or daylight conditions mean biologists are stuck back in the office. The VHF signals are used when the biologists go out to observe the animals, because they can be heard from aircraft to locate the collared caribou in real time.

Drones

– not currently in use here

As flight drone technology improves, their potential as a research tool is expanding. Drones are small flying machines piloted remotely by a person on the ground that can carry cameras and other instruments. Drones have been used to video caribou in Canada in a study on how different animals in the herd interacted with each other and influence each other's movement. Limits on drone capability include battery life (especially in the cold), how far they can fly from their pilot, and rules to prevent their interference with other aircraft. There are also questions on whether drones could disturb caribou, which is a particularly sensitive issue during fall migration. Partly due to these concerns and limitations, drones are not being used to study the Western Arctic Herd, but may be something we see in coming years as the technology develops. Drones have been used with success to monitor bird colonies and marine mammal haul outs throughout Alaska.

**Reminder: hunters may not take caribou with the use of drones, and drones cannot be used to scout for caribou.*

Arctic/ Western Region Board of Game Meeting will take place in Nome during 2020

Understanding the Alaska Board of Game

It often comes as a surprise to many Alaskans to learn that the state's hunting and trapping regulations are not made by the Alaska Department of Fish and Game. This job falls to the Alaska Board of Game. While the Board makes final decisions, there are several ways for Alaska residents to participate.

ADF&G
ADF&G staff provide information to advisory committees and the public. The department may also submit proposals to the Board of Game.

New Hunting & Trapping Regulations
After a legal review, ADF&G publishes the regulations, and Alaska Wildlife Troopers enforce them.

7 members appointed by the governor

On a **3** year cycle, proposals are considered for each ADF&G region

2

regulatory meetings per year that are open to the public

2 regulatory meetings per year that are open to the public

Proposals & Comments

3 year cycle, proposals are considered for each ADF&G region

Majority Vote of the Board

Alaska Board of Game

Advisory Committees
Receive information from ADF&G and discuss local wildlife concerns. ACs submit and comment on proposals and provide testimony to the Board.

The Public
The public may bring concerns to their local Advisory Committee or submit their own proposals, written comment, or testimony to the Board of Game.

Learn more at www.boardofgame.adfg.alaska.gov
2019

Taikuu

Farewell Benedict Jones

After many years of service, at the close of the 2018 meeting Benedict Jones resigned his seat as the Western Arctic Caribou Herd Working Group Middle Yukon River Representative. Reflecting on his contribution to the stewardship of caribou and time spent as a member of the Working Group, Benedict recalls the fond memories of his youth with family and subsistence.

Caribou are a piece of what has held his community, family, and their way of life together through generations. Benedict Jones has shared his wealth of knowledge and believes his success on the Working Group comes from knowing the stories of the elders in his area and learning from the experiences of those before him. He believes as part of the Working Group he was able to pass that on and share it with others. He hopes that the Working Group continues to try to maintain the population. Thank you for over 15 years of service as a member of the working group. Below is a collection of Benedict's stories from the 2011 Working Group Meeting.



Working Group member Benedict Jones at the Western Arctic Herd Working Group in December 2018.

My Grandmother a Caribou Clan

The Caribou Clan people are quick and nimble, just like the caribou. When caribou shifted through the area, the caribou clan people would travel with the caribou as a means to survive. My grandmother told many stories about caribou. Caribou could predict the future.

One time when the caribou came through, they made a camp by the Ruby Mountains. The ravens spoke with the caribou. "We're so sad," said the caribou. And the raven asked them, "Why are you so sad?" The caribou replied, "There will be big changes in our future." The raven asked, "What changes?" Caribou said, "There will be people coming in and killing us off with their guns."

They also told the raven that they were scared. "Why?" asked Raven. Caribou said, "Now there are no wolves in the Interior and he said wolves would be coming. The wolves are fast and our legs are too short. We can't outrun the wolves." So the raven said, "Well, put sticks on your legs." So the caribou did. The caribou were happy and thankful to the raven because they would be able to outrun the wolves."

"One time back in 1939, we were at our camp up in Koyukuk and my dad wanted a pair of new mukluks because his old ones were wearing out from hunting every day. My grandmother got up in the morning and she sewed so fast, just like a sewing machine, and she made the pair of mukluks. That evening my dad came home around supper and she handed the new pair of boots to him. She was fast and strong, just as Caribou Clan people were, just like the caribou."

How we learned to hunt caribou

Before firearms were introduced, bow and arrow were used to hunt caribou. An elder told me that sometime in late summer they'd start practicing for their caribou hunts using dried salmon, they would hang salmon up on the willows. They would have a young kid run as fast as he could and the fish would be tied way up above their head and the men would be practicing with arrows, shooting at the salmon trying to hit that fish and they'd practice like that for about a month before they'd go caribou hunting. Another way they'd practice is that they would put that dry fish up on a stick and then they'd shoot at it with arrows to see how many times they could hit that dry fish.

"The way they'd come up to a caribou out in the flats, in open country, they'd chop down

a spruce tree and carry it while crawling. The caribou would suspiciously watch the tree. They (the caribou) would come towards it (the tree) because the tree is moving until they were within shooting range of the caribou." It was an effective method for sneaking up on caribou.

Holding up the steamboats

An elder long ago spoke about the caribou. He worked on the steamboats during the gold rush days out on the Yukon. In late August the caribou migrated from the Alaska Range up north to Huslia, Koyukuk, and the Tanana area. He recalled a time when traveling back upriver, and they ran into a caribou herd migrating across the Yukon. There were so many caribou that they couldn't go through. He estimated probably a million caribou migrating across the Yukon and he said they had to tie the boat up. They tied up for seven days waiting for the caribou to cross. They ran out of wood for the steamboats, and had to go back down 40 miles to the wood pile to pick up some more wood. On the tenth day, they came back and they said there was still caribou going across the river night and day.



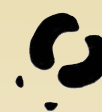
CARIBOU BITS



Caribou are amazing swimmers thanks to their buoyant, hollow hair and wide hooves. Adults are known to swim as fast as six miles per hour.



Which weighs more: the 17 trillion mosquitoes or 950 thousand caribou in the state of Alaska? Scientists estimate there are 96 million pounds of mosquitoes compared to 230 million pounds of caribou. A caribou can lose about 4.4 pounds of blood to mosquitoes each year!



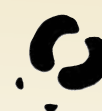
Western Arctic Herd caribou walk an average of 2,000 miles per year. The longest recorded movement of a Western Arctic Herd female caribou that NPS biologists have monitored was 2,700 miles in a single year!



Antlers of captive female reindeer (domestic caribou) average 3 pounds and can weigh up to 7 pounds. Antlers of males weigh an average of 17 pounds and can reach 29 pounds.



Caribou hair can trap air within its structure. This gives the hair excellent thermal insulating properties.



Caribou of the Western Arctic Herd have been documented crossing 35 miles of sea ice in Kotzebue Sound from the Seward Peninsula to Cape Krusenstern National Monument during spring migration.



Want to learn more? Follow us!

@ADFGWildlifeNorthwestAlaska
@SelawikNationalWildlifeRefuge

@KotzebueMuseum
@BeringLandNPS

@GatesOfTheArcticNPS

Source: www.nps.gov/articles/caribou-did-you-know

Western Arctic Caribou Herd Working Group



Back row, left to right: Eli Nukapigak, Jake Jacobson, Charlie Lean, Neil DeWitt, Julie Owen, Cyrus Harris, Tim Fullman, Morris Nassuk, Tom Gray; middle row: Caroline Cannon, Wanda Kippi, Pollock Simon, Allen Barrette, William Bernhardt, Charles Saccheus, Elmer Seetot Jr.; front row: Benedict Jones, Vern Cleveland

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

- Anchorage Fish & Game Advisory Committee
- Buckland, Deering, Selawik
- Anaktuvuk Pass & Nuiqsut
- Elim, Golovin, White Mountain
- Fairbanks Hunters
- Hunting Guides
- Kivalina & Noatak
- Kotzebue
- Koyukuk River (Huslia, Hughes, Allakaket, Bettles, Wiseman)
- Lower Kobuk River (Noorvik & Kiana)
- Middle Yukon River (Galena, Koyukuk, Nulato, Kaltag)
- Point Hope & Point Lay
- Nome
- Conservationists
- N. Seward Peninsula (Teller, Brevig, Wales, Shishmaref)
- Reindeer Herders Association
- S. Seward Peninsula (Koyuk, Shaktoolik, Unalakleet, Stebbins, St. Michael, Kotlik)
- Transporters
- Upper Kobuk River (Ambler, Shungnak, Kobuk)
- Atqasuk, Utqiagvik & Wainwright

Representatives

- Neil DeWitt
- Ron Moto, Sr.
- Eli Nukapigak
- Charles Saccheus
- Allen Barrette
- Jake Jacobson
- Enoch Mitchell
- Cyrus Harris (Vice-Chair)
- Pollock Simon, Sr.
- Vern Cleveland Sr. (Chairman)
- Benedict Jones (now vacant)
- vacant
- Charlie Lean
- Tim Fullman
- Elmer Seetot, Jr.
- Tom Gray
- Morris Nassuk

- Julie Owen
- William Bernhardt
- Wanda Kippi

Alternates

- Kenny Rodgers
- Percy Ballott
- vacant
- Morris Nakaruk
- Rod Arno
- John (Thor) Stacey
- Daniel Foster, Sr.
- Willie Goodwin
- Jack Reakoff
- Kirk Sampson
- Micky Stickman
- Caroline Cannon
- Jacob Martin
- David Krause
- Christine Komanaseak
- Harry Karmun
- Leo Charles, Sr.

- Sheila Spisak
- Oscar Griest, Sr.
- vacant

The following agencies support the Working Group, but are not voting members:

- Alaska Dept. of Fish & Game, Arctic/ Western Region, Nome Regional Supervisor- Tony Gorn**
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- US Bureau of Land Management, Anchorage Bonnie Million -Field Manager**
1-800-478-1263 or (907)267-1246, bmillion@blm.gov
- US National Park Service, Western Arctic Parks, Kotzebue, Superintendent- Maija Lukin**
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Please bring questions regarding the Working Group to:

- Chair, Vern Cleveland**
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- Vice-Chair, Cyrus Harris**
(907)442-7914, charris@maniilaq.org
- Facilitator**
Jan Caulfield, (907)523-4610, janc@gci.net

Please send questions regarding Caribou Trails to:

- Alaska Dept. of Fish & Game Wildlife Education and Outreach Specialists -Heather Jameson**
(907)443-8196, heather.jameson@alaska.gov

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



Run on Down to the Next Caribou Meeting:

December 11-12, 2019
Anchorage, AK
Check the website soon for details!
www.westernarcticcaribou.net



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