

CARIBOU TRAILS

HERD DECLINE AND IMPACT ON PEOPLE - JIM DAU

The Western Arctic Caribou Herd (WAH) last peaked around 2003 at 490,000 caribou. In 2011, it had declined to about 325,000 caribou. Even though it has substantially declined, the WAH is probably the largest caribou herd in North America at this time.

Caribou populations are constantly changing across the world and the WAH is no exception. These fluctuations are a normal part of caribou biology. At high population levels caribou herds can exceed the carrying capacity of their range. When this happens cows may produce fewer calves that tend to have low survival, and the average body size of adult caribou can decline. Bulls tend to have higher mortality rates than cows at all population levels but, when populations decline, the proportion of bulls in the herd often declines as well. When caribou numbers are high, numbers of predators often increase and humans tend to harvest more caribou. Add severe weather into this mix and it is easy to understand how caribou numbers can swing between high and low levels.

For many caribou herds, and especially for the largest herds, the difference between population 'lows' and 'highs' can be extreme. When the WAH last declined it went from about 242,000 caribou in 1970 to roughly 75,000 caribou in 1976 – an average 18% decline each year. There was uncertainty associated with the 1976 population estimate but, regardless of the exact number, it is clear that the herd 'crashed' during that time. Within the past 10 years, several very large Canadian caribou herds have experienced even greater declines. This is not necessarily evidence of bad management or irresponsible use: it has probably been happening for tens of thousands of years. ↓

WHY IS THE DECLINE OCCURRING?

The short answer is that calf survival has not been able to keep up with adult caribou deaths. Given the size and remoteness of this herd, biologists have done a good job of monitoring the status of this herd for over 25 years; however, we've not focused on explaining why the herd has grown or declined. But we do have some information about factors that typically affect caribou populations. The Bureau of Land Management (BLM) has documented measurable reductions in lichens (an important food for caribou) and increases in grasses and shrubs on WAH winter range. Even so, recent health assessments and countless reports from hunters indicate that WAH caribou have generally remained in good body condition with little evidence of disease throughout this current decline.

Harvests have been stable during recent years. We do know that many caribou died during some years when rain-on-snow events occurred.

Reports from subsistence hunters, long-time commercial operators and department biologists indicate that numbers of wolves and brown bears are higher now within portions of WAH range than in previous years. Although we have no data on losses of caribou to these predators, they may be contributing to high adult caribou mortality and low calf survival. A combination of these factors is probably working together to affect the size of this herd.



Photo Jim Dau

HOW WILL A DECLINE IMPACT PEOPLE? This will depend on how low caribou numbers go and how quickly the herd declines. The Western Arctic Caribou Herd Working Group (Working Group) developed the table below to help guide management activities and harvest regulations based on caribou population size and trend. These recommendations do not have any legal authority nor are they inflexible rules for managing this herd. Instead, they are intended to help provide management guidelines to users and regulatory boards (Alaska Board of Game and Federal Subsistence Board) regarding how to respond to changes in the status of this herd. Hopefully, this will help local residents, visitors, conservationists, managers and biologists all agree on how to best manage and conserve this herd for future generations.

LIBERAL MANAGEMENT (GREEN):

- Reduce harvest of bulls by nonresidents to maintain at least 40 bulls:100 cows.
- No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 40 bulls:100 cows.

We are here!

This means the herd is in a slight decline. However, the population is still greater than 265,000 so our harvest levels remain liberal or unchanged.

CONSERVATIVE MANAGEMENT (ORANGE):

- No harvest of calves.
- No cow harvest by nonresidents.
- Restriction of bull harvest by nonresidents.
- Encourage voluntary reduction in cow harvests by residents.
- Limit the subsistence harvest of bulls only when necessary to maintain a minimum 40 bulls:100 cows.

Management Level	WAH Caribou Management Chart		
	Declining Low: 6%	Stable Med: 7%	Increasing High: 8%
Liberal	Pop: 265,000+ Harvest: 18,550-24,850	Pop: 230,000+ Harvest: 16,100-21,700	Pop: 200,000+ Harvest: 16,000-21,600
Conservative	Pop: 200,000-256,000 Harvest: 14,000-18,550	Pop: 170,000-230,000 Harvest: 11,900-16,100	Pop: 150,000-200,000 Harvest: 12,000-16,000
Preservative	Pop: 130,000-200,000 Harvest: 8,000-12,000	Pop: 115,000-170,000 Harvest: 8,000-12,000	Pop: 100,000-150,000 Harvest: 8,000-12,000
Critical Keep Bull:Cow ratio ≥ 40 Bull:100 Cow	Pop: <130,000 Harvest: 6,000-8,000	Pop: <115,000 Harvest: 6,000-8,000	Pop: <100,000 Harvest: 6,000-8,000

PRESERVATIVE MANAGEMENT (YELLOW):

- No harvest of calves.
- Limit harvest of cows by resident hunters through permit hunts and/or village quotas.
- Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows.
- Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to non-qualified users may be necessary.

CRITICAL MANAGEMENT (RED):

- No harvest of calves
- Highly restrict the harvest of cows through permit hunts and/or village quotas.
- Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows.
- Harvest restricted to residents according to state and federal law. Closure of some federal public lands to non-qualified users may be necessary.

The above chart is published in the Western Arctic Caribou Herd Working Group Management Plan (updated 2011). If you would like a hard copy please contact Working Group members or agency representatives listed on the back of this newsletter. You can also download the Management Plan from our website: www.westerarcticcaribou.org

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THE REINDEER WHISPERER

JOHNSON STALKER, KOTZEBUE ALASKA



Left, Johnson Stalker (R) and James Smith (Johnson's uncle) circa 1987 heading to Noorvik with their sled-deer for the annual NANA meeting. Above, Johnson at the 2013 Annual meeting.

A LIFE WITH REINDEER

Reindeer herding is a way of life. When I was old enough to go to school, my dad got me some books so I could learn. This didn't work out too well. So instead he taught me to be a reindeer herder, because that is what he knew. I have been a herder my whole life. My dad was John Stalker and Ross Stalker was my uncle. They kept a corral at Noatak. There were no caribou then, just reindeer. I tried to get mad at my dad and uncle one time because they wouldn't let me go to school. Now I understand they taught me the right way too. They taught me the way of the reindeer.

I started making sled-deers (reindeer trained for traveling with sleds) when I was young. I was given a young fawn by my dad, and my mom made me a halter for her. From then on I trained lots of deer. I even made a sled-deer from a caribou down in Buckland. I was sent to train young guys from Wales on how to be herders. Before too long I got real good at castration. They called me all over the state to castrate bulls. They called me, Dr. Stalker.

"You can always tell a caribou mixed into a herd of reindeer. It's just like a white guy in a room full of Eskimos!"

Johnson Stalker, Kotzebue

the herd. Eventually so many caribou mixed with the reindeer that they couldn't be separated. When caribou get mixed in with the reindeer, you can try to separate them, and you might be lucky and get them back. Lots of herders lose their reindeer to the caribou.

TAKING CARE OF THE HERD

Sometimes we would put lights on our reindeer. Why? This is for a wolf. Wolves take reindeer and only eat their tongues. We would make a big red light out of a lantern and fabric and leave it on all night. It worked to keep wolves away, but sometimes they would get smart and figure out they could get reindeer better during a storm. We would have to take turns especially at fawning time to stay with the reindeer and keep predators away. We had to be up day and night to take care of the reindeer. Sometimes we would have to save the mother from a difficult

birth and keep the bulls away from fawns. One fawn might come early and then would become food for the fox and ravens. The ravens would make holes on a new baby and quite a few died and became fox food. Lots of fawns got left behind when crossing a river.

Reindeer herding is difficult and requires hard work and living with the animals. Especially taking care of the calves.

"Reindeer use their back feet to tap their antlers. They will use the same tapping method year after year and make their antlers just the shape they want them. After a while, you can recognize individual reindeer because of the antler shape."

Johnson Stalker, Kotzebue

TRAVELING WITH REINDEER

I was lucky to spend my time with reindeer and I traveled all over with them. I drove reindeer from Kotzebue to Nome and around Western Alaska. I mostly walked. In 1962 I went to Fairbanks. I stayed two weeks to give reindeer rides. They put reindeer standing in a Wein Alaska cargo plane, and didn't even tie them down or put them in a cage. I was there with them. It was a wild ride, but the reindeer were good. When we landed, we rode in a truck and I stood in the back of the truck with them. I took reindeer moss from Kotzebue with me so they would have their favorite food. I would often give rides during Christmas in Nome. Reindeer are good when you train them right. They know their names; they are smart, just like a dog. I traveled to Nunivak Island to help the butchers capture their reindeer. I had a good herding dog that helped me. I also went to Birmingham, Alabama and received an award for being an outstanding young farmer.

I don't reindeer herd anymore. I just have good memories and stories. Reindeer herding was the trade I learned. Now, I am 77 and people say to me all the time, "Johnson, you don't look 77!" It's because I walked my whole life with the reindeer.

Johnson Stalker with his 'sled-deer' near Noatak



CARIBOU FAMILIES

LISTENING TO OUR PARENTS, KOBUK ALASKA

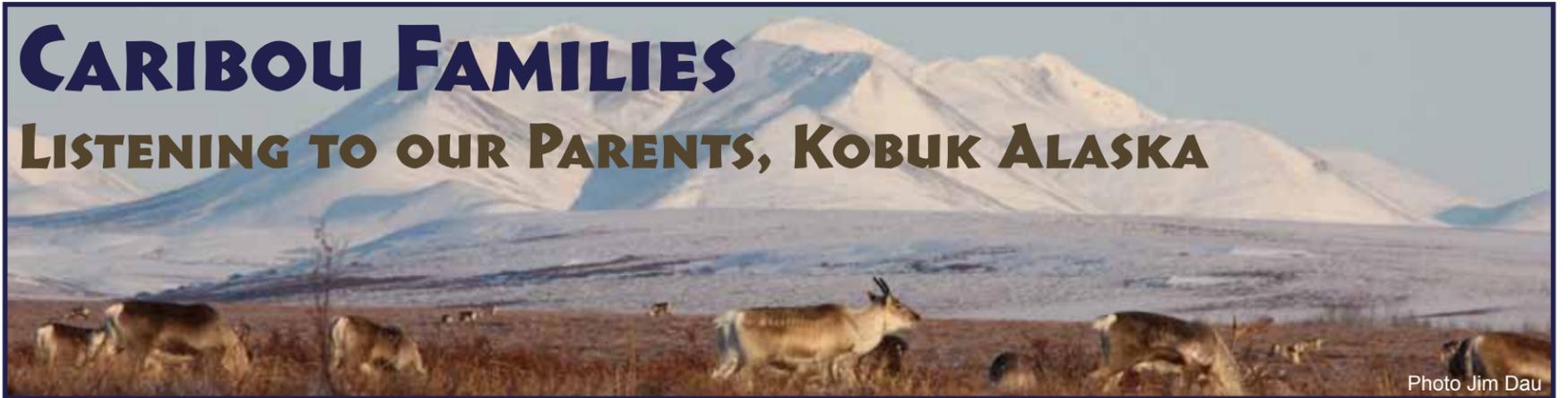


Photo Jim Dau

DUSTIN HARVEY INTERVIEWS HIS MOTHER, EVA



What is your earliest memory regarding caribou?

When I was four or five I remember my dad shooting a caribou at camp.

How much and in what ways does your family use caribou as a resource?

As much as we can get. As a resource, it is our livelihood. We eat it, wear it, and caribou can be used in many different ways!

What does your family think about the proposed road from the Dalton Highway through to Bornite and how might this affect the caribou?

Of course it will dramatically make a difference good and bad. What we are worried about is how it will effect caribou migration. Will it let them migrate where we will have to go further to hunt? It might shift their migration path and it could make it impossible to get caribou. Scary thought!

In what way do you think you and your family might use caribou as a resource in the future?

I hope and pray my children use caribou the way I did when I was young. I grew up on it. I hope the knowledge of our reliance on caribou doesn't dramatically change.

How does your family cope with lack of caribou meat in the years that the caribou don't travel close to Kobuk?

Caribou means food for all families in Kobuk. If we can't get it the whole town hurts. If they aren't close we do whatever we can to get it by boat or snow machine. I don't think we have ever run out of caribou meat. A couple of years we had to save but we always had caribou meat.

SAMANTHA HORNER INTERVIEWS HER MOTHER, JHONETTA



What is your earliest memory regarding caribou?

Watching my Ana and Tata skin a caribou and cut it up. We would chew on the chewy part of the legs.

How much and in what ways does your family use caribou as a resource?

We need about four caribou stored, which will last through the winter months, until spring time, we have caribou as part of our diet.

What does your family think about the proposed road from the Dalton Highway through to Bornite and how might this affect the caribou?

I am all for the road, in hopes that prices will go down, and am hoping that our caribou will be protected.

In what way do you think you and your family might use caribou as a resource in the future?

It will always be the same as the way we were taught.

How does your family cope with lack of caribou meat in the years that the caribou don't travel close to Kobuk?

Felt like we were starving, but we were lucky to have family in Ambler to send us some.

EVA HORNER INTERVIEWS HER DAD, HENRY



How much and in what ways does your family use caribou as a resource?

Whatever our father could get with dog team we would take. Nothing was wasted and caribou was used for food, and the skin was used to make clothing, like leggings.

What does your family think about the proposed road from the Dalton Highway through to Bornite and how might this affect the caribou?

Bring it on! After working at Prudhoe Bay I've seen caribou crossing the road without any problems.

In what way do you think you and your family might use caribou as a resource in the future.

Stores don't stock beef. We eat caribou, and if not, microwavable items.

How does your family cope with lack of caribou meat on the years that the caribou don't travel close to Kobuk?

We just live with it and have to travel farther to look for them.

PETER GARFIELD INTERVIEWS HIS MOTHER, LORETTA



What is your earliest memory regarding caribou?

As a little girl trying to learn how to skin and cut up the meat.

How much and in what ways does your family use caribou as a resource?

Pretty much the whole caribou. Skin and food help the family.

What does your family think about the proposed road from the Dalton Highway through to Bornite and how might this affect the caribou?

Not sure.

In what way do you think you and your family might use caribou as a resource in the future?

Meat and skin. Meat to feed family and the skin for mukluks or something else.

How does your family cope with lack of caribou meat in the years that the caribou don't travel close to Kobuk?

Trying our best. There is also relatives in other villages who will help when you need food-caribou meat.

Photos above (L-R) Eva Cleveland and Dustin Harvey, Kobuk students presenting at the annual Working Group meeting, Eva and Henry Horner, and Peter and Loretta Garfield.



Photo Grant Klotz

WORKING TOGETHER AND SHARING CARIBOU



WACH Working Group, 2012. Photo ADF&G

WESTERN ARCTIC CARIBOU HERD WORKING GROUP (WACH) WORKING FOR YOU AND CARIBOU

The Working Group includes subsistence hunters living within the range of the herd, reindeer herders, other Alaskan hunters, hunting guides, transporters, and conservationists. The group’s goal is to work cooperatively with each other and with regional wildlife agencies to protect the health of the herd. The group works hard to ensure the WAH will be enjoyed by all Alaskans long into the future. Please contact your representative (see back page) with any questions or concerns you have about caribou.

The 2013 meeting was filled with good information for caribou users. The Working Group shared observations in the caribou round table, learned more about roads to resources, and enjoyed presentations focused on traditional knowledge as well as the science behind the herd. The meeting continues to be a place where a diverse group joins together to learn and share information that benefits caribou and those who depend on them. Interested in more information? You can access meeting minutes, find previous issues of Caribou Trails, and read the management plan all at www.westernarcticcaribou.org.



UNIT 23 USER CONFLICT GROUP WORKS TO ADDRESS HUNTING CONFLICTS

Fall hunting in Unit 23 in northwest Alaska has been the subject of some conflict since the early 1980s, particularly between local hunters, visiting hunters and commercial operators. The Unit 23 User Conflict Group formed in early 2008 to improve communication about issues related to fall hunting and to work cooperatively toward solutions that all can support.



Unit 23 User Conflict Group 2012. Photo ADF&G

Key issues that the group has worked to resolve include management of high-use areas hunted by both local and visiting hunters, potential disruption of caribou migration by humans activities, the importance of subsistence hunting, proper meat care, coordination among management agencies, importance of having data and regulatory tools to manage human use, and coordination on enforcement of regulations.

The Unit 23 User Conflict Group has no authority, but makes advisory recommendations to the regulatory agencies and boards that manage hunting, land use and wildlife in Unit 23. The group works to reach consensus agreement on its recommendations. Curious to learn more?

Visit: <http://www.adfg.alaska.gov/index.cfm?adfg=wildlifeplanning.unit23>



WACH WG 2012 Photo ADF&G

THE MISSION OF THE CARIBOU HERD WORKING GROUP

“To work together to ensure the long term conservation of the Western Arctic Caribou Herd and the ecosystem on which it depends, and to maintain traditional and other uses for the benefit of all people now and in the future.”

THE MISSION OF THE UNIT 23 USER CONFLICT GROUP

The purpose of the group is to find solutions to hunting conflicts that will preserve the Inupiaq values of the region, including opportunities for local hunters to take caribou as needed, while also providing reasonable opportunities for visiting hunters to hunt caribou in the unit.

AROUND THE RANGE OBSERVATIONS- BY USFWS

THE CARIBOU ROUND TABLE: Members of the Working Group share their observations of caribou and conditions on the ground over the past year. Here are some of the common themes that came out of the December 2012 round table:



Photo ADFG

- Wet summer and fall weather, and accompanying high water levels, was remarked upon from Koyukuk up through Barrow.
- The freeze-up this year was unusual, with high water levels at freeze-up which then dropped and resulted in broken ice that made travel difficult.
- Residents from across the range of the herd likewise noted “everyone is hurting for snow,” as of the December meeting. Some commented on how this may affect caribou movements, since “caribou don’t like to walk on ice.”
- Residents reported seeing quite a few wolves and bears both near communities and in the field. Several Working Group members discussed how changes in hunting, trapping and herding activities may influence predator populations.
- Concerns were voiced over increasing development, noise, and helicopter traffic impacting caribou and hunter’s access to caribou.
- Good caribou harvests were reported from every region, although some hunters had to hike to reach animals. Caribou were present at least part of the year near most communities.
- Majority of hunters reported that the caribou they brought home were healthy, with ample fat and few signs of disease or parasites.

DO YOU HAVE OBSERVATIONS TO SHARE? COME TO THE ANNUAL MEETING OR SEND AN EMAIL!
(CONTACTS ON THE BACK OF THIS NEWSLETTER)



Photo Nedwick

North Slope Region

Calving seemed later than usual, calves had ankle problems, and calves were small in the autumn and many were being abandoned near river crossings.



Photo Jim Dau

NANA Region

Many hunters are facing challenges, from high water and rough ice making travel harder, to predators coming near towns, and development bringing changes to the landscape.



Photo ADFG

Koyukuk & Middle Yukon Region

Unusual weather was paired with decent caribou hunting success. When caribou moved near communities, word spread quickly on CB, and elders reminded hunters to avoid any wasting in hopes that caribou would continue to come back in future years.



Photo USFWS

Seward Peninsula

Challenges with fishing this year, but were happy to report plenty of caribou in their region including some that stay there year-round.

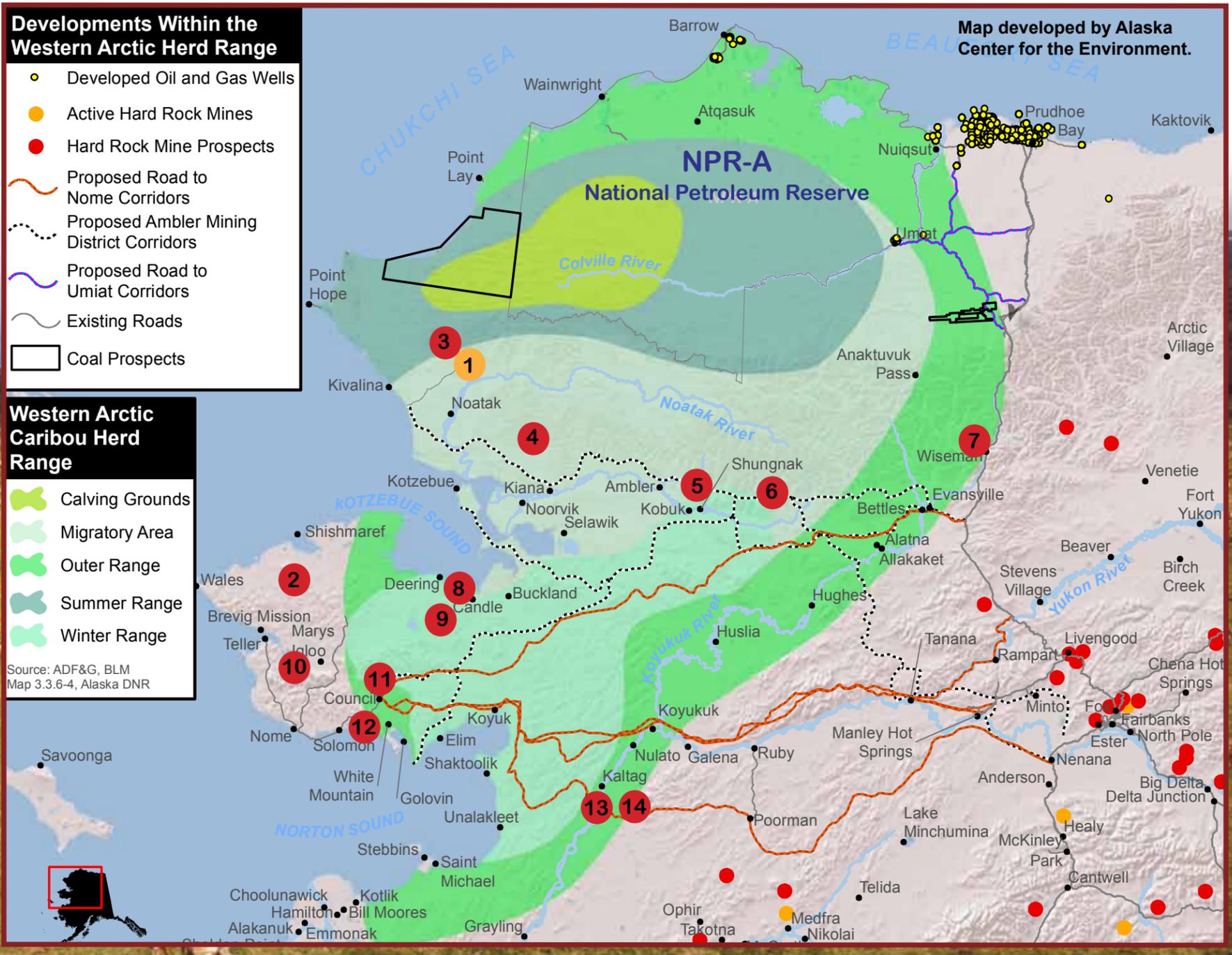
Region Wide

“I’ve never seen so much rain!” That seems like a simple comment; everyone around the region noticed what a wet summer and fall we had in 2012. This observation carries extra weight when the person making it has many years of experience hunting in an area and can compare weather over time. And, the hunter can speak to impacts on caribou, such as standing water on the tundra during freeze-up making hard times for caribou during the winter.



A BUSY PLACE: DEVELOPMENTS IN CARIBOU COUNTRY

One development project alone is not likely to disrupt the health of the entire Western Arctic Caribou Herd. But the Working Group is concerned that the combined impacts of multiple projects within the range of the herd could have a cumulative effect on the herd and future of subsistence uses. Below are potential projects that need to be studied in combination with other possible projects in order to protect the future of our caribou.



- | | | |
|---|---|--|
| <p>1 Red Dog Mine-Teck Resources and NANA Regional Corp
Largest lead and zinc mine in the world. Exact size unknown
*Operating Mine</p> <p>2 Kelly Creek Mine-Graphite One Resources Inc.
Gold Mine 105,000 acres
*Abandoned prospect</p> <p>3 Lik Mine-Zazu Metals and Teck Resources
Zinc, lead, and silver 5,500 acres
*Prospect</p> <p>4 Baird Mountain-Tintina Resources
Zinc, lead, and copper 80,600 acres
*Prospect</p> <p>5 Upper Kobuk Mineral Project-Nova Copper and NANA Regional Corp
Copper, zinc, gold, silver 445,000 acres
*Prospect</p> | <p>6 Sun Mine-Andover Ventures
Zinc, copper, lead, silver, gold 45,920 acres
*Prospect</p> <p>7 Nolan Creek-Silverado Gold Mines
Gold, antimony
Size unknown
*Prospect</p> <p>8 Anugi Mine-NANA Regional Corp
Zinc, lead, silver
Size unknown
*Prospect</p> <p>9 Kugruk Mine-Tintina Gold
Copper, iron, gold 177,280 acres
*Prospect</p> <p>10 Graphite Creek Mine- Graphite One Resources and Cedar Mountain
Graphite 7,680 acres
*Prospect</p> | <p>11 Council Gold Mine-Millrock Resources, Bering Straits and Council Native Corporations
Gold 73,000 acres
*Prospect</p> <p>12 Bluff Mine-Millrock, Ryan Gold, Valdez Gold, Bering Straits and White Mtn. Native Corporations
Gold 35,000 acres
*Prospect</p> <p>13 Silver Chalice-Next Gen Metals, Anglo Alaska Gold Corp.
Silver, gold 5,000 acres
*Prospect</p> <p>14 Honker/ Roundtop-Western Alaska Copper and Gold Co.
Copper, molybdenum
Size unknown
*Prospect</p> |
|---|---|--|
- *Only mines within the range of the herd are highlighted here. Mine information from Ground Truth Trekking. To read more about mining around Alaska, visit www.groundtruthtrekking.org/mines/.

CARIBOU MOVEMENTS AND THE RED DOG ROAD -JIM DAU



Photo Jim Dau

This photo of caribou near Port Site in 2011 gives no indication that the road affected their movements. However, telemetry data indicate that for some individual caribou this may not be the case.

The proposed road to Ambler currently being considered by the State of Alaska would connect the Dalton Highway to Bornite, a mine north of the village of Kobuk. Someday this road could continue west or southwest to a deep water port in either the Chukchi Sea or Bering Sea, although current plans suggest this is unlikely. It is still not certain whether any of this road will be built; however, since 2009 the State of Alaska has invested \$10 million to research it and has requested over \$8 million in the 2013 budget to fund permitting. The State and others, including NANA, are interested in developing this road.

In March 2012, the Alaska Department of Transportation held a meeting in Ambler to update residents of the upper Kobuk villages about this proposed road. At that meeting a resident of Ambler asked, “We’ve had a road near Red Dog for over 20 years. How do the caribou move up there?”

As a biologist, I had to admit that although I’d surveyed the length of the Red Dog road almost every fall since 1990, I hadn’t analyzed movement data from satellite-collared caribou in relation to the road. My direct observations consistently indicated that although caribou often paralleled this road for a short distance and briefly lingered before crossing it, it appeared that they usually crossed. I promised the group that I’d look at our telemetry data as soon as I returned to Kotzebue. Here are some preliminary results.

The previous fall (2011) the Alaska Department of Fish and Game (ADF&G), U.S. Fish and Wildlife Service (USFWS), National Park Service (NPS) and Bureau of Land Management (BLM) had 74 satellite collars deployed in the herd. Most of the GPS collars used in fall 2011 were provided by NPS. Twenty one collars (28%) came within 30 miles of the Red Dog road. Eighteen of the 21 caribou (86% of the subsample) that came within 30 miles of the road either changed their direction of travel (17 caribou) or stopped migrating (one caribou) as they approached it. The three ‘other’ satellite collars that came within 30 miles of the road also changed their direction of travel; however, each of them barely came within 30 miles of the road and other factors may have affected their movements.

The 17 caribou that changed direction of travel as they approached the road did not parallel the road a short distance before crossing. Instead, they reversed their direction of travel and moved northwest -some as

far as Point Hope- before heading back south to eventually cross the road. Most of these 17 caribou approached the road several times before crossing it.

For comparison, I also looked at the movements of 17 collared caribou that migrated through the middle Noatak drainage just east of Red Dog. None of these animals reversed direction as did the 17 caribou near Red Dog road. However, these numbers regarding caribou speed and direction are preliminary and likely to change with additional analyses.

In the Red Dog area caribou traveled an average of six miles per day as they approached the road, during changes in their direction of travel near the road, and at the time of crossing. After crossing the road, though, their rate of travel increased to about 11 miles per day until they reached their winter range. Based on preliminary analysis of speed and direction of travel, caribou changed their migration movement at an average distance of 18 miles from the road. The average time from when a caribou first changed its direction of travel to when it crossed the road was 44 days (the range was 16--84 days). All of these numbers will change with additional analyses, but the fact remains that in 2011 most of the caribou that approached the Red Dog road substantially changed their movements near the road.

Were caribou movements during fall 2011 different from other years? In 2012, only 6 of 64 satellite-collared caribou (9% of these collars) came within 30 miles of the road. Three of them changed their direction of travel to go around the road and mine to the east,

while the other three crossed the road without changing their direction of travel. Based on data collected since 1990, it appears that the road influenced caribou in some years, whereas in other years they crossed with little difficulty. I’m not sure why individual caribou had behavioral responses to the Red Dog road in some years and not other years, but I suspect that it has something to do with the ‘leaders’ in the migration. **“Let the leaders pass and the other caribou will follow”** is a statement I’ve heard elders repeat many times, usually in regard to hunting. I think the same wisdom applies to roads and other sources of disturbance. If caribou near the front of a migration respond to the road, their response could affect many of the caribou behind them. Caribou survive by following other caribou – hunters have known this for thousands of years.

So far, this work has just begun. A number of other biologists are modeling caribou movements near Red Dog using methods that consider other variables in addition to the road, such as terrain, vegetation, and other man-made structures along the road.

Would the proposed road to Ambler affect caribou movements in similar ways as the Red Dog road? That would depend on a variety of factors. The current thinking is this road would not extend west of Bornite and that it would not be open to the public. These measures could significantly reduce its effects on caribou. But traffic levels, other human activities, the placement and elevation of the road, construction of structures along the road and many other things could still affect caribou.

Alaska has decades of experience showing that caribou can co-exist with roads, and there’s no question that the proposed Ambler road would benefit the public. It’s hard to imagine what Alaska would be like today without the benefits of North Slope oil, the Trans Alaska pipeline and Dalton Highway. However, roads come with costs – to caribou and to people – and in order to make informed decisions people need to understand those costs as well as the benefits of proposed development projects before committing to them. Also, developers need to know how to minimize potential costs when designing these projects.



Map 1 shows individual caribou. Notice the concentration above Red Dog road (red). Blue is fall migratory corridors. Map 2 shows a caribou that came within the 30 mile radius of the road and changed its direction of travel in fall 2011. Map 3 shows a caribou (yellow) that did not change its direction of travel in fall 2012 in relation to the road (black).



Kobuk & Kivalina Kids Collar Caribou



Kivalina kids on the river collaring caribou



Cheryl Adams and Lloyd Koonook help biologists



Cheryl Adams, Geoff Carroll, and Lanette Adams



Rita Ramoth



Lanette Adams



Angeline Custer, Samantha Horner



Clintonette Knox and Jim Dau

Kivalina kids observe a caribou dissection

Kobuk Kids went down to Onion Portage

Sung to the tune: *Grandma Got Ran Over by a Reindeer*
 by: Corrine Lundell and the Kobuk Kids



Caribou Biologists



Lloyd Koonook and Cheryl Adams help weigh a calf



Angeline Custer, Samantha Horner, Angeline Gooden



Morten Tryland & Joe Burch



Angeline Custer, Samantha Horner

Kobuk kids went down to Onion Portage, for their first time in their history. They went down to collar seven tuttu and add to their ancestors' long story.

We set tents down by the river, with wood stoves to keep us warm. Eva kept our tent real toasty, And we woke up to tasty food that was Joe's norm .

We scaled cliffs to use the outhouse, porcupines had been there too. We explored an ancient dwelling, semi-subterranean - for skinny people - we wished we knew.

Gooden tightened a collar on a tuttu, now we can track it on our computer screen. You can say there's no such thing as Rudolph, but Eskimos like us might disagree.

We sat patiently by the river, Sam built models of dream fish camps. We spent hours tracking a collar, that Jonas hid inside his coat....that little scamp!

George made ribs while we were waiting, Corrine learned knots while we gnawed ribs. Raymond showed tricks to keep us busy, Caribou!! Into the boats! This is no fib! This is no fib!

Custer processed blood samples from a tuttu, we were glad her hands were real steady. We learned how to separate cells from plasma, for scientists to continue their study.

The tuttu splashed all over Peter He clipped the collar while it opposed. He stayed calm under the pressure but for the tuttu -being caught just really blows!

Dustin scared a Fish & Game guy he'll never let him live it down! This guy nets tuttu from helicopters and like a cowboy grabs & pulls them to the ground! Dustin...be-ware!

Kobuk kids went down to Onion Portage, for their first time in their history. They went down to collar 7 tuttu and add to their ancestors' long story.



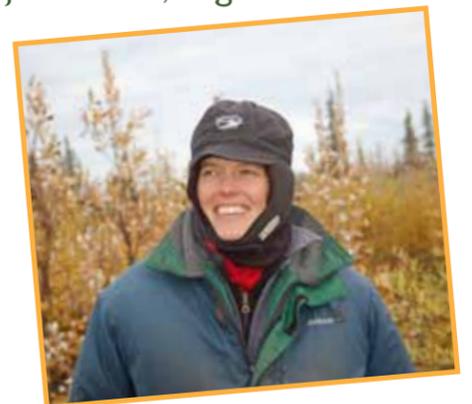
Eva Horner, Jonas Custer, Dustin Harvey



Dustin Harvey, Jonas Custer



Morten Tryland, Dustin Harvey, Jonas Custer, Angeline Custer



Corrine Lundell



Samantha Horner, Angeline Gooden, Angeline Custer

All Photos (pg 8-9): Geoff Carroll, Corrine Lundell, and Dana Greenwood



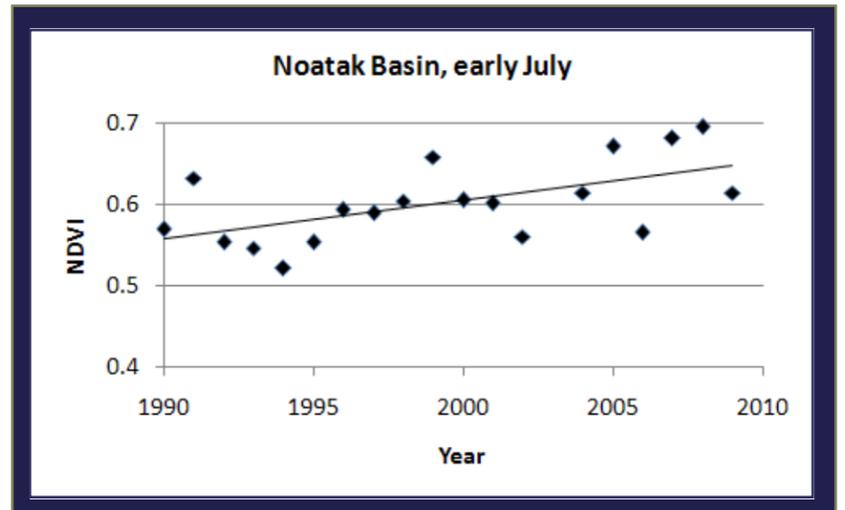
CHANGING LANDSCAPES IN NORTHERN ALASKA'S NATIONAL PARKS ~POTENTIAL IMPACTS ON CARIBOU~

BY DAVE SWANSON & KYLE JOLY

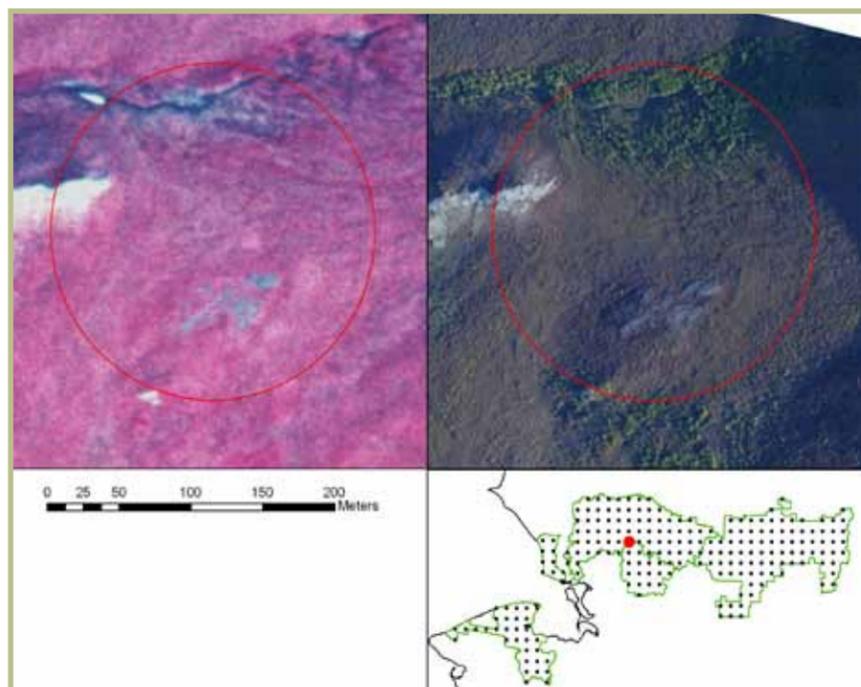
All Photos NPS

The National Park Service (NPS) has several ongoing monitoring studies of landscape change in the National Parks of northern and western Alaska. A changing landscape may impact caribou and their habitat in a myriad of ways. Satellite images show that the land became “greener” due to increases in dense vegetation in the lowland areas of all the Arctic National Parks over the period from 1990 to 2010. Increased greenness, which is tied to increased plant productivity, could mean more forage for caribou.

Another NPS study helps provide a possible explanation for the increase in greenness. We compared aerial photographs taken around 1980 and 2010 across all five National Park units in northern Alaska. The vegetation changed very little over the 30 years in most places, but in some places the cover by tall shrubs or trees increased. In fact, we estimate that about 14% of the willow-alder tall shrub vegetation present in these parks in 2010 was new since 1980. Most of the shrub increases were from shrubs becoming larger and more numerous on the tundra. Caribou avoid areas of tall shrubs in both summer and winter due to increased predation risk and lower forage abundance, while moose often forage on tall shrubs.



The “greenness” of vegetation can be measured by satellite using an index called “NDVI”. The NDVI increased over the period from 1990 to 2010 in the Noatak River basin in the central part of the Noatak National Preserve.



The year 2010 was one of the biggest ever in number of large tundra fires and area burned in the Noatak Preserve, but only time will tell if 2010 was just a single big year (like 1977 and 1999 were) or the start of a trend toward more tundra fires. These fires burned mostly lichen-poor tussock tundra, and the vegetation re-sprouted rapidly after the fire. Caribou are known to avoid burned areas, in both tundra and boreal forest, during winter for decades because of the lack of lichens. In contrast, fires on caribou summer range may actually stimulate growth of caribou forage species and prove to be beneficial in some cases – though investigations into this process are just beginning.

The aerial photograph on the left was taken in 1979 and the one on the right was taken in 2008. The photo on the left uses the “color-infrared” color scheme, which shows green vegetation as pink. Note that the dense, dark green, tall shrubs in the 2008 photo were not present in 1979. The red circle is about 370 feet across. The map at the bottom shows all the points where old and recent aerial photos were compared for vegetation change. The red dot shows the location of the above photos, near Kanaktok Mountain in the Baird Mountains.

NPS is also monitoring slumps and slides that form on slopes due to thaw of permafrost. There are a number of very active slumps in the Noatak National Preserve and Gates of the Arctic National Park. We are monitoring them with aerial photographs to see if they are becoming more numerous or active. These slumps and slides cover relatively small areas and probably have little direct effect on quality of caribou habitat across the landscape as a whole. However, they are conspicuous indicators of melting permafrost, which if it becomes widespread could make our landscapes drier and reinforce the shrub increase noted above. While caribou are uniquely adapted to a wide array of habitats and conditions, if the landscape changes too rapidly, it may be detrimental to caribou in Arctic Alaska.



This large permafrost thaw slump is on the Noatak River near Akikukchiak Creek in the Noatak National Preserve. The distance from the uppermost point on the slump to the water is about 900 feet, and the cutbank at the top is about 50 feet high. Aerial photographs by NPS show that the cutbank moved 50 to 100 feet upslope between 2011 and 2012.



NPS botanists sampling vegetation in July 2011, one year after the Kaluktavik River fire (Noatak Valley) of July 2010. The vegetation in this area of tussock tundra rapidly re-sprouted and grew after the fire. The Isacheluich Mountains are in the background.

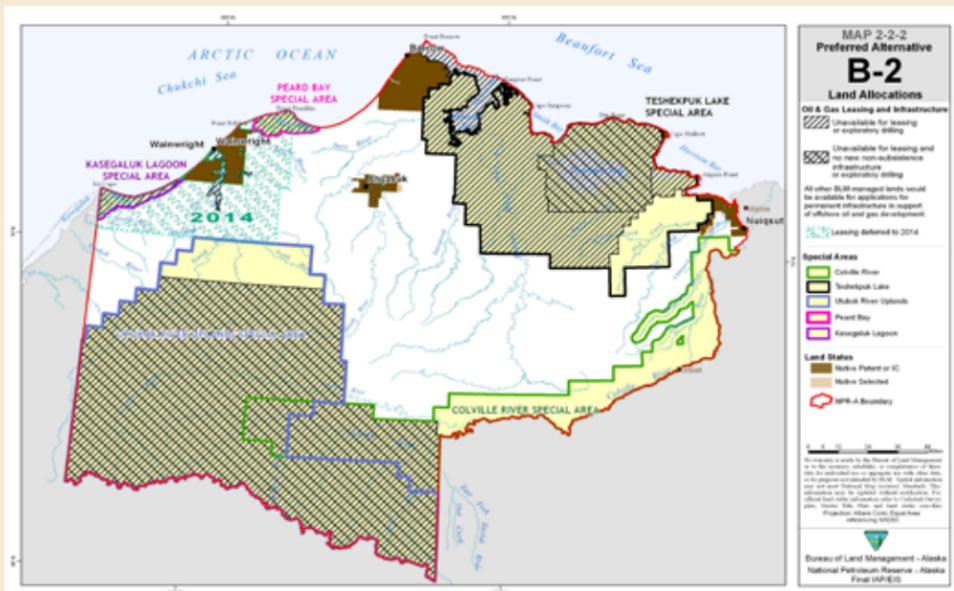


Caribou Bits- Information and News

Photo Kyle Joly

Caribou, Oil and the future of the NPR-A (National Petroleum Reserve- Alaska)

The Bureau of Land Management’s Record of Decision (ROD) for the NPR-A Integrated Action Plan/Environmental Impact Statement was signed by the Secretary of the Interior on February 21, 2013. The ROD enlarges the Utukok River Uplands Special Area to include practically all of the WAH’s calving and summer insect relief range that falls within the southwestern NPR-A. It would make the great majority of this area unavailable for oil and gas leasing and would prohibit the development of permanent infrastructure other than for subsistence uses.”



caribou Migrate to the Science Fair!



Jennifer Sage and Brandi Mills from Noatak won 2nd place overall in middle school with “Tracking Tuttu: Caribou Bulls and Cows on the Move”. They also won the Natural History Award from NPS and came in 2nd for the American Indian Science and Engineering Society. They analyzed the movements of 5 bulls and 5 cows in September and calculated the differences in their rates of travel.



Photos Lori Moore

BLM-Alaska is developing a Habitat Management Plan (HMP) to protect the winter range of the WAH and thus help ensure the continued health of the herd. The Proposed plan recommends using fire suppression tactics, depending on future climate change and fire activity. The primary objective of the plan will be to maintain the known historic fire return interval using fire suppression tactics if needed. The implementation of this approach will depend on several factors including: (1) logistical and/or financial constraints related to fire suppression, and/or (2) participation in plan implementation by other land holders. Based on these factors, BLM-Alaska is currently developing alternatives for the Western Arctic Caribou Herd Winter Habitat Management Environmental Assessment (EA). The BLM-selected alternative from the EA will provide the basis for the HMP. Public and interagency scoping is in progress.

Contact Information: Jennifer McMillan, Ecologist, BLM Central Yukon Field Office, (907) 474-2308

Upcoming projects and studies of Western Arctic Caribou

The following projects are occurring to better understand caribou health, population, habitat, and movements. Many are collaborative efforts between agencies and universities. If you would like more information regarding a specific project or to know more about the project lead, please contact agency representatives listed on the back page of this newsletter.

In the Field

- Spring range-wide telemetry surveys
- Fall range-wide telemetry surveys
- Fall composition surveys
- Harvest assessment
- Harvest reports
- Community harvest assessments
- Spring composition surveys
- Satellite/GPS collar program
- Caribou health assessments
- Serological survey for disease work
- Calving surveys
- Jaw collection (age, body size, body condition)
- Population censuses
- Deploy radio collars
- Retrieve radio collars
- Monitor adult caribou mortality (timing, levels and causes)
- Assess mixing of northern caribou herds
- Summer range habitat
- User conflicts
- Snow surveys
- Diet analysis
- Weather Stations - routine maintenance
- Grazing exclosures
- Winter range transects Seward Peninsula
- Fire monitoring
- Fire fighting
- Enforcement of wildlife regulations

In the Office

- Resource selection function analysis
- Identification of WAH movement areas
- Identify seasonal ranges and migration routes
- Evaluate effects of climate/weather on caribou movements & seasonality
- Assess impacts of disturbances, e.g. roads & communities, on caribou
- Identify potential corridor for Ambler Road
- Compare visual calving surveys to GPS movement data
- Determine & monitor seasonality of WAH
- Genetic identity of caribou herds in Alaska and North America
- Squirrel River Management Plan development
- Guide Capacity Study development
- Reindeer grazing permits
- Support WACH Working Group

Western Arctic Caribou Herd Working Group 2013

Contact your local representative or one of the agencies to share comments, concerns or become involved!

Photo Geoff Carroll

VOTING CHAIRS

Anchorage
 Buckland, Deering, Selawik
 Nuiqsut & Anaktuvuk
 Elim, Golovin, White Mountain
 Fairbanks Hunters
 Hunting Guides
 Kivalina & Noatak
 Kotzebue
 Koyukuk River (Huslia, Hughes, Alaskaket, Bettles, Weisman)
 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)
 S. Seward Peninsula
 (Koyuk, Shaktoolik, Unalakleet, Stebbins, St. Michael, Kotlik)
 Reindeer Herders Association
 Transporters
 Upper Kobuk River (Ambler, Shungnak, Kobuk)
 Atkasuk, Barrow, and Wainwright

REPRESENTATIVES

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 Isaac Kaigelak
 Charles Saccheus
 Larry Bartlett
 Phil Driver
 Raymond Hawley
 Cyrus Harris
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 Wendy Loya
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 Tom Gray
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Photo Jim Dau

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US National Park Service, Kotzebue, Frank Hays,
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US Fish & Wildlife, Kotzebue, Lee Anne Ayres,
 1-800-492-8848 or 442-3799, leeanne_ayres@fws.gov

Please bring questions regarding the working group to:

Roy Ashenfelter, Chair, 907-304-1776, nr.advoc@kawerak.org

Vern Cleveland, Vice-Chair, 907-636-2261, vern@inutek.net

Peter Bente, ADF&G, Agency Rep. 443-2271, peter.bente@alaska.gov

Please send questions regarding Caribou Trails to:

Meghan Nedwick, ADF&G, 442-3420, meghan.nedwick@alaska.gov

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www.westernarcticcaribou.org

Looking for more information regarding the Western Arctic Herd or the Working Group?
 Visit us at our website!

On the site you can find information regarding the herd, users, meeting updates, digital copies of *Caribou Trails* and much more.



NEXT MEETING:
 December 4 & 5, 2013
 Anchorage, Alaska
 Please check the website for details.

