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CARMA Newsletter November 2010

1 message

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In this Issue

CARMA 7

CARMA's seventh annual gathering is scheduled in Vancouver November 30 to December 2, 2010. As is typical at these events the CARMA Steering Committee has identified a focus for the meeting. We will look closer at all the products, tools and resources that CARMA has developed over the last six years. We will be asked to collectively discuss how these tools can be better used, how they can be improved and how they can be accessed. For example CARMA has contributed to the development of a model on the protein and energy relations of caribou. We can see many applications for the model – at the finer scale how does the model help us understand the fat and protein cycles of individual herds, how different herds compare and can we identify energetic bottlenecks. At the

larger scale how do we use the model to look at impacts of climate change and how do we better assess the cumulative impacts of development on caribou herds.

Hot Off the Press - New Population Estimates

By press time CARMA received the results of 2010 population estimates for the George River herd and the Bluenose East herd.?

The Bluenose herd is now estimated at 98,600 up from 66,000 in 2006. This result continues the trend to stabilizing numbers of herds to the west of the Bathurst herd as both the Cape Bathurst and the Bluenose West herd estimates were stable between 2006 and 2009 estimates. This result is good news for those that manage and depend on the Bluenose West herd.?.

?Agencies were brave to attempt to count the herd in 2 different ways – a calving ground count of breeding females and a post-calving count of all segments in the herd. The results: 98,600 by the post-calving count (considered a minimum population estimate) and 102,700 for the calving ground photo-census. The fact that these two methods came to the same result adds confidence to both methods. GNWT is confident in the count and indicate the recovery is probably due to normal pregnancy rates, high calf survival and low harvest as caribou were not near communities or roads in the last few years.

There was a dramatic drop in the George River herd from previous estimates. In 2001 the George River herd was estimated at 385,000 and this summer the estimate was 74,131 based on a post-calving count. Steeve Cote, a University of Laval researcher working on the herd, is confident with the count: “The survey was a success, as the error rate is 17% which is lower than normally.” Cote is quick to point out that the George River herd is very dynamic and it should be remembered that the herd was at 5000 in the 1950s and increased to 800,000 in just over 30 years.

What Happened: 13th North American Caribou Workshop

Little known fact: The word “CARMA” appeared 27 times in the 13th North American Caribou Workshop program!

CARMA was well represented at the 13th North American Caribou Workshop held in Winnipeg, October 25-28, 2010. The meeting was the largest so far with 420 registered participants. CARMA organized two sessions and presented ten papers.

- The CARMA network: working towards a better understanding of migratory tundra reindeer and caribou - D.E. Russell
- Heterogeneity in habitat trends among circumpolar caribou and reindeer herds - B. Griffith
- Ramping up body condition scores and indices to estimate the whole animal body condition using CARMA protocols - R. White
- Monitoring caribou (rangifer tarandus) health: the Circum-arctic Rangifer Monitoring and Assessment Network experience - J. Ducroq
- Fidelity of migratory tundra caribou to traditional calving grounds: a narrow orthodoxy or a robust hypothesis? – A. Gunn
- Towards adaptive co-management? Lessons from regional comparisons and international cooperation - G. Kofinas
- Modeling as an integrative tool in CARMA's circumpolar assessment of migratory tundra Rangifer - D.E. Russell
- Are warbles and bots connected to pregnant pauses?: fertility in west Greenland - C. Cuyler
- Epidemiology of Besnoitia tarandi in circum-arctic barren-ground caribou (Rangifer tarandus) - J. Ducrocq
- CARMA goes south: working towards a woodland caribou network - F.K.A. Schmiegelow

Feature Herd – Teshekpuk Herd (TCH), Alaska

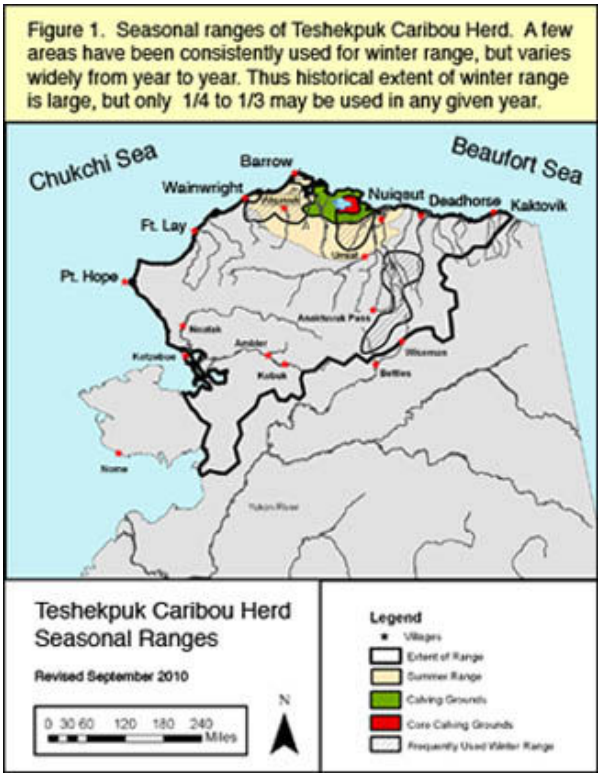

Figure 1. Seasonal ranges of Teshekpuk Caribou Herd. A few areas have been consistently used for winter range, but varies widely from year to year. Thus historical extent of winter range is large, but only 1/4 to 1/3 may be used in any given year.

Based on a calving distribution geographically distinct from the adjacent Western Arctic and Central Arctic herds, the TCH was first identified as a distinct herd in 1978. The TCH primarily inhabits the central coastal plain north of the Brooks Range during spring and summer, but has a large historical range, encompassing wintering areas across northwestern Alaska. (Figure 1).

Archeological and traditional knowledge suggest that caribou have been abundant near Teshekpuk Lake for at least the last 400 years. The Teshekpuk caribou herd (TCH) is an important subsistence resource to hunters from several North Slope villages. In recent years, the average per-capita harvest of caribou by North Slope villages within the TCH range has been estimated at 0.9 caribou per person, the majority of which are from the TCH (Carroll 2007), for a total harvest of 4,000-5,000 per year.

The most recent estimate of abundance is from a photocensus conducted in 2008 when over 64,000 caribou were counted. Photographs from a 2010 census

are currently being counted.


Biologist Lincoln Parrett prepares to replace the collar of a recaptured Teshekpuk Herd cow as her calf looks on. Photo: Brian Person.

From a demographic perspective, this herd is relatively well monitored. The apparent growth rate of this herd has typically been one of the highest observed in Alaska, despite unremarkable productivity, recruitment, and adult survival rates. Immigration from adjacent herds has long been considered a possible explanation for the remarkable growth rates, however, years of radio-tracking data would seem to indicate that this is an unlikely explanation. The probability of detecting an immigration event of even moderate magnitude is fairly high, particularly when the cumulative probabilities are considered. In fact, emigration events away from the TCH have been detected many times, but movement into the TCH has not been demonstrated. A more likely explanation for the high apparent growth rate is that the precision of photocensus estimates have improved as the sample of radio-collared caribou has grown, all while a moderate growth rate has continued. In recent years, some demographic data, particularly recruitment rates, appear to indicate that growth in this herd is likely slowing, and adult female mortality and recruitment are converging.


Figure 2. Typical TCH summer range. Tracks from winter seismic exploration can be seen extending toward the horizon. Photo: Craig George.

One of the most interesting aspects of this herd's biology is their relative infidelity to wintering grounds, and the resultant large wintering range that they have occupied over the last 30 years. In any given year, it is very difficult to predict where this herd might winter; in years where the TCH overlaps with an adjacent herd during rut, many TCH caribou will continue the migration with those caribou, remaining for the winter, and returning in spring to calving and insect relief areas where a very high degree of fidelity is observed (Figure 2).

Management challenges for this herd include monitoring and managing harvest despite occasional range overlaps with other herds, and mitigating development within calving and insect relief areas.

Feature Person – Christine Cuyler

Christine Cuyler always loved winter.

She was given Hans Christian Anderson's Snow Queen when she was eight, and can pretty much recite it by heart, she says.

So it is no big surprise she's lived and worked in Nuuk, the capital city of Greenland, since 1996, and did her Masters and PHD studying the reindeer on Svalbard, an archipelago in the Arctic midway between mainland Norway and the North Pole – and the place where the Snow Queen lived. (*Photo of Svalbard*). Originally from Vancouver, British Columbia, Canada, Christine was an undergrad at the University of Guelph in the Fish and Wildlife Department, and did her Masters and PHD in zoophysiology at Norway's University of Oslo.

"I always knew what I wanted to do ... work with animals. Then when Guelph established their Fish and Wildlife program, I knew where I wanted to go to university. And when the opportunity came up to do my PHD on Svalbard, through the University of Oslo – to live in Norway, which always seemed exciting to me with its Vikings and legends – I jumped at it. I hadn't traveled abroad at that point."

A Canadian living in Greenland, Christine's husband is Irish. She was kind of caught between Canada and Norway, looking for work, so she situated herself between the two, on the North island of Ireland. There was a pull for her there – the music, the Irish dancing, her grandfather was Breton, and she had friends there from previous research. That's where she met her beau. When she got offered a job in Greenland, he said he'd come. "I was surprised – you have to be keen on winter, like the dark times, enjoy storms and blizzards. He did. And so we got married."

"I love science", says Christine. "I love finding out new stuff. So the work is a lot of fun. It's fun to be out and about, handling the animals, and caribou are great animals to work with – regal, and curious."

Christine works for the Greenland Institute of Natural Resources. Greenland has been a part of the Danish Kingdom for several centuries and still is. Since 1979 Greenland has had Home Rule and since 2009 they have had Self Rule. From the beginning of Home Rule, Greenland has sought to bring "home" most facets of governance. Today, Greenlanders run Greenland, like Germans run Germany, like the French run France ... not as aboriginals, but as the majority that runs their own country. They run their own country and want to run it well. Prior to 1994 all research on natural resources was done from Denmark, to remedy this Greenland established a research institute in Greenland (www.natur.gl), which might be likened to the Canadian Wildlife Service. The institute today employs about 80 or so people, includes the new climate centre, and there is a steering committee of Greenlanders that approves the questions that the institute is going to research and answer.

"It's structured," says Christine, "but there is leeway, it's exciting, and it's important because it has a big impact on how the government decides to manage and use its caribou. The Greenland government is committed to sustainable use of natural resources, marine animals, land animals, sea birds.

When the government asks for advice, we give it to them, for sustainable use of the resources. They typically listen to us. We are a working research institute, rather than academic."


Photo: Hans Mølgaard

Greenland is a huge island with almost no land, says Christine. It is fjords, beaches and a big ice cube. For the past decade or more it's been obvious from the abundance surveys she's been doing, that there has, and continues to be, extremely high densities of caribou on the limited range that Greenland offers. So the government has been trying to reduce the density to keep the range sustainable. They wanted to use human harvesting as part of that effort, in part because there are no predators at all on the west coast. Nothing to regulate the numbers. And it's a formidable, inaccessible terrain. So for the past decade there has been an unlimited harvest and an almost 7 month season for the commercial hunt, going into the rut, forcing hunters to take cows at that time.

"We do the abundance surveys every five years and this year we found that even a modern, mobile hunting fleet, a long hunting season and unlimited hunting have not impacted the numbers of the largest herd at all (7 animals / sq. km.) ... you wouldn't keep cows in the pasture and be able to keep the pasture in good shape, at that density. The numbers of the second largest herd have gone down, but not significantly and not attributable to hunting. Only on the third largest herd – with the most accessible terrain and the highest number of hunters – has harvest been successful in bringing down the numbers."

And yet, even though the numbers are high, scientists are not sure there won't be a population collapse due to decimated vegetation, because the range has been overgrazed.

"It will only take a catastrophic natural event, like drought, fire, icing, etc. So we don't know, but it's quite possible numbers can dramatically drop, any time," says Christine. "It's a historic pattern here on Greenland, and it takes a long, long time, but the numbers do come back."

"CARMA has been one of the best things for us. An absolutely wonderful place to brainstorm, and the standardized protocols have been very good for us."

"Through CARMA we've got some exciting collaborations going. Body health and condition work, possibility of a disease in Greenland that we didn't know was here - we have a graduate student coming to work on it. And that's just one of much research work going on through our CARMA collaborations. Right now we're working with Iceland and Norway, to get some CARMA collections going."

Christine is an avid hunter since childhood, receiving her first rifle when she was 11.

"Everyone in Greenland hunts and sees the value of it, the value of clean pure meat, and the value of being out."

Christine loves Irish music and dancing.

"And we just love to go out in our little boat to catch cod and redfish for our evening dinner, or fish Arctic char in the rivers. It is just great living here, and a stunning landscape. If one likes the north, one would love Greenland." (*Photo: Nuuk, Greenland*)

STEERING COMMITTEE

CARMA developing future funding strategy

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A sub-theme of the CARMA-7 gathering will be CARMA's future as the major source of funding for the group, the Canadian International Polar Year Program, comes to an end. Participants can provide input to a draft funding strategy and flesh out the future role of the Network. CARMA will circulate a draft funding strategy prior to the meeting. The strategy will discuss the origin and role of CARMA, highlight Network accomplishments and identify key partners and clients. A future work plan will identify funding needs.

A CARMA synthesis project – creating a climate database

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CARMA is active on creating a large climate database for most of the world's migratory tundra Rangifer. Dr. Paul Whitfield and SFU grad student, Jing Cai, are accessing the MERRA dataset developed by NASA. Over the last few months most agencies around the globe have co-operated to share distribution data for their herds during winter, spring, calving, summer and autumn. Downloaded MERRA climate data will be associated with the seasonal distributions for all the herds. Members of the CARMA Steering Committee are currently creating relevant "caribou" climate indicators from the raw data. These indicators will be used to compare climates and current climate changes facing herds around the globe.

HUMAN MIGRATIONS

Leslie Witter successfully defended her MSc thesis at the University of Northern BC. Since then Leslie has been traveling and working around California for the summer and as she says: "I have no idea where I'm headed from here," although she hopes to return to work with caribou in the north.

Dr. Yaroslav Bykov has taken a new position implementing Microsoft products in St. Petersburg and will be sidelined from the CARMA network in the short term. Yaroslav is a data management expert and his new work involves working with Microsoft products that allows you to do almost anything you want in terms of document workflow and automation. Yaroslav sends his best wished for the CARMA network and adds …"surely you can contact me on any issue, especially if this is related to software".

From the mind of Doug Urquhart.

Contact Us

Do **YOU** want to be the feature person, project or have the herd you work on profiled?

Do you have any news or events you'd like to let CARMA members know about?

Do you have any feedback that would improve this newsletter?

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