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CARMA Newsletter March 2011

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CARMA
Circum-Arctic Rangifer Monitoring and Assessment Network

March 2011 . Number 5

Porcupine Caribou Thrive!

It's probable everyone has heard the news by now but what incredible news it is! It causes one to pause and reflect on just how long and for how many reasons so many of us have worried and worked for the Porcupine Caribou Herd.

The July 2010 photocensus shows the Porcupine Caribou Herd has grown to an estimated 169,000 animals.

"There's no doubt the herd has grown since 2001. People on both sides of the Alaska-Canada border are pleased," said Northeast Alaska Assistant Area Biologist Jason Caikoski.

In this Issue

The herd peaked in size in 1989 at 178,000 caribou. Four photocensus surveys over the period of 1992–2001 documented a decline in the herd to 123,000 caribou. The 2010 effort is the first successful photocensus on the Porcupine herd since 2001, and Fish and Game staff members are pleased with the quality of the estimate.

“Caribou were aggregated well, and most of the aerial photos are good quality. We accounted for all of the active radiocollars in the herd, which means we likely didn’t miss many caribou during the survey,” said Caikoski.

Photocensus efforts during 2002-2009 were not successful do to a variety of factors including weather, caribou movements, and poor herd aggregation. The Porcupine herd ranges in the northeastern part of Alaska and into Yukon, Canada, and is an important resource for residents of both areas. The Alaska Department of Fish and Game and Canadian wildlife agencies cooperatively manage the herd.

CARMA 7

CARMA 7 took place Nov. 30-Dec. 2, 2010 in Vancouver, BC, Canada.

In 2004, at the official launch of CARMA (also in Vancouver), 35 representatives from Russia, Finland, Norway, Greenland, Canada, and the U.S. attended. This year there were 63 participants in CARMA 7.

CARMA – CircumArctic Rangifer Monitoring and Assessment – is a Network under the Circumpolar Biodiversity Monitoring Program delivering biodiversity status to the Conservation of Arctic Flora and Fauna group directly reporting to the Arctic Council and member countries: Canada, US, Greenland, Iceland, Norway, Sweden, Finland, Russia and Denmark.

CARMA contributes to National and International trends reports, all accessible (or soon will be) on CARMA’s Website, www.carmanetwork.com.

So the theme of CARMA 7 was: CARMA’s Tools and Resources – how to use, improve and access.

CARMA 7 participants divided into Co-management, management agency and university groups and assessed six CARMA tools and resources:

- Website
- Standardized monitoring manuals
- Climate database

From the Mind of –
Doug Urquhart

Earth Hour 2011

Spread the word!
Increase membership!

Forward this newsletter to at least TWO people who aren't members of CARMA ... yet.

CARMA 7 Key Results

Key results for CARMA standardized monitoring protocols:

- Generally well-accepted and used
- Need more direction on sample size
- Need more non-lethal protocols for small populations
- Useful to have interpretation – what it means to the caribou
- desire to produce a community version of body condition protocols
- For detailed results see: http://carmanetwork.com/display/public/Vancouver+2010+Conference

Key results for Rangifer Atlas:

- Atlas was very well received by the participants

- Education/ community resources:
  - anatomy atlas
  - Voices project
  - hunter training video
- Database
- Models:
  - caribou calculator
  - protein/energy models

See sidebar for Key Results.

Next meeting: CARMA 8, November 29 - December 1, 2011

Feature Herd – Rivière-George / George River

Steeve D. Côté
(Université Laval)

The Rivière-George migratory caribou herd is found in the Québec-Labrador peninsula. The herd exhibited dramatic population fluctuations the last few decades. After a population peak in the 1890s the herd remained extremely low until the 1950s when it included only about 5,000 animals. By 1993, the population had increased to more than 775,000, decreasing to about 385,000 by 2001 and 74,000 in 2010.

In early spring (mean: 25 April ± 10 days), caribou leave their winter ranges in the taiga and migrate over 280 ± 20 km to reach calving grounds in the tundra. Females calve on the high tundra plateaus in the eastern Québec/Labrador peninsula (57°N, 65°W).

The size of the calving ground declined drastically from 46,500 ± 8,800 km2 in the early 1990's to 5,300 ± 1,100 km2 in the last three years. Although females generally show strong fidelity to their calving ground, the calving ground has moved about 230 km east to the Labrador coast. The size of the summer range has also declined from 234,600 ± 12,800 km2 in the early 1990's to 88,800 ± 2,700 km2 in the last three years.

A preliminary analysis of survival of radio-collared caribou from 1996 to 2009 suggests that yearling female survival was only 69%, survival of adult females was 82%, increasing to 87% if

- Members listed many possible applications for the Atlas, especially for educational purposes
- Need to get products completed
- Need a web accessible version
- Most participants wanted to know how to get access to the products
- For detailed results see: http://carmanetwork.com/display/public/Vancouver+2010+Conference

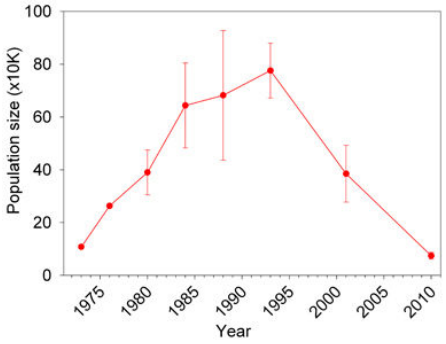
Key results for Voices of Caribou People:

- Very well received, especially by communities
- Need to expand
  - to Russia
  - to other communities
  - to other topics (respect for caribou, hunting practices)
- Project needs to be more widely marketedNeed to focus on youth when they are in traditional hunting practices
- For detailed results see: http://carmanetwork.com/display/public/Vancouver+2010+Conference

Key results for Hunter Training Video:

- Useful way to engage and get the hunters interested in participating in monitoring
- Need to raise the profile/accessibility on the website
- Show at community meetings

known hunting mortality was excluded. Recent body condition of females and calves is very good and animals are about 10 kg heavier than at the population peak. Pregnancy rate is likely high but recruitment in the fall remains very low, suggesting high mortality of calves during summer. Overall, available evidences suggest that caribou abundance and distribution will continue to change in the near future, particularly in the view of the effects of climate change and increased mining development. Managers, stakeholders and communities should be prepared for a lower abundance of animals and perhaps a less predictable distribution, further away from communities.



Feature Project – Insect Harassment

Leslie Witter

Leslie Witter's Insect Harassment study focuses on the interrelationships between weather, parasitic insects, and how caribou behave. It is especially relevant as it is thought that climate warming increases intensity of insect harassment, and this may be a factor contributing to caribou declines.

The study, covering three field seasons from 2007-2009, relates directly to CARMA's focus on the vulnerability of Rangifer to global changes including climate change. It adds understanding to two of CARMA's six synthesis questions: "How important are seasonal ranges?" and

- Need to reflect different ways of hunting and butchering in different communities or countries (e.g. Greenland)Availability in different languages
- Simplify for school purposes
- For detailed results see: http://carmanetwork.com/display/public/Vancouver+2010+Conference

Key results for Climate Database:

- There was a fair amount of excitement on the availability of a climate database for caribou
- Major interest in how to access and use the database now
- Need for a user-friendly interface to make the database more accessible
- How can the data be validated
- Need to fully document how the data is obtained and variables defined
- Co-management boards could use the data to annually predict risks to their herd
- For detailed results see: http://carmanetwork.com/display/public/Vancouver+2010+Conference

Key results for Models:

- Major interest to know how to apply caribou calculator to different herds
- Important to use as a discussion tools when dealing with harvest strategyInterest in validating energy-protein model for different herds (e.g. Taimyr)
- How can uncertainty be

"How important are pathogens and predators?"

Leslie's team looked at two sets of relationships:

How weather, habitat and seasons influence the intensity of insect activity, focusing on mosquitoes, black flies and the two species of oestrid flies known as nose bots and warbles. How insect harassment affects caribou behaviour.

"By determining the links between weather conditions, insect levels and caribou behaviour, we're able to explore implications of climate change for insect abundance and activity, and the potential consequences of this, for caribou," explained Leslie. "In addition to adding to knowledge of caribou summer range ecology, we wanted to develop a tool to inform management decisions," she said.

The team developed predictive indices of insect activity levels that can be used to monitor the degree to which conditions favour insect activity. This can can be used by managers to monitor conditions favouring insect harassment on the Bathurst range. It may also be applicable to other central Arctic herds. This can give managers an idea of the degree of stress caribou may experience due to insect harassment, in any given summer. The indices were also used by the team to retrospectively examine potential insect levels on the Bathurst range from 1957-2008. They can be used prospectively to explore the potential effects of climate change.

Leslie believes this kind of knowledge is important because post-calving, summer season is such a critical time for caribou – when they can take advantage of the brief flush of highly nutritious forage to build up body reserves to survive the winter and reproduce successfully the following spring. And any stressor that reduces the quality or quantity of this feeding could have big impacts on population productivity.

Insect harassment is one such stressor. Parasitic insects cause blood loss, parasitic loading, and transmit blood-borne pathogens, as well as stress, reduced feeding, and the necessity to take refuge in less-productive habitats. Although the relationship between insect harassment and caribou behaviour is well observed, there were several knowledge gaps Leslie and her team sought to fill.

"Past studies focused largely on either weather-insects or insects-caribou….we sought to simultaneously examine both relationships. Also, results of past studies have been varied in terms of environmental thresholds constraining insect activity. Little is known about distribution and abundance of black flies on caribou ranges in N. America, or their effects on caribou behaviour. Also, Rangifer populations are known to cycle over time periods of 40-70

built into energy-protein model
- Need a user-friendly platform to build scenarios for the energy-protein model
- For detailed results see: http://carmanetwork.com/display/public/Vancouver+2010+Conference

Key results for CARMA Database:

- Database management is a challenge – need to set priorities
- Need to second level of metadata – more comprehensive and searchable
- CARMA will need to be a data holder and data sharer or both a centralized and a distributed database
- Current data holder need to help assess data access, support data portal, and provide list of publications
- For detailed results see: http://carmanetwork.com/display/public/Vancouver+2010+Conference

Key results for CARMA's Website:

- The website has had increasing use over the last 3 years
- Need to make identify when projects are complete and link to reports
- Projects need to be identified on herd-by-herd basis
- Photo gallery most popular and needs to by improved, higher quality images

yrs, but the mechanisms are not well understood. This study adds to knowledge of the suite of factors that may affect population productivity."

Some of what was found:

Conditions favouring mosquito activity declined while likelihood of black fly and oestrid activity increased, since the mid-1980s. Specifically, mosquito, black fly and oestrid all respond positively to increased temperature, but mosquitoes are more sensitive to other meteorological variables like wind speed.

Mosquitoes had small and variable effects on caribou behaviour, increasing the animals' walking. Insect avoidance increased when black flies were moderately high or oestrids were present. Black flies in particular caused the animals to do a lot of running.

The Bathurst decline beginning in the mid-1980s corresponds to a time of increased summer temperatures and predicted increases in black fly and oestrid activity. Insect harassement may have contributed to reduced recruitment in the early 2000s, as conditions were favourable for black fly and oestrid activity then, too.

This project was spearheaded by Anne Gunn, who worked for many years as a caribou biologist with GNWT ENR, Chris Johnson at UNBC, and Bruno Croft at ENR. They all had an interest in gaining more information on the effects of parasitic insects on Bathurst caribou.

"I was lucky enough to come across a posting for Master's work on the project. It fit well with my interest in ecological interrelationships and trophic interactions," Leslie said.

Photos by Leslie Witter and Bruno Croft.

Castration as Climate Change Aid for Reindeer

By Alister Doyle . Reuters . January 26, 2011

· Members need to be more active in contributing stories, data, issues
· need to translate into Russian and better reflect Russian situation
· For detailed discussion: http://carmanetwork.com/display/public/Vancouver+2010+Conference

Earth Hour is 8:30 pm, March 26

WWF is calling on Canadians to join millions worldwide and turn out their lights for WWF's Earth Hour on Saturday, March 26 at 8:30 pm. Together we can show our support for action on climate change.

Currently, Canada is one of the top 10 nations contributing to global climate change – but we don't have to be. To create the best possible future for our planet, let's stop wasting energy and generate what we need from clean, renewable sources, like wind and solar. With your help, we can fight climate change by making Canada a world leader in clean energy.

For you. For the caribou.

From the Mind of – Doug Urquhart

Indigenous Sami peoples in the Arctic may have found a way to help their reindeer herds cope with climate change: more castration.
Research by Sami experts shows that sterilized males can grow larger and so are better at digging for food -- as Arctic temperatures vary more, thawing snow often refreezes to form thick ice over lichen pastures.

Neutered males are more able to break through ice with their hooves or antlers, and seem more willing than other males to move aside and share food with calves that can die of starvation in bad freeze-thaw winters like 2000-01.

"To make herds more resilient in the future, we need to re-learn the traditional knowledge of castration," said professor Svein Mathiesen, coordinator of the University of the Arctic's Institute of Circumpolar Reindeer Husbandry.

More castration "could be useful to adapt to climate change," he told Reuters in the Arctic city of Tromsoe. "These animals are very good diggers for the small calves in the most critical period of the winter." Pasture this year is good.

Castration has traditionally been used by reindeer herders, partly to make wild animals more docile. Herders on the Yamal peninsula in Russia still neuter about half of all males -- usually by biting into the testicles with their teeth.

Far fewer animals are castrated outside Russia. About 100,000 Sami own about 2.5 million reindeer in homelands in the Nordic countries and Russia.

The traditional Sami biting technique aims for "half-castration" -- under which the animals become sterile but still produce some of the male hormone testosterone that promotes muscle growth. Sami in Norway, where laws limit castration to surgery with anesthetics, are now experimenting with a vaccine to recreate the effects of half-castration.

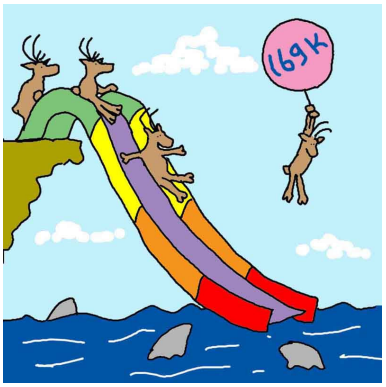
No interest in sex also helps neutered males in winter.

"Males castrated in the traditional way would have an increased chance of survival over other males since they maintain body weight and condition during the rutting season," according to a research document by Eli Risten Nergaard of Sami University College.

The Arctic region is warming at double the global rate in a trend blamed by the U.N.'s panel of climate scientists on greenhouse gases from mankind's burning of fossil fuels.

Yamal herders castrate many of their reindeer, partly because they need strong, docile animals to pull heavy sleds. In Norway, Sami have come to rely on snow-scooters and get most money for calf meat, meaning most males are slaughtered young.

The Sami castration study indicates the complexities of adapting to the impacts of climate change. Many other scientists are focusing



Contact Us

Do you want to be a Feature Person, or have your project or herd profiled? Do you have news or events CARMA members should know about? Do you have feedback to improve this newsletter?

Contact us at askcarma@gmail.com.

Next meeting: CARMA 8, November 29 – December 1, 2011

on issues such as how to cope with river floods or rising sea levels, or ways to develop drought-resistant crops