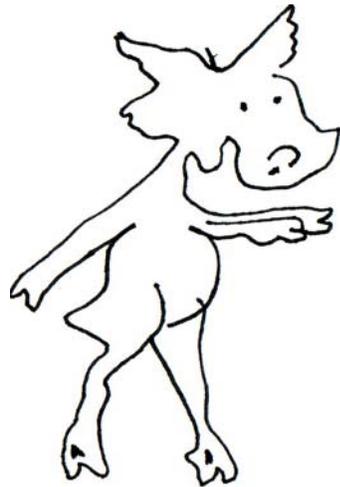

PORCUPINE CARIBOU MANAGEMENT BOARD

**VIDEO SERIES
TEACHERS' MANUALS**

UNIT FOUR CONSERVATION AND MANAGEMENT





CHIKKYI

Chikkyi is the Gwich'in name for baby caribou. Chikkyi will be used to mark student activity and information sheets.

Chikkyi was created by D. Urquhart

CONSERVATION AND MANAGEMENT

CONCEPTS

- Traditional knowledge of caribou was based on an intimate knowledge of caribou behaviour that was acquired through centuries of observation. Traditional values and hunting practices prevented wasteful or unwise killing of caribou and promoted respect and complete use of the animal. Traditional knowledge is local and integrated in an oral cultural tradition whereas scientific knowledge is based on a written record with an ultimate reliance on data and repeatable observations.
- A marriage of traditional and scientific knowledge is the key to effective caribou management. Management means making sure that the caribou population remains healthy despite hunting and resource development. Conservation means the wise use of caribou, to conserve caribou so that they may be used without depleting them so caribou will always be around for future generations.
- Some of the basic research needs for managing caribou are to determine the size of the herd, annual recruitment into the herd, natural mortality and hunter kills.
- The Porcupine Caribou Management Board was formed in 1985 by an In-Canada Porcupine Caribou Management Agreement. This agreement was designed to fully involve native users in the management and conservation of the Porcupine herd. The Board has developed management plans that have goals for caribou and people and worksheets describing government and user activities over time.

OBJECTIVES

- To use the knowledge gained from the first three units to begin to understand how to best manage and conserve caribou.
- To explain the terms conservation and management.
- To recognize the value of traditional knowledge of caribou and to show what this knowledge might consist of.
- To introduce the difference between scientific knowledge and traditional knowledge.
- To discuss some of the management needs of the Porcupine Caribou herd and how the information is obtained.
- To help students understand the work done by biologists.

Porcupine Caribou Teachers' Manual Unit Four

- To discuss the current Yukon regulations for the Porcupine Caribou herd and, briefly, the Alaskan regulations for the Porcupine Caribou herd.
- To discuss the members and their roles on the Porcupine Caribou Management Board (PCMB).
- To identify the aims of the PCMB Management Plans.
- To help students think of ways they can get involved in caribou management.
- To identify action plans that deal with gaining understanding of caribou and caribou ecology and how to improve conservation practices.



Porcupine Caribou near the Dempster Highway.

Photo by John Russell

TRADITIONAL PRACTICES AND KNOWLEDGE

For centuries, native hunters have observed the caribou closely so as to be better able to predict their behaviour, anticipate their migration routes and understand their reactions - all in the endeavor to get close enough to harvest them for their meat and yet not prevent them from returning the following season.

- **Oral Tradition**

To develop a culture based on the caribou, early people had to be successful predators. To do that cooperation and resourcefulness were necessary. To overcome the disadvantage of a lack of speed, small size, and a very long period of child dependency, hunters lived in a tribal association and hunted in groups. They used the long period of childhood dependence to pass on acquired knowledge to the next generation in father-son training, legends, religious practices and stories recounted on the trail and in the home. The knowledge existed in an oral tradition and was not based on a written record.

Early people had to be keen observers of the natural world because of their primitive weapons and their lifestyle. The behaviour and ecology of the animals around him - specifically those providing necessities of life - were critical to the success of hunters. Modern native and Inuvialuit hunters can often help professional scientists by sharing with them what they know, for this knowledge represents the experience of generations of native hunters.

- **Moderation**

Some of the traditional practices were to only kill caribou when people needed to and to not kill more than what they needed for food and clothing. This value of moderation in hunting was an important traditional conservation practice. The caribou was used completely so there was no waste, which also was a wise conservation practice.

- **Selection of Animals**

Caribou bearing young (pregnant cows) were not selected for harvest unless people really needed food. If a pregnant cow was killed, only the adults, especially elders, were allowed to eat the fetus. Depending on the season, either the males or females were selected for reasons of palatability and the amount of fat with the meat. Generally only the adults were selected because of their larger body size for meat and hides.

- **Respect**

The caribou were treated with respect, both in peoples' minds and actions. Children were taught at a very young age not to play with any part of the caribou. They were encouraged to only take as much food as they could eat and were not allowed to throw good food away. Children and adults did not make fun of caribou and always treated caribou with respect.

- **Beliefs**

Communities who use the Porcupine Caribou have many beliefs about the spirit powers of

animals. "Traditional hunters believed if they had the right thoughts about animals and took care to treat their carcasses properly, the animal spirit powers would be quite willing to have their fleshy bodies killed when native hunters needed food. If they respected the animals spirit powers, therefore, the native hunters would always have enough to eat." (McLellan 1987).

Also people said, "One should not say anything bad about animals, even to not voice aloud what animal one is planning to hunt as the animals would know about it and you could have bad luck."

Traditional users valued harmony with the land, the water and with the animals. They valued harmony among themselves and believed people should be helpful, generous and respectful to each other, sharing whatever they had.

- **Traditional Management Compared to Scientific Management**

Traditional management tends to be local and integrated into an oral cultural tradition, where authority is vested in certain individuals who are respected for their knowledge. Scientific management tends to operate on a larger scale, in writing and through government, with an ultimate reliance on data and repeatable observations.

A marriage of traditional and scientific knowledge is the key to effective caribou management.

Story by Lorraine Peter taken from "Caribou Update" Dec. 2001

All of these important values are vividly pointed out in a little story told by Lorraine Peter (Netro) to the people from various states that came to see the slide show presentations she was traveling with.

Lorraine's childhood home in Old Crow, where she lived with her mother and sisters, was a 10x12 wall tent. Her first solid food as a baby was caribou. One of her best early memories was of going out on the land with her mother and sisters to the area of her mother's trap line. Preparations to go to the trapping area started in March as in those days, the school term ended in March to allow the children to go to the Old Crow flats with their families. Lorraine recalls the time at her mother's trapping area as the best time of her life. It was a time of joy, freedom and happiness.

Her mother's wall tent was set up beside a lake. Lorraine, being the second youngest sister, had to stay behind to look after the baby while her mother and sisters checked the traps. She often spent this time doing household chores and preparing for their return. One day, while her younger sister

was napping, she heard a strange clicking noise. Startled by this unusual noise, she crept up to the flap of the tent and slowly opened it to peek outside. There, not too far away, were around 150 caribou. She watched in amazement as each one passed by her tent, the tendons in their feet making the clicking sounds she had heard. They were on their way to the Arctic National Wildlife Refuge to give birth to their calves.

Imagine being a young girl left in charge of a baby, really in the middle of nowhere with only the sounds of the odd bird to fill the silence, watching a group of caribou doing what nature has told them to do for thousands of years. This event shaped Lorraine's thinking for the rest of her life.

Being able to observe wild animals doing what they have done for thousands of years without disturbance is a rare privilege. As is the freedom to take these animals for their meat to sustain a way of life. This is a freedom to cherish and to protect and not to be abuse through careless hunting practices or disrespectful use of the land.

MANAGEMENT

The proper management of anything requires caution and judgment. For wildlife species, including caribou, management implies treating the animals in a way that shows consideration both for the animals and the people who value them.

Management can help maintain healthy populations of caribou just for the sake of having these healthy populations. People can also maintain opportunities for recreation and the continuous supply of the social and economic benefits associated with recreation.

To manage a caribou herd requires the knowledge of five basic things on which to base decisions:

1. **The size and composition of the herd:** How many caribou are there in the herd (**census**) and how many there are in each sex and age class, such as adult bulls, adult cows, yearlings and calves (**composition**).
2. **The annual recruitment:** This is the number of calves that survive their first year of life to become yearlings.
3. **Natural mortality:** To study the death rates of satellite- and radio-collared adult cows, bulls and radio-collared calves. Also to count and study the predators of caribou.
4. **Hunter kill:** Harvest studies attempt to determine how many caribou are killed by native and non-native hunters.
5. **Seasonal Distribution:** Where the caribou live during the different seasons.

Fundamental to all aspects of caribou management is the productivity of the lands over which caribou range in their annual cycle and the availability of these traditional ranges to the caribou. Natural changes or human activities could bar the herd from some of its normal ranges or disturb some of the key habitats.

Biologists obtain this information by doing aerial and ground surveys, carrying out radio- and satellite-collar studies, and using harvest information from native and non-native users.

Governments play specific roles in caribou management. They have the ultimate responsibility for the herd. They provide the funding for programs out of allotments provided by their parliaments or legislatures. They take the long-term approach to the acquisition of scientific information by biologists on their staff. Governments should also co-operate with native users to collect data, obtain information, and incorporate traditional knowledge.

POPULATION SIZE

Knowing the size of the herd helps biologists figure out how many caribou can safely be taken by hunters and determine if the herd is healthy.

CENSUS

The following is taken from the Journey North website at:

<http://www.learner.org/jnorth/tm/caribou/CountingCaribou.html>

How do you count a whole herd of caribou?

Big group-early July
Courtesy Canadian Wildlife Service

Dr. Stephen M. Arthur, a research biologist with the Alaska Department of Fish and Game, is involved with census-taking. He explains how the census is made:

"In brief, the census method is this: during early summer (usually between July 1-4) caribou from the Porcupine herd are on the coastal plain of northeastern Alaska and northern Yukon. This is the period when warm weather first occurs, with temperatures often in the 80s (F) and 24-hour daylight. Warm weather brings out the insects (mosquitoes, warble flies, and bot flies) that harass the caribou. In response to the insect harassment, caribou tend to form large, dense groups and move either to the Arctic coast or to mountain ridges, both of which provide windy areas with fewer insects. While caribou are in these large groups, it is possible to photograph them using a standard aerial camera that takes 9x9 inch, high-resolution photographs. The caribou on the photographs can be counted to develop an accurate estimate of the total herd size.

"Currently, about 85 caribou from this herd are equipped with radio collars which among other things helps us to find them. On the day of the census, 2 or 3 small airplanes search the coastal plain and eastern Brooks Range mountains to find the radio-collared caribou, as well as any groups without radio-collared caribou. The location of each caribou group is recorded using the aircraft GPS, and this information is relayed by radio to the photography airplane. This is a larger airplane (DeHavilland Beaver) equipped with an aerial camera mounted in an opening in the floor of the plane. The photography airplane will then fly over each group and take as many photographs as are needed to include the entire group.



Caribou, showing radio collar

Photographs usually overlap by 10-20% to be sure that all caribou are photographed. When the film has been developed, the photographs (300-400 of them) must be examined and the areas of overlap identified so that no caribou are counted twice. Then, the caribou visible on each photograph are counted. This a very time-consuming job, so the photographs are usually distributed among 8-10 people for counting."

1000s of dots-summer
Canadian Wildlife Service



Declining Numbers

Biologists are not especially concerned about the current decline because the rate of decline has been slow and this may be part of a natural cycle. However, they will continue to closely monitor the population and attempt to identify potential threats to its recovery. Dr. Arthur continues: "Although the Porcupine herd is still large enough to meet the demands of local villages for food and to provide for the limited sport hunting that occurs, there is some concern that, if the current decline continues, then some action will be needed to stop the decline. Furthermore, the area used by the herd during the calving and post-calving period, and parts of the herd's winter range, are being considered for oil exploration. If human actions occur that reduce the production and/or survival of calves, it will be more difficult to stop the decline and return the herd to previous levels."



POPULATION COMPOSITION

The population structure is essentially the age and sex structure of the caribou herd, which is obtained by doing a sample count of at least 10% of the population. The composition count is done on the ground by an observer using a spotting scope and a special hand tally counter that allows counting for each group: adult bulls, immature bulls, adult cows, yearlings and calves.

The percentage of calves in the population in July (one-month survival) gives an index of productivity, that is, how many calves survive the first month of life to add to the herd.

The percentage of yearlings in July is an important index as it shows how many caribou are available to enter the adult breeding population. Knowing how many caribou are added to the population and how many are subtracted (hunting and predation) will show if the remainder is positive (the herd is growing) or negative (the herd is declining).

HUNTER KILL

The number of caribou killed in the herd is necessary to learn how hunting adds to the mortality in the population and to make sure the herd is not over-hunted. The age and sex of the harvested caribou is also important information.

Porcupine Caribou are harvested internationally, both in Canada and the US. Both countries have different methods of gathering harvest information.

- Collecting harvest data continues to be a challenge. There are thirteen different methods currently being used to collect harvest information and the accuracy of the resulting data varies greatly. In some areas, harvest data is not being collected.
- The average reported harvest since 1990 is about 2,400 caribou each year, or about 1.5% of the herd.
- The collection of harvest data is a sensitive issue in some communities.
- It is generally agreed that over-harvesting could not have played a part in the Porcupine Caribou herd population decline since 1989; however, the effects of that harvest on the population are still not understood. A workshop sponsored by the National Science Foundation Sustainability of Arctic Communities Project on the effects of harvest was held in Inuvik in April 2002.
- Local harvest increases dramatically when part of the herd winters near the Dempster Highway or user communities.
- New hunting regulations were put in place in 1999 and reviewed in 2002/2003. Discussion continues on the long-term effects of these changes and what future changes should be implemented.
- The Hart River herd uses the southern portion of the winter range, which may lead to Hart River Caribou being harvested as Porcupine Caribou. This is a conservation issue for the Hart River herd.
- A process to determine quotas for Porcupine Caribou for outfitters who operate near the Dempster Highway is underway.

In Canada, there are many sources of caribou kill information:

1. A non-resident trophy hunter is required to go with an outfitter who must submit a declaration form that includes information on the kill.
2. A resident hunter has to fill out a questionnaire before he is able to obtain a hunting licence for the following year. The questionnaire asks the age, sex, date and location of the caribou hunted that year.
3. In some years, community field workers are hired to conduct house-to-house interviews to record age, sex, number and location of caribou killed by native hunters.

4. There are check stations operated on the Dempster Highway to encourage hunters to stop and fill out hunter questionnaires. This information is obtained from both native and non-natives.

In the United States, there also are many sources of caribou kill information:

1. A resident sport hunter is required to obtain an arctic caribou harvest report. Completing and returning this report to the government is required by law.
2. A community survey is conducted in Kaktovik from house to house.
3. When subsistence hunters (native and non-native) living in the northern communities do not comply with the harvest report forms, this information is estimated by the biologists after talking to people in the communities.

Results

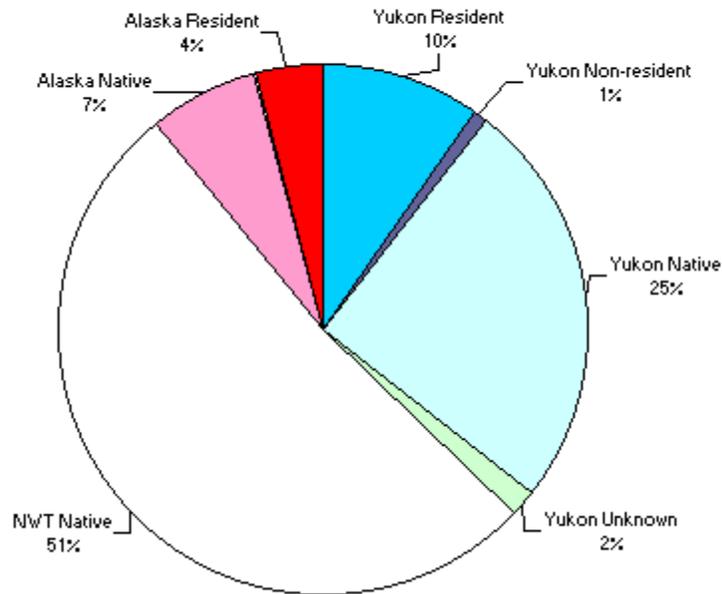
The estimated annual harvest in recent years has been, on average, less than 3% of the herd. The number of caribou harvested by different villages within the herd's range varies considerably, depending on the winter distribution of the herd. Data on subsistence harvest in Alaska is poor because of lack of cooperation by several villages.

It is important to know the total number of caribou killed from hunting, which has to include animals that die later from gunshot wounds. This is known as the **crippling loss** and it has been estimated as high as 25%. Crippling loss has to be added to other known kill by hunters.

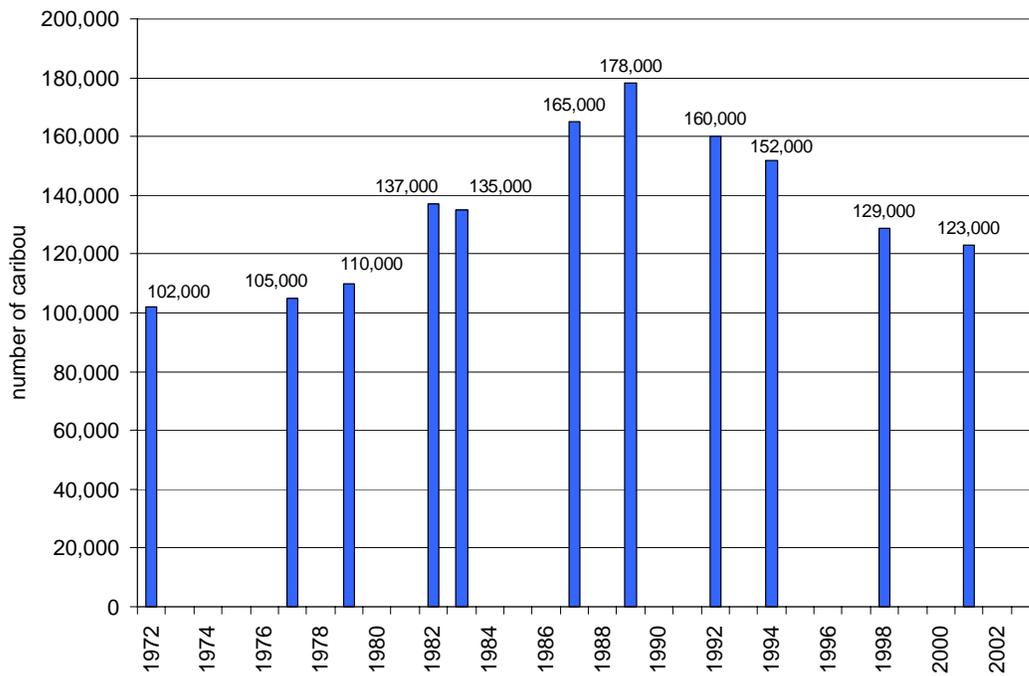
NATURAL MORTALITY

It is important to know how many caribou die naturally by causes other than human related ones. There have been studies done on the mortality of both adult cows and calves. This involves radio collaring the animals with special mortality sensing radio-transmitters that emit a faster pulse rate if the collar is stationary for a few hours, indicating that the caribou is dead. Locating the dead caribou on the ground and observing all the clues related to the death helps biologists determine how the caribou died and if it was preyed upon. Using the collared sample helps biologists determine the natural mortality rate. This rate is added to the human harvest to get a total number of caribou deaths or mortality. By knowing the caribou added (productivity and recruitment) to the population and the caribou subtracted (harvest and natural mortality), one can determine if the herd is increasing, decreasing or relatively stable.

Average reported harvest by user group
 For the 3 years with the most complete information (1992, 93, 94 combined)



Estimated Porcupine Caribou Herd Size, 1972 to present



SEASONAL DISTRIBUTION

Caribou need a lot of space to satisfy all their needs for each season. The total area covered by the Porcupine herd is the home range of the herd, which is composed of seasonal ranges and migration routes between the ranges. It is important to know the entire range of any herd to determine who hunts the animals, what land use activity affects the animals and to be able to compare this range to future distributions of the animals.

This kind of work involves capturing and radio-collaring or satellite-collaring a sample of the herd to help locate caribou throughout the seasons. Porcupine Caribou have been captured at traditional river crossings using river boats and lassoes. The caribou are held in the water while a collar is attached to the animal. More recently, a New Zealand net-gun technique has been used to capture caribou in the winter on frozen lakes and open areas. The hand-held net gun is shot by a biologist in a low-flying helicopter and the net entangles the caribou.

A radio collar is an adjustable nylon belt bolted loosely around the neck. Attached to the collar is a sealed battery transmitter unit with an antenna sandwiched mainly inside the belt but with about six inches sticking out the free end. The whole thing weighs about a kilogram and is no inconvenience to the animal. Each collar transmits a specific frequency to individually identify each collared caribou. The range of transmission varies with the countryside but the maximum distance in flat terrain is about 50 miles.

To relocate the radio-collared caribou, biologists make periodic surveys in a fixed-wing aircraft fitted with antennae on each wing strut. The biologist navigates and also listens for radio signals on a receiver that scans for the different frequencies. When a radio-collar signal is received, the scanner beeps and the biologist tunes in the particular frequency to identify the animal and locate it. Usually the surveys are flown at an altitude of 10,000 feet to cover a greater area for reception. But this is too high to actually see the caribou. It is only pinpointed within adjacent flight lines or approximately 25 miles. Any animal can be visually located by flying concentric circles in the area and narrowing down the angle of the signal and the intensity of the signal (which increases the closer you get to the caribou).

The distribution of the collared animals and associated caribou gives a good picture of where the caribou are during that particular time period. Radio-tracking surveys are flown during calving, post-calving, early fall, late fall, mid-winter and early spring to locate the caribou. Distribution maps are produced from this information. This data is also used to locate the herd for the census.

In order to get animal locations with conventional collars, we have to find them with airplanes. Flying in the north can often be held up by weather and darkness. Another type of collar biologists use is a satellite collar.

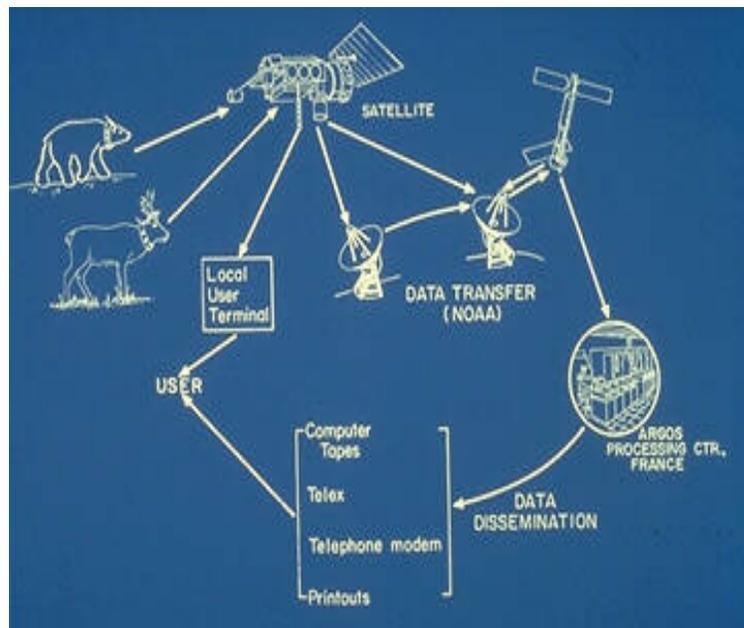
Porcupine Caribou Teachers' Manual Unit Four

A satellite can automatically pick up the signal from a collar in the dark and even through snow storms. The collars consist of a special transmitter that sends a signal to a passing satellite. A computer on board the satellite calculates the location of the caribou and sends the information to one of 3 ground stations. The general rule for any collar put on an animal is that it shouldn't weigh over 4% of the animal's body weight. For example, if a caribou weighs 200 pounds, the collar shouldn't weigh more than 8 pounds. If the collar weighs more than 4% of the animal's body weight, it may start to interfere with the animal's natural behaviour and health. Satellite collars on Porcupine Caribou herd animals weigh about 4 pounds. Satellite collars are more expensive so there are fewer of them.



Caribou cow with satellite collar.

Diagram of how the satellite collars send out their signals.



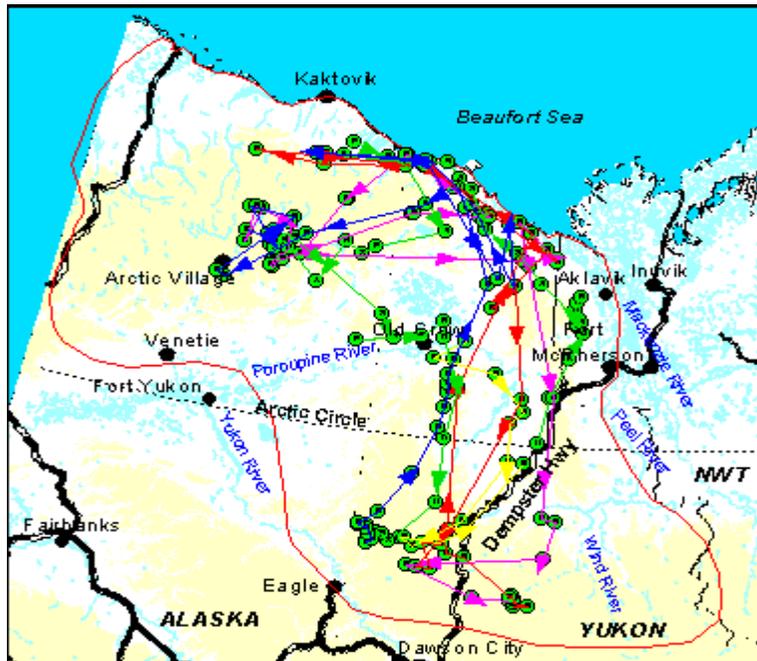
Pictures and data from <http://www.taiga.net/satellite/how.html>

Porcupine Caribou Teachers' Manual Unit Four

GNWT biologists have produced a CD showing the migration movements of the Porcupine Caribou herd in animation. It is available at 867-777-7330 or can be seen at: <http://www.inuvik.rwed.gov.nt.ca>.



Yearly movements of one of the satellite collared caribou.



Several years of migration movements by one of the satellite collared caribou. Each year is represented by a different colour.

Pictures and data from <http://www.taiga.net/satellite/how.html>

BACKGROUND INFORMATION

Pictures from <http://www.taiga.net/satellite/how.html>



Biologists attaching radio collar and take body measurements.

Capturing caribou in the water to attach radio collars.



Taking body measurements and attaching collar using net gun method.

Helicopter used to capture caribou using net gun method.



MANAGEMENT REGULATIONS

There are regulations governing the harvest of Porcupine Caribou in the Yukon, NWT and Alaska.

- **Yukon Territory**

There is no season or bag limit on Porcupine Caribou for native hunters in the Yukon.

The bag limit for non-native residents and non-resident trophy hunters as of 2003 is two caribou of either sex from August 1st to January 31st, however hunters are being asked to not harvest cows through voluntary compliance. There is a no-hunting corridor within 500 meters either side of the Dempster Highway from km 68 to the Northwest Territories. There is a one-week closure to caribou hunting along the Dempster Highway to “allow the leaders to pass”. The dates of the closure are determined by Conservation Officers, community residents and biologists and are communicated to the public through the radio stations, posters and newspapers. Off-road use of snow machines is prohibited until there is sufficient snow depth, which is determined by the Yukon Department of Environment. Also people are encouraged to clean their caribou at the kill site rather than on the road.

- **Northwest Territories**

There is no season or bag limit on Porcupine Caribou for General Hunting Licence holders and beneficiaries of land claims in the NWT.

For non-native residents, the bag limit is five caribou from August 15 to April 30. Non-residents are not allowed to hunt Porcupine Caribou. There is a one-week closure to caribou hunting along the Dempster Highway to “allow the leaders to pass”. The dates of the closure are determined by using pre-leader criteria — 200 or more cows with calves and young bulls. Community wildlife organizations and Renewable Resource Officers are involved in the decision to instate the closure. The closure is communicated to the public through the radio stations and posters. The use of all vehicles is prohibited until there is adequate snow depth; this is determined through the monitoring of snow depth stations along the highway. At this time, the safety corridor of 500 metres is voluntary in the NWT. Hunters are asked to not harvest cows through voluntary compliance.

- **Alaska**

In 1990, thsubsistence and resident hunters were allowed 10 caribou of either sex from July 1 to April 30. However, no more than 5 caribou could be transported out of the region each year.

SUGGESTIONS FOR CARIBOU HUNTERS

Caribou meat tastes best in late August and early September when rump fat can exceed 8 cm. Meat from older male caribou shot during the rut in October can be especially strong and inedible. (Although individual tastes vary and some people are more sensitive to off-flavoured meats than others.) After September 20th in the southern herds, and October 1st for the Porcupine herd, some bulls become “stinky” and no amount of care can keep the meat from tasting foul. It's best, therefore, not to shoot an animal that displays obvious rut behaviour or has a swollen neck. By November adult males usually lose their “rank” taste, but the meat is very lean.

Knowing how to determine sex is important. Because females have antlers, the surest way to separate young males from females is by genital characteristics. Males have a penis sheath, which can be seen in side profile. Females have a vulva patch (a dark patch of hair on the vulva) which can be seen from the rear end view. Females retain antlers until spring while males generally lose theirs in November with the older bulls losing their antlers first.

Every animal killed and wasted is at least one less for someone else. The best hunter is no longer the one who takes the most animals. A skilled and responsible hunter is to be respected in today's society. Eliminating wounding and the inevitable crippling loss and waste (although all dead caribou are fed upon by scavengers on the land) will ensure more caribou can be harvested and used wisely.

Always strive for a quick, humane kill. Sight-in and practice with firearms annually to develop confidence and skill. Do not shoot caribou under conditions where retrieval is questionable, such as late in the day, or take shots that would cause significant spoilage of meat. Be knowledgeable about caribou anatomy and be willing to pass up any shot rather than take a chance of wounding an animal. Make certain you have the skill to track the game you shoot. Have the right equipment to kill caribou. Relatively low-powered cartridges such as the 30-30 and calibers smaller than the .243 are not suitable for hunting caribou.

Taking hunter education courses is a good idea. Courses cover topics such as safe handling of hunting equipment, first aid, outdoor skills and survival, wildlife management and conservation, and hunter responsibility and ethics. The willingness of hunters to learn more about caribou, to learn how to properly choose their target and make full use of their kill shows that hunters recognize that responsibility and therefore share directly in caribou management.

Notify a conservation officer when you are aware of harassment, meat wastage, illegal sales, and other illegal activities. GNWT and YTG have 1-800 numbers that people can use to report hunting violations. Yukon: 1-800-661-0525, GNWT: 1-800-661-0852

PORCUPINE CARIBOU MANAGEMENT AGREEMENT

On October 26, 1985, the Canadian Porcupine Caribou Management Agreement was signed by representatives from the federal Departments of Environment and Indian Affairs and Northern Development, the Yukon and Northwest Territories departments of Renewable Resources, the Council for Yukon Indians, the Dene Nation and the Metis Association and the Inuvialuit Game Council. The agreement was designed to fully involve native users in the management and conservation of the Porcupine herd. The agreement is administered by the Porcupine Caribou Management Board, which held its first meeting on June 10, 1986.

PORCUPINE CARIBOU INTERNATIONAL AGREEMENT

On July 17, 1987, an agreement between the Government of the United States of America and the Government of Canada on the conservation of the Porcupine Caribou herd was signed in Ottawa. The purpose of the International Agreement is to facilitate cooperation and coordination among wildlife management agencies, users of the herd, and other land users and land owners in the range of the herd, in Canada and in the United States. The International Agreement is intended to help conserve the caribou and its habitat so as to ensure continued availability of the animals for use by people in both countries.

PORCUPINE CARIBOU MANAGEMENT BOARD

The Porcupine Caribou Management Board (PCMB) provides a forum in which caribou management problems can be discussed by governments and users and consensus reached on solutions acceptable to government, wildlife managers and to the caribou using communities.

Governments appoint their own representatives and the user groups also appoint their own representatives of the different native and Inuvialuit organizations. There is an equal representation of government and native representation and equal representation of native users from the Yukon and the Northwest Territories.

There are eight members on the Board that are normally appointed for a term of five years:

- 1 Canadian Federal Government Representative
- 2 Yukon Government Representatives*
- 2 Council for Yukon Indian (CYI) Representatives**
- 1 Government of Northwest Territories Representative
- 1 Dene/Metis Representative***
- 1 Inuvialuit Game Council Representative

* One representative has been allocated to the Tr'ondek Hwech'in First Nation, Dawson

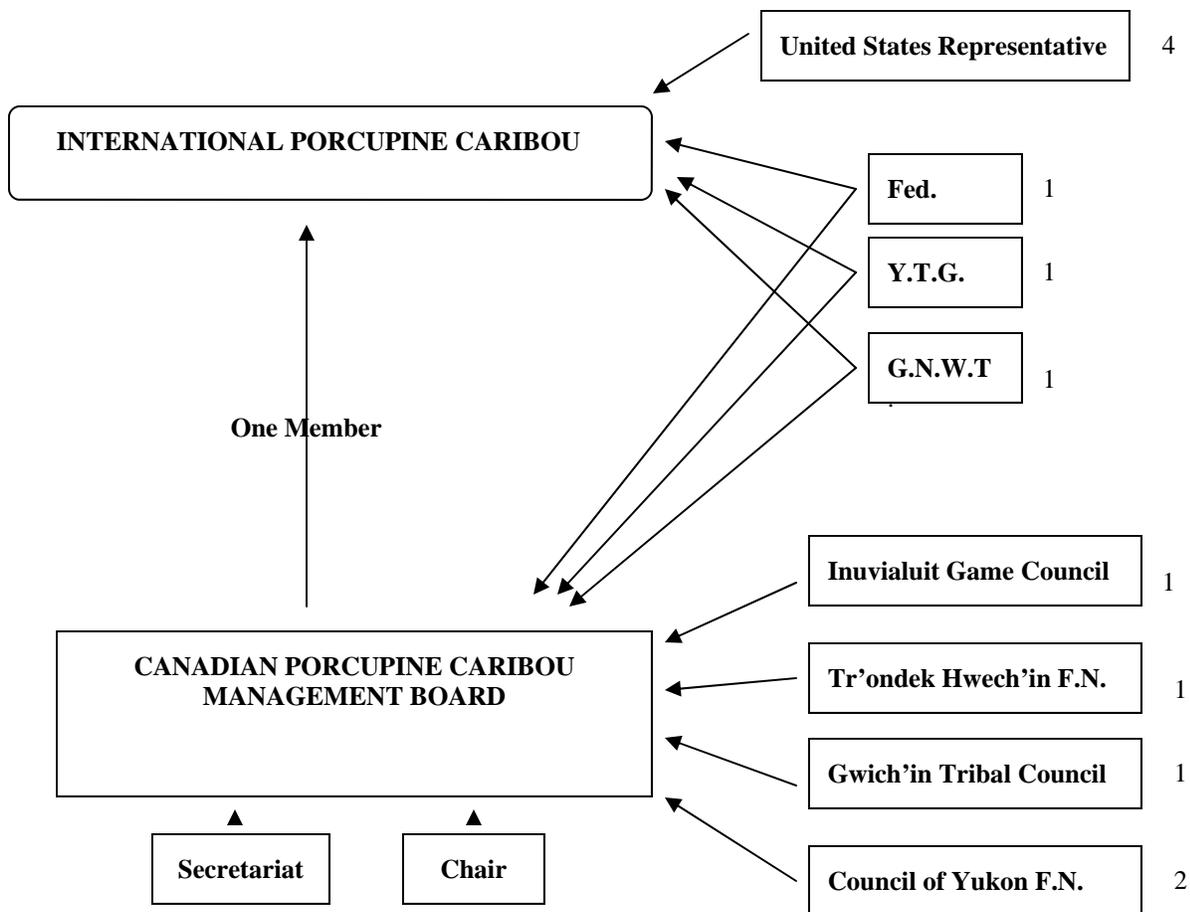
** Renamed the Council of Yukon First Nations

*** Name amended by agreement to the Gwich'in Tribal Council

A chairperson is nominated by the board and is a Yukon or Northwest Territories resident. The Chair is appointed for a five-year term. A contract Secretariat position looks after administrative and accounting duties.

Some of the duties of the Board are to establish and maintain communication with the native users of the Porcupine Caribou and between native users and other users and with government. The Board reviews technical and scientific information regarding the management of the herd and its habitat. Meetings are generally held three times a year in the caribou user communities.

With the finalization of land claim agreements with Yukon First Nations within the range of the herd, it has become apparent that the Porcupine Caribou Agreement needs to be examined and may need to be amended to include the First Nations as governments. As this is a complex agreement, amending the agreement is expected to progress slowly and carefully.



BACKGROUND INFORMATION

**PCMB History and Highlights
1986-2001**

1986/87

- First PCMB meeting, June 10, 1986
- Population estimated at 100,000 animals
- Work began on PCH Management Plan, Communications Strategy
- Dempster Highway review begun
- PCMB monitors Cesium contamination following Chernobyl
- Draft environmental impact statement for '1002' predicts 40% decline in herd if full development should proceed



1987/88

- Trade and Barter guidelines drafted
- No risk from Cesium relayed to user communities
- PCMB formally opposes development in '1002' area following U. S. Dept. of Interior study
- International PCH Conservation Agreement signed in Ottawa
- First television PSA and '1002' video produced
- PCMB members testify in Washington at '1002' hearings



1988/89

- Video produced for communities on Dempster Highway
- Members and delegates testify in Washington
- Members attend first Gwich'in Gathering in Arctic Village
- Management Plan is started

1989/90

- PCMB gets intervener status on Northwestel application for microwave towers on the Dempster Highway
- First meeting of international board
- PCH population estimated at 170,000
- Dempster Highway hunting regulations adopted by PCMB
- Management Plan is completed
- Antler sales are investigated
- User communities are tested for Cesium contamination
- Work is undertaken with Yukon Dept. of Education on PCH curriculum development
- Members and Chair make presentations at international conferences and hearings
- Exxon Valdez oil spill occurs and all '1002' activity stops



1990/91

- Albert Peter is elected as new chair
- Resolution endorsed on antler sales
- YTG accepts Dempster Highway resolutions
- Large fire around Old Crow causes concern for caribou
- PCH tested for cadmium contamination
- PCH school video program produced
- More PSA's are produced
- First technical report on PCH produced

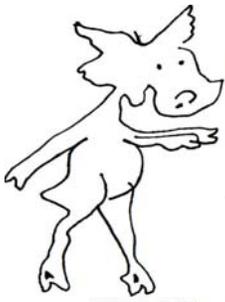


1991/92

- First year for Johnny Charlie scholarship



Taken from the PCMB 15th Annual Report



Porcupine Caribou Teachers' Manual Unit Four

- Major work undertaken on '1002' issue
- Senate bill to open Refuge to drilling, defeated
- Non-hunters permitted to use snow machines in Dempster corridor due to board recommendation
- First Conservation Awards given out
- Trade and barter recommendations completed



1992/93

- PCMB take lead in drafting International Conservation Plan for PCH
- PCMB aids in publication of Sensitive Habitat publication
- '1002' poster produced
- '1002' workshop held in Fort McPherson
- No health risk from eating PCH kidneys and livers
- PCH estimated at 160,000



1993/94

- International Conservation Plan completed
- Management plan is renewed
- Wooden caribou jigsaw puzzles are produced
- Secondary school computer program initiated
- Community '1002' petition organized which was presented to parliament by Audrey McLaughlin
- PCMB requests hearing on "1002" protection by Standing Committee on Aboriginal Affairs
- Canadian government promotes cooperation on management with U.S.



1994/95

- PCH population 154,000
- Dempster Highway workshop held to revise and review regulations
- "Don't Buzz Wildlife" aircraft poster produced
- Life-size caribou targets were distributed to communities for youth programs

- Caribou books sent to all communities
- UBC research program on communication presented to board and communities
- PCMB succeeds in getting '1002' on Chretien/Clinton summit – leaders pledge to protect the PCH and its habitats



1995/96

- PCMB coordinated the Vuntut Gwitch'in 10 City Tour
- Numerous projects undertaken to protect the Refuge
- On December 5, 1995, President Clinton vetoed budget bill which included drilling in the Refuge
- Communication strategy revised
- Work begins on revising Dempster Highway regulations
- Joe Tetlich is elected as chair, vice- chair is Johnny Charlie Sr.



1996/97

- Pamphlet on the Dempster Highway was produced by Dempster Highway sub-committee
- An all user communities meeting was held on revisions to Dempster Highway regulations
- '1002' birthing grounds poster is reprinted
- Chair made presentation to Standing Committee on Foreign Affairs
- Presentations made on World Heritage Site designation
- PCMB coordinates Harvest Data workshop to find coordinated way to collect harvest data
- 1996-2000 Management Plan is drafted
- Work continued on protection of the Refuge through delegate travel and presentations



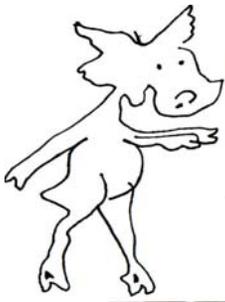
DON'T BUZZ WILDLIFE



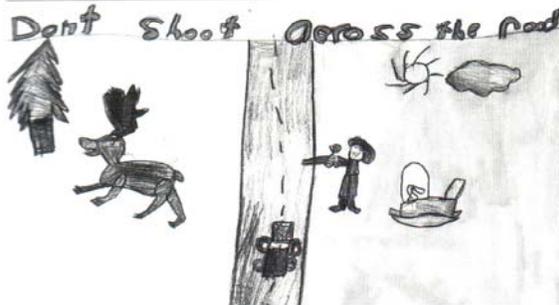
It stresses them and causes injuries



Taken from the PCMB 15th Annual Report



Porcupine Caribou Teachers' Manual Unit Four



1997/98

- Bad weather caused the complete census to be delayed until the next year
- First DNA samples are taken during body condition studies
- Bulletin by Yukon Health and Social Services states that all parts of the caribou are safe to eat.
- First satellite collars are put on 10 cows, school children name the caribou and track their movements on the internet
- Two joint board/community leader meetings on the Dempster Highway regulations were held, PCMB forwarded recommendations to governments
- Community '1002' workshops held
- Chair tours with The Last Great Wilderness Show

1998/99

- PCH population at 129,000
- New Dempster Highway regulations passed by Yukon government and were in effect for the fall of 1999
- Chair makes presentation at international caribou conference in Finland
- School poster contest initiated with good success
- Planning meetings are held which lead to the '1002' Canadian Campaign, designed to have the Refuge designate a National Monument by President Clinton
- Community Caribou Update is produced in addition to the monthly Caribou Update

1999/2000

- Slow spring leads to cows calving on route to Refuge
- DNA results show that there are genetic markers of Porcupine caribou in many herd across the north
- YTG Renewable Resources representatives tour user communities along with board members to talk

about Dempster Highway regulations

- Consultants are hired to lead and coordinate work on the Canadian Campaign, work begins on the many campaign projects
- Chair attends several major conferences including making a presentation to the Committee for Environmental Cooperation in Guadalajara

2000/2001

- Major projects are undertaken as part of the Canadian Campaign including the Millennium Trek,
- Republican, George Bush, is elected as President and quickly introduces an Energy Package that includes revenue from drilling in the Refuge, however Wilderness Bills are also introduced
- The need to protect the Arctic National Wildlife Refuge becomes the number one environmental issue in the election and remains the top issue after as well.
- Despite tremendous work by all groups working to protect the Refuge and a personal request from Prime Minister Chretien, President Clinton does not declare it a National Monument
- A slow, cold spring caused the caribou to calf on route to the Refuge causing a higher than normal calf mortality
- A scheduled complete census had to be postponed to July 2001 due to weather and poor herd aggregation
- Northwest Territory user community hunters follow recommended GNWT Dempster Highway regulations through voluntary compliance
- PCMB asks for a cumulative impacts study on all aspects of the caribou range and habitat
- 2000-2003 Management Plan is drafted

Porcupine Caribou Management Board Meetings



Board meeting held in Dawson, Yukon

Board meeting held in Inuvik, Northwest Territories



Harvest Monitoring Workshop held in Whitehorse, Yukon



MANAGEMENT PLAN

The Board's first self-imposed task was to develop a comprehensive management plan that would coordinate much of the work of scientists and educators and enlist the support and cooperation of caribou-using communities. The first plan stressed the need for research to overcome the lack of scientific knowledge in some areas, the indicators of future trends, and the need to integrate caribou management with land use planning taking place elsewhere that may affect the caribou range. This plan was designed for Band Councils, Hunters and Trappers Associations, Hunters and Trappers Committees and government departments. It was written using simple terms and language. The plan included: theory pages to establish overall goals for caribou and people; action pages divided goals into basic components to be worked on and updated; and work sheets that assigned specific jobs to the board, the territorial governments and the federal government.

Following the completion of the International Porcupine Caribou Board's International Plan, the board renewed the Canadian plan in 1993 and adopted it as a permanent plan to be renewed every three years. The plan was again updated, adopted in 1996 and expanded to cover a four year period, 1996 –1999.

In 2000, the format of the plan was changed to incorporate an expanded information section and to incorporate the First Nations and Inuvialuit Game Council in the action plans and work plans. This plan ran for a three year period (2000-2003) and is available on the internet.

Work is underway on a two-year interim 2003-2005 plan. A more comprehensive plan would depend on the outcome of discussions to amend the Porcupine Caribou Agreement to include First Nation governments as equal partners.

COMMUNICATION STRATEGY



The Board has a multimedia communication strategy directed toward the user communities as well as government and public audiences. This is accomplished by producing the following:

1. An annual report that summarizes the Board activities.
2. A special newspaper column "Caribou Update", that is produced in northern newspapers.
3. A monthly "Community Caribou Update" newsletter that is designed to inform community residents of current caribou data, board activities and the status of work on protection of the calving grounds.
4. A special meeting summary of the regular PCMB meetings is sent out to interested organizations. Full minutes are also produced and distributed.
5. The PCMB periodically produces summaries of various activities or research.
7. Whenever possible, the regular meetings are held in user communities to encourage public participation.
8. Board members have appeared as guest speakers at conferences where subjects deal with conservation and uses of wildlife.
9. Educational projects are held in user community schools.

DEMPSTER HIGHWAY REGULATIONS

The Porcupine Caribou Management Board has been grappling with issues surrounding hunting near the Dempster Highway since its formation in 1985. Unfortunately, when the highway was built in the 1970s, there was no consultation with the people who lived in the communities near the highway, and having an all-weather road through the migration path of a major caribou herd has brought many changes to the communities and to the methods used to harvest caribou.

The current caribou hunting regulations were legislated in the Yukon in 1999. The Northwest Territories has requested that all users voluntarily comply with the 500-meter corridor, whereas ensuring there is adequate snow cover for snow machine use and allowing the leaders to pass undisturbed have been legislated. The mandatory review process of the caribou hunting regulations, which began in the fall of 2001, continued in 2002 with a General Dempster Highway Regulations meeting in Inuvik in April 2002. Representatives from all user communities and concerned groups attended this meeting. The board also put together a Dempster Highway Subcommittee with representatives from all user groups with the hope that this committee would be able to develop recommendations from the communities. This special sub-committee met in Inuvik and Dawson but was not able to reach consensus on changes to the regulations.

A First Nations Summit meeting was also held in Dawson in March, 2003 sponsored by the user-community First Nations. This meeting was also not able to come to an agreement on recommendations regarding any changes to current regulations. However, they will continue to discuss this issue.

Taking into consideration the difficulty of the situation regarding the recommendations and the inability of the user groups to come to a consensus, the PCMB recommended that cow season for residents and non-residents be shortened to three months; however, the recommendation was varied (altered) by the Yukon Minister of Environment to a four-month cow season and also sent to the Yukon Fish and Wildlife Management Board for public consultation, which took place in December 2002. In addition, the PCMB has recommended that the Ministers ask all hunters to not harvest cows through voluntary compliance. These recommendations will stay in place until the board forwards further recommendations to the Ministers and then the new recommendations are reviewed and may be passed as regulations.

There is a one-week closure to caribou hunting near the Dempster Highway to “allow the leaders to pass”. This is the first legislated regulation based solely on traditional knowledge. The PCMB has recommended that there be, if occasions dictate, two one-week closures, one on the northern end of the highway and one for the southern portion as the caribou reach these areas at different times. This closure provides wildlife viewers with a good opportunity to see the migration and obtain photographs of the herd.

THE INTERNATIONAL PORCUPINE CARIBOU BOARD

The Board is made up of eight members: four appointed by Canada and four appointed by the United States.

The first meeting was held in Whitehorse in April 1989. The intent of the international agreement was discussed, administrative arrangements were largely sorted out and the status of current events and issues bearing on the herd was reviewed.

At a second meeting held in Fairbanks in September 1989, a technical working group was formed, a schedule and approach to developing a comprehensive herd and habitat management plan was discussed, and procedures for public consultation were proposed.

The third meeting was held in Aklavik in January 1990. Here the members reviewed a draft of their first annual report and finalized administrative arrangements for conducting their business. The Board asked each agency to co-operate in the preparation of the first draft of a conservation and management plan for the herd by 1991, and to begin work on identifying sensitive habitats.

The board has met 14 times since 1989, produced 5 annual reports and finalized the conservation and management plan for the herd.

The board also produced the “Sensitive Habitats of the Porcupine Caribou Herd” report in 1993. The “Summer Ecology of the Porcupine Caribou Herd” report was subsequently produced by members of the ad hoc technical committee and the Porcupine Caribou Management Board.

Unfortunately, in recent years, there has been a lapse in the appointment of members and the board has not met on a regular basis.

CONSERVATION

Conserving caribou seems to be a good idea, but there is confusion regarding the word “conservation”. To some, conservation implies a hands-off approach to resources, especially wildlife or forest resources. Most people would accept the true definition of conservation as “wise use”. Hydro-electric power, for example, is a renewable energy resource. If you are going to conserve electricity, you do not stop using it, instead you stop wasting it - you use it wisely.

The goals of conservation are long-term human goals: we conserve our caribou so that we may use them without depleting them and can therefore have caribou for generations to come.

In 1990, the World Conservation Strategy set out the main principles for conservation: maintaining essential ecological processes, preserving genetic diversity, and ensuring the sustainable use of species and ecosystems.

Use in the sense of wise use does not dictate that a resource must be harvested or manufactured into a product before it becomes valuable and deserving of management. The viewing of caribou is a use of caribou. Nor does conservation rule out harvesting or other methods of making a resource valuable, provided we apply good judgment and caution.

SUGGESTED LEVEL 1 ACTIVITIES

1. Invite a member of the community to talk to students about their traditional knowledge and practices. Prepare the students by brainstorming questions ahead of time.
2. Invite a biologist to talk about the work of a scientist, and how and why information is collected, rather than the results. It is important to ask the biologist ahead of time to be able to relate to the grade level by using simple terminology and “hands-on examples” such as a radio collar, etc.
3. Invite a Conservation Officer to talk about the work of a law enforcer and why there are wildlife regulations for hunting caribou. Be sure to ask the speaker to speak to the comprehension of this grade level. Have the students play roles as hunters killing caribou and have the officer ask the appropriate questions. Let the students also play the officer. The officer can offer hunting situations that would allow for lots of discussion.
4. Have the students find out who their representative is on the PCMB. (For students not on the range of the herd, find out their member on an advisory board in their area.) Invite this member to the class to talk about his/her role on the board. Again is it important to ask ahead of time that they speak to the level of the grade. Help students prepare questions ahead of time.
5. Have students brainstorm how they can help manage the caribou herd. Write some of these ideas in sentence form and make a wall display. The students could also draw pictures accompanying these ideas.
6. Obtain a picture of one of the post-calving aggregations from this manual or the internet. Display the picture on the wall. Put up a piece of paper and have students take turns counting the caribou and marking each image of the caribou as they go. Add up the students' amounts to get a total for the picture. Emphasize how the population count is a direct photo-count. Try to imagine counting all 123,000 caribou!
7. If a biologist is working in your area, ask to obtain a radio collar and radio receiver or satellite collar. Be sure to find out how to use it. Go outside with the class and let one student be the collared animal by just holding the collar and have the student hide somewhere in the forest near the school. With the teacher using the receiver and the hand-held antennae with the rest of the class, try to locate the student. Or place several collars out ahead of time and have a treasure hunt. Remember the collars cost over \$500.00. Later in class, discuss some of the information you get from collared caribou. Use some of the seasonal distribution maps - reproducible activities to illustrate location and season information.

SUGGESTED LEVEL 2 ACTIVITIES

1. Invite a member of the community to talk to the students about their traditional knowledge and practices. Prepare students by brainstorming questions and ideas ahead of time. Have students discuss the elder's talk and write simple sentences. Prepare students for the talk by giving out the guided discussion topic cards - reproducible sheet.
2. Invite a biologist to talk about the work of a scientist, how and why information is collected, rather than the results. It is important to ask the biologist ahead of time to be able to relate to the grade level by using simple terminology and "hands-on examples" such as a radio collar, etc. Have each student ask the biologist a question. Later let them each write their question and the answer on a sheet of paper and make a wall display.
3. Invite a Conservation Officer to talk about the work of a law enforcer and why there are wildlife regulations for hunting caribou. Be sure to ask the speaker to speak to the comprehension of this grade level. Have the students play roles as hunters killing caribou and have the officer ask the appropriate questions. Let the students also play the officer. The officer can offer hunting situations that would allow for lots of discussion. Perhaps enact a court scene.
4. Have the students find out who their representative is on the PCMB. (For students not on the range of the herd, find out their member on an advisory board in their area.) Invite this member to the class to talk about their role on the board. Again is it important to ask ahead of time that they speak to the level of the grade. Help students prepare questions ahead of time.
5. Have students brainstorm how they can help manage the caribou herd. Have them each write letters or work together to write one letter to the newspaper or the PCMB on what they think should be done to manage caribou. Posters could be made with magazine pictures or their own drawings that have a management or conservation theme.
6. Obtain a picture of one of the post-calving aggregations from this manual or the internet. Display the picture on the wall. Put up a piece of paper and have students take turns counting the caribou and marking each image of the caribou as they go. Add up the students amounts to get a total for the picture. Emphasize how the population count is a direct photo-count. Try to imagine counting all 123,000 caribou!
7. If a biologist is working in your area, ask to obtain a radio collar and radio receiver or a satellite collar. Be sure to find out how to use it. Go outside with the class and let one student be the collared animal by just holding the collar and have the student hide

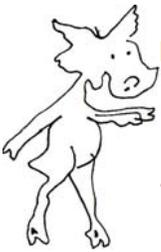
somewhere in the forest near the school. With the teacher using the receiver and the hand-held antennae with the rest of the class, try to locate the student. Or place several collars out ahead of time and have a treasure hunt. Remember the collars cost over \$500.00. Later in class discuss some of the information you get from collared caribou. Use some of the seasonal distribution maps - reproducible activities to illustrate location and season information.



SUGGESTED LEVEL 3 ACTIVITIES

1. Have a guided discussion using the topic cards on the activity sheet. Students can work in groups with one student leading the discussion using the cards. Report back to the whole class with ideas. Discussions could be taped. Have students interview members of the community on the guided discussion topics. Interview questions should be planned in advance. Interview could be tape recorded and played back to participating classes. Perhaps you could exchange tapes with another school on the range of the Porcupine Caribou herd.
2. Invite a member of the community to talk to students about traditional knowledge and practices. Prepare the students by brainstorming questions ahead of time. Write a small report on the elder's talk.
3. Invite a biologist to talk about the work of a scientist, and how and why information is collected, rather than the results. A slide presentation and or examples of radio collars, etc. would be of interest to the students.
4. Obtain copies of the current hunting regulation synopsis from the local Department of Environment or DWRED office. Have students locate their area and determine the caribou hunting regulations that apply to this area. Is hunting permitted? Both cows and bulls? What is the season and bag limit? For an overall Yukon and Northwest Territories perspective, have the students colour all the sub-zones where hunting is not allowed, colour the areas where cow hunting is allowed, bull-only hunting is allowed, etc. Perhaps invite a biologist in to talk about the herd in your area and reasons why the restrictions apply.
5. Have the class attend a PCMB meeting if one is held in your community. (If class is too large, have a writing competition and select only a couple of students to attend.) Students not living within the range of the Porcupine Caribou herd could attend an advisory board meeting in your area.
6. Invite a Porcupine Caribou Management Board member to address the class on the workings on the board. Students could prepare specific questions for the member and interview them over the telephone, or by letter if necessary.
7. Using the PCMB Annual Reports, have the class compile a chronology of events dating from the start of efforts to form the Board. See Information Sheets, pages 21-23.
8. Have students write an essay about their future, "What do you want to do?" - see activity sheet.

9. Have students compose, collectively, a letter to the Porcupine Caribou Management Board, or the Yukon News, telling how young people are involved and can be involved in caribou management.
10. Play the Caribou quiz, a card game that is part of the kit. The game may be played as often as students wish to provide a continuing review of the major points of the school program.
11. Introduce the Porcupine Caribou Management Plan. Have students determine the current action and worksheet. Summarize the goals, objectives and principles.
13. Have students research the PCMB by reading the Annual Reports or news clippings and doing research on the internet. Students could produce a collage of articles for display in the classroom.
14. Refer to the PCMB Technical Report Series no. 1, 1989. Have student groups read some of the pages. List all the difficult words and use a dictionary to look up the meanings.
15. Obtain a picture of one of the post-calving aggregations from this manual or the internet. Display the picture on the wall. Put up a piece of paper and have students take turns counting the caribou and marking each image of the caribou as they go. Add up the students' amounts to get a total for the picture. Emphasize how the population count is a direct photo-count. Try to imagine counting all 123,000 caribou!
17. Review the identifying characteristics between bull and cow caribou - refer to Unit 1.
18. Have students write to the Yukon Department of Environment Porcupine Caribou biologist to see if they can name a satellite-collared caribou for their school. Check out the location reports on the collared animal every week via the website or have the biologists fax it to the school. Students can plot the movements of the caribou on a large wall map. The students will learn how distribution data is gathered by the biologists and will appreciate the space required by an animal.
19. Have students obtain the most recent harvest information on the Porcupine Caribou herd. Have them take the total number of caribou shot by hunters and multiply it by 25% to account for the crippling loss. This number can then be added to the known kill to get a total estimate of all dead caribou from hunting. If you cannot obtain the most recent numbers, use the 2000-2001 results. Or make up some harvest numbers. Stress to the students that the important thing for hunters to do is avoid shooting into the group, to make their shot fatal by becoming familiar with the caribou anatomy and practising shooting.



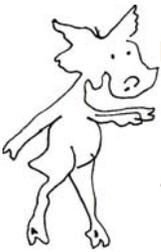
STUDENT ACTIVITY SHEET

Make copies of this sheet. Cut out the topic cards and distribute one to each group. Group reports should be given in the topic numerical order.

WHERE DO CARIBOU LIVE? Starter questions: When do we see caribou near here? Where are they going? Where are they coming from? Where would we go if we followed them? Do they always come this way? Where are they when they do not come? <p style="text-align: right;">1</p>	CARIBOU, YOUNG AND OLD Starter questions: When are calves born? Why do they stay with their mothers? When do a lot of old caribou die? Why? How many words or names for caribou are there in the Gwich'in language? What do they mean in English? <p style="text-align: right;">2</p>
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WHAT IS GOOD AND BAD FOR CARIBOU? Starter questions: What kind of weather is good for caribou? What kind is bad for them? What kind of snow is good for caribou? What kind is bad for them? What are the names for these kinds of snow in native language? What animals are good for caribou? Why? What animals are bad for them? Why? <p style="text-align: right;">3</p>	HOW DO WE HUNT CARIBOU? Starter questions: How do we know when it is time to hunt? What do we need to get ready to take hunting? Why do we need those things? How do we get close to a caribou without frightening it? How can we tell if the caribou has seen or smelled the hunter? What does a caribou do when it is frightened? What should we not do when hunting? Why? <p style="text-align: right;">4</p>
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SKINNING AND USING CARIBOU Starter questions: What can we use a skin for? When is the hair the best for this? How do we take off the skin from the dead animal? What do we do with the skin before we can use it? What kind of clothing can we make from the skin? What are the names for these in the Gwich'in language? Can we say all the names of tools needed for skinning a caribou and for making things with it? <p style="text-align: right;">5</p>	EATING CARIBOU Starter questions: What parts of the caribou do we eat? What are the names for these in the Gwich'in language? What is your favourite part? How do we cook caribou? How do we keep it for many months? What did our families do before they had freezers? Do you know someone who knows a lot about caribou? What questions will you ask him or her about caribou meat? <p style="text-align: right;">6</p>
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STUDENT INFORMATION SHEET

Hunters watch caribou with great care. This way they know how they act. Knowing how caribou act makes them better hunters. When they get back to camp, they tell their friends about what they saw. In that way, other hunters learn also.

These things are passed down from father or uncle to the son or nephew. They are not written down. Scientists who study people call it the **oral tradition**.

Scientists learn about caribou in a different way. They watch the caribou and write down what they see. They make drawings or take photographs so they will remember what they saw. They do not believe something if they see it only once. They have to see it many times to **verify** that it is true. Then they hope another scientist will see the same thing and **record** it in his/her **notes**. That will **confirm** that it is true.

Scientists also like to **test** what they have learned. They do **experiments** to make sure the same thing will happen again.

Scientists use **notebooks** and write down what they see. They take **specimens** from dead caribou. They **examine** them in **laboratories**.

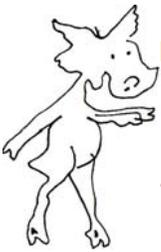
You can see they do not learn about caribou in the same way as hunters do.

The first man to report caribou in a **scientific** way was Samuel Hearne. He traveled from Fort Churchill to Coppermine with Chipewyans as his guides. He left Fort Churchill in 1770, and it took him two years to finish his journey. He wrote about what he had learned and **published** it in a book.

One of the next scientists to report about the caribou was Ernest Thompson Seton. He traveled across the Barren lands in a canoe in 1907. He **estimated** that there were 30 million caribou then. But this estimate was never **tested** or **confirmed**. Scientists now do not believe his estimate.

Scientists began to use aircraft to study the caribou in 1948. They do **population surveys** every few years. They also fly to where the caribou are grazing to learn about how they behave and what they eat. All the things they **confirm** are published so that other scientists will know about them.

Most of the scientists who travel to study the caribou are **biologists**.



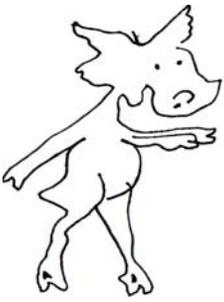
STUDENT ACTIVITY SHEET

Some of the words are missing. Choose the correct ones from the box.
Watch out! You do not need them all.

biologist	oral tradition
estimated number	record
verify	scientific data

1. Scientists _____ what they learn about caribou. They write it down or take photographs.
2. Native people learn about caribou from their elders. They talk about it. This is called the _____.
3. Scientists have to see something many times to _____.
4. A scientist who studies caribou or other animals and plants is called a _____.

What do the extra words mean?

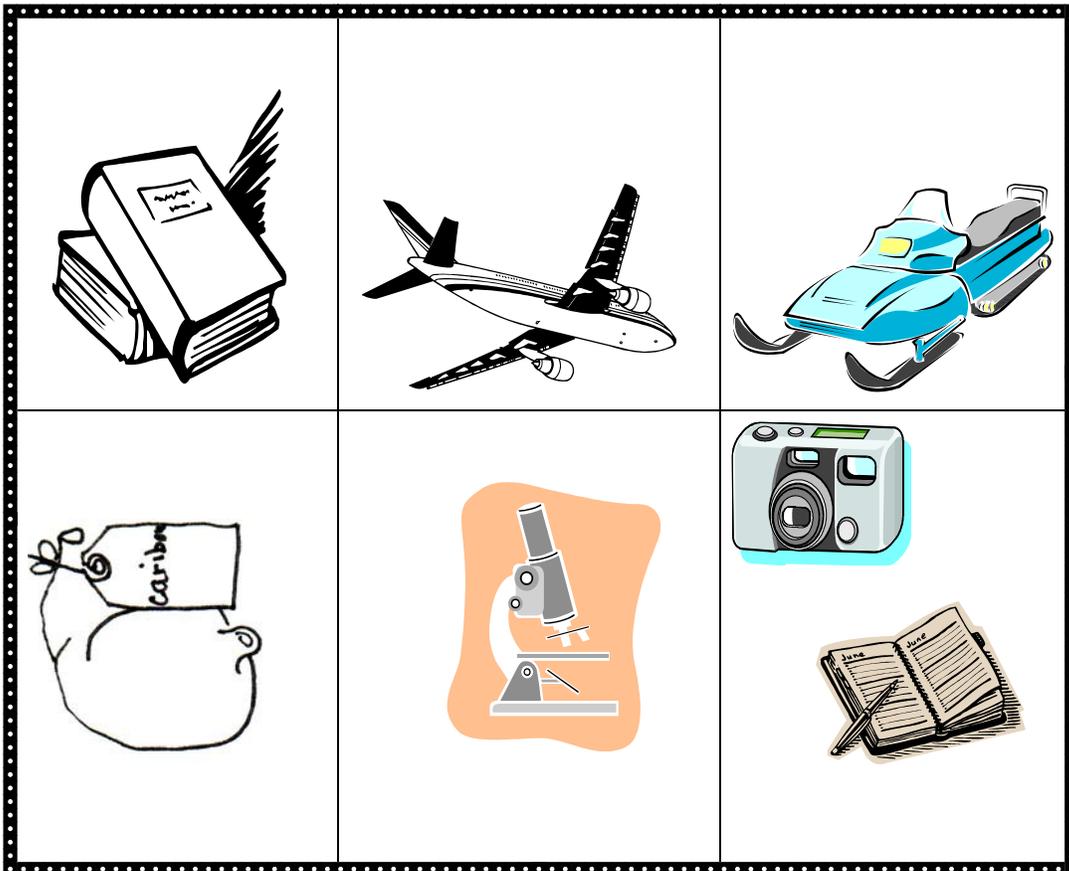


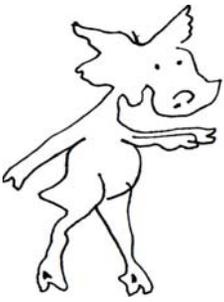
STUDENT ACTIVITY SHEET

Look at the pictures. The pictures show some of the things that biologists use. Do you know what they are for? Cut them out. Stick them into the correct squares on page 39.

Watch out—you do not need them all!

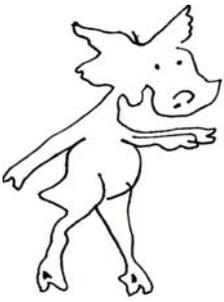
Do you know what the other things are used for?





STUDENT ACTIVITY SHEET

<p>Paste picture, then colour it.</p>	<p>1. Scientists fly to where the caribou are. They watch how they behave and what they eat. They count caribou from the air to see how many there are. From the air they can learn about migration routes.</p>
<p>Paste picture, then colour it.</p>	<p>2. Scientists want to be sure about what they see. They write things down and sometimes take photographs. They hope some one else will record the same things. That way they will be more certain they are right and what they record will be verified.</p>
<p>Paste picture, then colour it.</p>	<p>3. Sometimes biologists take parts of caribou and examine them. They look inside the stomach to see what the caribou eats. They look at the teeth to find out the age of the caribou. They learn about diseases and other caribou problems.</p>
<p>Paste picture, then colour it.</p>	<p>4. Biologists take specimens from dead caribou to send to laboratories. There, other scientists can do many tests. Biologists send plants there to be examined. They take measurements of the caribou's body size and DNA and blood samples</p>



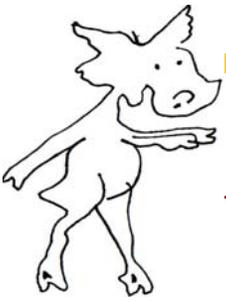
STUDENT ACTIVITY SHEET

Some of the words are missing. Choose the correct ones from the box.
Watch out! You do not need them all.

biologist	oral tradition
estimated number	record
verify	scientific data
publish	caribou specimens

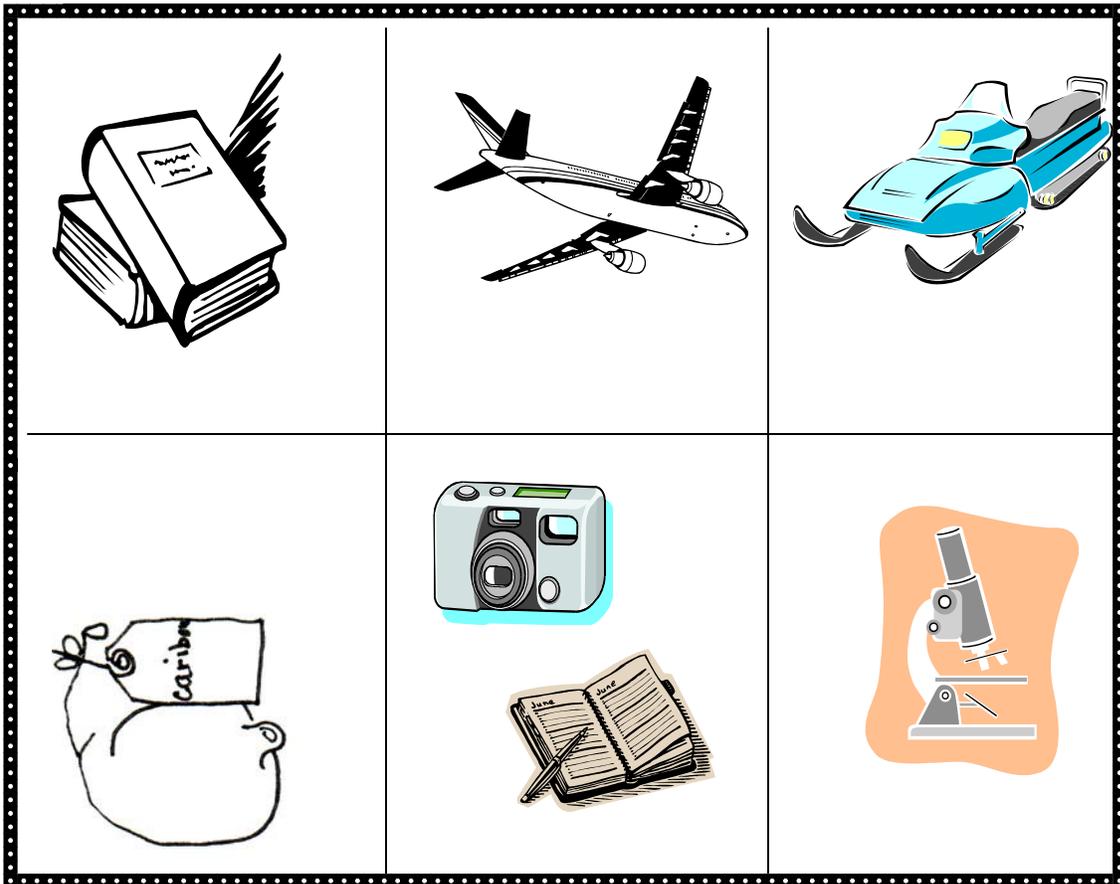
1. Scientists _____ what they learn about caribou. They write it down or take photographs.
2. Native people learn about caribou from their elders. They talk about it. This is called the _____.
3. Scientists have to see something many times to _____ that it is true.
4. A scientist who studies caribou or other animals and plants is called a _____.
5. After scientists have counted caribou they are able to give an _____ . This is not exact, but is based on statistics.
6. When information is found to be true, or verified, scientists _____ their work so that other scientists can read and learn about it.

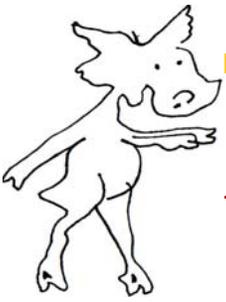
What do the extra words mean?



STUDENT ACTIVITY SHEET

Choose the correct picture and use it to do the activity on page 42.

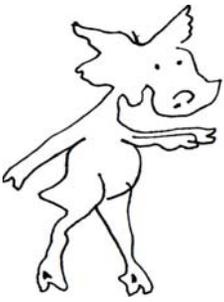




STUDENT ACTIVITY SHEET

Some of the words are missing. Choose the correct ones from the box and write them in. Watch out! You do not need them all.

			
		<p>Biologists take specimens from dead caribou and send them to laboratories. There all kinds of tests can be done. They also send plants there to be examined.</p>	
			
<p>Different parts of caribou are examined by biologists. They look at the stomach to see what the caribou ate. They look at the teeth to see the age of the caribou. They learn about diseases and other problems.</p>			
			
			<p>When they want to look at caribou close up, biologists travel on the land until they reach the caribou. Sometimes they stay on the land for several days.</p>

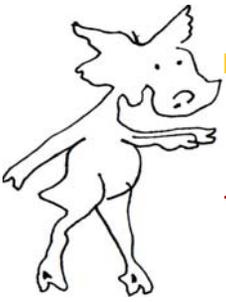


STUDENT ACTIVITY SHEET

Here are some words and phrases you have heard or read. Match them with the correct meaning. The first one has been done for you

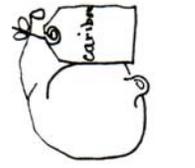
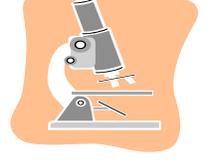
<input type="checkbox"/> 5	scientific data	<input type="checkbox"/>	verify
<input type="checkbox"/>	oral tradition	<input type="checkbox"/>	estimated number
<input type="checkbox"/>	caribou specimens	<input type="checkbox"/>	experiments
<input type="checkbox"/>	biologists	<input type="checkbox"/>	record
<input type="checkbox"/>	scientific method	<input type="checkbox"/>	publish

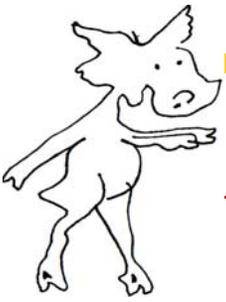
- Scientists write about or photograph what they see so they can remember it.
2. A method that follows rules for recording and testing information.
 3. Whole or part of caribou taken for scientific study.
 4. Not an exact number, but a statistical calculation.
 5. Scientific facts or information.
 6. Print many copies of something (like books).
 7. Prove or support information.
 8. Pass on knowledge by talking, as from father to son.
 9. Scientists who study caribou or other animals and plants.
 10. Ways of testing, often done in laboratories.



STUDENT ACTIVITY SHEET

The pictures show some of the things biologists use in their studies of caribou. So you know what they are used for? Write your answers in the boxes or on a separate sheet of paper



STUDENT ACTIVITY SHEET

Cover up the words on the left. Read the sentences. Try to fill in the missing words. Check your answers as you go along.

science

university

history

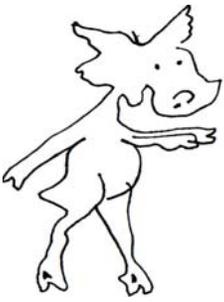
land
caribou

observing

follow

body

1. Caribou biology is a _____ .
2. Biologists study science at _____ .
3. Biologists learn about the _____ of caribou.
4. Biologists learn about the _____ where _____ live.
5. Biologists learn about caribou by _____ them.
6. They _____ caribou to see where they go.
7. Biologists examine the caribou's _____ to see how it works.

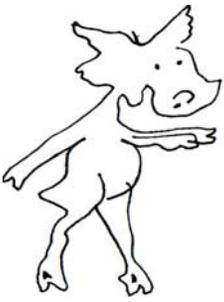


STUDENT ACTIVITY SHEET

Find out about caribou biology. Fill in the missing words.
Choose from the box.

1. _____ biology is a _____ subject.
2. Biologists study science at _____.
3. They look at the _____ of caribou to learn how the animal
_____.
4. They examine the caribou's _____ to see how it works.
5. Biologists learn about the _____ where caribou _____.
6. They learn about caribou by _____.
7. They use scientific _____ and knowledge of other animals to help
them _____ about caribou.

laws	university
history	land
science	developed
observing	body
learn	live
caribou	



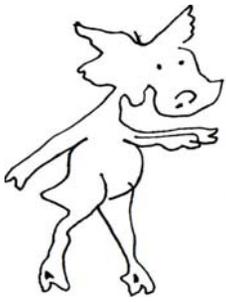
STUDENT ACTIVITY SHEET

The sentences below will tell you something about caribou biology and the scientists who do this work. First you have to fill in the missing words. Choose from the box.

1. Caribou biology is a _____ subject.
2. Biologists have to study subjects like zoology, biology, chemistry and physics at _____.
3. Biologists research the _____ of caribou so they can understand how the animal _____ over time.
4. They examine the caribou's _____ to see how it works.
5. They _____ caribou from birth to death to learn about their _____ processes.
6. They watch the caribou on the _____ to learn about the animal's _____ and possible dangers to the caribou.
7. Biologists use scientific _____ and knowledge of other animals in their work with caribou.
8. Biologists do not like to guess. They _____ information. Then they try to _____ what they have seen.

- | | |
|---------------|--------------|
| a. developed | g. behaviour |
| b. explain | h. observe |
| c. university | i. history |
| d. life | j. test |
| e. land | k. body |
| f. science | l. laws |

Answers:
1-f, 2-c, 3-i and a,
4-k, 5-h and d, 6-e
and g, 7-l, 8-j and b.



STUDENT ACTIVITY SHEET

Find the answers to these problems.



$2 \times 1 = \underline{\quad}$



$2 \div 1 = \underline{\quad}$

$1/2 \text{ OF } 2 = \underline{\quad}$



$2 \times 3 = \underline{\quad}$



$6 \div 3 = \underline{\quad}$

$1/2 \text{ OF } 6 = \underline{\quad}$

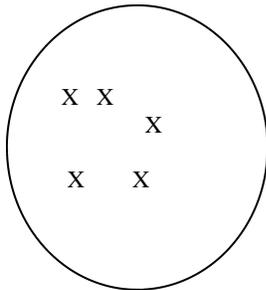


$2 \times 5 = \underline{\quad}$

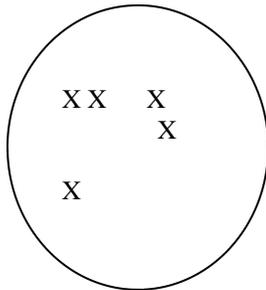


$10 \div 5 = \underline{\quad}$

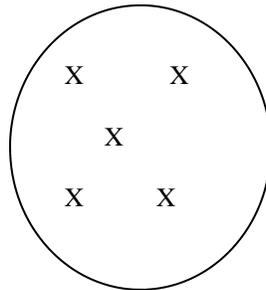
$1/2 \text{ OF } 10 = \underline{\quad}$



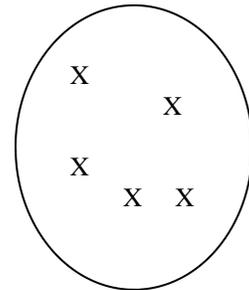
$4 \times 5 = \underline{\quad}$

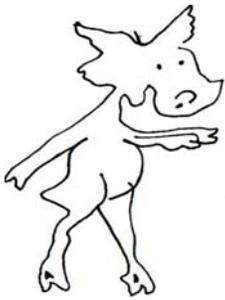


$20 \div 5 = \underline{\quad}$



$1/4 \text{ OF } 20 = \underline{\quad}$





STUDENT ACTIVITY SHEET

Finish these sums. Check your answers from the box.

$$\begin{array}{r} 1. \quad 35 \\ + \quad 60 \\ \hline = \end{array}$$

$$\begin{array}{r} 2. \quad 429 \\ + \quad 900 \\ \hline = \end{array}$$

$$\begin{array}{r} 3. \quad 1,000 \\ + \quad 300 \\ \hline = \end{array}$$

$$\begin{array}{r} 4. \quad 1,900 \\ + \quad 1,300 \\ \hline = \end{array}$$

$$\begin{array}{r} 5. \quad 1,820 \\ - \quad 600 \\ \hline = \end{array}$$

$$\begin{array}{r} 6. \quad 120,000 \\ - \quad 50,000 \\ \hline = \end{array}$$

$$\begin{array}{r} 7. \quad 145,000 \\ - \quad 40,000 \\ \hline = \end{array}$$

$$\begin{array}{r} 8. \quad 149,000 \\ - \quad 65,000 \\ \hline = \end{array}$$

Write the digits for these numbers.

9. One hundred and fifty thousand: _____.

10. Thirty thousand: _____.

Look at the graph on page 49. Fill in the missing answers.
Do the sums to find them.

a. In 1972 there were _____
less caribou than in 1989.

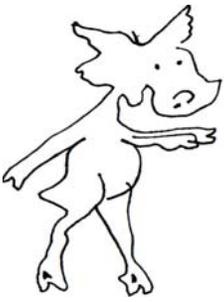
b. In 2001 there were _____
less caribou than in 1989.

178,000
- 102,000
=

178,000
- 123,000
=

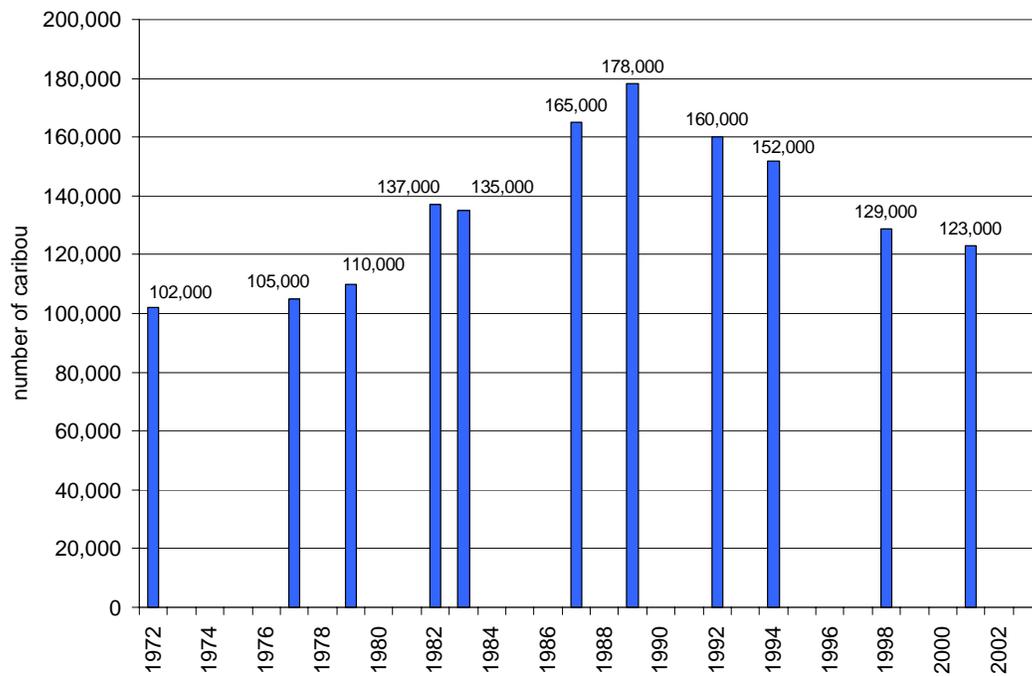
ANSWERS

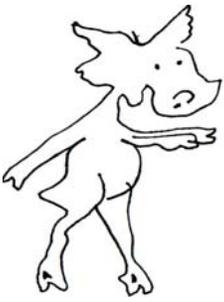
1 - 95 2 - 1,329 3 - 1,300 4 - 3,200 5 - 1,220 6 - 70,000 7 - 105,000 8 - 84,000 9 - 150,000 10 - 30,000



STUDENT INFORMATION SHEET

Estimated Porcupine Caribou Herd Size, 1972 to present





STUDENT ACTIVITY SHEET

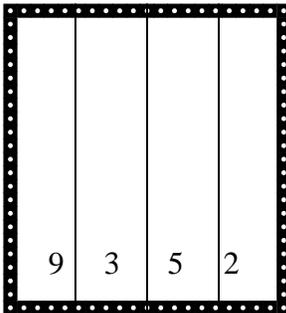
Look at the 2 rows of numbers and complete the statements.



The trend is _____.



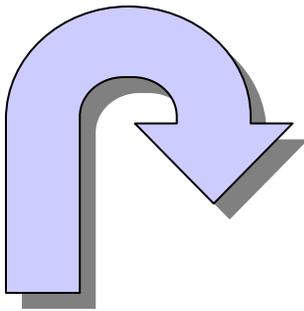
The trend is _____.



Rewrite the number to show its meaning.

- a. $9,352 = 9,000 + 300 + 50 + 2$
b. $17,963 = 17,000 + 900 + 60 + 3$
c. $14,229 = \quad + \quad + \quad + \quad$
d. $28,660 = \quad + \quad + \quad + \quad$
e. $100,652 = \quad + \quad + \quad + \quad$

Now look at the numbers again. Write them in these boxes.



B. _____

C. _____

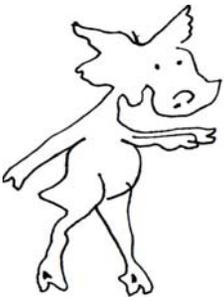
E. _____

D. _____

A. 9352

Answer

IS THIS TREND UP OR DOWN?



STUDENT ACTIVITY SHEET

Today, we will select our own Caribou Management Board. You have been placed in a group of users. Write down which group you are in.

My group speaks for the _____.

Keep a record of the election below.

1. The user member or members elected by my group was/were

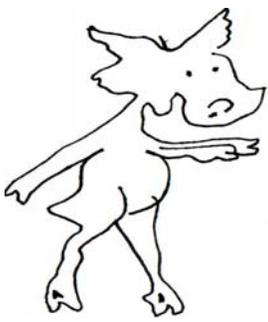
2. The government member appointed by the teacher for the group's area was

3. When the new board met, the Chairman they elected was

4. The one who had the next highest number of votes for Chairman was made the Vice-Chairman. He or she was

5. The Executive Secretary appointed by the Board was

7. Everybody else was an observer at the meeting.



STUDENT ACTIVITY SHEET

Work with your class to get photographs of the board members. Paste them in the correct places on the Wall Chart, "People of the Caribou Management Board". Write their names on the chart and on this sheet below. Say what you know about them.

Traditional User Members

What We Know About Them

1. _____

2. _____

3. _____

4. _____

5. _____

Government Members

What We Know About Them

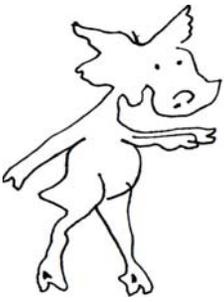
1. _____

2. _____

3. _____



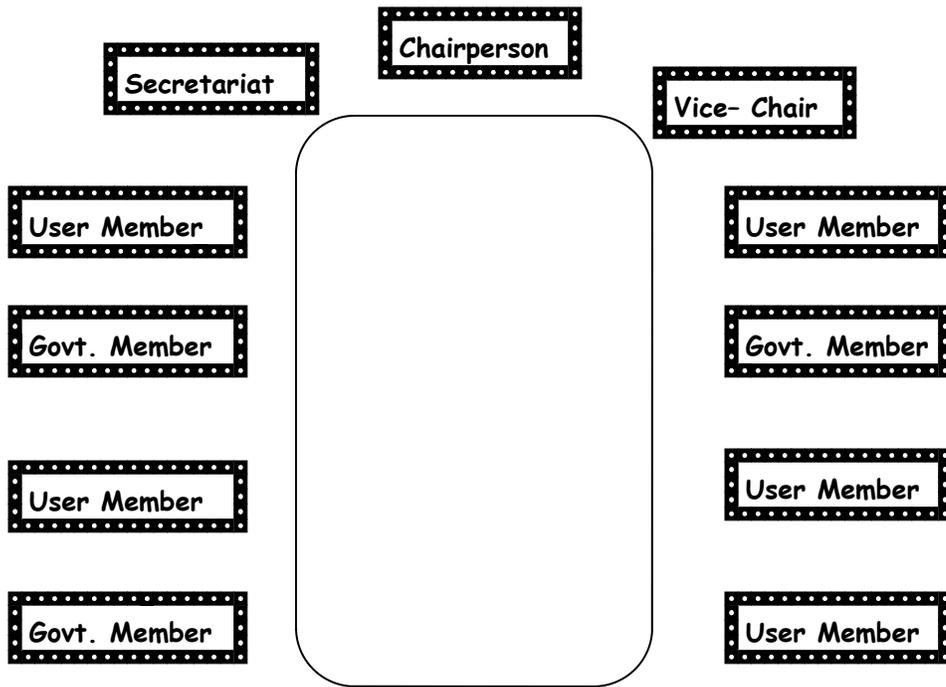
You can find the members' pictures in the PCMB Annual Reports



STUDENT INFORMATION SHEET

Pretend you are looking down at a meeting of the Porcupine Caribou Management Board.

This is what you might see:



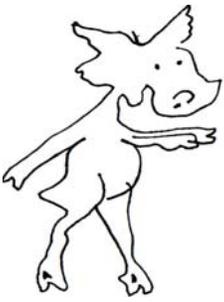
Advisors and Observers

The three **Officers** of the Board sit at the head of the table.

The **Chairman** runs the meeting and applies the rules.

The **Vice-Chairman** does the same thing when the Chairman is absent.

The **Secretariat or Secretary/Treasurer** takes notes of what is decided. She/He sends out minutes of the meeting so that members have a record of what they did. She/He also arranges the meetings. The **Secretariat** also looks after the Board's money.



STUDENT ACTIVITY SHEET

"The Membership of the Caribou Management Board"

Write the number of members in the boxes:

Government Members

Traditional User Members

User members are very important. Check off the kinds of things they can do to help manage caribou.

They share with the scientists their traditional knowledge.

They take part in making decisions.

They collect harvest data.

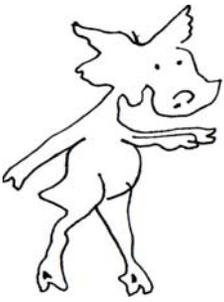
They tell the Board the opinion of users.

They keep users informed about what the Board is doing.

They have influence in the communities.

They understand what biologists are doing or plan to do.

Can you say what else they do? Write below.



STUDENT ACTIVITY SHEET

Talk about the government departments.

Why are they on the Board? What are their interests? How do they help?

Look at the list below. Check off some things they do.

They work with user members to make a plan for caribou management.

They give money needed to carry out parts of the plan that are approved.

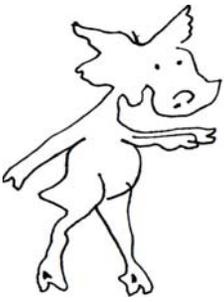
They tell civil servants, users and other people about caribou to inform them and to educate them.

They control the use of the land.

They provide fire protection.

They study caribou and their habitat.

Can you say what other things they do? Write them here.



STUDENT ACTIVITY SHEET

In our next lesson, the Board will try to decide some things that should be done to make sure there are always caribou. This is called a **PORCUPINE CARIBOU MANAGEMENT BOARD MEETING**.

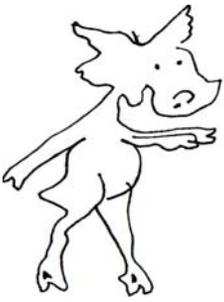
All Board members and observers should be ready to speak at the meeting. They should say what they think must be done.

Take this sheet home and think about it. Talk to your parents or elders. Ask their opinions. In a real Board meeting, everybody thinks about things first.

Your teacher will explain what an "agenda" is. Here are some suggestions for the agenda for your meeting:

- a. **Someone should open the meeting and ask members what should be talked about.**
- b. **Is education important to talk about?**
- c. **What are the biggest dangers to caribou?**
- d. **How much do we know about caribou?**
- e. **Do we need to know more?**
- f. **How do we find out more?**
- g. **What can we do to control caribou?**
- h. **What can we do to control humans?**
- I. **Can we control other predators?**

What are the most important things?



STUDENT ACTIVITY SHEET

Today is the Board meeting. Have you thought about what should in your meeting? You cannot talk about everything important in one lesson. So your Chairman will try to reach **consensus** (or agreement) with you on 3 or 4 items that you all agree are most important.

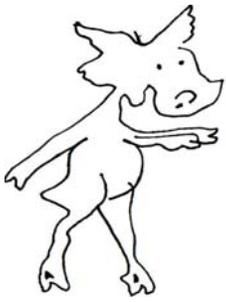
Here is the agenda for your meeting.

- | | |
|----|--|
| 1. | Welcome and opening remarks. |
| 2. | Members agree on following agenda. |
| 3. | 1st Priority Topic _____ |
| 4. | 2nd Priority Topic _____ |
| 5. | 3rd Priority Topic _____ |
| 6. | 4th Priority Topic _____ |
| 7. | List all other topics you want to talk about but will not have time for. |

Now discuss your priority topics and decide what must be done to manage our caribou. Write down what the problem is, and what must be done, as a "MOTION". A sample one is given below:

**It was moved by John Green, seconded by Jane Brown, that:
WHEREAS some animals are crippled because of poor shooting and valuable meat is wasted, and many who cripple animals are young, inexperienced hunters, this Board recommends that adults younger than 25 should not hunt until they have had training from an elder.**

The motion was passed by consensus..

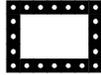


STUDENT ACTIVITY SHEET

Record the approved motions here.

1. It was moved by _____ and seconded by _____ that

The motion was approved



rejected

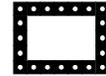


2. It was moved by _____ and seconded by _____ that

The motion was approved



rejected



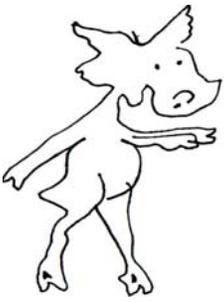
3. It was moved by _____ and seconded by _____ that

The motion was approved



rejected





STUDENT ACTIVITY SHEET

List here the other topics you did not have time to discuss.

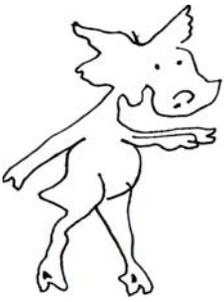
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____

KEEP THESE PAGES TO COMPARE WITH THE ACTUAL MANAGEMENT PLAN. YOU WILL BE STUDYING IT NEXT.

The Porcupine Caribou Management Plan is available from the Porcupine Caribou Management Board or on the internet at:



[Http://www.yfwmb.yk.ca/comanagement](http://www.yfwmb.yk.ca/comanagement)



STUDENT INFORMATION SHEET

Caribou users and conservationists worry about **development** in the North. They are afraid that the caribou habitat will be changed and the caribou harmed.

Consumers and Conservationists

A **consumer society** believes that any and all resources can be used at any time. It believes that when resources run out we will find ways to discover and develop new ones. That is known as the **consumer ethic**.

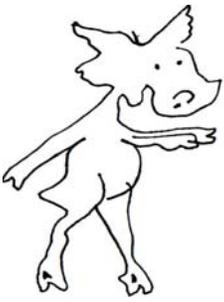


A **conservator society** believes that resources must be used only as needed. Some must be saved for the future, if possible. The **conservation ethic** believes that a stable economy depends on the careful **planning** and **management** of renewable resources.

These two attitudes often cause disagreements about the use of caribou and their habitat. We must all co-operate so that the right decisions are made for the good of all Canadians.

Barren ground caribou are important to all Canadians. They provide meat and hides for user families. Other Canadians do not use caribou in the same way. Some like to read about them. Others like to watch films about them. They use caribou in different ways.

Many people are interested in caribou because they are **wild, herding animals**. Canada is proud of its wildlife. Caribou are part of our natural **heritage**.



Natural Resources

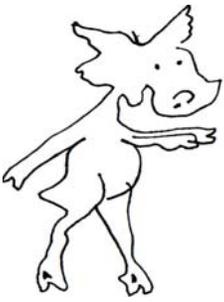
A **renewable resource** is one that can replace itself. It will always be there if it is managed well. Renewable resources like caribou, fish and trees are of great value to Canada.

A **non-renewable resource** does not replace itself. Oil and gold are non-renewable resources. When they are taken out of the ground, they are gone forever. If we need more oil and gold, we must drill new wells and open up new mines.

Can you think of other kinds of non-renewable resources?

Today, companies and governments want to take non-renewable resources from the North. These resources will provide materials for industry. Industry provides jobs for people.





STUDENT ACTIVITY SHEET

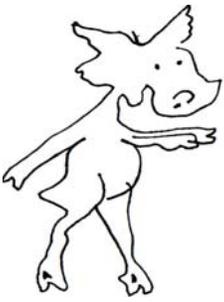
Look at the drawings of natural resources on the Information Sheet. Write the name of the resources (or draw them again) in the correct boxes below to show which are renewable resources and which are non-renewable resources.

RENEWABLE RESOURCES	NON-RENEWABLE RESOURCES

The consumer ethic and the conservation ethic often clash. Write a few words about each of them to explain what they are. Read the Information Sheet again if you need help.

CONSUMER ETHIC

CONSERVATION ETHIC



STUDENT ACTIVITY SHEET

Talk to your teacher about the words in the banners. Then finish the sentences, using the correct words.

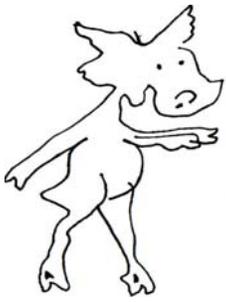
heritage

natural resources

wildlife

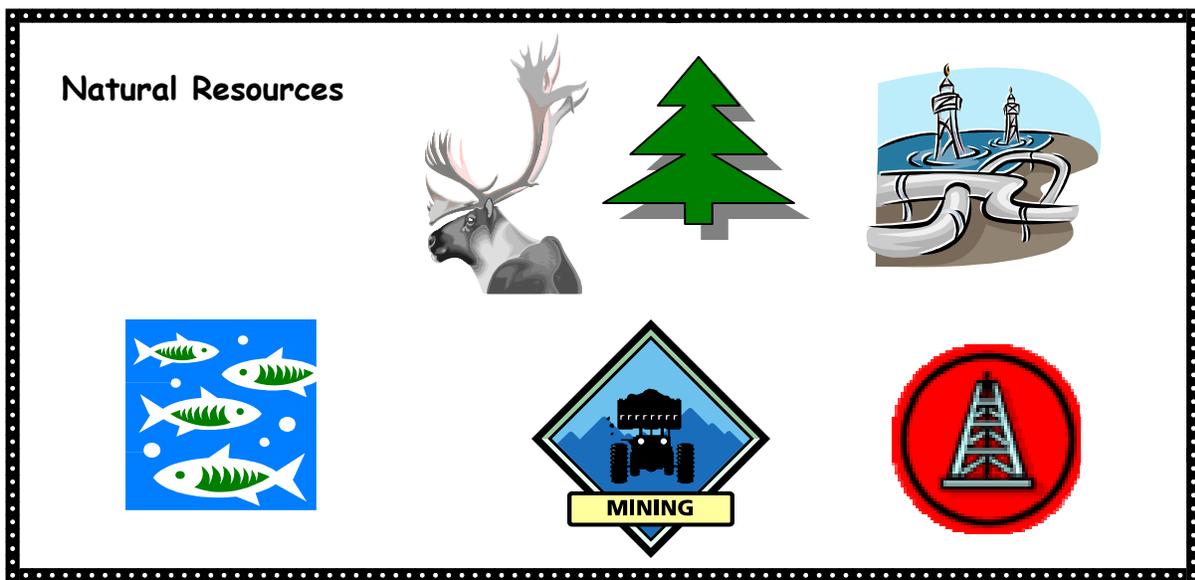
wild, herding animals

1. _____ is something we use and enjoy after our parents and grandparents.
2. Animals that live wild and free are called _____.
3. Caribou are called _____, _____ because they stay together in large groups. They are not controlled by man.
4. Trees, fish and caribou are all _____ that people use.



STUDENT ACTIVITY SHEET

Look at the drawings in the box. They are examples of natural resources. Some of them are renewable resources and some are non-renewable resources. Draw them in the correct box at the foot of the page. Add more if you can think of them.

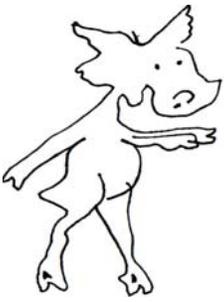


RENEWABLE RESOURCES

Blank space for drawing renewable resources.

NON-RENEWABLE RESOURCES

Blank space for drawing non-renewable resources.

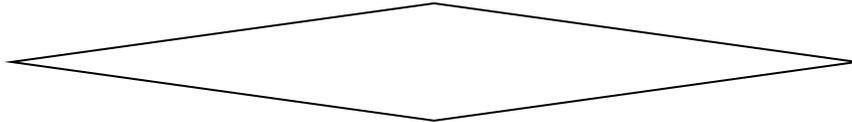


STUDENT ACTIVITY SHEET

Match the words in the boxes with the correct meaning.

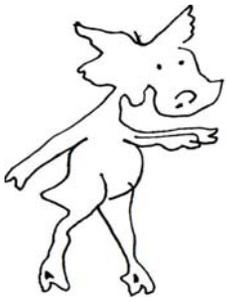
The first one has been done for you.

	wild, herding animals		wildlife
1	heritage		natural resources
	manage		material
	industry		development



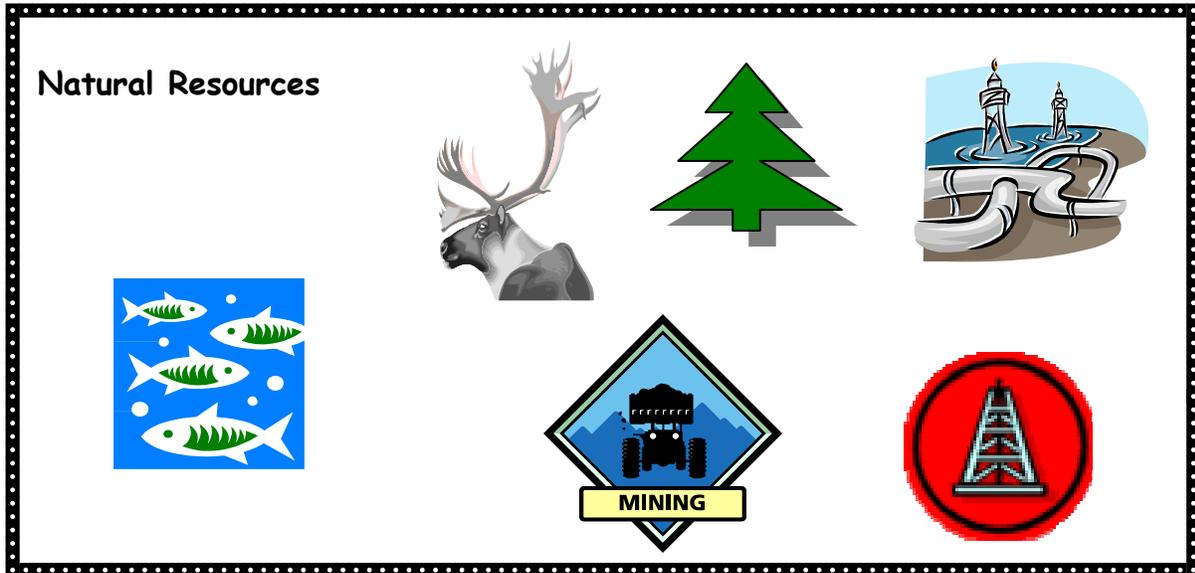
1. Something we use and enjoy after our parents and grandparents.
2. Animals that are wild and free.
3. Animals that stay together in large groups.
4. Trees, fish and caribou are examples of these.
5. Using the land for exploration and mining.
6. It creates jobs and makes money.
7. Examples are mineral ores, gold, oil and gas.
8. To use a resource carefully.

What is the difference between a renewable and non-renewable resource?



STUDENT ACTIVITY SHEET

The pictures in the box show things that are part of Canada's natural heritage. Draw and colour one in the large box.



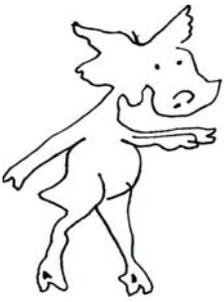
The one you have chosen is

1. a renewable resource



2. a non-renewable resource



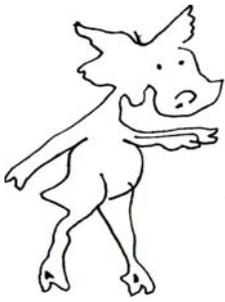


STUDENT ACTIVITY SHEET

Match the words in the boxes with the correct meaning. The Documentation Sheet will help. The first one has been done for you.

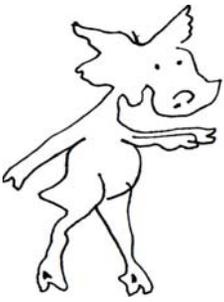
	industry		development
	consumer society		conservation
	co-operate		planning
	manage		material
	wild, herding animals		wildlife
1	heritage		natural resources

1. Something we use and enjoy after our parents and grandparents.
2. Animals that are wild and free.
3. Animals that stay together in large groups.
4. Trees, fish and caribou are examples of these.
5. Using the land for exploration and mining.
6. It creates job and makes money.
7. Examples are mineral ores, gold, oil and gas.
8. To use a resource carefully.
9. Thinking about and organizing the future use of something.
10. A group that uses all and any resources when they are needed to provide consumer goods.
11. Work together.
12. Careful, planned management of a natural resource to protect it and to prevent waste.



STUDENT ACTIVITY SHEET

<p>1. Keeping Our Caribou</p> <p>HUNTER</p> <p>What do I know about hunting? What do I know about the land? What do I know about caribou? What do I know about using caribou? What can I do to help young people become good hunters? How can I help keep our caribou?</p>	<p>2 Keeping Our Caribou</p> <p>BIOLOGIST</p> <p>What kind of work do I do? How is my knowledge different from the hunters? Who can help me do my job well? How can I help people understand my work? How can my work help to keep our caribou?</p>
<p>3. Keeping our Caribou</p> <p>MINE OPERATOR</p> <p>What kind of work do I do? How does my work affect caribou? What kind of things can I do to help caribou?</p>	<p>4 Keeping Our Caribou</p> <p>RESOURCE COUNCILS, HTCS</p> <p>Who do I speak for? How can I find out the people's views? What can I do for the people? How will my job help keep our caribou?</p>
<p>5 Keeping Our Caribou</p> <p>CONSERVATION OFFICER</p> <p>Who do I represent? Who gives me information to do my job? What do I do with that information? Which caribou am I interested in? Why should I make sure that my information is correct? How will my job help keep our caribou?</p>	<p>6 Keeping Our Caribou</p> <p>SCHOOL STUDENT</p> <p>Why am I important in the future of the caribou? What can I learn about caribou? Who can help me? What can I learn in school? What kind of jobs can I do now and in the future to help keep our caribou?</p>



STUDENT ACTIVITY SHEET

What are humans doing to put nature out of balance? What should people do to protect nature?

Finish off these sentences. Choose the missing verbs from the box.

1. People _____ with powerful guns.
2. They _____ snowmobiles over the land.
3. They can _____ in charter aircraft.
4. They are _____ for minerals.
5. They are _____ roads across the range.
6. They are _____ power lines.
7. They are _____ pipelines.
8. People could _____ the caribou herds.
9. People must _____ their own activities carefully
10. They must _____ and _____ with others.

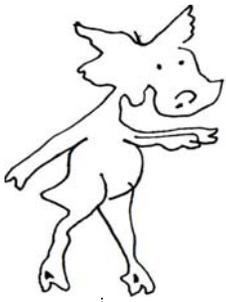
installing
endanger
co-operate
exploring

fly
building
control
drive

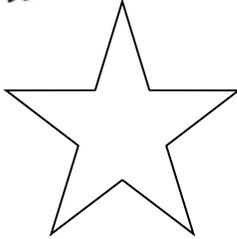
consult
shoot
erecting

??

How can students co-operate with each other?



STUDENT ACTIVITY SHEET



Students can co-operate by exchanging ideas.

Here's how to get started!

1. Choose 3 other schools on the caribou range. Choose one each from the N.W.T., Yukon and Alaska.
2. Write to the "Teacher in Charge of Caribou Schools Program." Ask if a class there will co-operate with you by exchanging letters.
3. State some of your concerns. Make some suggestions. Ask what other students think about your idea.



For the Record

Northwest Territories School

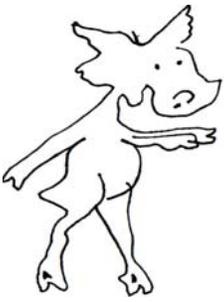
Yukon School

Alaskan School

Our Concerns:

Our Suggestions:

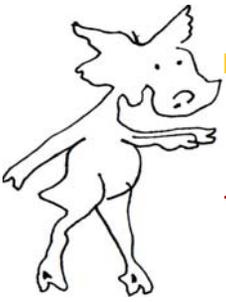
Our Questions:



STUDENT ACTIVITY SHEET

**Here is a checklist of things people can do to help manage caribou.
Check off the things you or your family could do.**

- 1. Study caribou in school and later on.
- 2. Learn about caribou from my family.
- 3. Store meat carefully and do not waste it.
- 4. Work with biologists to study caribou.
- 5. Be interested. Read the “Caribou Update” and the “Community Caribou Update”.
- 6. Plan how many caribou I need for meat.
- 7. Kill only the number I need.
- 8. Bring back all caribou that are shot.
- 9. Practice to be a good shot.
- 10. Share meat with those who cannot hunt.
- 11. Use the land carefully.
- 12. Report accurately the caribou I kill.
- 13. Use the Caribou Management Board to help solve problems about caribou.



STUDENT ACTIVITY SHEET



What Do You Want To Do?

You have learned a lot about caribou biology and caribou management from the Caribou Schools Program.

Has it given you any ideas about what you want to do when you leave school? Do you want to stay in your community and become a hunter and trapper? Or do you think you would like to be a scientist, a conservation officer or a wildlife manager?

Write a two-page essay about your future. If you cannot write yet, draw a picture to show what you think.

REFERENCES/RESOURCES

Audio-Visual Material

Nedaa video Unit 4 “Conservation and Management”

Books for the Classroom Use

Porcupine Caribou Management Board. 2003, Interim Management Plan for the Porcupine Caribou Herd 2003-2005. (This is written in general language complete with maps, illustrations, goals, action and worksheets for both caribou and people. This is available from the PCMB, Box 31723, Whitehorse, Yukon Y1A 6L3.)

Urquhart, D. 1989. Porcupine Caribou Management Board Technical Report Series No. 1 1985-1986. Summary of research and management undertaken between July 1, 1985 and June 30, 1986. (This describes basic management concepts in general language and good illustrations).

Yukon Department of Renewable Resources 2003. Hunting Regulation Synopsis 2003/2004 (Includes a Yukon map divided into sub-zones, season dates and bag limits by species). Pamphlet format.

Yukon Department of Renewable Resources 1989. Yukon Conservation Strategy. For our Common Future. 80 pp. (Describes reasons for a conservation strategy, discusses resources, industries, subsistence, environmental protection issues, culture, etc. Contains many coloured photographs).

Teacher Reference Books

Ward, R., C. Smits and R. Quock. PCH Harvest in the Yukon. June 1988 - May 1989 Annual Progress Report. Oct. 1989 YTG Ren. Res. 16 pp.

International Porcupine Caribou Board. 1990. First Annual Report of International Porcupine Caribou Board. March 1990 66 pp.

McClellan, Catharine, 1987. Part of the Land, Part of the Water. A History of the Yukon Indians. Douglas and McIntyre.

Gwich'in Renewable Resource Board, Gwich'in Words About the Land, 1997

Vuntut Gwich'in First Nation, Sherry, Erin, The Land Still Speaks, 1999

Department of Environment, Government of Yukon, Project Caribou, An Educators' Guide to Wild Caribou in North America, 2001

People

- Native Language Teacher
- Local First Nation or Hunter and Trapper Committee Office
- Elders in the community
- Porcupine Caribou Management Board
- Department of Environment or Department of Resources, Wildlife, and Economic Development

Other Materials

- Relief map of the range of the Porcupine Caribou range, made by the Porcupine Caribou Management Board, available from the Department of Education Resource Center, Yukon Government

VIDEO 4 QUESTIONS

1. Why are caribou cows usually not shot?

2. Name two ways caribou are counted?

3. What does a radio collar on a caribou tell us?

4. Name two ways to find the number of caribou killed each year.

5. Name the group that made a plan to manage the Porcupine Caribou herd.

6. Name two ways this group tells us about caribou.

7. What is the main goal of this plan?

VIDEO 4 ANSWERS

1. The cows bear the young and also feed and take care of the calves. A mature bull breeds with many cows to make them pregnant. If this bull is shot another bull can take its place to mate with the cows. When you kill a cow, you are taking the adult animal from the population as well as the calf she could have produced.
2. Photo-census. Caribou are photographed by aircraft and after the caribou images are counted directly from the photos.
Ground composition count. A count is also carried out on the ground using a telescope to see how many of each sex and age group there are in the herd.
3. A radio-collar gives the location of the collared animal throughout the year, during calving, summer, winter, etc. These locations give an idea of the seasonal distribution of the herd. Some mortality-sensing collars also give a faster pulse rate when the animal is dead. This tells the biologist that the animal has died. Some satellite collars can be programmed to give daily locations, hourly locations, etc., as well as monitoring heart rate, temperatures, etc.
4. Community field workers interview native hunters and fill out a questionnaire every month.
Non-native hunters fill out a mailed questionnaire at the end of the hunting season.
Guided non-resident hunters and the outfitter fill out an outfitter declaration form after the hunt.
Check-stations on the Dempster highway encourage people to stop and report their kill.
In the NWT, the wildlife agency estimates how many caribou are taken by direct observation and by talking to hunters.
5. The Porcupine Caribou Management Board.
6. Radio bulletins, newspaper columns, television announcements, videos, information kits, technical reports, public meetings, etc.
7. The main goal of this plan is to make caribou and people happy. For caribou to be happy, they have to be healthy and reasonably abundant with free use of traditional range. For people to be happy, they have to be able to traditionally use and fully appreciate the caribou and their ranges.

INTERNET SITES

Satellite collared caribou tracking site <http://www.taiga.net/satellite/update.html>
Project Caribou Educators' Guide <http://www.taiga.net>
Environment Canada, http://www.ecoinfo.org/env_ind/region/arcibou_e.cfm
Journey North, <http://www.learner.org/jnorth>
The Vuntut Gwitch'in of Old Crow, Yukon <http://www.oldcrow.yk.net>
Gwich'in Steering Committee <http://www.alaska.net/~gwichin/index.html>
Audubon Society <http://www.audubon.org>
Public Interest Research Group <http://www.pirg.org>
Alaska Wilderness League <http://www.alaskawild.org>
Sierra Club <http://www.sierraclub.org/wilderness/wildlands>
The Wilderness Society <http://www.wilderness.org>
Northern Alaska Environmental Center <http://www.northern.org>
World Wildlife Federation <http://www.panda.org>
Canadian Nature Federation <http://www.cnf.ca>
Northern Research Defence Council <http://www.nrdc.org>
Native Web <http://www.nativeweb.org>
Taiga Net <http://www.taiga.net/>
Porcupine Caribou Management Board <http://www.pcmb.yk.ca/pcmb.html>
Arctic National Wildlife Refuge - A Special Report:
<http://arcticcircle.uconn.edu/ArcticCircle/ANWR/>
Canadian Parks & Wilderness Society <http://www.cpaws.org/>
Porcupine Caribou Harvest Model: <http://www.taiga.net/caribou/models/harvest/index.html>
Canadian & International Green Links <http://www.raysweb.net/greenlinks/>
Audubon Refuge Planning: <http://refuges100.fws.gov>
Alaska Coalition: <http://www.alaskacoalition.org>
National Wildlife Federation: <http://www.nwf.org>
International Agreement: <http://arcticcircle.uconn.edu/ANWR/anwrint-agreement.html>
Canadian- American Govt site: <http://can-am.gc.ca>
US Fish and Wildlife has several sites, enter key words
Alaska Fish and Game
<http://www.state.ak.us/local/akpages/FISH.GAME/notebook/biggame/caribou.htm>
Northwest Territories Government <http://www.gov.nt.ca/RWED/index.html>
Department of Resources, Wildlife and Economic Development, Inuvik, NWT
<http://www.inuvik.rwed.gov.nt.ca>
Department of Environment, Yukon <http://www.environmentyukon.gov.yk.ca/main/index.html>