
Project Caribou

An Educator's Guide to Wild Caribou of North America

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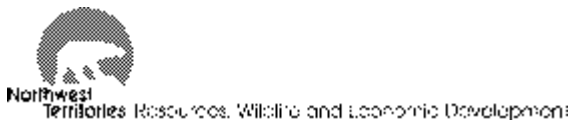
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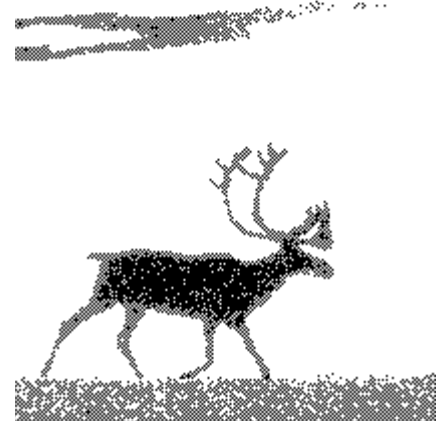
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Barren-ground caribou migration

(Adapted from *Below Zero*, Saskatchewan Environment and Resource Management and the Canadian Wildlife Federation)

Objectives

Students will:

1. Understand the annual migration cycle of barren-ground caribou herds.
2. Understand how hunting and predation affect caribou populations.
3. Play an active game that demonstrates the above concepts.

Method

Students learn about the migration cycle of barren-ground caribou by playing an active outdoor game that represents the annual movements of a caribou herd.

Background

Barren-ground caribou are well known for their incredible long-distance migrations. Caribou live with snow, cold weather and short days during the long winter. Caribou do not travel great distances in the winter. Their winter ranges are usually in areas where snow can be dug easily. When the snow begins to melt and the days grow longer, caribou begin to feel the migration urge. Pregnant cow caribou are the first to move towards calving grounds. Bulls, young caribou and cows that have not bred begin to migrate to summer ranges a few weeks later. In the large barren-ground herds calves are born in special areas called "calving grounds," which can vary from year to year but are often in traditional locations.

Caribou herds continue to move about in their summer ranges. For barren-ground caribou these are north of tree line. By being continually on the move, caribou can avoid overgrazing and also take advantage of a wide variety of habitats. With the new growth of grasses, herbs and shrubs, caribou can diversify their diet. During the long summer days, they eat steadily, building up fat reserves for the fall rut and the winter. As cold weather approaches, the summer movements of the caribou within the herd blend together and become a fall migration. Barren-ground caribou move south from the northern tundra towards the boreal forest or other more sheltered areas where snow and weather conditions are better.

Apart from humans, wolves are the major predator of most caribou herds. During the winter wolves hunt in packs, which are usually made up of seven to nine wolves. An average wolf pack will kill a caribou every few days in the winter. The wolf pack may 'test' a herd of caribou by chasing them and watching for weaker animals that fall behind or are careless. They will then pursue and kill these animals.

Wolves will also ambush caribou on trails between lakes, attempting to cut them off from the rest of the herd or to chase them into deep, soft snow.

Age

Grades 4 – 12

Subjects

Science, Physical Education, Social Studies

Skills

Discussion, application, physical mobility

Duration

One 60-minute period

Setting

Outdoors

Materials

- Popsicle sticks to serve as food tokens (8 x number of 'caribou,' e.g., 160 food tokens for 20 caribou)
Note: Popsicle sticks spray-painted fluorescent orange work well in snow. Coloured plastic coffee stir sticks may also be used.
- Two long ropes or skipping ropes to represent river
- 12 pylons or flagging tape tied to long sticks to represent boundaries of special areas
- Six boxes or bright yellow ice cream pails for collecting tokens

Caribou respond to attacks by wolves by trying to outrun them. Where natural cover such as boulder-strewn terrain, ravines and forest occur, caribou will scatter to confuse the wolves. On frozen lakes and in large forest openings they will bunch together to find safety in numbers.

Set-up

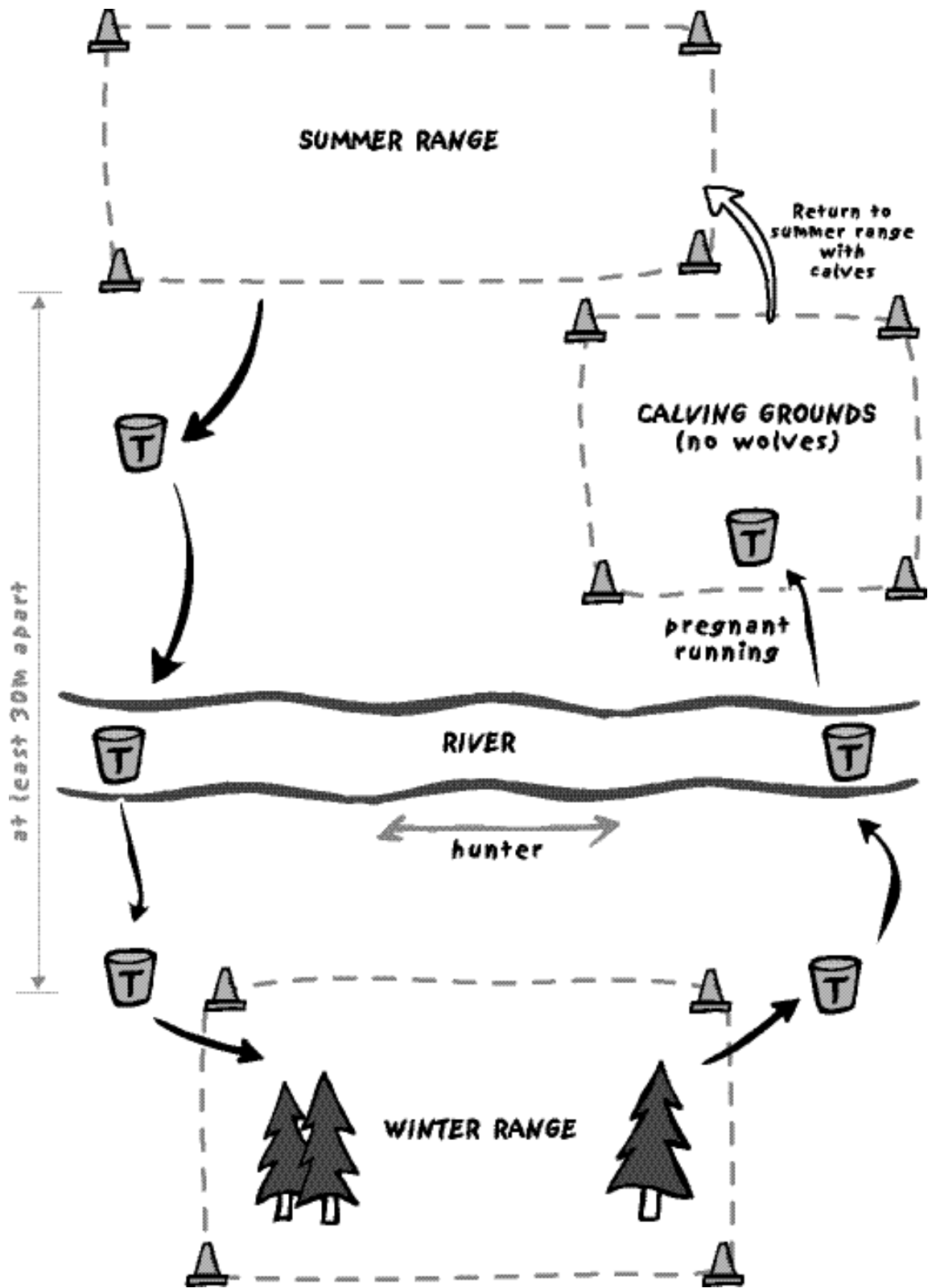
1. Refer to the "Caribou migration diagram" included on page 35. Use four pylons or flags to mark the corners of the summer range. Similarly mark the corners of the winter range at the other end of the playing field. Use four more pylons or flags to mark the corners of the calving grounds. If possible, orient the playing field so that the summer range is in the north and the winter range is in the south. If your outdoor area has trees, it is appropriate to mark the winter range in that area. Place token collection pails in the circle "T" locations indicated in the "Caribou migration diagram."
2. Scatter most of the food tokens in the summer range, reserving one food token per caribou for the winter range.
3. Use the ropes to represent the river and choose two participants to wriggle the ropes. (This is a good role for mobility challenged participants.) The two participants who represent the river will also be the persons who empty the token pails each round.



Procedure

1. Choose two fast runners as wolves. Choose another as the hunter. The hunter represents the traditional First Nation people who are allowed to take caribou for subsistence (food) any time the caribou migrate near the community.
2. Briefly explain the life cycle of the caribou. It helps to walk the participants through the playing field, explaining what happens at each point in the cycle, showing them where to collect and drop tokens, and demonstrating how to move in each phase.
3. The activity begins in summer. The caribou move constantly back and forth across the tundra picking up one food token at a time. Summer is a time of plenty when caribou replenish fat reserves and improve their health. The caribou are preparing for the rigours of the fall migration, the period of rut and winter severity.
4. The wolves try to catch caribou. When a wolf tags a caribou, he or she takes the caribou's food tokens and escorts the caribou to the calving grounds. The caribou that are caught become unborn calves waiting for the herd to reach the calving grounds in the spring, when they can reenter the game.
5. When the activity leader calls "fall," the caribou begin their southern migration. To represent the energy expenditures during the migration, each caribou deposits one food token in the first pail, then another in the next pail when he or she jumps across the river. They deposit another food token on their journey from the river to the winter range.

Caribou migration diagram



6. During the migration, the wolves follow the caribou, taking as many caribou as possible, but only one at a time. Wolves must stay two metres away from the caribou at the token deposit pails. Each wolf must get at least 25 food tokens to avoid starvation and thus survive each round (yearly cycle). (Wolves need more food tokens than the hunter because of their higher energy expenditure following the caribou.)
7. The hunter moves back and forth along the river and hunts caribou as they migrate past his community. (We are not aware of any women participating in the actual taking of game in this traditional society. However, women play an essential role in the processing of the meat.) The hunter takes the food tokens of the caribou he catches and takes his kill(s) to the calving grounds. He may then return to the river area and hunt for more caribou. The hunter must get at least 12 tokens per yearly cycle to feed himself and his family and relatives.
8. The leader calls "winter" and the caribou proceed to the winter range in the transitional forest. Each caribou must collect at least one food token to sustain life. The caribou have to keep moving to avoid predators.
9. The leader calls "spring" and the caribou begin the migration north toward the calving grounds. The caribou must deposit one food token each on the journey to the river, jump across the river, deposit another token after crossing the river and proceed to the calving grounds. Caribou who do not successfully jump across the river are dead of exhaustion and must go to the calving grounds where they can rejoin the game.
10. Caribou who successfully crossed the river must now run with their hands on their knees to represent the extra energy it takes to travel while pregnant with an unborn calf.
11. When the caribou arrive at the calving grounds, they must each deposit one food token. Any caribou who has at least two food tokens left may choose a calf and give one token to the calf. The wolves do not follow the caribou into the calving grounds. This represents the time wolves spend raising their families.
12. The river participants empty the token pails, allocating five per caribou to the summer range and one per caribou to the winter range in preparation for round two (year two). The leader or recorder records the population of surviving caribou and newborn calves by having the caribou show their food tokens. These are then collected and redistributed to the summer range. Caribou who have no remaining food tokens die and stay in the calving grounds until the next round. Caribou who only have one food token remaining survive but do not reproduce.

13. Wolves compare food tokens. The wolf who has the most food tokens is able to reproduce and goes to the calving ground to select a wolf pup who will join the hunt in the next round. Any wolf who does not have at least 25 tokens starves, deposits all food tokens into one of the pails and goes to the calving grounds to await the next round.
14. The hunter must have at least 12 tokens to survive. If he has more, he can go to the calving grounds to select a participant to join him in the hunt for the next round. All his food tokens must be deposited into one of the pails before the next round.
15. Round two and succeeding rounds begin with summer on the tundra and with the caribou collecting food tokens in preparation for the migration. The recorder should also record the number of wolves and hunter each round.
16. After about four rounds, stop the play and discuss what the participants observed about the life cycle of the barren-ground caribou.

Extensions

Play the game with an increased number of hunters and allow the hunters to travel throughout the caribou range. This represents the recent increasing population of First Nation hunters and their changes in technology such as automatic rifles, snowmobiles and use of aircraft to travel to the herds' locations.

What effect does this have on the caribou population? Can participants predict what would happen to the caribou herd if the size of the annual hunt were not controlled?

In Saskatchewan, Manitoba, Nunavut and the Northwest Territories, the food replacement value of the meat from the Beverly and Qamanirjuaq barren-ground caribou herd is estimated at \$13.5 million annually.

The population statistics for the caribou, wolves and hunters can be transferred to a graph in different colours. Wildlife biologists estimate an acceptable loss to the herd is about 5% in any one year, or about one participant in 20.

Evaluation

1. Ask the participants to describe the stages in the annual barren-ground caribou migration.
2. Ask the participants to list the hazards caribou face throughout the year from their physical environment and from predators (including hunters).
3. Discuss how recruitment to the herd helped to offset losses due to hunting and predators.
4. Discuss what hunters might do if the wolves are predating too heavily on the caribou herd.