
Project Caribou

An Educator's Guide to Wild Caribou of North America

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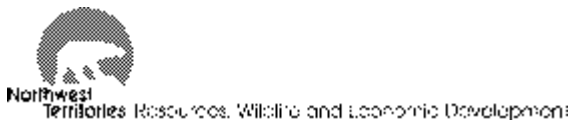
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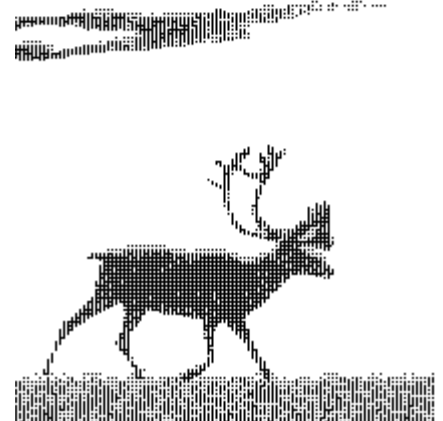
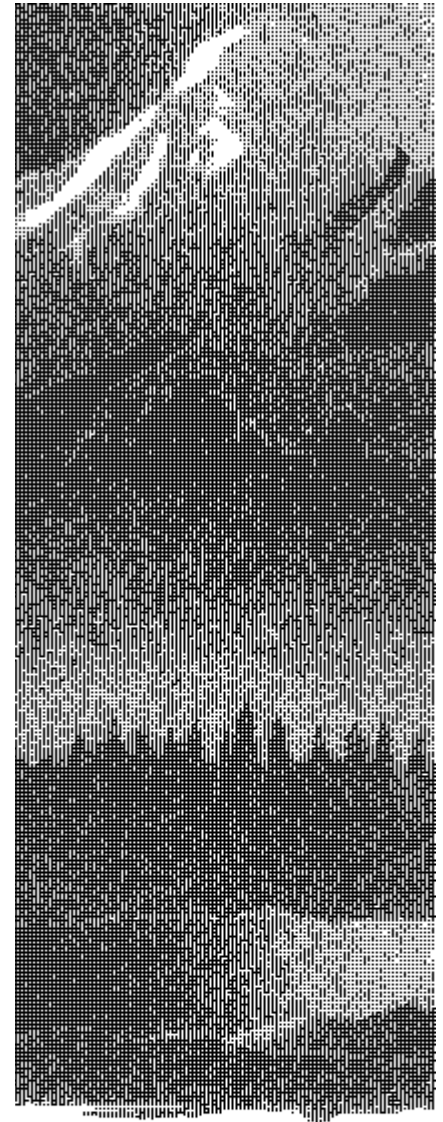
For more info: www.projectcaribou.org

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Beverly and Qamanirjuaq Caribou Management Board



Ya gotta lichen caribou!

(Adapted from *Wildlife Trees* with permission of Wild BC, Habitat Conservation Trust Fund)

Objectives

Students should be able to:

1. Understand the role trees play in the life cycle of the caribou.
2. Understand the concept of habitat fragmentation.
3. Describe how habitat fragmentation affects caribou.

Method

Groups of students become four separate herds vying for food, water and space in this physically active demonstration of how our old forests are becoming more and more fragmented.

Background

Habitat fragmentation is the breaking up or destruction of a habitat's components. Fragmentation occurs when it becomes difficult for a species to cross from one section of an originally intact habitat to another or for that species to survive in a habitat that no longer provides the necessary food, water, shelter or space.

Fragmentation can happen on many levels, from small or "microhabitats" to larger or "macrohabitats." For example, in some urban parks and housing developments fragmentation can occur by the removal of the forest "understory." The understory can consist of a variety of different bushes, ferns, flowers and leaf litter which provide food and shelter for various creatures. Humidity, wind exposure, light availability and temperature also have an affect on the life cycles of the species found in this microhabitat.

On the macrohabitat level, the loss of habitat or habitat fragmentation through resource extraction, agriculture, road building and urban encroachment have contributed to the loss of trees. One species that uses trees and could be affected by habitat fragmentation is the caribou.

During the summer, caribou depend on a variety of grasses, sedges, horsetails, flowering plants, and the leaves of willow and dwarf birch for their diet. In the winter, when snow covers most of the vegetation on the ground, the caribou's diet consists exclusively of lichens. Caribou do not depend on specific, individual trees. However, they do rely on having stands of trees with enough diversity to provide lichens for immediate use as well as stands of trees that will ensure dispersal of lichens to future generations of trees. Often the trees that provide the most lichens are living trees with larger diameters. Stands of mature forests, with their wide crowns and multi-layered canopies, provide areas with less snow cover and protection from wind.

Age

Grades 4 – 12

Subjects

Science, Math, Social Studies, Physical Education

Skills

Application, comparing similarities and differences, description, discussion, evaluation, generalization, physical mobility

Duration

30 – 45 minutes

Group size

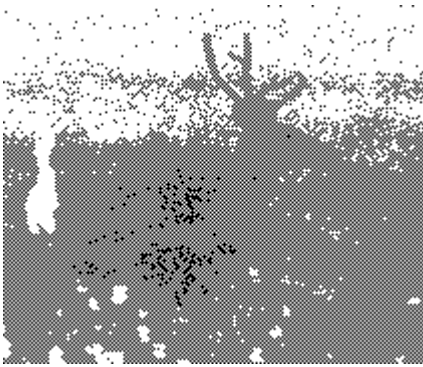
15 and larger

Setting

Indoors or outdoors (large area needed)

Materials

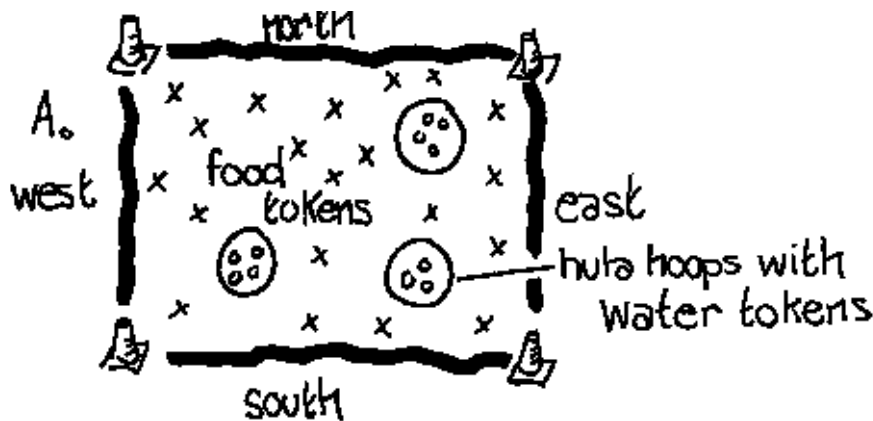
- Four pylons
- Food and water tokens (different coloured popsicle sticks)
- Three hula hoops
- Suitable lengths of rope to delineate roads
- Tarps to indicate clearcuts or urban development



In the past, large clearcuts have suited the food needs of other, more adaptive ungulates such as mule deer. The increase of their numbers has strengthened populations of wolves who in turn have preyed upon some caribou populations. Logging and mining roads have increased the accessibility by humans to hunt caribou. The increasing number of roads in general has meant urban encroachment, which in turn affects traditional feeding territories and migration routes of the caribou.

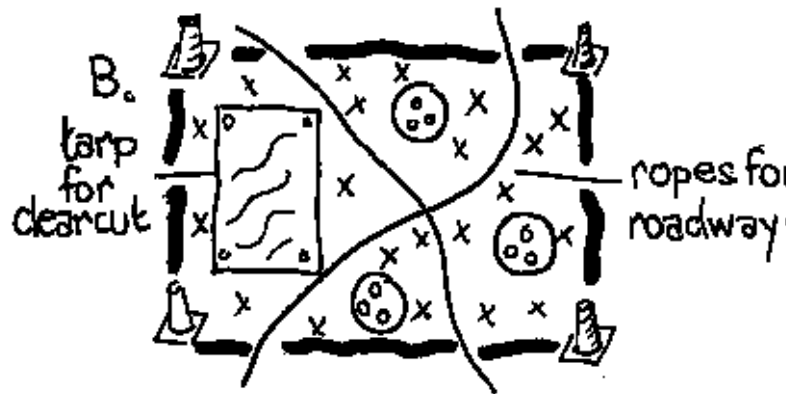
Procedure

1. Prior to the start of this activity, ask the students to describe the components of habitat. What do all animals need to survive? Discuss the habitat requirements of caribou. Brainstorm with the students what some of the limiting factors are that affect the survival of caribou.
2. Discuss with the students the term habitat fragmentation and what it means. Tell the students that they are going to participate in an activity that looks at how fragmentation of habitat affects caribou.
3. To start this activity, mark out the winter habitat of the caribou as shown in the diagram below.
4. Spread food tokens throughout the winter habitat and place water tokens within the hoops.
5. Divide the students into four herds: North, South, East and West. Although caribou drop their antlers in winter, the caribou for this activity can hold their hands above their heads like antlers. Have all the caribou stand facing away from the habitat with one herd on each side of the square. They may only exit or enter the square from their side.
6. On your signal, have the caribou run into the habitat to get both a food (lichen) and water token. There should be enough for everyone.
7. Prior to introducing the effect of habitat fragmentation on caribou populations, try introducing a predator such as wolves to demonstrate that animal populations are not static year after year but are continually changing in response to a variety of natural limiting factors. Natural limiting factors tend to maintain populations of species in predictable ranges. This balance of nature often goes up and down over time.



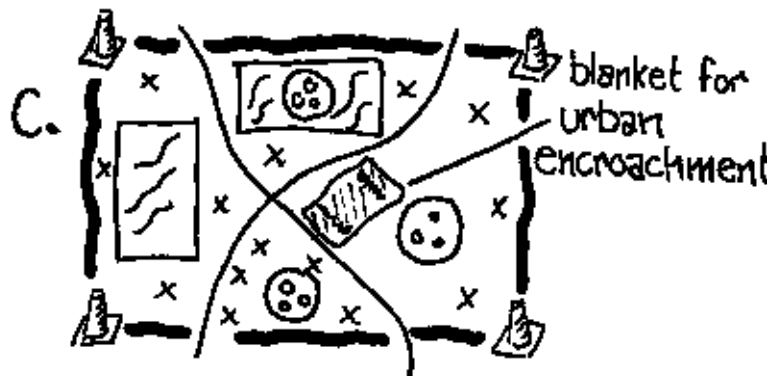
Since wolves hunt in packs, the wolves in this activity must hold hands and encircle the caribou they wish to eat. If they capture a caribou, they must take it to the sidelines before entering the habitat again. The goal for the caribou is to reach the sidelines with both a food and water token without being caught. This round may be tried several times depending on the success of the wolves.

8. In the next round, with the caribou facing away, distribute the food and water tokens as before, but add some roads and/or clearcuts as shown in the diagram. For the purposes of the activity, caribou are not allowed to cross roads or clearcuts. Those caribou unable to get both food and water will die and become part of the habitat. After the round, those caribou that have died can now become wolves in the next round. Try this a couple of times so the students get a good idea of what is happening.



Note: If the wolves are becoming too successful, the caribou that have died could then become deer, which feed in clearcuts and can move throughout the habitat.

9. End the activity by asking the students what could be done to decrease habitat fragmentation for the caribou. Deactivation of logging roads is an example of something that is being done in real life situations.



Variations

Have students brainstorm other factors that contribute to habitat fragmentation. Try adding factors such as urban encroachment, clearcuts, agricultural development, hiking trails, etc. as shown in diagram C.

Extensions

1. Have students graph the progress of the herds by following the steps outlined in the Project WILD activity "Oh Deer."
2. Have students research current logging practices by writing to appropriate agencies or by asking community experts to present the new methods. They can then make changes to the activity that include:
 - Smaller clearcuts and partial cutting.
 - Wildlife corridors.
 - Deactivation of logging roads.
3. Using maps and aerial photos, discuss the effect roads have played on caribou and other species.

Evaluation

1. Ask students to name the essential components of habitat.
2. Ask students to define habitat fragmentation.

Adaptations for different ages

Primary. Have students discuss the concept of habitat. What are some of the things they have in their own habitats (their bedrooms, houses, cities or towns)? Which of these things are essential? Have students discuss the essential components of caribou habitat. Primary students can play a simplified version of the game above. Have several students play wolves and the rest play caribou. Have the wolves attempt to capture the caribou by running around an open area. Then block off part of the area (i.e., fragment the habitat) and play again. Try several variations. The students can then see that fragmenting the habitat makes it easier for the caribou to be hunted.