



Following the Caribou

Age range: 10 to 15 (Junior/Intermediate; see *Extensions* for Senior option)

Time: 60 minutes

Subjects: Geography, Math, Science, World Issues

Resources: *Tracking the Porcupine Caribou Herd* (page 13) map, *The Eight Lifecycle Seasons of the Porcupine Caribou Herd* (page 14) chart, and *Following the Porcupine Caribou Herd* (page 15) worksheet.

Learning Outcomes

Students will become familiar with the lifecycle seasons of the 123 000 Porcupine caribou that live in Canada's boreal region.



Hook: Why Migrate?

Show a video such as the *Earth Navigators*, which features the how's and why's of migration by various species. (PBS 1999; 60-minutes; \$19.95 plus shipping and handling from www.pbs.org, (800) 336-1917.)

Procedure

1 Discuss the definition of migration and explain that there are short and long migrations in the natural world. (Migration is a critical behavioural adaptation: a strategy that boosts an individual's chance of survival and successful reproduction overall, but one that can also result in loss of life.

In certain areas when the weather gets colder, birds such as the Robin decide for or against migration, depending on the food supply.)

2 Invite two students to come to the chalkboard or flip chart and act as recorders. Have the students list as many organisms as possible that migrate on a yearly basis (e.g., the monarch butterfly, many birds, whales, bighorn sheep, caribou and salmon).

Next, have students think of methods animals use to find their direction (e.g., position of the sun, landmarks, Earth's magnetic field).

3 Now, have them brainstorm the negative aspects of migration (e.g., energy expended, uncertainty of food sources, natural dangers such as storms and predators, chance of catching disease, man-made obstacles such as roads, communities, mines, transmission towers).

4 Ask the students to discuss and record the reasons animals migrate as part of their lifecycle (e.g., food sources are consumed and must be replaced, favourable living and breeding conditions must be sourced at various times of year).

5 Ask each student to use the handouts and worksheets to map the movement of the herd and answer the related questions.

Extensions

Have older students track the movement of individual caribou using latitude and longitude coordinates from October 1997 to the present. For seasonal lifecycle movements, visit <http://www.taiga.net/satellite/all_seasons.html>. For weekly movements, visit <http://www.taiga.net/satellite/data_archive.html>.

Ask students to create a poster illustrating the eight lifecycle seasons of the caribou with arrows linking the various stages.

Ask students to imagine they are a caribou cow, bull or calf. Have them keep a diary of what is happening in their lives, logging at least two entries for each lifecycle season.

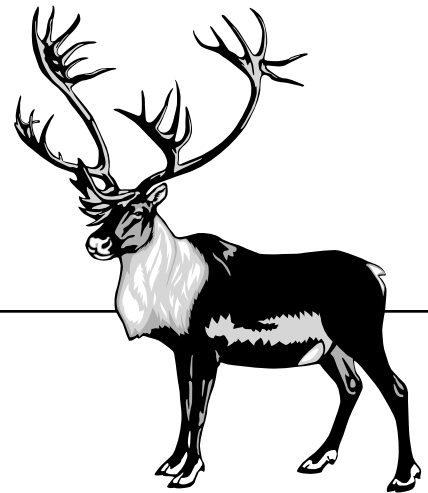
Watch the 2004 film *Being Caribou* (see *Video Resources*, page 9).

Answers

Following the Porcupine Caribou Herd (page 15)

(all measurements are approximate)

- 7.2 cm x 50 km/cm = 360 km
 - 1.1 cm x 50 km/cm = 55 km
 - 3.8 cm x 50 km/cm = 190 km
 - 4.2 cm x 50 km/cm = 210 km
- 22.3 cm x 50 km/cm = 1115 km, but actually the herds travel greater distances (see # 3).
- The points are not totally accurate for two reasons:
 - because the herd moves around frequently at, and between, each point for several kilometres north, south, east and west.
 - because the herd is divided up into smaller groups that move apart from each other and spread out over many kilometres.
- Pregnant cows begin travelling north first as they have a driving instinct to reach the calving grounds along the coast.
- The ocean coast makes a good calving ground because there is an ocean breeze to alleviate insect attack, there are no wolves and there is energy-rich food.
- The herd splits into smaller groups to look for food and windy snow ridges where insect attack will not be as bad.
- Fighting between bulls is a very exhausting endeavour that weakens them. If a predator attacks, the bulls may not have the strength to fight or run.
- We can educate and alert residents and visitors about the caribou migration seasons. We can also reduce snowmobile and other motorized traffic near migrating herds.



THE CANADIAN WILDLIFE SERVICE AND CANADIAN WILDLIFE FEDERATION HAVE FORMED A PARTNERSHIP TO PRODUCE INFORMATION ABOUT MANY CANADIAN WILDLIFE SPECIES, INCLUDING THE CARIBOU. TO LEARN MORE, VISIT THE HINTERLAND WHO'S WHO WEB SITE:

WWW.HWW.CA

WHICH FEATURES VIDEO CLIPS, FACT SHEETS AND MUCH MORE. FOR THE CARIBOU FACT SHEET, SELECT *SPECIES* THEN *MAMMALS* OR *SPECIES AT RISK*, THEN *CARIBOU*. SPONSORED BY THE FOREST PRODUCTS ASSOCIATION OF CANADA, THIS ONLINE PORTAL INCLUDES A MAP ILLUSTRATING THE RANGES OF DIFFERENT CARIBOU TYPES, ADDITIONAL HYPERLINKS, DIAGRAMS AND IMAGES, PLUS INFORMATION ON PHYSICAL CHARACTERISTICS, HABITATS AND HABITS, CULTURE AND ECONOMIC IMPORTANCE, FEEDING, POPULATION STATUS AND BREEDING. WATCH FOR MATERIAL RELATING TO THE BOREAL FOREST IN EARLY 2006.



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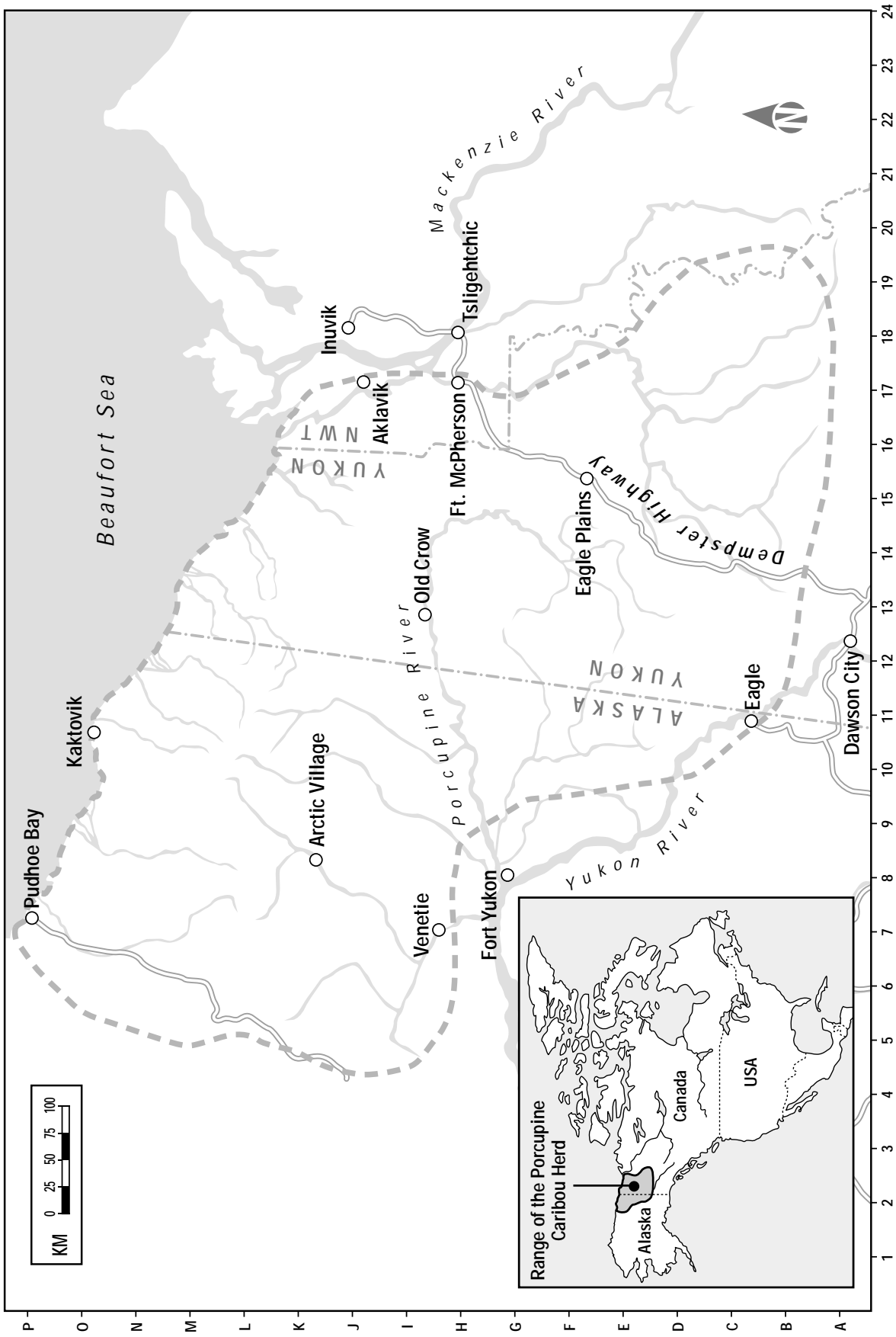
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Tracking the Porcupine Caribou Herd



The Eight Lifecycle Seasons of the Porcupine Caribou Herd

Season	Dates	Characteristics
Winter Feeding	December through March	The weather is very cold. The days are short and snow covers the ground.
Spring Migration and Pre-Calving	April and May	Some snow cover has melted. Pregnant cows begin moving north at a rate of 20 km/day. Deep snow and spring floods can add difficulty to the already taxing journey. Other obstacles include streams, rivers, roads and the Dempster Highway. Bulls, yearlings and dry cows follow weeks later.
Calving	First half of June	The herd travels to the coast of the Arctic Ocean where the winds make this area virtually insect-free. There are fewer predators here as wolves do not travel to the coast because of a lack of denning sites. However, grizzly bears, Bald Eagles and harsh weather can cause mortality in the newborns. The nutritious food allows the new mothers to replenish their energy stores; the cottongrass is in full flower and the willow leaves are budding. There is little or no snow cover.
Post-Calving	Latter half of June	Because of swarming mosquitoes and oestrid flies, the caribou begin to move south. Willow leaves emerge as the herd covers up to 25 km/day, favouring locations along windy ridges for relief from insects.
Movement South	First half of July	Mosquitoes are now at their peak. The herd splits into smaller groups in search of good forage and cool humid areas that provide insect relief.
Movement Southeast	Mid-July to Mid-August	The herd continues to move in small groups, sometimes driven to madly fleeing from the swarming oestrid flies, which are now at their peak.
Late Summer and Fall Migration	Mid-August to early October	The caribou migrate south in a widely dispersed manner, moving slowly or stopping as long as the weather is mild. A sudden drop in temperature or early snow storm speeds them up. Obstacles can again include streams, rivers, roads and the Dempster Highway.
Rut and Late Fall	Mid-October to end of November	There is snowfall at this time of year, but melting occurs. The spectacular rut involves sparring and chasing among the males for mating privileges. This can lead to exhaustion, which makes the bulls easier prey for the bears and wolves that follow the herd.





Following the Porcupine Caribou Herd

Plot the following points on the map, corresponding to eight seasons in the Porcupine caribou herd lifecycle. These points represent the approximate middle of the herd at that point of the year when the number of animals is vast and the herd covers a large area at all times.

1. Winter Feeding (December through March): F/14.5
2. Spring Migration and Pre-Calving (April and May): I/13.5
3. Calving (first half of June): M/11.5
4. Post-Calving (latter half of June): L/12.0
5. Movement South (first half of July): J/12.0
6. Movement Southeast (mid-July to mid-August): H/13.0
7. Late Summer and Fall Migration (mid-August to early October): F/14.0
8. Rut and Late Fall (mid-October to end of November): C/17.0

Answer the following questions on a separate piece of paper, converting cm to km using the map scale.

1. Approximately how far do the caribou move:
 - a) during spring migration (from winter until calving)?
 - b) from calving until early summer (post-calving)?
 - c) from latter half of June until mid-August?
 - d) during fall migration (late summer until rut)?
2. What is the average movement of the herd throughout the year? (Join all the points and measure each line segment. Add all these measurements to calculate the sum.)
3. Why are your points on the map not a completely accurate representation of the herd's movements?
4. What members of the herd first begin travelling north in the spring? Why?
5. Give three reasons why the ocean coast makes a great calving ground.
6. Describe two reasons why in the summer the herd splits into smaller groups.
7. Why is the rut a dangerous time of year for bulls?
8. What can we do to reduce the man-made obstacles and activities that present challenges for the caribou during migration? (Consider roads, highways and towns, snowmobiles and other traffic.)

