

NORTHWEST WILDLIFE PRESERVATION SOCIETY AND WILDSIGHT



mountain caribou

EDUCATIONAL MATERIAL



Contents

INTRODUCTION	5
About NWPS and Wildsight	7
TEACHER BACKGROUNDER	9
About mountain caribou	9
What are mountain caribou?	10
What other types of caribou are there?	11
Mountain caribou habitat	13
Threats to mountain caribou	14
Forestry	14
Predators	14
Motorized recreation	16
Global warming	17
CURRICULUM CONNECTION	19
ACTIVITIES	27
APPENDIX	75



ACKNOWLEDGEMENTS

We would like to thank everyone who has contributed their time and energy to produce this manual – including NWPS volunteers and other community members. We would also like to thank Dave Quinn from Wildsight for taking time out to help with the production of this manual. Without all of you, we couldn't have done it. Thank you.

Thank you to our sponsor: BC Hydro

Written by: Becky Phillips & Dave Quinn

Art direction and design: Clearly Green Design
www.clearlygreendesign.com





INTRODUCTION

Our objective is to advance awareness, knowledge and appreciation of Mountain Caribou within our schools and communities through this educational resource. By raising awareness about Mountain Caribou and other threatened species in BC, we hope wildlife and wildlife habitat will be better protected.

WHY STUDY MOUNTAIN CARIBOU?

B.C. is home to some of the last remaining pristine areas of wilderness in the world and we feel it is very important to raise awareness of the rich biodiversity unique to B.C. and to encourage responsible environmental behaviour.

Through the activities outlined in this manual, we hope to raise awareness about the endangered status of Mountain Caribou and the species' current threats. We feel it is exceedingly important to raise awareness about this animal in the Kootenay region, as this area is home to the rare inland temperate rainforest ecosystem that extends south from Prince George into areas of Washington, Idaho and Montana on the west side of the Rocky and Columbia Mountains. This important ecosystem supports the only Mountain Caribou population in the world.

Mountain Caribou are a unique component of the mountain ecosystems in the Kootenay region. We feel their endangered species status is an important issue to raise awareness about within the communities of the region. By increasing public knowledge about this species on the brink of extinction we hope to create an interest in protecting its fragile environment. It is important to share the important information about Mountain Caribou with a wider audience, starting with the home range of this species - the Kootenay region.

By providing such exposure to our children we are investing in our future and the future of many of our wildlife species no matter how large or small. The benefits of providing such educational opportunities for our youth will be felt long term when our children grow into environmentally responsible citizens.

Who can use this manual?

This manual is designed to be used by school, youth or community groups that would like to learn more about mountain caribou, ecological concepts and the inland temperate rainforest. This manual will help foster an appreciation for the incredible natural world and encourage us to become active, responsible members of our community.



ABOUT NORTHWEST WILDLIFE PRESERVATION SOCIETY (NWPS)

Our Mission is to develop and provide educational, research, and advisory services which advance the public's awareness and knowledge about wildlife systems in northwest North America.

Our Vision is to ensure that healthy wildlife systems throughout northwest North America are preserved for their own intrinsic worth, and for the appreciation of all.

ABOUT WILDSIGHT

Wildsight works to maintain biodiversity and healthy human communities in Canada's Columbia and Rocky Mountains ecoregion.

We are focused on three core areas: the southern Rockies, the upper Columbia River Valley, and the Columbia Mountains. This ecoregion provides critical genetic connectivity for western North America's wildlife populations.



ABOUT MOUNTAIN CARIBOU

TEACHER BACKGROUND

LATIN NAME:
RANGIFER TARANDUS
TARANDUS

CLASS: MAMMALIA

ORDER: ARTIODACTYLA

FAMILY: CERVIDAE

GENUS: RANGIFER

Mountain Caribou are a unique type of caribou found only in the wet forests of Southeastern British Columbia and Northern Idaho, Montana, and Washington. Once possibly the most abundant large mammal throughout much of this region, today as few as 1900 mountain caribou remain on the planet, 99 percent of which live in British Columbia.

Distribution: Once common from the Alberta boundary into the Okanagan highlands and from northeast of Prince George south to central Montana, Idaho, and Washington. Mountain caribou have disappeared from over 50 percent of their historic range over the past century, with a rapid decrease in numbers and distribution over the past 20 years.

WHAT ARE MOUNTAIN CARIBOU?

Mountain caribou are an “ecotype” of the woodland caribou. An “ecotype” differs from the rest of its kind based mainly on behavioural and geographical differences.



Animals from different ecotypes, as well as different subspecies, can theoretically breed successfully, although geographical separation precludes this and evolution has resulted in noticeable differences. Most Woodland caribou inhabit pine and spruce-dominated ecosystems with relatively shallow snow packs that let them crater, or dig, down to access their primary winter food source – ground lichens. Mountain caribou, on the other hand, prefer wet forests with deep winter snow packs. The cedar/hemlock and spruce/subalpine fir forests of the interior wet belt boast winter snow packs up to 4 meters in depth. This is much too deep for Woodland caribou to dig through to access the lichens they need for survival. Mountain caribou utilize these deep snows both as a platform to reach their favourite winter food – arboreal lichens (lichens growing in trees), and also as a barrier to predators such as wolves and cougar who cannot move through such deep snows to reach caribou in the winter months.

WHAT OTHER TYPES OF CARIBOU ARE THERE?

There are seven main types of caribou in the world, with three different kinds, or “subspecies” in Canada. (Subspecies are physically different from each other and are often geographically separated, but are genetically similar enough, in theory, to successfully interbreed).

1. **Barrenground Caribou** – this is the animal we see on the Canadian quarter. These animals live in the taiga and tundra regions of northern mainland North America. They roam the landscape in large herds of up to tens of thousands, spending winters below the treeline where there is some shelter from the howling frigid winds of the North, returning to their calving grounds in the barrengrounds north of the treeline in the spring and summer. They undertake some of the largest migrations of any land mammal, covering thousands of kilometers every year. They are an important source of food and shelter for most of the First Nations on the Northern mainland. There is much concern over recent dramatic declines in numbers of Barrenground caribou as well.
2. **Peary Caribou** – these small, light coloured caribou are found on the high arctic islands including Victoria, Banks, and Ellesmere Islands. Once found in vast herds, these caribou have been decimated by the effects of climate change and overhunting, and all three remaining populations are listed as endangered.
3. **Woodland Caribou** – these caribou are found well below treeline, all the way into Montana and Idaho in the West, and to the Slate Islands on Lake Superior in the East. They inhabit the boreal forest from coast to coast. Many subpopulations are listed either as “threatened” or “endangered” due to dramatic increases in logging of their forest habitat. They roam the landscape in groups of 20 to 50 animals. Mountain caribou are an “ecotype” of woodland caribou.
4. **Dawson’s Caribou (extinct)** – a subspecies of caribou once found in the Queen Charlotte Islands. This subspecies disappeared soon after the introduction of firearms for hunting. The last known Dawson’s caribou (2 bulls and a cow) were shot in 1908, and the subspecies is thought to have disappeared completely in the 1920’s.

Northern caribou populations cannot sustain modern hunting pressures, where “traditional hunts” use modern technologies to improve hunting success, and where human populations are much greater than in historical times. Also, global warming has resulted in late fall rains that often turn to freezing layers of ice, instead of the snow that should be falling. The ice layer makes it difficult or impossible for caribou and other arctic animals to dig down to reach the ground lichens they rely on for winter food.

Scientists are currently warning

that most caribou populations in Canada are currently “in trouble”. That is, population numbers and range (geographical distribution) are on the decline. This is of paramount concern both to First Nations groups, many of whom still rely on the caribou for cultural values, food, and shelter, and to Canadians in general, who regard the caribou as a symbol of our wilderness heritage.



MOUNTAIN CARIBOU HABITAT



Mountain caribou do not migrate large distances like their Barrenground cousins (who undertake some of the longest land migrations on the planet!). Instead they typically move up and down-slope through old-growth forests in continual efforts to avoid predation. No matter what season, mountain caribou are found in old-growth forest.

Predators are not found in great numbers in old-growth forest – they tend to stick to the forest edges where they can find plenty of moose, deer, and elk to munch on.

- **Spring** – Mountain Caribou move downslope towards valley bottom to follow the retreating snow upwards – feeding on the fresh growth that appears as the snow melts.
- **Summer** – Mountain Caribou can be found in the high elevation subalpine and alpine spruce, subalpine fir, and alpine larch forests. Here they feed on arnica, groundsel, and sedges, and find refuge from bothersome bugs on permanent snow patches.
- **Fall/early winter** – the first, deep snows of winter begin to fall up high, driving the caribou out into open valleys. This is when the valley-bottom old-growth is most critical for caribou, intercepting snow to allow them to access food on the ground, such as falsebox. These ancient cedar, hemlock, and spruce forests, with trees as old as 1200 years, are now all but gone, clearcut over the last 50 years. As recently as the late 1960's, employees at the Skookumchuck pulp mill witnessed groups of 60 to 80 caribou out in the Rocky Mountain Trench, while they waited for the higher elevation snows to settle enough to support their weight.
- **Winter** – Mountain Caribou move back upslope to the subalpine forests and near alpine. Here they rely on the deep snowpack to act both as a platform to lift the caribou up to reach their preferred winter food – arboreal lichens, and also as an impenetrable barrier to predators such as wolf and cougar.

THREATS TO MOUNTAIN CARIBOU



Mountain caribou are what is known as an “old-growth obligate species” – they require old-growth forest for habitat.

Forestry

For over 100 years Europeans have practiced a forest harvest technique known as “clearcutting” – removing the entire forest cover from large areas (sometimes as large as thousands of hectares). This is not only damaging to the soils, water quality, and biodiversity of the affected watershed, it has resulted in a large percentage of our landbase with forests less than 100 years old

Although we have understood for decades that our interior forests can take millennia to achieve what we call “old-growth” status – a diverse mix of tree sizes, ages, and forest structure that supports incredible biodiversity – we are still practicing the age-old technique of clearcutting, and ever-increasing amounts of our landscape are being transformed into young forests.

Mountain caribou are what is known as an “old-growth obligate species” – they require old-growth forest for habitat (they are obligated to use old-growth!). No old-growth, no Mountain Caribou habitat. No habitat, no caribou. Period.

But the story does not end there. Scientists are sure that enough habitat still exists to support caribou – although in much lower numbers than historically were present – so why are caribou continuing to decline?

Predators

In recent studies, biologists have discovered that wolves and cougars are the main predators of mountain caribou. In the southern end of their range, south of the #1 TransCanada Highway, cougars tend to be the main predators, while North of the #1 wolves take down more caribou than any other predator. Grizzlies, black bear, and wolverine are also known to dine on the occasional caribou, but not in numbers high enough to concern biologists.

If you want to find a cougar or wolf – where would you look? The first place to search is where their favourite prey is. Cougar prefer deer and elk, while wolves seem to savour the flavour of moose meat. All these species – moose, mule deer, whitetail deer, and elk tend to be found in more open, productive, valley bottoms.

Clearcuts have changed all that.

A new clearcut opens up the forest floor to the sun, and for several years the opening is flush with fresh growth of flowers and grasses. This is basically an “all-you-can-eat salad-bar” for elk, deer, and moose. With clearcuts now reaching near treeline, this pulls these ungulates farther upslope, into what historically was old-growth forest – caribou habitat.



Mountain Caribou require unbroken tracts of old-growth forest for food and for security from predators. Because of this dependency, they are considered “indicators” of the ecological integrity of these forests. Protecting BC’s endangered species and their habitats is good for our society, our economy, and our environment. BC’s “Super, Natural” wildlife is the envy of much of the world.

THREATS TO MOUNTAIN CARIBOU (CONTINUED)

Motorized Recreation

With the proliferation of new roads into our mountains comes new access for motorized recreation – 4X4 enthusiasts, All-Terrain Vehicles (ATV's, or Quads), and snow machines in the winter – all have access to our wilderness that no-one could have predicted. According to Rocky Mountain Forest District managers, for example, there are over 65,000 kilometers of mapped, permitted forestry access roads. This does not include mine roads, old skidroads, and roads built illegally by private citizens. This is enough road to drive across Canada 13 times, without leaving the very southeast corner of British Columbia!

Recent increases in snow machine technology have allowed these machines to go literally anywhere. Modern machines can weigh as little as 210 kilograms, and have as much as 400 horsepower (by comparison, a new Ford F-150 pickup truck has between 200 and 300 horsepower, depending on the engine). These technological advances are paired with an incredible increase in popularity of the sport. As many as 4000 snow machines gather in Revelstoke for an annual event known as the “Big Iron Shootout” – in Mountain Caribou habitat.

Researchers have found repeatedly that caribou abandon areas that are heavily used by snow machines. Areas with good winter habitat that suddenly become accessible due to the creation of new forestry or mineral exploration roads are suddenly inundated with noisy snow machines. Areas such as Cameron Ridge, Queest Mountain and Yanks Peak near Quesnel, Boulder Mountain and Frisbee Ridge near Revelstoke, and Sande Ridge in the Hart Range all show that caribou avoid areas with high snow machine use. This may force caribou into second-rate or more dangerous habitat, during the lean winter months when high quality nutrition and minimal disturbance is critical for their survival.

Packed snow machine trails also provide a perfect corridor of packed snow for cougar and wolf to access higher elevation winter mountain caribou habitat.

Snow machines are not the only motorized threat to caribou – much of what remains of critical winter habitat is also now used as commercial heli-skiing and cat skiing terrain. Many of our parks, including Goat Range and Monashee Parks, allow heli-skiing inside the park boundaries, leaving little habitat for the shy caribou.



What is the answer?

The answer for any endangered or threatened species is simple: we need to protect caribou habitat. What little remains of the caribou's critical old growth forest habitat needs to be protected from logging. It also needs to be protected from uncontrolled motorized recreation use. We need to find areas to play with our petroleum-powered machines, and set aside areas for sensitive species such as caribou.

What else is at stake?

Caribou habitat is also critical for other threatened species such as grizzly, lynx, and wolverine (all on the endangered species list in the USA).

Many scientists see the caribou as the “canary in the coal mine”. In former times, coal miners kept a canary in a cage underground. If the canary showed signs of distress, or passed out completely, it was a warning sign that not all was well in the mine – poisonous gases were building up to a potentially dangerous level.

The “caribou in the old-growth” analogy may indicate that something is dangerously wrong with our forest ecosystem as a whole, and that if we do

not act soon, we may soon start to see similar declines in some of the other species that rely on the same habitat as the caribou.

Global Warming

Trees may be our last defense in the race to slow global warming. In the process of photosynthesis, trees (and other plants) literally suck carbon dioxide (CO₂) – the greenhouse gas of most concern - from the atmosphere, and convert it to living tree tissue, or biomass.

Our temperate rainforests are some of the most productive systems in the world. They contain more plant biomass than any other system, and they are particularly good at removing carbon from our atmosphere. These productive old-growth systems will only become more valuable as the climate continues to warm, as an overwhelming majority of scientists predict it will.

Hence these forests serve a purpose to mankind beyond just that of sheltering endangered and threatened species – they may be a critical part of the solution to what could be the most important challenge ever faced by mankind – climate change.

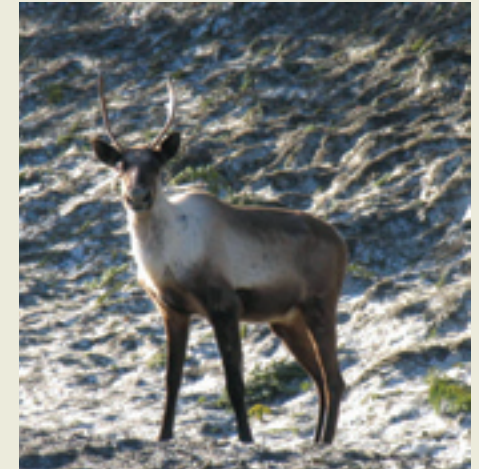


CURRICULUM CONNECTIONS

The tables on the following pages outline the activities that meet specific learning outcomes for K-7 Life Sciences, Science 8, Biology 11 and Resource Sciences (Forests) 11 and 12.

CURRICULUM CONNECTIONS

GRADE	LEARNING OUTCOMES – LIFE SCIENCE	ACTIVITIES
K-1	<ul style="list-style-type: none"> Describe features of local plants and animals (e.g. colour, shape, size, texture) Compare local plants Compare common animals Classify living and non-living things Describe the basic needs of local plants and animals (e.g., food, water, light) Describe how the basic needs of plants and animals are met in their environment 	<ul style="list-style-type: none"> Caribou Habitat Lap Sit Go on a track hunt Colouring Sheets
2-3	<ul style="list-style-type: none"> Classify familiar animals according to similarities and differences in appearance, behaviour, and life cycles Describe some changes that affect animals (e.g., hibernation, migration, decline in population) Describe how animals are important in the lives Aboriginal peoples in BC Describe ways in which animals are important to other living things and the environment Compare familiar plants according to similarities and differences in appearance and life cycles Describe ways in which plants are important to other living things and the environment 	<ul style="list-style-type: none"> Animals and their Needs Fill in the Blanks Caribou Habitat Lap Survivor Everybody Needs a Home Poster Project Go on a Track Hunt Sleeping Cougar/Wolf Caribou, Wolf, Cougar Cougar/Wolf Hangman Camouflage The World of Webs Colouring Sheets
4	<ul style="list-style-type: none"> Compare the structures and behaviours of local animals and plants in different habitats and communities Analyze simple food chains Demonstrate awareness of the Aboriginal concept of respect for the environment Determine how personal choices and actions have environmental consequences 	<ul style="list-style-type: none"> Habitat and Communities Fill in the Blanks Caribou Habitat Lap Sit Caribou Nation Caribou Poetry Inland Temperate Rainforest Diorama Survivor Surveying our Community The World of Webs Everybody Needs a Home Poster Project The Value of our Forests Mountain Caribou Obstacle Course Sleeping Cougar/Wolf Camouflage Food, water and shelter... oh my! Caribou, Wolf, Cougar Cougar/wolf Hangman



“ The benefits of providing educational opportunities for our youth will be felt long term when our children grow into environmentally responsible citizens. ”

CURRICULUM CONNECTIONS (CONTINUED)

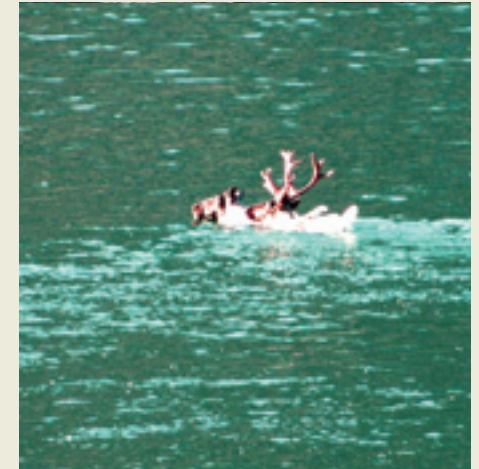
GRADE	LEARNING OUTCOMES – LIFE SCIENCE	ACTIVITIES
6-7	<ul style="list-style-type: none"> Analyze how different organisms adapt to their environments Analyze the roles of organisms as part of interconnected food webs, populations, communities, and ecosystems Assess survival needs and interactions between organisms and the environment Assess the requirements for sustaining healthy local ecosystems Evaluate human impacts on local ecosystems 	<ul style="list-style-type: none"> Habitat and Communities Fill in the Blanks Caribou Habitat Lap Sit Caribou Nation Caribou Poetry Inland Rainforest Diorama Adapting Animals
		<ul style="list-style-type: none"> Surveying our Community Survivor The World of Webs Everyone Needs a Home Poster Project The Value of our Forests Mountain Caribou Obstacle Course Sleeping Cougar/Wolf Camouflage Food, water and Shelter...Oh My! Caribou, Wolf, Cougar
8	<ul style="list-style-type: none"> Compare roles and interrelationships of senses in interpreting the environment Describe the environmental conditions in the major biomes Compare and contrast how various organisms have adapted to the conditions in each biome and how these organisms interact with each other Assess different impacts of using renewable and non-renewable natural resources Compare and contrast the practical, ethical and economic dimensions of population growth and polluted environments Relate the extraction and harvest of the earth's resources to sustainability and reduction of waste Evaluate how major natural events and human activity can affect local and global environments and climate change 	<ul style="list-style-type: none"> Habitat and Communities Fill in the Blanks Caribou Nation Adapting Animals Surveying our Community Survivor The World of Webs Everyone Needs a Home Poster Project The Value of our Forests Mountain Caribou Obstacle Course Sleeping Cougar/Wolf Camouflage Food, water and Shelter...Oh My! Caribou, Wolf, Cougar



“Mountain Caribou are a unique component of the mountain ecosystems in the Kootenay region.”

CURRICULUM CONNECTIONS (CONTINUED)

GRADE	LEARNING OUTCOMES – LIFE SCIENCE	ACTIVITIES
Biology 11	<ul style="list-style-type: none"> • Contrast members of two more classes of vertebrates • Demonstrate knowledge of the diverse ecological role of vertebrates • Describe factors that limit and control population growth • Collect, display and interpret data • Solve simple population problems based on changes in natality, 	<ul style="list-style-type: none"> • Caribou Nation • Adapting Animals • Surveying our Community • Survivor • The World of Webs • Mountain Caribou Obstacle Course • Recovery Plan
Resource Sciences Forests 11/1	<ul style="list-style-type: none"> • Demonstrate awareness of a variety of perspectives and values related to forests and forest use • Describe processes in and components of ecosystems • Assess the effects of natural and human forces on the forest • Describe a variety of food chains and food webs • Identify a variety of local animals species and their habitat requirements • Describe factors affecting local animal populations and behaviours • Demonstrate awareness of social and economic values of forest animals 	<ul style="list-style-type: none"> • Ecology Vocabulary • Adapting Animals • Surveying our Community • Survivor • The World of Webs • The Value of our Forests • Recovery Plan • Mountain Caribou Obstacle Course • Food, water and Shelter...Oh My!



“Once possibly the most abundant large mammal throughout much of this region, today as few as 1900 mountain caribou remain on the planet, 99 percent of which live in British Columbia.”



ACTIVITIES

The following activities are designed to make learning about Mountain Caribou and wildlife fun and engaging, in addition to meeting learning outcomes outlined in the Life Science Curriculum. There are a variety of activities outlined in this section, many of which could be used in an art lesson, an English lesson, a PE class and of course, a science lesson.

VOCABULARY FOR MOUNTAIN CARIBOU >>

ANIMALS AND THEIR NEEDS – FILL IN THE BLANKS

Mammals	Caribou have big hooves or feet that allow them to walk on top of the snow. This is an example of a change that helps caribou survive up in the mountains. It is an _____.
Characteristics	
Migrate	When we cut down trees, we _____ them.
Life Cycle	A fully-grown, mature organism.
Appearance	An animal in the early stages of its life.
Young	The changes a living thing experiences as it grows from birth to death.
Behaviour	The actions or reactions of a person or animal in response to something.
Harvest	The _____ of a moose and caribou are very different. Their antlers, colouration and size are different.
Prey	
Food	A source of _____ for the Mountain Caribou is a type of lichen called Witches Hair.
Predators	Cougars and Wolves are _____ of the Mountain Caribou.
Female	An animal that is hunted for food.
Environment	To help out wildlife, we can help protect the _____.
Adaptation	Both male and _____ caribou grow antlers. A feature that helps to identify, tell apart, or describe recognizably. Bears, Caribou and Humans are all examples of _____. Mountain Caribou do not travel long distances in the winter to find food, instead they _____ up and down mountains.

HABITAT & COMMUNITIES - FILL IN THE BLANKS

Food Chain	The Mountain Caribou's _____ is the Temperate Rainforest.
Organism	In the past decade the number of or _____ of Mountain Caribou has declined.
Habitat	The _____ is the transfer of food energy between living things.
Decomposers	Lichen is a living thing. It is an _____.
Producer	
Herbivores	The study, protection and wise use of natural resources; providing for the future.
Sustainable	A species in danger of becoming extinct.
Stewardship	To prevent the Mountain Caribou and other species from becoming _____, we need to protect their habitat.
Conservation	
Behaviour	The temperate rain forest is a unique _____.
Ecosystem	To help preserve wildlife habitat, we need to control the consumption of renewable resources in a _____ manner.
Endangered	The responsible care and management of natural resources.
Extinct	Lichen is an example of a _____. It converts the sun's energy into food.
Population	
Omnivore	Organisms that break down dead animals and plants into simpler substances that can be reused by plants.
Predators	Caribou, deer, moose and elk eat plants. They are _____.
Prey	The Grizzly bear is an example of an _____. It eats both plants and animals.
Camouflage	Cougars and Wolves are _____ of the Mountain Caribou. An animal that is hunted for food. Many animals rely on _____ to hide from predators. The actions or reactions of a person or animal in response to something.

ECOLOGY CROSS WORD PUZZLE- FILL IN THE BLANKS

Harvest	Moose, Elk, Deer and Caribou are Cervids. In Taxonomy, this is an example of a _____.
Populations	Rangifer is the _____ of Caribou
Family	The study of organisms, and the similarities that varying species share, and then categorizing these organisms in relation to their ancestral lines and their common characteristics.
Carrying Capacity	_____ is the movement of genes from different populations of species.
Mutation	Witches hair and old mans' beard are examples of _____.
Forest Fragmentation	A change in form, quality or some other characteristic.
Genus	The process in nature by which, according to Darwin's theory of evolution, only the organisms best adapted to their environment tend to survive and transmit their genetic characteristics in increasing numbers to succeeding generations while those less adapted tend to be eliminated.
Gene Flow	Many people believe the population of humans on earth has reached _____ . The earth is no longer able to sustain our population.
Deforestation	The gradual process through which plant communities establish, live, grow old, and die, leaving space and nutrients for new growth.
Ecological Succession	Today as few as 1900 Mountain Caribou remain; they are divided into small groups called sub- _____.
Lichen	Lichen is an example of a _____ species.
Pioneer	Forest Companies _____ our forests for various uses.
Taxonomy	As a result of _____ Caribou are more vulnerable to their predators.
Natural Selection	_____ makes it difficult for some species of wildlife, such as caribou, to exchange genes; therefore it can reduce a species genetic diversity.

Summary

Through this activity students will become familiar with the components of habitat, specifically Mountain Caribou habitat. They will learn to recognize that caribou, like all animals, need food, water, shelter and space.

Objectives

Students will:

- Identify the components of habitat
- Recognize how humans and other animals depend upon habitat and how it is used differently for different purposes
- Understand the significance of loss or change in the habitat in terms of people and wildlife.

Materials: None needed

Duration: Approximately 20 minutes

Background

All animals share some basic needs. They all require a habitat - the environment in which they live. A habitat includes food, water, shelter and adequate space. If one of these components goes missing or is affected the habitat may no longer be suitable for the animal. The impact may or may not be catastrophic.

Procedure

1. Clear the middle of the classroom or play outdoors in a grassy area. Number students off one to four. Have all of the one's moves to a corner, two's to another, etc.
2. Assign each group a concept: "ones" food (lichen), "twos" water, "threes" shelter (old-growth), "fours" space.
3. Begin building chains of habitat- one food, water, shelter and space in each chain. Build a circle in the centre using "habitat chains". Students should stand shoulder to shoulder, facing the centre.
4. Ask students to turn to their right while taking one step towards the centre of the circle. Students should be standing close together, looking at the back of the head of the person in front of him or her



5. Have students place their hands on the shoulders of the person in front of them. On the count of three have the students sit down on the knees of the person behind them. They will need to keep their own knees in place to support the person in front of them. Ask the students to call out, in order, the habitat component they represent. You can say, “These things are needed to have a suitable habitat.”

6. Discuss these components with the students. Ensure they understand all components are needed for any animals’ survival, not just mountain caribou.

7. Have the students complete the activity again. Call out a situation: such as “all of the trees have been logged and there is no lichen available for the caribou to eat” or “the streams in the forest have been polluted”. Have all students representing the component called out removed from the circle and watch the circle collapse or at least it will suffer from disruption. To demonstrate an animals’ habitat needs all four components- food, water, shelter and space use several different scenarios.

8. Ask students to summarize the main ideas they have learned. For example:

- Food, water, shelter and space together can be called habitat.
- Animals depend on a habitat.
- Loss of any one component of habitat will have a serious impact on the animals living there.

Adapted from Project Wild

WHERE DO CARIBOU LIVE?

Summary

In this lesson students will map the geographic and habitat distributions of Canada’s caribou species.

Objectives

As part of this activity, students will be able to:

- Name the 4 subspecies of caribou and determine their geographic distribution in Canada.
- Identify the major habitat of the 4 subspecies.
- Discuss status of each caribou subspecies.

Materials

- Map of Canada
- Glue stick
- Scissors
- Marker
- Photos of the different Caribou species (internet research)

Duration: Two 30- 50 minute sessions

Background

1. Barren ground caribou – this is the animal we see on the Canadian quarter coin. These animals live in the taiga and tundra regions of northern mainland North America. They roam the landscape in large herds of up to tens of thousands, spending winters below the tree line where there is some shelter from the howling frigid winds of the North, returning to their calving grounds in the barren grounds north of the tree line in the spring and summer. They undertake some of the largest migrations of any land mammal, covering thousands of kilometers every year. They are an important source of food and shelter for most of the First Nations on the Northern mainland. There is much concern over recent dramatic declines in numbers of barren ground caribou as well.

2. Peary Caribou – these small, light coloured caribou are found on the high arctic islands including Victoria, Banks, and Ellesmere Islands. Once found in vast herds, climate change and over-hunting has decimated these caribou, and all three remaining populations are listed as endangered. Northern populations cannot sustain modern hunting pressures, where “traditional hunts” use modern technologies to improve hunting success, and where populations are much greater than in historical times. Also, global warming has resulted in late fall rains that often turn to freezing layers of ice, instead of the snow that should be falling. The ice layer makes it difficult or impossible for caribou and other arctic animals to dig down to reach the ground lichens they rely on for winter food.
3. Woodland Caribou – these caribou are found well below the tree line, all the way into Montana and Idaho in the West, and to the Slate Islands on Lake Superior in the East. They inhabit the boreal forest from coast to coast. Many subpopulations are listed either as “threatened” or “endangered” due to dramatic increases in logging of their forest habitat. They roam the landscape in groups of 20 to 50 animals. Mountain caribou are an “ecotype” of woodland caribou.
4. Dawson’s caribou (extinct) – a subspecies of caribou once found in the Queen Charlotte Islands. This subspecies disappeared soon after the introduction of firearms for hunting. The last known Dawson’s caribou (2 bulls and a cow) were shot in 1908, and the subspecies is thought to have disappeared completely in the 1920’s.

Procedure

Day one

1. Ask students to list everything they know about caribou and record this information on a large chart or white board. Ask the students to list where caribou can be found.
2. Introduce the students to the different subspecies of caribou found in Canada. Have the students work in small groups or in partners to complete internet research on caribou. Students should research information on the where the different subspecies live, how they differ from other species and their status. Have groups print photos of each subspecies (If time is limited assign each group of students one subspecies to research).

Day Two

1. Place a map of Canada at the front of the class. Have students glue the pictures of the different caribou subspecies in the appropriate location on the map. Students can also use a marker to outline the different species ranges. Make sure students are aware of the different provinces they are locating on the map. Ask them to use terms such as ‘Northern Ontario’ or ‘eastern British Columbia’.
2. Have the students compare and contrast the different subspecies using the information they gathered during their internet research. Discuss each animal’s habitat and discuss the status of each species. Continue adding material to the chart from Day 1. Finish the lesson, by bringing it close to home; discuss the mountain caribou and its status. Brainstorm ways to help the caribou. Direct students to the kids corner page on www.mountaincaribou.ca

Option:

Give each student a copy of a map of Canada. Have each student create their own “Caribou Nation” map. Each student can glue their photos and colour in the range of each caribou subspecies.



Objectives

Through this activity students will explore the beauty and inspirational value of wildlife and wildlife habitat using language arts.

Materials

- Paper
- Pencil
- Forest Ethics DVD included in this resource package.

Duration: 30 – 60 minutes

Background

Poetry can be used to express one's experiences, thoughts or ideas. Students will successfully create a poem in which they will express how they think it feels to be a Mountain Caribou.

Procedure

1. With your students view the photos of Mountain Caribou habitat on the Forest Ethics DVD contained in the package. While viewing the photos, have the students imagine they are caribou roaming the forest, eating, exploring and surviving. You can give them a minute to close their eyes to allow their imaginations to run wild. Students can imagine how the caribou travels, obtains food, water and shelter.
2. Have students write a poem about their experience as a caribou or students can work in groups to create their poem. Poems can be rhyming, haiku's, Cinquain's or free verse. Tie this activity with a language or English lesson.
3. Once poems are completed, students can display them with a drawing or design.
4. Discuss with students what the world would be like without animals such as the caribou. Remind them British Columbia's Mountain Caribou are an endangered specie

Summary

This diorama of the Inland Rainforest is fun to make and shows different elements of habitat and the food chain.

Objectives:

- To identify the major components of habitat.
- To learn the characteristics of an old growth forest/Inland Rainforest
- Identify a number of species living in this ecosystem
- To learn about the food chain/web in this ecosystem.

Materials:

- Shoe box or similar sized box
- Construction paper or tempera paint
- Scissors
- Glue
- Pencil, crayons
- Cotton balls (for clouds)
- Modeling clay
- Pipe Cleaners
- Optional: Small plastic animals or plants
- Optional: Forest Ethics DVD

Duration: 2 x 40- 60 minute long sessions

Background

The Inland Rainforest or Interior Cedar- Hemlock forest is one of the earth's rare ecosystems. It is located in our province's wettest inland mountain valleys and is home to more tree species than any other ecological zone in the province. Some of the tree species found in the this forest include Western Red Cedar, Western Hemlock, Alpine Fir, Spruce, Douglas Fir and the Western White Pine. Some of the trees present in the forest have been documented to be over 1,500 years old, making it an old growth forest. These inland old growth forests are highly productive ecosystems and provide critical habitat for a number of plant and animal species.

A large variety of wildlife calls this ecosystem home. Some of the larger mammal species found in the area include White Tail Deer, Elk, Moose, Caribou, Black Bear, Grizzly Bear, Mountain Caribou, Lynx, Cougar and Wolverine. Some of the smaller critters found in this ecosystem include barred owls, golden eagles, pileated woodpeckers, ruffed grouse, Douglas Squirrel, brown bats, mink and bull trout. Some of the more predominant plants found in this ecosystem include skunk cabbage, devil's club and a large variety of ferns. It is also home to a number of lichen and mushroom species.

Procedure:

1. Introduce your students to caribou habitat, the inland old-growth forest. Have students brainstorm the different plants and animals found in this forest. Discuss the food chain. If time permits, share some of the images on the Forest Ethics DVD. Remind students that ecosystems are complex with many different layers. Also remind them all animals require habitat and they should be sure to include all of the components of a habitat in their diorama.
2. Make a background in the box. Use either construction paper or tempera paints to depict the sky (blue), the forest floor (brown), water (blue) and vegetation (green). (Cotton balls make nice clouds.) At this time it is probably easiest to cover or paint the outside of the box, too.
3. Have students make trees, plants and animals from modeling clay or construction paper. (You may choose a different material.) Glue the trees and animals onto the diorama.
4. Have students write their name on the diorama and display the Caribou Habitats in the library or out in the hallway. If your class has a younger buddy class, invite the buddies over to come and learn about the inland rainforest ecosystem.

Summary

Students will create a picture or model of mountain caribou, cougars and wolves and outline various adaptations that aid in the survival of the species.

Objectives

Students will:

- Learn about Mountain Caribou and their relationship to other animals in their environment.
- Identify adaptations in general and specifically those pertaining to caribou, cougars and wolves.
- Create ways in which Mountain Caribou can be protected through an understanding of their role in the ecosystem.
- Provide reasons for the benefit of healthy complete ecosystems.

Materials

- A large piece of Bristol board or cardboard.
- Pencils and/or crayons.
- A photograph of mountain caribou, cougar or wolf OR
- Modeling clay or dough.
- Small, flat piece of wood.

Duration: 1.5- 2.0 hours (can be broken down into sessions)

Making Connections

This exercise will help students understand the connection that caribou have with the forest environment as well as understand the importance of adaptations and how they evolve over time to best help each animal survive.

Background

Mountain caribou have several interesting adaptations that help them survive in the diverse and often cold inland rainforest ecosystem in North America. In fact, caribou can withstand the coldest temperatures of any deer species of North America. Caribou fur is generally dark chocolate brown with areas of white to beige on their belly, lower legs and chest. This provides them with excellent camouflage as well as temperature regulation within their varied habitats. Caribou fur is composed of two components; the dense woolly undercoat close to their skin and the protective stiff, guard hairs. These provide the caribou with layers of warmth for protection against harsh temperatures and extreme wind chill. Caribou also possess a large well furred muzzle. Their sense of smell is incredible as they can easily detect food sources often underneath snow. Their furred muzzle also helps protect their nose from frostbite.



Another amazing adaptation to the cold temperatures is that caribou possess what is called a “counter-current” exchange system. This complex adaptation actually allows caribou to conserve temperature within their core body, allowing the blood flow from their extremities (legs) to be warmed as it flows through their core body. (Amazingly in -30°C weather, a caribou’s core temperature can reach 38°C). Caribou also possess widely splayed hooves for excellent locomotion in snow. In fact, their hooves actually grow to extreme lengths in winter to help with snow travel. Their hooves are also strong and sharp to help dig through the snow depth to find food. Caribou also have tufts of fur between their hooves to protect the fleshy parts from touching frozen ground.

Caribou also have physiological adaptations to allow them to get through the difficult winter months where food can be in short supply. Caribou are able to slow their body metabolism so as to get by with reduced food consumption. In summer, caribou can retain energy reserves from increased food consumption and store layers of fat. Another popular adaptation known to caribou are their antlers. They and the related reindeer are the only species of deer on earth in which both females and males bear antlers. Antlers are bony projections that are supplied with nutrients and grow from pedicles on the caribou’s skull.

They are important to establishing dominance and other relationships among individual caribou. In addition, caribou can use their antlers to scratch on trees to create signposts as messages to other individual caribou. Antlers can also be used as a last resort to defend against predators.

Yet another adaptation behavioural caribou possess is the ability to migrate. Caribou can often migrate long distances to find food sources seasonally; they migrate to find better calving grounds to raise their offspring and also migrate to avoid predators.

Mountain caribou have two main predators; cougars and wolves. Both of these species are highly adaptable and successful predators. Along with caribou, these predators can easily prey on other species such as mule deer, white-tailed deer, elk and moose. Cougars are highly skilled hunters that display some of the most perfect carnivore adaptations of any North American predator. Cougars are very muscular, possessing strong limb and shoulder muscles for leaping, pouncing and bringing down prey that may be larger than themselves. Their paws are large, allowing them to move through snow easily and giving them good acceleration toward potential prey. A cougar’s tail is also muscular and quite long. This allows them high maneuverability when chasing prey and also gives them adequate balance. Cougar skulls are rounded

to allow for their large canine teeth to bring down a strong piercing bite to their prey.

This is in contrast to a wolf skull, which is longer, allowing stronger jaw pressure along the molars. Wolves also have an excellent sense of smell, so their skulls show an enlarged olfactory region. Wolves, living in packs, tend to attack prey differently than do cougars. Wolves often chase prey as a pack for much longer distances, therefore they have several significant adaptations to these locomotory habits. Wolves are deep-chested, they have a strong and enlarged chest cavity to allow for potentially long, tiring chases. Their limbs are supple and powerful allowing wolves to attain speeds of nearly 65 km/h over flat ground. In addition, wolves have thick layers of fur to keep them warm and insulated throughout the cold Canadian winters. Of course, in addition to these physical adaptations, wolves and cougars possess strict behavioural adaptations to allow great success as a species. Cougars are solitary, shy and highly elusive. This is beneficial to stalking prey, but also reduces potentially dangerous encounters with humans. Wolves are equally shy, however, due to the fact that they live in packs, wolves are also highly social and have evolved many techniques to communicate with fellow pack members ensuring health and success for the whole pack.



Caribou also have physiological adaptations to allow them to get through the difficult winter months where food can be in short supply.

ADAPTING ANIMALS (CONTINUED)

ADAPTATION	DESCRIPTION	ADVANTAGE
Caribou		
Hooves	Splayed	Help keep the caribou on top of the snow during the winter months so they able to walk more easily.
Fur	Fur in between toes	Protects fleshy part from frozen ground
Hair	Hollow hair, multiple layers	Insulation from frigid temperatures
Antlers	Both sexes	Competition for mates and for better food sources, and defense against predators
Legs	Long	Long legs help caribou move through deep snows and migrate to find food and safe habitat for calving.
Wolves		
Nose	Keen sense of smell	Helps wolves communicate with each other and locate prey
Leg	Long legs	Helps wolves run quickly to chase down prey
Jaws	Long, muscular	Helps wolves crush the long bones of prey to get at the marrow inside
Tail	Long, active	Helps wolves communicate, as well as keep warm on cold winter nights
Feet	Claws and rough pads	Allows good grip on most surfaces
Chest	Deep	Contains large lungs to allow for extended chase
Cougars		
Tail	Muscular and long	Helps with balance and maneuverability
Eyes	Point straight forward, are large	Helps cougar detect motion and hunt accurately, as well as see well at night
Teeth	Large, sharp canine teeth	Allow quick kills of prey larger than themselves with a bite to the spinal cord.
Shoulders	Large and muscular	Designed for leaping and grabbing prey

Procedure

- 1) Discuss adaptation with students. Have your class brainstorm some adaptations specific to caribou, cougars and wolves.
- 2) Have the students choose one animal species and have them create of 3-D clay model or a poster of the species they have chosen. Remind them to include any of the animals' physical adaptations in their work.
- 3) Once the model or drawing is completed have the students label the various incredible adaptations. A creative way to display the adaptations on the model may be to create flags using toothpicks and tape/paper.
- 4) Have the students work in groups and discuss each of the adaptations highlighted on their animal. Students may consider why these adaptations are important to the survival of the species, how they may have developed over time and perhaps even comparisons of other closely related deer species adaptations.
- 5) Students can also brainstorm ideas to protect mountain caribou and their rare habitat.



Summary

Students will survey members of the school or community to gather data about Mountain Caribou. Students will learn about an important tool that is often used to help make decisions in our communities and province.

Objectives

Students will:

- Identify underlying values in a viewpoint
- Survey individuals about their knowledge of Mountain Caribou
- Learn about surveys and data collection
- Create a bar graph
- Discuss and evaluate the results of the survey

Materials

Students will need:

- Notebooks or paper and clipboards
- Pens/Pencils
- Name tags
- Graph paper

Duration: Approximately 90 minutes over three sessions, plus interview time

Procedure

Part 1: Introduction (20 minutes)

- 1) Ask students to brainstorm ways of finding out people's thoughts and feelings about Caribou and Caribou Habitat. Ask students if they have conducted a survey or have been a participant of a survey, and, if so, what the purpose of the survey was. Define survey, emphasizing this as a method for gathering data, which may be from primary or secondary sources.

- 2) Tell the students they will conduct a survey within the school or community about Mountain Caribou. The goal of the survey is to find out what people know about one of BC's most endangered species, the Mountain Caribou and their attitudes towards the conservation of the species.
- 3) As a class, work together to create a list of questions students would like to ask. Questions should be yes or no questions so students can tally their results (multiple choice would work too). (See examples below.)
- 4) *For teacher:* Using the list of questions created by the students, create a survey that can be copied and handed out to all of the students.

Part 2: The survey (30 minutes)

- 1) Go over the list of questions with the students again and tell students they will 'survey' 5 individuals within the school or community. Students can work in pairs or individuals. Students will use a tally sheet and bring results back to class to summarize on a graph.
 - 2) Before sending the students out survey, speak about how to approach people politely and respectfully. Have students ask for permission to collect information from the individual. A survey is voluntary. Have the students introduce themselves (name and school) and the purpose of the survey. All participants should be thanked for their time.
 - 3) Give students a date for when their survey results are due. Encourage them to have fun and be respectful of participants, and to come to the teacher with any questions or concerns.
- (If you choose, combine the activity with PE class and have the students walk to a community centre or local shopping mall, or assign as a weekend homework assignment.)

Part 3a: Survey Results and Discussion (30 minutes)

- 1) Distribute graph paper to students. Have the students represent their findings in a simple bar graph (using pencil). Students can create a YES and NO bar for each question asked in the survey. Review how to calculate a percentage (simple fraction) and have students record the percentage for each question.
- 2) Have students discuss their results. Are they surprised? Are the results as expected? What did you they learn from the survey about other people's knowledge about Mountain Caribou? Ask the students to write a small one paragraph report about their results.
- 3) Collect students' survey results (tally and graph) for assessment and feedback.

4) Ask students about their experience as a surveyor? What went well? What would they do differently? What did they learn about themselves and the people in their community?

Part 3b: Class Results (10 minutes)

- 1) *For teacher:* Create a bar graph with all of the student results to be displayed in the classroom.
- 2) Discuss class results with the students. Ask students how their finding might be used. Explain that surveys are often used to help make important decisions in our society. Discuss the importance of collecting data and presenting it accurately and clearly to an audience.

Example questions for the survey

- Do Mountain Caribou live in Canada only?
- Are Mountain Caribou an endangered species?
- Do you think Mountain Caribou's habitat, the inland temperate rainforest, is healthy?
- Are caribou predators?
- Can caribou survive in open



Summary

Students will learn to think critically and use their background knowledge of ecology and biology while evaluating the BC Government's Mountain Caribou Recovery Plan.

Objectives

- Student will learn how to critically evaluate a report.
- Based on their knowledge of ecological concepts, students will list the pros & cons of the Mountain Caribou Recovery Plan.
- Student will become familiar with government reports and endangered species recovery plans.

Materials:

- Download copies of the Mountain Caribou Recovery Plan online at: http://wlapwww.gov.bc.ca/wld/documents/mrcaribou_rcvrystrat02.pdf (BC's Ministry of Environment- Environmental Stewardship Division (Provincial Recovery Plans))
- Paper and pencil

Duration: 60 minutes, plus a reading homework assignment

Background

Taken from the Ministry of Environment Environmental Stewardship Division Website (<http://www.env.gov.bc.ca/wld/recoveryplans/rcvry1.htm#recovery>):

Recovery planning is a process that is undertaken to ensure the survival and recovery of species and ecosystems at risk. Recovery plans consist of two parts, a recovery strategy and an action plan. The recovery strategy outlines what is and is not known about a species or ecosystem; identifies threats to the species or ecosystem and what should be done to mitigate those threats; identifies the species' critical habitat if possible; sets the goals, objectives and approaches for the recovery of the species or ecosystem; and states when the action plan will be completed. Recovery strategies thus represent the best available scientific, traditional, and community knowledge about a species or ecosystem, and what is required to achieve recovery. Action plans include more detailed information about what needs to be done to meet the objectives of the strategy, and an evaluation of the socio-economic costs associated with recovery efforts.

Recovery plans are usually prepared by a recovery team, which is made up of agencies responsible for the management of the species or ecosystem, and species or ecosystems or issue experts from other agencies, universities, conservation groups, aboriginal groups, and stakeholder groups, as appropriate.



Procedure

1. Take 10 minutes to introduce the Mountain Caribou Recovery Plan. Tell the students they will be evaluating the pros and cons of this plan. Explain it is very difficult to create such a plan as there are many stakeholders involved in the process all with different wants and needs.
2. Have the students read the report online (or provide the students with a copy). The reading can be assigned as homework. Tell them to keep in mind many of the ecological concepts you have discussed in your class while reviewing the report.
3. During the next class, divide the class into groups of 3- 5 students and have them discuss the report they read. Students should come up with a list of positive actions listed in the plan and negative actions. Students should record why they have listed the actions as positive or negative. Give the students 20-25 minutes to complete this.
4. Have one member of each group report their groups' findings to the class.
5. Once each group has read their points out loud, engage the students in a discussion. Maybe different groups opinions differed, have the groups elaborate on their stance.
6. Debrief with the students. Again, discuss the difficulty of creating such a report.
7. Optional: Encourage students to write a letter to the government expressing their views of the Mountain Caribou Recovery Plan. (adapted from Forest in Focus)

Summary

Students play a tag-like game to explore the roles and components of a forest community.

Objectives

Students will:

- Understand the interrelationship of animals in the forest
- Identify components of habitat
- Identify food chains and food webs of the forest.
- Identify predator/prey relationships in the forest

Materials:

- A forested area in a park or school playing field.
- Pinnies/ bandanas/ Colored vests
- Buckets/ Coffee cans/ yogurt containers
- Food Token Cards (cut coloured paper, poker chips, bottle caps)
- Life Token Cards (cut coloured paper, poker chips, bottle caps)

Duration: 50-70 minutes

Background

One of the most important interactions that occurs in a forest community is the food web or food chain- the flow of energy through organisms in an ecosystem. The dependence of plants and animals on each other for food makes up a food web or food chain. This game explores the interaction between lichen (a primary producer), caribou (a herbivore) and wolves and cougars (carnivores), a food chain in the inland temperate rainforest. This game also introduces the impacts of events such as disease and starvation.

Procedure

This tag – like game can be played in three different 15-20 minute phases

Phase 1- Predators and Prey

- 1) Split the students up so that one quarter of the students will wear one colour of pinnies or bandanas (Wolves and Cougars) and the rest will wear another colour (caribou).

- 2) The object is for the wolves and cougars to tag all of the caribou as quickly as possible. Students who are caught must give up their pinnies or bandanas to their captors, and go and sit down in a neutral place.
- 3) The game continues until all of the students who are not predators are caught. The number of pinnies that each predator has collected will be counted.
- 4) If time allows, repeat the game with different students as the predators.

Phase 2- Lichen- Food for the Caribou.

- 1) In this phase the caribou will have food to eat. Have food tokens to represent lichen. Write number 1 to 6 on tokens. If you have 20 caribou, you should have twenty #1s, twenty #2s, twenty #3, etc. Put all of the 1s in a container, 2s in another, etc. Place the containers around the playing area.
- 2) Give each Caribou one Life Token card.
- 3) Play game as in phase 1, except each caribou has to collect all 3 different food token and hand them to the teachers. Students should have 3 different numbered food tokens.
- 4) When they bring in their 3 food token, they can give up their life card and bring to life one of the caribou that has been captured by the predators. If there are no caribou to bring back to life, the caribou can give up their life card when captured, instead of giving up their pinnie. This will allow for another chance at life.
- 5) Predators (Wolves and Cougars) who catch 3 caribou can bring in the pinnies and/or life cards and take one of the dead caribou back into the game as a wolf or cougar (wearing the appropriate colour of pinnie).
- 6) If the caribou population is growing too fast, increase the number of cards they need to collect. If the predators are catching too many caribou, decrease the number of cards the caribou have to collect.
- 7) In time permits, play this phase several times.

Phase 3- Stalked by Starvation and Disease

- 1) In this phase disease and starvation will be introduced. Both predator and prey can die in the phase, but they will also be able to be brought back to life.
- 2) Select 2 students, one to represent disease and one the represent starvation. Students should wear a different coloured pinnie or bandana to separate them from the wolves and cougars, and caribou.
- 3) The disease and starvation students will try to catch either the predators or prey during this phase. Predators and caribou are 'killed' if they have one or fewer pinnies or food cards. If a predator or caribou is caught and has more than one pinnie or food card than they must give up a food token (caribou) or a pinnie (predator). During this exchange, the caribou can be caught by predators too!
- 4) Caribou or predators that are killed must wait to be brought back to life by a caribou (as in phase 2) or a predator with 3 food cards, life cards, or pinnie.
- 5) After this phase, discuss with the students how disease and starvation have changed the dynamics. What other factors might have an impact?
- 6) Debriefing: What characteristics did the most successful predators have? What characteristics did the most successful caribou have? Discuss the roles that were played in the game by each groups or students.

Adapted from Forest in Focus



Summary

Students use a ball of twine to create a food web that shows the interactions between members of the inland rainforest ecosystem.

Objectives

- Students will understand the interconnectedness of a food web
- Students will learn about the roles of herbivores, carnivores, decomposers and producers
- Students will learn about some events that may impact a food web

Materials:

- Photos of animals/ sign with animals' name printed on it.
- Tape or pins
- Ball of twine/ string
- Large space (empty room or playing field)

Duration: 15- 30 minutes

Background

All living things get energy from their food so that they can move and grow. A **food web/food chain** shows how each living thing gets its food. Some animals eat plants and some animals eat other animals. For example, a simple food chain links lichen, Caribou (that eat the lichen), and the cougars and wolves (that eat the Caribou). Each link in this chain is food for the next link. A food chain always starts with plant life and ends with an animal. Plants are called **producers** because they are able to use light energy from the Sun to produce food (sugar) from carbon dioxide and water. Animals cannot make their own food so they must eat plants and/or other animals. They are called **consumers**. There are three groups of consumers:

1. Animals that eat ONLY PLANTS are called **herbivores** (or primary consumers).
2. Animals that eat OTHER ANIMALS are called **carnivores**.
3. Animals that eat BOTH animals and plants are called **omnivores**.
4. Then there are **decomposers** (bacteria and fungi) which feed on decaying matter. These decomposers speed up the decaying process which releases minerals back into the food chain for absorption by plants as nutrients.

Procedure

- 1) Have students tape/pin their animals sign on the front of their shirt.
- 2) Have students stand in the circle. Everyone should see each others animal sign.
- 3) As the teacher you can play the role of the sun and start with the ball. Pass the ball to the tree and say “I am passing the ball to the tree because it needs me to survive. I give energy to the tree.”
- 4) Tell students that they can pass the ball to other elements in the ecosystems *only if it needs you in order to survive or if you need it in order to survive*.
- 5) Make sure each exchange is justified by each student as they pass the ball to one another and the entire group understands the connection. No organism should be left out.
- 6) Once everyone is connected ask the students to pull gently to take in the slack so that the string is taut. Have students examine the interconnectedness. For this reason, interrelationships within an ecosystem are sometimes referred to **as the web of life**. Explain that the classroom web represents something much simpler than an ecosystem.
- 7) Next, tell students that something has just happened to the ecosystem: a timber company has just received the right to log this forest ecosystem. Ask the “tree” students to pull on the web when you count to three. Immediately asked those who felt the pull to raise their hands. Ask those with the hands raised how they were affected.
- 8) Count to 3 again, and ask those “affected” to pull on the string. Keep going until everyone has their hands raised. Have students continue holding the string taut for another round (see scenarios below). Students should come to realize that any change to an ecosystem- whether slight or profound- is felt throughout the system.

Some Suggested Scenarios:

- The forest is sprayed to remove pesky insects.
- The Mountain Caribou goes extinct.
- There is a chemical spill which kills the decomposers in the soil
- Trees are removed creating a large forest fragmentation; all large carnivores are unable to survive in the small habitat.

Some examples of food chains within the Inland Temperate Rainforest:

Lichen — caribou — cougars

Mushroom — Douglas squirrel — Cooper’s hawk

Freshwater fish — mink — great horned owl

Ferns — mule deer — wolves

Skunk cabbage — insects — brown bats — barred owl

Summary

Through this art activity students will create an educational poster on Mountain Caribou to be placed around the school or within the community.

Objectives

- Student will work on drawing skills
- Students will discover new ways to communicate a message to their community
- Students will learn how to use art as a communication tool, a way to express their thoughts.

Materials

- Paper, Pencil, Crayons, Ruler

Duration: 30 – 40 minutes

Background

Spreading the word about something you are concerned with is an important skill to have. One way people communicate their message is by creating media, such as posters. It is a great way to generate interest in a local issue in a friendly, non- intrusive way.

Procedure

- 1) After a few educational lessons on Mountain Caribou, have the students discuss what they have learned. Have the students think about what information they think is important to share with others.
- 2) Tell the students they are going to create educational posters on Mountain caribou that will be placed around the school and/or the community. The posters will help create awareness about Mountain Caribou and hopefully pique curiosity within citizens of the community. Have each student think about what message they would like to share with the community
- 3) Each student should have a piece of paper and the materials needed to create their own poster. Have the students draw posters featuring Mountain Caribou and their habitat. Students can write their message on the poster along with the picture.
- 4) In time permits, have the students share the posters and their message with the rest of the students in the class.
- 5) Display the posters in the school hallways or in the community (local coffee shops, community centres, public library, bulletin boards). Posters can also be mailed to the local or provincial government. It is a great way for the government to learn about the youth and what they concerns are.

Summary

Students will be able to identify common tracks in their region

Objectives:

- To get young people outside, observing their natural surroundings
- To learn how to identify animals tracks
- To learn how to create a mold

Materials:

- A small sack of plaster of Paris
- A jar of water
- An old stirring spoon
- Cardboard strips, about 12 cm (5 inches) wide and 10 to 12 cm (4 or 5 inches) long
- A roll of sticky tape
- Petroleum jelly (Vaseline)
- Something to carry the materials in
- Animal Tracks Field Guide
- Laminated tracks provided with Manual

Duration: Approximately 2- 45 minute periods.

Background:

Although students will most likely not come in contact with Mountain Caribou tracks on their track hunt, the students may discover the tracks of other ungulates and wildlife species. This exercise will teach the students to look for evidence of wildlife. Even though we may not see animals frequently, if we look closely we are sure to see signs they have left behind such as droppings, nests, feathers, fur, and, of course, tracks. Investigating animal tracks helps us learn more about the wildlife in our area and is really easy.

Choosing a location: It is best to find a spot on level ground where the soil is fairly soft and textured, possibly on the way to a water or food source. You may also find some wildlife trails in your area. Smooth over the area and come back later to see who has passed through your site.

Activity:

1. Go for a walk outdoors where the ground is soft but not soggy – along the bank of a stream or along a dirt path after a rainfall. Look for animal footprints.
2. When you find a good clear footprint, carefully brush loose dirt, pebbles or grass away.
3. Tape a ring of cardboard to fit around the print. Push the ring of cardboard into the soil around the print.
4. Add plaster of Paris to the water, a little at a time, until the mixture looks like soft ice cream.
5. Pour the mixture over the footprint, to a depth of 2 or 3 cm (1 inch). Let it harden, about 20 minutes.
6. When the footprint mold is hard, lift it carefully and clean off loose dirt.
7. Now you have a negative (raised) mold of the print you found.
8. To make a positive print (sunk in like a footprint), cover the negative print with petroleum jelly.
9. Make another ring of cardboard. It should be wide enough to stick up 3 cm (1inch) above the negative print.
10. Pour plaster of Paris mixture over the negative print and let it set.
11. When the plaster of Paris has hardened, take the two molds apart. The second mold should be shaped just like the one you found on your walk.
12. Use an Animal track guidebook to help you identify the animal the track belongs to.

TRACKS AROUND THE CLASS

Materials

- Life-sized track sheets included in the Appendix
- blank paper
- pencils to trace
- rainbow markers to trace and shade in tracks.

This activity can be used early in the year to help decorate the classroom. Have students trace, colour, and cut out tracks of caribou, moose, wolf, and cougar. These can either be simply labeled and spread along the wall/ceiling/floor of the classroom for decoration, or can be used to spell the class name, school name, etc. Make them colourful and fun!

By making their own track sets, students will be more likely to recognize them if they do encounter them on family hikes or adventures in the forest, and will have a year-long reminder of these wildlife species that share our backcountry.



Summary

Through this game of Jeopardy students will explore the different values of a forest ecosystem.

Objectives:

- Students will understand that a forest can have different values for different people
- Students will reflect upon what the forest means to them
- Learn ways in which the forests are valued

Materials:

- Chalkboard/ White board
- Timer/watch
- Buzzers or noisemakers
- Questions

Duration: 45 minutes

Background:

The forest can mean different things for different people and can be valued in a number of ways. Far too often in our society we do not consider others' values. When it comes to managing our forests, we have to consider a wide range of these values and try to please all of those in our community. We often place a dollar value on forests for the economic output, but forget to put a dollar value on everything else it provides us with. Below is a list of some examples of ways we may value the forest:

Ecological Values:

- Wildlife habitat
- Oxygen producers
- Water purifier
- Air purifier
- Maintain soil and water quality through erosion prevention
- Regulate the climate and integral part of the hydrological cycle.

Economic Values:

- Forest products
- Direct and indirect jobs
- Provides a method of heating our homes

Recreational Values

- Hiking, camping, fishing, bird and wildlife watching, hunting, photography

Cultural Values

- Form part of the communities identity
- For First Nations forests can represent a special place in the history of their culture

Spiritual Values

- Provide a special place for people to visit and reconnect with the natural world

Social Values

- Forests can affect our lifestyle and quality of life

Procedure:

1. Discuss the word 'value' with your students. What does it mean to them? What kind of values do people have? Categorize these values using the heading ecological, economic, recreational, cultural, spiritual and social.
2. Set the students up for a game of Jeopardy. Two students will facilitate the game. One person to read the questions and accept the answers and the other to act as a judge (decides who uses their noisemaker first) and a scorekeeper. The rest of the class is divided into 3 groups. Each group should select a team name.
3. Introduce the game and the rules. Students will be asked questions about the values of the inland temperate rainforest under the following categories: ecological, economic, recreational, cultural, spiritual and social.

Game Rules:

- Do not use noise makers until the questions is read all the way through
- Noisemaker should be placed in the middle of each team. Team members should consult one another before attempting to answer the question.
- Choose one "double jeopardy" question. The team can wager up to twice the amount on the question. If they answer correctly, they gain that number of points; if it is wrong, they lose the points.



4. Begin the game by introducing the teams and revealing the categories of questions. Decide which team will go first and have the first team pick category and the value of the question (100-400 points). The first team to make noise after the question is read can answer the question. If the answer is correct, award the team with points. If they are incorrect, the other teams can make noise and answer the question.
5. When all of the questions are revealed or when the time runs out, game ends with “final jeopardy”. Teams can double their total score or bid up to 100 points if they have zero points. Choose a final question and reveal the category. Allow 30 seconds for the team to write down their bids. Read the question and give teams 60 seconds to write down their answers. Take the answers one by one and reveal the correct answer. Calculate the scores.
6. Discuss the various values associated with the forest. If time permits have students write a paragraph about how they value the forest and a paragraph about how others may value the forest.

Adapted from Forest in Focus

Ecological Value 100

Q: The inland temperate rainforest is home to _____ tree species than any other ecological zone in BC.

- a) more
- b) less

A: What is more

Ecological Value 200

Q: Through this process, plants such as trees produce food, release oxygen and absorb carbon dioxide.

A: What is photosynthesis

Ecological Value 300

Q: In BC, the inland temperate rainforest is home to some of the best habitat for these two large mammals

A: What is Grizzly and Black Bear

Ecological Value 400

Q: Some of the trees found in this ecosystem are:

- a) over 100 years old
- b) over 200 years old
- c) over 1500 years old

A: What is over 1500 years old

Economic Value 100

Q: Name the biggest economic activity in the inland rainforest

A: Forestry

Economic Value 200

Q: The average number of trees saved for every tonne of recycled paper used in:

- a) one
- b) seven
- c) seventeen

A: What is seventeen

INLAND RAINFOREST JEOPARDY QUESTIONS

(CONTINUED)

Economic Value 300

Q: Each year people from around the world bring money to communities in British Columbia when they visit our parks and protected areas. What is this industry called?

A: What is tourism.

Economic Value 400

Q: When forest companies do not log in endangered species' habitat their forest products can be sold with a special certification. This certification is called_____.

A: What is FSC certified

Recreational Value 100

Q: What are two examples of outdoor recreational opportunities in the inland temperate rainforest?

A: What is: Camping, hiking, bird watching, hunting, photography, mountain biking, wildlife watching, etc.

Recreational Value 200

Q: Name one park or protected area in the inland temperate rainforest

A: What is Mount Revelstoke National Park or Glacier National Park, St. Mary's Alpine Park, Purcell Wilderness Conservancy, Bugaboo Provincial Park

Recreational Value 300

Q: During the winter months this recreational activity causes stress to one of BC's most endangered species, the mountain caribou.

A: What is snowmobiling

Recreational Value 400

Q: To help reduce stress on caribou in the winter months, wildlife biologists suggest participating in _____ recreational activities while visiting Mountain Caribou habitat.

A: What is non-motorized

Cultural Value 100:

Q: First Nations used the skin of elk and/or bison to create these traditional homes.

A: What is a Tipi

Cultural Value 200:

Q: Historically, this group of first nations people occupied the valley bottoms adjacent to the inland temperate rainforest.

A: What is Kootenai or Ktunaxa

Cultural Value 300

Q: Archeological evidence suggests humans have been living in this area for

- a) 5,000 years
- b) 10,000 years
- c) 50,000 years

A: What is 10,000 years

Cultural Value 400

Q: This branch of botanical study is concerned with how first nation peoples used plants for agricultural, medicinal and religious uses.

A: What is Ethnobotany

Spiritual Value 100

Q: First Nations called this tree the 'giver of life'.

A: What is the western red cedar.

Spiritual Value 200

Q: In some cultures, sleeping under this tree can give one vivid dreams.

A: What is the western red cedar.

Spiritual Value 300

Q: This plant is avoided by hikers in the forest today because of its large spines or thorns but Aboriginal people think of it as a source of good luck.

A: What is Devil's Club

Spiritual Value 400

Q: What is the name of the forest in BC's interior that has "musical" value to the people that live there?

A: What is The singing forest.

INLAND RAINFOREST JEOPARDY QUESTIONS

(CONTINUED)

Social Value 100

Q: Name two groups with different opinions about the importance of Mountain Caribou Habitat.

A: What is a forestry company and an environmental company (answers may vary)

Social Value 200

Q: Instead of relying on forestry, communities in the Kootenays can rely on more sustainable industries such as _____.

A: What is tourism.

Social Value 300

Q: What is the Ecological Footprint of the average world citizen?

- a) Less than Canadians?
- b) More than Canadians?
- c) About the same as Canadians?

A: What is Less than Canadians

Social Value 400

Q: While developing the Mountain Caribou Recovery Strategy in BC, how many people sent in messages to the government expressing their concern for Mountain Caribou and their habitat?

- a) less than 5,000 letters
- b) less than 10,000 letters
- c) More than 10,000 letters

A: What is more than 10,000 letters (over 12,000 messages were sent)

MOUNTAIN CARIBOU OBSTACLE COURSE >>

Summary

This is an active, running game designed to instill teamwork, and to help students understand some threats to mountain caribou.

Objectives

This activity is designed to give students a feeling for the meaning of habitat fragmentation and displacement.

Materials

- Milk Crates (1 per 2 students)
- School bench or log
- Two short ropes and one long rope (optional)
- Pylons or markers for a running course

Duration: 45 minutes to 1 hour

Set-up

In school field set up a triangular running course with the pylons (longer for older students, shorter for younger grades). Each of the three stations will be at one of the points of the triangle.

Station #1: Habitat Tangle (based on the activity known as “Spider web”). Tie two shorter ropes between goal posts or two trees, or playground posts – one at the students’ average knee height, and one just above their heads. Between these, make a spider-web with the longer rope – leaving enough holes for the number of team members.

Station #2: Balancing Act. Place enough milk crates out to balance pairs or triplets of students on (i.e. teams of 12 would need 4-6 crates to start)

Station #3: Silent Rearrange. Place a school bench upside down or situate the course to make use of a bench, log, or other object the students can balance on (long enough for the entire team.)

Procedure

- 1) Divide class into two or three teams of 8-12 students.
- 2) Explain the course to the students.

Habitat Tangle: The goal is for the entire team to get through without touching the ropes. For every rope touched a 2 second penalty is given to the entire herd. This symbolize smaller and smaller patches of good old-growth habitat for caribou, with dangerous habitat or habitat with no food creeping in all around what little is left of caribou habitat. If a “caribou” touches the rope, in the wild it might have starved or been eaten by a predator.

Balancing Act: First – explain that the crates are pockets of really good, old-growth habitat – we’re talking 700-1000 year-old cedars and hemlocks here. The ground is younger forest – created by logging, and is full of deer, elk, and moose, as well as cougars and wolves! Or the habitat can be invaded by snowmobiles, which have found a new way to access a new valley, and the caribou no longer feel secure in that habitat.

Get students to pair up and balance on the crates. Ask them to return to the ground, and remove first one crate, then a second, etc. Most classes can balance 6 to 10 students on a milk crate, so for teams of 12, two milk crates should be a tough enough challenge. For teams of 8 or 9 – try just one!

Explain that shrinking habitat is the reason that caribou (and most other endangered species) are in decline, and that, just as with the teams and the milk crates – the fewer the patches of good habitat, the harder it is for endangered species to survive.

SAFETY NOTE: Teacher and parent helpers should spot the teams during this activity. Ensure that the crates are on flat, level ground, in a grassy field (not on concrete or other hard surface).

Silent Rearrange: Teams next run to the final station, where they are instructed to balance themselves on the bench/log. This is a silent activity. Have the students arrange themselves according to the following orders (feel free to give different orders to each team, as the following teams may have prearranged themselves thinking that they are going to have the same challenge as the first team):

- Birthdays
- Middle name alphabetically
- Mother’s first name
- Shoe size
- Height
- Number of siblings

3) Set the teams off to complete the course. Have students help time each team as this is a timed activity – when one team is participating the other team should cheer and offer encouragement. It is possible with larger groups to have one team start when the previous team is through two stations. The teams are herds of caribou trying to survive in their forest ecosystems. They must pass a series of challenges in order to successfully survive the season to live into the next year.

4) Debrief the game. Explain to teams that this activity represents the challenges faced by sensitive wildlife, which are not able to predict what pressures humans will put on them, and may have difficulty adapting to them.

Objectives (*Adapted from Wildsight’s Classroom With Outdoors Program*)

Students will practice the art of moving carefully and slowly towards a goal, and understand the problems caribou encounter when they are forced to move through uncertain habitats where they may encounter predators.

Materials

- Ball of “lichen” (something to symbolize this), and a blindfold

Duration: 20 to 30 minutes depending on interest of class

Background

Mountain caribou are falling prey to cougars and wolves as they are forced to move through habitats where they are more likely to encounter predators (younger forests). Caribou still have to move however, and this activity will highlight the challenges of gathering food with increased threats of predation.

Procedure

- 1) Have the students, or Prey, sit in a large circle (20 paces or so from the predator) and choose a Predator. The Predator (wolf or cougar) sits in the centre with a blindfold or eyes closed. At its feet is an object that represents a large patch of lichen – the favourite food for the mountain caribou!
- 2) The students forming the circle are caribou who have to move through an area in order to get to another patch of prime old-growth to find the lichen they need to survive. The Predator has moved into their habitat due to the creation of a series of new roads and clearcuts, and is guarding their movement route. The Predator has fallen asleep waiting for caribou to try to move towards it.
- 3) At a signal the prey in the circle move in (select one or two students at a time), quietly and **slowly** to try and steal the lichen. At a signal from the teacher or interpreter one single ‘caribou’ moves in, quietly and slowly to steal the lichen. If the Predator hears the Prey, they point in the Prey’s direction. The Predator has only three chances to point to the sneaking Prey - after three tries the approaching caribou becomes the Predator. If the Predator points at the sneaking caribou, the Prey freezes and returns to the outer circle - they have been eaten! A referee is helpful here to keep it fair. The interpreter keeps indicating new caribou until one finally reaches the lichen. There is no running or diving for the treasured lichen. The prey that gets the lichen wins, and is the cougar/wolf for the next game.

Debrief: What made it more difficult to identify some of the players? (type of footwear, type of ground cover, patience, clothing that doesn’t stick to plants, being smaller). What did they learn? What are other examples of animal adaptations to the ecosystem?

Objectives

Students will learn about the importance of adaptations in order to survive. This game is a predator- prey scenario, basically an adapted version of hide and seek.

Materials

A vegetated area where students can safely hide. (Possibly the back of the school yard.)

Duration: 10-30 minutes depending on keen-ness of class!

Background

Mountain caribou require large tracts of old-growth forest for cover, food, and shelter. With too many clearcuts, caribou lose their cover (as well as their food source). Students will explore the need for cover and how critical it is for prey species such as caribou.

Procedure

- 1) Blindfolded or with their eyes closed one student who is the predator (a wolf or a cougar) counts to 15 while others (the caribou) hide. The students hiding **MUST** be able to see the predator at all times.
- 2) After counting the predator stands up and looks for caribou. Without moving they must identify out loud where the other students are. When a student has been identified by the predator, they come to the predator because they have been eaten. Have the predator hunt until he/she can no longer find the remaining prey.
- 3) Now all the predators close their eyes and count to 15 while the remaining caribou move closer. All the predators open their eyes and name who they see.
- 4) Repeat until only one or two are left. Have them stand up and identify themselves. These remaining caribou can become the next cougars/wolves. Play 2-3 more times.

Debrief: It will be those who have sufficient cover that survive. Mountain caribou require large tracts of old-growth to find the cover they need to escape predators. To reinforce this concept, try playing one round (the first or the last) in an open area (symbolizing a clearcut).

Adapted from Wildsight's Classroom With Outdoors Program

1. Ask the students to describe the components of habitat. Habitat is the place where an animal or plant lives and includes food, water, shelter and space. For an animal or plant to live in an area the environment must meet their daily requirements. Discuss the habitat requirements of caribou e.g. require old-growth forests to survive. Caribou depend on different habitats in different seasons, but all are made up of old-growth forests.
2. Discuss the term habitat fragmentation and loss. Fragmentation is the breaking up or destruction of a habitat's components e.g. loss of food, forests cut down, large increase in motorized recreation use, flooded by a hydroelectric project, etc. Fragmentation occurs when it becomes difficult for species to cross from one section of an originally intact habitat to another or for that species to survive on a habitat that no longer provides the necessary food, water, shelter or space.
3. Tell the students they are going to participate in an activity that examines how fragmentation of habitat affects caribou. Begin by marking out a playing area with pylons. Talk about the habitat requirements of caribou. Spread evenly throughout the area brightly coloured food tokens and place shelter tokens in a few concentrated areas identified by hoops.
4. Split the students into four herds: North, South, East, West and have them stand along their prospective boundaries. They may only enter and exit the playing area from the direction of their herd. On your signal have them run in to gather a food (lichen) token and shelter token. Everyone should survive.
5. Now introduce what habitat fragmentation does. Have students give back food and water tokens.
6. Now explain the problem with clearcuts, hydroelectric dam development, and motorized recreation reducing range quality of intact forest. Clearcuts have removed some food and some shelter. Take out a few food and shelter tokens and play again. Some caribou will now be eliminated.
7. A new helicopter ski area has been created in an area that caribou formerly relied on for shelter. Take away one of the shelter areas and play again. More caribou are eliminated.
8. The town of Nowheresville is growing as people are moving to the area to purchase recreational property and go snowmobiling in the mountains of the area. As snowmobilers move into an area they eliminate shelter and space for an entire herd, as the herd no longer feels safe using the area. Eliminate 3-4 caribou from one herd. Some of the others could potentially assimilate into other herds.

9. Now build a dam and flood 144 km of old-growth river valley. Take out all food tokens leaving water behind. This happened when Kinbasket Reservoir North of Golden was created in 1972. Over 230 kilometers of old-growth forest was flooded out. Caribou did move to other ranges but some prime habitat was lost forever.

Debrief: After each round, if the caribou are unable to get both food and water they die and their energy is recycled into the ecosystem. To end the activity, ask the students what could be done to decrease habitat loss or fragmentation. For example, no more logging in old-growth, restore old-growth forest, land use planning avoiding critical wildlife areas, snowmobile outside caribou areas, etc. Play again and add components with successful restoration efforts.

Adapted from Wildlife Trees of British Columbia

COUGAR (OR WOLF) HANGMAN >>

Summary

This is a good “back-pocket” activity to help fill in a class-end or pre-recess opening. It can also be used as an integral part of any lesson relating to caribou. This activity helps anchor some of the concepts and vocabulary of any lesson.

Objectives

Interactive activity geared to involve the entire class, and to help anchor the vocabulary and concepts of the lesson.

Materials

- Chalk board or large drawing board
- Chalk or felt pen.

Duration: 5 to 20 minutes

Procedure

- 1) This activity can be done in almost any setting with a large drawing/writing surface. It is a good follow-up to a caribou lesson or activity. The student who is “it” thinks up a caribou-related word.
- 2) Have student draw enough spaces on the board to match the proper number of letters.
- 3) Students put their hands up to guess letters, adding a piece of the cougar/wolf for every wrong guess. If an entire cougar/wolf is drawn that student gets to go again otherwise whoever guesses the correct answer gets the chance to think of the next word. (*Cougar/wolf parts: head, body, tail, four legs*)

Summary

This high energy, active game can be played either indoor or outdoor and is based on “Fire! Flood! Famine!”

Materials

- School field or gym
- Pylons or something to mark the centre line and two “safe zones”

Duration: 15-20 minutes

Procedure:

- 1) Prep the course if playing outdoors. You will need to set up a center line along which the students can line up, and two “safe zones” on either side of the center line (approximately 10 meters on either side of the center line – farther if you have a high-energy class).
- 2) Have the entire class line up in a straight line in front of the teacher. Explain that in an old-growth forest, the ancient trees, diverse shrubs and other plants make up an ecosystem where it is often hard to locate other animals, and is easy to be surprised. For that reason, caribou are always very surprised to bump into anything else. This is one reason why caribou are displaced (move away from, or avoid) areas heavily used by snowmobiles – they are uncomfortable with the noise and the surprise of the fast-moving machines. They are always vigilant, even when feeding or resting, and students (caribou) need to line up, facing the teacher, and be ready for anything.
- 3) Explain the rules to the students:
 - When the teacher yells “WOLF” students all run to the right safe zone.
 - “COUGAR” sends all caribou scrambling for the safe zone to the left.
 - “CARIBOU” means that the intruder is just another herd member, and the herd can relax, and sit on the floor.
 - The last student to make safety (or sit) is out.
 - After each “scare” the caribou herd all return to the ready position on the centerline. Repeat random calling of “Cougar! Caribou! Wolf!” until a winner emerges. Students often want to play this one several times.



Take action!

What can you do for Caribou?

1. Help protect our forests!
2. Recycle- a simple thing that EVERYONE can do!
3. Buy paper items made out of recycled paper.
4. Buy FSC Certified products (paper/wood for building)
5. Share your new knowledge with your friends and family

Forest Stewardship Council Certification.

Tembec's Cranbrook operations recently became the first Forest Stewardship Council Certified forestry operations in Canada. The certification process involved several years of meetings with conservation groups, first nations, and other stakeholders to identify Endangered Forests (EF) and High Conservation Value Forests (HCVF's) within their tenure. This process helps protect caribou habitat, as the company loses its certification if it logs endangered species habitat.

That market pressure exists to log sustainably was demonstrated in December 2006 when woman's wear giant Victoria's Secret announced it was canceling a \$100 million dollar paper-product contract with West Fraser Timber – who have the largest planned harvest of endangered mountain caribou habitat of any company. Victoria's Secret also announced that it planned to source paper for its catalogs from FSC-certified companies preferentially.

TAKE ACTION!

1. **Write letters to local politicians**
– Governments listen to their people. Let the Government know how you feel about Mountain Caribou. If you would like to see their habitat protected, tell them. Tell them in a letter or on a postcard, show it on a poster. Be creative. The Government will be pleased to have its youth involved.
2. **Poster your town** – Have a poster contest at your school and place the posters around town in local coffee shops, community centres, on bulletin boards. Spark an interest in your community.
3. **Donate to Mountain Caribou Conservation** – Have a penny drive, bake sale, bottle drive or clothing swap to help raise funds for Caribou Conservation.
4. **Adopt a Caribou** – Support field research which will help us better understand caribou, their habitat and their threats.
5. **Recreation** – If you are heading out in the backcountry to ski, snowmobile or hike, find out where caribou live and give them their space. Contact local snowmobile clubs in the areas you ride, and they will inform you of any voluntary or legislated closures for caribou so you can avoid these areas.
6. **Send in your caribou sightings!**
They will be compiled and passed on to field researchers.
www.cbfishwildlife.org/surveys/caribou_form.php



APPENDIX

We would like to hear from you. In the appendix please find a teacher evaluation form and a pre/post survey for students. By sending these to us by mail we will be able to evaluate this resource and make updates. The student surveys will allow us to learn about what your students are learning about Mountain Caribou. We hope you enjoyed this resource as much as we enjoyed creating it.

Adopt-a-Caribou



Help Protect Canada's Mountain Caribou!

Mountain Caribou are an endangered species that is disappearing quickly from British Columbia. Support field research on Mountain Caribou which will lead to a better understanding of this species, its ecosystem and what we can do to protect them.

Adopt-a-Caribou Form



Teacher: _____

School: _____

Mailing Address: _____

Phone: _____

Email: _____

Donation (please check box): \$25 \$50 \$75 \$100 Other \$ _____

Please make cheques payable to Mountain Caribou Project
c/o Wildsight #2-495 Wallinger Avenue, Kimberly BC V1A 1Z6 www.mountaincaribou.org

PRE/POST STUDENT SURVEY: MOUNTAIN CARIBOU AND THE INLAND TEMPERATE RAINFOREST

Name: _____ Date: _____

Part 1.

Please draw Caribou habitat. (Where do you think Caribou live?)



Part 2.

Please answer the questions as best you can. Please remember this is not a test.

1. What is an animals' habitat? (Hint: Includes 4 things an animal needs to survive)

1. _____ 2. _____

3. _____ 4. _____

2. What do Caribou eat? _____

3. What animals are predators to the caribou? _____

4. Do Caribou have any threats or dangers? If yes, what do you think they are?

5. Why is the Inland Temperate Rainforest special?

Part 3:

Please check the box that describes your feeling best. There are no right or wrong answers, only differences of opinion.

	Agree	Unsure	Disagree	N/A
1. I am in favour of putting aside special areas for wildlife, such as parks and preserves, even if that means fewer people can visit these areas.				
2. Plants and Animals do not help humans, so we should not put time and energy into helping them.				
3. The government should pass laws that help the environment, such as making recycling mandatory.				
4. Other than hunting, humans do not cause harms to animals.				

Part 4.

Are you willing to help the environment and animals? What things do you do for the environment already? What things will you start to do? Please check the answer that is the right answer for you. Once again there are no right or wrong answers, but please be truthful.

	Always	Will start	Never	N/A
I bring my lunch/ snacks to school in reusable containers				
I walk or bike to places instead of asking for a ride				
I buy paper items made out of recycled materials				
At home, I try to recycle as much as I can				
I talk to others about wildlife and the environment				
I write to politicians about things that are a concern to me				
I read about wildlife and the environment for fun				
I work on outdoor projects to improve the environment				
I encourage my parents & friends to learn about the environment too!				

We believe every little bit counts, and all of the above activities will make the world a better, healthier place for you and Caribou!

EVALUATION FORM FOR TEACHERS

School/Group: _____

Teacher: _____ Age Group: _____

Please take a moment to answer the following questions regarding the education package provided by NWPS. Your input is a valuable part of our development process and allows us to keep up to date with the needs of educators like you!

Booklet Content:

Did the booklet...

Provide activities that complement your curriculum? Yes No

Provide interesting information about the biology and ecology of the species? Yes No

Discuss Stewardship (ideas and solutions)? Yes No

Provide information that was balanced, fair and educational? Yes No

Engage your students by providing interesting information? Yes No

Encourage your students to think critically? Yes No

Was the level of language used appropriate for the age group? Yes No

Were you able to use the activities in your class? Yes No

Booklet Structure:

Please check all that apply...

Teacher Backgrounder should be: Shorter Same Longer

Activities provided should be: Shorter Same Longer

Comments regarding the Content and/or Structure:

Please include any additional comments or suggestions below.

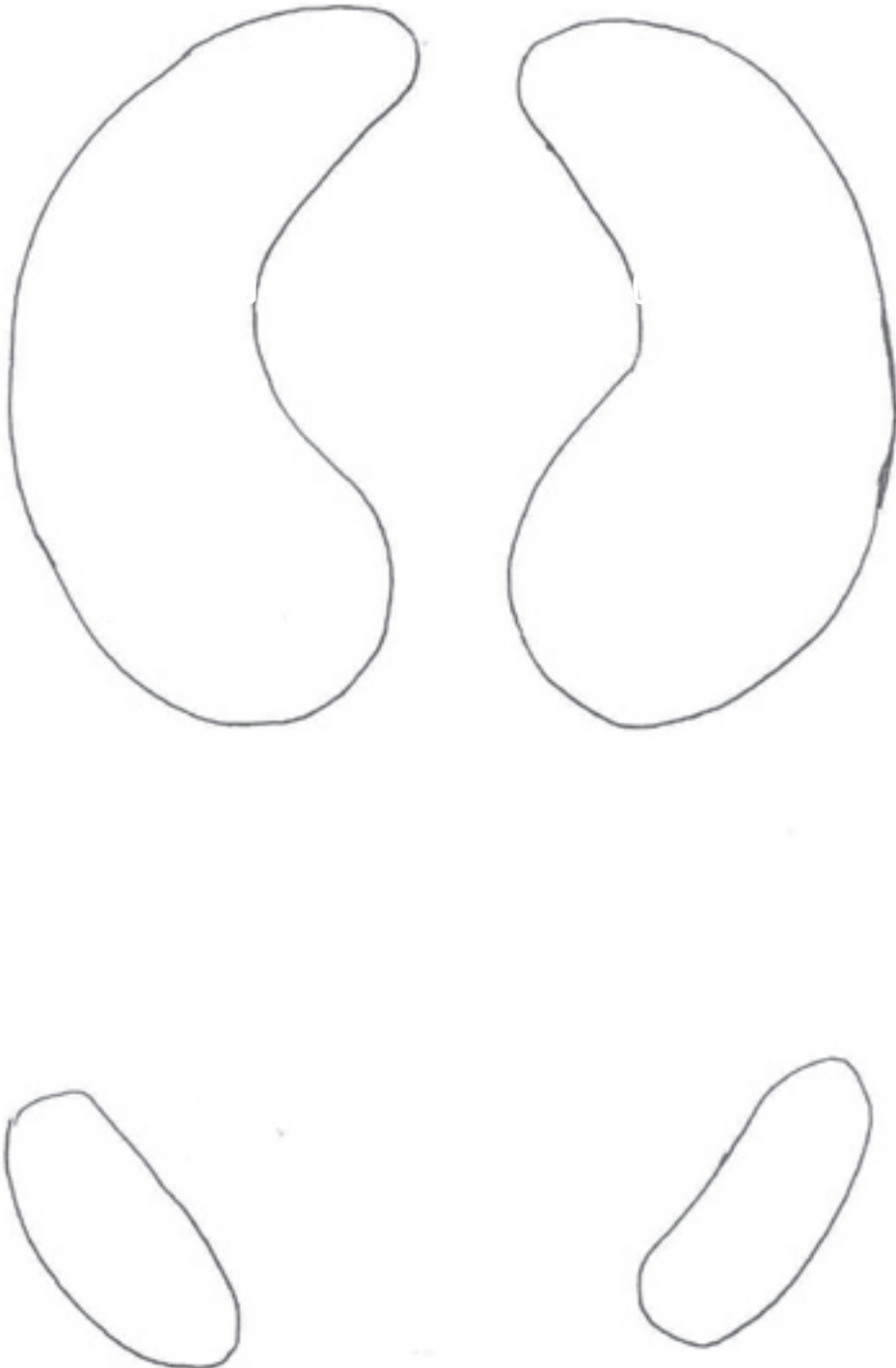
Would you be interested in receiving information about future NWPS programs? Yes No

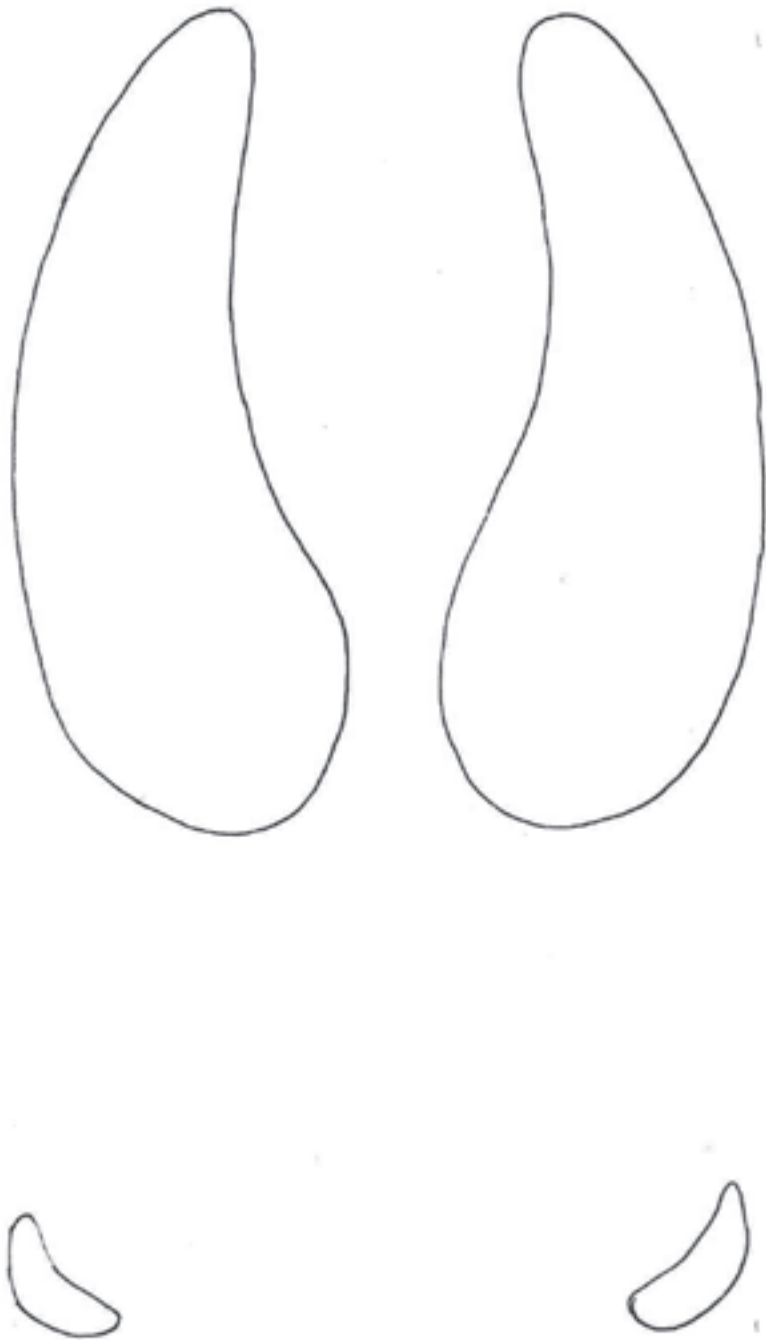
Please Return To:

NWPS Education Team
605 – 1112 West Pender Street
Vancouver, BC V6E 2S1
Tel: 604 713 6686
Fax: 604 713 6696

COLOURING SHEET: CARIBOU

COLOURING SHEET: COUGAR







Save Our Mountain Caribou!



By raising awareness about Mountain Caribou and other threatened and endangered species in B.C., we hope wildlife and wildlife habitats are better protected.

MOUNTAIN CARIBOU INFORMATION:

Please visit the following websites:

mountaincaribou.ca
kidsforcaribou.org
wildernesscommittee.org
forestethics.org
cmiae.org
imctc.com
defenders.org/wildlife/caribou

PHOTO CREDITS:

Patrice Halley	Tim McAllister
Wayne Sawchuk	Keiran Hickey
Art Twomey	Michel Medig
Elizabeth Maysfield	Shannon Hunt
Roland Usher	Trevor Kinley
Dave Quinn	

FOR FURTHER INFORMATION:

Northwest Wildlife Preservation Society

605-1112 West Pender Street
Vancouver, BC V6E 2S1

Tel: 604 713 6668

Email: info@northwestwildlife.com

Web: northwestwildlife.com

Wildsight

#2- 495 Wallinger Avenue
Kimberley, BC V1A 1Z6

Tel: 250 427 9325

Email: office@wildsight.ca

Web: wildsight.ca

Mountain Caribou Project

523 Cedar Street
Nelson, BC V1L 2C2

Email: info@mountaincaribou.ca

Web: mountaincaribou.org

HAPPILY EVER AFTER?



**WHICH STORY
WILL BC TELL?**

ONCE UPON A TIME?



MOUNTAINCARIBOU.CA