

## **Caribou & the Kaska Dena 11**

**School Name:**

**Developed by:** Norman Barichello – Technical advisor for Ross River Dena Council, and Director, Dena Kayeh Institute (registered charitable institution – Kaska Knowledge Institution)

**Date Developed:** 22 January 2012

**Principal's Name:**

**Department Authorized Approval Date:** June 2012

**Department Authorized Signature:**

**Course Name:** Caribou & the Kaska Dena 11

**Grade Level of Course:** Grade 11

**Number of Course Credits:** 4

**Number of Hours of Instruction:** Based on 6 hours of instruction/day x 18 days = 108 hours.

**Prerequisite(s):** Grade 10 Science

**Special Training, Facilities or Equipment Required:**

This program will be taught in the field and the indoor classrooms at Dechenla Lodge using available equipment and facilities (classroom, library, power point & DVD projector, etc.). One of the instructors will have Wilderness First Aid qualifications. The program will have liability coverage. All the Department of Education protocols regarding risk assessment and safety will apply during the course.

**Course Synopsis:**

Overall goal of this course is to provide students with the opportunity to learn about caribou and their Dena culture. The students will learn about caribou ecology through a blend of ancestral knowledge and science, and will learn about the significance of caribou to their culture. They will also be exposed to the practical management applications of this knowledge, and will acquire skills to participate in caribou studies and monitoring. Field observations within the Faro mine footprint will be juxtaposed with studies in the Selwyn Mountains to underline the importance of ecological knowledge in land management. This is an experiential course that will include theory (presentations) and practice (field studies), offered to students of ages 15-19, and taught by Dena elders, and scientists. It will involve a day at the Faro Abandoned Mine Site, with the balance of the program offered at Dechen la’ Lodge along the NWT-Yukon border. Travel days will include learning.

**Rationale:**

The Ross River Dena face many challenges. High school dropout rates are high and few students pursue post-secondary school. At the same time there are relatively few youth with the necessary technical skills to participate in resource planning and management. These capacity limitations stem from a number of problems; (a) post grade 10 education is not offered locally, (b) many Dena youth do not have a strong sense of cultural identity because of many years of assimilation (residential school, etc.) – this likely undermines their confidence and self-esteem, and (c) typical classroom environments may not be the best venue to learn about ecology.

This course offers an opportunity for all Yukon students, but especially First Nations students to gain knowledge through experiential learning, to explore their cultural past, and to acquire some essential technical skills to participate in resource management (environmental assessment and monitoring, and heritage assessments), with the focus on caribou. It is hoped that this approach to learning will motivate the students to continue to learn through post-secondary institutions.

**Organizational Structure:** *(units, topics, modules)*

Unit/Topic	Title	Time
Unit 1	Caribou Ecology	48 hours
Unit 2	Caribou and the Dena Culture	48 hours
Unit 3	Caribou Management	12 hours
	Total Hours	108 hours

## **UNIT 1: The Ecology of Caribou**

### **Overview**

Unit 1 of the course will focus on the relationship between caribou and their natural surroundings: how they are adapted to their environment, their diet and habitat needs, their reproductive cycle, how they avoid predators, and their annual migration habits. This unit will emphasize sensitive attributes of caribou ecology that predispose them to impacts associated with human activities.

### **Curriculum organizers (unit 1)**

- A. Caribou adaptations to the north - Taxonomy, Morphology and Physiology
- B. The ecology of caribou – their relationship to other animals and their physical environment
- C. Caribou reproduction and population dynamics
- D. The annual cycle of caribou and the importance of migration

#### **A. Caribou adaptations to the north – taxonomy, morphology and physiology**

*It is expected that the students will:*

- Identify the types of caribou living in Canada, their Kaska name, as well as their latin names, and their conservation status in Canada and the Yukon;
- Describe the relationship between caribou body form (morphology) and their ecology;
- Describe the relationship between body function (physiology) and their ecology;
- Examine the anatomy of a caribou (at a kill site), and describe its body form and functions;
- Examine (in the field) and illustrate the body form of caribou, moose and dall sheep, and describe differences, and how these differences relate to their ecologies.

#### **B. The ecology of caribou – their relationship to other animals and their physical environment**

*It is expected that the students will:*

- Define ecology and environment;
- Know what constitutes the diet of caribou, during different seasons;
- Examine a caribou mineral lick and know the importance of minerals to caribou and other northern ungulates, as well as the importance to Dena hunters;
- Measure caribou group size (number/group) and composition of the group (sex and age composition), and explain the advantages and disadvantages of living in a group;
- Know what predators prey on caribou, and when the risks of predation are the highest, and how predation influences caribou habitat choice;
- Define range, habitat, and “key habitat”;

- Examine caribou habitat in the field (describe habitats where caribou are observed), and explain what attributes of the habitat make it preferred by caribou;
- Know what insects affect caribou, and how insects influence habitat choice;
- Know how snow influences caribou habitat use and their distribution.

**C. Caribou reproduction & population dynamics**

*It is expected that the students will:*

- Describe the reproductive cycle of caribou;
- Describe the features of caribou calving areas;
- Identify caribou by sex and age;
- Take part in an analysis (modelling) of caribou population dynamics.

**D. The annual cycle of caribou and the importance of migration**

*It is expected that the students will:*

- Describe caribou seasonal movement patterns;
- Know what factors (natural and human-caused) influence caribou seasonal movements.

**Instructional Components (unit 1)**

1. Slide show [overview of northern fauna, with particular attention to different types of caribou in Canada, and comparisons with other ungulates].
2. Slide show [Caribou ecology – food, predators, reproduction].
3. Experiential learning in the field [observing caribou and discussing form and function, mapping caribou locations using Global Position System, recording caribou group size and sex/age composition, examine caribou food habits and habitat use].
4. Field trip to a caribou kill site [experiential learning of caribou morphology and physiology, and discussion of what body parts are collected for biological measurements].
5. Field trip to caribou/moose mineral lick [discuss importance of the lick, to caribou and the Dena, and observe current use of the lick].
6. Cooperative learning through student project [illustrate caribou, moose and sheep; indicate distinguishing features and compare & contrast, and discuss with teachers & students].
7. Cooperative learning through round table discussion and mapping of caribou seasonal range use patterns and timing of movements.
8. Cooperative learning through modeling (visual analysis) of caribou population dynamics.

9. Audio-Visual Presentations (DVD productions): (a) Caribou and the Kaska Volume I, (b) Caribou and the Kaska Volume II, and (c) Caribou, Contaminants and Climate Change.

### **Learning Resources (for Units 1, 2 and 3)**

1. Elders in residence
2. Scientists in residence
3. Anthropologist in residence
4. Guest speakers (Traditional Knowledge mapping expert, Dena carver, ice-patch specialist?)
5. GPS instruments
6. Library – comprehensive library with identification pamphlets, taxonomy books, general ecology texts, anthropology publications, heritage assessment guidebook, Ross River Dena traditional knowledge manuscripts (land use, recommendations for protection of Dena interests, Mountain caribou key habitats, resource atlas, Ethnobotany, Kaska Traditional Knowledge Manual, Dena sacred laws), documents about the Faro mine impacts & remediation efforts
7. Traditional Knowledge maps and electronic databases
8. Films – (a) Kaska and Caribou volumes I and II; (b) Caribou, Contaminants and Climate Change; (c) Canol – a Dena perspective; (d) Tu Tla (Ross River Dena land use in the Naatchicho region); (e) The Human Planet.

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## **UNIT 2: Caribou & Dena Culture**

### **Overview**

The goal of Unit 2 is to examine the special importance of caribou to Dena Culture. The course will include the study of Dena history, worldview and spirituality as it relates to caribou, the importance of caribou in the Dena annual round, traditional caribou hunting strategies and technologies, ways of processing caribou for food and tools, and the importance of caribou in art, stories and ceremony.

### **Curriculum organizers (Unit 2)**

- A. Importance of caribou to the Dena – historic and spiritual connection.
- B. Hunting Caribou

- C. Food, clothing & tools
- D. Caribou in stories, art, ritual and ceremony

### **Learning Outcomes (Unit 2)**

#### **A. The importance of caribou to the Dena – historic and spiritual connection.**

*It is expected that the students will:*

- Describe the long history of co-habitation between the Dena and Caribou;
- Know the Dena worldview and its primary tenets – respect, interconnection, harmony and sharing – as it relates to caribou;
- List some traditional laws (*Ai'i*) that apply to the hunting and use of caribou;
- Describe the Dena Seasonal Round and importance of caribou in the seasonal round.

#### **B. Hunting Caribou**

*It is expected that the students will:*

- Construct (miniature-scale) and compare different traditional ways of hunting caribou (fences, blinds, ambush, lakes, pursuit);
- Illustrate different tools (and their unique characteristics) used to hunt caribou - spears, bows, arrows, and snares;
- Know when Dena hunters pursued caribou, what sexes or ages they targeted at different times of the year and why, and what traits they used to distinguish different types of caribou (age, sex, fat).

#### **C. Food, clothing and tools**

*It is expected that the students will:*

- Describe the field dressing (butchering) of caribou, and know why certain butchering practices are used;
- Know how to prepare dry meat, and describe other meat preservation methods;
- Know how to prepare a traditional caribou meal;
- List the tools and clothing made from caribou parts, and describe how these products were made (such as fleshing tools, arrow points, salmon gaffs, babiche, thread, beaver hunting rattles, storage containers, sleeping mats).

#### **D. Caribou in stories, art, ritual and ceremony**

*It is expected that the students will:*

- Describe how caribou were used in creations of art, and ceremonies and rituals (such as boys first hunt, and marriage);
- Create a piece of art using caribou bone, antler, hoof or hide;
- Recall the theme of a Kaska Legend and describe what messages were imbedded in the story.

### **Instructional component (Unit 2)**

- 1) Power point presentation of Dena culture & worldview;
- 2) Round table discussions & mapping workshop of the Dena seasonal round;

- 3) Story-telling (by elders) of Kaska legends and Sugya Dena;
- 4) Presentation / teacher instruction of traditional hunting;
- 5) Student projects – reconstruction of caribou traditional hunting methods;
- 6) Caribou hunting trip [locating, approaching, individual selection, safety];
- 7) Butchering & carcass examination [morphology and physiology, butchering practices, codes of hunting behaviour, and the utilization of body parts];
- 8) Making tools – [fleshing tools, babiche, thread, fish awls, etc.];
- 9) Preparing and storing food – [making dry meat];
- 10) Cooking class;
- 11) Art workshop [Dennis Shorty];
- 12) Films – [Caribou & Kaska; Caribou & climate change; Tu tla; Human Planet]

### **Learning Resources (for Units 1, 2 and 3)**

1. Elders in residence
  2. Scientists in residence
  3. Anthropologist in residence
  4. Guest speakers (Traditional Knowledge mapping expert, Dena carver, ice-patch specialist?)
  5. GPS instruments
  6. Library – comprehensive library with identification pamphlets, taxonomy books, general ecology texts, anthropology publications, heritage assessment guidebook, Ross River Dena traditional knowledge manuscripts (land use, recommendations for protection of Dena interests, Mountain caribou key habitats, resource atlas, Ethnobotany, Kaska Traditional Knowledge Manual, Dena sacred laws), documents about the Faro mine impacts & remediation efforts
  7. Traditional Knowledge maps and electronic databases
  8. Films – (a) Kaska and Caribou volumes I and II; (b) Caribou, Contaminants and Climate Change; (c) Canol – a Dena perspective; (d) Tu Tla (Ross River Dena land use in the Naatchicho region); (e) The Human Planet.
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## **UNIT 3: Caribou Management**

### **Overview**

In Unit 3 the students will learn how caribou are currently managed. The students will be expected to understand the value of both traditional Dena knowledge and science-based knowledge in management, and some of the methods and techniques used to acquire and interpret knowledge. They will also be introduced to the management process in the Yukon, and learn how information is used (hopefully) to achieve sustainable development. A trip to the Faro Abandoned Mine Site will demonstrate unsustainable development, and reinforce the need for knowledge and a willingness to protect the environment and Dena culture.

### **Curriculum Organizers (Unit 3)**

- A. Potential impacts to caribou from human activities and the need for management
- B. The Role of Traditional knowledge in caribou management
- C. The role of science in caribou management
- D. The management process

### **Learning Outcomes (Unit 3)**

#### **A. Potential impacts to caribou from human activities and the need for management**

*It is expected that the students will:*

- Define management;
- Identify factors that have the potential to impact caribou (with reference to caribou ecology);
- Describe how potential impacts effect caribou (disturbance, direct mortality, habitat loss or fragmentation);
- Observe and identify the long term impacts associated with the Faro mine.

#### **B. The role of traditional knowledge in caribou management**

*It is expected that the students will:*

- Generally define traditional knowledge;
- Describe the techniques for collecting Traditional Knowledge;
- Know the role of traditional land stewards (matrilineal areas) in caribou management;
- List the important contributions of traditional knowledge in caribou management;
- Describe how traditional laws can be applied in caribou management

#### **C. The role of science in caribou management**

*It is expected that the students will:*

- Define science (describe and predict based on probability – repeated observations);
- Describe some science-based techniques used to count caribou, evaluate movement patterns, determine their population dynamics, and evaluate habitat;
- Comprehend how ecological knowledge is applied in caribou management.



**D. The management process**

*It is expected that the students will:*

- Generally describe the role of legislation and law in caribou management (the Wildlife Act, the Environmental Assessment Act, the Species at Risk Act, the Constitution Act (section 35 rights));
- Describe the role of land planning and environmental assessment in caribou management (habitat protection & mitigation measures (minimizing impacts));
- Compare and contrast the role and utility of science and traditional knowledge in caribou management.

**Instructional components (Unit 3)**

1. Power Point / Teacher instruction [Different ways of knowing (science and traditional knowledge) and their cultural foundations (worldviews), and the importance of both in management].
2. Power point / Teacher instruction [Traditional Knowledge protocols and procedures and its role in caribou management].
3. Power point / Teacher instruction [Science-based management techniques, including science methods (inventory techniques, range use, habitat assessment, etc.) and how this knowledge informs land use decisions].
4. Traditional knowledge mapping workshop.
5. Round table discussion [Comparing and contrasting traditional knowledge and science].
6. Teacher instruction [a summary of the management process in the Yukon]
7. Field trip to Faro Abandoned Mine Site [Observation and guest speaker to describe short and long term impacts and remediation]

**Learning Resources (for Units 1, 2 and 3)**

1. Elders in residence
2. Scientists in residence
3. Anthropologist in residence
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5. GPS instruments
6. Library – comprehensive library with identification pamphlets, taxonomy books, general ecology texts, anthropology publications, heritage assessment guidebook,

Ross River Dena traditional knowledge manuscripts (land use, recommendations for protection of Dena interests, Mountain caribou key habitats, resource atlas, Ethnobotany, Kaska Traditional Knowledge Manual, Dena sacred laws), documents about the Faro mine impacts & remediation efforts

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### **Assessment Component (for Units 1, 2 and 3)**

An assessment tool that will be built into the program is the development of a student portfolio that would include information on the competencies gained through performance-based tasks. Assessment would be ongoing, formative and provide immediate and specific individual feedback to the student and instructor, and include (a) an evaluation of performance tasks on site, (b) an assessment through discussions and daily recaps of the student's ability to comprehend the subject, (c) an evaluation of the student's ability to answer questions, and their willingness to ask questions, (d) their ability to formally deliver a topic through peer-group presentations, and (e) an assessment of the student's ability to participate and work.

The portfolio will be graded through quantitative results of quizzes (oral and written) and individual projects and presentations, and qualitative ratings of their ability to replicate technical skills, record data, complete journal entries, and respond to questions and field situations in a practical and creative way. A simple checklist will assess their willingness to participate and cooperate.