

# Balancing the Boreal: Indigenous Traditional Use & Boreal Forest Management Lesson Kit

## BALANCING THE BOREAL APP: CLASSROOM ACTIVITY

### OVERVIEW:

The creation of this digital app is one of the main components to this lesson kit. By playing this app, students will use base knowledge of the concept of Indigenous traditional use and traditional resources to work through a forest management problem solving activity. Upon conclusion of the activity, the class will discuss how they made decisions and the challenges of achieving balance in boreal forest management. Included in this classroom activity package is the following:

1. Background Information
2. Student Resource Package
  - a. Map for Classroom activity
  - b. Moose habitat facts
  - c. Indigenous traditional use facts
  - d. Forest manager facts
  - e. Student worksheet
3. Glossary of Terms
4. Classroom Activity Discussion Guide

This activity asks students to build on the information learned from the video and apply their knowledge to complete a sustainable forest management land use plan. Using the traditional use, forest management and moose habitat fact sheets, students will be required navigate a digital game to reach an outcome that does, or does not, lead to a balanced approach to sustainable forest management that is satisfactory to different stakeholders. Increasingly complex scenarios are included for students to complete if time is available.

To complete the activity, students will balance a number of factors that must be considered during the course of developing their sustainable forest management plans, including:

- Timber volume
- Operational costs
- Impacts on moose habitat features
- The preservation of Indigenous traditional uses

Upon completion of the activity, students will be asked to discuss their decision-making process, challenges encountered, and lessons learned about balancing different values and perspectives about sustainable forest management.

### BACKGROUND:

The Northern Lights First Nation is located in the northern boreal forest. As an Indigenous community, its members hold Aboriginal, inherent and treaty rights that protect their rights to hunt, trap, fish and gather in the area in which they historically and currently practice their traditional use activities.

The forest industry contributes significantly to the economy in this area and is the leading employers for many residents. The local forest company, Trees R Us, has been granted a license from the provincial government to harvest timber from the forest around Northern Lights First Nation.

As part of the license, Trees R Us, is required to develop sustainable forest management plans that balance economic, environmental, social and cultural values. Forest industry is also required to consult with Northern Lights First Nation about concerns they may have with the company's planned operations.

This year, Trees R Us must harvest 166,000 (one hundred sixty-six thousand) cubic metres (m<sup>3</sup>) of both conifer and deciduous trees to keep the mill running without increasing the costs of its operations. After consulting with the Northern Lights First Nation about its timber harvesting plans, Trees R Us has learned that the area in which the company plans to operate holds many features that contribute to moose habitat and, therefore, is an important traditional hunting area to the community. For many Indigenous communities, moose are a valuable traditional resource for food, clothing, shelter and cultural and spiritual practices. As such, the Northern Lights First Nation has asked Trees R Us to protect specific moose habitat features in its forest management plan.

As a forest manager for Trees R Us, students are challenged to implement a balanced sustainable forest management plan that meets the needs of a number of different stakeholders. Students must choose tree stands that generate enough timber of the right type and age for the successful, cost-effective operation of Trees R Us and, at the same time, students must also protect the important moose habitat features identified during consultation with the Northern Lights First Nation.

**ACTIVITY INSTRUCTIONS:** The classroom activity is a digital game made into an app called *Balancing the Boreal* which may be downloaded from the iTunes or Google Play App stores. Information on how to download the app is also provided on [Isfes.org/resources](http://Isfes.org/resources). An instruction tutorial is included within the digital app to teach students how to do the activity.

## **MOOSE HABITAT FACTS:**

Moose inhabit the boreal forest from Newfoundland to British Columbia and the Canadian territories, and can be found living in areas near lakes, muskegs and streams. As the largest member of the deer family, moose can grow to 3.4 meters (11 feet) tall and weigh over 590kgs (1300lbs).

For Indigenous peoples living in the boreal forest, moose were an important traditional resource for food, clothing, shelter, medicine and art. In fact, moose hunting was a critical activity for survival. Families and communities would rely on a successful moose hunt and would use every part of the animal out of need, prevention of waste and out of a sense of conservation. Moose hunting continues to be an important traditional activity for Indigenous communities today, and hunting is a protected Indigenous right. As such, impact on moose hunting by natural resource development activities is often a significant concern to Indigenous communities.

**Check out the “Moose Habitat Fact Sheet” attached to this lesson plan,** to learn more interesting facts about what moose eat, their shelter, calving and predation strategies.

## FOREST MANAGER FACTS:

Forest professionals play an important role in ensuring the boreal forest is managed in a sustainable manner. They are responsible for the development and implementation of, and adherence to, sustainable forest management plans. Forest managers oversee the creation of forest management plans, timber harvesting operations and work to regenerate the forest. This includes working with government, the public, experts, other industry and Indigenous communities to address the many different values addressed within forest management plans.

Forest managers must take into account a number of factors when developing their forest management plans, including:

1. **Timber resources:** forest managers must consider how many trees there are to harvest and plan based on the specific volume of trees that can be harvested in a given year. This is an amount that is approved by the provincial government and is known as the annual allowable cut. This is important as mill facilities depend on a certain volume of timber to make their wood products, such as lumber, plywood, pulp for paper and OSB (orientated strand board).
2. **Timber type:** forest managers must also plan to harvest specific types, or species, of trees (i.e. spruce, poplar, birch, etc.) and consider the age of the trees. These decisions are made based on the principles of sustainable forest management and on the needs of mill facilities to make their wood products.
3. **Season:** forest managers must consider when to conduct timber harvest activities on a seasonal basis because of the ground conditions that exist in the boreal forest. Most timber harvesting in the boreal occurs in the winter season because of the need to operate on frozen ground, but some operations also occur in the summer months. Many factors are taken into account when forest managers consider the timing of operations, including environmental impact, cultural values, recreational users, legislative restrictions and cost.
4. **Operational cost:** forest managers must consider the cost of operations when they are making forest management decisions. Cost considerations include, but are not limited to, how much it will cost to build roads, haul harvested timber from the forest to mill facilities, contracting logging businesses, conduct reclamation activities.
5. **Other important values:** forest managers also must consider other forest values, such as fish & wildlife habitat, biological diversity, water, aesthetics, recreation, conservation, other industrial users and how to regrow the forest after timber harvesting activities are completed.
6. **Indigenous communities & peoples:** forest managers must balance economic and environmental and social considerations. These include how to avoid or reduce impacts to Aboriginal and treaty rights, and traditional uses, in forest management planning.

**Check out the “Forest Manager Fact Sheet” attached to this lesson plan**, to learn more interesting facts about forestry.

## INDIGENOUS TRADITIONAL USE FACTS:

### 1. What is Indigenous traditional use?

Indigenous traditional use can be defined as practicing a way of life that includes a holistic approach to utilizing the land, air, water, plants and animals for teaching language, practicing ceremonies, camping hunting, gathering and fishing, and using what has been taken from the land for ceremony, feasts,

making of clothing, ceremonial regalia, celebration, and treatment of illnesses through medicinal plants, like berries, bark, roots and fungus. Traditional use, or the practice of Indigenous ways of life, is dependent upon protocols and knowledge passed down over generations about how to live in harmony with the land. Traditional use is foundational in Indigenous peoples' identity.

## **2. Why is the boreal forest important to Indigenous cultures?**

The boreal forest is an integral part of Indigenous peoples and communities because it is their shelter, food sources, church and their lodge. From an Indigenous perspective, every part of the forest is made up of living beings that have spirits and is a part of who Indigenous peoples are in their identities.

For Indigenous peoples, the boreal forest is a tool that provides knowledge about the movement of animals, birds, insects, plants, trees, water, soil and air and how they work together to create diverse interdependent systems. From this knowledge, Indigenous peoples learn how the movements, patterns and changes of these ecosystems impact those inhabiting the land. This, in turn, affects how Indigenous peoples conduct ceremonies, hunt, gather, trap, fish and use plants for healing. Each traditional resource is part of a holistic relationship that sustains one another and sustains the identities of Indigenous peoples.

## **3. How does Indigenous traditional use relate to treaty and Aboriginal rights?**

Treaties are agreements between two sovereigns that provided Europeans access to Indigenous territories for settlement and to live alongside Indigenous peoples. In exchange, the treaties affirmed that Indigenous peoples are sovereign and that they could continue to exercise their traditional ways of life in their territorial lands. Treaty rights recognize inherent rights, rights to education, healthcare, hunting, trapping, fishing and gathering, and other Aboriginal rights as asserted by treaty peoples.

"Aboriginal rights" is a term that has been used in Supreme Court of Canada case law. Aboriginal rights are recognized to be exercised by Indigenous peoples in Canada, including First Nation, Metis and Inuit peoples. In contrast to treaty rights, Aboriginal rights are broader in scope but, like treaty rights, they protect Indigenous traditional uses.

## **4. How is Indigenous traditional use protected in Canada?**

Indigenous peoples will protect traditional use areas by using features on the land. For example, one may see a camping area in the forest where meat racks are left intact or where prayer flags are tied to a tree.

Working with governments and natural resource development companies to make them aware of areas that are important to traditional ways of life is another way Indigenous peoples protect their traditional use areas. Indigenous communities will also work with government departments to have those areas protected or marked as significant areas to them. Some examples of what is protected are old areas that are historically and currently significant to the community, grave site areas, ceremonial areas, and old structures such as medicine wheels, cairns and effigies.

For forest companies, it is so important to talk to Indigenous communities about those types of important features so that they can be protected in forest management planning.

## **5. How can Indigenous traditional use be protected in boreal forest management planning?**

It is important to protect tracts of land in order to maintain and uphold cultural sustainability for Indigenous peoples' ways of life. Through treaties, Supreme Court of Canada case law and consultation requirements, Indigenous peoples' can work to preserve their ways of life so that they are not adversely impacted by natural resource development, which could take away from their identities and connection with the land.

In recent years, forest companies have started to work with Indigenous peoples, their leadership and the communities in the forest management planning stages to ensure that their voices are heard and that traditional use areas identified may be protected. This is called consultation. When these areas are identified, companies will work with logging contractors to avoid those areas or use different techniques to harvest the timber, such as creating buffers of trees, altering the footprint of a cutblock, slowing the pace of timber harvesting or shifting the timing of logging operations. It is important that forest companies seek the help of Indigenous communities with this process.

## **GLOSSARY OF TERMS:**

This glossary of terms may also be given to students to assist them with completing the activity.

### **Annual allowable cut (AAC)**

The average volume of wood that can be harvested in one year. It is roughly equal to the amount of new growth produced by the forest each year.

### **Buffer area**

A strip of trees, that is left on the land to protect adjacent water courses, trails and recreation sites.

### **Calving area**

Moose have their young on the edge of wetlands, riparian areas and muskegs if there is secluded shelter nearby such a mature conifer forest.

### **Chronic wasting disease (CWD)**

CWD is a progressive, fatal nervous systems disease known to naturally infect deer, elk, caribou and moose.

### **Conifer trees or conifer forest**

Trees that are evergreen, have cones, and have needle-shaped leaves (e.g. spruce, pine, fir).

### **Deciduous trees or deciduous forest**

Broadleaf trees that lose their leaves at the end of the growing season or when under stress (e.g. trembling aspen, paper birch, balsam poplar).

### **Habitat**

The local environment in which a plant or animal lives; includes the food, water and shelter necessary for its survival.

### **Mineral lick (salt lick)**

A place where animals go to lick a naturally occurring source of salts to obtain minerals.

### **Mixedwood forest**

A forest that contains both conifers and deciduous trees (e.g. spruce, aspen, birch).

### **Operational costs**

The cost of running a company or business (e.g. the cost of hauling logs, of harvesting trees, maintaining machines, paying salaries, etc.).

### **Population limiting factor**

In a forest, limiting factors are the availability of food, water, shelter and space which can change animal and plant populations. Other limiting factors that impact populations are competition for resources, predation and disease.

### **Riparian area**

The transitional area between land and water, including the margins of *streams*, rivers, lakes, and wetlands. They are rich in biodiversity and play an important role in *protecting* water quality and *stream* ecosystem health.

### **Succession**

The process of change that occurs naturally in a forest over time as one community of plant species replaces another.

### **Tree stand (e.g. a stand of trees)**

A group of trees in a specific area that are the similar in age and health (e.g. a stand of spruce trees, a stand of aspen trees, a mixedwood stand of aspen and spruce trees).

## **“BALANCING THE BOREAL” CLASSROOM ACTIVITY DISCUSSION GUIDE:**

- 1. Who were your stakeholders? Who might want input into your plans?**
- 2. What were the interests, values and concerns of the stakeholders?**
- 3. What perspective did you adopt to complete this activity?**
- 4. Did all members of your group share the same opinion?**
- 5. What were the challenges you experienced as you made your forest management decisions?**
- 6. What factors did you consider when making your forest management decisions?**
- 7. What was the result of your decision-making process? Were you able to achieve balance? Did you choose to value one aspect of forest management over another?**
- 8. Did you meet the timber supply needs of the forest company? What were the impacts of your decisions on the forest company?**
- 9. Did you preserve moose habitat? What were the impacts of your decisions on the Indigenous community?**
- 10. What were the impacts of your forest management plan decisions on the different stakeholder groups?**
- 11. Are you satisfied with result of your forest management plan decisions?**
- 12. What other perspectives and values are considered in sustainable boreal forest management?**
- 13. Why is it important to consider the rights and values of Indigenous communities in forest management planning?**
- 14. Was it difficult to incorporate different perspectives and values into your forest management planning decisions?**

## BALANCING THE BOREAL APP: CLASSROOM ACTIVITY STUDENT RESOURCE PACKAGE

Student Resource Package includes

- a. Map for Classroom activity
- b. Moose habitat facts
- c. Indigenous traditional use facts
- d. Forest manager facts
- e. Student Worksheet




# LEGEND

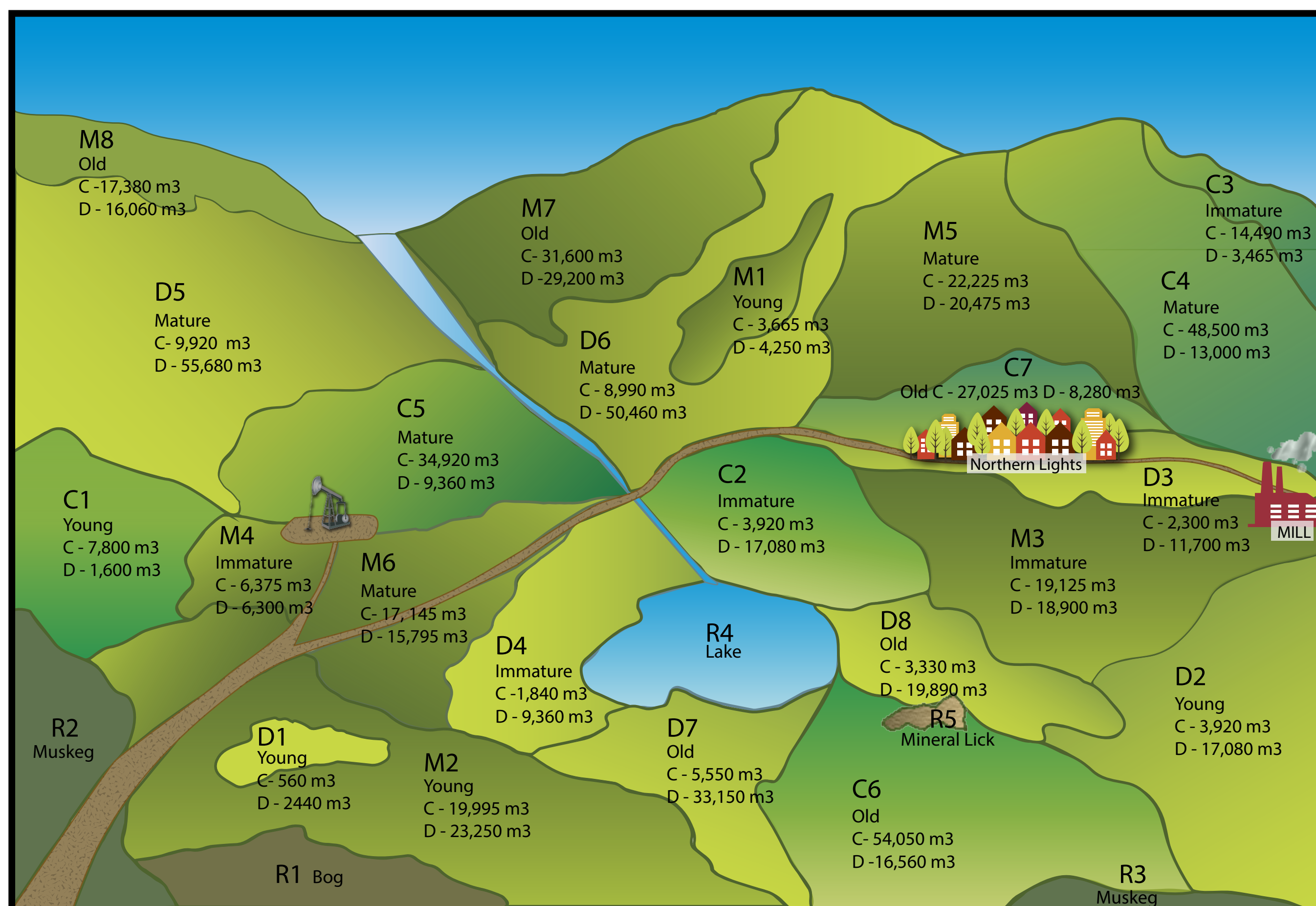
-  Deciduous
-  Mixedwood
-  Conifer
-  Muskeg
-  Bog
-  Mineral Lick

## Timber Type

- R = Riparian
- D = Deciduous
- C = Conifer
- M = Mixedwood (both conifer and deciduous)

 This forest stand is unavailable for harvest at this activity level.

 A striped pattern over the stand means the stand is selected for harvest.



# MOOSE

Read the sections for an introduction to habitat needs of Moose.



## Fast Fact:

Fire and forestry promote the growth of young trees and shrubs, which provide nutritional food for moose.

### CALVING AREAS

A suitable calving area is defined as spruce sedge meadow, bogs or willow riparian (near water) habitat. These areas also need to be near suitable safe shelter from predators. Calving areas must be maintained on the landscape at all times.

### THREATS

The main predators for Moose are wolves, bears and humans through hunting. Hunting is a population limiting factor. More roads on the landscape can lead to increased access for hunters. Disease, such as Chronic Wasting Disease is also a limiting factor among moose.

### SHELTER

Moose like forest edges. This means they like to move along the edges of different forest stands (age, tree type, wetland etc.).

Moose are known to find shelter in older aged forests. Mature forest stands provide shelter from predators, cold winter weather and high snow accumulations. The snow depth greatly determines which forest stand type moose use.

### FOOD

The boreal moose uses different areas to feed on in the summer and winter. In the spring and summer moose feed on aquatic plants and visit mineral licks. Young deciduous (aspen, poplar) stands are an excellent food source in the summer and fall.

In the winter moose feed on twigs and branches of woody plants (birch, willow). Studies indicate moose feed in dense woody riparian areas in the winter.

# Indigenous Traditional Resources



## Fish

Traditional activity: fishing

Resource examples: whitefish, lake trout, northern pike and walleye

Traditional uses: food, medicine, art



## Big Game

Traditional activity: hunting

Resource examples: caribou, deer (whitetail or mule), elk and moose

Traditional uses: food, shelter, clothing, tools, medicine, art, ceremony

Read the sections for a description of the resources traditionally used by the area Indigenous people.

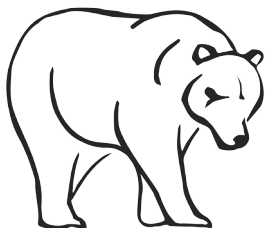


## Plants

Traditional activity: gathering

Resource examples: diamond willow, blueberries, mint and birch bark

Traditional uses: food, medicine, tools, transportation, art



## Fur Bearers

Traditional activity: trapping

Resource examples: rabbit, beaver, lynx, pine marten and wolf

Traditional resources: food, clothing and regalia, medicine, art and trade/economy

## Other Cultural Sites

Resource Examples: Cabins, camping areas, meat racks, trails, waterways, gravesites and ceremonial grounds

# Forest Manager

Read the sections for a description of the timber and harvesting requirements needed by the forest company.



## Fast Fact:

Waterways and riparian areas are removed from harvesting plans. There is a required buffer surrounding these that cannot be entered.

## Costs

The cost to harvest timber is affected by many factors.

- timber location affects the haul distance
- road development
- bridges required
- other restrictions such as timing (summer, winter)

## Annual Allowable Cut

An annual allowable cut (AAC) for the forest company is determined through long term management plans with the provincial government. The company harvests a certain amount of wood volume each year from their managed land to continue its mill operations and to assist in managing forest health.

## Other Values

There are many other values and users of the forest. The forest company operates on and manages public land. Therefore regulations and laws are in place that govern their activities. Examples of other values of the forest are:

- Wildlife
- Water
- Aesthetics
- Recreation
- Other industries

## Timing

The time of year affects timber harvesting. Summer months can be more costly for harvesting operations because of different road and water crossing development requirements. Operating on frozen ground is often more efficient because of the use of temporary frozen roads and the hard ground for equipment operation. This all decreases the impact on the land disturbance. To reach wood in the summer permanent roads may need to be created.

Name: \_\_\_\_\_

### Balancing the Boreal Activity - Student Worksheet

Level	Stands Selected	Coniferous Volume (m3)	Deciduous Volume (m3)	Describe the potential impacts of this harvesting plan on the local moose population? How can you lessen that impact?
1				
2				
3				
4				
5				



## **“Balancing the Boreal” Class Activity Student Worksheet – page 2**

5. What was the result of your decision-making process? Were you able to achieve balance? Did you choose to value one aspect of forest management over another?

6. What were the benefits and costs of your forest management plan decisions?

7. Are you satisfied with result of your forest management plan decisions?