

# Download - For Teacher's Use in the Classroom - Indoor Program

## Classroom Session

Understanding what **forest sustainability** really means and how it directly impacts on our individual lives is complex. It involves understanding our provincial history and the events that unfolded to shape that history as it relates to the forest, as well, knowing the forest in respect to tree species, growth characteristics and forest management techniques. Finally, it involves the ability to plan and to integrate all the needs and requirements of everyone, while at the same time maintaining a healthy and viable forest ecosystem. This program, at best, can be an introduction and a means by which some individuals will be motivated to move onto further study.

The information has been presented in this document in two formats. The first is simply an information package that can be relayed to the students in a discussion or research format. The second format is a Corel Presentation Download which provides graphics and speaker notes to support your presentation. Both of these formats give aid to each other and should be used concurrently to create the best learning opportunity.

## Information

The forest in Nova Scotia has gone through many significant changes over the years. It is the intent of this program to help students understand how the forest was, some of the events that have brought us to this point today, and finally where forestry is heading in the future.

So to begin, lets try to imagine that you are an early settler - one that has just arrived from Europe on one of those amazing tall ships. This is your first time in the New World and you are greeted by a seemingly endless forest of towering pine, spruce and hemlock, as well as majestic hardwoods that blocked out the sky. Your first thoughts would have probably been towards the uncertainty of your future here in this new land. Unknown to you, would have been the fact that there already has been a group of people living in this wilderness in complete harmony with it, i.e., the First Nations (Mi'kmaq). Their relationship to the forest was one in complete unison, using only what they needed to provide the essentials for life.

While modern man might yearn for this sight, to the early settlers the forest was an enemy that had to be conquered if they were to survive. Many of these settlers were farmers and the trees proved to be a major roadblock to their livelihood.

The same forest that initially presented an obstacle to the survival and success of the new settlers soon became a source of wealth. The very best white pine were cut and exported to supply the shipbuilding industry (particularly ships built during the Napoleonic era). Later came the demand for spruce and hemlock lumber to feed both the local and export markets. At one point there were some 200 sawmills scattered throughout Nova Scotia. Once the supply of sawlogs began to dwindle, pulp and paper mills were established and

areas previously cut for sawlogs were re-cut, removing smaller trees. The attitude of most people at the time was that there was no end to the supply of wood in the forests. It didn't take long before the forests of Nova Scotia consisted of poor quality trees of inferior species.

Another significant event in our province's history was the immigration of the Empire Loyalists, who were offered free tracts of land if they would come to our province and settle. As a result of this vast immigration, we now have a high percentage of land that is privately owned. With the introduction of mechanical logging equipment came the practice of clearcutting. Although it was - and still is - the cheapest method of harvesting, clearcutting has produced many areas that are understocked and/ or stocked with undesirable species. Clearcutting is a viable forest management tool under the right circumstances. That is why it is so important to know the forest and the dynamics of each individual forest stand.

Another common practice during this era was to remove only the very best trees from the forest, known as high-grading. In many cases, only the poor quality trees were left after cutting. Since these trees were the major source of seed, they tended to produce poor quality stands.

Forest fires also contributed to the general degradation of the forest. With the invention of the locomotive, forest fires were started in very remote places and left basically to burn themselves out. During the early 1900s, fire was used as a method of clearing barren lands for blueberry fields. These fires inevitably spread into the surrounding forest, destroying thousands of acres of woodland and in some cases damaging the soil. Insects and disease have also adversely affected the quality of the forests.

Students need to develop an awareness of the importance of trees to our environment as well as the part that trees play in many of the natural cycles, including The Carbon Cycle, The Water Cycle, Nutrient Cycling In the Forest and How Trees Help The Environment. Trees also play an important part with the soil, as the soil is the foundation in which all other plant life exists (Soil Layers).

The following questions can be used to develop some discussion as it relates to the forests of Nova Scotia.

Question: What type of forest do we have in Nova Scotia?

Answer: Acadian Forest, which means or indicates that it is a transitional forest between the northern coniferous and the southern deciduous forest (Forest Regions). This provides for a very diverse forest in respect to the number of different species of trees that are found: 15 coniferous and 30 deciduous native species.

Question: How much land does the forest cover and how many hectares are in forest production?

Answer: The forest covers approximately 90% of the land area. Of the 5.5 million hectares of land area, 4.2 million is productive forest land.

Question: Who owns the majority of land in Nova Scotia?

Answer: Land ownership is broken into:  
Private Holdings (approximately 73%)

Crown Land - Provincial (approximately 25%)

Crown land - Federal (approximately 2%)

This makes for an interesting situation here in this province because most of the land is in private ownership. As compared to most of the rest of Canada, which is just the opposite. This is a direct result of the immigration of the Empire Loyalists from the United States who were given free grants of land if they would come and settle in this province.

Although private owners have held the majority of forested land for many years, the use of this land has changed greatly over the years (Present Day and Historical Use of Our Forest).

Because so much of the forest is owned privately, it is important for those owners to make wise decisions that will continue to benefit the forests of Nova Scotia for many years to come.

Question: What types of trees are in our forest?

Answer: Coniferous: There are 15 native species that have needle-like leaves. They are cone-bearing, conical in shape and have resinous bark. They are also called evergreen or softwood (Key to the Conifers).

Deciduous: There are 30 native species in Nova Scotia which have leaves that drop in the fall. They are fruit and nut-bearing and round in shape. They are also called broad-leaf or hardwood (Key to the Deciduous or Broad Leaved).

The Keys are a useful tool that can help students to identify the various species of trees found throughout Nova Scotia.

Question: What are the types of forest cover that are in Nova Scotia's forests?

Answer: The forests are divided into individual stand types (depending on the percentage of tree species contained within each, (eg. either softwood, hardwood or mixedwood stands). Here in Nova Scotia the percentage of stands in each type are as follows:

Softwoods (over 75% of the volume in softwood species) 53%

Hardwood (less than 25% of the volume in softwood species) 17%

Mixedwood (25 - 75% of the volume in softwood species) 30%

Because we have a large percentage of softwood by volume, we are able to support a large forest industry.

Question: Are there other ways that stands of trees can be classified besides by tree species?

Answer: Yes, they can also be classified by age and height.

Example: (By Age)

Regeneration (Natural) - established by seed distribution

Regeneration (Artificial) - established by planting seedlings

Immature Stand - stand of young trees past the regeneration stage, usually

showing good health and vigor.

Mature Stand - A stand of trees is considered to be mature when heights, diameter and volume growth levels off. Different species mature at different rates. Some trees like the balsam fir have a life span of 80 years while others like the Eastern hemlock can live to be 400 years old.

Over-mature - the natural downward decline of a stand.