

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

### Choosing A Site

The best way for your students to learn about the forest is to actually experience the outdoor environment and to be around nature. If you cannot get access to a wild area or a park, you can make due with any area that is safe and has trees. For example, a backyard of a neighbor's property or maybe even your school yard.

When touring through nature, remind your students that it is important to have good outdoor manners. It is common for anyone to have an urge to pick things up. When doing so you must be aware of the effect it will have, both short and long term. The following is a little rhyme to help your students remember the importance of respecting nature.

*" Pick if you must one flower face,  
If nine more blooms are left in place;  
Two feet square must hold that many,  
Otherwise look! but don't pick any."*

If you have completed the Indoor Session of the Forest Sustainability program, your students should be ready to take on the next phase, the Outdoor Session.

As with any forest sustainability plan, data needs to be completed on the forest ecosystem that you are dealing with. The following information will walk you through the steps that you will need to organize your class and facilitate this information gathering process.

1) Divide the class into five groups. Each group will be given a data collection sheet, which they will be responsible for. The data collection sheets include:

- A) Forest Inventory
- B) Soils Data
- C) Site Regeneration
- D) Tree Data
- E) Forest Biodiversity

2) There is some equipment and tools that you will need to complete most aspects of these collection sheets. If you contact your local Nova Scotia Department of Natural Resources' District Field Office, they should be able to assist you. To help you understand what they look like and what they are used for, you can find their descriptions below.

- A) Increment Borer: *used to determine the age of a tree.*
- B) Caliper: *used to determine the diameter of a tree.*
- C) Haga or Suunto: *used to measure the height of a tree.*
- D) Circular Plot String: *this can be made easily by using a 0.5 string and two rings tied at each end. This is used to mark areas in the field where the data would be collected.*

3) On each of the Data Collection sheets is an explanation of how to gather the data, as well as the equipment needed. It is important to stress to the students that they need to take their time and be as accurate as possible when collecting the data. As the old saying goes "*garbage in, garbage out*". They cannot expect to make any realistic conclusions for their data, if they have no information to base it on.

4) Once the data is collected, the next phase begins in interpreting the data. Some brief comments that you can use to summarize each portion of the data is provided below. As well, you can use the [Data Summary Worksheet](#) to help students focus their thoughts and use the data to formulate answers to related questions on forest sustainability.

A) Forest Inventory

Questions to foster discussion:

\* Was the forest diverse in respect to tree species? Why is a diverse forest better than one that is of a monoculture nature?

General Comments:

\* The data should indicate that there is variety in tree species, diameters, heights and ages (unless of course you used a site that was planted).

\* Monocultures are very susceptible to natural disturbances like insect infestations, disease outbreaks, windstorms, fires, etc.

\* A forest typically will be more stable if it is diverse in species, age, diameter and height.

\* Older trees of only one species will be reaching the end of their life cycle at basically the same time, resulting in the total decline of that forest or stand.

B) Soil Data

Questions to foster discussion:

What are the depths of the various horizons and what does that data indicate in relation to the rest of the forest? What was the filtration rate,(eg. fast or slow)?

General Comments:

\* The greater the depth of the A Horizon, the more organic material you have, so generally the site is considered to be healthier ( this is the live part of the soil where all the decomposition is taking place).

\* The filtration rate is important as well. Slow filtration usually indicates heavy, clay soil - water would run off quickly, leaving very little to be absorbed down through to the roots.

C) Site Regeneration

Questions to foster discussion:

\* Was regeneration present or absent, heavy or light? Was there a diversity in the types of regeneration?

General Comments:

\* There are many factors which can influence the growth of seedlings, including the availability of sunlight, competition, soil, etc.

\* Part of forest sustainability is having a forest (the new generation of trees) establishing itself underneath the canopy of the existing forest. This helps to shorten the rotation between forest stands. In areas that we are managing, we cannot afford to be waiting for the natural rotation to take place.

4) Tree Data

Questions to foster discussion:

\* What factors may have contributed to the larger/smaller growth rings? Is the tree still growing at a satisfactory rate for its' age or is it declining?

General Comments;

\* A tree puts on an annual growth ring each year called an increment. The width of that growth ring is an indicator of how well the tree is growing.

\* By using this method of sampling age, we can determine quite accurately how old a forest or stand is without actually doing any harm to it. You cannot look at the outside of a tree and determine its age.

\* If the age of the forest is relatively young and it is healthy, the options are open to a variety of silvicultural or forest management treatments.

#### 5) Forest Biodiversity

Questions to foster discussion:

\* Is the forest area diverse in respect to other forms of life?

General Comments:

\* Biodiversity can relate to the different species you have in an area but it can also relate to the numbers you have.

\* There is a part of the ecosystem which often gets overlooked because we cannot see it with the naked eye, that being the micro-organisms.

\* Diversity is very important within natural ecosystems to ensure that balances are kept in check (*"diversity leads to stability"*).

\* The more living things that are found of different species, the more diverse the forest is.

Data Summary Worksheet is an optional activity that can be completed by each group of students. In order to answer all of the questions, the data collection sheets must be photocopied and distributed to each group.

The final phase of the Forest Sustainability Plan is to actually develop a short and long term plan for the forest you have surveyed. The following are the requirements of most management plans and these can be distributed to each group.

- 1) Know your forest.
- 2) Decide what it is you want from that forest and develop goals and objectives for it. (To reach your goals and objectives, choices and trade-offs will no doubt be necessary). As with many other things, you may find out that you can't always have your cake and eat it too!).
- 3) Set your priorities based on the information you gathered from the forest. Some parts may need immediate attention, while others can wait.
- 3) Set priorities based on the information you gathered. There are different ways to manage your forest for different values, (eg., wildlife enhancement, recreation and aesthetics, soil and water conservation, your existence to name just a few). A forest can be managed for individual values or for a combination of many. It is entirely up to you, you are the **Manager**.
- 4) Review your plan with experts in the field of forest management (there is plenty of opportunities for free advice out there).
- 5) Implement your plan based on a sustainable future (you have to remember the benefits may not be seen in your lifetime).