Haliburton Highlands Land Trust & Abbey Gardens

Event Package: Tree Identification
Season: Fall

The Role of Forests in Ontario

As one may guess, trees possess a vitally important role in the environment. Not only do trees add aesthetic value to our lands, they also have a role in maintaining ecosystem health and function (Ontario Ministry of Natural Resources and Forestry, n.d.). 66 percent of Ontario is forested and as such trees contribute vastly to the biodiversity in Ontario, which supports a resilient natural environment (McGarry, 2014; Mosseler *et al.* 2003). They do so by providing a source of habitat and food for mammals, birds, insects, and microorganisms (Ontario Ministry of Natural Resources and Forestry, n.d.). In addition, trees help to build a stronger physical environment as well. Through the process of photosynthesis trees generate oxygen and establishes cleaner air quality (American Forests, n.d.). Also, the presence of trees helps to minimize soil erosion and protect water sources (American Forests, n.d.).

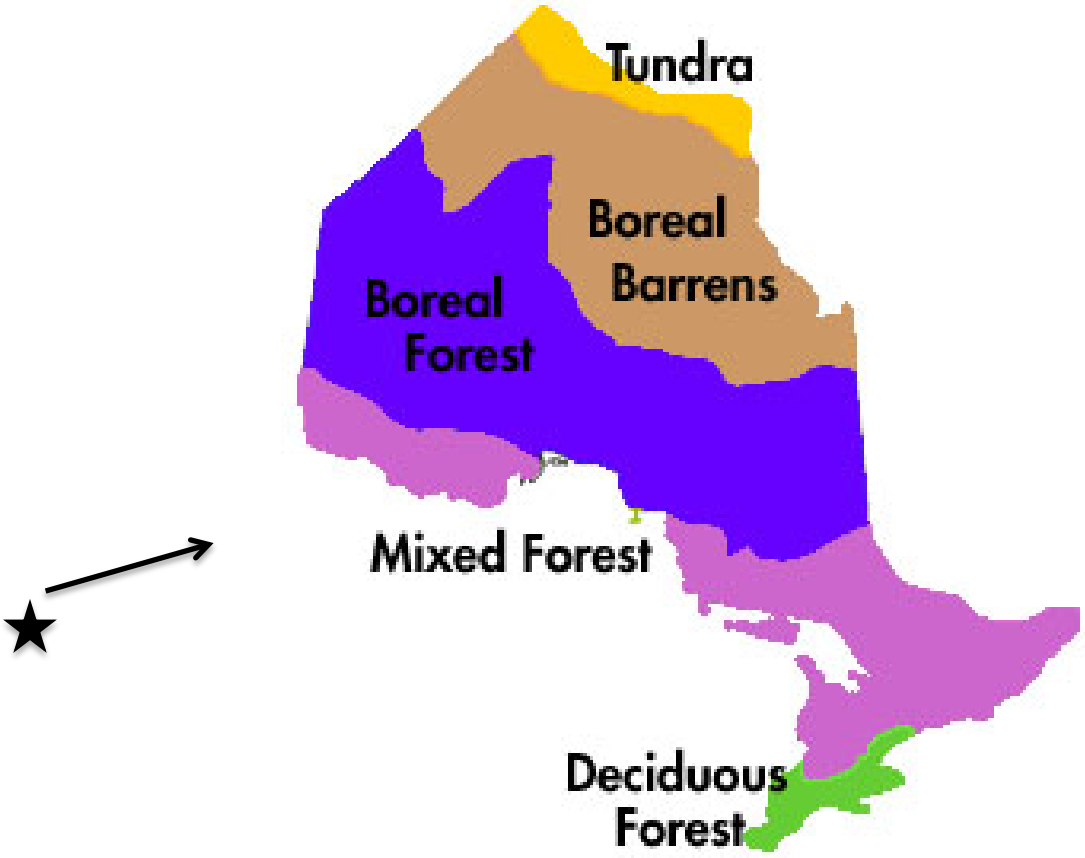
Not only do trees undoubtedly provide a role in safeguarding the natural environment, they also are known as an ecosystem service. This means that humans are able to benefit from trees as an economic resource. Trees contribute to recreation practices, construction materials, biochemical production, and even help to increase one's property value (United States Department of Agriculture, 2009). In fact, in 2013, the forestry industry in Ontario earned 12.3 billion dollars in revenue (McGarry, 2014). Therefore it is evident that forest resources are necessary to sustain for both the environment and society.

Due to the immense benefit of trees, forests often require sustainable management practices in order to ensure the long-term sustainability of these natural resources (McGarry, 2014). In Ontario, almost 90 percent of forests are publicly owned and referred to as Crown Lands. Of these forests, 44 percent are managed with legislation, regulations, policies, and standards (McGarry, 2014). These forest management plans are created for a 10 year period and aim to find a balance between the social, economic, and environmental benefits of forests (McGarry, 2014). Ultimately by managing forest resources, the goal is to maintain productive forests, whereby trees support the environment and continue to be used for human needs.

However the definition of sustainable forestry is constantly evolving (Mrosek *et al.* 2006). Due to the changing societal demands on forest resources, the notion of sustainability has drastically changed over the last 200 years in Ontario (Mrosek *et al.* 2006). Unfortunately much of the old growth forest resources in North America have been depleted due to years of land clearing for agriculture and harvesting (Mosseler *et al.* 2003). In this way, habitat loss remains a significant threat to forest ecosystems. In addition, storm events, pests, diseases, and climate change also pose concerns for the longevity of forest resources (Natural Resources Canada, 2016).

Therefore it is clear that the knowledge of the range distribution, age classes, and quantity of tree species is very useful information (Brown, 1943). This information can discern the biodiversity and subsequent ecological health of

certain regions, as well as aid in the study of species interactions (Brown, 1943). However, since trees remain as a resource used by humans, increased awareness about the forests within a region also help to estimate sustainable silviculture practices (Brown, 1943). In order to obtain this crucial information, one must correctly be able to identify the tree species native to their location. This process may begin by determining the forest region that one is working in. Haliburton, Ontario for example is located in the Great-Lakes-St. Lawrence forest region (Figure 1), which covers 20 percent of Ontario's area and consists of mixed coniferous and deciduous tree species (McGarry, 2014). Trees are commonly identified by analyzing all of their features, including their bark, leaves, shape, fruit, and twigs (Woodland Trust, n.d.). Tree identification could therefore be considered one of the most important skills that naturalists concerned with forest management should develop.



Haliburton, ON

Figure 1. Ontario's forest regions with reference to the Location of Haliburton.

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Summary Points

- A tree is a woody, perennial plant that grows to a height of at least 4.5 meters
- Trees maintain ecosystem function (allowing other species to use the habitat and food they provide to increase biodiversity)
- Trees provide habitat and nutrition for wildlife as well as for humans
- Trees also improve air quality and prevent erosion
- Forest management plans are required to protect tree biodiversity
- Haliburton, ON is within the Great-Lakes- St. Lawrence forest region
- The bark, buds, leaves, shape, and twigs can be used to identify trees

Proposed Event Logistics

Duration of Event

Time	Activity	
	Abbey Gardens	HHLT
10:00 am	-Meet Group at Abbey Gardens Food Hub (or tent if used for a large group) -Register and sign in (on registration/sign in) sheet and receive name tag	-Meet Group at Dahl Forest Trail Head -Register on sign in sheet and receive name tag
10:15 am	-Learn safety protocols and discuss tree identification key talking points	-Learn safety protocols and discuss tree identification key talking points
10:30 am	-Begin hike through Abbey Gardens, whilst following the map highlighting the proper route -Gather at stops 1-5 to discuss talking points at designated areas	-Begin hike through Dahl, whilst following the map highlighting the proper route -Gather at stops 1-5 to discuss talking points at designated areas
11:30 pm	-Continue loop and begin hiking back towards the Abbey Gardens main office	-Continue loop and begin hiking back towards the Dahl Forest trail head
12:00 pm	-Compare field notes, photos, and sightings for the day -Fill out a feedback card about today's event*	-Compare field notes, photos, and sightings for the day -Fill out a feedback card about today's event*

*Feedback cards should be printed in advance and are found on the last page

Date Range

This event will be conducted during the fall season. Ideally the event will be scheduled prior to the leaves falling off the deciduous trees. This will ensure that identification can include leaf ID features and also will allow visitors to enjoy the beautiful fall colours.

Length of Walk

The hike is suggested to take approximately two hours cumulatively. At Abbey Gardens, the walk will follow the extended loop trail, which is approximately 3.6 kilometers. At Dahl Forest, the walk will follow several trails, totaling approximately 5 kilometers. It is recommended that event leaders hike the designated trails prior to the event to mark the stopping points and any tracks observed along the way to show visitors.

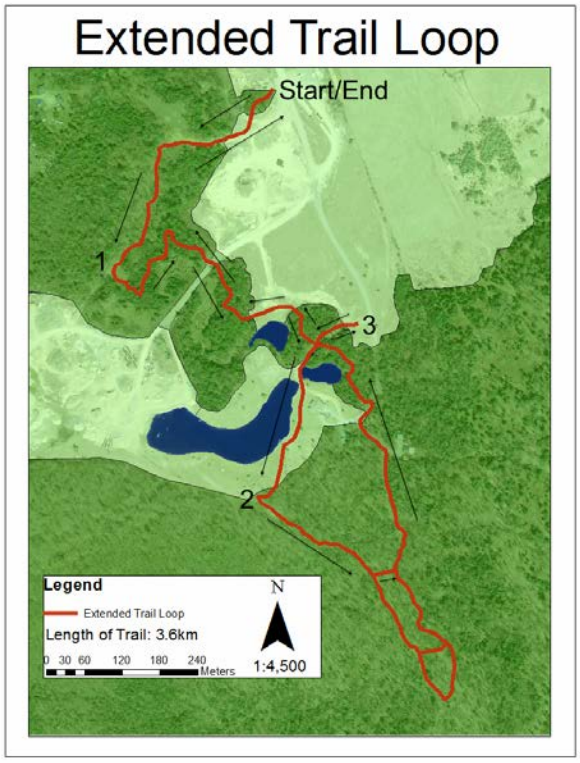
What to Bring

-Field notebook and pencil
-A means to tell the time
-Proper footwear (i.e. hiking boots)
-Appropriate clothing for the weather (i.e. rain gear, hats, sunscreen, bugspray)
-Water/drink
-Camera (optional)
-GPS or compass (optional)
-Binoculars (optional)
-Personal tree identification guides (optional)

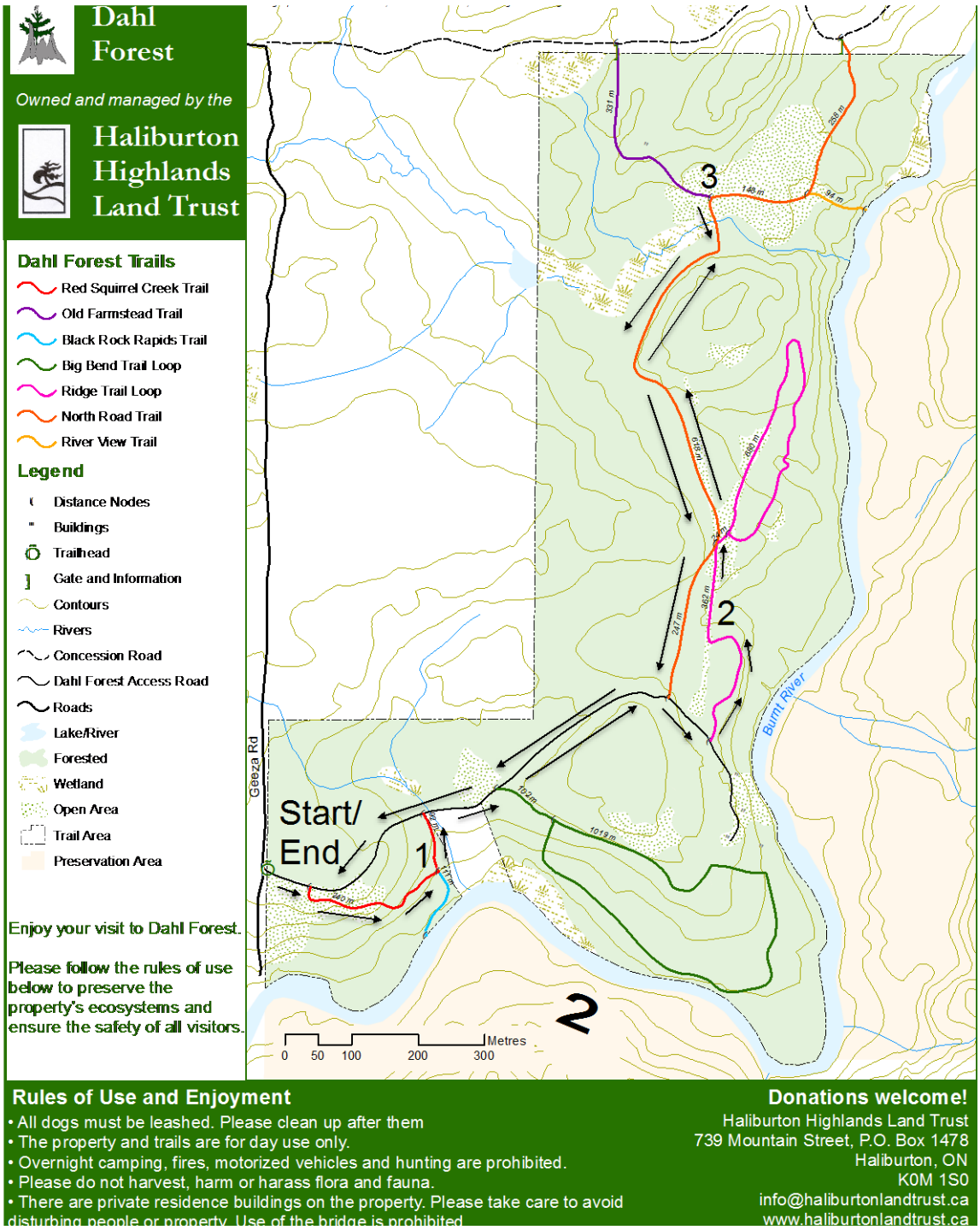
Suggested Walking Loops*

*Note: Event leaders should tour the properties prior to the event to ensure that designated tree species are present at each of the three stop locations. Stop locations may be adjusted so that visitors can see more trees at each of the properties.

Abbey Gardens



Dahl Forest



Tree Identification Props

Deciduous Trees Talking Points:
-Also referred to as hardwoods and broadleaf trees
-Bears a leaf
-Leaves fall off in the autumn in a process called senescence (The aging process of leaves as they change colour)
-Have a true flower
-There are 84 native species in Ontario

Coniferous Trees Talking Points:
-Also referred to as softwoods and evergreens
-Bears needle-like or scale-like leaves
-Needles or scale-like leaves do no fall off in the winter (with the exception of the tamarack- also known as larch)
-Bears a cone
-There are 14 native species in Ontario

Stop #1: Shade Tolerant- Species that can grow under others' canopies

Deciduous Native Species

- Sugar Maple- *Acer saccharum*

ID features: Twig colour is light brown. Buds are opposite and pointed. Bark is gray in colour, starting smooth and becoming more furrowed. Buds are dark brown or shades of red. Prefers deep, rich, and moist soil.

*Fun Fact- This tree gets its name from its sweet sap used to make syrup.

- Red Maple- *Acer rubrum*





ID features: Bright red, yellow, and orange fall colours. Red flowers and fruit. The lower branches droop as the tree matures. Prefers moist soil.

*Fun Fact- The roots of this tree are shallow but spread widely.

- Ironwood- *Ostrya virginiana*


ID features: Simple, alternating oval leaves with sharp teeth. Older trees have rough, peeling strips of grayish brown bark. Can tolerate a variety of soils.

*Fun Fact- Ironwood are slow growing, therefore they have the densest and hardest wood of any native tree species.

- American Beech- *Fagus grandifolia*


ID features: Broad crowns with smooth bark that is light bluish-grey and darkens with age. Large oval leaves are dark bluish on top and lighter beneath. Edible nuts grow in pairs in bristly reddish-brown husks. Can tolerate a variety of soils.

*Fun Fact- Both humans and wildlife enjoy this tree's triangular nuts.

- Basswood- *Tilia americana*



ID features: Large, heart-shaped leaves with toothed edges. Twigs have a zigzag appearance. Bark is grey-brown with long narrow ridges. Can tolerate a variety of soils.

*Fun Fact- Bees love basswood flowers because they bloom in midsummer unlike most trees.

Coniferous Native Species

- Balsam fir- *Abies balsamea*




ID features: Tall and narrow and tapers to a skinny point at the top. Bark of young trees is covered in resin blisters. Barrel shaped, greyish brown cones. Can tolerate a variety of soils.

*Fun Fact- Often used for Christmas trees because of their scent and the longevity of their needles.

- Black Spruce- *Picea mariana*




ID features: Short bluish green needles, which are blunt on the end. Cones are egg shaped and dark brown.

*Fun Fact- The red squirrel eats the tips of the black spruce, which creates a thick dense clump at the top of the tree.

- Eastern Hemlock- *Tsuga canadensis*





ID features: Conical shape with wide trunk that tapers to a thin top. Skinny branches grow straight out. Scaly bark in young trees that cracks with age. Prefers high moisture soils.

*Fun Fact- Can live up to 600 years!

- Eastern White Cedar- *Thuga occidentalis*




ID features: Cones grow in five or six books. Scaly leaves cover the fan-shaped twigs and are yellowish green. Bark is thin and separates into strips with age.

*Fun Fact- This is a great tree for landscaping, especially as a hedge tree.

Stop #2: Partially Shade Tolerant- Trees that can grow in the shade or sun

<u>Deciduous Native Species</u>

- White Ash- *Fraxinus americana*





ID features: Tree has opposite leaf scars shaped like a C. Bark has a diamond-shaped pattern. Can tolerate a variety of soils.

*Fun Fact- Wood from this tree is often used to make sports equipment.

- Red Oak- *Quercus rubra*




ID features: Mature bark has vertical “ski tracks.” Buds appear to be “knobby.” Bud colour is typically shiny reddish brown. Can tolerate a variety of soils.

*Fun Fact- Dead leaves often remain on trees even in the winter.

- White Oak- *Quercus alba*




ID features: Buds are alternate and often occur in small clusters near the tip. Buds are rounded and light grey or brown. Leaves typically stay on the twig for most of the winter. Leaves are simple with rounded lobes and no bristle tips. Can tolerate a variety of soils.

*Fun Fact- Wood from this tree is waterproof.

- Yellow Birch- *Betula alleghaniensis*




ID features: Thin, shiny, reddish-brown bark when young, becoming a dull yellow with age. Yellowish green, oval leaves, which turn yellow in the fall. Can tolerate a variety of soils.

*Fun Fact- This tree gets its name because its bark remains golden for its life.

<u>Coniferous Native Species</u>

- Eastern White Pine- *Pinus strobus*

ID features: Skinny needles that grow in bunches of five. Bark is dark greyish brown with thick, broad ridges that are two to five centimeters thick. Prefers sand or sandy loam soils.

*Fun Fact- Used to be used for the masts of the British Royal Navy ships.

Stop #3: Shade Intolerant- Trees that need full sun

Deciduous Native Species

- Black Cherry- *Prunus serotina*

ID features: Leaves are 5 to 15 centimeters longs and are narrow and pointed. Bark of mature trees is dark grey and flaky. Fruit is produced in early September. Can tolerate a variety of soils.

*Fun Fact- Wildlife often relies on this tree's fruit.

Coniferous Native Species

- Red Pine- *Pinus resinosa*

ID features: Can grow to be 35 meters tall. It's dark green needles grow in bunches of two. The bark is reddish pink and the trunk is slender and straight. Can tolerate poor, rocky or sandy soil.

*Fun Fact- This tree has very deep roots to withstand strong winds.

- Eastern Red-Cedar

ID features: It has two kinds of bluish green leaves (sharply pointed needles and softer, rounded scales). Old bark peels in long, fibrous strands. Can tolerate a variety of soils.

*Fun Fact- In a pinch the bark can be used as a form of rope.

Useful Tree Identification Guides

1. https://www.ontario.ca/environment-and-energy/tree-atlas
2. http://www.ontariotrees.com/id/index.php
3. http://canadiantreetours.org/species-pages/what.html

Additional Components

1. Leaders could search the location for beech trees and assess if they have been affected by beech bark disease with visitors. Beech bark disease poses a significant threat to beech trees in Canada's hardwood and mixed forests. The disease is caused by a combination of an introduced beech scale insect from Europe and a fungus. It begins as many scales feed on the beech tree sap and create open wounds in the bark. The fungus then colonizes the wound and often creates blisters and cankers that ooze from the bark. This disease kills beech trees, resulting in biodiversity, wildlife, and forestry being affected. Particularly, black bears rely on beechnuts as a major component of their diet.

Figure 1. A beech tree with beech bark disease.

2. Visitors could also be encouraged to pick up interesting and colourful leaves that they see along the path. They could then bring these leaves home with them to press as a souvenir of the event. Leaves can be pressed by placing them in between two sheets of wax paper and inserting them into a large book overnight.

Feedback from Today's Event

What did you enjoy?

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What would you change in the future?

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