

## **A Landowners Guide to the Native Woody Species of Southcentral Ontario**

The native trees and shrubs in our forests have evolved over millennia to be adapted to the local soils and climate. A better appreciation of what species are native to our local area can help us better manage and restore our forests for the many benefits they provide.

Southcentral Ontario is a large land area very diverse in topography, climate and soils. This is reflected in a very diverse mix of vegetation, largely dominated by forests with many tree and shrub species - in fact over 150 native trees and shrubs. Though there are many good textbooks that describe species individually, becoming familiar with the list of species you can expect to find in your local area can be a daunting task. We want to make the task easier by walking you through the following steps to get to know your local forests – species by species.

**What is a native species?**

**Why should you care about native species?**

**Describing your site**

**Is Your Site Native?**

**Describing Ontario's forests**

**A Species List for Your Area**

**Choose species for planting projects**

### **What is a native species?**

A native species existed somewhere in southcentral Ontario prior to European settlement and is adapted to local conditions. The term native often has a political connotation – e.g. native to Ontario, although given the size of Ontario this is less than helpful. **Indigenous** is a term that is used interchangeably with 'native', but has a more useful, locally explicit meaning. An indigenous species is adapted to local conditions such as a river watershed, or even more specifically, to the bottom slopes of the river valley.

### **Why should you care about native species?**

- They are adapted to the local climate, site conditions and other indigenous species,
- They have evolved with local insects and diseases, and pest problems tend to be minimal,
- They perpetuate local ecosystem functions such as soil and water conservation and wildlife habitat (food and shelter).

## Describing your site

Even within a local area such as a County there can be great variation in sites due to topography, soil texture and drainage and land use. This translates to different species. Consider these questions as you get to know your site:

- ◆ What is the soil type – shallow or deep? sand, loam or clay?
- ◆ What is the moisture level - dry, wet, seasonally dry and wet?
- ◆ Is the site in shade, partial shade, or full sun – i.e. existing mature forest with closed or uneven canopy, or regenerating natural forest or open field to be restored?

Consult the publication *Choosing the Right Tree* for further information on getting to know your site. It is available from the Eastern Ontario Model Forest, [www.eomf.on.ca](http://www.eomf.on.ca) or the Ferguson Forest Centre [www.seedlingnursery.com](http://www.seedlingnursery.com) or [www.fgca.net](http://www.fgca.net).

After learning about the variation in your area, you can better understand your local native species, for example:

- Which species naturally occur on what site? White pine may be native to your County but will generally be found in the upland areas and is not likely to be found growing well on low-lying wet soils.
- Which species are missing from your forest and could be re-introduced to help restore the function of your forest ecosystem? Sugar maple may now be the dominant species in part due to past harvests that removed the previously dominant, possibly better suited species such as pine and oak.
- What species are non-native (exotic) in your area? Black walnut may have been planted due to its high economic value on its indigenous sites, but it may not be thriving on less fertile soils or in a harsher climate.

## Is Your Site Native?

Many forest sites in southcentral Ontario are greatly disturbed due to

- ◆ overharvesting;
- ◆ soil compaction and depletion from years of cultivation or removal of topsoil;
- ◆ invasive species; or,
- ◆ the extreme heat, drought or pollution of urban conditions.

A planting site can differ a lot from a natural forest site and will need special consideration when selecting species. It's often a case of restoring the site first – cooling soil temperatures and increasing the soil's organic content to increase moisture retention. In some instances we have more experience with exotic species (e.g. Norway maple in cities, Scots pine on old fields) and although they are an option, some can cause serious problems such as excessive shading, soil erosion, and native species displacement. It is preferable to use native species, some of which can survive these disturbed sites. Gradually they can help return the soils and vegetation to a more native forest condition without the disruptions involved with exotic species.

For questions, please contact Barb Boysen, Forest Gene Conservation Association, [fgcaontario@gmail.com](mailto:fgcaontario@gmail.com)

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## Describing Ontario's forests

The distribution of Ontario's many forest species follows variations in elevation, climate, geology and soils. Considerable work has been done to describe the broad patterns. The work of Hills (1959, 1961) and Rowe (1972) is the current basis for describing Ontario vegetation. They both divided the province into 4 broad vegetation bands. The **Forest Regions** (as described by Rowe), or **Site Regions** (as described by Hills) are based on broad climatic patterns, mainly temperature and precipitation. A Site Region has a consistent pattern of vegetation in relation to landform features. Southcentral Ontario has 3 site regions and two forest regions. These regions have recently been refined by the Ontario Ministry of Natural Resources (OMNR) and are called **Ecoregions**.

**Ecoregion 7E** corresponds to the **Carolinian Forest Region**, also called the Deciduous Forest Region. It covers the southern most part of the province, in a broad band along Lake Erie that extends up along the edge of Lake Ontario to Toronto. This area has a unique forest made up of mostly deciduous (or broadleaf) tree species. It includes many species commonly found in other parts of Ontario such as sugar maple and beech, but also nationally rare species such as Kentucky coffee tree, cucumber tree, tulip tree, sycamore, black gum, sassafras and paw paw. This area is the northern edge of a much larger forest region in the United States.

**Ecoregions 5E and 6E** correspond to the **Great Lakes St. Lawrence Forest Region**. It is a mixed forest with some southern deciduous forest species and several conifer species. Sugar maple, beech, yellow birch, oak, aspen, basswood, white cedar, and red and white pine are common. Spruce, jack pine and balsam fir are often components of the many mixed stands in the area. Their occurrence gradually increases as you move northward through the region.

The large ecoregions are further subdivided into **ecodistricts**, which are based on a pattern of distinguishable landscape features. Each ecodistrict has a unique combination of climate and soils, each with typical plant communities.

An ecodistrict is still a very large, variable area that is further divided into ecosites. An **ecosite** is a unique combination of site characteristics including soil type, soil moisture and plant communities (trees, shrubs and herbs). Because of this site variability, a species that occurs in one ecodistrict will not necessarily occur in all ecosites in that ecodistrict. Ecosites also describe the most common associations of species that would be found in a healthy forest community.

### A Species List for Your Area:

Go to [www.fgca.net](http://www.fgca.net) where you will find **Lists of species by Ecodistrict** to help you determine what species are most likely to be found, or are the best species to plant in your area. These lists were compiled using two references: *Trees in Canada* (Farrar, 1995) and *Shrubs of Ontario* (Soper & Heimburger, 1982). Once you have determined which species may be in your area, we have also provided a **Species Information Table** so you

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can learn about their basic site requirements. With this better understanding of what species are native to your area, you can refer back to the many other forest texts such as Trees in Canada and Shrubs of Ontario to learn more about individual species.

Start by finding out where you are within your **County** and then click on the **map** at [www.fgca.net](http://www.fgca.net) which will show you what **ecodistrict** you are in and will then take you to the **Ecodistrict List** of the species generally found in your area. Within the table the species have been listed

1. by growth habit - tree, shrub or vine
2. by conifer or deciduous
3. alphabetically by genus of the scientific name (e.g. Acer, Pinus)
4. alphabetically by common name within a genus ( e.g. red maple, sugar maple)

Each species' average rate of occurrence within the ecodistrict is shown using the following ratings, as adapted from those used by the Ontario Ministry of Natural Resources Natural Heritage Information Centre:

- C - very commonly found (= rating 5 of the NHIC rating)
- U - uncommon to locally common (= rating 4 of the NHIC rating)
- R – naturally rare, very rare and extremely rare (= 1,2 & 3 of the NHIC rating)
- Empty cell - not present (= 0 of the NHIC rating)

**An empty cell with a +** indicates that some species have a very limited range due to very specific site requirements. The + indicates that the species, in general, is not present within that ecodistrict, however it **is known to occur** within at least one County within that ecodistrict (listed in the column:+ - Occurs in these Counties column). The Counties are coded according to a numerical code found in the legend of the **County Map**.

**A rating with an \***, e.g. **U\*** indicates that in most of the ecodistrict the species occurs as rated, but there is least one county within the ecodistrict in which the species is **NOT** known to occur (listed in the column:\* - NOT in these Counties). Refer to the example below:

Species	Scientific name	Eco region	Eco district	Exceptions to Ecodistrict Occurrence	
		7E	7E- 6	+ - OCCURS in these Counties	* - NOT FOUND in these Counties
Eastern Red Cedar	Juniperus virginiana	C	U*		<b>34</b>

You will note that on average, eastern red cedar is common (C) in Ecoregion 7E. In Ecodistrict 7E-6 it is uncommon to locally common (U). The \* takes you to the last column, where '34' refers to Waterloo County where red cedar is not known to occur.

**Species listings are only general guides**, based on information from *Trees in Canada* and *Shrubs of Ontario* as reviewed by experts at the **OMNR Natural Heritage Information Centre** as of 2000. There is more to learn about the actual distribution of individual species. If a species is naturally occurring on your site that is outside the guidelines presented here, the NHIC would like to hear about it to add it to their knowledge about the species. Contact the Forest Gene Conservation Association regarding any such occurrences.

**The Species Information Table** provides a complete listing of the woody species native to southcentral Ontario (as published either in *Trees in Canada* or *Shrubs of Ontario*). Species are listed in the same nested order as in the Ecodistrict tables. The list provides specific ecological information about each species that will help you determine if it is likely to be found on your site, or would be a suitable species to plant. It lists the size and growth habit of the plant, as well as the soil and drainage requirements. Also listed is its shade tolerance which is a species' ability to grow in shade. (for more detailed information on the site requirements of trees and shrubs refer to *Trees in Canada*, *Shrubs of Ontario*, *Silvicultural Guide to southern Ontario*).

### **Choose species for planting projects**

Not every native species is well suited to a restoration effort. In **The Species Information Table**, species are indicated which can tolerate the initial exposed conditions of most restoration sites. Not every species can – for example shade tolerant species such as sugar maple, beech and hemlock most often regenerate in the shade of an existing forest.

Also, species may be generally rare because they have very specific site requirements. Your success in planting these species may be limited unless you research and meet their needs very specifically. As well, rare species planting stock is not likely to be readily available for sale. The Society for Ecological Restoration – Ontario Chapter publishes the *Native Plant Resource Guide Ontario* (<http://serontario.org/publications.htm>) which lists Suppliers of Native Stock. The listing indicates suppliers that are certified by FGCA's *Ontario's Natural Selections* and well as those who follow SERO's Native Plant Material Suppliers Guidelines.

**Seed Source Matters.** Within a single species of tree or shrub, populations have evolved to be genetically distinct in how they are adapted to their local growing conditions. **Work with this genetic adaptation, not against it.** Use seedlings from a locally adapted seed source to maximize your planting success. If stock is not genetically adapted to your site no amount of care will help the tree grow as vigorously as one from the appropriate source.

Consult *Hgtguw Ontario* [www.hgtguwontario.ca](http://www.hgtguwontario.ca), the *Native Plant Resource Guide Ontario*, [www.ontariowoodlot.com](http://www.ontariowoodlot.com) and [www.lrconline.com](http://www.lrconline.com) (re extension notes) for advice on planning and conducting a planting project.

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