

**The Ontario Butternut Recovery Programs encourage landowners to:**

- only remove standing dead or dying butternut, that have been assessed as **non-retainable** by an MNR-designated **Butternut Health Assessor** (BHA, as per requirements of Ontario’s Endangered Species Act 2007)
- report butternut locations:
  - to increase our knowledge about infection and death rates, seed crops and regeneration.
  - to help locate **retainable** trees that may be showing **genetic resistance**. Local Recovery Programs are fundraising to build capacity to **assess trees, collect seed, and clone trees** to establish an archive for seed production and resistance screening and breeding.

For more information about butternut, to **obtain a butternut report form** and to find out which areas have tree assessment programs, go to **www.fgca.net**

*Or call*

**The Ontario Woodlot Association at: 1-888-791-1103**

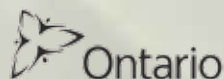
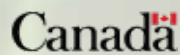
They will give your contact information to the Ontario Butternut Recovery Program.

**Supported by**

Canada’s Habitat Stewardship Program for Species at Risk,

*and*

Ontario’s Species at Risk Stewardship Fund



**How to Identify Butternut** (*see www.fgca.net for more information*)

Open grown butternut trees have short trunks with broad, spreading crowns. Forest grown trees are taller with much smaller crowns. The small branches tend to bend downward and turn up at the ends to reach the light. Butternut (white walnut) and black walnut can be confused. As well, exotic walnuts and hybrids (planted in North America since the mid 1800’s) are found in urban and settled areas. The Ontario Butternut Recovery Program is concentrating on the pure, native species. Review this table to help you identify what species you have.

	<b>Butternut</b> <i>Juglans cinerea</i> Larger range than black walnut, north into central and eastern Ontario	<b>Black Walnut</b> <i>Juglans nigra</i> Native to southwestern Ontario	<b>Butternut hybrids &amp; exotic walnuts</b> Found in settled areas
<b>Twigs</b>	<ul style="list-style-type: none"> <li>• Thick, tan coloured</li> <li>• Quite fuzzy</li> <li>• Chambered pith is narrow and dark brown (2 yr twig)</li> <li>• Hairy fringe above leaf scar</li> <li>• Straight upper leaf scar margin</li> </ul>	<ul style="list-style-type: none"> <li>• Thick, orange-brown</li> <li>• Slightly fuzzy</li> <li>• Chambered pith is orange-yellow</li> <li>• No hairy fringe above leaf scar</li> <li>• Notched upper leaf scar margin (most reliable clue on seedlings).</li> </ul>	<p>If your tree has a several of these characteristics, it is likely a hybrid or exotic walnut tree:</p> <ul style="list-style-type: none"> <li>• A planted tree</li> <li>• Fast growing; withstands some shade</li> <li>• Little sign of canker</li> <li>• 2 yr old twig pith is wide and light brown; top twig is a hybrid; bottom is butternut.</li> </ul> 
<b>Buds</b>	<ul style="list-style-type: none"> <li>• Fuzzy</li> <li>• Elongated, blunt terminal bud</li> </ul>	<ul style="list-style-type: none"> <li>• Slightly fuzzy</li> <li>• Rounded, blunt terminal bud</li> </ul>	
<b>Leaves</b>	<ul style="list-style-type: none"> <li>• Compound with 11-17 leaflets</li> <li>• 40 cm long</li> <li>• End leaflet same size as adjacent leaflets</li> <li>• Leaflets are stalkless</li> <li>• hairy underside</li> <li>• rough upper surface</li> </ul>	<ul style="list-style-type: none"> <li>• Compound with 15-23 leaflets</li> <li>• 30 cm long</li> <li>• Small or missing end leaflet</li> <li>• Leaflets are stalked</li> <li>• Slightly hairy underside</li> <li>• Smooth upper surface</li> </ul>	<ul style="list-style-type: none"> <li>• Less deeply ridged bark</li> <li>• Male catkins longer than 15 cm; more than 8 female flowers along a stalk</li> <li>• Mature leaves &gt; 60 cm long</li> <li>• Fall leaves stay green weeks later than other native trees</li> <li>• Leaves fall en masse after a hard frost (e.g. in late Oct)</li> <li>• Good seed crops almost every year</li> <li>• Some have heart shaped nut shell</li> </ul>
<b>Bark</b>	<ul style="list-style-type: none"> <li>• Young – Ash grey, smooth</li> <li>• Mature – wide, flat topped, diamond pattern ridges</li> </ul>	<ul style="list-style-type: none"> <li>• Young – light brown, scaly</li> <li>• Mature – dark brown, deep, intersecting ridges</li> </ul>	
<b>Seed</b>	<ul style="list-style-type: none"> <li>• Oval shape</li> <li>• Smooth, sticky, fuzzy husk</li> <li>• jagged ridges on inner nut shell</li> <li>• Oily sweet nut kernel</li> <li>• Good crops only every 3 to 5 years</li> <li>• Squirrels start harvesting seeds mid to late August</li> </ul>	<ul style="list-style-type: none"> <li>• Round shape, lightly dimpled husk (like an orange)</li> <li>• Slightly to not fuzzy</li> <li>• Smooth ridges on inner nut shell</li> <li>• Oily strong flavoured nut kernel</li> <li>• Frequent seed crops</li> <li>• Seeds are harvested by squirrels later than Butternut (mid to late Sept)</li> </ul>	

**A Landowner’s Guide to Butternut and Butternut Canker in Ontario**



**You can help this endangered species**

**Tell us about your butternut**



*Photo credits: B. Kowalyk, D. Coleman, E. Czerwinski, S. Robinson, B. Boysen, G. Bales – OMNR; M. Ostry, USDA Forest Service; A. Crichton*

**B**utternut (*Juglans cinerea*) is an endangered species, threatened by a fungal disease, **Butternut Canker** (*Sirococcus clavignenti-juglandacearum*). The fungus enters through leaf scars and wounds and kills areas of the cambium on a tree's twigs, main stem and root flares. As these dead areas or cankers expand, branches die, the stem is girdled and the entire tree dies.

Trees of all ages, sizes and on all sites are at risk. The USA has lost significant numbers of butternut to the canker. In Ontario and Quebec the disease is widespread with increasing tree loss. New Brunswick butternut is also affected.

Butternut was officially listed as endangered under *Canada's Species at Risk Act* (SARA) in 2005. In Ontario Butternut is also listed as endangered under the *Endangered Species Act* (ESA 2007). Briefly - all butternut are protected until assessed as 'non-retainable' by an MNR-designated Butternut Health Assessor (BHA). For more detail contact a local office of the Ontario Ministry of Natural Resources. Call 1-800-667-1940 or visit [www.ontario.ca/speciesatrisk](http://www.ontario.ca/speciesatrisk)

## Symptoms of Butternut Canker (see [www.fgca.net](http://www.fgca.net) for more information)



Dark, sunken, elongated cankers on branches and stem. Under the bark the dead cambium has a dark diamond shape.



Bark may be loose or gone over older cankers.



Dying or dead branches in the sunlit part of the crown are likely cankered (dead shaded branches are not a symptom).



Dormant buds near cankers become 'epicormic' branches, but don't live long.



In the spring, a thin black fluid oozes from the cracks in the bark over a canker.



The rest of the year, the fluid forms a dry, sooty patch on the bark over the canker.



J. Laking's butternut grafted in March 2010



## Managing butternut in your woodlot

Butternut is a common yet not abundant tree species, valued by nut growers, woodworkers and wildlife. It thrives on moist, alkaline soils but can grow on drier sites. It is short lived (<100 years) and needs full sunlight to stay vigorous. Longer lived species can shade them out of forests with closed canopies.

There is no known cure for the canker, but some diseased trees can survive many years. USA researchers set criteria which has been adopted in Ontario's ESA regulations, to protect trees with > 50 % live crown and no main stem cankers, or > 70 % live crown and < 20 % of the main stem's circumference cankered.

Such 'retainable' trees can live longer to produce seed and may be genetically resistant. To maintain their vigour and promote seed crops, trees shading their crowns could be removed.

## Planting Butternut

The canker can readily kill seedlings especially if stressed by droughty sites and poor planting and tending. For best results:

1. Plant native, locally adapted seed/seedlings
2. Plant in the open on deep, fresh soil
3. Plant in a mix with slower growing species
4. Water in droughts, remove competing plants, and protect from animals for at least the first 5 years.

## ← Potentially Resistant Butternut

The Recovery Program is looking for mature, retainable trees that

- have callused cankers or no visible cankers
- are within 40 metres of a badly cankered tree, to propagate in a seed production and resistance screening and breeding program.

**If you know of such a tree, please contact the FGCA.**



A released, vigorous butternut crown