

Girdling roots are roots that grow around other roots or the main stem of a tree. They usually cut off or restrict the movement of water and nutrients within a tree. In urban areas, restricted root space, compacted soil and improper planting techniques encourage the development of girdling roots. Some tree species are more susceptible to this problem than others.

### Host and Damage

**The following tree species commonly have girdling roots:**

Norway maple  
Sugar maple  
Red maple  
Green ash  
Honey locust  
Littleleaf linden

Trees with girdling roots usually show signs of decline. Typical symptoms are reduced leaf size, early autumn leaf colour and dieback of selected branches. If a tree has more than one girdling root, the entire tree may die. One of the most recognizable signs of the presence of girdling roots is the lack of the butt flare at the bottom of the trunk. Normally, trees have a gentle trunk flare or buttress at their base.



*Girdling root around the base of a mature tree*



*Girdling roots on a young tree*



*Lack of butt flare at the base indicates the presence of girdling roots*



*Girdling root on a container-grown tree*

## Specific Management Practices to Control the Problem of Girdling Roots:

- If planting in confined areas, plant tree species that are not susceptible to girdling roots.
- Proper planting is most important for prevention of the problem. See the instruction sheet for tree planting issued by City of Toronto, Urban Forestry Services.
- When planting, inspect the root ball carefully. It can help to correct the problem before it becomes serious. Loosen and straighten circling roots. Small girdling roots can be removed with handpruners or a sharp chisel. While the pruning cut is a wound itself and can cause damage to the tree, the likelihood of the tree dying is greater if no action is taken. Root pruning is necessary for any container-grown tree.
- It is recommended that visible girdling roots be removed 4-6 years after transplanting. After this period of time, the tree produces fewer girdling roots. This is the time when roots can be removed without causing unnecessary injury to the tree.
- Do not pile up too much mulch around the tree trunk. It should be applied in max. 3-4" layer. Excessive mulch reduces the supply of oxygen necessary for root growth and as a result, the roots grow into the mulch, causing formation of girdling roots.

## General Management Practices to Improve Tree Health:

- Water your trees during dry spells. Infrequent, but deep soaking preferably during the early morning hours is recommended. Water absorbing roots are located in the upper 25 cm of the soil and extend outward well beyond the canopy dripline.
- Place organic mulch, (e.g. wood chips), or living mulch, (e.g. ground cover plants) around tree bases to keep the soil moist for longer periods and encourage healthier roots.
- Avoid unnecessary excavating, grade changes, soil compaction, root cutting or hard surfacing around trees. These activities destroy vital roots, which may lead to the decline or death of trees.
- Refrain from using salt or herbicides around trees.

**Forest Health Care** is a holistic approach to tree care that focuses on improving the health of trees in an urban environment. Our objective is a healthy, sustainable urban forest. Trees in urban forests are often stressed by compacted soil, drought, poor planting and pruning techniques, air pollution, road salt, damage from construction and much more. Trees planted in the right sites and properly maintained are less likely to suffer and are more resistant to pest problems.

Pest problems are managed using a decision making process, that considers the following:

- Identification of the host and the pest.
- Monitoring of the host and the pest.
- Selection of the appropriate management strategy.
- Evaluation of the management plan.

Our focus is on pest management programs that are environmentally, socially and economically sound.