

After the flood

A tree's recovery after a flood depends on several factors: the species, how long it was underwater and the condition it was in before the flood. Trees in urban areas, where the environment is already unfriendly, are even more prone to flood damage.

Immediate impacts

The inundation of floodwater cuts off oxygen to the roots and deposits sediment which further limits available oxygen. Floodwater may contain contaminants such as oil, pesticides and fertilizer that have been washed from areas upstream. The force of the movement of water scours soil and exposes roots. Floating, fast-moving debris can cause physical injury to trunks. High winds during floods can tip over trees that lack the typical anchoring that roots provide in dry soils.

Flood-stressed trees may show symptoms of leaf chlorosis (yellowing),



defoliation, reduced leaf size and shoot growth, sprouting, crown dieback, early fall coloration and leaf drop.

Some tree species will tolerate flooding better than others. For a list of species tolerant of moist soils, see the back page.

Managing flood-stressed trees

Flood-stressed trees are prime targets for "secondary" attacks by insects and diseases, including collar and root rot caused by water molds.

Do a soil analysis to test for contaminants. If not contaminated, there are ways to enhance the soil and increase tree vigor. The US Forest Service recommends aerating the soil, mulching the tree and watering if needed.

Dead, damaged and diseased branches should be pruned. It is better to prune in winter to minimize spread of disease, especially in oaks.

Maples and birches should be pruned in summer since they bleed sap in late winter.

Long-term monitoring

Floodwaters impact the root system first and damage may not be evident immediately. In addition, the increase and number of severe weather events in succeeding years can also contribute to and accelerate the demise of damaged trees.

Trees will need to be monitored for several years. Photographing your tree at least once a year can really help you see change over time, especially for trees that you see on a regular basis. Monitoring can help you determine if the tree is declining or recovering.



The force of floodwater causes erosion, which can expose roots and weaken the tree.

Tree assessment after natural disasters

Many factors go into making the decision to cut down a tree. The list below can provide you with some general guidelines. **We still recommend that you seek out the advice of experts including city foresters or certified arborists.**

Things to consider:

- The tree's health prior to the disaster
- The tree's age. Contact an arborist or city forester if it has historical value.
- The tree's suitability to its site
- The potential for future injury (For example, the same area might be prone to flooding again)
- The timing of the natural disaster (during the growing season or when the tree was dormant)
- Species (For example, a damaged ash tree would not be as important to save as a mature oak.)
- Adjacent trees (Is the tree the only one providing benefits in an area vs. a tree growing among other healthy trees?)
- Extent of damage. **In general, remove the tree if more than 50 percent of the crown has been lost, more than 1/3 of the circumference of the trunk damaged, or if the tree leans more than 45 degrees.**
- History of the tree's stressors. Keep in mind that a tree that has been weakened by flooding, strong winds, ice or hail is less vigorous and may be more prone to a secondary insect or disease attack or more negatively affected by an environmental condition such as an unusually cold winter.

Remember, removing a tree unnecessarily that could potentially recover means a large and immediate loss of many tree benefits. If you decide to keep the tree, continue to monitor its health. Sometimes the damage is not visible for several years. **Plan to do periodic reassessments, for example at six months or one year** depending upon available resources.

Finding certified arborists

The International Society of Arboriculture (ISA) lists certified arborists and those with ISA Tree Risk Assessment Qualification certification in your area:

<http://ww2.champaign.isa-arbor.com/findanarborist/findanarborist.aspx>

Tree species for flood-prone areas

Here are some trees known to be more tolerant of moist soils. In addition to local site conditions, be sure to consider the species' hardiness zone when choosing species.

American elm cultivars	Honey locust- thornless	Persimmon (American)
Baldcypress	Larch	Quaking aspen
Black willow	Magnolia- Southern,	River birch
Cottonwood	sweetbay	Sweet gum
Dawn redwood	Maple- red and silver	Sycamore
Hackberry	Oak- pin, swamp white	Tupelo (black gum)
Hawthorns	Paw paw	

Getting Help



Trees Forever's *Recover, Replant, Restore!*

- Use our resources. Start with checking out www.treesforever.org/Guides
- Volunteer coordination for clean-up and replanting
- Help build and facilitate a tree committee
- Hold workshops on tree selection, proper tree planting and care, diseases and stressors

Call (800) 369-1269 to find out how Trees Forever's *Recover, Replant and Restore* program can help.

Illinois Department of Natural Resources

www.dnr.illinois.gov/conservation/forestry/urbanforestry

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(319) 373-0650 • (800) 369-1269
www.treesforever.org
80 W 8th Avenue • Marion, IA 52302