



TEXAS A&M FOREST SERVICE

Floods and Trees – What to do now?

Flooding is a catastrophic event and can take years for trees to return to normal. This factsheet will give you information to help make decisions about what steps to take with your most valuable natural asset, your trees.

How does flooding kill trees?

Roots need oxygen to survive and prolonged saturation will create an oxygen barrier to the root system, ultimately killing some roots or even the entire root system. Fast moving debris during flash flooding can girdle a tree by knocking off the bark and vascular tissue. Trees that are affected in this manner may be able to provide water through the xylem tissue to the crown of the tree, but will not be able to send important sugars to the roots. Complete submersion of the crown or canopy of a tree will effectively suffocate the tree and kill it. The soil surrounding the tree pre -flood may be eroded during the flood, which can make the tree less stable and prone to falling.

Timing and duration of flooding is critical; floods that occur in the active growing season can kill trees after just a few days, but flooding in the dormant season can last several weeks without any noticeable effect. While many trees will die from prolonged flooding, some trees may survive the initial flood but continue to decline, ultimately dying several years after the flood.

What will I notice if my tree declines?

The leaves may be stunted or pale and yellowish (chlorotic). Partial or complete defoliation of the crown may occur. Premature fall color may be evident. Water sprouts in the crown and adventitious sprouts at the base of the tree may grow in response to stress. Several months or years after the event, mushroom conks and wood-boring insects may appear.

What can be done?

If the bark has been completely stripped away, stapling black roofing felt around the affected area may allow the cambium tissue to repair. If sediment has been deposited over the root area, dig out excess soil in contact with the root collar or stem to previous soil grade. Aerate the soil with an air spade or through vertical mulching. Prune dead or broken branches.



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What species are tolerant of flooding?

These species have been observed to survive flood events that killed other species of trees. This list does not predict every tree that will survive or die during a flood, but it can be used when planting trees in flood prone areas. *If you don't see your species on this list and you are in Texas, assume it is intolerant of flooding. A prudent strategy is to wait and see how individual trees respond to the flood.*

Common Name	Scientific Name	Common Name	Scientific Name
boxelder	Acer negundo	sycamore, American	Platanus occidentalis
maple, red	Acer rubrum	sycamore, California	Platanus racemosa
maple, silver	Acer saccharinum	London planetree	Platanus X acerifolia 'Bloodgood'
buckeye, red	Aesculus pavia L.	cottonwood, Eastern	Populus deltoides
devil's walking stick	Aralia spinosa	poplar, Lombardy	Populus nigra 'Italica'
river birch	Betula nigra	oak, sawtooth	Quercus acutissima
hornbeam, american	Carpinus caroliniana	oak, bluff	Quercus austrina
hickory, water	Carya aquatica	oak, swamp white	Quercus bicolor
hickory, bitternut	Carya cordiformis	oak, blue Japanese	Quercus glauca
pecan	Carya illinoensis	oak, overcup	Quercus lyrata
sugarberry	Celtis laevigata	oak, bur	Quercus macrocarpa
hackberry, common	Celtis occidentalis	oak, swamp chestnut	Quercus michauxii
hackberry, Chinese	Celtis sinensis Pers.	oak, water	Quercus nigra
hawthorn, littlehip	Crataegus spathulata	oak, cherrybark	Quercus pagoda
hawthorn, Texas	Crataegus texana	oak, pin	Quercus palustris
hawthorn, green	Crataegus viridis	oak, willow	Quercus phellos
persimmon, common	Diospyros virginia	oak, bottomland post	Quercus similis
ash, berlandier	Fraxinus berlandierana	oak, nuttall	Quercus texana
ash, green	Fraxinus pennsylvanica	oak, live	Quercus virginiana
ash, evergreen	Fraxinus uhdei	Palmetto	Sabal minor
ash, Arizona	Fraxinus velutina	palm, cabbage	Sabal palmetto
water Locust	Gleditsia aquatica	palm, sabal	Sabal texana
honeylocust, thornless	Gleditsia triacanthos var. inermis	willow, weeping	Salix alba
bay, loblolly	Gordonia lasianthus	willow, corkscrew	Salix matsudana
Two-wing Silverbell	Halesia diptera	willow, black	Salix nigra
holly, dahoon	Ilex cassine	elderberry, American	Sambucus canadensis
possumhaw	Ilex decidua	cypress, pond	Taxodium ascendens
holly, American	Ilex opaca	cypress, bald	Taxodium distichum
winterberry	Ilex verticillata	cypress, Montezuma	Taxodium mucronatum
yaupon holly	Ilex vomitoria	cedar, northern white	Thuja occidentalis
sweetgum	Liquidambar styraciflua	tallow, Chinese	Triadica sebifera
magnolia, southern	Magnolia grandiflora	elm, winged	Ulmus alata
magnolia, sweetbay	Magnolia virginiana	elm, American	Ulmus americana
wax-myrtle	Myrica cerifera	elm, cedar	Ulmus crassifolia
tupelo, Ogeechee	Nyssa ogeche	palm, Washington	Washingtonia robusta
black gum	Nyssa sylvatica		

Remember, trees are long lived and to make the most of your investment, hire the services of an experienced ISA Certified Arborist at <http://www.isa-arbor.com/findanarborist/arboristsearch.aspx> .