

Indiana Department of Natural Resources  
Division of Entomology and Plant Pathology

State Forests and Woodlots:

Aerial surveys and inspections of woodlots and state forests have shown that the drought is having a large impact on trees in Indiana. The understory (smaller trees and vegetation) within the forests is drying out and dying due to the lack of moisture in the soil. The soil is compacting due to the lack of moisture which means that the larger trees with shallow root systems are showing signs of stress and mortality. Many species are already losing leaves in an attempt to reserve energy and nutrients. Hard (sugar) maples, one of the most prevalent species of trees in Indiana woodlots, have shallow root systems and are showing signs of mortality and will continue to do so for the next five to seven years. Several species of evergreen including white pine and spruce trees also have shallow root systems and may be lost in the coming years. Mature trees are slow to show damage and in fact the damage from this year's drought may not show up in these trees until 2013 or 2014. Another factor that will play a role in forest mortality is what kind of winter is to come. If the following winter contains several hard frosts, the lack of decaying vegetation which usually covers the ground and protects the top layer may cause further mortality in hardwood trees.

Mortality within any given woodlot will depend on several factors, including the species of trees, the type of soil, the surrounding area, and the amount of rainfall within the woodlot. Sandy soils do not capture or retain moisture from rainfall as well as soils with clay; areas with sandy soils will show larger amounts of tree mortality due to the drought. Hard maples, black oaks and hickory trees will show signs of decline if not mortality due to the drought, white oak species are more drought tolerant. Trees located in marshy areas will show signs of decline as well as the water is flowing solely over the bedrock and the root system of the trees is unable to penetrate that layer.

Trees under stress from the environment are more susceptible to damage and mortality from pests and pathogens. Tulip tree scale for example is showing a strong presence throughout Indiana this year due to the short winter months. The combination of the drought and the large population of tulip trees will increase mortality in tulip poplar in the coming years. An elm tree with Dutch elm disease is another example of a tree that will be hit hard due to the combination of the stress from the drought and the fungus.

Urban settings:

Small trees or those that have been planted in the last couple of years will be impacted by the drought and will probably show high rates of mortality. Trees with surface roots like white pine and spruce will also be heavily impacted by the drought. Ornamental trees such as redbuds and crabapples may prematurely drop leaves. Small branches of trees showing stress from the drought may become brittle and fall from the tree, especially silver maple. Neighborhood islands with trees in them that are not watered regularly will show signs of stress and mortality.

Once the watering ban is lifted in the area, our advice is to allow a slow trickle of water to directly hit the tree for an hour at least twice a week making sure to saturate the ground surrounding the tree. Ensure that mulch is placed around the base of the tree when able to retain that moisture for as long as possible in the high heat of the summer.