Green Iowa AmeriCorps at Trees Forever

The Seven Deadly Tree Diseases

A spooky story featuring some of the many dangers that lurk in the ways for trees each spring

American Chestnut Blight

This disease affects American Chestnut trees, which used to be one of the most common trees in the U.S. This fungus creates cankers around the tree that eventually result in stem girdling and leaf browning. The spores from this fungus are easily spread by the wind, insects, and birds. This disease has led to an almost complete extinction of Chestnut trees, since its introduction to the U.S around 1904.

Culprit: the fungus *Cryphonectria parasitica*

Dutch elm Disease

'This disease affects Elm trees, and is caused by the fungus Ophiostoma ulmi which originated in Asia, spread to Europe and eventually to the U.S. It was officially diagnosed in The Netherlands which is where the name 'dutch' originates. The disease is transferred from tree to tree by spores attached to bark beetles and European elm beetles. These beetles live and reproduce in elm trees and emerge as adults, carrying with them the infectious fungal spores.

Culprit: the fungus *Ophiostoma ulmi*

Thousand Cankers

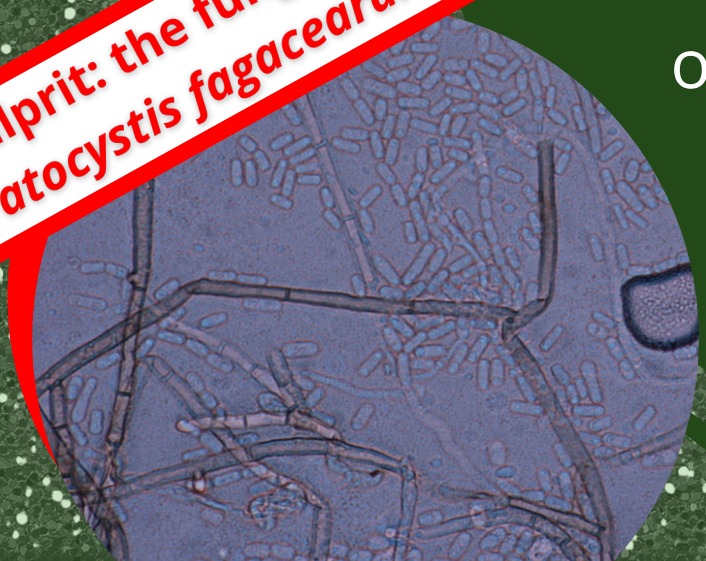
Culprit: the fungus Geosmithia morbida

This disease primarily affects walnut trees, but does affect other tree species as well. The pathogen was first discovered in the western U.S and is carried by walnut twig beetles. Adults covered in the spores of this fungus enter trees, dig tunnels, and lay their eggs, damaging the vascular tissue of the tree and allowing the fungus to spread. This results in destroyed phloem tissue, which is essential to providing the tree with nutrients and leads to canker formation within the bark. Adults emerge from trees covered in spores and continue on their infection.

Oak Wilt

This fungus is known to have been on the loose in the U.S since the early 1900s. It specifically infects oak tree species and can lead to rapid death rates among these trees when infected. The fungus attacks the oak's vascular system which leads to a rapid decline in the health of the tree. Symptoms of this type of infection consist of a massive amount of wilted leaves in the spring and summer time and eventually branch dieback.

Culprit: the fungus *Ceratocystis fagacearum*



Emerald Ash Borer

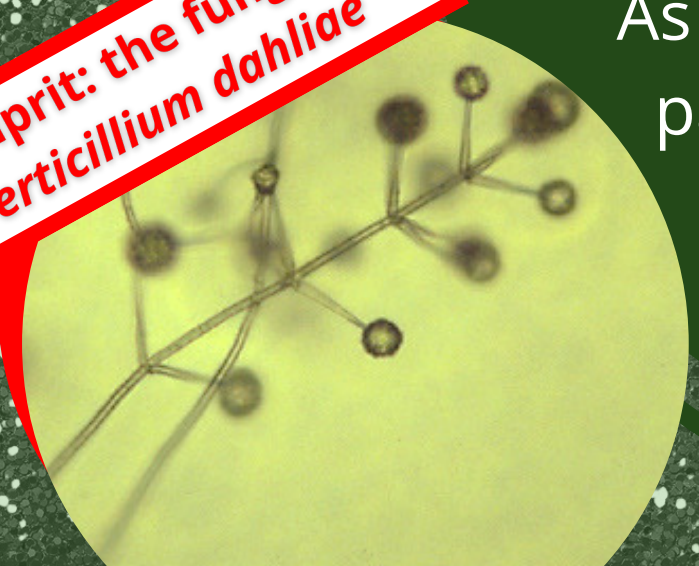
Not a fungus but an insect! The invasive Emerald Ash Borer bores into ash trees and lays it's eggs. Over winter, the larvae utilize the tree's warmth and create “S” shaped tunnels into the vascular system of the trees. This process cuts off the tree's access to water and nutrients, ultimately leading to the death of the tree. In the spring, the larvae emerge as adults and the cycle continues, killing a single ash tree in just a short couple of years.

Culprit: the insect Emerald Ash Borer

Verticillium wilt

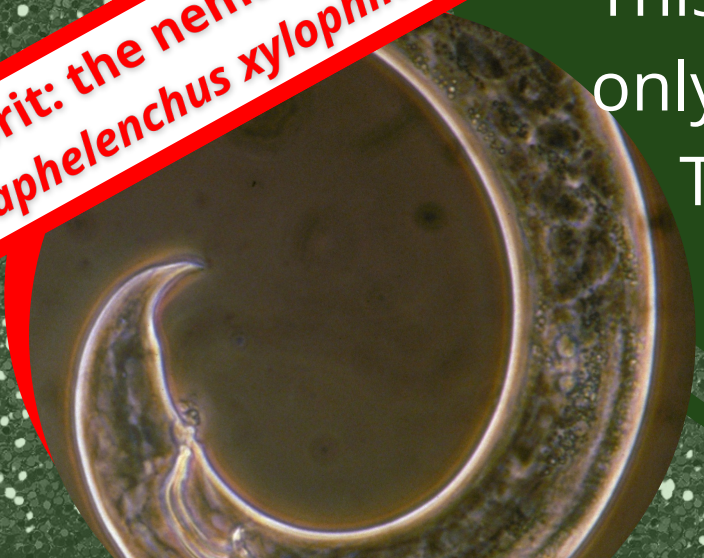
This fungus can infect
many types of tree species.
The infection starts in the roots,
causing root rot and works it way
up the tree's vascular system. Once it
has infiltrated the xylem tissue of the
tree, it means that the tree can no
longer provide water to it's leaves.
As a result, the tree leaves turn a
patchy brown color and begin
to show severe limb
die-back.

Culprit: the fungus
Verticillium dahliae



Pine wilt

This disease is caused by the pine wood nematode. The nematodes eat the resin ducts in the upper part of the tree, causing air pockets to form in the water transport system. This cuts off the water supply flowing through the tree, which causes it to wilt and eventually die. This process can happen quickly, in only a few weeks to a few months. These nemaotdes are carried from tree to tree through pine Sawyer beetles.



Culprit: the nematode *Bursaphelenchus xylophilus*