



True Mistletoe

O & T Guide OD-10

Natalie P. Goldberg
Extension Plant Pathologist



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Hosts: Mistletoes are parasitic higher plants which affect many ornamental trees and shrubs. True mistletoes, also known as leafy mistletoes, are caused by *Phoradendron* species. These plants parasitize hardwood trees, such as cottonwoods, elms, ash, willows, oaks, and locusts.

Symptoms: This parasite is most noticeable in the winter when their deciduous host trees have dropped their foliage. It appears as green, bushy growths hanging from infected branches. Heavily infected trees may almost appear to be evergreens in winter due to excessive mistletoe growth. Mistletoes do not have true roots, but are attached to their host by modified roots called haustoria or “sinkers.” Haustoria grow into the branches and extend internally in the tree up to one foot past the site of infection. Haustoria not only anchor the parasite to the branch, but function in the removal of water and nutrients from the tree. Branches may become swollen at the sight of infection. Mistletoes continue to grow and enlarge in size from year to year. True mistletoes cause a slow decline in their host plant. Heavily infected trees are more susceptible to other diseases, insects, and environmental stresses. When trees are infected for many years, they may eventually be completely overtaken by mistletoes and chlorosis, branch dieback or complete tree death may occur.

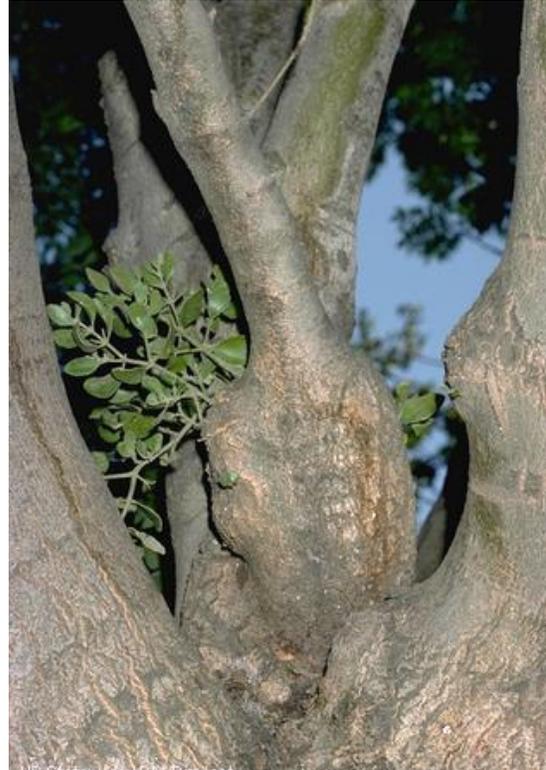
Biology of True Mistletoes: True mistletoes have chlorophyll but no true roots, thus, they are capable of producing some of their own food (carbohydrates produced through photosynthesis), but rely on host plants for water and nutrients. This parasite is disseminated by birds, which feed on the seed-bearing mistletoe berries and deposit the seeds on host plants in their droppings. If the seed is deposited anywhere on a susceptible host, it can germinate and start a new infection.



True mistletoe, *Phoradendron* sp., with berries. Photo: Hilton Pond Centers.



Mature plant of true mistletoe, *Phoradendron* sp. Photo: J. K. Clark, University of California.



Swollen branches on an ash tree caused by mistletoe infection. Photo: J. K. Clark, University of California.



Ash tree heavily infested with true mistletoe. Photo: N. P. Goldberg, New Mexico State University.

Management: The most effective means of managing true mistletoe is removal of the parasite as soon as it is discovered. Infected branches should be pruned to a main lateral branch or at least a minimum of one foot below the infection. When whole branches can't be removed or the infection is in the main branch, aerial shoots should be removed by cutting or chemically by the use of ethephon (ethylene) products. Although the parasite will grow back, periodic removal helps to alleviate some of the stress placed on the host plant. Aerial shoots should be removed before they set seed. This will help to reduce inoculum in the immediate area. Heavily infested trees in severe decline should be removed. Replant with non-hosts or more resistant species.

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