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# MYSTERIOUS MISTLETOE

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From *The Curious Gardener*, Winter 2012

Mistletoe. It's weird, it's poisonous, it's a parasite, and yet we love mistletoe so much we manufacture plastic likenesses of the plant to hang it in our homes every winter! Is that weird or what?

Mistletoe is an evergreen semiparasitic plant that attaches itself to its host, stealing nutrients and moisture from the limbs that it is attached to. It is considered a hemiparasite, a "partial parasite", because its green leaves photosynthesize, producing some of its own food.

The berries, highly poisonous to humans, are quite tasty to birds, who spread the sticky seeds through their droppings from host to host. The name mistletoe means "dung on a twig" and is a reference to its method of dispersal.

Once upon a tree host, the seed sprouts and anchors itself into the host's bark with a root-like structure called "hausteria". These roots gather water and nutrients for the mistletoe, and the mistletoe begins to grow its own green leaves for photosynthesis. Initial growth is slow and it may take years for the mistletoe to mature enough to flower and produce berries.



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## Types of Mistletoe

There are many different species of mistletoe. We have three species in our area.

- *Phoradendron macrophyllum* or big leaf mistletoe primarily affects landscape trees. Common hosts for this mistletoe include 'Aristocrat' flowering pear, ash, birch, box elder, cottonwood, locust, silver maple, walnut, and zelkova.
- *Phoradendron villosum* or common mistletoe (also called oak mistletoe and hairy mistletoe) is found in our native oak population.
- *Arceuthobium campylopodum* or western dwarf mistletoe is less noticeable, differs in appearance, and is found in some of our native pines. Each mistletoe species has different preferences as to its host. Mistletoe growing in one tree won't necessarily spread to different species of trees in the landscape.

## Does Mistletoe Kill Trees?

Most trees can tolerate a few mistletoe plants growing in the branches but infestations may weaken the tree and kill individual branches. This may be the tree's defense against mistletoe—a sloughing off of its infested branches since mistletoe needs to be attached to living tissue to survive.

Although mistletoe infestations are associated with higher mortality rates for the tree host, it is not necessarily the primary cause of death of an infected tree. Biologically, it is not in the parasitic plant's best interest to kill its host as that would hasten its own demise. Some biologists have suggested that mistletoe is often blamed falsely as a cause of tree death, simply because the mistletoe is much more visible after the loss of leaves when the tree dies.

Mistletoe is an important plant in our woodlands and wild areas providing food, shelter, and nesting sites for numerous bird species including western bluebirds, cedar waxwings, phainopeplas, and robins as well as insects such as the great purple hairstreak butterfly.

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Recent research suggests mistletoe may be a keystone plant in some ecosystems. Parasitic plant activity has a profound effect on plant species dynamics, affecting surrounding vegetation and wildlife, much of it in a surprisingly positive manner!

Even so, it is not acceptable to allow mistletoe to grow and spread in most of our communities. The possibility of mistletoe seeds being spread from your tree to a neighbor's vulnerable tree is high. Dead mistletoe-infested limbs may fall from the host tree and are a hazard in populated communities. Mistletoe weakens a tree and may make it more susceptible to other pests and disease. Trees heavily infested with mistletoe are unsightly. Regular removal and management of mistletoe is recommended.

## Management of Mistletoe

The most effective method of mistletoe management is to remove infected branches, cutting back at least one foot beyond the mistletoe to a lateral branch. This is best done when the mistletoe is young but can be done when the mistletoe is mature as well. Think of this as weeding the pest (mistletoe) along with its roots! If this is not possible, cut the mistletoe flush with the branch, wrap layers of black plastic around the limb and secure with twine or tape, tight enough to exclude light but not so tight that it girdles the branch. This works like a weed mulch and prevents the mistletoe from photosynthesizing and growing.

If neither of these management methods is feasible, simply cutting the mistletoe back frequently will help prevent its spread. Since it takes several years for a mistletoe plant to mature enough to bloom, flower, seed, and spread, this may lessen its impact upon neighborhood trees. This is equivalent to hoeing weeds in the garden but leaving the roots; the weed is still there but it can't produce seeds or spread.

A chemical growth regulator is also available, but since it must be sprayed on each individual mistletoe plant and is not significantly more effective than simply cutting growth off, it has few advantages.

By far the most preferred method of mistletoe management is to plant resistant trees such as 'Bradford' flowering pear, Chinese pistache, crape myrtle, ginkgo, golden rain tree, liquidambar, sycamore, and conifers such as redwood and cedar. This virtually eliminates both the effort of managing mistletoe in the landscape and it prevents the spread of mistletoe to other trees. When planting new trees in areas with abundant mistletoe populations or when replacing a tree infested with mistletoe consider choosing these trees.

Winter is the best time to survey the mistletoe infestations in your yard and to develop a plan for its management. Of course, anytime of the year is acceptable but with the trees bare of leaves, it's simpler to see the mistletoe and easier to access and cut. Most homeowners can deal with mistletoe by themselves but if you call a professional, you may want to ask your neighbors if they wish to share the service since mistletoe management may be better controlled on a community level.

Whether you view mistletoe as a menace or a fascinating plant, it's certain that few other parasites are as loved during the holiday season as mistletoe! It's weird. And happy holidays!

## References

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