Mistletoe

December 2016

Field Notes

Leafy mistletoe (*Phoradendron*). S. Smith/NPS. J. Decruyenaere, Creative Commons license.

Hero or villain … how do you perceive mistletoe? The Christmas tradition of stealing a kiss under a sprig of mistletoe invites warmhearted feelings towards this creature, but its reputation as a ruthless parasite of trees invites the opposite—consternation. This often maligned plant, however, plays a valuable ecological role.

General Description

Mistletoe is the common name for over 1300 species of flowering plants that are globally distributed across several families in the order, Santalales. All mistletoe species share a common growth form—obligate hemiparasitism. They obtain all their water and minerals from their host plants, but are able to photosynthesize some of their own energy; thus, they are only partial, or "hemi" parasites.

Around the world, mistletoe is a perennial subshrub/shrub that comes in many shapes. Some species are green and leafy, some are scaly. Some have large showy flowers. Some grow almost completely inside their host plant, emerging only to flower. While many mistletoe plants grow into rounded, densely stemmed clumps, others cause the host tree itself to grow a knot of deformed branches—a "witch's broom." Two of the more common native mistletoes in the Pacific Northwest are leafy mistletoes (*Phoradendron* spp.) and dwarf mistletoes (*Arceuthobium* spp.), both in the family, Viscaceae (or Santalaceae). These two groups commonly infect oaks and conifers.

Ecology and Reproduction

Both leafy and dwarf mistletoe are dioecious, which means, "living in two dwellings." Male mistletoe plants produce pollen and female mistletoe plants produce round, sticky berries that birds and many mammals love to eat. The seed is spread when the bird regurgitates remnants of its meal from its crop, or defecates, or wipes its seed covered bill on the stem of a tree. Dwarf mistletoe doesn't need help from the birds—its seeds are expelled at high speeds onto neighboring trees up to 30 to 40 feet away thanks to water pressure inside the fruit! The sticky coating of the seed, called viscin, glues the seed to the surface of a branch. Once germinated, the seed penetrates the bark with its hypocotyl stem and grows inward, away from light. After reaching the host plant's conductive tissue, the mistletoe grows a rootlike haustorium that plugs into the host plant for water, minerals, and carbohydrates. It can take several years for a mistletoe plant to reach flowering maturity.

Negative Impacts

Most trees can survive moderate mistletoe infection, but damage can be extensive and the resulting commercial loss makes it a serious forest pest in parts of the world.

Benefits to Wildlife

Mistletoe provides a wealth of value to wildlife. Sixty-six families of birds and 30 families of mammals have been recorded consuming mistletoe, especially the nutritious nectar and fruit from mistletoe flowers. Mistletoe's tangle of stems may be ugly to humans, but it is home-sweet-home

Dwarf mistletoe (*Arceuthobium*). F. Folini, Creative Commons license.

for Cooper's hawks, northern spotted owls, marbled murrelets, and long-eared owls, who nest on it. Several species of raptors line their nests with live mistletoe, potentially for its antibacterial properties. Porcupines, pine martens, and squirrels shelter in it. Cavity-nesting birds make use of the decayed and hollowed out remains of mistletoe infection in trees. The forest floor community, particularly insects, benefits from the nutrient-rich leaf litter dropped by mistletoe. For these reasons, mistletoe has recently been proposed as a keystone species for its disproportionately large contribution to biodiversity in its community.

Where to See

Mistletoe is found in all parks in the Klamath Network.

References and Further Reading

Shaw, D. 2013. Getting to know mistletoe: this Northwest-native parasitic plant can be viewed as a pest, as a resource, or both. *Digger*. November 2013. https://www.oan.org/resource/resmgr/Digger2/Digger_201311_Mistletoe_pp25.pdf

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