

Meetings and Announcements

Happy Thanksgiving to all.

Horticulture Classes

Thanks to those who offered input for fall horticulture classes. I am planning to offer a short series (4-8 weeks) during the January – March period. I will figure out the dates and topics and let everyone know via the Greenscene in the December issue.

Annual Winter Pruning Demonstrations

We plan to hold our annual winter pruning demonstration in January at the Farm & Home office, 1031 S. Mt. Vernon, the specific date TBA. We are also planning a local pruning demonstration in California City on Tuesday, January 11.

39th Annual Landscape Management Seminar, February 17, 2022

The all-day 39th Annual Landscape Management Seminar is scheduled for February 17, 2022, at Hodels. Abate-a-Weed is cooperating as a sponsor for this meeting and will be handling registration. We will request eight hours of PCA credit for this meeting, including two hours of laws.

XII Horticulture Study Tour

We plan to offer our 12th Horticulture Study Tour in mid-May, 2022. The itinerary is to be essentially the same as we anticipated previously, the postponement due to Covid. The time frame is to be about two weeks, beginning in England at the flagship Royal Horticulture Society garden at Wisley, a stop at Salisbury and Stonehenge, and then to Wales. After seeing gardens in Wales, we move to Edinburgh for a day, and then go north in Scotland, circling west to Inverewe and the Isle of Skye, finishing back in Edinburgh. The date framework is being confirmed, and I will announce when available.

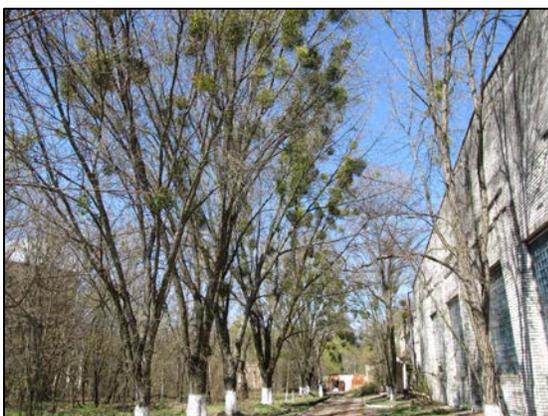
Weekly Horticulture Zoom Talks

I may resume horticulture Zoom talks in 2022. I offered 52 of these in 2020-2021. Although most were focused on notable gardens of Europe and Asia, I also did a series of four talks on climate change. If you have an interest in the content of timing of Zoom talks, please let me know. Initial thought is to go back to the Thursday 4:30 pm time, which works well for people back east, but perhaps the time or day should be adjusted. Your input welcome.

Plant Parasitic Mistletoes and Their Control

Mistletoes are parasitic plants affecting many trees in Kern County. Leafy mistletoes become more easily seen in autumn and winter as deciduous trees lose leaves. Management options are available, but are often labor intensive. A growth regulator has been registered for mistletoe control and may be useful in some situations.

Leafy mistletoe, examples below, is *Phoradendron* spp. in the San Joaquin Valley and foothills. It is found in shade trees on the San Joaquin Valley floor, such as ash and maple, and stands of native oaks throughout the Sierra foothill rangeland. In winter, clumps of mistletoe in deciduous trees become obvious as dark green clusters silhouetted against the sky. In summer, stomata of leafy mistletoe remain open when the host tree is drought-stressed, and its own leaves have stomata that have closed to conserve water. Thus, leafy mistletoe contributes to drought stress of oaks and other trees where it is found, reducing the vigor of the host tree. Heavy mistletoe infestation apparently contributes to tree mortality of oaks in particular.



Leafy mistletoe produces flowers followed by small white berries that mature in autumn. The berries are attractive to birds, and the sticky seeds within the berries pass through the bird digestive tract to be spread to surrounding plants. If the seed lands on a suitable host plant, it produces rootlike structures called haustoria. These penetrate tree bark and begin to grow up and down within the branch where the seed has germinated.

The haustoria extract water and nutrients—leafy mistletoe does contain chlorophyll and so photosynthesis occurs resulting in production of carbohydrates. Therefore, leafy mistletoe is best described as semi-parasitic, since it does produce its own food. With time, as the plant develops, green shoots of mistletoe emerge from the wood, and ultimately flower and produce fruit leading to further spread.

The leafy mistletoe used in holiday decorations is *Viscum album*, a European plant that was introduced to northern California and has since naturalized. It is harvested in some locations, but it is not found in the southern San Joaquin Valley foothills.

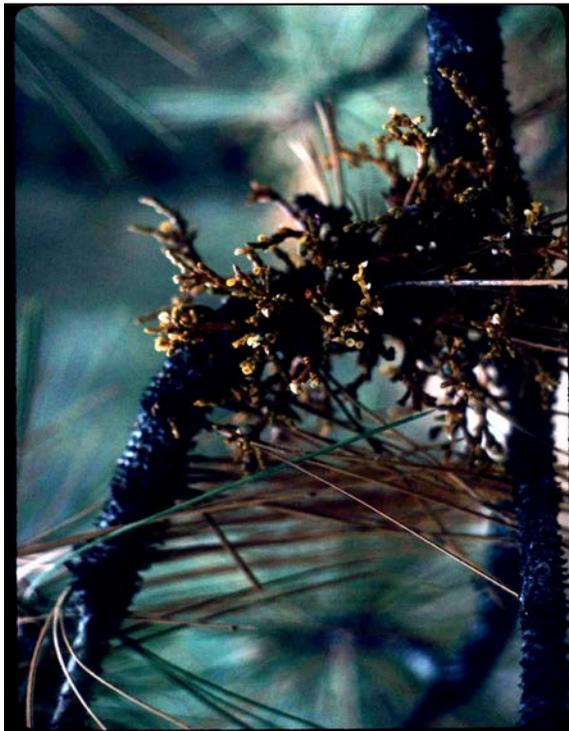
In the higher foothills and mountains, dwarf mistletoe occurs. It is a parasite of needle evergreens, such as pines, cypress, and junipers. Dwarf mistletoe, *Arceuthobium* spp., shown below, is a different genus than leafy mistletoe and has a much different appearance as well as being more destructive to trees. Dwarf mistletoe shoots are golden to yellow-green, resembling the scaly leaves of a juniper, and erupt from swollen areas of tree branches and trunks. Dwarf mistletoe also flowers and fruits in autumn, but seeds are ejected by the fruit and may be propelled up to 50 feet from the plant. Birds are not as important as carriers of dwarf mistletoe as they are for leafy mistletoe, but birds can move dwarf mistletoe seeds to the tops of trees where a new center of infestation will develop. Once a dwarf mistletoe plant develops high in the crown of a tree, susceptible understory trees will likely be infested.



The most effective control method for leafy mistletoe is pruning to remove infested branches. When pruning, cut a foot or more below the clump to remove wood harboring haustoria. Cut to a lateral branch or remove the branch entirely rather than leaving a stub. However, it is possible that removing branches will disfigure a tree. Cutting only the mistletoe clump will give temporary control, since new shoots begin to reappear after nine to twelve months. Additional control can be achieved by cutting the clump and then wrapping that part of the branch with black plastic to deprive regrowth stems of light. However, from a practical standpoint, it may be difficult to reach branches to wrap them, and from an aesthetic standpoint, not everyone wants trees with branches wrapped in plastic.

For dwarf mistletoe it may be best to remove the whole tree, preventing spread to surrounding trees in the forest. There are other strategies for management in forested land, where number and size of trees make individual attention difficult.

Ethylene is a naturally occurring growth regulator that affects many plants. Ethepon is a chemical that breaks down to release ethylene. Ethepon under several trade names has been registered for use in conifers against dwarf mistletoe, and for use in deciduous trees for use against leafy mistletoe. A few years ago, Dr. Ralph Phillips, Extension Range and Livestock Advisor, and I conducted several field experiments to investigate the use of ethephon for limiting or removing leafy mistletoe in rangeland oaks. We found berry drop was complete following ethephon application in fall, and there was some thinning of mistletoe clusters and some leaf drop at the low rates of application we tested. At higher rates, mistletoe cluster thinning was more extensive, but phytotoxicity to oaks was observed in spring as foliage began to emerge. Ethepon apparently affected dormant buds, causing foliage to be sparse on trees treated at the highest rates, which were higher than the label rates. We did not see the amount of mistletoe leaf drop and cluster removal as has been observed in northern California. Therefore, I would say ethephon can serve a purpose in limiting development of seeds in mistletoe clusters (by knocking off berries) and thus helping to limit spread, but it will not clean out mistletoe infestations in oaks.



Dwarf mistletoe seeds (berries). The photo at left shows berries have been dispersed.

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Environmental Horticulture/Environmental Science

Disclaimer: Discussion of research findings necessitates using trade names. This does not constitute product endorsement, nor does it suggest products not listed would not be suitable for use. Some research results included involve use of chemicals which are currently registered for use, or may involve use which would be considered out of label. These results are reported but are not a recommendation from the University of California for use. Consult the label and use it as the basis of all recommendations.

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