



Hawai'i Landscape Plant Pest Guide: Parasitic Seed Plants and Fungi

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***Cassytha filiformis* and *Cuscuta* spp.**

Cassytha filiformis and *Cuscuta* spp. are parasitic seed plants that infest a wide range of hosts in Hawai'i. These rootless parasites cling to and infect other plants for physical support, nutrition, and water. The stems of *Cassytha* vary in color from green to orange, whereas the stems of *Cuscuta* are pale yellow to yellowish orange. The two genera differ in their host ranges, with *Cassytha* infesting mainly woody plants in coastal areas and *Cuscuta* infesting herbaceous plants and groundcovers.

What to Do

- Remove infestations manually as early as possible to prevent further colonization and seed production (for example, inspect host plants for *C. filiformis* and prune affected branches promptly).
- Apply herbicides where available to kill the host plant or inhibit the parasitic seed plants.
- Graze sheep.
- Slash clumps of *Cassytha* or *Cuscuta* by hand with a machete.
- Avoid planting seed lots contaminated with *Cassytha* or *Cuscuta* seeds.
- Control or destroy unwanted hosts of *Cassytha* and *Cuscuta* adjacent to plants or crops of cultural or economic importance to eliminate bridges between hosts.
- Minimize coastal habitat modifications: bulldozing, forestry operations, and firewood gathering.
- Reforest lowland coastal habitats (<300' elevation) to increase shade.
- Do not collect soil for nurseries or gardens from the vicinity of plants infected with *Cassytha* or *Cuscuta*.
- Fire is used in some locations worldwide, but this may not be permitted in Hawai'i (check with local authorities first).
- Shading can reduce the parasite's vigor.

More Information

- "*Cassytha filiformis*": <http://www.ctahr.hawaii.edu/oc/freepubs/pdf/PD-42.pdf>.



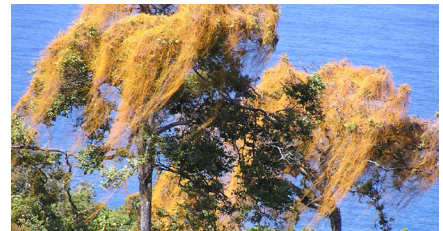
Flowers, fruits, and stems of *Cassytha filiformis* on noni (*Morinda citrifolia*).



Cuscuta sandwichiana (dodder) parasitizing 'ilima (*Sida fallax*).



Cuscuta campestris (dodder) parasitizing grasses and weeds in Honolulu.



Cassytha filiformis plant parasitizing an 'ohi'a (*Metrosideros polymorpha*) tree.

Fairy Rings

Mushrooms appearing above ground can create fairy rings: bands of turfgrass, darker green and more quickly growing than adjacent grass of the same species, that occur in arcs or circles corresponding with the mushrooms.

What to Do

- When installing new turf or building a golf course, do not bury lumber or wood such as tree stumps and roots in soil. Do not use bulldozed trees as fill materials. Remove stumps and roots from existing turf installations.
- Do not move infested soil to new locations.
- Raise mowing height on fairways, greens, or tee boxes to minimize plant stress.
- Maintain optimum growing conditions for turfgrass with proper thatch control, irrigation, and fertility.
- Use a vertical mower to remove thatch, followed by topdressing.
- Avoid excessive irrigation and fertilization, which favor the formation and growth of fairy rings.
- Dig out and remove fungal mycelium from the soil.
- Fungicides may be applied for prevention as a drench or locally via syringe. High-value turfgrass installations use fungicides routinely for prevention and cure. Fungicides vary in efficacy, formulation, and application method.
- The best course for most homeowners is to mask the appearance of the “stimulated zone” of dark green grass with fertilizers rather than apply fungicides.
- To mask fairy ring symptoms, (1) aerate the soil and drench it with a wetting agent to help retard the development of zones of dying and dead grass; (2) use additional N (about 0.1 to 2.5 lbs per 1000 square feet) in the area where rings occur; (3) if the fairy rings consist only of sporophores, with no stimulated zone of green grass growth, rake off and dispose of the sporophores (wash hands and tools when finished).

More Information

- “Fairy Rings: Toadstools, Stinkhorns, and Puffballs”: <http://www.ctahr.hawaii.edu/oc/freepubs/pdf/PD-49.pdf>



Fairy ring in a residential lawn.



Chlorophyllum molybdites.



Grass-loving puffballs (*Vascellum floridanum*).



Fairy ring caused by stinkhorn.



Stinkhorns, *Aseroe arachnoidea gleba*. Photo credit Don Hemmes.



Fairy ring on golf course.

Hawaiian Mistletoes: *Korthalsella* spp.

Mistletoes are seed plants that grow as parasites on other plants. Although they are plant pathogens, they are also functional components of natural ecosystems in Hawai'i, providing food and shelter for many creatures. In the Islands there are six species of mistletoe, all in the genus *Korthalsella*. The plants are called kaumahana (warm perch) or hulumoa (chicken feathers) in Hawaiian. Mistletoes infect the stems and branches of native hardwoods such as *Metrosideros polymorpha* ('ōhi'a lehua), *Acacia koa* (koa), *Myrsine sandwicensis* ('ākōlea), *Diospyros sandwicensis* (lama), *Sapindus* (lonomea, or Hawai'i soapberry), *Nestegis* (olopua), *Eugenia* (nīoi), and *Chamaesyce* ('akoko). These odd, rootless plants can be inconspicuous to the casual observer, but there is no mistaking their presence where infections are severe. In heavy infections, the leaves and stems of these parasites can be the predominant foliage on the host plant. The habitats of mistletoes are species dependent. Mistletoe seeds are dispersed by animals (birds associated with host trees, including native birds and introduced birds such as the khalij pheasant), strong winds, and water. Also, seeds of *Korthalsella* species are often explosively ejected from the fruits.

What to Do

- The Hawaiian mistletoes are unique, highly specialized, beautiful, and sometimes rare plants with a useful place in Hawaiian ecosystems. Therefore, controlling these parasitic plants may not be warranted except in high-value forestry or landscape settings. The best way to control them is to prune affected branches as soon as infections are evident and destroy the pruned material (do not use it as mulch).

More Information

- “Hawaiian Mistletoes (*Korthalsella* Species)”: <http://www.ctahr.hawaii.edu/oc/freepubs/pdf/PD-40.pdf>



Korthalsella sp. Photo credit J.B. Friday.



Korthalsella complanata. Photo credit J.B. Friday.



Dieback of an *Acacia koa* tree, heavily infested with *Korthalsella* plants. Photo credit J.B. Friday.



Korthalsella complanata. Photo credit J.B. Friday.



A branch of *Korthalsella complanata* on *Acacia koa*, showing the parasite's flowers.

Honeydew and Sooty Mold

Identification and Damage

Honeydew is a sweet, sticky liquid, which promotes growth of sooty mold. It is a waste product of several sap-feeding insects. Ants are attracted to honeydew, increasing the damage those sap-feeding insects cause.

Sooty mold is a black, non-parasitic fungus that grows on plant surfaces. It blackens leaf, flower, and fruit surfaces, reducing photosynthetic activity, vigor, and aesthetics of the plant. Airborne sooty mold spores adhere to plant surfaces covered with honeydew. Using the honeydew as a food source, the sooty mold grows and spreads, giving plant surfaces a dark, ash-like appearance.

Honeydew-Producing Pests

- Aphids
- Soft scales
- Spiraling whitefly
- Foliar mealybugs

What to Do

- Address the honeydew-producing insects. Be careful when choosing an insecticide, as chemicals that kill pests often kill their natural enemies as well.
- Control ants. Ants protect honeydew-producing insects from predators and parasitoids and may tend aphid and foliar mealybug colonies. When ant populations are controlled, honeydew-producing insect populations decline. Ants can be controlled with insect baits.
- Sooty mold can be washed off of high-value plants with soapy water or a dilute (1%) bleach solution.
- General-purpose fungicides may have some effect on killing and minimizing the spread of sooty mold.
- Moderate fertilizer use. Over-fertilization can attract certain sap-feeding insects.



Sooty mold on coffee cherries



Ants tend to a colony of citrus aphids.



Sooty mold on a palm leaf. The whitish spots are coconut mealybugs.



Sooty mold on a palm leaf.



Sooty mold on a gardenia plant.