

# RAPID 'ŌHI'A DEATH



## WHAT IS THE THREAT:

Rapid 'Ōhi'a Death (ROD) or 'Ōhi'a Wilt is a newly identified fungal disease currently attacking and killing hundreds of thousands of 'ōhi'a on Hawai'i Island. ROD is comprised of two pathogens, *Ceratocystis lukuohia* (the aggressive "destroyer of Ohia") and *C. huliohia* (the less aggressive "disruptor of Ohia"). These fungi disrupt the movement of water through the xylem tissue to the foliage. This results in the wilting of leaves and rapid death of 'ōhi'a within a few days to a few weeks. 'Ōhi'a is the keystone species and most abundant native tree in Hawaiian forests. ROD has the potential to cause major ecosystem disturbances that will negatively impact watersheds, cultural traditions, natural resources, and quality of life.

## WHERE IS THE THREAT:

Both *C. lukuohia* and *C. huliohia* have been detected on Hawai'i Island and Kaua'i. The more aggressive species of fungus, *C. lukuohia*, accounts for roughly 90% of detections on Hawai'i Island. *Ceratocystis huliohia* also has been found on Maui, and Oahu. With 'ōhi'a making up almost 80% of Hawaii's native forests, this fungal disease is sure to impact the ecology of Hawaiian forests. ROD pathogens enter the tree through open wounds made by humans, animals or strong winds. Soils under infected 'ōhi'a trees as well as in frass (i.e., sawdust) associated with wood-boring ambrosia beetles of infected trees, may provide other means of transporting the disease.

## SYMPTOMS:

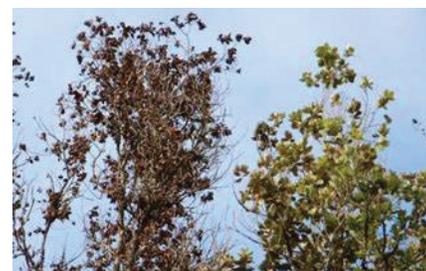
Crowns of affected 'ōhi'a trees turn chlorotic (yellow) and subsequently brown within days to weeks. Dead leaves typically remain on branches for some time. Occasionally, leaves of single branches or limbs turn brown before the rest of the crown becomes brown. Trees within a given stand appear to die in a haphazard pattern; the disease does not appear to radiate out from infected trees or dead trees. In dead 'ōhi'a trees, the presence of the fungus, *Ceratocystis*, is always accompanied by dark-almost black-radial staining in the outer xylem of the cut trunk. Freshly cut wood infected with *Ceratocystis* may give off a fruity odor similar to rotting bananas.

## WHAT TO DO ABOUT IT:

Arborjet recommends a preventative trunk injection with Propizol® (propiconazole) fungicide using systemic injection equipment. This treatment provides protection for up to two years. Trees with less than 25% crown symptoms can be treated. To increase the resilience of the tree, a follow up application of PHOSPHO-jet™, NutriRoot® or MN-jet Fe™ is recommended. An application of TREE-äge®, TREE-äge G4, or TREE-äge R10 should also be considered to deal with the potential ambrosia beetle vector.



'Ōhi'a forest affected by ROD



ROD killed 'Ōhi'a (L); healthy 'Ōhi'a (R)



ROD staining under bark



Typical dark staining of outer sapwood caused by ROD

Header Image: J.B. Friday, Hawaii Forestry Extension, Ohia Forest affected by ROD; Ivy Ashe, Hawaii Tribune-Herald, ROD killed Ohia (L); Healthy Ohia (R): University of Hawaii - Manoa, ROD staining under bark: J.B. Friday, Hawaii Forestry Extension, Typical staining with sapwood caused by ROD: Hawaii Department of Land and Natural Resources

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