

BISCOGNIAUXIA OR HYPOXYLON CANKER ON OAKS AND OTHER HARDWOOD SPECIES

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I have received a number of reports this summer of white “pads” (fungal mats), and oozing sap on the bark and trunks of oaks and other hardwood species. It is probably *Hypoxylon* or another related canker-causing fungus. Cankers are generally defined as wounds that never really heal. Most canker-causing fungi are opportunistic and are considered secondary agents, meaning they typically attack stressed urban, landscape, and forest trees. Healthy trees are able to fight off the fungus. Stress factors include drought, flooding, hail damage, storm damage, mechanical injury (i.e. weed trimmers and mowers), construction damage, soil compaction, chronic defoliation by insects and pathogens, herbicide drift, and the list goes on. The fungus attacks the sapwood robbing the tree of essential nutrients and water resulting in the dieback of branches and limbs. As the fungus continues to spread, it may eventually girdle the trunk, and kill the tree. Some trees may recover, but that is dependent on the overall health of the affected tree and other stress related factors.

Initial tree symptoms associated with *Hyoxylon* canker include yellowing and wilting of leaves that may go unnoticed or misdiagnosed (i.e. drought stress). As the canker continues to spread, individual branches will be girdled resulting in canopy dieback. In some cases, the tree may die with very little warning. Upon branch and/or trunk death, the fungus will form fungal mats under that bark and with pressure the bark begins to slough away or split revealing a dusty spore-covered surface. Initially it will look white to brown, but with time will darken to gray or black. Fungal spores are produced on these mats which then spread to other trees via wind and/or raindrop splash. Infected wood will vary from white to yellow to brown which is usually a combination of the fungus and the tree’s chemical defenses. The fungus may also invade above ground large woody roots.

Management of any canker-causing disease is very difficult. There are no chemical controls that are effective. Sanitation and keeping trees as healthy as possible is key. Pruning affected branches and limbs may help, but be sure to sanitize pruning tools after each cut with either bleach or alcohol and try to prune during the winter months. All branches, limbs, and/or slash left over from timber harvests and pruning should be burned and/or chipped to prevent spread to other trees. Unfortunately, in most forest stands, sanitation is about the only practical and economical management practice. For urban and landscape trees, keep trees healthy during dry periods (it takes about 1 inch of irrigation per week during host dry spells). In parks and high pedestrian traffic areas, try to use as much mulch as possible to avoid soil compaction, preserve soil moisture, and to mitigate weed competition. Apply fertilizer based on tree age. Younger, faster growing trees should be fertilized at a different rate than older mature trees. If possible, protect mature trees from chronic defoliation due to insect pests and diseases as they will not recover as quickly and

are more sensitive to “disruptions”. Like any stress-related disease or insect pest, the tree will have to do the heavy lifting to recover. Our job is to provide the tree with all the help we can so it can fight off the pathogen.



**Figure 1: Dead branch with canker near the base (light-colored area)
(Taken from Crocker et al., 2018).**



Figure 2: Older, mature fungal mats (Taken from Crocker et al., 2018).



Figure 3: Large woody roots infected with Hypoxylon canker (Taken from Crocker et al., 2018).

Reference Cited

1. Crocker, E., A. Bordas, and D. Coyle. 2018. Biology, ecology, and management of *Biscogniauxia* (*Hypoxylon*) Canker in the Southeastern U.S... Southern Regional Extension Forestry - Forest Health.

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