

Brittle Cinder Fungus

Jeremy Slone, PhD, Research Scientist

Wood decay pathogens are often classified by the components of the woody tissues they degrade. Brown rots primarily degrade cellulose, while white rots primarily degrade lignin. A third category, the soft rot fungi, cause decay of both cellulose and lignin. The loss of both of these tissues can lead to rapid and significant loss of structural stability. One of the most common soft rot pathogens is brittle cinder fungus (*Kretzschmaria deusta*).

Description

Brittle cinder fungus develops along the root flare and basal trunk region. New fungal fruiting body growth in the spring to early summer is white to ash gray in color and darkens to black with age (Figures 1, 2). The texture is initially powdery but becomes rough and bumpy as it darkens. Its late-stage appearance, which resembles creosote buildup in chimneys, led to its common names, brittle cinder fungus and carbon cushion.

Figure 1: New, light-colored fungal growth



Figure 2: Darkened fungal crust



Common hosts include beech, hackberry, maple, oak, and pecan, although other hardwoods are occasionally infected.

Symptoms

The effects of brittle cinder fungus infection are not readily observed in the canopy. In fact, trees may maintain a healthy appearance for many years after infection. By the time the characteristic fruiting bodies are observed, it often indicates that significant decay is already present within the lower trunk and/or roots. As the soft rot decay progresses internally the tree may exhibit symptoms of decline and fruiting bodies may

expand on the exterior. Degraded wood becomes brittle and structurally compromised, which may increase the likelihood of failure.

Pathology

Fruiting bodies release airborne spores which invade wounds at or near the root collar of trees. This pathogen attacks living wood of healthy and stressed trees, but the fungus is most aggressive on susceptible trees weakened by stress or pest attack. As the fungus invades the base of the tree, pockets of decay develop throughout. Determining the extent of decayed, structurally compromised wood is challenging. Current methods for detecting internal decay rely on differences in sound, but in the case of brittle cinder fungus, measurable hollow cavities are unlikely to form within the affected heartwood. Extent of decay may not be evident until the infected tree is removed (Figure 3).

Figure 3: Significant interior decay observed after removal of an infected pecan tree



Management

There are no remedial treatments to cure brittle cinder fungus infection. Implementing proper cultural care can improve plant vigor, but decay will continue to progress. Trees can tolerate some amount of decay as many, if not all, mature trees have some internal decay. Knowing the type, extent, and location of decay fungi can help predict the likelihood of failure in a given period of time. However, this fungus is difficult to assess, and trees may fail unexpectedly, often snapping completely at the base of the tree. For these reasons, tree removal is typically advised when *Kretzschmaria deusta* is present. Please contact your Bartlett Arborist Representative to discuss options.



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