

Rosellinia Needle Blight

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Rosellinia needle blight, caused by the fungus *Hypoxylon herpotrichoides*, is a plant pathogen that affects the needles and twigs of eastern hemlock in the southeastern United States. The native range of eastern hemlock spreads south along the Appalachian mountains, but these evergreen trees are also commonly planted as ornamentals for use as specimen trees or tall evergreen hedges. Where this pathogen is present, cultural management may be required to reduce impact of the disease and promote healthy growth.

Description

Hypoxylon herpotrichoides (also known as *Rosellinia herpotrichoides*) is a fungal pathogen that affects twigs and needles of eastern hemlock (*Tsuga canadensis*). In addition to eastern hemlock in the southeastern United States, the fungus is also known to occasionally infect spruce and fir trees elsewhere in North America, such as Sitka spruce (*Picea sitchensis*) and Douglas fir (*Pseudotsuga menziesii*) in the Pacific Northwest. Rosellinia needle blight causes a progressive discoloration of plant tissue, needle loss, and stunted growth (Figure 1). Proper diagnosis of this pathogen is important for management, as there are many other pests and diseases that affect eastern hemlocks. A close

examination of infected tissue will reveal gray, matted fungal mycelium (Figure 2). Rosellinia needle blight occurs where foliage is subject to long periods of high humidity and moisture. It can often be found on eastern hemlocks growing near water, and is most common in the shaded, lower branches. The humid, mountainous region of Western North Carolina is one area where the disease is often found.

Life Cycle and Damage

The life cycle is not fully understood, but symptoms of rosellinia needle blight usually appear in the spring when new growth begins to flush out. Spores infect new foliage, and mycelium grows across tender,

Figure 1: Symptoms of rosellinia needle blight include dead needles and twigs

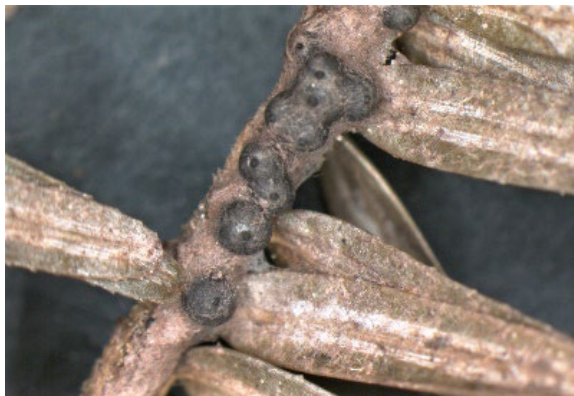


Figure 2: A dense, stiff mat of grayish-brown fungal mycelium on a hemlock twig and dead needles



susceptible tissues. Matting of needles happens over time. Infected branches appear webbed, brown and dead (Figure 4). Needles are prematurely shed from the tree into the leaf litter where the fungus survives until the following season. On dropped needles, the fungus produces resilient dark gray to black structures called perithecia, which produces new spores (Figure 3). These structures can survive extreme temperatures and infect new tissue annually when new growth appears on the tree.

Figure 3: Fruiting bodies (perithecia) on twig



Management

Rosellinia needle blight is primarily managed through cultural care and environmental modification. Prune branches and consider thinning stands of hemlock to improve light penetration and air circulation, reducing moisture within the canopy. Where supplemental irrigation is necessary, avoid excessive water on the foliage. Prune out infected branches to reduce inoculum and further spread within the crown. Removing infected needles underneath the tree and covering the ground with wood chip mulch may help reduce inoculum. While it is possible that fungicide applications may help protect new growth from infection, there is a lack of research-based information regarding this strategy and no fungicide products are explicitly labeled for rosellinia needle blight management. Please contact your Bartlett Arborist Representative to learn about management strategies.

Figure 4: A blighted hemlock branch found in Western North Carolina



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