

Sudden Needle Drop of Spruce in Missouri

Several diseased Norway and Colorado blue spruce samples have been arriving in the lab in the last two weeks. All have been determined as having SNEED or Sudden Needle Drop. One sample in particular marks the first report within a St. Louis nursery, similar to that reported in Wisconsin and Minnesota in recent years.

Symptoms appear most severe on 2nd yr. needles beginning with a chlorotic appearance gradually turning purple brown. Most branches then drop needles leaving the branch with sparse foliage just behind current needle emergence. On older trees, the distribution of the symptoms is non-uniform, occurring randomly on branches scattered within the crown.

Signs include small dark pseudothecia or pycnidia, sometimes occurring together on straw colored branches. Our lab originally identified asci and ascospores found within these structures as a *Leptosphaeria* spp., based on the multi-celled nature of the ascospores.

In a recent article on the subject, researchers (Rossman *et al.* 2002) have re-described the species based on the holotype and North American specimens. The causal agent is now known as *Setomelanomma holmii* M. Morelet, and is a member of the Pleosporales, Phaeosphaeriaceae. Sequence similarities of *S. holmii* suggest that it is also closely related to the family Leptosphaeriaceae. Originally there was speculation that this was a previously unidentified disease in North America, but after a careful search Rossman's group found that it was first identified on diseased spruce in France.

You can obtain more information on this disease at the following website:

http://www.ars.usda.gov/research/publications/publications.htm?SEQ_NO_115=135950

Recommendations include pruning out diseased branches under dry conditions to prevent further spread of the disease. In addition, sanitation by burning or disposal of diseased material is suggested, as this will prevent buildup of the disease in the next growing season. On high value plantings, a spring treatment with a chlorothalonil

based fungicide may provide protection. Timing of the treatment should coincide with needle emergence and be repeated as necessary until full needle emergence has occurred.

Currently, not much is known about *S. holmii* basic biology, epidemiology, or distribution in Missouri. It is suggested that environmental stress can trigger the growth of the pathogen, and we have seen twisting of SNEED-affected branches similar to that associated with herbicide damage or root strangulation. It is important to note the diagnostic distinction between infections on branches caused by SNEED typically scattered when compared to just lower branches of trees infected with *Rhizosphaera* needlecast. Further differences would be the lack of fruiting structures produced through the stomates on the needles as with *Rhizosphaera*, whereas SNEED only occurs on twigs and trunks of infected tree branches. Sporulation was observed from early May through July. Recent samples collected in Missouri have often been confounded by the lack of ascospores and empty pseudothecia and the presence of pycnidia that have *Phoma*-like microconidia present.

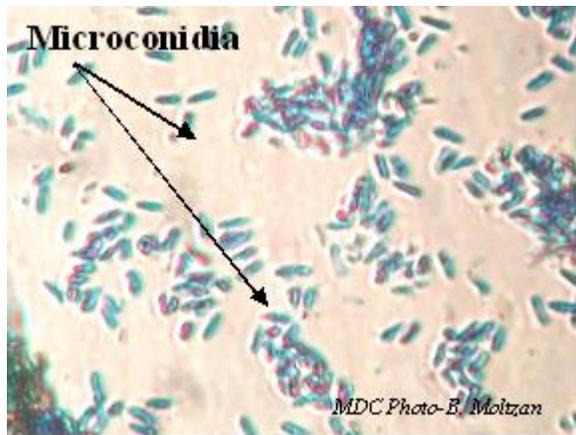
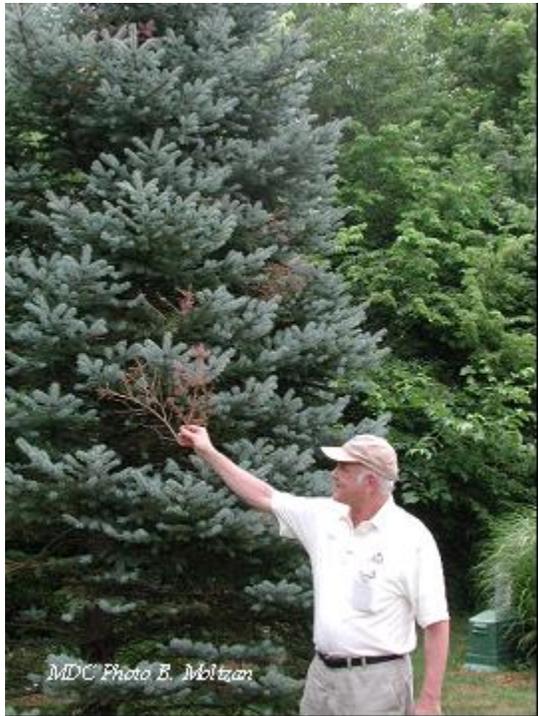
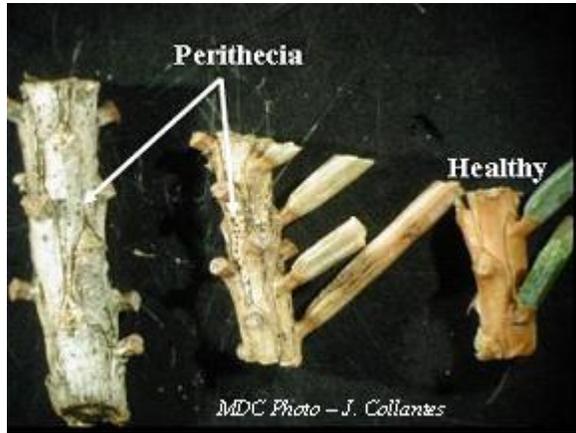
It is likely that areas that remain moist and poorly aerated are at greater risk to infection. More research is needed to verify *S. holmii* pathogenicity, host range, and distribution. The good news is that fungicide treatments prescribed for *Rhizosphaera* needle cast can provide control in nurseries and perhaps smaller landscape trees. More information on the mysterious spruce disease can be found at:

<http://www.extension.umn.edu/yardandgarden/YGLNews/YGLN-Nov0101.html>

<http://www.datcp.state.wi.us/arm/environment/insects/pest-bulletin/pdf/2003/May9txt.pdf>

Damage distribution is very patchy and apparently much worse in moist areas where tall grass surrounds trees and in areas where there is poor air circulation

**--Bruce D. Moltzan,
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