

Balsam fir flagging - widespread in northern WI

I've received more complaints about balsam fir in the last week (July 7, 2011) than I've received on any other tree for the last 4 years. That is the reason for this email. Please share information in this email with concerned property owners. This is a preliminary report and I anticipate sending more information later.

1. Symptom = wilting (wilted) new foliage, mostly in the lower 1/2 of crown (looks like frost damage kind of)

Cause = (probably) *Delphinella* Shoot Blight

Control = Do NOT have Christmas tree growers cut these trees down. It is likely they will not die from this disease. Pruning off symptomatic branches and destroying that material and sterilizing pruning tools between trees is a standard control tactic for such problems on ornamentals. Also, a fungicide could be sprayed on ornamental trees to protect healthy foliage. When should spraying occur? I don't know, but it's probably during shoot elongation. This disease is zero concern for forest balsams.

2. Symptom = dead mature foliage on branches that are oftentimes still with green cambium, mostly in the lower 3/4 of crown

Cause = EITHER fungal canker disease OR snow blight (snow mold) OR adult sawyer beetle feeding OR Armillaria Root Rot

Control for Fungal canker disease = same as above for *Delphinella*

Control for Armillaria in a Christmas tree plantation = cut out diseased trees and dig out stumps and major roots

3. Symptom = dead tips (only distal few inches) scattered around crown

Cause = unknown (possibly and likely one of the above; I'm guessing it's mostly due to a fungal canker pathogen)

4. Symptom = tied foliage with pupal cases and lots of moths fluttering

Cause = spruce budworm

Known Location = northern Forest County AND between Three Lakes and Argonne

I submitted samples of diseased foliage to Kyoko Scanlon yesterday. Hopefully she'll isolate a common causal organism of some of the common symptoms we're seeing around northern Wisconsin. I suspect the primary cause of 90%+ of the symptoms is one of two fungal pathogens. Please read the attached Word Document (see below) for information and pictures of these suspects

-Brian

Brian Schwingle

Forest Insect and Disease Specialist - N. Region

Wisconsin Dept. of Natural Resources

107 Sutliff Ave

Rhinelander, WI 54501

715-365-8908 (office)

2011 Preliminary Balsam Fir Disease Report – Northern Wisconsin



Figure 1. Likely Delphinella Shoot Blight. Seen east of Rhinelander in Oneida Co. in 2011. See <http://imfc.cfl.scf.rncan.gc.ca/maladie-disease-eng.asp?geID=1000081> or http://www.fs.fed.us/r1-r4/spf/fhp/field_guide/120dfnsb.htm for information. The wet conditions starting in late 2010 and continuing through 2011 would have promoted fungal shoot blight disease. Prune out diseased branches, destroy diseased material, sterilize

pruning tools between trees, and protect healthy foliage with a fungicide at appropriate time in the year (likely May - June) if tolerance for disease is extremely low.



Figure 2. Likely a fungal canker disease. It could be a disease like those described at http://www.for.gov.bc.ca/hfp/publications/00198/red_flag_disease.htm or http://www.maine.gov/doc/mfs/ConditionReport5_2010.htm (see Fusicoccum canker of Balsam Fir). Seen from Taylor County to Florence County in 2011. The wet conditions starting in late 2010 and continuing through 2011 would have promoted fungal canker disease. Prune out diseased branches, destroy diseased material, sterilize pruning tools between trees, and protect healthy foliage at appropriate time in year (likely May – June) with a fungicide if tolerance for disease is extremely low.

If these dead branches are very low in the crown and adjacent to a bleeding section of trunk, it is likely that *Armillaria* is the causal agent of disease - look for the diagnostic white mycelial fans. *Armillaria* will kill the firs. It is very likely that fungal canker pathogens will NOT kill firs.

Snow mold could also look like this. Adult sawyer feeding could cause similar symptoms too.