Armillaria Root Rot in Northern Wisconsin

NOTE: The information and control suggestions in this factsheet are written for forest managers and property owners in Northern Wisconsin. People elsewhere should consult their local Extension agent about tree disease and insect problems.

Biology

- Armillaria is a fungus. It produces honey mushrooms in the fall. It is sometimes called shoe-string root rot due to production of dark, string-like structures found in the soil and on roots and stumps.
- Armillaria is a native pathogen that normally attacks stressed trees (e.g. pines, balsam firs, ashes, oaks, etc.).
- The crowns of severely infected trees (e.g. pines) completely turn color (yellow and then brown) quickly.
- Besides making mushrooms, Armillaria can be seen between the bark and the wood at the base of infected trees in what is called a mycelial fan (basically, a white, fan-shaped fungal sheet).

Preventive Control Tactics

- An infested site cannot be freed of Armillaria. However, if converting a plantation from hardwoods to conifers, removing hardwood stumps will remove a food source for the fungus and may reduce the incidence of Armillaria root disease on conifers in the future.
- *When monthly precipitation dips to 1 inch or more below average:* Slowly water (e.g. with a soaker hose) select ornamental trees, once every two weeks for several hours at or slightly beyond their driplines. Here are a couple rules of thumb about watering trees:
  1.) "… use approximately 10 gallons of water per inch of trunk diameter for each watering (CO State Univ. 1999-2009. http://www.colostate.edu/Dept/CoopExt/4dmg/Trees/caring.htm)."
  2.) "… water one hour per inch diameter of the tree (Univ. of MN Extension Service; Planting Trees/Shrubs. 2005. http://www.extension.umn.edu/info-u/environment/BD556.html)."

Figure 1: *Above:* understory balsam firs infected by Armillaria.
Below: Armillaria's white mycelial fans under the bark at the base of an infected fir.

Figure 2: Armillaria's white mycelial fans between the bark and wood of an infected red pine

Figure 3: An aspen infected by Armillaria.