Poplar Rust caused by *Melampsora medusae*

By Heather Clarkson Senior
University of Idaho

Poplar rust is simple to identify because the *Melampsora* fungus is showy during most of its life cycle. *M. medusae* infects the foliage of trees in the *Populus* (poplar, cottonwood and aspen) and *Salix* (willow) families(2). The upper leaf surface starts to show chlorosis in spots that directly correlate to bright orange powdery pustules on the underside of the leaf shortly after being infected. Depending on the severity of the infection the pustules may be lightly scattered or covering the entire leaf.

The most significant problem is early senesance of leaves causing a loss of growth for that year and possibly loss of growth the following spring(1). This fungal infection can be deadly to young trees, but is never fatal to established trees. “In wet years, young trees may be severely defoliated, suppressing growth 30 percent or more” (3). *M. medusae* is a heteroecious, meaning it requires two hosts to complete its life cycle. It the Pacific Northwest the most common alternate host is the Douglas fir (*Pseudotsuga menziesii*). Symptoms of rust on this host are scattered yellow spots corresponding to yellow pustules on the underside of the current year’s needles. If severe enough, the infection can cause the needles to shrivel, grow distorted or fall off completely (2). That situation is very rare. For the most part infected firs are very difficult to identify. Other conifers this fungus can infect are: *Abies* (fir), *Larix* (larch) and *Pinus* (pine).

The best method of controlling poplar rust is to plant only resistant varieties and hybrids (2). In areas where infection is common and hard to control it is necessary to plant the trees as far from other sites of infection as possible. Leaf litter should be collected, burned or otherwise be disposed. It should not be left on the ground or composted (3). If chemicals must be used, a preventative spraying of fungicide is most affective. Nurseries commonly use Banner MAXX, Bayleton 25 WP and RosePride Funginex (3). It is important to avoid planting monocultures of the same cultivars. This reduces the chance of widespread damage if an outbreak does occur (1,3,4).

Poplar Rust (2)

M. medusae (2)

Sources

1. Anderson, Sharon D. "Melampsora Leaf Rust" North Dakota State University NDSU Extension Service
June 2000. http:www.ext.nodak.edu/extpubs/plantsci/trees/f1192-4.htm#Melampsora

2. Callan, Brenda E. "Leaf Rust on Cottonwood and Hybrid Poplar" Disease of *Populus* in British Columbia: A Diagnostic Manual Her Majesty the Queen in Right of Canada. Canadian Forest
Service 1998. 78-85.

3. Pataky, Nancy R. "Leaf Rusts of Poplars and Willows in the Midwest" University of Illinois Extension
http://www.ag.uiuc.edu/%7Evista/pdf_pubs/605.pdf

4. “Poplar—Leaf Rust” Pacific Northwest Plant Disease Management Handbook Agricultural Publications.
Moscow, Idaho. 2001. 271.