

# Forest Disease Management Notes

United States  
Department of  
Agriculture

Forest Service  
Pacific Northwest  
Region



## Elytroderma Needle Blight

Elytroderma needle blight of ponderosa pine is caused by the fungus *Elytroderma deformans*. It is the most important foliage disease of ponderosa pine in the Pacific Northwest. Infection occurs at low levels in many stands, but usually only becomes damaging at elevations around 3,500 feet in Washington and 5,000 feet in Oregon. Trees in high infection zones suffer from growth loss, attack by bark beetles, and tree killing.

**Hosts:** Ponderosa pine, Jeffrey pine, and rarely, lodgepole pine.

**Recognition:** “Flags” (reddened, dead 1-year-old needles with green current season needles at tip) are conspicuous in spring, small to large compact witches brooms with upward turning branches and many dead needles occur when infections become perennial; inner bark of infected branches contains numerous dark dead lesions; if severely infected, entire tree tops may be misshapened, growth loss occurs, and occasionally, trees die or are predisposed to bark beetles and root diseases.

Clear tendrils of inconspicuous pycnidiospores appear on reddened needles in spring-, black elongated fruit bodies (hysterothecia) form on dead needles in summer.

**Disease Spread:** Windborne spores are released from hysterothecia for several months beginning in July; only current year’s foliage is infected; high humidity and cool temperatures favor infection; and the disease is most severe in microsites where these conditions prevail. The fungus grows from needles into woody tissues. Infections in woody tissues remain active for many years, reinfesting needles and producing spores that begin new outbreaks when environmental conditions are especially favorable for the fungus.

**Management:** In immature stands - (1) maintain good spacing but avoid creating large openings in the stand, (2) remove as many severely infected trees as possible when thinning (no trees with “flags” within 6 feet of the leader should be retained?), (3) prune infected branches where economically 1 justifiable; in mature stands - (1) recognize that considerable infection can occur without causing appreciable damage; avoid hasty action, (2) evaluate the situation annually, watch for evidence of serious damage (tree death, bark beetle attacks, etc.), (3) log stands when damage becomes severe - discriminate against moderately to heavily infected trees in the residual stand.

**May be Confused With:** Dwarf mistletoe, Dothistroma needle blight, Lophodermella needle cast.



“Flagging” caused by  
*Elytroderma deformans*



Witches'-broom  
caused by  
*Elytroderma deformans*



Hysterothecia of  
*Elytroderma deformans*