

**Management Guide for**  
**Dothistroma Needle Blight**

*Dothistroma septosporum* (Dorog.) Morelet.  
= *Dosthistroma pini* Hulb.  
= Sexual stage [teleomorph]: *Scirrhia pini* Funk & A.K. Parker

<p><b>Primary Hosts:</b> Ponderosa Pine; Lodgepole Pine</p> <p><b>Minor Host:</b> Western White Pine</p>	<p><b>Recent unprecedented high levels of this disease have been found in lodgepole pine in British Columbia, Canada and ponderosa pine in central Montana.</b></p>
--	---

**Topics**

Damage	1
<a href="#">Life History</a>	2
<a href="#">Management</a>	2
<a href="#">Other Reading</a>	3
<a href="#">Field Guide</a>	
<a href="#">Management Guide Index</a>	

*Introduction*

The major impact of *Dothistroma* needle blight is growth reduction which may result from excessive defoliation. Tree mortality is rare, although severely-infected young trees may be killed during years when environmental conditions are conducive to infection and buildup of the pathogen. Large-diameter trees with severe foliage infection

may be predisposed to attack by bark beetles.

The most serious disease often occurs near rivers, especially in canyons where high humidity occurs for prolonged periods. Damage is most noticeable in the early spring before new foliage is produced.

**Key Points**

- Growth is adversely affected but infected trees are seldom killed.
- High rainfall and prolonged periods of humidity are conducive to infection and disease severity
- Recent epidemics may be related to climate change that has altered traditional rainfall patterns.

**MANAGEMENT OVERVIEW**

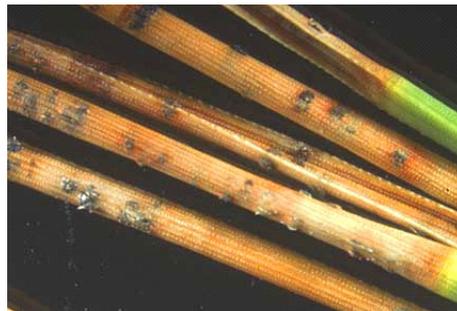
1. **Damage potential rarely warrants control efforts.** In most situations, *Dothistroma* infection will result in little growth loss or mortality.
2. **Recognize hazardous sites.** Sites that are prone to prolonged periods of high humidity provide ample opportunity for fungus sporulation and infection.
3. **Thin favoring resistant trees or species.** Individual resistance to needle blight often varies considerably within a species on a site providing opportunities to remove the most damaged trees during routine thinnings. Non-susceptible species may also be selected for retention.

## *Life History*



*Dothistroma needle blight of Ponderosa pine results in a needle discoloration and loss of two-year old foliage. With repeated infections, trees may have no foliage older than two years.*

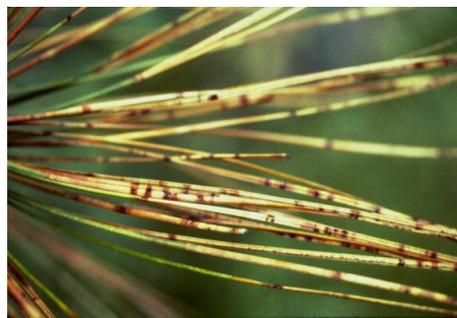
Infected needles produce spores that are disseminated primarily via rain splash onto uninfected foliage. Infection occurs on previous years' needles during the spring when weather conditions (rain and high humidity) are conducive; some current year needles may be infected during mid summer.



*Black, erumpent fruiting bodies of Dothistroma needle blight*

The pathogen requires two growing seasons to complete its life cycle.

Infected needles characteristically have reddish-brown bands that often contain black fruiting bodies. The base of infected needles often remains green; they often turn yellow to brown and drop prematurely.



*Distinctive banding pattern of Dothistroma needle blight*

## **Unusually severe infections**

Trees that are off-site may be particularly susceptible to infection. Some sites are especially favorable for the fungus, for example river canyons where moisture lingers in the air after rain and the western shores of Flathead Lake in Montana. There is even some evidence that climate changes have favored the fungus by increasing summer precipitation. Under each of these conditions, infection can be chronically severe, leading to tree death.

## *Management*

This disease can be managed by favoring less-susceptible species in areas of high disease potential. However, since tree mortality is usually rare, little is often done to manage Dothistroma needle blight in the inland Northwest.

Recent unprecedented high levels of this disease have been found in lodgepole pine in British Columbia, Canada and ponderosa pine in central Montana. These outbreaks

may be related to climate change, particularly increased summer precipitation, that is has traditionally been rare. Situations such as these could eventually alter the traditional hands-off approach to managing the disease.

## *Other reading*

Hagle, S. K., K. E. Gibson, S. Tunnock. 2003. Field guide to diseases and insect pests of northern and central Rocky Mountain conifers.

U.S.D.A. Forest Service, Northern and Intermountain Regions, Rept. No. R1-03-08. 197 pp.

James, R.L. 1981. Red band needle blight of pine on the Clearwater National Forest, Idaho. USDA Forest Service, Northern Region., Forest Pest Management. Report 81-21.

Peterson, G.W. 1982. Dothistroma needle blight of pines. USDA Forest Service, Forest Insect and Disease Leaflet 143.

Woods, A., K.D. Coates and A. Hamann. 2005. Is an unprecedented Dothistroma needle blight epidemic related to climate change? *BioScience* 55(9):761-769.

### **Forest Health Protection and State Forestry Organizations**

#### **Assistance on State And Private Lands**

Montana: (406) 542-4300

Idaho: (208) 769-1525

Utah: (801) 538-5530

Nevada: (775) 684-2500

Wyoming: (307) 777-5659

#### **Assistance on Federal Lands**

US Forest Service  
Region One

Missoula: (406) 329-3605  
Coeur d'Alene: (208) 765-7342

US Forest Service  
Region Four

Ogden: (801) 476-9720  
Boise: (208) 373-4227

