

## Management Guide for Red Ring Rot

*Phellinus pini* (Thore.: Fr.) A. Ames. (= *Fomes pini* (Thore.: Fr.) Karst.)

**Red ring rot is the most common and destructive decay in the western United States.**

**Host:**

- most living conifers
- western larch
- pines
- Engelmann spruce
- Douglas-fir

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### Damage

*Phellinus pini* is one of the more common stem and butt decay fungi in conifers. Although estimates for the Rocky Mountains have not been made, it was estimated that 17% of overmature Douglas-fir in the Pacific Northwest were decayed, and of this over three-fourths was from red ring rot (Harvey 1962).

Decay extends 2 to 4 feet above

and 4 to 5 feet below each punk knot, swollen knot, or conk (Partridge 1973). If several swollen/punk knots or conks are present and separated by 10 feet or more, the cull factor will be 100 percent. It is rare for an individual tree to have significant decay without having an external indicator.

### Life History

Colonization by *P. pini* appears to depend on the host involved. In western conifers decay is associated with branch stubs and dead branches (Sinclair, Lyon, and Johnson 1987). The fungus apparently enters living trees mainly through branch stubs

and knots. It develops within the tree, usually with no visible signs of defect for many years. The fungus eventually produces conks that produce spores capable of spreading the decay to other trees.

### Identification

In the incipient decay stage, wood is reddish to purplish. In the advanced decay stage, spindle-shaped, well-defined white pockets separated by firm red wood form. Black zone lines may be present.



Photo by Minnesota Department of Natural Resources Archives.

### Key Points

- Primarily a concern in forests that are aging.
- The most common decays found in conifers in the Rocky Mountains.
- Loss to decay limited in early stages of infection.
- Indicators such as conks and punk knots are readily produced on infected trees.

## Identification

Conks occur commonly on infected trees, usually emerging from branch stubs or knots. Conks are variable-shaped and shelving, usually about 3 inches wide. The tops of conks are dark with concentric furrows; underside is yellow-brown with pores. Swollen knots and punk knots are additional indicators.

**Recognize the positive ecological functions of the pathogen—**

Decayed trees are used by cavity nesting birds and mammals. The decay caused by this fungus is important in the southeastern US for the nesting of the red cockaded woodpecker.



Pini rot is often indicated by swollen knots on the stem which have a brown, punky interior.  
Photo by USDA Forest Service Archives.

**Provides ecological benefits such as wildlife habitat and early recycling of standing wood.**

**Management options should be based on objectives to be achieved, not on the presence or absence of red ring rot.**

## Management

Limiting the damage from red ring rot in stands is most readily achieved by **managing stands to younger ages**. Red ring rot normally becomes a significant loss factor only in very old stands. Even when red ring rot is present in younger stands, the volume of wood added due to growth usually exceeds that lost to decay.

Managing to limit red ring rot should not usually be an objective. Other objectives, such as economics, visual quality, old growth characteristics, wildlife habitat, and recreational safety, are more important in determining the appropriate silvicultural treatments and timing. These objectives may actually benefit from the retention of trees with decay from red ring rot.

## *Other Reading*

Harvey, G. M. 1962. Heart rots of Douglas-fir. USDA Forest Service, Forest Pest Leaflet 73. 8 p.

Hinds, T. E. 1977. Heart rots of Engelmann spruce and subalpine fir in the central Rocky Mountains. USDA Forest Service, Forest Insect and Disease Leaflet 150. 8 p.

KimmeY, J. W. 1964. Heart rots of western hemlock. USDA Forest Service, Forest Pest Leaflet 90. 7 p.

Partridge, A. D. and D. L. Miller. 1974. Major wood decays in the Inland Northwest. College of Forestry, Wildlife and Range Sciences, University of Idaho. Natural Resource Series No.3. 125 p.

Sinclair, W.A., Lyon, H.H., and Johnson, W.T. 1987. Diseases of trees and shrubs. Comstock Publishing Associates, Ithaca, NY, 574p.

### Forest Health Protection and State Forestry Organizations

#### Assistance on State And Private Lands

Montana: (406) 542-4300

Idaho: (208) 769-1525

Utah: (801) 538-5211

Nevada: (775) 684-2513

Wyoming: (307) 777-5659

N. Dakota: (701) 228-5422

#### 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

