



Forest Health Protection, Southern Region

# ANNOSUS ROOT AND BUTT ROT,

caused by *Heterobasidion annosum*

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**Importance.** - Annosus root and butt rot is a commercially important disease of conifers. All southern pines are susceptible, but loblolly and slash pine are most severely affected.

**Identifying the Fungus.** - Conks are often present in the litter at the base of dead or dying trees or tree stumps, or under root masses of windthrown trees. Conks, when fresh, are tan to brownish on the upper surface and white with tiny pores on the lower surface. They are rubbery and tough to tear. In the southern United States, conks are most common from December through March.

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Annosus root and butt rot conks.

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**Identifying the Injury.** - Damage from annosus root and butt rot may be scattered throughout a stand or in pockets of dead and dying pine trees called "infection centers." Mortality is sometimes preceded by thinning and yellowing of the crown; however, some trees simply turn red and die. Trees in various stages of dying or death may suffer windthrow. Infected roots exhibit resin or pitch-soaking, and stringy root decay.

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Resin soaked root.

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Annosus root and butt rot infection center.

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**Biology.** - Annosus root and butt rot probably enters the stand when fungal spores land on fresh cut stump surfaces. The fungus grows through the remaining root system into nearby live trees via root grafts or contacts. Mortality usually begins 2 to 3 years after thinning and often ceases 5 to 7 years later. Damage increases with the sand content of the soil. Twelve inches (30 mm) or more of sand or sandy loam above a clay subsoil in a soil with good internal drainage is considered a high hazard site for tree mortality.

**Control.** - Prevention and control strategies for annosus root rot include stump treatment, timing of thinnings, prescribed burns, and the manipulation of planting density. To select the most appropriate strategy, the user is referred to the Integrated Pest Management Decision Key (IPMDK). Discuss this with a State or Federal pest management specialist.

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