

Fungal Decay and Discoloration in Log Homes

by

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Have you seen *Gloeophyllum trabeum*, *Ophiostoma polonica* or *Gliocladium roseum* lately? They are fungi that are not welcome on logs or log homes. This paper will discuss some problems of wood deterioration and discoloration caused by such decay, stain and mold fungi.

Fungi depend heavily on temperature and moisture conditions to cause mold, decay and stain on logs. The optimum temperature for the fungi to cause damage is between 100°C (50°F) and 35°C (95°F). The optimum moisture content of the wood is above the fiber saturation point of 25-30%. Fungi do not grow and cause damage if the wood is water-soaked, a condition that limits the supply of air to the fungi.

Under favorable conditions, wood decay fungi can attack heartwood or sapwood in most wood species. Early stages of decay may appear as discoloration or water-soaked appearance to the wood. In the late stage of decay wood can crack and take on a browner color or become spongy and white. White or brown fan-shaped patches of fungal growth may appear on surfaces.

Damage to wood by fungi may be traced to improper seasoning, storing, or handling of the raw material produced from logs, lack of suitable protective measures when storing logs or bolts, and failure to take precautions in using the final product.

Molds and stain fungi are most often confined to sapwood, producing specks, spots, streaks, or patches that typically range in color from blue, bluish black, gray or brown. Strength of the wood is affected only slightly, and is typically confined to

properties that determine toughness or shock resistance.



Figure 1 Growth pattern of stain fungus

Species of fungi that are endemic to a given geographical region have the potential to cause major problems on wood in service. Species translocated from one geographical region to another are considered invasive or exotics without natural predators in the new environment. These organisms have the potential to cause diseases on trees and pose a threat to forests. Protection of wood products against pests will have the added benefit of protecting forest resources for the future.

Barbara Illman, USDA Forest Service, Forest Products Laboratory, Madison, WI, received her Ph.D. from The Pennsylvania State University. Current research includes mechanisms of decay, recycling & bioremediation of preservative-treated waste wood, non-destructive detection & analysis of decay. She is a member of the Long Term Ecological Research Program on Arctic Studies; Chair of the User's Executive Committee and member of Scientific Advisory Committee, National Synchrotron Light Source; member of the Quarantine Pest Research Coordinating Committee for the North American Forestry Commission.