

New perspectives and guidance for managing white pine blister rust

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The August 2010 journal, *Forest Pathology*, provides a synthesis of knowledge on *C. ribicola*, identifies policy and management actions to mitigate disease impacts, and reviews future issues facing white pine management such as climate change and new pathogen introductions. Through this comprehensive and scholarly review of the literature, Shaw, Geils, and thirty-three contributing authors provide a scientific basis for protecting and sustaining white pine ecosystems.

"My job was to locate the previously marked study trees. . .and record data on the activity of treated blister rust cankers," wrote Charles "Terry" Shaw. "The work took [me] in rickety four-wheel drive vehicles to remote locations scattered across the white [pine forests](#) of northern Idaho." Shaw, now editor of a recently published special issue of *Forest Pathology*, described how 44 years ago, he and other young forestry students collected data about a destructive forest disease for senior scientists.

Today, Shaw and his colleague, Dr. Brian Geils of the Rocky Mountain Research Station are now the senior scientists. Together, they have compiled a collection of 12 journal article on the biology and management of *Cronartium ribicola*, an introduced invasive pathogen that causes white pine blister rust, a seriously damaging disease of North American white pines.

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"The rust pathogen has a very complicated life cycle," explains Shaw, "with five different spore stages alternating between two different hosts." The disease produces stem cankers that can eventually girdle and kill susceptible host pines; spores that can only infect *Ribes* (currants and gooseberries) are produced on infected trees. The fungus intensifies on *Ribes* leaves and may cause early defoliation; but more importantly wind-born spores spread the rust back to nearby white pines. Until the 1960s, managers exploited this requirement in the rust's life cycle to control the disease by poisoning or grubbing out *Ribes* bushes from farms and forests. Although *Ribes* eradication reduced losses in some stands and provided needed employment during the Depression, the practice was unreliable, expensive, and could be environmentally damaging. Continued research discussed in the special issue has led to silvicultural and genetic practices that are used today and could be adapted for managing future populations of white pines for their economic and ecological values.

The western white pine is an evergreen tree capable of rapid growth to great size with desirable wood properties. This pine and the similar sugar pine were once important timber trees, but logging, other disturbances, and loss of regeneration led to a marked decline in supply.

The release of the publication compiled by Shaw and Geils coincides with the centennial of the introduction of the pathogen to Western North America as well as the Great Fire of 1910, often called the largest fire in American history. This fire burned over 3 million forest acres in northern Idaho and western Montana and killed 86 people. The area it

burned was about the size of the state of Connecticut and the forests were said to be so dense that a person had to cut a way through. Also consumed in this fire were acres and acres of western white pine. After the destruction, the white pine readily regenerated, along with the Ribes which set up a perfect condition for the newly introduced Cronartium ribicola to kill millions of young pines.

In higher elevations of the mountainous West where white bark pine grows, white pine blister rust and bark beetles have so devastated some populations that the Department of the Interior is now reviewing a petition to list the species as threatened or endangered. This special issue of *Forest Pathology* contains considerable scientific information that may be of significant value as the agency evaluates the status of this tree species.

Shaw, Geils and their colleagues hope this edition of *Forest Pathology* (volume 40, issue 3-4, 145-418, August 2010) will inform and increase discussion and solutions to managing and eventually controlling the spread of this disease on white pines.

More information: To read the abstract:
[onlinelibrary.wiley.com/doi/10...0.issue-3-4/issuetoc](https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3113.2010.04500.x)

Provided by USDA Forest Service

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