

November 23, 1964

WHITE PINE BLISTER RUST DISEASE SCOUTING SURVEY
BRYCE CANYON NATIONAL PARK AND CEDAR BREAKS
NATIONAL MONUMENT - OCTOBER 12-15, 1964
(made by Forester John C. Gynn, as requested
by Chief of Park Protection S. T. Carlson)

Forward:

Purpose of the survey was to determine if the fungus disease White Pine Blister Rust (Cronartium ribicola) is present. If not, what is the probable potential for inception, intensification and spread of the disease? Examination of ribes was extremely difficult because lateness of the season had caused complete or nearly complete defoliation. While scouting with Forest Service Officials in the States of Wyoming, Colorado, northeastern Utah and southeastern Idaho, it was readily apparent the incidence of infection on ribes was far below normal in 1964.

Bryce Canyon National Park:

Limber and bristlecone pine (Pinus flexilis and P. aristata) are scattered and/or in patches throughout most of the ridge road and overlook areas to Rainbow Point. They can also easily be seen forming part of the stands along the more distant portions of the Canyon rim. These white pine are generally in close association with scattered and/or patches of the disease hosts Ribes cereum and R. inebrians. The highly susceptible host R. aureum is also listed as growing in the Park. However, ribes examination was meaningless for all intent and purposes, because of the nearly complete defoliation.

White pine forms a larger part of the forest cover in some places west of the ridge road, extending beyond the west Park boundary to meadows edge along the east Fork of the Sievere River in the Dixie National Forest. The highly susceptible R. inerme, R. aureum and what appeared to be R. setosum (also highly susceptible) along with R. cereum, and an unidentifiable species are numerous along the Sievere River. They are within easy infecting distance of the white pine stands extending into the Park. Here too nearly all ribes were defoliated. No blister rust was found.

The area adjacent to the northeast boundary of the Park (Paria River) also contains highly susceptible ribes in close association with limber pine. One R. aureum not yet defoliated, was found along the Hi-way

approximately 20 chains north of Tropic, Utah. The leaves were heavily infected with blister rust in both the uredial and telial stages. This infection is probably pinon pine rust (C. occidentale) which is known to be prevalent in the area and widely distributed throughout Utah. No test has yet been discovered by which pinon pine blister rust and white pine blister rust can definitely be differentiated on their common host, the genus Ribes.

Conclusion: Cronartium infection of ribes in the Park is possible, at least in micro portions of the area as shown by the find near Tropic, Utah. Unless temperatures remain at 50° - 60° F. with a constant humidity of 97 - 100 percent for approximately 48 hours during late summer and early fall, the sporidia production period of the rust on ribes leaves, inception of the disease on white pine is not likely. Intensification after inception would be slow unless this same climatic condition occurs during periodic annual intervals. However, it must be remembered that even though rust inception is slow, once established on white pine with aecia from local cankers annually infecting ribes growing in close association with white pines, the potential for intensification and spread during each climatically favorable year increases accordingly. This is particularly true with the highly susceptible limber pine species. Although the rust might not have yet reached the range of bristlecone pine, this species has been infected in controlled inoculation tests.

The rust specimens collected near Tropic, Utah are being sent to U.S.F.S. Region 5 for further visual examination. They are not planning a stain identification test set-up this year, which is the best method known but far from absolute.

Cedar Breaks National Monument:

Outstanding mixed stands of limber and bristlecone pine are part of the forest beauty around the amphitheater rim. Of particular interest are the hardy bristlecone pines growing on the limestone ridges in the amphitheater, and enjoyed by viewing from the rim overlooks. These two species of white pine are also a valuable part of the forest cover along the road from Headquarters to beyond the Desert View overlook.

The white pines above the amphitheater are in close association with scattered R. cereum and masses of R. montigenum. Here too, defoliation of ribes was nearly complete. No rust was found on white pine or ribes. Inspections were not made in the amphitheater or the Canyon bottom because ribes defoliation was so far advanced species identification and examination were not practicable.

During an inspection made just outside the boundary on Mammoth Creek which heads in the Monument, other more susceptible species of ribes

were found. Because of defoliation they could not be positively identified, but appeared to be R. inermis, R. astosum and/or other species.

Conclusion: Here too a forecast for inception, intensification and spread of the disease is difficult. Particularly because as at Bryce Canyon, ribes species identification was not possible in all cases (this is highly important because of the susceptibility, and sporidia production factors of the various species). Inception and intensification of the disease in the Monument is possible as described for Bryce Canyon.

Recommendations:

1. A systematic disease, and white pine - ribes distribution survey be made of both areas and mapped accordingly. This to also include ribes species identification, and topography as to stream type and other micro areas that might have favorable climatic situations for inception of the disease. These data are paramount for sound forecasting and disease scouting use. The surveys could easily be made by experienced checkers from the Midwest Region. A five man checking crew would require approximately 12 working days to make the surveys.
2. Using the above survey data as a guide, a disease scouting inspection should be made every third year. This would require about four days by an experienced man to do a good job.

Control:

Should inception occur and/or small infection centers on white pine are found, they could even now probably be controlled by an antibiotic direct canker treatment method until an effective, acceptable aerial foliar treatment has been discovered for operational use, if and when necessary.

Acknowledgements:

This scouting trip was expedited to a considerable extent by the assistance of Chief Ranger Bob Morris, and Park Ranger Harold Thompson at Bryce Canyon, and Park District Ranger Byron Hazeltine at Cedar Breaks.

Yellowstone National Park, Wyoming 83020

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November 25, 1964

Memorandum

To: Regional Director, Midwest Region
Through: Superintendent, Yellowstone

From: Forester John C. Gynn

Subject: Report - White Pine Blister Rust Disease Scouting Survey -
Bryce Canyon National Park and Cedar Breaks National
Monument - October 12-15, 1964

Enclosed are copies of the above subject report for your review and distribution to Chief of Park Protection, S. T. Carlson, the southwest Region, Bryce Canyon National Park, and Cedar Breaks National Monument or as you deem advisable.

John C. Gynn

cc:
Files
Reading File
Gynn ✓

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