

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
OFFICE OF FOREST PATHOLOGY

MRB:G.M.EVE-3057

Title: SOME FOREST PATHOLOGICAL OBSERVATIONS
IN MESA VERDE NATIONAL PARK, 1944

Also contains excerpt from Lake S. Gill 1941 report

Author: James L. Mielke, Associate Pathologist

To _____

From _____

For information

For criticism

To be published in _____

Please forward to _____

Date December 27, 1944, 193

SOME FOREST PATHOLOGICAL OBSERVATIONS

IN MESA VERDE NATIONAL PARK, 1944

by

James L. Mialke, Associate Pathologist

Division of Forest Pathology, Albuquerque, New Mexico

Incidental to the work that was done in late August on the *Leptographium* root fungus of piñon pine, observations were made on some other forest tree diseases. Several things regarded as noteworthy were encountered. The piñon root disease is covered in a separate report.

WITCHES' BROOM OF OAK

In the vicinity of the Park Point Lookout Station witches' broom is rather common on Gambel or Utah oak (*Quercus gambelii*). This broom was also noted in a few other localities situated mainly in the western portion of the Park.

No evidence was seen of killing or damage associated with the brooms. As the trees grow in height and the density of the stand increases many of the brooms are shaded out and die. The largest brooms seen were about 20 inches in diameter. Their length is usually somewhat greater than their diameter.

The witches' brooms are densely branched and support thin, pale yellow leaves of about half normal size. These characteristics make them rather conspicuous. A microscopic examination showed that the lower surface of the chlorotic and dwarfed leaves were covered with a fungus belonging to the genus *Microstroma*, which imparted to them a dusty appearance. On the upper surface a species of *Microsphaera* - a powdery mildew fungus - was found. Neither of these fungi have been reported as the cause of a witches' broom of oak, consequently the significance of their association with this condition is not known. It also appears that the broom itself has not been reported for no mention of it could be found in the available literature.

This witches' broom of oak is of widespread occurrence in the Southwest and possibly is present in the tree over most of its range. It was observed in Gambel oak on the north rim of Grand Canyon.

DYING OF JUNIPER

In the headquarters area several dead and dying junipers were noted along the roads. Large branches had been removed and possibly the trees were also injured during the course of road construction. Some of the dead wood was considerably weathered and was present in the landscape as a large mound of wood. The wood was weathered and was present in the landscape as a large mound of wood.

a large wood boring insect, possibly the anethyst cedar borer Hemacallidius anethystinus. This beetle is reported to usually select injured or dying trees, but sometimes it appears responsible for killing healthy trees. It is suggested that these junipers be examined by an entomologist sometime.

GYMNOSPORANGIUM RUST OF AMELANCHIER

Although the attack was not severe, serviceberry had much more rust in 1944 than in any year since 1941 when the trees were so heavily infected that the leaves turned yellow and started dropping in late summer. The junipers, which are the alternate hosts, do not appear to have suffered heavy infection by this rust in 1944. Considerable annual variation in the degree of attack on serviceberry can be expected because summer rains are of importance in the spread and development of the fungus.

COMANDRA BLISTER RUST

The urediospore and teliospore stages of the rust Cronartium comandrae were found on plants of the common comandra or bastard toad-flax (Comandra umbellata), which are common in the vicinity of Far View Indian Ruins. Diseased plants occurred in small, scattered groups indicating that the aeciospores, which had caused the infection, had their source at some distant point. The aeciospores of this rust are produced on ponderosa and several of the other pitch pines. The closest ponderosa pines are a few scattered individuals, mainly large and old trees, a mile or so to the northwest. This native rust has been reported from a number of localities in Colorado and probably will cause no particular damage to ponderosa pine in the Park.

NEEDLE RUST OF PINON PINE

Coleosporium jonesii, the needle rust of pinon pine, is native to the Park. Various species of Ribes (currants and gooseberries) are the alternate host plants of the fungus. This rust is present on the leaves of the common gooseberry in Mesa Verde probably every year. The intensity of the attack varies considerably from year to year, however, since the rust is dependent upon moisture in the form of rain for its spread and intensification. In 1944 the gooseberries were infected much more heavily than at any time during the past few years. This was particularly the case in Morfield Canyon where the rust attack was so heavy that most of the bushes had turned yellow as early as August, thus imparting to them a premature fall coloration.

The Ribes probably will suffer little from the rust attack. Little if any damage to the pinons is expected since only the needles become diseased.

PORCUPINE DAMAGE TO CONIFERS

Most of the Douglas fir and piñon pine growing on the area directly in front of Cliff Palace Indian Ruins have been severely damaged by porcupines. It is possible that bark beetles will be attracted to these weakened trees and kill some of them. Also, they are now more liable to attack by fungi.

One of the first things that catches the eye, when viewing the Cliff Palace from nearby vantage points, is the unsightly condition of the trees. They are badly scarred as a result of bark removal by the porcupines, their crowns contain many dead branches, and a number of them have dead tops. The scene is one of wanton destruction.