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Notes on Stem Rusts of Hard Pines in Iowa

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Notes on Stem Rusts of Hard Pines in Iowa[1]

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Tree disease specimens sent to Iowa State College for identification, during the past two years, have yielded what is believed to be two new rust records for Iowa. Because of this, and the fact that under certain conditions these diseases could become important, a few comments on these collections are presented.

Cronartium comptoniae Arth.

The sweet fern blister rust was originally found on Mugho pine (*Pinus montana* Mill. var. *mughus* Willk.) in a nursery two miles west of Mason City, Iowa, during June, 1955. The collection was brought to Ames by the owner of the nursery for identification in August, 1955 (Figure 1). The junior author made further collections in this nursery during May, 1956.

This stock of Mugho pine was obtained from a wholesale nursery at Fryeburg, Maine, in 1953. In all probability the trees were infected before they were shipped into Iowa. The alternate hosts of this rust, sweet ferns (*Myrica asplenifolia* L. and *M. gale* L.), are commonly found in the Northeastern United States and have been reported for Minnesota and Wisconsin. To the authors' knowledge, they have not been recorded in Iowa.

The apparent absence of the alternate hosts in Iowa will probably confine this disease to nursery stock of hard pines which have been shipped into Iowa from diseased areas. This rust is capable of causing heavy losses in infected stock and therefore could become a serious nursery disease in Iowa.

Cronartium coleosporioides Arth. (*C. harknessii* Meinecke)

The western gall rust was collected from ponderosa pine (*Pinus ponderosa* Laws.) growing in a nursery windbreak two miles north of Atlantic, Iowa, in February, 1957 (Figure 2). During the following month, further collections and observations were made by the junior author.

This windbreak containing several hundred ponderosa pines was originally planted in 1940 from stock obtained from the State Forest Nursery at Keosauqua, Iowa, and in 1957, the trees averaged twenty feet in height. Upon questioning the owner of the nursery, it was found that the galls were first noticed approximately ten years ago.

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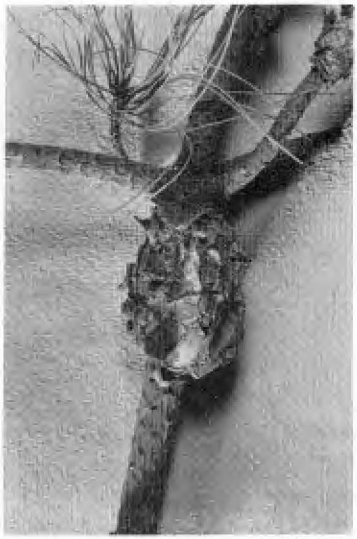

Figure 1. *Cronartium comptoniae* Arth. collected on *Pinus montana* Mill. var. *mughus* Willk. in August, 1955, west of Mason City, Iowa.
Figure 2. *Cronartium coleosporioides* Arth. (*C. harknessii* Meinecke) collected on *Pinus ponderosa* Laws. in February, 1957, north of Atlantic, Iowa.

Actual branch and tree kill were not observed until last year following several years of subnormal rainfall. The disease was probably introduced into the nursery on either the original planting stock or on other susceptible hosts.

Although other species of hard pines were growing in the windbreak, only the ponderosa pines were affected by this rust. The range of susceptibility within the population of this species was striking. Heavily infected individuals having hundreds of galls were found growing adjacent to trees completely free of the disease. Other individuals were found with only a few galls.

The western gall rust is facultatively heteroecious and therefore the alternate hosts, members of the family Scrophulariaceae, are not necessary for the disease to intensify. Because of this habit, the disease is potentially serious to susceptible hard pines growing under nursery or plantation conditions.

The importance of disease-free nursery stock is illustrated by these two rust diseases. Since the period of incubation, infection to first sign of symptoms, for most pine stem rusts is from two to three years or longer, inspection for these diseases is very difficult. This fact should be kept in mind by nurserymen when buying stock from areas where these diseases are prevalent.

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