

WESTERN GALL RUST

Endocronartium harknessii (J.P. Moore) Y. Hirat

DISTRIBUTION

Throughout the range of the host pines in BC.



Figure 175. Infections on stems of young trees often result in hip cankers as the trees grow.

HOST SUSCEPTIBILITY:

Lodgepole and ponderosa pine and any of the introduced hard pines. Susceptibility varies greatly among trees of the same species due to genetic resistance, which varies by family and geographic location. Infection is evident on regeneration through mature trees.

SIGNS & SYMPTOMS:

This disease produces easily recognizable galls, on branches or stems, which are roughly spherical or pear-shaped. The galls are woody and grow in size each year unless girdling occurs, which will kill the tree distal to the gall. Some large-stem galls live for decades and produce a lesion called a hip canker. Galls require two to four years to mature, at which time they release orange spores from early May to



Figure 176. Close-up of branch gall.

late June. The spores are released from fissures in the bark covering the galls. These spores can directly infect other pines. In contrast, the other rust fungi that attack pines in British Columbia require an alternate host to complete their life cycle. This ability to infect from pine to pine allows for rapid spread of western gall rust when conditions are ideal. This only occurs every few years, resulting in "wave years" of infection. Infection occurs through the new tissue of elongating shoots, so all galls are initially formed on year-old growth. Rodents sometimes feed on the galls, exposing their woody form.

DAMAGE:

The probability of mortality caused by complete girdling decreases with tree age. Mortality results from either complete girdling by stem cankers, or wind breakage at canker-weakened points. The majority of damage involves growth reduction resulting from branch cankers and a reduction in timber value due to defects caused by stem cankers. Low incidence of branch cankers should not seriously affect the growth of a tree. Vigorously growing trees are more vulnerable to infection. This disease occurs more often in open-grown or spaced stands than in dense stands. However, there is a higher proportion of stem galls in dense stands, compared to open stands.

SIMILAR DAMAGE:

Swellings on seedlings or branches at the early stage of gall formation may be mistaken for blister rust. However, blister rust swellings result from swollen bark, while western gall rust galls have normal bark over abnormally thick woody tissue.



Figure 177. Lodgepole pine with multiple galls from extensive infection.



Figure 178. Old stem canker. Note rough surface of bark.