

Hawthorn Rust

The hawthorn that was infected with the rust had a stunted unattractive appearance the tree had little fruit on it the leaves had a brownish spots with small white growths coming out from them on the underside of the leaf. The tree looked to be relatively healthy but the disease had greatly diminished its aesthetic value to the landscape. I would also be worried about the infection of this tree over a period of several years as this disease might have the possibility of defoliating the tree early in the season and even killing the tree in extreme cases. The alternate host is a Blue Rocky Mountain Juniper cultivar with in the same bed. The appearance of the Juniper doesn't isn't as bad as the hawthorn. The juniper is has larger galls on the interior of the branches just past the new growth from previous years telia also on the new growth there is small burnt orange galls that will develop into the next years telia. In some cases the galls will cause stem die back.

Hawthorn rust is caused by *Gynosporangium globosum* like previously stated it is a alternate host fungi infecting eastern red cedar, Rocky Mountain juniper and other cedar species to complete its life cycle the disease must also infect a hawthorn, apple, crabapple, pear, or other susceptible host. The cycle starts with the swelling of telia on the cedar host in the spring during the wet season. As the telia swell they produce basidiospores which then are dispersed during rain storms to the alternant host in this case a hawthorn. The fungi then makes yellow spots on the leaf called spermagonia. At the end of the summer, early fall small white tubular structures appear on the under sides of the leaf within the spots to just on the outside. These structures are called aecia which produce aeciospores that then infect a cedar host. Aeciospores are wind born and require warm dry weather to be dispersed. After the cedar host has been infected the fungi then produces a gall which develops through the fallowing year and then is ready to produce telia and start the cycle again.

For the most part the only way to control Hawthorn Rust is through fungicidal treatment when the spores are being produced. For best results both hosts would need to be sprayed and as always follow directions on label (see attached sheets for pesticides registered in Idaho). The broadleaf host would need to be sprayed at the start of leaf, blossom, on fruit development and when telia start to swell in the spring. The applications times and intervals will vary depending on pesticide used. The cedar host should be sprayed in late summer before the aecia develop. Also if possible the telial galls would need to be pruned from the cedars because in some cases they become perennial. Another way of control is to remove the undesired host up to one mile from site. There also resistant varieties that can be planted such as English Hawthorn, Cockspur Hawthorn, and Sabina juniper.

Reference:

Sinclair, Lyon, and Johnson. Diseases of Trees and Shrubs. Comstock Publishing Associates, Cornell University Pres. 1987. pg 242.

