

# Pear Trellis Rust in the Home Garden

July, 2018

Pear trellis rust is a disease of pear and juniper caused by the fungus *Gymnosporangium fuscum*. It increases in severity and distribution when pear trees and junipers are planted close to one another.

In British Columbia, pear trellis rust is known to occur primarily in the Lower Mainland and southern Vancouver Island. It has been recently spread into the Okanagan where it has been found in a small number of locations. All pear trees and many species of junipers can be affected by the disease.

## Symptoms

### On Pears:

The first signs on pear are bright orange spots on the leaves in late May. The spots enlarge during the summer reaching a diameter of 1-2 cm. By late June, numerous black dots (pycnia) develop in the centers of the spots on the upper leaf surface. In July and early August, the infected area of the leaf becomes thickened and wart-like as spore-producing structures (aecia) push out from the lower surface. From late August through to leaf drop in the fall, grey hair-like projections emerge from the lower surface and release spores. These spores are capable of infecting junipers.

Pear fruit and leaf petioles often become infected, particularly if leaf infection is heavy. Fruit may become mummified. Occasionally petiole infections may grow into the adjacent wood, causing perennial twig cankers which swell and produce aecia every fall.



Pear trellis rust lesions on pear leaf - pycnial stage



Pear trellis rust lesions on pear leaf - aecial stage

## On Junipers:

Symptoms on juniper are much less obvious. They can only be seen during wet weather in April and early May. At that time, orange, jelly like masses (telia) swell and enlarge on infected juniper branches. Telia release spores which are capable of infecting nearby pear leaves which are just starting to grow. After the spores are released, the telia shrink and dry up, and infection on juniper remains dormant until the next spring. Infected junipers continue to grow and appear healthy. Some varieties may develop spindle-shaped swellings on the branches.



Pear trellis rust telial stage on juniper.



The orange, jelly-like telia extend out 1-2 cm. Telia produce spores that infect pear foliage in the spring.

## Life Cycle

The fungus requires the presence of both pear and juniper hosts to complete its life cycle. The disease overwinters on junipers. In early spring, reddish brown telia emerge from infected juniper twigs. The telia gelatinize during spring rains in April to May, and shed their spores which are blown by the wind to nearby emerging pear foliage. Pears planted close to infected junipers are most likely to become infected. Infected pear leaves develop orange spots from late May to late June. By July, the black pycnial stage appears in the centre of the spots. These spores do not spread to other plants. From late August through October, the aecial stage appears on infected leaves, petioles and fruits. At this stage, aeciospores spread the disease back to junipers.

Infection of both pear and juniper is favoured by wet, rainy weather. The disease can also be spread over long distances by transporting infected plants to new locations.

## Other Rust Diseases

Other species of rust may occur on pear in B.C. including quince rust (*Gymnosporangium clavipes*), and Rocky Mountain pear rust (*G. nelsonii*). Quince rust may infect pear, apple, quince, hawthorn, and saskatoon. The coniferous hosts are *Juniperus communis*, *J. sibirica* and *J. virginiana*. Rocky Mountain pear rust affects pear, crab apple, hawthorn, saskatoon, and other rosaceous species. The coniferous hosts are also Juniper species.

Rust diseases seldom cause problems in the Interior fruit growing areas due to the prevailing dry climate. They are more likely to be seen in higher rainfall areas affecting native saskatoons.

## Prevention and Management

Control measures for pear trellis rust may be required to limit damage in areas where the disease is established.

- Plant junipers and pears as far away from one another as possible. Consider your neighbour's plants, as well as your own. If the two hosts are separated by at least 150 metres, there will be minimal damage to the pears.
- If infected pear and juniper are in close proximity, consider removing one or the other. Don't leave juniper brush piled in your yard as the fungus will sporulate on it and spread to the pears.
- To prevent spread of the disease from your pear tree to nearby junipers, pick the infected leaves before mid-August each year, if they are not too numerous. No special disposal of these leaves is required. The fungus will die out in a few days when the leaves shrivel up.
- Prune out any gall-like growths at the base of twigs on pear.
- Avoid planting ornamental pears. They are also susceptible to the disease.
- If selecting junipers for a landscape containing pears, select resistant juniper species, including *Juniperus horizontalis*, *J. communis* and *J. squamata*, or choose a different type of conifer.
- There are no fungicides registered for pear trellis rust control on pear in Canada. The fungicide Pristine (boscalid + pyraclostrobin) is registered for use on ornamental pear for trellis rust; this fungicide is not available to the home gardener, but can be applied by certified commercial applicators.