Gymnosporangium Rusts
*Gymnosporangium* spp.

**Hosts:** Junipers and Arizona cypress  
**Symptoms/Signs:** There are eight species of *Gymnosporangium* rusts of juniper in the Southwest and one on cypress. Most Southwestern *Gymnosporangium* spp. alternate on serviceberry and/or hawthorn (Rosaceae), but one species (*G. speciosum*) alternates on fendlera and mock orange (Hydrangeaceae). On the evergreen host tree, these rusts cause witches’ brooms, galls, other branch distortions, and dieback of twigs and branches. Brown to orange hornlike or cushionlike projections (telia) are produced in the spring; these swell and gelatinize during wet periods and are quite spectacular. On alternate hosts, the rust develops colorful spots and localized swellings on leaves, fruits, and green twigs, followed by casting or distortion and death.

*Figure 230. Gymnosporangium speciosum telia on juniper.*

![Image of Gymnosporangium telia on juniper](image-url)
**Biology:** Some *Gymnosporangium* species complete their life cycles in 1 year, but many require 2 years. Two spore stages form in spring through late summer on the alternate host. The second spore type is wind disseminated and infects juniper or cypress (depending on the rust species). *Gymnosporangium* species overwinter in their evergreen hosts, where they produce telia in the spring. The telia produce the final spore stage that infects the alternate host. Many of these rust species become perennial in juniper or cypress and produce telia annually on galls, swellings, or witches’ brooms.

**Effects:** In the Southwest, these fungi generally cause minimal damage to junipers, other than some deformities. Impact on the foliage and fruits of the alternate hosts may be more significant in years with adequate rainfall.

**Similar Diseases:** Witches’ brooms caused by some of the juniper rusts could be confused with mistletoe infection. *Gymnosporangium cupressi* affects Arizona cypress in central Arizona.

**References:** 78, 92, 116