Comandra Blister Rust
*Cronartium comandrae* Peck

**Hosts:** Ponderosa pine and Mondel pine (*Pinus eldarica*), and *Comandra pallida* is the alternate host.

**Symptoms/Signs:** Symptoms of disease on pine begin with slight, spindle-shaped swellings that give rise to pustules that soon exude a mass of rust colored spores. On the nonnative Mondel/Eldarica pine, comandra blister rust causes dieback of branches and eventual tree death. On ponderosa pine, its native host, this disease is rare but occasionally girdles seedlings and saplings. On *Comandra pallida*, the native alternate host, the rust causes pale yellow leaf and stem spots and leaf abscission.

**Biology:** The aecial stage develops on pine in late spring through early summer and spores disseminate by wind at that time. These spores are responsible for the primary infection of the alternate host, *C. pallida*. Rain and cool temperatures favor their germination. The next spore stage, the so-called repeating stage, occurs and builds up on Comandra, as long as there is wet weather. The final stages give rise to basidiospores in late summer, which are wind-dispersed to infect pine needles. The fungus grows into the inner bark, forming a canker that eventually girdles the branch or stem.

**Effects:** Although this disease causes major damage to lodgepole pine and sometimes ponderosa pine in northern Colorado and Wyoming, it is of minor consequence to ponderosa pine in Arizona and New Mexico.

*Figure 228. Comandra pallida with leaf infections.*
However, comandra blister rust has done considerable damage to plantings of Mondel pine in the Prescott, Sedona and Payson areas of Arizona. Beginning in the late 1970s, Mondel pines were planted widely as a landscape tree throughout these areas, until it was realized that comandra blister rust impacted their survival. Infected *C. pallida* are typically observed near infected Mondel pines.

References: 29, 93, 117