**Freeze damage to a pine.** Drying is uniform at the tips and dies back down toward the base. All the other branches also had the same pattern. No signs (insect webbing, frass, or fungus fruiting bodies) were found.

**Disease damage is random, occurring wherever spores land on susceptible plant parts (needles, bark).** Look for small black specks or pimples (fruiting bodies); or look on older fallen needles on the ground.

**One of several needle diseases with tiny black fruiting bodies.** Sometimes the needles look “clean” because the fruiting bodies have not erupted through the epidermis. The fruiting bodies may be produced on the needles that have fallen on the ground. There are different needle diseases specific to 2-3 and 5 needle pines.

**The crucial area to examine in this case is the area between the dead and healthy branch.** Random damage often indicates a biotic cause such as animal chewing damage, western gall rust, wood borer, broken limb or girdling from a wire. In this case sequoia pitch moth is the culprit.

**Sequoia pitch moth caterpillars live and feed just under the bark of pine.** Where several pitch moths converge and girdle the branch, the branch may die or break in a windstorm. The pitch mass from young larvae is pinkish becoming gray when the larvae are mature.

**Western gall rust is a disease that causes perennial woody swellings or galls.** These galls can grow each year. In May and June they produce bright yellow spores that disperse to new branches and twigs. Photo Credit: Bess Bronstein.