

CONIFER INSECTS AND DISEASES IN THE TAHOE BASIN

A note about forest health: all the insects and diseases described here are native to the Sierra Nevada conifer forests. They've evolved in conjunction with native tree species, and play an important role in naturally thinning out forests by killing off weaker trees, thereby allowing the strong trees to remain healthy and grow even stronger. Keeping backyard forests healthy by thinning trees to give them adequate growing space and resources can reduce the likelihood of attack by insects and diseases.



HEART ROT

Affects: All conifers, but most commonly occurs in white fir in Tahoe's urban forests.

Recognize by: Black foul-smelling liquid oozing out of trunk or pithy decaying wood in exposed areas under bark.

Notes: Trees can survive long periods with heart rot, though rot will likely continue to spread within the tree and is not curable.



Dwarf mistletoe plants on Jeffrey pine

DWARF MISTLETOE

Affects: Pines and firs. Different mistletoe species infect different tree species groups (e.g. pine mistletoe doesn't spread to firs).

Recognize by: "Witches' brooms" and yellowish-green coral-shaped plants.

Notes: Dwarf mistletoe is a parasite that steals nutrients from the tree. It spreads to nearby trees of the same species by fruiting bodies that explode in late spring and early summer. Heavy infestations can weaken a tree enough to kill it. Removing infested branches can extend the life of a tree and prevent spread of the disease (TRPA permit required for branch removal in upper 2/3 of total tree height).



Witches' brooms on lodgepole pine

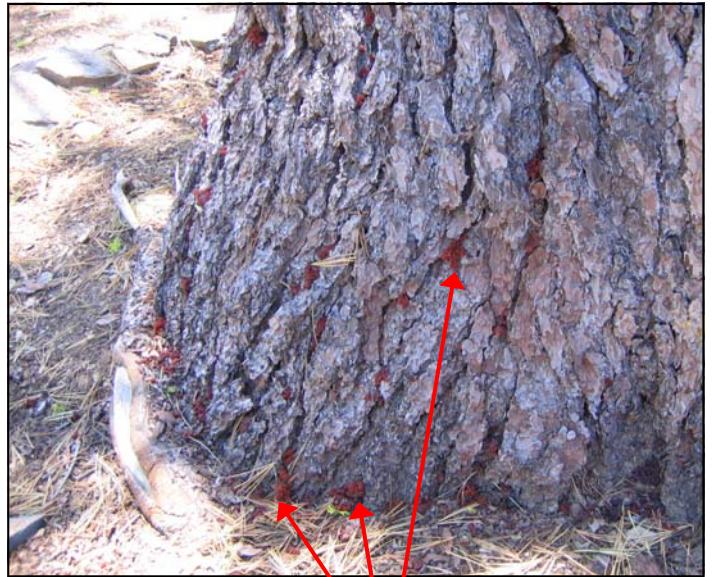


MOUNTAIN PINE BEETLE

Affects: Pines.

Recognize by: Creamy white to red pitch tubes approximately 3-10' off the ground.

Notes: Redder pitch tubes = beetles were more successful; creamy white pitch tubes = tree was more successful at expelling beetle. Can cause tree death because beetles carry blue stain fungus, which spreads in the trunk and prevents water flow from roots to needles.



Pitch tubes

RED TURPENTINE BEETLE

Affects: Pines.

Recognize by: Dark red pitch tubes at base of tree.

Notes: Red turpentine beetle doesn't usually kill the tree by itself, but weakens the tree and makes it more susceptible to attack by other beetle species, which can then kill the tree.



Healthy white fir trees with dead tops from old beetle attacks.

FIR ENGRAVER BEETLE

Affects: White fir and red fir.

Recognize by: Dead top or sap drips on trunk in upper portion of tree.

Notes: Beetles attack tops of trees. Heavier attacks can kill the tree, while minor attacks only kill the top. **Trees can remain healthy and live for many years despite having a dead top.** Dead tops can be removed to reduce the hazard of breaking and falling (TRPA permit not required to remove completely dead portions of trees, including dead tops).

Sap drips indicating many beetle hits. The entire trunk of this tree was attacked and it will likely die.



WESTERN GALL RUST

Affects: Pines. Can spread among different pine species.

Recognize by: “Hip cankers” on trunk.

Notes: Rust fungus eats away living portions of outer tree trunk and causes a weak spot where breakage is more likely. It may take decades for the disease to completely girdle the trunk.

Easily confused with: Physical damage from cars and snowplows. The exposed wood inside a gall rust canker often has a swirly grain pattern, while wood exposed from physical damage doesn't show any unusual grain patterns.



Hip cankers on lodgepole pine (left) and Jeffrey pine (right).



Gall rust at the base of the tree can be confused with snow plow damage—this is gall rust at the base of a large Jeffrey pine.



Gall rust creates a swirly wood pattern, while mechanical damage does not.

DISEASE LOOK-ALIKES

Just because a tree looks abnormal or unusual, it's not necessarily declining or significantly damaged. Here are a few things that, assuming the main portion of the tree appears healthy and sound, should not be considered problems.



Snow plows, cars, and other machinery cause damage when they hit the bark and cambium layer, but the damage is often cosmetic and doesn't necessarily harm the tree. Unless active internal rot or insect infestation has followed the mechanical damage, removed bark and exposed internal wood should not automatically be considered a problem.



Stages of wound recovery from mechanical damage:



Cambium still visible, fairly fresh sap.



Wound fully covered, sap has dried and fallen off.



Damaged site only identified by outer bark pattern.



Trunk discoloration resulting from an irrigation system (left) and snow blower spray (right). Trunk bleaching occurs from repeated watering or snow piling, and is not an indication of disease.



Mechanical damage can result in small blobs of sap that resemble pitch tubes from a bark beetle attack. Sap covers wounds to prevent additional infection, similar to a small scar, and usually does not indicate severe damage.

