Why Are My Trees Dying? And What Can I Do About It?
Southern Oregon Forestry Note #3

Do these scenes look familiar? Over the past three years, trees all over the Rogue Valley have been dying or showing signs of poor health. Many people are quick to blame insects, and while insects are present in most sick trees, they are rarely the underlying cause of the problem. The root of the problem is pretty simple: Trees are stressed because of a lack of water. In the 2001 water year less than 10 inches of rain were recorded in Medford, not far off the all time record. The past two years have been a little better, but springs and summers have been dry.

Trees need lots of water, hundreds of gallons a day in the case of large conifers. Throughout the spring and summer, trees and other plants drink up any water stored in the soil. When the water runs out, the trees get stressed. At some point, if soil moisture isn't re-charged, the trees' natural defenses are overcome and they are invaded by insects such as bark beetles and woodborers. Typically, the insects feed in the sugar-rich inner bark, producing tunnels that effectively girdle - and eventually kill - the tree. Some bark beetles also carry a fungus that invades and plugs up the water conducting tissues of the tree. Damage often occurs in late summer or fall, but the trees stay green as temperatures cool, rain falls, and trees go into dormancy. Then when it warms up again in the spring, the needles dry out, and branches turn red or brown.

Trees growing in overcrowded conditions, in marginal soils, and on hot, dry sites (such as south and west facing slopes) are especially vulnerable.
What can you do?

Once the tree has been attacked and is in decline, there is little or nothing you can do about it. The secret to tree health lies in improving tree vigor. Following are some suggestions for maintaining healthy trees:

- Plant drought tolerant species such as ponderosa pine. Favor more drought tolerant species during thinning.

- Harvest dead and dying trees as soon as feasible. The material can be burned or chipped, or remove the bark to prevent a buildup of bark beetle populations. Note that bark beetles or wood borers may already have left the tree when you notice the damage.

- Thin out small trees and brush to improve the vigor of the remaining trees. Note: Avoid thinning pine during spring and summer to prevent a buildup of ips (pine engraver) bark beetle populations. Firewood cut from pine trees with yellow crowns can be covered with clear plastic to prevent beetle emergence.

- Sanitize your woods: Cull out low vigor trees that are most vulnerable to insect or disease attack in the future. With Douglas-fir, low vigor trees often have spare, thinning crowns, the foliage may have a slight yellowish cast, and/or there will be a distress cone crop (abundant, undersized cones near top of tree).

- Prune off dead branches and burn them to reduce twig weevil and canker populations.

- Avoid soil compaction from vehicle traffic, livestock, etc. Do not backfill over the existing soil level, alter existing drainage patterns, or otherwise mess with the root system. Note that most of the fine roots are within a foot or two of the soil surface, and that the roots may spread well beyond the tree's drip line.

- Soil moisture levels can be improved through removal of competing vegetation (thinning and brush removal), mulching, and irrigation. For established landscape trees, a deep, occasional soak in a doughnut pattern underneath the drip line can help, but avoid frequent light waterings. Some hardwoods, especially oaks, are prone to root disease from frequent summer irrigation, especially when watered close to the trunk.

- Avoid fertilization during periods of drought stress - it may increase the tree's water demand and/or damage the roots.

The good news is that many of the activities needed to improve tree health, such as removal of competing vegetation, also help reduce the fire hazard on your property. Fire hazard reduction is forest health improvement!

Forest health information is available on the OSU Extension website: http://extension.oregonstate.edu/sorec/Forestry/index.php
For more information, contact Max Bennett, Forestry Agent, 776-7371 or max.bennett@oregonstate.edu

By Max Bennett, Forestry Agent, OSU Extension Service