

Maintaining Hazard-Resistant Ponderosa Pine Trees

Oregon Department of Forestry
Urban and Community Forestry Program



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A distinctive trait for many communities in Central and Eastern Oregon are their ponderosa pine trees (*Pinus ponderosa* var. *scopulorum*). Native to the area (Photo 1), this tree species can grab your attention through many of your senses, including sight, touch and smell. Even hearing the wind through its branches can be enlivening.



Photo courtesy Oregon State University

Photo 1: Ponderosa pine forest

Growing to an impressive age and size, a large, *healthy* ponderosa pine is an asset to your home or business, providing economic, social and environmental benefits. Maintaining the health of your tree is essential. Not only do you reap the benefits mentioned, but your work pays off by it being long-lived, having few significant insect and disease problems, not being a hazard to person or property and by having minimal risk of failing during storm events.

While another trait of Central and Eastern Oregon is the 300+ days of sunshine, the area's storms will also catch your attention. Summer brings thunderstorms with accompanying high winds and lightning and winter brings snow and sometimes, ice.

Trees vary in their ability to withstand these storms. In general, the tree species, ponderosa pine, is considered to have good wood strength, but it will fail when its ability to withstand the wind or precipitation from a storm is surpassed. An individual tree's storm resistance is determined in part by its history, including maintenance activities, pest attacks, nearby construction activities, and, its branching structure and rooting pattern.

New home or subdivision?

Are you in a new home or subdivision? Your tree, which is now growing in an *urban* forest, was probably one of many that previously made up a *rural* forest. With urbanization, compaction of soil, severing of roots and contamination of soil, air and water can occur. Wind patterns can also be altered by the removal of adjacent trees and the addition of buildings. Weakened by these new conditions, your ponderosa pine tree can become susceptible to pest infestation. All of this makes it more likely to be adversely affected - even become a hazard - by that next inevitable storm (Photo 2).



Photograph by Stephen Fitzgerald

Photo 2: Ponderosa pine with top broken off by strong wind.

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Preventing your tree from becoming hazardous

There are preventive measures that you can take to help your tree resist storm damage and avoid becoming a hazard to person or property. The Oregon Department of Forestry and your city's urban forestry program offer these suggestions for keeping your ponderosa pine healthy:

New or young trees

- **Choose a planting site carefully.**

When selecting a site to plant a ponderosa pine tree, consider the large mature size of the tree species and choose a site that will give your tree the necessary room to grow unobstructed – from roots to branches. Locate your tree where its branch and root system will not have to be pruned to alter its natural shape.

- **Prune for good structure.**

Ponderosa pine typically develop good branching structure with little pruning needed. However, if your young tree forms a codominant or double leader, remove or cut one back, training the tree to have only one dominant leader. In doing so, you prevent the tree from splitting during a storm where the tight angle of connection created by having two leaders is weak (Photo 3).

Established and older trees

- **Avoid cutting tree's roots.**

Tree roots can spread far from the tree's trunk – typically up to 2 times the height of the tree and beyond. Root loss can be prevented during the design stages of forest development by avoiding cutting your tree's roots within its critical root zone (CRZ) or at a minimum, the tree's dripline (the area underneath the tree's branches). The CRZ should be adequately protected to deter construction activities from occurring within this area.

- **Remove dead branches.**

Remove dead or hanging branches; they present a threat to people and structures if they become detached and fall to the ground below.

- **Don't over irrigate.**

If a rain storm is in the immediate future, turn off the irrigation, allowing the soil to dry out prior to the front coming through. Water-logged soils can increase the chances of your tree being uprooted.



Photograph by Stephen Fitzgerald

Photo 3: Ponderosa pine with codominant stem broken off by strong wind.

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- Prune during the dormant season (Dec – Feb).

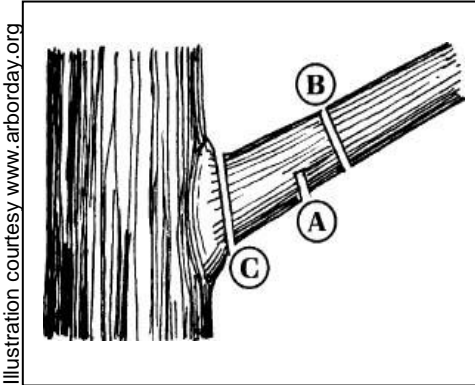


Illustration 1: Pruning technique that will help the tree to seal its wounds better and faster

When pruning your ponderosa pine tree, be careful not to prune live branches in the middle of summer or anytime outside of the dormant season (prune dead branches anytime). In this way, you will avoid attracting beetle pests that can harm and even kill the tree, making it more susceptible to failure during a storm.

Cutting your tree's branches and leaving stubs is called topping. Never top your tree! It is ugly and harmful to its health. Pruning your tree properly (Illustration 1) will extend its life.

To prune the correct way, partially undercut the branch you are removing approximately 6" away from the tree's trunk (A). Next, cut the same branch from top to bottom, further out on the same branch (B). Finally, remove the stub that remains by cutting at just outside the raised area that surrounds the branch at the trunk (C).

After the inevitable storm

Promptly after a storm, it is important to assess your tree for the extent of any damage that may have occurred, and determine what immediate and long-term maintenance actions are needed. Keep in mind; trees have an amazing ability to recover from storm damage. Unless your ponderosa pine is hazardous to person or property, resist pruning it heavily or cutting it down. Also, remember to take safety precautions and be on the alert for and stay away from downed power lines and hanging branches.

Soon after the storm has passed, the Oregon Department of Forestry and your city's urban forestry program recommend you consider answering the following questions and acting upon the recommended treatment:

- **Are limbs broken, cracked or split?**

Prune back the limb to its branch collar (Illustration 1, C) on the tree's trunk. If more than 50% of your ponderosa pine's large limbs are significantly damaged, the tree has less of a chance of surviving. You may need to consider removal of the entire tree.

- **Are there large wounds from where branches have broken or bark has been damaged?**

The larger the wound, the more vulnerable the tree is to disease and pests. With a sharp blade, smooth ragged edges of wounds where bark has been torn away, being careful not to expose any more of the greenish inner bark (cambium). You will need to regularly monitor the wound for decay and attack by pests for the life of the tree. If found, seek advice on your best treatment action.

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- **Are more than 50% of the tree's leaves still intact?**

Loss of foliage results in a reduction of photosynthesis, the process that produces "food" for the tree, hindering the tree's ability to fight decay organisms and grow roots and buds. If the leaves are stripped away by a late summer storm, after buds have set for the following year your tree may be able to recover with new foliage growth, improving photosynthetic capacity once again.

- **Is the top of the main trunk lost (Photo 2)?**

On a smaller tree, you may be able to train an adjacent branch to be the new leader. If it is a larger tree, you may need to consider removal of the entire tree, or, if it is not a risk to person or property, leave it as a wildlife tree.

- **Is the tree leaning or uprooted?**

You may be able to right a smaller tree and temporarily stake or cable to assist it in keeping upright. Larger trees are more difficult to evaluate and may never regenerate roots that would be able to hold the tree erect.

- **Is the trunk cracked or split?**

Cracks are dangerous and can be fatal to your tree, to you and to nearby structures. Removal of the entire tree is probably the only option.

- **Is the tree worth saving?**

If your ponderosa pine tree is seriously damaged and it is located where it does not have unobstructed room to grow, and if its natural shape has been altered by improper pruning, it may be best to remove it.

WHO CAN HELP?

Some tree damage is easy to see and remedies are easily determined and acted upon. Many times damage can be hard to detect.

Often the actions necessary to safely remedy the problem calls for someone best qualified to evaluate the situation. A tree professional can help you decide what to do about your trees and accomplish the required treatments.

Be wary of people who show up at your doorstep offering their services for hire and never let someone top your tree.

Look for Certified Arborists in the phone book, typically under "Tree Service," on the Internet at www.pnwisa.org and www.treesaregood.org, or by contacting your city arborist or urban forester.

MORE INFORMATION:

This bulletin is produced by the Oregon Department of Forestry's Urban and Community Forestry Assistance Program, which helps Oregonians understand the value of trees in our communities and helps cities maximize the economic, environmental, and social benefits of the trees where we live. This bulletin was produced in cooperation with Oregon Emergency Management and the Federal Emergency Management Agency. For additional information on urban forestry and tree care, visit our website: www.odf.state.or.us/UF.