Pruning and Care of Young and Mature Trees

- **How to Make a Proper Pruning Cut**
- **Safety & Visibility**
- **Tips for Hiring An Arborist**
- **Common Tree Diseases**

PORTLAND PARKS & RECREATION
Healthy Parks, Healthy Portland

Portland Parks & Recreation
City Nature Urban Forestry
10910 N Denver Avenue, Portland, OR 97217
phone: 503-823-4489 fax: 503-823-4493

Street tree planting, pruning and removal permits, general street tree information, tree cutting ordinance issues, park tree care and emergency tree response.

Additional Tree Resources

International Society of Arboriculture
www.treesaregood.org 503-874-8263
Local ISA Chapter www.pnwisa.org
Database of certified arborist, information about pruning trees and general tree care.

Bureau of Development Services 503-823-7526
Trees on private property that is under development

Portland General Electric 503-736-5460

PacifiCorps 888-221-7070
Trees and power line conflicts

Friends of Trees 503-282-8846
Community and natural area tree planting programs.

Portland Code Enforcement (Nuisances)
503-823-7306
Vegetation encroaching upon sidewalks, public rights of way, or driveways; visibility concerns at places other than intersections.

Traffic Safety Neighborhood Livability Hot Line
503-823-7233
Visibility concerns at intersections and traffic signs.

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PORTLAND PARKS & RECREATION
Healthy Parks, Healthy Portland

Commissioner Dan Saltzman
Director Zari Santner
www.portlandparks.org

Routine tree care will insure a healthy tree and a lifetime of environmental and aesthetic benefits.

Your mature trees are a valuable asset to you and to your community. Large, old trees provide beauty and service, shading your house in the summer, improving air and water quality, increasing the value of your property, and contributing to the safety and livability of your neighborhood. For the varied and valuable benefits they provide us, trees are an investment well worth the regular care and maintenance they require. As with any investment, you need to make careful decisions to ensure the long-term health of your trees.

Arborists are professionals who specialize in the care and maintenance of trees. Most arborists provide a suite of services from consultation to tree work. An arborist will help you with planting, transplanting, pruning, fertilizing, pest management, and an array of other tree care practices.

Portland Parks & Recreation's City Nature Urban Forestry Division staffs arborists that are certified by the International Society of Arboriculture. The City's arborists are available to give you advice on how to care for the street trees adjacent to your property and to issue the permits required for any work on trees growing in City rights-of-way.

Pruning Young Shade Trees

When we plant a tree, we hope it will grow tall and straight; that it will have a full, healthy crown with strong, well-spaced branches; that it will cast a broad expanse of sheltering shade; that it will resist damage by wind and ice; and that it will be easy to maintain. Without proper pruning, however, a tree can become unhealthy and expensive to maintain. An unmaintained or poorly maintained tree is more likely to become hazardous, with branches that break during storms, have weak and unsightly shoots, and interfere with traffic, pedestrians, and overhead wires.

To ensure that Portland's urban forest continues to enhance our daily lives, we must properly care for the young trees we plant. Portland Parks & Recreation's City Nature offers street tree pruning assistance to homeowners. Before pruning any street tree or other publicly owned tree, you need to obtain a pruning permit from City Nature Urban Forestry. The permit is FREE and includes a professional consultation by a certified arborist. The arborist will inspect the tree then recommend specific pruning work that will provide the best benefit for the tree and may save you the expense of extensive pruning in the future.

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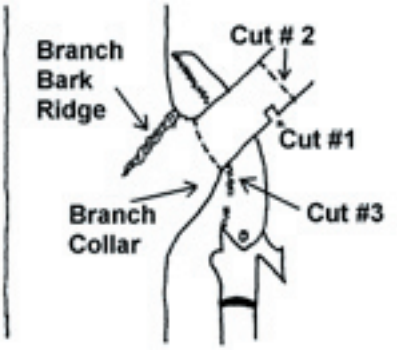
How to Make a Proper Pruning Cut

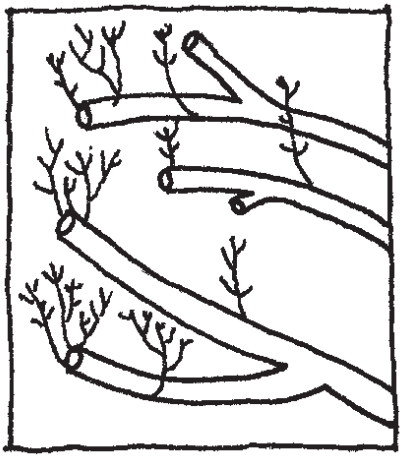
The branch collar is the swollen area where the branch connects to the trunk. A proper pruning cut should be made just outside the branch collar and should not remove or damage the branch collar. This allows for proper closure of the wound.

To prevent tearing of the bark and vascular tissue, use the three-cut approach to pruning:

Cut #1 Make a small undercut a few inches out from the branch collar.
Cut #2 Remove the limb above *cut #1*.
Cut #3 Remove the stub by cutting just outside the branch collar



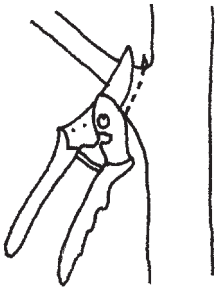
The three-cut pruning method.



Regrowth following branch tipping.

Branches should be pruned at the branch collar--NOT at mid-branch. Mid-branch pruning, called tipping or topping depending on branch size, is harmful to trees, promotes the growth of weakly attached epicormic sprouts, and can lead to the death of the branch or tree!

Sharp, clean tools make the smoothest cuts. Choose the tool based on the size of the branch. For small branches (under 2.5 cm), bypass pruners should be used. Bypass pruners have a curved cutting blade and are good for pruning tree limbs. For slightly larger cuts (up to 10 cm) a pruning saw may be used. Chain saws are preferred when pruning branches over 10 cm and should be used only by qualified individuals. Refer to the 'Tips for Hiring an Arborist' section of this brochure.



Bypass pruners.

Visibility & Safety

Overgrown trees and shrubs endanger us all when they block our view of traffic signs, pedestrians and other vehicles. It is the adjacent property owner's responsibility to keep trees and other plants in the right-of-way from blocking visibility within transportation corridors.

Street Corners

All intersections must have clear visibility for pedestrians and vehicles—even where no traffic signs or signals are present. When the City is notified of a visibility problem, the adjoining property owner is contacted as a reminder to keep nearby trees and shrubs trimmed.

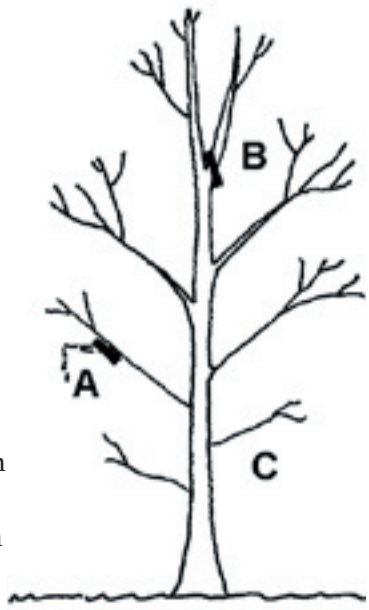
Streets & Sidewalks

To insure safe passage for everyone, tree limbs must hang no lower than 7½ feet above the sidewalk, 11 feet above residential streets, and 14 feet above main arterials.

Young Tree Pruning

At Time of Planting

Try to prune only dead or broken branches. It is best to leave as much leaf surface as possible to produce food that will work to build a larger root system. The roots and aboveground parts will be larger after one year if only minor pruning is done at the time of planting.



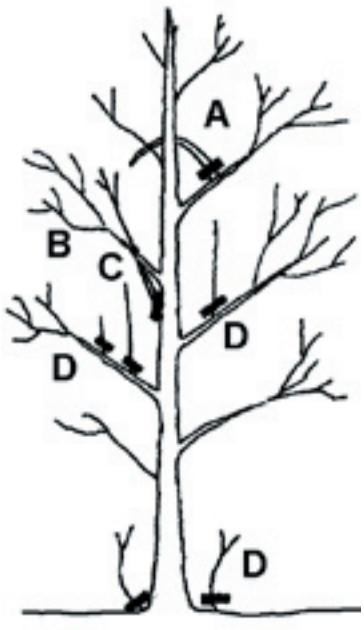
A. Prune broken branches

B. If more than one leader is present, remove the one with a crook or other defect to protect the main leader from competition.

C. Unless immediate visual clearance is needed, do not remove the small branches growing low on the trunk. These branches help the tree develop a strong taper and will eventually be removed.

3 - 4 Years After Planting

By this time, the tree's root system should be anchoring the tree and providing nourishment to the growing branches. Growth is far enough along to reveal potential problems that can easily be corrected with pruning. This is also a good time to reduce wind resistance and excessive weight. Do not remove more than ¼ of the tree's canopy during thinning.



A. Remove branches that are heading back into the tree.

B. Remove branches that are rubbing.

C. Eliminate branches with narrow angles.

D. Remove suckers from around the base of the tree whenever they emerge.

5 - 7 Years After Planting

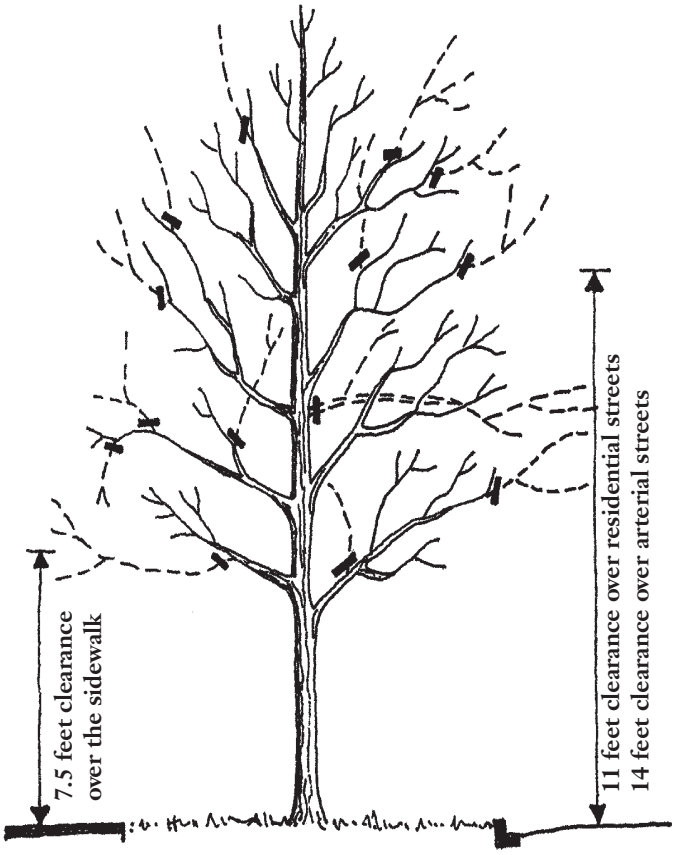
Your tree is quickly becoming an adult. Now is the time to ensure it has good structure over its lifetime. Try to imagine what your tree will look like as it grows larger. It is important to realize that branches do not move upward as a tree grows taller! The center of a branch that attaches to the trunk five feet above ground will always be at five feet.

• Remove low limbs. If a limb will interfere with traffic, stop signs, or pedestrians, removing it now is a good idea. City regulations require the following clearances: 7 ½' over sidewalks, 11' over residential streets, and 14' over arterial streets.

• Thin tree canopy as discussed above. Remove those branches that are rubbing, growing back toward the tree, or attached at narrow angles.

• Thin to create more even spacing between lateral branches as needed. If possible, evenly space laterals 8-12 inches apart to produce an ideal "ladder" at maturity.

• Don't over-prune. Removing too many branches at once reduces the tree's ability to produce food. Never remove more than ¼ of the tree's canopy at one time. If more work is needed, phase the work over multiple years.



When Do I Prune My Tree?

Some say, "any time the tools are sharp." Understanding how your tree will respond will help you make the best decisions for your tree. Generally speaking, the following guidelines apply:

• Broken and dead branches and root suckers can and should be pruned **any time** of year.

• Because most trees in Portland experience seasonal dormancy, pruning during the **winter** months encourages vigorous new growth in the spring without depriving the tree of actively photosynthesizing tissues.

• Limited pruning is okay in **summer**. Keep in mind that pruning during the growing season removes leaf surface that is manufacturing food for next year's growth. Light pruning will have little impact on future growth, but heavy pruning may slow or dwarf your tree's growth.

• Avoid pruning in spring to prevent damage to delicate young leaves and buds.

Hands-on tree pruning classes are offered by PP&R's City Nature Urban Forestry Division. Call 503-823-1650 for more information.

Preventing Sidewalk Damage

"An ounce of prevention is worth a pound of cure."

Carefully selecting a tree that will not become too large for the width of the parking strip is the simplest solution to avoiding sidewalk problems. Proper tree maintenance is also important.

• Encourage deep root growth. Watering longer and less frequently allows the soil to become moist several feet down, encouraging the roots to grow deeper where there will be less interference with sidewalk and street infrastructure. When rainshowers are few and far between, apply 10 to 20 gallons of water slowly to the root zone of your young tree each week.

• Root pruning is an easy annual maintenance practice that involves cutting small (<1" diameter) surface roots before they grow under the sidewalk. The best tool is a nursery spade with a 13" blade. Cut the roots along the sidewalk edge, separating the root ends to prevent them from grafting back together. A successful root pruning program begins the year the tree is planted. To prune any other roots, a permit from the Urban Forestry Division is needed.

Planting the right tree for your specific planting strip will help prevent future expenses.

Trees and Utility Lines

Since working near powerlines is dangerous and can be life threatening, pruning around any utility line should **only** be done by a professional.

Call your power company before any tree work is done near their lines. They can identify the line for you and offer assistance if there is a potential hazard.

Mature Tree Care

To provide the best possible care, it is important to know what kind of tree you have. Different species respond differently to tree care practices. If you are unsure, an arborist can identify your tree and advise you about the particulars of the species. In addition, there are numerous resources on the internet and in print that you may consult to learn about your tree.

Water

Your mature tree has an extensive root system that can supply your tree with the water it needs—even during the summer months. Unless there is a particularly long dry spell, you do not need to water your tree. When doing your homework, find out if your tree is drought tolerant. If not, consult an arborist about how and when to water during unusually dry summers.

Pest management

Each tree species is susceptible to a different collection of insect and disease problems. Learn how to identify the problems that are specific to your tree and the available remedies. Check your tree often for signs of stress. Many problems are more readily and inexpensively treated when diagnosed at an early stage.

Pruning

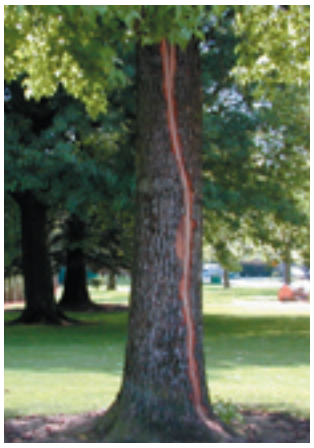
Find out how your tree responds to pruning. Typically, mature trees require the removal of dead and broken limbs only. Some trees may also benefit from the removal of branches that may harm the health of the tree in the future. Look for branches that are rubbing or are attached to the trunk at a sharp angle. If the canopy of the tree is very dense, thinning can improve wind firmness and reduce wind damage to the tree and underlying property. Always consult a professional arborist before pruning a mature tree.

Find out about the history of your tree. What trauma has the tree already been through? Has it been topped? Are there signs of decay? Have there been activities around the root zone that may have compacted the soil?

Examine your tree on a regular basis. Look for signs of potential problems and compare that problem to what you know about your tree species.

- Are limbs dying at the ends?
- Is the shape of the tree unbalanced, or is the tree leaning to one side?

- Do the leaves look healthy, or are they yellowing, withering, blotched, undersized, or chewed by insects?
- Are there cracks in the trunk or branches?
- Are there signs of root rot? Root decay is often difficult to detect but can potentially cause your tree to fail. One sign of root decay is mushrooms growing on or near the base of your tree.



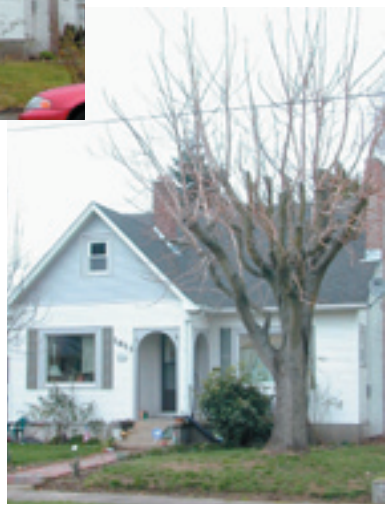
If you determine that one of the above conditions exists, and you are unsure how to address the situation in a way that contributes to the long-term health of your tree, consult a certified arborist. See 'How to Hire An Arborist' for more information.

Don't Top Trees!

Topping is the destructive and obsolete pruning practice of cutting back large branches to stubs, leaving wounds that invite decay and disease into the tree. Topping destroys a tree's natural shape, beauty, and grace. Topped branches respond with a vigorous growth of weakly attached limbs that are more susceptible to breakage and storm damage and require more frequent maintenance than the original branches. Trees are usually topped by well-intended, misinformed people. Contrary to the many myths in its defense, topping is the worst thing you can do for the health of your tree.

After a tree is topped, decay and sunscald damage and destroy once-healthy tissue, and the significantly reduced canopy cannot produce enough food to maintain healthy functioning. Disease and insect pests take advantage of the tree's increased vulnerability and can weaken the whole tree down to the roots. Topping leads to immediate death in some species and a reduced life span in others.

Tree immediately after topping (left) and two years later (below right).



Topping cuts prevent wound closure, leading to decay (above left) and weakly attached new branches (above right).

Tips for Hiring an Arborist

• Hire a reputable arborist who is licensed, bonded, and insured. Ask family, friends, neighbors, and co-workers for recommendations, and look on the web and in the Yellow Pages under 'Tree Service.' When you contact the company, find out if their arborists are certified through the International Society of Arboriculture (ISA). ISA certification demonstrates a willingness to keep current with the field of arboriculture. Some arborists are not certified, but still abide by the Tree Care Industry Association pruning standards. Learn more at the Pacific Northwest ISA web site (www.pnwisa.org).

• The City of Portland requires that all businesses be licensed. Call 503- 823-5157 for verification.

• State law requires contractor registration with the Oregon State Construction Contractors Board. Registration guarantees that the arborist is bonded and insure, protecting you in case the contractor you hire damages your property or fails to finish the job. Verify company registration by calling 503-378-4621.

• Never let yourself be rushed into a so-called bargain ("If you sign today, I can take ten percent off . . ."). Check with neighbors and friends for recommendations.

• Solicit estimates from multiple certified arborists. Two or more estimates are worth the extra effort, and many reputable companies provide estimates free-of-charge.

• A good arborist:
  - Will offer a wide range of services such as pruning, fertilizing, cabling/bracing, and pest control.
  - Will not recommend topping a tree, except under rare circumstances.
  - Will not be eager to remove a living tree. Removal is clearly a last resort.
  - Will not use climbing spikes unless removing the tree.

Common Tree Diseases

Dutch Elm Disease (DED)

Blockage of water-conducting tissues indicated by flagging (localized leaf wilt, yellowing, and browning) results from infection with the lethal fungus. The disease is spread primary by elm bark beetles. Because fresh pruning wounds attract the elm bark beetle, elm pruning is restricted to times of beetle inactivity (October 15 to April 15).

Susceptible species: most elm trees

Treatment: DED has no known cure. Prompt removal and destruction of diseased trees limits spread, deadwood pruning reduces beetle habitat, and healthy elm trees can be treated with a preventative fungicide.

Verticillium Wilt

Fungus in the soil that can cause the water transporting cells to shut down. This causes leaves to brown and die. Verticillium wilt usually only appears in damaged or otherwise stressed trees.

Susceptible species: certain species of maple, ash, dogwood and linden trees to various degrees.

Treatment: Plant verticillium-resistant species, reduce stress on tree.

Anthracnose

A fungal disease that causes leaves to brown and drop in middle to late summer. Wet spring weather increases the presence of the fungus.

Susceptible species: Pacific and flowering dogwoods, London planetree and American sycamore.

Treatment: Prompt removal of leaves can help reduce next year's outbreak, and fungicide treatment may be administered in the spring.

Hawthorn leaf blight

Fungus that causes leaves to fall off in mid-summer

Susceptible species: English hawthorn and Paul's scarlet hawthorn

Treatment: Prompt removal of leaves and spring fungicide treatment.

Aphids

Insects that feed on plant sap and excrete sugary honeydew. Leaves and ground under tree will be covered with honeydew which may promote growth of a black, sooty mold.

Susceptible species include linden and tulip tree.

Treatment: Reduce stress on the tree, promote predaceous insects (lady bugs), and treat with insecticidal soaps or oils.

Web Worm and Tent Caterpillar

Caterpillar that feeds on a tree's foliage, creating a web or tent in the branches.

Treatment: Mechanical control by pruning out infected areas or insecticide treatment on young colonies.