CHAPTER **EIGHTEEN**

WOODY LANDSCAPE PLANTS

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Learning Objectives

- Learn what woody landscape plants are and how they are used in a landscape
- Learn how to select woody plants based on function, growth characteristics, ornamental characteristics, genetic adaptability, and site consideration
- Learn how to purchase, plant, and care for woody plants
- Learn how to properly maintain woody plants, focusing on irrigation, mulching, fertilizing, and pruning
- Learn how to protect woody plant material during construction projects
- Learn which woody landscape plants are suitable for use in Idaho landscapes

Introduction

Woody landscape plants are perennials with stiff, woody stems. These plants are loosely classified as trees, shrubs, or vines. Trees usually have a single trunk and can grow to impressive heights. The tallest trees are the Coast redwoods (*Sequoia sempervirens*), which grow to 350 feet or more.

Trees can develop — or be pruned to grow — several trunks. If a mature single-or multitrunk woody plant is less than about 20 feet tall, it is considered a large shrub rather than a tree.

Shrubs are less than 20 feet tall at maturity and usually have multiple trunks. Standards, which are shrubs trained to grow with a single trunk, may serve as small trees in the landscape. Because they had to be trained (pruned) to grow this way, however, they are still considered to be shrubs. Woody shrubs may spread by stolons (horizontal stems), rhizomes, or underground roots. Very short woody shrubs make good ground covers.

Vines may climb, trail, creep, or even remain erect with some support for their stems. Woody vines may root at various places along their stems, wherever they come in good contact with the ground and have proper growing conditions. Climbing vines, such as English ivy, may attach to supports with small aerial roots. Grapes can climb by winding slender stems called tendrils around objects.

Some plants will perplex the expert horticulturist and the Master Gardener by defying classification with the above system. Crabapples are a good example. Some insist on growing with multiple stems, yet grow taller than 15 feet at maturity. Others are natural, single-stemmed beauties, reaching only 5 feet at maturity. Some weeping forms, if grown on their own rootstocks, would creep across the ground. So, crabapples can be large shrubs, tiny trees, or even vines! Thus, use the tree, shrub, or vine classification only in a general sense.

The Art of Designing Landscapes with Woody Plants

Woody plants form much of the structure in landscape design and contribute to a pleasing composition. They define the skyline and become the structural element dividing space. Landscapers must carefully consider choices and placement. Established trees and shrubs cannot be moved easily. Within the principles of landscape design (see chapter 16), woody plants serve the following purposes:

Balance. Tree and shrub placement, whether symmetrical or asymmetrical, creates equilibrium in the landscape. Trees and shrubs provide the coordinating composition for other elements, such as annuals, perennials, and garden features like fences and decks.

Movement. Repeating or alternating shrubs and trees can carry the eye throughout a landscape. The rhythm created is an underlying theme of landscape. Taller shrubs and trees draw the eye skyward.

Harmony. Trees and shrubs serve as a dominant feature or accent in a landscape, thus contributing to the harmony of the design. Repetition of structural elements, such as woody plants, helps to tie the landscape together. The interconnectedness of a low woody ground cover under trees or of a line of shrubs or trees provides continuity that creates harmony in the landscape.

WHICH WOODY PLANTS TO INSTALL AND WHERE

Plant selection is extremely important if the landscape design is to be successful. Of the many factors to consider when choosing plants, two are most important — size and site suitability. During most of its life, a plant must be of a size suitable for a location. Site suitability means that a plant adapts its growth based on where it is planted.

Function, color, texture, shape, bloom date, rate of growth, and how well the plant relates to other elements of the design are additional important considerations. In recent years, special uses (e.g., theme gardens or patios) or adaptations (e.g., native plants or xeriscape) have become more popular. See the listing on the next page for a summary of plant uses and characteristics, as well as site considerations. See chapter 16 for landscape-planning guidelines.

The following landscape considerations apply specifically to woody plants:

Function

Choose woody plants with a specific function in mind, which may be as simple as providing shade. Some functions include the following:

Firewise landscapes. Landscaping for fire prevention (firescaping) is particularly important for suburban and rural locations in dry areas near hillsides or in narrow canyons surrounded by thick stands of trees and brushy open spaces. For a firewise landscape, clear brush from within 30–400 feet that resist fire or have low levels of oil or resin. Plants should have foliage with a high moisture content or low brush and litter potential. Avoid designs that place plants of different heights in the form of a **fire ladder**. Fire ladders provide a continuous fuel supply from the ground up to the plant canopy.

Screening and barriers. Windbreaks, shelterbelts, woody plant borders, and screens are all made up of rows of woody plants of various shapes and sizes. Besides providing beauty, they reduce wind velocity, capture snow, stop erosion, and shelter wildlife. They also provide protection from unsightly views, disturbing sounds, dust, and, to some extent, atmospheric pollutants. The right sequence of woody shrubs and trees reduces high winds around the home, farmstead, park, or recreation area, while permitting breezes to enter.

PLANT AND SITE CHARACTERISTICS TO CONSIDER WHEN SELECTING WOODY LANDSCAPE PLANTS

Plant Uses

- Attract birds or other wildlife
- Attract butterflies or hummingbirds
- Bonsai
- Borders
- Container or patio plants
- Edible parts or fruits
- Espalier
- Fast growth
- Foundation plantings
- Ground cover
- Native plants
- Rock gardens
- Screen or windbreak
- Shade
- Variety of specimens
- Vines for fences or trellises
- Vines to cling to stone or brick
- Understory for woodland setting
- Weeping form

Plant Characteristics

- Colored summer foliage
- Columnar, pyramidal, or globe shape
- Decorative fruits and berries
- Decorative or interesting bark
- Fragrant flowers
- Good fall color
- Multiple trunks
- Ornamental seedpods
- Showy flowers

Site Characteristics

- Acidic soil
- Alkaline soil
- Arid sites
- Dry or sandy soil
- Heavy clay soil
- Saline soil
- Shady areas
- Low-maintenance areas
- Wet sites
- Windy areas

Plant screens and barriers consist of one to eight rows of trees and shrubs. Where space permits, several rows of shrubs and trees of various sizes and habits, both deciduous and evergreen, can be used. To serve as a windbreak, the planting should be at a right angle to prevailing winds. Where drifting snow is a problem, the last row of the planting should be at least 60 feet from the home. Careful attention to the design of site entries and exits will prevent snow or soil from drifting onto access routes. Windbreaks must be carefully maintained to be effective and must be kept weeded, mulched, or cultivated.

Energy efficiency. Trees can reduce utility bills and improve the comfort of your home. In summer, trees on the southern and western sides of structures can block hot sunlight, thereby reducing the need for air conditioning. In winter, these same trees — if they are **deciduous** (lack leaves in winter) — allow the sun's rays through to warm your house. Blocking cold winter winds with shelterbelts can also reduce heating expenses, especially in homes with poor insulation or air leaks.

Xeriscape. In a xeriscape, drought-tolerant plants are chosen in order to conserve water. With this approach, all of the plants in a given area must have the same water-use requirements to obtain maximum irrigation efficiency.

Native plants. Plants naturally growing in our region are becoming increasingly popular in Idaho landscapes. Native plants are adapted to existing climatic conditions and bring a rich diversity of texture and color to home gardens. They often have lower water demands, fewer pest problems, and lower fertilizer needs than non-native landscape plants. For naturalized plantings, native species often are the best selection and they should be the first choice for conservation plantings and ecosystem restoration.

Keep in mind that even native plants need adequate water, especially right after being planted. After plants are established, you can reduce water to those that thrive in the wild with little moisture. The goal is to duplicate the growing conditions of the plant's natural habitat.

When using native plants, purchase them from a reputable nursery rather than collecting them from the wild. Wild collection puts pressure on wild plant

communities and introduces diseases and insects found in the wild to your yard. The one exception to this rule is rescuing or salvaging plants that are facing destruction by construction.

To have well-adapted native plants, use plants propagated from those growing as close to your landscape as possible. This step will also help prevent degradation of the gene pool of local native plant populations.

Growth Characteristics

Growth characteristics of woody plants influence their ability to fulfill a specific function in the landscape.

Exposure. Select woody plants according to their preferred exposure in the landscape. Plants may be labeled (1) full sun/partial shade, (2) partial sun/full shade, or (3) shade. Check the plant species in several references to learn the range of exposures suitable for a plant. Some species can grow under many conditions, but specific cultivars may tolerate only one type of exposure.

Growth rate. Woody plants are designated as slow, medium, or fast growers. The rate of growth refers to vertical increase unless specified differently.

Growth habit. Woody plants can grow prostrate, horizontal, or upright. They can be dwarf or standard in size. Growth shapes include round, globe, vase-shape, pyramidal, and columnar (Figure 1). Some cultivars are selected for weeping or contorted forms. Plant propagators select these growth habits and plant shapes for artistic, space-saving, or landscape purposes.

Foliage density. Most coniferous evergreens and some deciduous trees and shrubs have very dense foliage; thus, their shadows form dense shade, affecting growing conditions beneath the tree. Trees with dense foliage are very effective at blocking unpleasant views. Most deciduous trees create filtered shade and distant views can be glimpsed through their foliage.

Crown size and height. Knowing the approximate size of trees, shrubs, and ground covers at maturity allows the landscaper to plant them where they can develop to their full extent. Plant descriptions state general height and spread (width) of a plant, based on average growing conditions. However, mature height and spread are greatly influenced by the

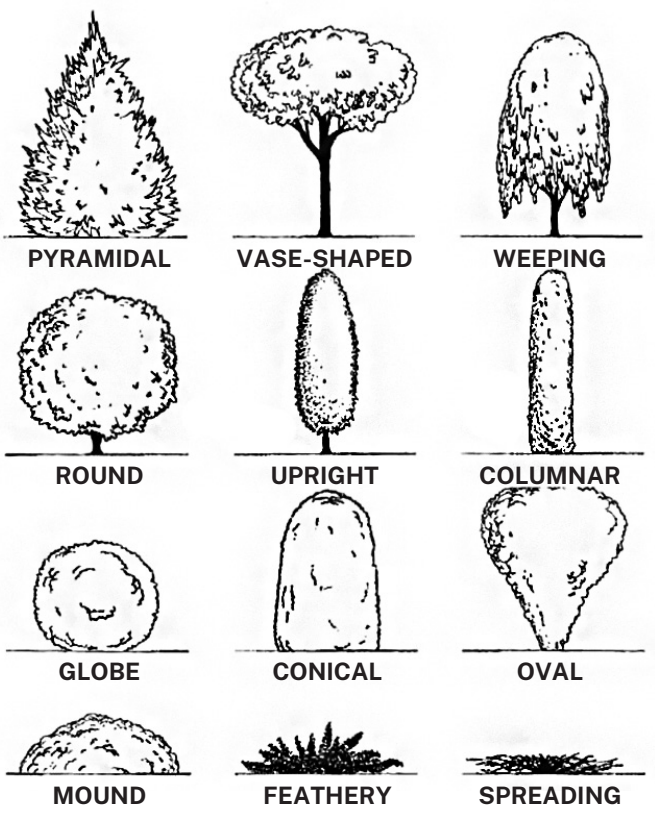

Figure 1. Plant growth habits and their resulting shapes.

length of the growing season, temperature, light, water, soil type, fertility, and other factors. Variation in these factors makes predicting the exact mature size of a plant very difficult. Be sure to compare the mature height listed on the retail sales tag or in reference books with the actual height of plants growing in your area.

Trees, shrubs, and ground covers can be categorized by height into the following groups: large trees (50 feet and over), medium trees (25–50 feet), small trees (under 25 feet), large shrubs (8 feet and over), medium shrubs (5–8 feet), small shrubs (3–5 feet), very small shrubs (under 3 feet), tall ground covers (under 2 feet), and short ground covers (under 1 foot).

Longevity. Short-lived trees and shrubs often grow quickly and provide height and bulk in a short period of time. They may be susceptible to pests and weather-related problems, however. Long-lived species have strong trunks and sturdy, wide angles of branch attachment. They tend to tolerate winter storms, pests, and human damage.

Hardiness zones. Select plants adapted to your climatic zone. Several types of hardiness zone maps can be found in references and on the internet.

The most common is the map developed by the United States Department of Agriculture (USDA) (see Figure 1, chapter 16 for Idaho USDA hardiness zones). The USDA hardiness zone map is revised from time to time. The latest revision was completed in early 2012. Other maps include the Arnold Arboretum Hardiness Zones, the Sunset Western Garden Book Climate Zones, and the heat zone map of the American Horticultural Society.

Whichever map you use, the zone concept is a useful tool that can provide an idea of how well adapted a plant is to your climate. When choosing woody plants that will be long-lived, dominant features of your landscape, choose plants that tolerate extreme climatic events. To be safe, choose only woody plants adapted to one zone colder than your zone.

Salt tolerance. Salt accumulation plays an important role in woody plant growth and survival. Too much salt in the soil interferes with a plant's ability to take up water, causing leaf burn and decline. Even salt-tolerant plants will fail to grow where salt levels are high. Plants native to a region have adapted to existing salt conditions in the local soil.

Several sources are responsible for contributing salts to the soil. In arid regions, soluble salts accumulate at the depth to which soil moisture soaks each season. These salts can be brought to the surface with irrigation. Also, if water sources contain high levels of salt, woody plants can be injured. Salt used for winter ice removal on roads can also cause problems.

Ornamental Characteristics

Ornamental characteristics of a plant, such as flowering, fragrance, foliage color, foliage texture, etc., must be considered by gardeners and landscapers during the selection process (see listing page 3). Although these characteristics are important, plants must first be selected based on their adaptation to a site. A plant that is growing poorly due to its inability to adapt to a site will most likely have poor flowers, poor foliage color, etc.

The style of the garden needs to be considered as well. Whether the garden is cottage, Mediterranean, tropical, oriental, formal, artistic, avant-garde, rustic, naturalized, or native plays a key role in the types of woody plants selected. Finally, how the garden will be used and maintained should also guide design and plant decisions.

Plants that accent, define boundaries, and/or are a special feature in the landscape must be selected with specific goals in mind. Numerous landscaping books, computer programs, and publications can assist in the plant selection process (see Further Reading and Resources at the end of this chapter). More on arranging the form, shape, and space of woody plants is covered in chapters 16 and 17.

Genetic Adaptability

Plant hardiness is genetically determined. The genetic makeup of plants enables them to grow and thrive under certain environmental conditions and completely fail in others. Therefore, **plant provenance**, the area where plants were collected before propagation, influences their ability to adapt to new locations and climates.

Many plants are adapted across several climatic areas or hardiness zones. However, for native plants that are propagated from seeds, plants from more southern seed sources are generally less hardy than those propagated from northern seed sources. For example, red maple, *Acer rubrum*, is a native tree that grows from Florida to Canada. Trees grown from a southern seed source will be less hardy than those grown from a northern source. The same might be said for plants grown on the East Coast and then planted in the West. Plant adaptability is often called **plasticity** among professional horticulturists and should be considered when selecting woody landscape plants.

Site Considerations

Complete a landscape site analysis. This analysis should include climate, soil type, water availability, hardscapes (nonplant elements such as sidewalks, patios, decks, pools, etc.), utility locations, **aspect** (direction the landscape site faces), access, etc. Landscape site analysis is covered in chapter 16.

When choosing plants, various types of insect and disease pests (bronze birch borer, Dutch elm disease, etc.) must also be considered. In order to minimize maintenance and the need for pest control, selecting the right plant for the existing conditions is essential. Even features such as dropped fruit, seedpods, or resulting seedlings must be considered.

If your soil is poorly drained, select plants adapted to wet soil conditions. Improve surface drainage by changing the grade or trenching. Root-zone aeration

can help prevent puddle formation and runoff. If simple **aeration** (poking holes at regular intervals) fails to improve soil drainage, drill holes 6–18 inches deep before planting and backfill them with sand or pea gravel. This procedure is called **vertical mulching**. In extreme cases, install drain tiles to carry excess water away from the site.

Getting Started With Woody Plants

As discussed above, the planning stage should include finding woody plant species that will grow in your area and will serve your landscape needs. Make a scale drawing of your site to provide a basic plan that you can use and update. Since trees and shrubs are essential elements of this plan, choose and buy them wisely and then plant them properly so you can have years of pleasure.

PURCHASING WOODY PLANTS

Plants can be purchased from local garden centers, retail outlets that seasonally bring in wholesale nursery stock for resale, mail-order companies, farmers markets, nursery cooperatives, or at special plant sales sponsored by service or gardening organizations. Select only vigorously growing plants that have a healthy appearance and are correctly labeled. Inspect all plants for insects, diseases, or poor growth structure before you purchase them or right after they arrive (if mail ordered). If a plant is grafted, check the graft union. Purchasing healthy, pest-free plants will allow you to avoid having to treat your plants or quarantine them before planting them into your landscape. The goal is to avoid introducing new pests or problems into your landscape.

Beware of "good deals" at the end of the summer, for these plants may be stressed or root-bound. If gardening friends offer you plants that fail to fit your landscape plan, are in poor health, or might become invasive, have the courage to decline their offer.

Local retail garden center personnel know the planting dates for your area and have experience with species and cultivars suited to local needs, as well as with common problems in your area. They have selected plants that are adapted to your climatic conditions and soils. In many cases, local garden stores are willing to special-order plants. In addition, they often guarantee the plants they sell. If you personally select your plants, have your plan and plant list in hand when you visit the garden center. Be open to new ideas and plants suggested by plant professionals.

Plants can also be purchased from discount, hardware, drug, convenience, grocery, or produce stores. However, plants at these stores may not be appropriate for your landscape. Prices are often lower due to volume discounts, but the species may not be adapted to your area, and the plants' condition may be poor due to a lack of proper maintenance.

Mail order is another alternative for purchasing plants. Check catalogs carefully to make sure the plants meet all the criteria in your landscape plan. Mail-order plants will be bare-root or container-grown. They may be small, but if shipped correctly and planted promptly, these plants generally survive and grow well. When ordering over the phone or by mail order, ask about returning plants if their quality is low. Many mail-order nurseries guarantee the plants they sell.

Service organizations, garden clubs, schools, and public agencies occasionally hold special plant sales. These sales provide great opportunities to obtain rare or prized woody plant species from local sources.

PLANTING WOODY SHRUBS AND TREES

The techniques required for successful transplanting of woody plants depend on the kind of plant; its age and size; whether it is dormant or growing; its nutritional status; whether it is nursery-grown, growing around the home, or a native plant; whether it is adapted to the selected site; and the site conditions and climate of the area. For more information, see chapter 17.

Newly transplanted trees may be staked if necessary. The main reasons to stake a tree are to hold its canopy upright if the trunk is weak or to prevent the root system from moving and breaking roots.

The goal for staking a tree is to allow the trunk to flex while the roots are held in place. Trunks grow strengthening "reaction wood" when they move back and forth in the wind; thus, be sure the trunk is free to move in the wind but held securely enough to prevent the root system from moving. Secure the tree to two or three stakes placed at least 12–18 inches from the trunk (Figure 2). Use broad, smooth

Figure 2. Proper staking of a tree involves attaching two or three stakes as low as possible on the trunk. The objective is to hold the tree roots in place yet allow the trunk to flex in the wind. Notice the broad strap material connecting the trunk to the stakes. Photo by Kaitlin Moroney.

material, such as nylon straps, to attach the tree to the stakes, since this type of material will not damage the trunk. Tie the trunk as low as possible to hold the tree upright on a calm day. Remove staking materials as soon as possible and no later than 1 year after planting.

FIRST-YEAR CARE

The first year in a new site is critical for transplanted woody plants. Survival is determined by care and conditions and a good start helps a landscape planting fill in quickly.

Water new plants to a depth of at least 2 feet during each irrigation. Light, shallow watering fails to provide enough water to develop a wide, deep root system, and it may promote accumulations of harmful salts. The amount of water needed to fill the soil to a depth of 2 feet depends on the soil type; sandy soil holds less water than clay soil.

Soil type and drainage determine the frequency of irrigation, but, generally, watering is required every 5–7 days. Soil should drain and dry between irrigation cycles to maintain adequate oxygen levels in the root zone and to reduce the possibility of development

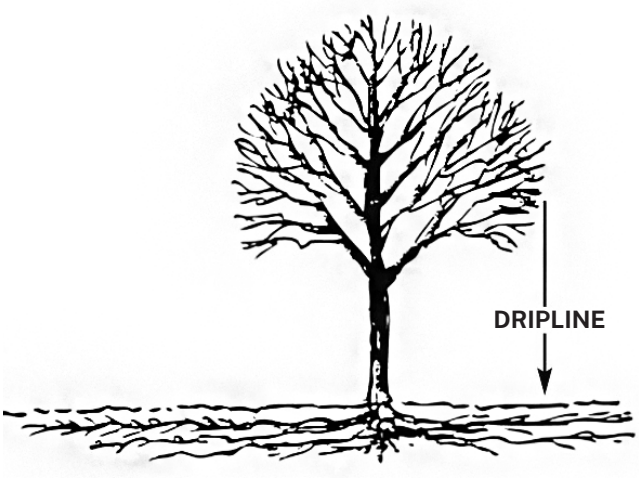

Figure 3. Dripline on a deciduous tree.

of root rot diseases. New plants will wilt in saturated soil due to a lack of oxygen around the roots.

Fertilizing woody plants during the first growing season may be unnecessary and can be harmful. Excess fertilizer salts in the root zone damages the limited root system of a newly installed plant. Plants generally need a season to establish a vigorous root system before fertilizer promotes more foliage growth.

In general, plants with fibrous roots and root hairs (container-grown and balled-and-burlapped plants) could benefit from a light fertilizer application, as their root hairs can absorb the minerals and avoid wasting nutrients. Plants that lack root hairs at planting time (bare-root plants) may be unable to absorb nutrients from fertilizer applied to the soil. Nutrients may remain in the root zone or **leach** (wash) away, wasting minerals and money. Therefore, use fertilizers carefully at planting time. If using a fertilizer, be sure the product is labeled for use on newly transplanted shrubs or trees.

You can protect newly planted shrubs and trees from the wind by erecting a barrier of burlap or other material. Wrapping plants with narrow, upright branches, such as arborvitae, in winter can prevent damage caused by snow accumulation. Avoid using plastic for wrapping because temperatures get too hot under the film.

For species sensitive to cold temperatures, bury small or horizontal plants in leaves or loose, unfinished compost after the first frost. Keep in mind, however, that burying small, tender plants can

encourage disease development or rodent activity. Therefore, periodically check buried plants during the winter. If you see problems, take appropriate actions to eliminate them.

Maintenance of Woody Landscape Plants

IRRIGATION

Proper watering of woody landscape plants is probably the most important factor to promote plant growth, beauty, and health. For more information on water management, see chapter 7. The amount of water used by a woody plant is determined by species, size, air temperature, relative humidity, wind, and light intensity. A hot, sunny, dry, windy day can cause a lot of water to be transpired by a large tree. Many sites in Idaho have just such conditions.

The water-absorbing roots of trees (feeder roots) grow mostly in the top 12–18 inches of soil. Their distribution extends well beyond the dripline (Figure 3). Apply water over the entire absorbing zone. If practical, expand water-holding basins around the base of plants on a yearly basis to accommodate the previous year's growth.

Irrigate to wet the soil to a depth of at least 2 feet. The amount of water needed to fill this soil depth depends on the soil type; sandy soil holds less water than clay soil.

As with newly planted trees, avoid keeping the root zone saturated in order to allow proper root aeration. Avoid shallow, frequent irrigations because this practice encourages shallow and limited root development.

Irrigation Methods

Flood irrigation provides an infrequent, deep soaking. You can achieve the same result on a small scale by flooding the basin around the base of a tree or shrub using a bubbler hose attachment. This type of watering is the most efficient method of irrigation for isolated plants.

Sprinklers are the most common method of irrigation. Be sure to apply enough water to soak the root zone of trees and shrubs. *The amount of water needed for the shallow roots of a lawn will not be enough for trees and shrubs.* Sprinkling the foliage of trees and shrubs can increase the potential for some diseases. Minimize this risk by watering early in the morning (by 10 a.m.) so the plant can dry during the day. Early morning watering also improves watering efficiency.

Drip irrigation systems are extremely efficient and provide a slow source of water. They work better with heavy soil than with sandy soil. Apply water away from the trunk and in the area of water-absorbing roots. As the plants grow, update drip systems by adding more lines or emitters to provide enough water for the larger plant and root system.

Winter Water Management

Where winters are cold and the ground freezes, take special care to make sure woody plants enter the winter completely dormant and with an ample supply of subsurface water to get through the winter. Gradually withhold water after mid-September by applying less water or irrigating less frequently for 4–6 weeks. Withholding water slows plant growth and helps the plant enter a dormant state.

Sometime just before the first hard freeze (often October 15–November 1), irrigate the soil thoroughly. Add enough water to wet the root zone down to about 18 inches. Most of this moisture will be available to the plant roots beneath the frozen layer of soil during the winter. Fall watering is particularly important for evergreens, due to the amount of water that needles and leaves can lose on a sunny winter day.

MULCHING

The benefits of a mulched area around trees and shrubs are five-fold: (1) elimination of competition from weeds and grasses, (2) conservation of soil moisture, (3) moderation of soil temperature, (4) protection of plants from lawn mower and string trimmer damage, and (5) growth of a more extensive root system.

Good mulches include coarse compost, bark chips, rocks, or gravel. Use of very fine or less permeable mulches, such as sawdust, may encourage shallow rooting.

The mulch layer should be 2–3 inches deep and can extend to the dripline of the tree. Keep mulch away from the plant's trunk or stems to reduce the possibility of crown rot or animal burrowing. Installing permeable landscaping fabric beneath the mulch will help control weeds. Avoid using nonperforated plastic since it reduces water and air infiltration in the root zone.

SYMBIOTIC RELATIONSHIPS

Roots of many trees and shrubs form symbiotic relationships with fungi or bacteria. Symbiotic relationships are those in which both parties benefit. For example, mycorrhizal fungi live around and sometimes in plant roots, obtaining carbohydrates, vitamins, and other organic compounds from the plant. The soil in the root zone area, known as the **rhizosphere**, is more hospitable to nutrient absorption by plant roots because of the fungi's presence. Mycorrhizal fungi may enhance a plant's tolerance of environmental extremes and its resistance to or tolerance for pathogens. Many of the "mushrooms" seen in the landscape at some distance from trees are fruiting bodies of mycorrhizal fungi.

Commercial products containing a mixture of mycorrhizal fungi can be mixed with the soil when planting trees and shrubs. Although mycorrhizal spores are found in most soils, preliminary studies indicated that commercial products may speed the establishment of a symbiotic relationship. Be aware, however, that most research has shown that these products have had limited success inoculating roots of woody plants in landscape situations. More research is needed to prove the value of mycorrhizal fungi inoculations.

On some woody plants (typically species in the legume family), specific bacteria induce formation of nitrogen-fixing root nodules. Black locust, alder, ceanothus, and Russian olive, for example, are able to transform atmospheric nitrogen into a form that is usable for their own growth and for that of nearby plants. This capability enables these species to grow on nitrogen-poor sites.

FERTILIZING

Woody plants require essential elements to function. However, too much nitrogen can promote excess growth that requires more pruning and water and increases pest problems. On coniferous evergreens, a "spurt" of growth in reaction to fertilizer can create whorls of branches farther apart at the top of shrubs or trees and on the branch tips, detracting from the symmetry of the plant. If a woody plant is healthy, lacks nutrient deficiency symptoms, and grows at a satisfactory rate, it probably needs little, if any, fertilizer.

Pruning

THE BASICS

In the home landscape, trees and shrubs usually have ample light and space, so they produce many branches and grow to a maximum size. Proper pruning shapes or directs growth of plants into appropriate and beautiful forms, while maintaining and augmenting plant health and function.

REASONS FOR PRUNING

Plants are pruned for a number of specific reasons. Training young trees and shrubs (in other words, directing plant growth) to create attractive shapes and a strong structure is a good reason to prune. Prune mature plants to remove dead, diseased, hazardous, or unsightly branches. Pruning to maintain a central leader on a tree is sometimes necessary, as is removal of branches that interfere with activities and structures. Pruning can enhance flowering and fruiting. It can also open up a tree or shrub for less wind resistance and better light penetration. Shrubs may need pruning to create a fuller look or to maintain a special shape or form, such as for hedges.

Pruning plants to limit their size (height and width) is a legitimate reason to prune, but only minor amounts of pruning should be used for this purpose. A woody plant too large for its growing space cannot be made small by pruning! Drastic pruning — removing large amounts of branches or severely reducing the heights of tall trunks — results only in temporary size reduction, can be expensive, and is damaging to the plant.

Figure 4. Tools used to prune woody plants include (a) bypass hand shears, (b) bypass loppers, and (c) handsaws. Photo by Robert Tripepi.

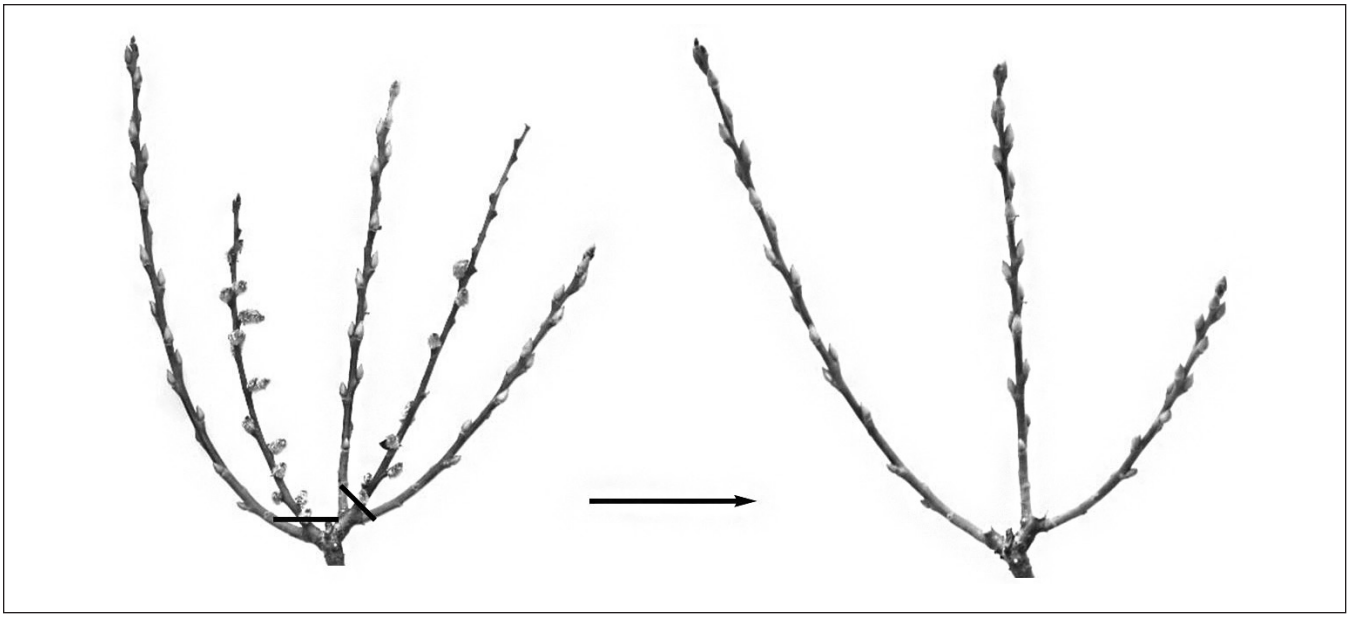

Figure 5. Thinning cuts on willow. Note that the stems are cut at their point of origin on a larger stem. Photo by Robert Tripepi.

Plants pruned severely to reduce their size will be badly misshapen when they regrow and new branches may be weakly attached and break during wind stress or under snow loads. The best solution is to remove the oversized plant and replace it with one whose mature size is more suited to the growing space.

Pruning Tools

Proper tools are essential for satisfactory pruning (Figure 4). If possible, test a tool before you buy it to ensure it suits your specific needs. As with most things, higher-quality tools often cost more than cheap tools.

The choice of which tool to use depends largely on the size of the branches to be pruned and the amount of pruning to be completed. Hand pruners (pruning shears) are usually used to cut branches one-half inch or less in diameter. Loppers can be used to cut branches from one-half inch to 1 inch in diameter. A pruning saw is used to cut branches 1 inch or larger in diameter.

If cutting a branch with hand shears is difficult, avoid twisting or bending the branch or tool; instead, use a larger tool, such as loppers. Some loppers have a ratchet mechanism, enabling branches larger than 1 inch in diameter to be cut easily. However, even though the branch cuts easily, these loppers often crush branch tissues in the cut area. Therefore, using a pruning saw on branches larger than 1 inch in diameter often results in a better cut and less damage to the plant tissues.

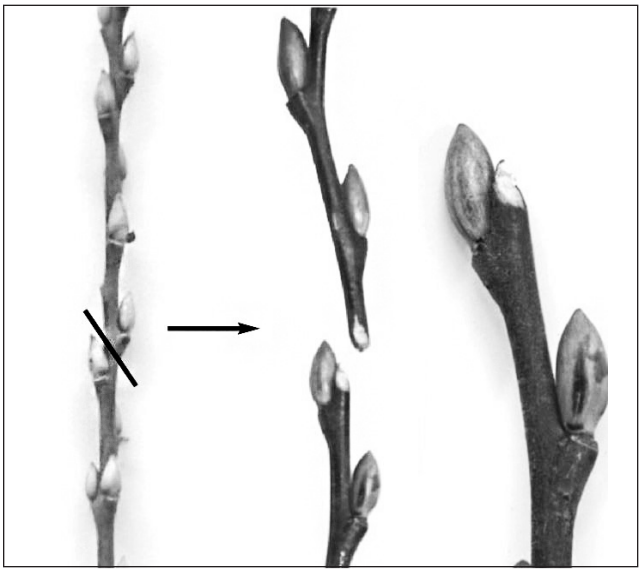

Figure 6. Heading cut made close to a bud on a branch. Note the close-up view of the angled cut above the bud (far right). Photo by Robert Tripepi.

Types of Pruning Cuts

Two types of basic pruning cuts are thinning cuts and heading cuts (Figures 5 and 6). Keep in mind, however, that several types of heading cuts (for example, shearing or stubbing) can be made, and two types of thinning cuts can be used.

Thinning cuts. Thinning cuts are often the preferred type of pruning cut for landscape trees and shrubs. One type of thinning cut removes a branch or stem at its point of origin. This type of cut opens up a shrub or tree and reduces the weight of limbs. These

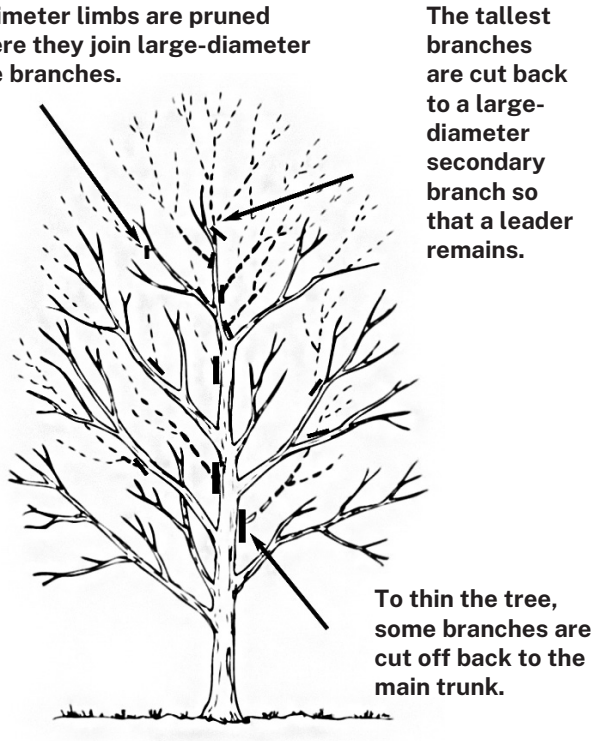

Figure 7. Drop-crotch pruning reduces the size of a tree without inducing vigorous new growth. Source: Colt, W.M., R.R. Tripepi, R.L. Mahoney. 1999. *How to Prune Deciduous Landscape Trees*. University of Idaho Extension Bulletin 819.

cuts avoid stimulating new growth and help retain the natural shape of the plant. They are made at a location on the stem where wounds can be grown over quickly, thus preventing decay fungi from spreading in the wound.

The second type of thinning cut is called drop-crotch pruning, which reduces the overall height of a plant or length of a limb (Figure 7). This type of pruning removes a branch back to a lateral branch large enough to assume the terminal role.

This means that the remaining lateral branch can exert apical dominance, i.e., it can suppress growth below the cut, thus preventing latent buds from growing farther back on the branch. The lateral branch should be at least one-third the size of the branch removed. In other words, to remove a branch 6 inches in diameter, cut it back to a branch that is at least 2 inches in diameter.

Heading cuts. A heading cut removes a branch to a stub, a small bud, or a lateral branch not large enough to assume the terminal role. This type of cut usually induces branching and bushiness (increased branch density) below the cut. Heading cuts are commonly used for fruit trees, but often are inappropriate for woody landscape specimens, especially trees. Numerous vigorous upright shoots can arise below the cut, especially on larger branches, altering the tree's natural form.

Topping. Topping is a type of heading cut that involves cutting all major vertical trunks or branches back with heading cuts. This practice forms large stubs at the ends of the trunks. Topping a tree is an unacceptable pruning practice. It results in an ugly, deformed tree with many branches that often are weakly attached. These trees often become infected with decay organisms and are highly susceptible to insects and diseases. Within a few years, a topped tree often grows back to its original height because of bushy, invigorated growth, but it will be poorly shaped, as well as hazardous, due to its many weakly attached branches. The only instance in which topping is acceptable is for a storm-damaged tree.

Topping a coniferous tree results in multiple leaders or a flat top — in any case, the natural shape of the tree is destroyed. The older the tree is at topping, the less likely a lateral branch near the pruning cut will become a new leader. Although the tree may look healthy, research has shown that serious decay often develops at the wound site. This decay moves down the trunk, creating a hazardous tree.

Timing of Pruning

The timing for pruning woody plants is important and depends on the type of plant and the purpose of pruning. You can do light pruning (removing small numbers or sizes of branches) or remove deadwood at any time of the year.

Except for pines, pruning coniferous evergreens during the dormant season can stimulate regrowth. To stimulate vigorous spring growth on fir, Douglas fir, and spruce, prune these plants in late winter, when the plants are dormant. Pruning cuts will be covered by new growth later in spring, making the plant look more natural.

On these species, you can also prune off part of the new growth while it is still growing. Pruning at this time of the year will reduce the length of new growth and encourage branching. However, it usually stunts plant growth. Pruning after the annual flush of spring growth will maintain size and preserve atypical (clipped) forms. On these species, you can also make heading cuts back to visible buds or light thinning cuts at any time.

EXAMPLES OF FLOWERING SHRUBS THAT BLOOM IN SPRING (ON OLD WOOD) OR SUMMER/FALL (ON NEW WOOD)

Spring-Flowering Shrubs

- Azaleas, deciduous and evergreen (*Rhododendron* spp.)
- Barberry, deciduous and evergreen (*Berberis* spp.)
- Beauty bush (*Kolkwitzia amabilis*)
- Brooms (*Cytisus, Genista* spp.)
- Cherry laurel (*Prunus laurocerasus*)
- Chokeberry (*Aronia arbutifolia*)
- *Cotoneaster* spp.
- *Euonymus* spp.
- *Daphne* spp.
- Dogwood, shrubby (*Cornus* spp.)
- Flowering almond (*Prunus triloba*)
- Flowering plum (*Prunus cistena*)
- Flowering quince (*Chaenomeles* spp.)
- *Forsythia* spp.
- Heather (*Erica* spp.)
- Holly (*Ilex* spp.)
- Honeysuckle (*Lonicera* spp.)
- *Kerria* spp.
- Lilac (*Syringa* spp.)
- Magnolia (*Magnolia* spp.)
- Mock orange (*Philadelphus* spp.)
- Mountain laurel (*Kalmia latifolia*)
- Oregon grape (*Mahonia aquifolium*)
- *Pieris* spp.
- Privet (*Ligustrum* spp.)
- Pussy willow (*Salix* spp.)
- *Pyracantha* spp.
- Serviceberry (*Amelanchier* spp.)
- Siberian pea shrub (*Caragana arborescens*)
- *Spiraea* spp. (white-flowering species)
- *Viburnum* spp.
- *Weigela* spp.
- Witch hazel (*Hamamelis virginiana*)

Summer/Fall-Flowering Shrubs

- Butterfly bush (*Buddleia davidii*)
- Heather (*Calluna* spp.)
- Heavenly bamboo (*Nandina domestica*)

CONTINUED

- *Hydrangea* spp.
- *Potentilla fruticosa*
- Roses, shrubby (*Rosa* spp.)
- Rose of Sharon (*Hibiscus syriacus*)
- *Spiraea* spp. (pink-flowering types)
- Saint-John's-wort (*Hypericum* spp.)
- *Tamarix* spp.

Carefully observe when flowers bloom for nonlisted species.

Pine species are pruned at a specific time of the year. Pines form buds only at the tips of branches. If new growth (candle) is pruned after the growth flush is completed and the terminal bud is well formed at the end of the branch, new buds will fail to form and regrowth is impossible. Prune or pinch candles when their new needles have expanded to about half the length of the mature needles on the previous year's branches. Pruning candles at this time allows buds to form near the cut-branch surface for the following year and allows the new growth to be more compact.

Some plants, such as maples, walnuts, birches, and grapes, may bleed when pruned just before or during sap flow. Although unsightly, this does no harm to the plant and will stop as the season progresses.

Some plants, such as *Potentilla* sp., bloom on the current season's growth (new wood). Prune these species during the dormant period, usually in late winter or early spring. Wait until the coldest part of the winter has passed, but prune before buds swell.

Other plants, such as lilac and forsythia, bloom on the previous year's wood. To avoid reducing the number of flowers on these plants, prune these species in early summer, within about two months after the flowers fade. On these species, flower buds form in late summer and early fall. Thus, winter pruning decreases the number of flowers the following spring by removing branches containing flower buds.

The listing on this page indicates the bloom time of some flowering shrubs. For other species, check reference books. If you are unable to find a reference for your plant, use flowering date of the plant as a rough estimate. For most areas of Idaho, plants that

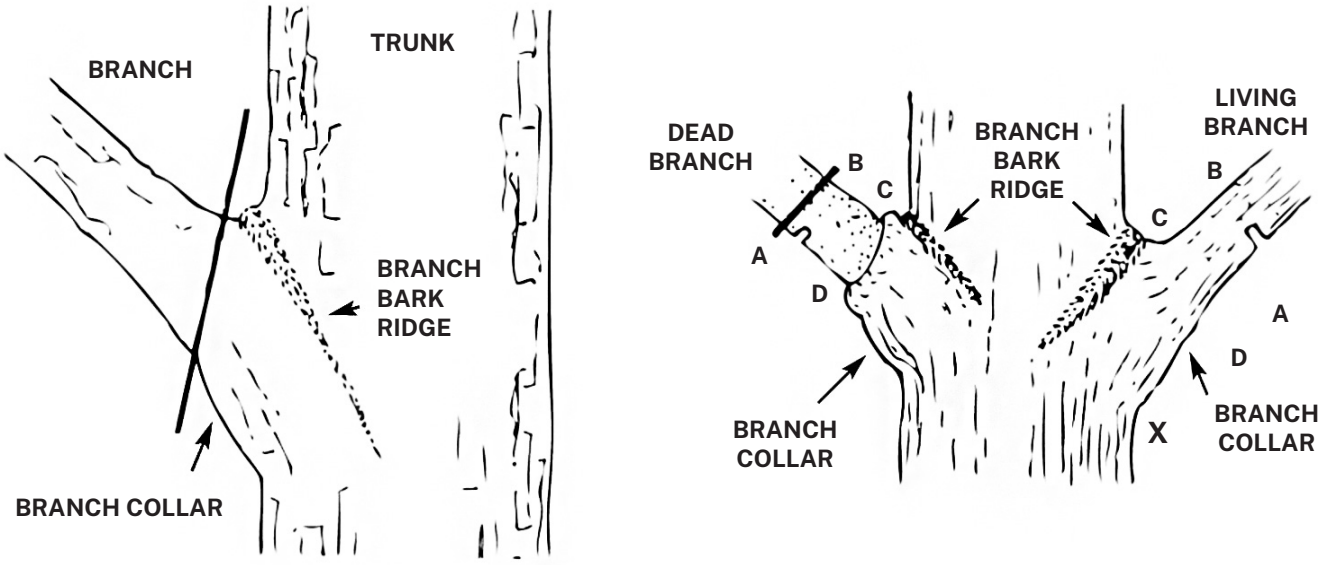

Figure 8. Proper location for thinning cuts. Source: Colt, W.M., R.R. Tripepi, and R.L. Mahoney. 1999. *How to Prune Deciduous Landscape Trees*. University of Idaho Extension Bulletin 819.

bloom before June 1 formed flowers the previous year on old wood. Those that bloom after June 1 form flowers on new growth. Keep in mind that this is only a rough guideline.

Also keep in mind that on any plant, pruning after flowering will remove fruits that would have formed.

Summer pruning, completed after spring growth has stopped, slows the development of a plant or branch. Plant growth is slowed because of reduced photosynthetic capacity (fewer leaves). Reduced photosynthesis means that less food is manufactured and sent to the roots for their development and for next year's growth. Prune in the summer cautiously, as summer pruning can weaken the tree or shrub, perhaps severely.

Avoid pruning in late summer. Any new growth stimulated by late-summer pruning can be susceptible to frost damage if it fails to harden before cold temperatures affect the plant tissues. Pruning can be completed in fall after plants are well on their way to becoming dormant — late September at the earliest.

The threat of introducing diseases into pruning wounds is higher in the fall than in winter since more fungal spores are in the air in the fall. Pruning in late fall (late November) reduces the potential for fungal spores, particularly those of wood-rotting fungi, to contact pruning cuts. Avoid pruning frozen branches or stems (woody tissues) since the wood may crack, making the wound larger than desired.

Where to Make Pruning Cuts

The location of a pruning cut depends on whether it is a heading cut or a thinning cut. Make heading cuts about one-quarter inch above a bud or small lateral branch and slant the cut away from the bud or branch (Figure 6). Heading cuts made to the middle of a branch and not to a node will often induce a latent bud to grow from a node below the pruning cut. However, these cuts leave a stub on the branch. Avoid this practice, since these stubs are unsightly and may serve as an entry point for pests.

The base of a branch contains important tissues that help a plant grow over a pruning wound and prevent decay-causing microorganisms from spreading to the interior tissues of the stem or trunk. These important tissues are located between the bark ridge and the branch collar, collectively known as the **branch shoulder**. The **bark ridge** is usually a rough patch of bark on the stem or trunk located just above the lateral branch that is being removed. On some shrubs or trees, however, the bark ridge may be thin and barely discernible. The **branch collar** is a slightly swollen area on the lower side of the lateral branch near its point of attachment.

When removing a branch at its point of origin (thinning cut), avoid wounding tissues in the branch shoulder area. Whether pruning live or dead branches, make pruning cuts outside the branch shoulder area (Figure 8). For both types of branches,

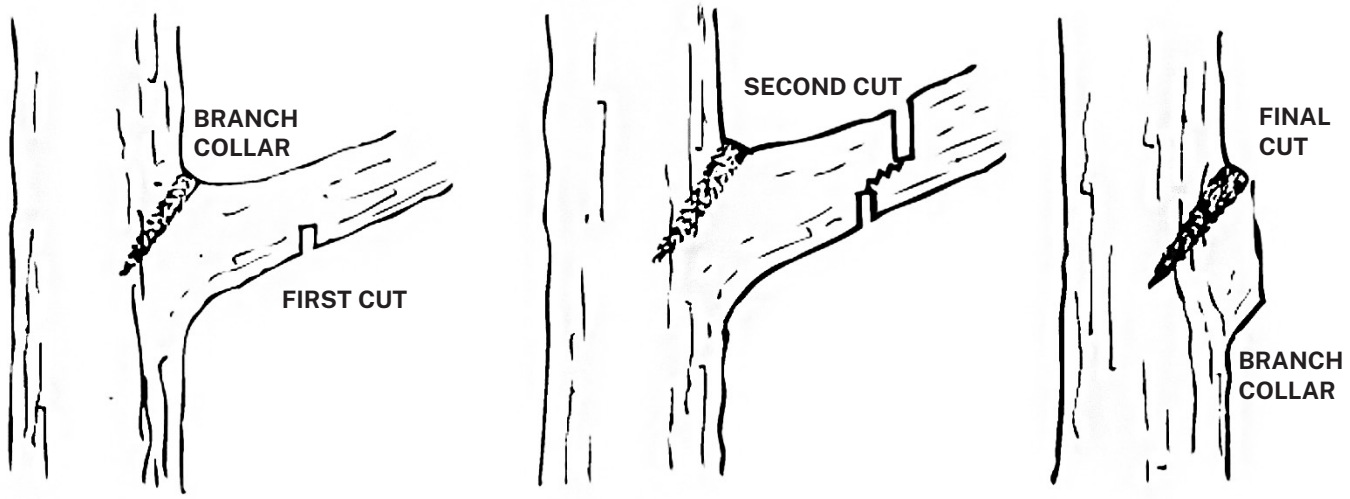

Figure 9. Three cuts are necessary to remove large branches or limbs that are difficult to hold by hand. Source: Colt, W.M., R.R. Tripepi, and R.L. Mahoney. 1999. *How to Prune Deciduous Landscape Trees*. University of Idaho Extension Bulletin 819.

the final cut should be from point C to point D (Figure 8), since cutting in this location is outside the bark ridge and branch collar. Avoid cutting from point C to point X. This type of cut is considered a **flush cut**, which can allow decay-causing microorganisms to enter the interior tissues of the stem or trunk. Also, pruning wounds are covered by new growth more slowly when flush cuts are made. Be sure to hold the branch while cutting to prevent lower stem tissue from tearing. Tearing of stem or branch tissue causes a large wound that is covered slowly by new growth.

Branches larger than 2 inches in diameter may be too heavy to hold. Even when a smaller branch is pruned, its location may make holding the branch impossible while making the pruning cut. The likely result would be bark stripping. In these situations, use a three-cut method to remove the branches (Figure 9). Make the first cut on the underside of the branch about 6–12 inches from the branch crotch. An **undercut** is used to prevent the bark from stripping or tearing due to lack of support when the cut is made. Cut about one-quarter of the way through the limb or until just before the saw binds due to the limb weight. If the saw blade becomes bound by a heavy limb, you most likely will be unable to lift the limb enough to free the saw blade.

Make the second cut on the top side of the branch, 2–5 inches farther out on the limb from the undercut (Figure 9). Cut down until the branch drops off. Be careful to avoid being hit by the branch. It may move sideways as the limb cracks under its own weight until the crack reaches the initial undercut.

Make the third cut just outside the bark ridge/branch collar area. This final cut removes the stub and allows new tissue to grow quickly over the wound. Be sure to support the remaining stub while making the third cut; otherwise, the bark may tear, making the wound larger. Wound dressings and pruning paints are cosmetic only. Research has shown that pruning paint or wound dressing usually fails to keep insects or diseases out of the pruning wound. They also fail to promote new tissue growth over the cut. In fact, some research indicates that these treatments may inhibit the wound-covering process. Therefore, they generally are considered unneeded and a waste of money.

Special Care When Pruning Coniferous Plants

A latent bud is an inactive bud that will grow following a shock, such as pruning. Latent buds are distributed differently on conifer branches than on deciduous trees, limiting the amount and type of pruning that conifer species can tolerate without being permanently misshapen. See page 19 for information on pruning conifers correctly.

EARLY TRAINING OF TREES AND SHRUBS

Early Training of Deciduous Trees

Trees with good form have a longer life and less structural problems than trees that were allowed to develop a poor framework (scaffolding). By establishing a good framework early, a deciduous

tree, such as a maple, will grow to fill its allotted space and should require minimal annual pruning.

This early pruning is known as training. Training involves directing tree growth into a desired shape and form. It should begin during the tree's second year. Train to create a tree that has a pleasing shape, with branches growing in the right direction for its space. Respect the natural growth habit of the tree when establishing an initial framework of branches.

The mature shape (round, columnar, pyramidal, etc.) should be evident, even in a tree with only five or six branches.

Train the young tree to develop a central leader; strong branch attachment angles; a straight, strong trunk; and a good form. The central leader should be taller than any other branch. When a single leader (trunk) is obvious, remove some of the other branches (by using thinning cuts) to maintain the dominance of this branch.

Sometimes, however, a tree has many laterals that are of similar length. In this case, choose the trunk with the best placement to be the leader and shorten the other lateral branches into a pleasing and appropriate form. When cutting out branches, maintain at least two-thirds of the plant as a live crown, since removing too many branches can damage or severely weaken a tree.

On a mature deciduous tree, scaffold branches, branches that form the permanent structure of a tree, should be 12–18 inches apart. Choose branches that come off in different directions around the tree to create a balanced form and decrease competition for space and light. First remove any crossing and inward-growing branches. Then thin out (remove) selected lateral branches that compete for space and light. In other words, remove one branch if two adjacent branches arise from a trunk directly over one another. Next, eliminate any branches that grow in opposition to the natural form of the tree.

Finally, thin any codominant branches (those that grow out from a single point, forming a Y) to a single branch, keeping the one that is most upright and has the fewest defects in its canopy. Think about what the tree will look like when all of these branches get longer and larger in diameter, particularly branches with the potential to cause problems (rubbing branches, branches with limbs growing toward the center of the plant, etc.). Branches should be directed to grow to an area where they can develop to maturity without pruning. Remember that branches do not move upward as a tree grows in height. If you are hitting your head on a 1-inch diameter branch now, in a few years you will still be hitting your head, but the branch may be 6 inches in diameter! Prune out problem limbs early.

A strong, well-tapered trunk can be developed by keeping some branches (called temporary branches) below the lowest permanent branch on your young tree. They will protect the young bark from sun injury and their foliage will produce carbohydrates that add taper and strength to the trunk. Leave temporary branches in place for 3 or 4 years. Prune them to prevent them from becoming large and vigorous. After 3 or 4 years, remove them a few at a time over the next 2 or 3 years, beginning with the largest ones.

Branches should be strongly attached to the limb from which they arise. Strong branch attachment will allow limbs to tolerate ice, snow, and wind loads better than weakly attached branches and will help prevent the need for expensive pruning corrections later. The best branch angle attachment to the trunk is wide — ideally between 45° and 90° (Figure 10).

When crotch angles are very narrow, bark can become "trapped" or embedded between the two branches as they grow. This situation is known as a

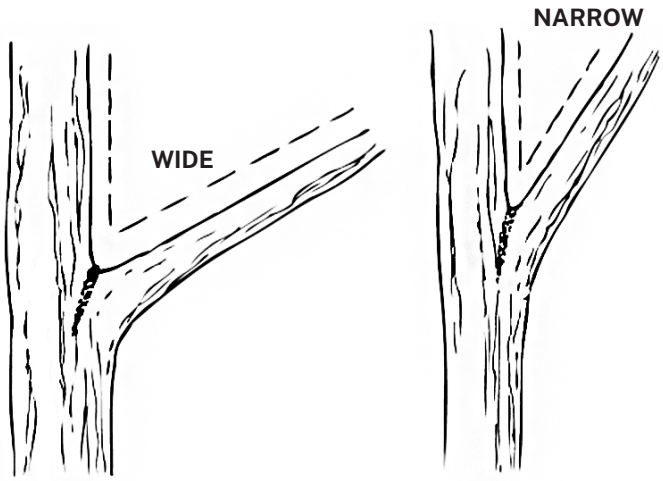

Figure 10. The angle of branch attachment should be wide, ideally between 45° and 90°. Branches with narrow angles of attachment often develop "included" bark, making the branch attachment weak. Source: Colt, W.M., R.R. Tripepi, and R.L. Mahoney. 1999. *How to Prune Deciduous Landscape Trees*. University of Idaho Extension Bulletin 819.

bark inclusion. Where the bark is trapped, structural attachment is absent between xylem tissues in the two branches. As both branches become larger, the area of structural integrity (connected xylem tissues) becomes proportionally smaller, making the attachment between the two branches weak.

Encourage a critically placed small branch with a narrow crotch angle to grow to a better angle by placing a stick or narrow board between the branch and the trunk to brace it open. Leave this brace in place until, when removed, the branch stays at the wider angle (Figure 11). Several species of deciduous trees have narrow crotch angles and develop bark inclusions more often than coniferous trees. Avoid planting these species in areas with heavy ice, snow, or wind loads.

As young trees grow, prune to correct structural weaknesses and to remove dead, pest-infested, or broken branches. Remove rubbing branches since they result in wounds, decay, and notches. When choosing between rubbing branches, remove the most damaged branch with the narrowest crotch angle.

Other branches to remove include water sprouts and suckers. Water sprouts are rapidly growing, weakly attached shoots that form on trunks or limbs above the ground or graft union. Suckers are rapidly growing branches that form on roots (belowground) or below the graft union. Both should be removed as soon as possible. Rubbing them off (rather than cutting) is possible when they are very young and helps to keep them from resprouting. If water sprouts or suckers have grown several inches, cut them off as close to the trunk or root as possible. The best way to prevent suckers from sprouting from the cut sucker is to dig into the soil and cut off the sucker where it arises from the root.

Figure 11. Brace narrow-angle branches, bending them to a wider angle from the main trunk, and leave the support in place for at least six months. Photo by Kaitlin Moroney.

Early Training of Coniferous Trees

Training conifers such as spruce, pine, and juniper takes special consideration. Many coniferous trees have pyramidal forms, regular whorls of growth, and tall, straight trunks. Conifers can develop multiple leaders, so maintaining a single central leader is important for developing a properly shaped mature tree. Remove all but one leader by using thinning cuts. Randomly branching conifers should be trained when the plants are young so they will develop attractively to fill their allotted space. Otherwise, coniferous plants need little training — unless the goal is to make a hedge or pruned shape (a topiary plant). See section on pruning coniferous trees and shrubs for more information.

Early Training of Large Shrubs

Some deciduous and broadleaf evergreen shrubs grow to a large size and have permanent scaffold branches. Examples are viburnum and magnolia species. Most coniferous shrubs, such as junipers, have permanent trunks and branches.

Essentially, these plants can be treated like small trees with multiple trunks, so establish their framework as described earlier. Train shrubs when they are young to direct plant growth so that the shrubs are appealing and have good branch structure. Begin pruning as the plant approaches its desired size, rather than after it is oversized.

Early Training of Hedges

A hedge is a row of closely spaced shrubs or trees, usually consisting of one species. Hedges can be grown informally as a row of natural-looking plants or formally with a lot of training and shearing. In both cases, minimize pruning right after planting and during the first year of growth. Training of the hedge will begin the second year after planting.

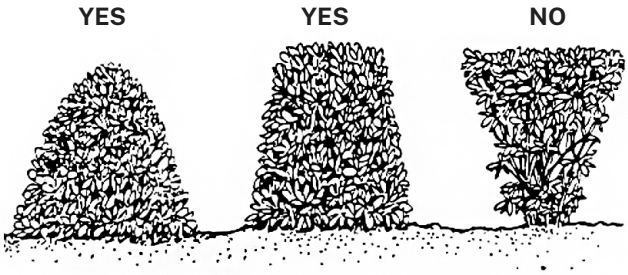

Figure 12. Trim hedges to be wider at the bottom to prevent lower branches from becoming weak and losing foliage.

To produce an informal hedge, during the second year after planting train and prune as with individual plants, striving to keep the plants similar in shape, density, and height. Pay special attention to keeping the foliage dense from the ground up. Train hedges to be wider at the base than at the top to prevent dieback of lower foliage due to inadequate light (Figure 12).

With newly planted deciduous and broadleaf evergreen hedges, induce low, dense branching by heading back the entire plant by as much as half its height the second year after planting (in late winter or early spring). Use the same technique for yew and hemlock plants.

With other new conifer hedges, including spruce, juniper, arborvitae, and false cypress, increase branching by pruning the tips of the new growth as, or just after, it elongates during the second year. Keep in mind that pines are an exception; prune new growth on pine species after the needles on the candles expand to half the length of the mature needles on the plant.

For formal hedges, prune the same as for informal hedges during the second year. In the third year, shear new shoots by one-half to two-thirds of their length every time they grow 6–12 inches. With the exception of pine species, shear conifers whenever growth elongates (it probably will be less than 6 inches long). Avoid pruning after midsummer.

Continue shearing one-half to two-thirds of the new growth during successive years until the hedge reaches the desired width. Then allow the hedge to grow more in height than width until it reaches the desired height. Do this by shearing new growth on the sides shorter (and less frequently) than the shoots on the top.

Early Training of Vines

Train vines according to their growth habit. Vines that are natural clingers support themselves by aerial roots (e.g., English ivy). Boston ivy has small, branched tendrils tipped with adhesive disks to help it attach to a wall or structure. These vines grow on walls and other supports. Twining vines, such as honeysuckle, clematis, Virginia creeper, and wisteria, climb by curling or twining their leaf tendrils, leaf stalks, or stems on some kind of support system. Scramblers and floppers, such as roses, need to be tied to a support system.

Any required support should be in place when planting a vine. Direct (place) or train the branches of the vine in the desired directions.

PRUNING MATURE TREES AND SHRUBS

As woody plants grow, age, and mature, they require maintenance training and pruning.

Mature Deciduous and Broadleaf Evergreen Trees

Inspect mature trees yearly and follow with maintenance pruning if needed. On a tree neglected for many years, never remove more than one-third of the total canopy at one time. Excessive pruning can cause formation of numerous water sprouts. Water sprouts on large branches or trunks are usually weakly attached and can break off. Excessive pruning can also weaken a tree's ability to develop structural strength and good form.

Mature trees are usually large and require specific pruning knowledge and physical skills to complete the various pruning operations. For this reason, hiring a professional tree-pruning company that is insured and bonded may be the best and safest way to be sure mature trees are pruned correctly.

Names for pruning operations on mature trees can vary, but the reasons for pruning remain the same as for any tree. Four typical pruning operations for mature trees are described below.

Cleaning out. This procedure primarily involves removing broken, diseased, dying, or dead branches, as well as those that cross, are weakly attached (including water sprouts and suckers), or of low vigor. These types of branches are removed from trees neglected for years. After these branches

are removed, examine the tree for problems that negatively affect its growth (radial spacing of limbs) or structural strength (angle of branch attachment as well as vertical and radial spacing of limbs).

Raising the crown. This procedure involves removing lower branches from the trunk or lower parts of a tree. As a tree grows, the branch weight increases, causing limbs to bend downward. When training young trees, plan the height of the lowest scaffold branch so that removing large branches will be unnecessary, as such pruning can cause large pruning wounds. If you must remove many lower branches, do so over several years. Leave at least two-thirds of the total canopy volume on the tree.

Crown thinning. This operation involves opening up the tree canopy to permit air movement and deeper light penetration. This procedure will benefit inner leaves and branches. The first branches removed are those described in "Cleaning out" (below left). For scaffold branches too closely spaced vertically or radially, remove the entire branch at its point of attachment to the main trunk.

Make cuts for crown thinning at the top and around the edges of the canopy. In most cases, choose branches 1–2 inches in diameter for removal and make thinning cuts at the point of origin or to a vigorous smaller branch that is at least one-third the size of the branch being removed (drop-crotch pruning). These two types of thinning cuts should avoid inducing the growth of numerous water sprouts, as long as less than one-third of the total canopy volume is removed.

Crown reduction. This procedure is used to reduce the overall size of a tree canopy when it becomes larger than is desirable or safe. Although pruning can roughly control tree size, crown reduction will need to be a regular maintenance task if the tree grows too large for its allotted space. For better effectiveness of crown reduction pruning, prune the tree just as it attains its acceptable size. Delaying pruning until the tree reaches its maximum height makes maintaining an acceptable canopy size more difficult, creates larger pruning wounds, and can induce weakly attached shoots to form.

Crown reduction involves drop-crotch pruning (described above and on page 10; also see Figure 7). Properly used, drop-crotch pruning should prevent water sprouts from forming near the pruning cuts. Drop-crotch pruning can reduce tree height by one-fourth to one-third of its original size. Using thinning cuts during crown reduction will cause the plant to grow back to a critical height more slowly than topping a tree. Thinning cuts also help the tree retain its natural shape and minimize decay problems. Since this pruning procedure involves cutting some of the most distant branches on a tree, use of a tree pruning professional should be strongly considered.

FLOWERING LOCATIONS FOR SELECTED SHRUBS

Plants Flowering on Midportions of Stems

- Barberry (*Berberis* spp.)
- Beauty bush (*Kolkwitzia amabilis*)
- Brooms (*Cytisus, Genista* spp.)
- *Cotoneaster* spp.
- Flowering quince (*Chaenomeles* spp.)
- *Forsythia* spp.
- Holly (*Ilex* spp.)
- Honeysuckle (*Lonicera* spp.)
- *Kerria japonica*
- Mock orange (*Philadelphus* spp.)

Plants Flowering on Terminal Tips

- Azaleas, evergreen (*Rhododendron* spp.)
- Dogwoods, shrubby (*Cornus* spp.)
- *Hydrangea* spp.
- Lilac (*Syringa* spp.)
- *Magnolia* spp., shrubby
- Oregon grape (*Mahonia* spp., also known as *Berberis* spp.)
- *Photinia* spp.
- *Potentilla fruticosa*
- Privet (*Ligustrum* spp.)
- *Rhododendron* spp. (and deciduous azaleas)
- Serviceberry (*Amelanchier* spp.)
- *Spiraea* x *bumalda* cultivars
- *Viburnum* spp.

Carefully observe where flowers are produced on species not listed.

Mature Deciduous and Broadleaf Evergreen Shrubs

The unique characteristics of each type of shrub determine the pruning technique(s) used. Shrubs that produce little, if any, new growth (sprouts) from their bases, such as large viburnums and magnolias, are pruned as if they were small trees (i.e., they are trained to have scaffold branches).

When growing shrubs for flowers or fruit, plants should be pruned to encourage or enhance flower production, which should also increase fruit production. Keep in mind that removing flowers will decrease fruit production. These large shrubs (like trees) produce flowers and fruit at the tips of their branches.

With any shrub, as with trees, keep the natural form in mind and prune to develop this form by removing stems and branches that detract from the desired shape of the plant. The growth habit of the plant should be enhanced by the pruning.

Observe where the flowers are produced on a shrub in order to know how to prune it. See the listing at right for flowering locations on selected shrubs. These shrubs also produce new wood (sprouts) from stems at or near the ground level throughout their lives (continuous basal growth). These plants and similar species should be pruned as follows:

- Prune plants that flower on the midportions of their stems to maximize production of 2–5-year-old wood. Do this by removing one-fourth to one-sixth of the oldest stems at or near the ground each year. Make thinning and heading cuts on the remaining stems as necessary.
- Prune plants that flower at the tips of their stems to maximize production of terminal tips. Do this by removing a few older canes and spindly new canes at or near ground level. Head back vigorous canes to force branching and growth of new tips where desired, and thin other stems as needed.
- Thinning cuts on deciduous and broadleaf evergreen shrubs preserve the shrub's natural form. Direct growth by thinning out (removing) stems back to a vigorous side branch that points in the desired direction. Use thinning cuts to remove selected inner branches to open up a dense shrub and to maintain the size (width and height) of the shrub.
- Heading cuts on deciduous and broadleaf evergreen shrubs stimulate the development of shoots right below the cut, resulting in denser growth. Make cuts where you want branching. Use heading cuts sparingly unless you are shearing a formal hedge, topiary, or other atypical shape. Heading cuts may result in an undesirable bushy or topped look.
- See page 12 for information on when to prune flowering shrubs.

Mature Coniferous Trees and Shrubs

Mature conifers need little pruning if they have been cared for over time. Selected branches may be growing out of place. If so, use thinning cuts to remove them. Like deciduous trees, coniferous trees should not be topped.

The type of pruning cut to use depends on the pruning objectives. If a plant is too tall or has branches that are blocking a view or use of a structure (for example, a sidewalk), use thinning cuts to remove branches at their point of origin. Thinning cuts are often less noticeable and create an open, natural-looking plant.

On fir, spruce, and Douglas fir, dormant buds are found mainly on branches that are one year old. Prune these species only into one-year-old branches or to where you can see buds on the branch (Figure 13). Pruning stems back into branch tissues that are more than one year old will leave permanent stubs, as the pruned branches will not produce new growth. Likewise, prune arborvitae and false cypress back only to where green foliage is seen on the plants; avoid pruning back to bare branches on these species.

Conifers with latent buds, such as yew and hemlock, can be pruned severely because latent buds will grow after pruning. They will respond to heading cuts on older branches or trunks by producing strong, new foliage growth. **Shearing** is a type of heading cut that consists of cutting off small branches to produce an even shape. Shearing shapes plants and increases branch density. However, shearing without some thinning can cause the center of a coniferous plant to die from lack of light, thereby increasing dead zones, or areas that lack foliage.

On many conifers such as pines and junipers, latent buds are usually absent from the branches, including

the current season's growth. Avoid cutting branches more than one year old on these species. Heading cuts that remove large amounts of foliage will result in dead zones and stubs. Pines have buds only at the tips of branches. Therefore, new growth on pines can be pruned only as the new candles expand (Figure 14). This pruning will induce new buds to form at the cut surface of the stem (at the base of the needle bundles) and will make the plant more dense and shorten its height. The amount of candle to prune off depends on how much new growth is desired. If only light pruning is needed on the new growth, remove only about 1 inch of the candle. In contrast, if little new growth is desired (to keep the plant dense), remove about two-thirds of the new candle.

Figure 13. Buds (arrows) present on the newest (one-year-old) branches on a spruce tree. Photo by Robert Tripepi.

Figure 14. New growth on a pine candle (the expanding pine branch) should be pruned when new needles on the candle are about one-half the length of mature needles to induce new buds to form at the base of the needle bundles near the cut. Arrows show the buds that were induced to form. Photo by Robert Tripepi.

Damaged Trees

Over time, plants may become damaged or parts of a plant may become diseased. Physical damage often requires corrective pruning. On some species, such as oak, branches die of natural causes and may remain attached high above the ground. Remove broken or dead branches, typically with a thinning cut, observing all of the pruning techniques outlined earlier. Sometimes, to maintain good symmetry, you can also thin or remove limbs opposite the broken ones.

After removing a broken branch that tears the bark on the branch or trunk from which it arose, carefully use a wood chisel to remove any torn or stripped bark and remove ragged edges of dead or dying bark (Figure 15). Remove loose or dead bark back to where it attaches to the tree. Keep the wound as narrow as possible to hasten wound closure.

If a pyramidal conifer loses the top of its main leader (trunk), help a branch near the wounded area to become the new leader. Select the best limb, which could be the longest one, and carefully bend it upright. Tie this branch to an upright pole or stake and fasten the stake securely to the trunk (Figure 16). Check ties frequently to make sure they do not cut or wound the bark, and remove the pole in two or three years.

A plant struck by lightning may not be damaged severely; remove broken branches, but do nothing else for 6–12 months. This length of time may be needed for damage to become visible. If damaged, the tree will decline due to an injured root system, vascular system, or cambium layer.

A hazard shrub or tree has a structural defect that may cause the plant or a portion of the plant to fall on someone or something. Hazardous conditions on plants need immediate attention in order to protect lives and property. Be sure to call a certified professional arborist if you suspect you are dealing with a hazard tree.

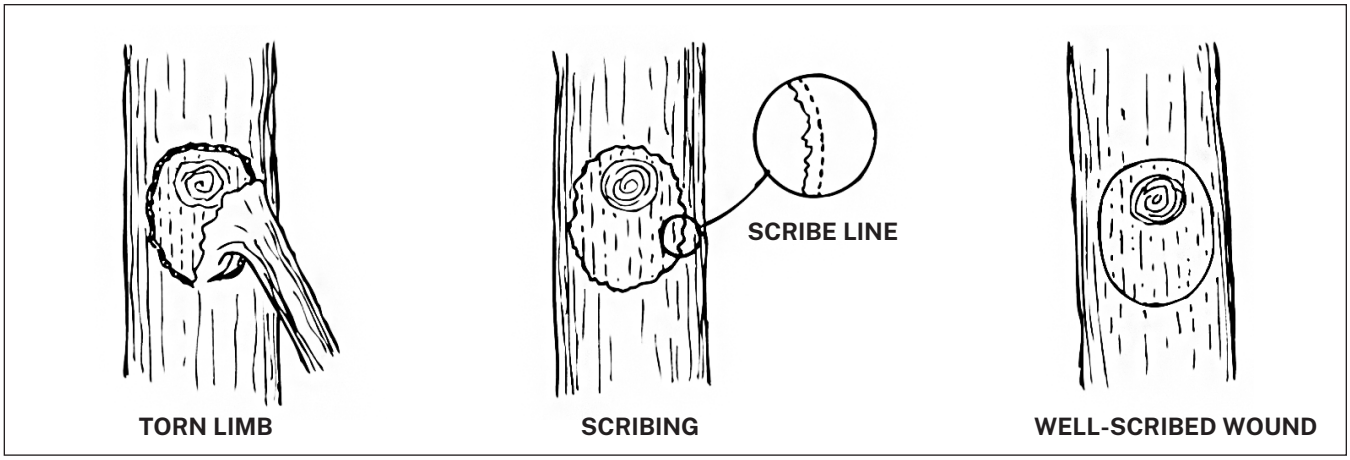

Figure 15. Remove the ragged edges of damaged tissue on broken or torn limbs. Use a chisel or sharp knife to remove the dead or dying plant tissues. Source: Colt, W.M., R.R. Tripepi, and R.L. Mahoney. 1999. *How to Prune Deciduous Landscape Trees.* University of Idaho Extension Bulletin 819.

Figure 16. Select a new leader on a top-damaged conifer and tie it to a vertically secured stake (left). In the photo on the right, a new leader (indicated by the arrow) formed without being staked. Note the bow in the new leader. Photo by Marla Schwartz.

Careful inspection and a rational assessment of problems determine what corrective measure to take. If the entire tree is dead or dying, remove it. All dead branches are accidents waiting to happen. Remove them. Prune off weak or wounded spots on branches caused by rubbing. Forked (or codominant) trunks may indicate a weak-structured tree. A sudden lean in the entire tree is cause for action. Sudden dieback of top limbs may indicate root problems. Check for signs of internal decay by examining the plant for fruiting bodies of fungi (conks) or disfiguration (cankers). Conks at the base of the tree can indicate root and trunk decay.

A tree that has been topped has an increased risk of internal decay due to the large, open wounds that may have failed to be covered by new growth before wood-rotting microorganisms entered the wounds. Examine these cut areas carefully, possibly using an increment borer or an electric drill equipped with a ⅛-inch bit, to test for soundness of branches and trunks. Keep in mind, however, that drilling or boring into a trunk causes a wound that could be detrimental to a weakened tree. If you have inherited an older tree with poor shape or structure or one previously topped, do remedial pruning following the guidelines on page 17.

Hedges

After the second year, and in established hedges, make judicious heading cuts interspersed with a few well-located thinning cuts to create the desired

shape and size. Thinning cuts are typically used on informal hedges, whereas shearing is used to provide a formal shape. Thinning cuts and/or heading cuts are usually made on relatively small limbs.

Complete maintenance pruning from late winter to early spring for maximum growth. To stunt plant growth, prune in summer after the plants have completed their growth flush. Remove an occasional branch at any time.

Prune all established, full-grown formal hedges once a year after the season's growth ends, typically mid- to late summer. If you want a very formal effect, you will need to shear more often during the growing season. For a looser, less formal effect, shear only once in midsummer.

At each shearing, remove new growth to within ½ inch of the previous shearing, leaving only one to three new leaves and buds. Keep in mind that this amount of shearing will most likely result in thick, densely packed branches.

Vines

Treat vines the same as shrubs. Determine how to prune them by when (and thereby where) the flowers are produced (see listings on page 33). Besides encouraging flowering, fruiting, and new growth, prune vines to remove weak or diseased branches. Prune any vine with a permanent framework as you would a tree.

Woody Ground Covers

Low-growing woody shrubs and vines often serve as ground covers. Prune these plants as though they were flowering or nonflowering deciduous, broadleaf evergreen, or coniferous evergreen shrubs.

RENOVATION AND REJUVENATION PRUNING

Removal of large numbers of branches may be needed on older woody plants that have become too large, have grown into obstructions, were pruned incorrectly, have little flowering wood, lack vigor, or are unattractive. Renovation may also be necessary for plants that have died back from winterkill or other damage. Remember to remove any plant that is too large for its growing space when correctly trained. Replace it with a plant of a more appropriate mature size.

If a tree was poorly placed and is now growing into an obstruction, such as overhead power lines, consider removing it and replacing it with a properly placed or smaller tree. Trees properly pruned under or beside obstructions can continue to grow. Selectively remove branches to direct growth away from wires or other obstructions. This type of pruning is called directional pruning and can result in a V-shaped or one-sided tree (Figure 17). However, directional pruning is a better alternative than topping trees, since topped trees will eventually grow back into the obstruction.

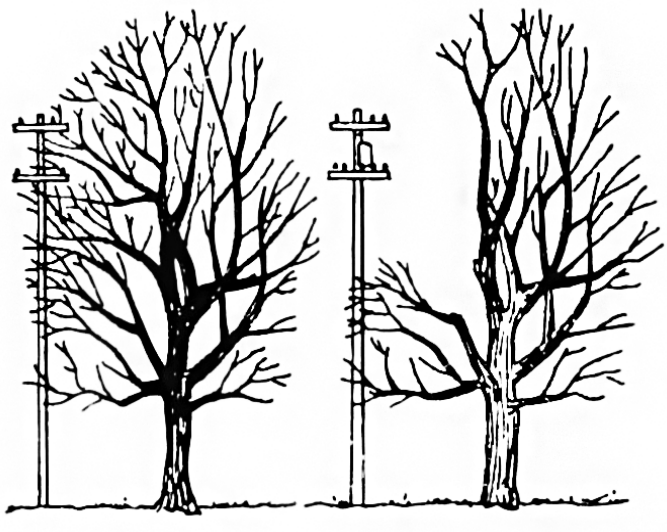

Figure 17. Side pruning was used to change the direction of this tree's growth. Source: Colt, W.M., R.R. Tripepi, and R.L. Mahoney. 1999. *How to Prune Deciduous Landscape Trees*. University of Idaho Extension Bulletin 819.

Because of the danger of electrocution, if pruning will be done near a power line, be sure to contact your power company or hire a professional arborist. Only a person certified to prune near power lines can legally prune any branches growing within 10 feet (about 3 meters) of an energized conductor or transmission line.

Deciduous and Broadleaf Evergreen Trees and Shrubs

If a tree has never been pruned and is seriously tangled and perhaps damaged, approach pruning from the standpoint of "better late than never." In addition to the information in this section, follow the guidelines for pruning deciduous and broadleaf evergreen trees on page 17.

First, remove all dead and damaged branches, rubbing branches, branches growing inward on the tree, and branches growing outside the natural shape

of the tree. Often pruning these types of branches first clears out the canopy and is all that is necessary. Once this unwanted growth is removed, you can determine whether additional pruning is needed. The next set of branches to remove could include those with weak angles of attachment and those with inadequate vertical and radial spacing, particularly for scaffold branches. The age and condition of the tree may eliminate some pruning possibilities; for example, establishing a central leader or eliminating codominant branches may be quite difficult without severely weakening the tree.

You can use drop-crotch pruning (see page 11) to reduce the size of a tree without weakening its structure or creating an eyesore. This type of cut retains a lateral branch large enough to become the new leader. Its presence reduces latent bud sprouting and the bushy growth typical of heading cuts or topping. This method is often used by utility companies when trees grow into power lines.

Trees that have been topped or otherwise incorrectly pruned to a new height can sometimes be reshaped using thinning cuts and recommended training techniques. To correct problems from topping, remove some of the competing new branches near the pruning cut to reduce their density. Remove the tree if substantial amounts of wood rot are found, if the tree is in poor health, or if it is impossible to reconstruct a decent shape. Replace it with a recommended species for the site and space.

Deciduous and broadleaf evergreen shrubs that continuously produce basal growth can be rejuvenated by heading back all stems to 3–5-inch stubs. Use this technique only on shrubs that contain many latent buds. Boxwood, American holly, and almost all rhododendrons have good buds back to 3–5-year-old wood. Prune these severely. Cut back to 2–3-year-old wood on other species. This severe heading should be completed in late winter or early spring.

Once new, vigorous stems have grown about a foot long, selectively thin to remove weak or poorly placed stems and excessive growth. This step is very important for producing an attractive, healthy shrub. For shrubs with permanent scaffold branches, rejuvenate by thinning and heading back to the basic framework of the shrub.

Coniferous Trees and Shrubs

Rejuvenating misshapen, broken, or diseased coniferous shrubs is possible only if the plant has good latent buds on older wood. Severe heading cuts into old branches will produce vigorous growth and much smaller shrubs only if latent buds are present. Later, be sure to thin new growth to create a desirable open form (unless the plant is a sheared hedge or topiary). Complete this type of pruning in late winter or early spring before new growth begins.

Avoid rejuvenation pruning for most species of coniferous shrubs since most lack latent buds on older branches. Growing points on most species of juniper, arborvitae, and false cypress are found only in green foliage on young twigs. Severe heading cuts to stems of these species usually results in branch stubs without new foliage or needles. Some exceptions exist; for instance, one species of arborvitae has latent buds on older stems and at least one species of juniper has a few latent buds. The bottom line, however, is that rejuvenation pruning is not practical for most species of pine, spruce, fir, juniper, arborvitae, false cypress, and other conifers that lack latent buds on older stems and trunks. To correct damage or remove dead branches on most conifer species, make the necessary corrective thinning cuts and then prune new, young growth to increase foliage density.

Protecting Trees and Shrubs during Construction

Older trees contribute to the diversity of the landscape and should be preserved during construction if at all possible. Remove trees that are in poor health, those unable to withstand the necessary changes in their environment (such as shade lovers suddenly exposed to full sun), those leaning over an existing or proposed structure, and those that will be 5 feet or closer to a constructed building or utility line.

Good preconstruction planning often can ensure the survival of desirable trees. For instance, installing a flagstone walk or permeable pavers over a root system, rather than concrete or asphalt, allows aeration and water penetration to tree roots. Work with contractors to designate areas for driving, parking, and materials storage. Stake out exact

locations of trenches. If plants cannot remain where they are currently growing, consider transplanting any that are small enough or that can be dug with a tree spade.

Soil compaction seriously limits aeration and water penetration to root systems. The best solution is to keep all heavy equipment and foot traffic off root zones. First, surround trees with a barrier that extends beyond the dripline. This barrier will keep heavy equipment from driving over the majority of the plants' roots and from causing collision. The barrier will also keep chemical spills away from the root system.

If equipment or people must travel over a tree's root system, spread about 6 inches of wood chips or bark mulch (the larger the chip size the better). To provide even more protection, cover root areas with steel bridges, mesh matting, exterior plywood, or planks on top of the mulch. Use of mulch or wood chips and metal or plywood sheets will reduce compaction by spreading out the weight of heavy equipment or foot traffic.

Severing roots can be very damaging to trees, reducing their water- and nutrient-absorbing capacities and sometimes affecting their stability in the soil. Careful selection of routes for underground utilities — detouring around root systems when possible — can reduce root damage. If rerouting trenches for utility lines is impossible, tunneling, rather than trenching, is a good solution. To reduce damage to trees close to structures, substitute posts and pillars for footers and walls that require a trench.

Changes in grade can be extremely destructive to shrub and tree root systems, since cutting (removing soil) severs roots, whereas filling (adding soil) usually buries them, causing them to die due to lack of oxygen. Avoid grade changes by using retaining walls to maintain the original soil level over the majority of the root zone. Also, tree wells or tree islands can help maintain the original grade and minimize cutting of roots. Make wells or islands as large as possible. When a grade is changed more than 6 inches, vertical mulching (see page 6) may help modify the effect of extra soil.

Woody Landscape Plants for Idaho

Given the hundreds of plant species, botanical varieties, and cultivars that can be grown in the Intermountain West, selecting the right trees, shrubs, vines, and ground covers for your landscape can be an enormous challenge.

A limited selection of woody plants suitable for Idaho is provided in this chapter (see Table 1); however, many other plant species and cultivars are available. Table 1 provides categories that can be used in selecting plants for different purposes and growing conditions. Consult the internet, resource books, local garden centers, landscape architects, your Extension educator, and "Further Reading and Resources" in this chapter.

Use plant descriptions and photos to visualize what will best meet your own and your site's needs and preferences. Then, make a list and seek quality plants from the best sources. Be open to using alternative plants.

In southern Idaho, summer temperatures and light intensity are high and humidity is low. Northern Idaho has higher humidity and frequent cloud cover. Summer temperatures in southern Idaho can exceed 100°F, while northern Idaho experiences cooler temperatures (80°F–90°F). During the winter, dormant conditions, elevation, local microclimates, and temperature determine plant survival.

Plants listed in garden publications from the eastern United States and lower coastal elevations often do poorly in Idaho for several reasons: early or late frosts, different soil characteristics, the dry summer climate, etc. For these reasons, plants native to Idaho and the Intermountain West often grow best in many regions of the state. More and more native plants are becoming available at retail garden stores. Look online or consult with local garden stores to learn about native plants that will thrive in your area.

Table 1 lists some of the top woody landscape plants for Idaho. These plants have grown well or are deemed worthwhile for trial in Idaho. Selections were made based on Idaho research and recommendations from Idaho horticultural professionals, arborist

associations, tree committees, urban foresters, and the Idaho nursery industry. This list provides selected plants from a large number of woody species, varieties, and cultivars.

The following attributes are listed for the plants:

- **Common name**. The most widely accepted common name is given.
- **Scientific name**. Since several plants may share the same common name, the scientific name is included for precise identification.
- **Desirable cultivars** (cultivated varieties) are listed.
- **Height**. Mature height varies, depending on the region of the state, microclimate, fertilizer practices, light source and intensity, and soil conditions. A range of heights is given for most woody landscape plants listed.
- **Bloom time**. Approximate time of flowering.
- **Color**. Refers to foliage color. Color for listed cultivars may vary.
- **Light**. Categorizes the plant into one or more light regimes: full sun is uninterrupted sunlight through the full day; partial sun is filtered sunlight through tree leaves or a minimum of 6–8 hours of sunlight per day; full shade indicates filtered sunlight through a dense foliage canopy or less than 6 hours of sunlight each day.
- **Use in landscape**. Lists potential planting locations as well as functions; for example, street tree, xeriscape, windbreak, or native. This category also indicates whether irrigation is critical.
- **United States Department of Agriculture (USDA) zone**. These ratings are based on the USDA plant hardiness zones for Idaho (see Figure 1, chapter 16) and upon reported preferences by region by Idaho plant professionals. Keep in mind that factors other than low temperatures affect plant survival in a specific area and USDA zones should be used only as a guideline.
- **Idaho zone**. Indicates in which part of Idaho this plant will grow best.
- **Growth habit**. Provides a mental picture of the mature form or outline of the plant.
- **Rate of growth**. Refers to the vertical increase in growth unless specified differently. The designation “slow” means the plant grows 12 inches or less per year, “medium” indicates 13–24 inches of growth per year, and “fast” is 25 inches or more of new growth annually. Rate is influenced by numerous variables such as soil, drainage, water, light, and exposure.
- **Wildlife rating**. Provides a guideline of the likelihood that the plant will attract and be damaged by wildlife.
- **Utility rating**. When available, this rating indicates whether this plant may be planted under power lines.
- **Source**. The reference that lists this plant.

Table 1. Woody plants for Idaho landscapes.

The following key is used in this table:

Height: At maturity with a range for most plants (spread for vines)

Bloom: Season of flowering
- Sp = spring
- Su = summer
- F = fall

Color: Predominant foliage color
- Grn = green
- Pur = purple
- Yell = yellow
- Gry = gray
- Blu = blue
- Wht = white

Light:
- F = full sun
- P = part sun
- S = shade

Use in landscape:
- B = border
- S = specimen
- W = windbreak
- St = street tree
- X = xeriscape
- I = irrigation
- N = native

USDA zone: Idaho's USDA plant hardiness zones are 3-6.

Idaho zone:
- 1 = northern Idaho
- 2 = southwestern Idaho
- 3 = eastern Idaho
- All = whole state

Growth habit:
- P = pyramidal
- V = vase shaped
- W = weeping
- R = round
- U = upright
- C = columnar
- G = globe
- O = oval
- M = mound
- F = feathery
- S = spreading

Rate:
- F = fast growth
- M = medium growth
- S = slow growth

Wildlife rating:
- 1 = Protective — Rare damage
- 2 = Protective — Slight damage
- 3 = Beneficial — Some damage
- 4 = Attractive — Severe damage

Utility rating:
- — = Recommended for planting under power lines
- ? = Questionable for planting under power lines
- Ø = Not recommended under power lines
- $ = Extreme expense; NOT recommended under power lines.
- * = Not a concern under power lines

Source: The referenced sources that list these plants as growing in our region.

		Height	Bloom	Color	Light	Use	USDA	Idaho	Habit	Rate	Wildlife	Utility	Source
Large Deciduous Trees — over 50 feet													
Ash, green	*Fraxinus pennsylvanica* 'Bergeson' 'Marshall' 'Patmore' 'Urbanite'	50'–60'	—	Grn	F	S,W,X	3–6	All	U,S	M	1	Ø	1,2,6
Ash, Raymond	*Fraxinus oxycarpa* 'Raywood'	40'–50'	—	Grn	F	S	5–6	1,2	O,U	M	1	Ø	2
Ash, white	*Fraxinus americana* 'Autumn Applause' 'Autumn Purple' 'Rosehill' 'Skyline'	50'–60'	—	Grn	F	St	4–6	All	O,U	M	1	Ø	1,2
Aspen, quaking	*Populus tremuloides*	30'–50'	—	Grn/Gry	F,P	S,I	3	All	S,U	F	2	Ø	1
Bald cypress	*Taxodium distichum*	50'–80'	—	Grn	F	S,I	5–6	1,2	P	M	1	$	2,4
Beech, European	*Fagus sylvatica* 'Pendula' 'Riversii' 'Roseo-Marginata'	50'–70'	Sp	Grn/Pur	F,P	S	5–6	1,2	O,U	S	2	Ø	2,6
Birch, river	*Betula nigra* 'Heritage'	40'–60'	—	Grn	P,S	S,N	4–6	All	O,U	M	2	Ø	2
Catalpa, northern	*Catalpa speciosa*	50'–70'	Su	Grn	F,P	S,X	5–6	All	S,U	F	3	Ø	1
Coffee tree, Kentucky	*Gymnocladus dioicus* 'Espresso'	50'–75'	Sp	Grn	F	S	4–6	1–3	U,O	S	4	Ø	2

Table 1. (cont). Woody plants for Idaho landscapes. (See page 25 for the key to abbreviations used in this table).

		Height	Bloom	Color	Light	Use	USDA	Idaho	Habit	Rate	Wildlife	Utility	Source
Large Deciduous Trees — over 50 feet cont.													
Cork tree, amur	*Phellodendron amurense* 'Macho'	35'–45'	—	Grn	F	S	4–6	All	U,V	M	2	Ø	2
Filbert, Turkish	*Corylus colurna*	40'–50'	—	Grn	F	S,X	5–6	1,2	P	M	2	Ø	2
Hackberry, common	*Celtis occidentalis*	40'–60'	—	Grn	F	S,W,X	4–6	All	U,O	S	3	Ø	1,2
Honey locust	*Gleditsia triacanthos* var. *inermis* 'Imperial' 'Moraine' 'Shademaster' 'Skyline'	30'–60'	Sp	Yell/ Grn	F	S,W,X	5–6	All	S,U	M	3	Ø	1,2,5
Hornbeam, European	*Carpinus betulus* 'Fastigiata'	40'–50'	—	Grn	F,P	S,St	5–6	1,2	P,O	S	2	Ø	2
Horse chestnut	*Aesculus hippocastanum* 'Baumannii'	40'–60'	Sp	Grn	F,P	S	4	All	U,O	M	3	Ø	1,2
Larch, European	*Larix decidua*	50'–70'	—	Grn	F	S,W,B	3–6	All	P	M	2	$	2,4
Linden, American	*Tilia americana* 'Legend' 'Redmond'	40'–60'	Su	Grn	F,P	S,I	3–6	All	P,O	M	1	Ø	2
Linden, littleleaf	*Tilia cordata* 'Chancellor' 'Corinthian' 'Glenleven' 'Greenspire'	40'–60'	Su	Grn	F	S	4–6	All	P,O	S	2	Ø	1
Linden, silver	*Tilia tomentosa* 'Green Mountain' 'Sterling'	40'–60'	Su	Grn/ Wht	F	S	5–6	1,2	O,P	M	3	Ø	2
Locust, black	*Robinia pseudoacacia*	40'–50'	Su	Grn	F	B,W,X	3	All	S,U	F	4	$	1
Magnolia, cucumber tree	*Magnolia acuminata*	40'–60'	Sp	Grn	F,P	S,I	4–6	1,2	O	M	1	Ø	2
Maidenhair tree	*Ginkgo biloba* 'Autumn Gold' 'Magyar' 'Princeton Sentry'	40'–60'	—	Grn	F	S	4–6	1,2	P,S	S	3	Ø	1,2
Maple, Freeman	*Acer X freemanii* 'Autumn Blaze'	50'–60'	Sp	Grn	F,P	S	4–8	All	O	M	2	Ø	
Maple, Norway	*Acer platanoides* 'Columnare' 'Crimson King' 'Deborah' 'Emerald Queen' 'Royal Red' 'Schwedler'	40'–50'	Sp	Grn	F,P	S	4–6	All	U,O	M	2	Ø	1,2

Table 1. (cont). Woody plants for Idaho landscapes. (See page 25 for the key to abbreviations used in this table).

		Height	Bloom	Color	Light	Use	USDA	Idaho	Habit	Rate	Wildlife	Utility	Source
Large Deciduous Trees — over 50 feet cont.													
Maple, sugar	*Acer saccharum* 'Green Mountain' 'Legacy'	50'–70'	—	Grn	P,S	S	4–6	1,2	O,U	S	3	Ø	2,4
Oak, bur	*Quercus macrocarpa*	70'–80'	—	Grn	F	S,W,X	3–6	All	O,U	S	4	Ø	2
Oak, English	*Quercus robur* 'Fastigiata'	50'–70'	—	Grn	F	S	5–6	All	U,O,C	M	4	Ø	1,2,4
Oak, northern red	*Quercus rubra*	50'–75'	—	Grn	F,P	S	5–6	1,2	U,O,C	S	4	Ø	1
Oak, swamp white	*Quercus bicolor*	50'–70'	—	Grn	F,P	S	4–6	All	O,U	M	4	$	2
Oak, white	*Quercus alba*	50'–80'	—	Grn/Gry	F,P	S	4–6	All	U,O	S	4	Ø	1
Pagoda tree, Japanese	*Sophora japonica*	40'–60'	Su	Grn	F	S	5–6	1,2	O,U	M	1	Ø	2
Persimmon, common	*Diospyros virginiana*	30'–50'	Sp	Grn	F	S	5–6	1,2	O	S	3	Ø	2
Planetree, London	*Platanus x acerifolia* Note: the scientific name is sometimes listed as *Platanus x hybrida* 'Bloodgood'	50'–100'	—	Grn	F,P	S	4–6	1,2	O	M	3	$	1
Poplar, black	*Populus trichocarpa*	75'–100'	—	Grn	F	S,N,I	4–6	All	V	F	1	$	2
Poplar, white	*Populus alba* 'Bolleana'	45'–90'	—	Grn/Wht	F,P	S,B	3–6	All	U,S	F	1	$	1
Poplars	*Populus* spp.	50'–80'	—	Grn/Gry	F,P	W,N,I	3	All	O,U,S	F	1	$	1
Sweet gum	*Liquidambar styraciflua*	50'–60'	—	Grn	F	S,I	5–6	1,2	P,O	M	2	Ø	1,2
Tree of Heaven	*Ailanthus altissima*	30'–45'	—	Grn	F	S	4	All	U,S	F	4	Ø	1
Tulip tree	*Liriodendron tulipifera*	65'–90'	Sp	Grn	F	S,I	5–6	1,2	U,O	M	3	$	1
Walnut, black	*Juglans nigra*	40'–50'	—	Grn/Yell	F	S,W	4	All	U,D	M	3	$	1
Willow	*Salix* spp. 'Tristis' golden weeping 'Tortusa' corkscrew	40'–80'	—	Grn/Yell	F,P	S,I,N	3	All	U,S,O	F	4	$	1
Yellowwood	*Cladrastis kentukea*	30'–50'	Sp	Grn	F,P	S,I	5–6	1,2	O	M	1	Ø	
Large Evergreen Trees — over 50 feet													
Arborvitae, eastern	*Thuja occidentalis* 'Pyramidalis'	30'–50'	—	Grn	F	B,S	3–6	All	P	M	2	$	2,4
Douglas fir	*Pseudotsuga menziesii*	40'–60'	—	Grn	F,P	S,N	4–6	All	P	M	1	$	2,4
Fir, subalpine	*Abies lasiocarpa*	40'–50'	—	Blu/Grn	P	S,I,N	3–6	All	U,C,P	S	2	$	1
Fir, white	*Abies concolor*	50'–70'	—	Gry/Grn	F,P	S,N	4–6	All	P,U	M	2	$	2,4
Pine, Austrian	*Pinus nigra* var. *nigra*	50'–60'	—	Grn	F	S,W	4–6	All	U,P	M	3	$	1,2

Table 1. (cont). Woody plants for Idaho landscapes. (See page 25 for the key to abbreviations used in this table).

		Height	Bloom	Color	Light	Use	USDA	Idaho	Habit	Rate	Wildlife	Utility	Source
Large Evergreen Trees — over 50 feet cont.													
Pine, ponderosa	*Pinus ponderosa*	50'–100'	—	Grn	F	S,W, N,B	4–6	All	U,P	M	2	$	1,2,4,5
Pine, Scots	*Pinus sylvestris*	50'–80'	—	Grn	F	S,W, B,St	3–6	All	U,P	M	1	$	1,2,4
Pine, Swiss stone	*Pinus cembra*	30'–40'	—	Grn	F	S	4–6	All	P,C	S	2	Ø	3,4
Spruce, Colorado	*Picea pungens*	45'–80'	—	Grn/Gry	F	S,W	3–6	All	U,P	S	2	$	1,2,4
Spruce, Engelmann	*Picea engelmannii*	80'–100'	—	Grn	F	S,B	3	All	U,P	S	1	$	1,2,4
Spruce, Norway	*Picea abies*	50'–60'	—	Grn	F	S,B	4–6	All	U,P	M/F	2	$	1,2,4
Spruce, Serbian	*Picea omorika*	50'–60'	—	Grn/Gry	F,P	S,B	4–6	All	P,C	S	2	$	2,4
Spruce, white	*Picea glauca*	40'–50'	—	Grn	F,P	S,W	3–6	All	P	M	2	$	2,4
Large Deciduous Trees — 25–50 feet													
Alder, mountain	*Alnus tenuifolia*	20'–40'	Sp	Grn	F,P	S,N,I	3–6	All	O	M	2	Ø	2
Apricot	*Prunus armeniaca*	15'–25'	Sp	Grn	F	B	4	All	S,O	M	4	?	1
Cherry plum	*Prunus cerasifera* 'Atropurpurea' 'Newport' 'Thundercloud'	15'–25'	Sp	Pur	F	S,B,St	4–6	1,2	U,O	M	3	—	1
Cherry, Japanese flowering	*Prunus serrulata* 'Kwanzan' 'Mount Fuji'	20'–25'	Sp	Grn	F	S,St,I	5–6	1,2	S,C,V	F	3	—	2,3
Chokecherry	*Prunus virginiana* 'Shubert'	15'–30'	Sp	Grn	F	B,W	2–6	All	S,O	M	3	—	
Crab apple	*Malus* spp. 'Adirondack' 'Donald Wyman' 'Indian Summer' 'Prairifire' 'Purple Prince' 'Red Jewel' 'Spring Snow' 'Strawberry Parfait'	15'–40'	Sp	Grn/ Red	F,P	St	3–6	All	S,U, C,O	F	4	?	1–4
Dogwood, Cornelian cherry	*Cornus mas*	20'–25'	Sp	Grn	F	B,S,St	4–6	All	O	M	3	?	3
Dogwood, flowering	*Cornus florida*	20'–25'	Sp	Grn	P	B,S	5–6	1,2	R,U	S	2	?	2,3
Dogwood, Kousa	*Cornus kousa*	15'–25'	Sp	Grn	P	B,S	5–6	1,2	R,U	S	2	?	2
Eastern redbud	*Cercis canadensis*	20'–30'	Sp	Red/ Grn	F,P	S,I	5–6	1,2	O	M	2	?	2,3
Filbert, purple giant	*Corylus maxima* var. *purpurea*	15'–20'	Sp	Pur	P	B	5–6	1,2	R,P	S	3	?	3,4

Table 1. (cont). Woody plants for Idaho landscapes. (See page 25 for the key to abbreviations used in this table).

		Height	Bloom	Color	Light	Use	USDA	Idaho	Habit	Rate	Wildlife	Utility	Source
Medium Deciduous Trees — 25 to 50 feet cont.													
Golden rain tree	*Koelreuteria paniculata*	30'–40'	Su	Grn	F	S,X	5–6	1,2	O	F	1	Ø	2
Hawthorn, English	*Crataegus laevigata*	15'–24'	Sp	Grn	F,P	St	3–6	All	S,U, C,O	M	3	?	1,2
Hawthorn, green	*Crataegus viridis*	25'–35'	Sp	Grn	F	St,S,B	5–6	1,2	O	M	3	?	2,3
Hawthorn, Lavalle	*Crataegus x lavallei*	15'–30'	Sp	Grn	F	B	4–6	1,2	O	M	2	?	1,2,4
Hawthorn, Washington	*Crataegus phaenopyrum*	20'–30'	Sp	Grn	F	St,S,B	3–6	All	O	M	3	?	1–3
Hornbeam, columnar	*Carpinus betulus* 'Columnaris'	20'–40'	—	Grn	F	B,S,St	4–6	All	U,P	M	2	Ø	3
Lilac, Japanese tree	*Syringa reticulata*	20'–30'	Sp	Grn	F	S,St	4–6	1,2	O	M	1	?	2
Magnolia, saucer	*Magnolia* x *soulangiana*	20'–30'	Sp	Grn	F,P	S,I	5–6	1,2	P,O	M	1	?	2
Maple, amur	*Acer ginnala*	15'–20'	Sp	Grn	F,P	B,W,B,S	3–6	All	U.S	M	2	—	1-3
Maple, hedge	*Acer campestre*	25'–35'	—	Grn	F,P	St,S	5–6	1,2	O	S	2	?	2
Mountain ash, American	*Sorbus americana*	10'–30'	Sp	Grn	F	B,S	3–6	All	R,U,S	F	3	Ø	4
Mountain ash, European	*Sorbus aucuparia*	25'–50'	Sp	Grn	P	S	4–6	All	R,U,S	M	3	Ø	1
Olive, Russian	*Elaegnus angustifolia*	20'–45'	Sp	Gry	F	S,W,X	4	All	U,S,O	M	4	$	1,5
Pear, Callery	*Pyrus calleryana* 'Aristocrat' 'Redspire'	25'–35'	Sp	Grn	F	St,S	5–6	1,2	O,P	M	1	?	2
Plum, Blireiana	*Prunus* x *blireiana*	15'–25'	Sp	Red/Pur	F	S	5–6	1,2	O	M	3	?	2
Serviceberry	*Amelanchier* x *grandiflora*	20'–25'	Sp	Grn	F	B	4–6	All	U,O	M	4	—	3
Walnut, Persian	*Juglans regia*	40'–50'	Sp	Grn	F	S	5–6	All	U,O	S	4	Ø	1
Medium Evergreen Trees — 25–50 feet													
Juniper, Rocky Mountain	*Juniperus scopulorum*	20'–40'	—	Gry/Grn	F	B,W,B,N	3–6	All	P,O	S	2	?	1–3
Juniper, Utah	*Juniperus osteosperma*	20'–40'	—	Gry/Grn	F	B,W,B,N	3	All	S,U	S	2	?	—
Pine, limber	*Pinus flexilis*	20'–50'	—	Grn	P	S,N	3–6	All	P	S	1	Ø	1,2,4
Red cedar, eastern	*Juniperus virginiana*	20'–40'	—	Grn/Red	F	B	4	1,2	G,U	S	2	?	1–3
Small Deciduous Trees — under 25 feet													
Fringe tree, Chinese	*Chionanthus retusus*	8'–20'	Sp	Grn	F,P	S,B,St	5–6	1,2	O	M	2	—	3,4
Gamble oak	*Quercus gambelii*	5'–15'	—	Grn	F,P	S	4–6	All	S,U	S	4	—	5
Golden chain tree	*Laburnum* x *watereri*	12'–15'	Sp	Grn	F,P	B,S,St	5–7	1,2	O,R	M	2	?	3,4
Magnolia, star	*Magnolia stellata*	15'–20'	Sp	Grn	F,P	S,I	4–6	1,2	S,O	M	1	?	2,3

Table 1. (cont). Woody plants for Idaho landscapes. (See page 25 for the key to abbreviations used in this table).

		Height	Bloom	Color	Light	Use	USDA	Idaho	Habit	Rate	Wildlife	Utility	Source
Small Deciduous Trees — under 25 feet cont.													
Sumac, smooth	*Rhus glabra*	10'–15'	—	Grn	F	B,S,N,X	3	All	S,W	F	3	—	1
Sumac, staghorn	*Rhus typhina*	15'–25'	Su	Grn	F	B,S,X	3–6	All	S	F	3	—	2,3,5
Small Evergreen Trees — under 25 feet													
Arborvitae	*Thuja occidentalis* 'Globosa' 'Little Gem'	15'–25'	—	Grn	F,P	B	4	All	C,G,U	M	2	?	1
Pine, bristlecone	*Pinus aristata*	8'–20'	—	Grn	F	S,B,I	4–6	All	P	S	1	?	1–4
Pine, mugo	*Pinus mugo* 'Mugo'	15'–25'	—	Grn	F	B,I	3–6	All	S,U	S	2	?	2,4,5
Yew, Hicks	*Taxus* x *media* 'Hicksii'	10'–15'	—	Grn	F,P,S	B,I	4–6	1,2	C,O	F	2	?	3,4
Large shrubs — over 8 feet													
Cherry, Nanking	*Prunus tomentosa*	6'–8'	Sp	Grn	F,P	B,W	3–6	All	P,M	F	3	?	5
Chokeberry, black	*Aronia melanocarpa*	10'–15'	Sp	Grn	F	B,S	4–6	All	G,M	M	4	?	4
Chokeberry, purple fruited	*Aronia prunifolia*	10'–15'	Sp	Grn	F	B,S	4–6	All	G,P	M	3	?	4
Cranberry bush, American	*Viburnum trilobum*	10'–15'	Sp	Grn	F	B	2–7	All	G	F	4	?	3,4
Firethorn	*Pyracantha coccinea*	10'–15'	Sp	Grn	F,P	B,S	5–6	All	S,P	F	3	?	5
Juniper, common	*Juniperus communis*	5'–10'	—	Gry/Grn	F,P	B,N	3–6	All	S,M	M	2	?	5
Lilac, common	*Syringa vulgaris*	8'–15'	Sp	Grn	F	B,W	3–7	All	P,G	M	2	?	4,5
Lilac, late	*Syringa villosa*	8'–15'	Sp	Grn	F,P	B,W	3–7	All	P,G	M	2	?	—
Mock orange, Lewis'	*Philadelphus lewisii*	5'–10'	Su	Grn	F,P	S,B,N	4–6	All	S,O	F	2	*	5
Pea shrub, Siberian	*Cargana arborescens*	15'–20'	Sp	Grn	F	B,W	2–7	All	P	F	2	?	3
Serviceberry, Saskatoon	*Amelanchier alnifolia*	8'–15'	Sp	Gm	F	B,S	4–6	All	P,O	F	4	?	4
Serviceberry, Shadblow	*Amelanchier canadensis*	8'–15'	Sp	Gm	F,P	B,S	4–6	All	P,O	F	4	?	4
Smoke tree	*Cotinus coggyria* 'Purpureus'	10'–15'	Sp	Pur/Grn	F	B,S	5–6	All	O,P	F	2	?	2–4
Snowball, common	*Viburnum opulus* 'Roseum'	10'–15'	Sp	Grn	F,P	S,B	4–6	All	P	F	2	?	5
Snowball, fragrant	*Viburnum* x *carlcephalum*	8'–10'	Sp	Grn	F,P	S,B	4–6	All	P	F	2	*	5
Spirea, bridalwreath	*Spiraea* x *prunifolia*	5'–10'	Sp	Grn	F	B,S	5–6	All	V	F	2	*	8
Spirea, Vanhoutte	*Spiraea* x *vanhouttei*	5'–10'	Sp	Grn	F	B,S	4–6	All	V	F	2	*	8
Viburnum, arrowwood	*Viburnum dentatum*	6'–8'	Sp/Su	Grn	F,P	S,B	2–7	All	P,G	M	2	*	4

Table 1. (cont). Woody plants for Idaho landscapes. (See page 25 for the key to abbreviations used in this table).

		Height	Bloom	Color	Light	Use	USDA	Idaho	Habit	Rate	Wildlife	Utility	Source
Large shrubs — over 8 feet cont.													
Viburnum, Siebold	*Viburnum sieboldii*	15'–20'	Sp	Grn	F,P	B,S	4–6	1,2	U,O	F	4	?	3
Yew, hybrid	*Taxus* x *media*	5'–15'	Sp	Grn	F,P,S	B	4–6	All	C	M	2	?	5
Yucca	*Yucca flaccida*	4'–7'	Su	Gry/Grn	F	S	4–6	All	O	M	2	*	5
Small shrubs — 3–5 feet													
Almond, dwarf flowering	*Prunus glandulosa*	4'–6'	Sp	Grn	F,P	B	4–6	All	M,S	M	4	*	5
Almond, dwarf Russian	*Prunus tenella*	4'–5'	Sp	Grn	F,P	B	2–6	All	M,S	M	4	*	4
Barberry, Japanese	*Berberis thunbergii*	3'–6'	Sp	Red/Gry	F,P	S,B	4–6	—	P,S	M	3	*	5
Burning bush, dwarf	*Euonymus alatus* 'Compactus'	3'–6'	Sp	Grn	F,P	B,S	3–6	1,2	G,P	F	3	*	4,5
Ceanothus, Fender	*Ceanothus fendleri*	1'–2'	Sp	Gry/Grn	F,P	S,B,N,X	4–6	All	S,P	F	2	*	5
Cinquefoil, shrubby	*Potentilla fruticosa*	1'–4'	Su	Grn	F	B	2–6	All	M	M	1	*	4
Cotoneaster, cranberry	*Cotoneaster apiculatus*	3'–4'	Sp	Grn	F,P	B	5–6	1,2	M	F	3	*	4,5
Cotoneaster, rock	*Cotoneaster horizontalis*	3'–4'	Sp	Grn	F,P	B	4–6	1,2	M	F	3	*	5
Currant, alpine	*Ribes alpinum*	3'–5'	Sp	Grn	F,P	S,B,N	3–6	All	G,M	F	3	*	5
Dogwood, red twig	*Cornus sericea*	7'–9'	Sp	Grn	F,P	B,W,N	2–6	All	S,U	F	3	—	—
Dogwood, Tatarian	*Cornus alba*	8'–10'	Sp	Grn/Red	F,P	B,W	2–6	All	S,U	M	—	*	4
Firethorn, compact	*Pyracantha angustifolia* 'Gnome'	12"–15"	Su	Grn	F	I	5–6	All	S	M	3	*	8
Juniper, Chinese	*Juniperus chinensis* 'Gold Coast' 'Mint Julep'	2'–10'	—	Grn/Yell	F	B,S	4–6	All	Various	M,F	1	*	4
Oregon grape holly	*Mahonia aquifolium* 'Compactum'	3'–6'	Sp	Red/Grn	F	S,B	4–6	All	S	M	3	*	4,5
Rhodendendron, azalea	*Rhododendron* spp.	0.5'–5'	Sp	Grn/Gry	P	B,S	4–6	1,2	U,M	M,S	2	*	4
Sand cherry, western	*Prunus besseyi*	7'–10'	—	Grn/Gry	F	B,N	2–6	All	M	M	3	*	4
Snowberry	*Symphoricarpos albus*	3'–6'	Sp	Grn	F,P	N	3–6	All	U,M	M	4	*	4
Spruce, dwarf Norway	*Picea abies* 'Nidiformis' 'Procumbens'	2'–4'	—	Grn/Gry	F	B,S	2–6	All	Various	S	1	*	4
Sumac, scented	*Rhus trilobata* 'Lemonade Sumac' 'Skunkbush Sumac'	3'–5'	Sp	Grn	F	N,X	3–6	All	P,S	M	3	*	8

Table 1. (cont). Woody plants for Idaho landscapes. (See page 25 for the key to abbreviations used in this table).

		Height	Bloom	Color	Light	Use	USDA	Idaho	Habit	Rate	Wildlife	Utility	Source
Ground Covers													
Bunchberry	*Cornus canadensis*	6”–9”	Sp	Grn	P,S	I,N	5–6	1,2	S	M	3	*	8
Checkerberry, mountain	*Gaultheria ovatifolia*	8”	Su	Grn	P,S	N	5–6	All	S	M	4	*	8
Cotoneaster, creeping	*Cotoneaster adpressus*	8”–12”	Sp	Grn	F,P	S	4–6	All	S	M	2	*	5
Crowberry	*Vaccinium vitis-idaea*	12”	Sp	Grn	P	I	3–6	1,2	S	S	3	*	8
Germander	*Teucrium chamaedrys* var. *prostratum*	4”–12”	Su	Grn	F	I	3–6	All	S	M	1	*	8
Honeysuckle, Halls	*Lonicera japonica* ‘Halliana’	6”–12”	Sp	Grn	S	I	3–6	All	S	F	2	*	5
Juniper, creeping	*Juniperus horizontalis* ‘Bar Harbor’ ‘Blue rug’ (also called ‘Wiltoni’)	12”–16”	—	Grn/Blu	F,P	S,N	3–6	All	S	M	2	*	4,5
Juniper, singleseed	*Juniperus squamata*	4”–6”	—	Grn	F	N,X	5–6	1,2	S	M	1	*	4
Kinnikinnick	*Arctostaphylos uva-ursi*	4”–6”	Sp	Grn	S,P	N,X	3–6	1,3	S	M	4	*	5
Mahonia	*Mahonia repens*	6”–12”	Sp	Red/Grn	S,P	N,X	4–6	All	S	M	4	*	5
Paxistima, Canby	*Paxistima canbyi*	1’–2’	Sp	Grn	F,P	B,N,I	4–6	All	M	M	1	*	4
Periwinkle	*Vinca minor*	4”–6”	Sp	Grn	S	I	3–6	All	S	F	2	*	5
Saint-John’s-wort	*Hypericum calycinum*	12”–18”	Su	Grn	F,S	X	5–6	All	S	F	1	*	8
Silverwood	*Genista pilosa*	12”–15”	Su	Grn	F	N	5–6	1,2	S	F	1	*	8
Spurge, Japanese	*Pachysandra terminalis* ‘Green Carpet’	6”–10”	Su	Grn	P,S	I	4–6	All	S	F	1	*	8
Sun rose	*Helianthemum nummularium*	6”–8”	Su	Grn/Gry	F	X	3–6	All	S	M	1	*	8
Wintergreen, creeping	*Gaultheria procumbens*	6”	Su	Grn	P	I	3–6	1,2	S	M	4	*	8
Vines													
Akebia, fiveleaf	*Akebia quinata*	15’–20’	Sp	Grn	All	I	4–6	All	S	M	2	?	8
Bittersweet	*Celastrus* spp.	10’–40’	Sp	Grn	F	I	3–6	All	S	M	2	?	8
Clematis	*Clematis* spp. x *jackmanii* ‘Henryi’ ‘Nelly Moser’	8’–20’	Sp, Su, F	Grn	P	I	4–6	All	S	F	1	*	8
Clematis, evergreen	*Clematis armandii*	15’–20’	Sp	Grn	P	I	7	1,2	S	F	1	*	8
Euonymus, wintercreeper	*Euonymus fortunei* ‘Canadale Gold’ ‘Coloratus’ ‘Emerald Gaiety’	20’–30’	Sp	Grn	F,P	I	3–6	All	S	F	2	*	8

Table 1. (cont). Woody plants for Idaho landscapes. (See page 25 for the key to abbreviations used in this table).

		Height	Bloom	Color	Light	Use	USDA	Idaho	Habit	Rate	Wildlife	Utility	Source
Vines (cont.)													
Grape	*Vitis riparia*	10'–15'	Su	Grn	P	I	3–6	All	S	F	4	*	9
Honeysuckle, Japanese	*Lonicera japonica* 'Aureo-reticulata' 'Halliana' 'Purpurea'	10'–15'	Sp	Grn	P	I	4–6	All	S	F	1	?	8
Honeysuckle, trumpet	*Lonicera sempervirens*	10'–15'	Sp	Grn	P	I	4–6	All	S	F	1	?	8
Hop	*Humulus lupulus*	15'–30'	Su	Grn	F	I	3–6	All	S	F	1	?	8
Hydrangea, climbing	*Hydrangea anomala* subsp. *petiolaris*	8'–15'	Sp	Grn	P	I	3–6	All	S	S	2	*	8
Ivy, Boston	*Parthenocissus tricuspidata*	20'–50'	—	Grn	All	I	4–6	All	S	F	2	?	8
Ivy, English	*Hedera helix* 'Arborescens' 'Baltica' 'Bulgarica'	10'–30'	—	Grn	P,S	I	4–6	All	S	F	1	?	8
Kiwi, hardy	*Actinidia arguta* 'Ananasnaja' 'Hood River' 'Issai'	20'–50'	Sp	Grn	F	I	4–6	All	S	F	3	*	8
Rose	*Rosa* spp. 'Blaze' 'Royal Sunset' 'White Dawn'	6'–15'	Sp,Su,F	Grn	F,P	I	3–6	All	S	M	3	*	8
Trumpet vine	*Campsis radicans*	10'–40'	Sp	Grn	F,P	I	4–6	All	S	F	1	?	8
Virginia creeper	*Parthenocissus quinquefolia*	10'–50'	—	Grn	All	I	3–6	All	S	F	2	?	8
Wisteria	*Wisteria* spp.	10'–40'	Sp	Grn	F,P	I	5–6	All	S	F	1	?	8

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Further Reading and Resources

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National Arbor Day Foundation. **http://www.arborday.org.**

Pacific Northwest Chapter, International Society of Arboriculture. **http://pnwisa.org/.**

MAPS

Arbor Day Foundation. Hardiness Zone Map. **https://www.arborday.org/media/zones.cfm.**

USDA Plant Hardiness Zone Map. **https://planthardiness.ars.usda.gov/.**

Acknowledgments

The authors thank the Arbor Day Foundation for providing illustrations taken from *Tree City USA Bulletins* and the City of Lewiston for permission to use the listings on pages 12 and 18.

Chapter 18 published 1998. Revised 2013.