The image features a central photograph of several vibrant purple flowers with many thin, radiating petals, set against a dark green background. This central image is framed by a border of bright, flowing orange and yellow flames. Overlaid on the central image is the title text in a bold, white, sans-serif font with a black outline. The title is arranged in four lines: 'FIRE RESISTANT PLANTS', 'FOR', 'CHELAN/DOUGLAS COUNTY', and 'WASHINGTON'. Below the title is a subtitle in a smaller, italicized white font with a black outline: 'A Step-by-Step Guide for Choosing the Right Plant for the Right Place'.

FIRE RESISTANT PLANTS
FOR
CHELAN/DOUGLAS COUNTY
WASHINGTON

*A Step-by-Step Guide for Choosing
the Right Plant for the Right Place*

Thanks to our funding partners:



Chelan/Douglas County

Master Gardener
Program

WASHINGTON STATE UNIVERSITY
EXTENSION



WILDFIRE

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Introduction

for the Fire Resistant Plants for Chelan and Douglas Counties of Washington

A well-designed landscape around a home is key to reducing the risk of loss from a wildland fire. Maintaining that landscape is essential to providing defensible space for the home and for providing for the safety of firefighters when a wildland fire occurs.

All vegetation is potential fuel for a fire. There is no absolutely fire-proof vegetation. All plants will burn if the conditions are right. There are, however, plants that are FIRE-PRONE, and those that are FIRE-RESISTANT. The use of fire-resistant vegetation and proper maintenance are paramount in reducing the risk of home losses in the Wildland Urban Interface (WUI).

Landscapes change over time. Plants mature to their genetically predetermined size. We often landscape with small, young plants only to be amazed at the mature size some plants achieve years later. Plan ahead! Plant the appropriate plants in the correct areas. To minimize fire danger, keep in mind plants' sizes at maturity and appropriate plant location. When selecting plants and plant locations, consider these major points:

- **Climate & Soil:** Is the selected plant hardy for the climate zone? Will it grow well in the type of soil it is going to be planted in?
- **Root Space:** Are the roots of the plant going to cause future problems to areas such as septic drain fields, sidewalks, or foundations in the selected location?
- **Plant Height:** Does the selected plant have the room to grow to its pre-determined genetic height in the selected area?
- **Plant Spread:** Does the selected plant have room to spread to its pre-determined genetic width?

Design the landscaping to include a combination of fire-resistant vegetation and non-combustible materials such as decorative bricks, walls, paths, patios, rock mulches, and other attractive fire-resistant features.

Purpose

The purpose of this publication is to provide building owners guidance and education about ways to landscape property with fire-resistant plants. Fire-resistant plants placed in the appropriate areas around homes and businesses, coupled with proper maintenance, can help reduce damage from wildland fires.

Objectives

- Provide homeowners, businesses, and landscapers in the Chelan and Douglas County region with examples of plant species to use in landscapes to lessen the potential for losses from wildland fires.
- Inform residents about landscaping techniques which can be used in fire-prone environments to reduce the risk of experiencing loss from a wildland fire.
- Understand the need and value of planting different types of plants in different areas around a structure in the Wildland Urban Interface (WUI).
- Gain an appreciation of favorable plant attributes that are more fire-resistant.
- Understand less-favorable plant attributes that are more fire-prone and, therefore, less desirable in close proximity to a structure.

Fire occurrence in North Central Washington

On average, wildland fires occur in Chelan and Douglas counties between every six and 30 years. Wildland fire has been a part of the Columbia River Basin ecosystem since the retreat of the Continental glaciers more than 10,000 year ago. Wildland fire is an essential part of the environment in this area. It serves as a key component in maintaining a healthy and productive ecosystem. To minimize fire risks in the fire-prone environment of the Columbia Basin,

Introduction

property owners should properly site buildings, use appropriate construction materials, and select fire-resistant plants in their landscapes.

Firebrands (Sparks or Embers)

Wildfire threatens homes in three ways: direct contact by flames, radiated heat, and firebrands (burning embers). More homes burn due to firebrands than due to any other cause. When fire conditions are right, firebrands can be lofted high into the air and transported more than a mile from the main fire. Firebrands also can be carried by wind and fire whirls. If firebrands land in easily ignitable materials such as dried grass, fallen leaves, wood shake roofs, leaf or needle-filled gutters, a new fire easily can start. Home owners can take action to reduce the ignition potential on and immediately adjacent to the home to combat incoming firebrands.

Disclaimer

This document contains suggestions and recommendations based on professional judgment, experience, and research. It is intended to serve only as a guide. The compilers of the information contained in this document and the publisher disclaim all warranties with respect to the information in the document and assume no liability or responsibility with respect to the information contained herein.

How to Use this Publication

The plants in this guide are divided into seven (7) categories. The seven (7) categories are ground covers, herbaceous perennials, vines, deciduous shrubs, evergreen shrubs, non-turf grasses, and trees. The plants listed are alphabetized within each category by their scientific name (botanical name), which is followed by the common name. Scientific names are used because most plants have several common names, but only one scientific

name. Along with the plant name and photo, you'll find some information about the plant and icons that give a quick indication of the plant's cultural requirements. Short comments provide information about the unique qualities or specific problems of each plant. This information can help in the selection of plants that meet the needs and preferences of the gardener and his/her landscape.

Fire Resistance

Some landscape plants are described and marketed as fire-resistant. It is important to remember, given certain conditions, that all plants can burn regardless of how they are classified. In general, select plants that are low-growing, open-structured, and less-resinous (oily or waxy). Plant maintenance and placement are equally important as the species of plants selected for the site. Maintenance and landscape management (e.g., pruning, watering, and cleanup) have a greater impact on whether or not a plant ignites than does the species. When choosing plants for a fire-resistant landscape, select plants with the following characteristics:

- **High moisture content in leaves (these ignite and burn more slowly).**
- **Little or no seasonal accumulation of dead vegetation.**
- **Open branching habits (they provide less fuel for fires).**
- **Fewer total branches and leaves (again, less fuel for fires).**
- **Slow-growing, so less pruning is required (to keep open structure as noted above).**
- **Non-resinous material on the plant (i.e. stems, leaves, or needles that are not resinous, oily, or waxy). Junipers, pines, spruces, and firs are resinous and highly flammable.**

Introduction

Landscape with Noncombustible Materials

Using masonry, gravel, or stone walls to separate plant groups adds to the variety and improves the fire resistance of a landscape by breaking up fuel continuity. Use decorative rock, gravel and/or stepping stones in pathways. Cement driveways, walkways, water features and retaining walls also break up continuity. Replace bare, weedy, or unsightly patches of ground near your home with groundcover, turf grass, non-turf grasses, rock gardens, vegetable gardens, and inorganic mulches.

Mulches

Mulches used around the landscape are valuable because they conserve moisture and help reduce weed growth. Organic mulches, such as bark, are often used. However, firebrands from a wildland fire can ignite dry bark mulch, conveying the fire to a building. Consider using less-flammable types of mulch such as gravel or decorative rock, or a combination of wood bark mulch surrounded by decorative rock mulch. Choose the location of plants or garden beds that require organic mulches carefully so not too much bark mulch is near the home or outbuildings. Fine (less than 1/4 inch particles) or stringy organic mulches ignite and burn more rapidly than larger chunks. When exposed to fire, thick mulch layers (greater than 2 inches deep) tend to smolder and are difficult to extinguish. Do not use wood or bark mulches within 3 to 5 feet of the house. Instead consider colored rock, rock cinders (scoria, sometimes referred to as lava rock), pavers or other non-flammable, inorganic materials.

Building Materials

The home design, location, construction materials, and access all influence its survivability during a wildland fire. The most exposed portion of your home is the roof. Class C or better roofing offers fire resistance and greatly improves the likelihood of the structure surviving a wildland fire. The use of fire-resistant building materials such as cement board

siding, dual-pane windows, boxing in eaves, and metal screening (1/8" or less) covering vents reduces the probability of ignition of one's home. Make sure decks and fencing are in good repair and free of clutter and debris. Remember, if it is attached to your house, it is part of your house! Consider the use of metal gates and other non-flammable materials to separate fences and decks from your home. Lawn furniture, decorations and other flammable items may serve as receptor of firebrands and pose an increased risk to your home. See www.firewise.org for additional information about building materials and construction standards.

Defensible Space

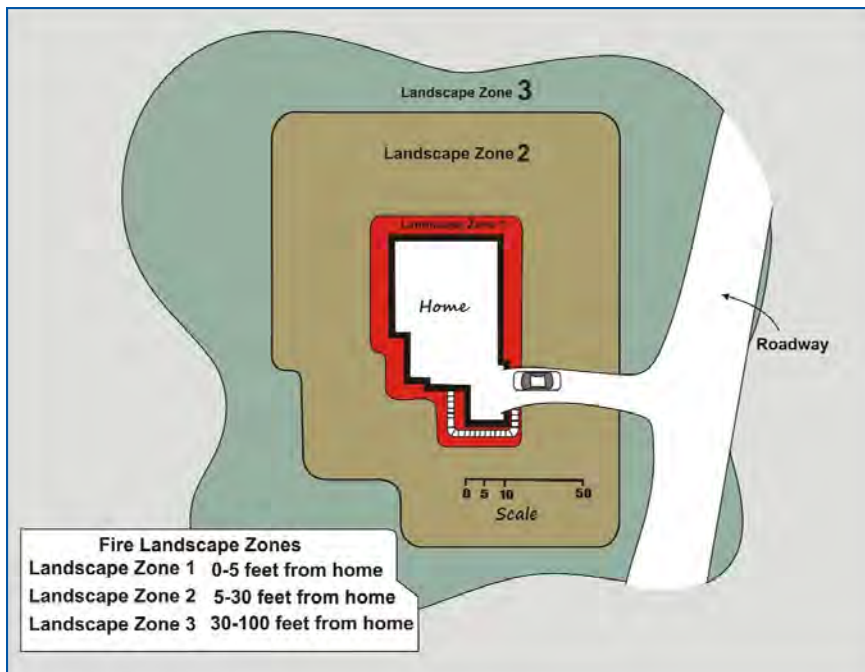
The most important person in preventing a structure from burning in a wildland fire is the property owner. Home owners, not fire departments, have the responsibility to take action before a fire ever happens. Actions taken **before** the fire often determine the final outcome. Creating defensible space around a home is one of the most important and effective steps one can take to protect families, firefighters and homes from catastrophic wildfire. Defensible space is the area between a structure and an oncoming wildfire (or between a burning structure and wildland vegetation) where nearby vegetation has been modified to reduce a wildfire's intensity and ability to spread. Having a defensible space not only protects homes, it also helps protect those who are defending homes by providing safe ingress and egress.

Introduction

Home Ignition Zone and Landscape Zones

The Home Ignition Zone (HIZ) begins at the home and extends out as far as 100 to 200 feet depending on the characteristics of adjacent lands. Keeping and maintaining the Home Ignition Zone lean, clean and green reduces ignition risk and the fire spread potential. Within the Home Ignition Zone, a fire-resistant landscape can be created by reducing flammable fuels. A method to accomplish this is to establish landscape zones that start at the home and move progressively outward. These Landscape Zones (LZ) within the Home Ignition Zone can be used when selecting fire-resistant vegetation in fire-prone environments.

Landscape Zone 1, (LZ1), is the area five feet out from the home or structure when constructed with one-hour flame-resistant siding and 10 feet from a structure constructed with a non-flame-resistant siding. Nothing flammable should be planted or placed in this zone. This includes trees, brush, tall grass, leaves, firewood piles, bark mulch, and other flammable materials. Carefully examine under decks and in dense vegetation for accumulated dead material and debris. Prune trees that have branches and foliage that hang into Landscape Zone 1 to eliminate the possibility of fire moving to the structure. Within this zone low-flammable plants can be planted; assure they are properly cared for and maintained. The desired categories of plants in LZ1 are groundcovers, vines, sod grasses, bulbs, and annual and perennial herbaceous plants.



Landscape Zone 2, (LZ2), is the area five to 30 feet from the house or structure. Maintain a well-kept lawn or other suitable landscape in this area. Avoid evergreens that ignite easily and burn quickly. Use raised beds, rock gardens, stone walkways, walls, water features, and patios to create visual interest and fuel breaks. Trees planted in LZ2 should have both a vertical and horizontal clearance distance of at least 30 feet from the house or structure at mature height and spread. Leave 10 to 15 feet of space between the edges of tree crowns to avoid fire transfer. The desired categories of plants in LZ2 are groundcovers, turfgrass, vines, sod grasses, bulbs, annual and perennial herbaceous plants, broadleaf evergreen

and deciduous shrubs, small and medium sized deciduous trees, and select non-turf grasses.

There are three Landscape Zones:

Landscape Zone 1 is closest to the home, while Landscape Zones 2 and 3 subsequently extend out from the structure 30 feet and 100 feet, respectively. Within this Home Ignition Zone of 100 feet this publication makes recommendations for specific fire-resistant plants suitable for Landscape Zones (1, 2 and 3).

Landscape Zone 3, (LZ3), is the area 30 to 100 feet from the house. Remove yard debris and thin vegetation for a distance of 30 feet away from the house or structure. Properly designed driveways within LZ3 can provide a fuel break as well as safe ingress and egress for fire suppression resources. On slopes greater than 20%, one should extend the

Introduction

thinning of vegetation to 100 feet or more on the downhill side of the home or structure. Shrubs and ground covers should be selected based on mature height, not the size at the time of planting. Low and moderately flammable plants are acceptable in this location. Density of plant material also should be minimized. Brush and weeds should be mowed at least annually. Terracing of steep slopes will help

slow wildfire spread, but this depends on wind speed and fuel availability. Trees in LZ3 should have a minimum of 10 to 15 feet of space between tree crowns to prevent the spread of fire. Desired categories of plants in LZ3 include groundcovers, vines, turfgrass, annual and perennial herbaceous plants, broadleaf evergreen and deciduous shrubs and deciduous trees, and non-turf grasses.

Landscape Zones 1, 2, 3 The Landscape Zones in the Home Ignition Zone (HIZ)

- ▶ **Zone 1:** 0-5 feet if the structure has one-hour flame-resistant siding OR 0-10 feet if the structure has non-flame-resistant siding. In this zone, use plants and materials with very low ignition potential.
- ▶ **Zone 2:** 10-30 feet. In this zone, use plants that are well spaced, pruned up, lean, clean, and green. Avoid dead fuels to create a very low fire-spread potential.
- ▶ **Zone 3:** 30-100+ feet. In this zone, use well-spaced and pruned-up plants to minimize potential for crown ignition. Native vegetation is acceptable. The intent is to keep any ignition at a low intensity.

Zone 1: Within 10 feet of the structure

- ▶ Plant no trees or shrubs.
- ▶ Use only inorganic mulch. (Rubber mulch is not acceptable for use.)
- ▶ Plant fire-resistant plants with high moisture content.

Zone 2: Within 10-30 feet from the structure

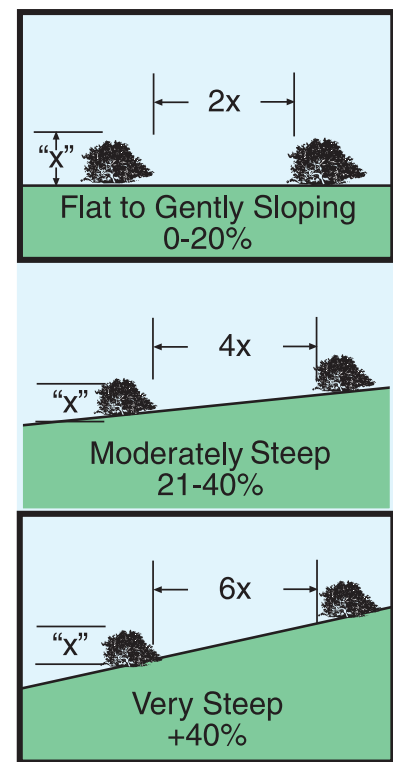
- ▶ Plant single trees that are pruned at least 10' from the ground.
- ▶ Plant single shrubs. Keep well groomed.
- ▶ Clean up dead fuels.
- ▶ Eliminate continuous ground fuel and ladder fuels.

Zone 3: Within 30-100 feet from the structure

- ▶ Maintain well-spaced trees with crowns well separated.
- ▶ Eliminate ladder fuels.
- ▶ Minimize ground/surface fuels.
- ▶ Keep shrubs pruned, thinned, and well-spaced.

Recommended Separation Distances for Shrubs and Small Conifers

For areas with dense brush and small conifer trees, the recommended separation distance is dependant upon shrub height and steepness of slope. Specific recommendations are presented below.



Note: Separation distances are measured between canopies (outermost branches) and not between trunks.

For example, if your home is located on a 10% slope and the brush is four feet tall, the separation distance would be two times the shrub height or eight feet. The recommended separation distance can be accomplished by removing plants or through pruning that reduces the diameter or height of shrubs (shorter height means less separation is needed). Removal works best for sagebrush. For shrubs which readily resprout, pruning to reduce height may be the best approach.

Categories of Plants

Groundcovers

A category of low-growing or trailing plants generally used to carpet the ground. These plants are used to cover bare ground and create a uniform appearance. Groundcovers are ideal for Landscape Zone 1. These plants can be utilized in all three landscape zones (LZ 1, 2, or 3) to provide cover and diversity to one's yard. They are low to the ground, generally have high moisture content, usually require low maintenance, and are, in most cases, difficult to ignite.

Herbaceous Perennials

Plants in this category have soft rather than woody tissues, die to the ground in winter, and re-sprout the following spring. These plants can be planted in Landscape Zone 1 as well as in Landscape Zones 2 and 3. These plants can add a wide variety of color and texture to a landscape.

Vines

Plants in this category have long, slender stems. They trail or creep on the ground, or climb by winding themselves about a support or holding fast with tendrils or claspers. These plants can be used in Landscape Zones 2 or 3. If vines are used in Landscape Zone 1, annual maintenance to remove the previous year's growth and dead vegetation is required to maintain healthy growth and keep the vines fire-resistant. Without proper maintenance all deciduous vines will act as ladder fuels. **Only use vines in Landscape Zone 1 if they are properly maintained.** Proper placement and grooming help keep vines in a desired location while meeting the landscape objectives.

Shrubs

Shrubs are woody plants smaller than a tree. They have multiple permanent stems branching from or near the ground. In this publication, the shrubs are separated into two categories: deciduous and broadleaf evergreen. Shrubs can be planted in Landscape Zones 2 or 3. It is recommended not to use shrubs in Landscape Zone 1 due to the ignition potential and the fire intensity that shrubs can produce. When using shrubs in Landscape Zone 2, only small shrubs should be located near the home. The size of the shrub can increase as the distance from the home increases.

Deciduous Shrubs

These are woody, multi-stemmed plants that lose their leaves in fall and become dormant during the winter. Plants shed their leaves as an adaptation to prevent winter damage.

Broadleaf Evergreen Shrubs

These are woody, multi-stemmed plants that retain their leaves throughout the year. Broadleaf evergreen shrubs do shed their leaves, but only a few at a time and on a constant cycle, so there never appears to be any change. Broadleaf evergreen shrubs can provide year-round screening/privacy and are much more fire-resistant than coniferous evergreen shrubs. (Note: Plants that hold their leaves through winter may suffer winter damage due to the cold and dry climate in our area. These plants usually will put on new healthy green leaves in the spring.)

Non-Turf Grasses

These generally are non-lawn-forming grasses, native or naturalized to the area. In most cases, they are non-invasive. Sometimes referred to as "conservation grasses," they generally are deep-rooted, grow taller than turfgrasses (lawn grasses) and produce more flowering shoots than lawn grasses. Most non-turf grasses have deep roots and -- once established -- require little irrigation.

The primary objective of including non-turf grasses in this document is to provide alternatives to some of the non-native invasive plants that are common to the Chelan and Douglas County region. Cheatgrass (*Bromus tectorum*) (as well as several other introduced species) poses a high fire hazard in this area. The grasses listed here are less of a fire hazard and offer several other benefits that may be desirable to home owners. Bunch grasses generally remain green two to four weeks longer than cheat grass and -- if ignited -- fire is generally less severe. All grasses, once dried, can become a fire hazard. For this reason they need to be mowed/cut to reduce the intensity and rate of spread of a potential wildland fire. There are several grass species listed here that are able to reduce the density of cheat grass. The probability of eliminating cheat grass entirely from a site is not high without intensive rehabilitation efforts over an extended period.

Trees

Trees are woody perennial plants that have a single stem (trunk) generally growing to a height greater than 20 feet. A tree has a crown with lateral branches starting well above ground level. There are two main categories of trees: deciduous and conifer. Most broadleaf trees hardy in Chelan and Douglas counties are deciduous. Conifers, cone-bearing trees, make up the majority of evergreen trees that grow well here.

Key for Symbols



Prefers full sun (6 or more hours).



Prefers part shade.



Prefers full shade (6 or more hours).
Avoid afternoon sun.



Very low water-use plant; performs well in dry sites.



Low water-use plant; performs well with minimal supplemental irrigation.



Moderate water-use plant; performs well with supplemental irrigation.



High water-use plant performs well with regular irrigation.

Groundcovers



Ajuga reptans
Carpet bugleweed
Hardiness Zone 4-8
Size H/W 4"x24"
Succulent no
Landscape Zone
 1, 2 or 3

Characteristics & Problems

This low-growing bugleweed will spread by stolons to form an attractive, mat-like ground cover.



Antennaria dioica
Rubra' pussytoes
Hardiness Zone 3-9
Size H/W 6"x12"
Succulent no
Landscape Zone
 1, 2 or 3

Characteristics & Problems

Tiny white to pale pink flowers bloom in late spring to early summer on stems rising to 10" tall.



Antennaria rosea
Pink pussytoes
Hardiness Zone 4-7
Size H/W 12"x12"
Succulent no
Landscape Zone
 1, 2 or 3

Characteristics & Problems

Establishes quickly. Ideal for erosion control in dry areas where few other flowers will grow.



Arctostaphylos uva-ursi
Kinnickinnick
Hardiness Zone 4-8
Size H/W 6"x15"
Succulent no
Landscape Zone
 2 or 3
Characteristics & Problems

Fruit green in summer, ripening to red in fall. Fruit sometimes remains throughout winter.



Aubrieta deltoidea
Rockcress
Hardiness Zone 4-8
Size H/W 8"x15"
Succulent no
Landscape Zone
 1, 2 or 3

Characteristics & Problems

Low-growing, mat-forming habit. Ideal for rock gardens and front of borders. Produces vivid purple-red flowers in late spring and early summer.



Aurinia saxatilis
Basket-of-gold
Hardiness Zone 4-7
Size H/W 2"x15"
Succulent no
Landscape Zone
 1, 2 or 3

Characteristics & Problems

Low-growing, spreading habit. Produces profuse bright yellow spring blossoms that are particularly attractive in rock gardens.



Groundcovers



Bellium minutum
Miniature mat daisy
Hardiness Zone 5-9
Size H/W 12"x36"
Succulent no
Landscape Zone
 2 or 3

Characteristics & Problems

Bellium covers itself with blooms all through spring and early summer.



Cerastium tomentosum
Snow-in summer
Hardiness Zone 3-7
Size H/W 12"x3"
Succulent no
Landscape Zone
 1, 2 or 3

Characteristics & Problems

A short-lived, low-growing, mat-forming perennial which is typically massed in sunny locations.



Ceratostigma plumbaginoides
Hardy plumbago
Hardiness Zone 5-9
Size H/W 8"x48"
Succulent no
Landscape Zone
 1, 2 or 3

Characteristics & Problems

A wiry, mat-forming perennial which spreads by rhizomes to form an attractive ground cover.



Convallaria majalis
Lily-of-the-valley
Hardiness Zone 3-8
Size H/W 2"x8"
Succulent no
Landscape Zone
 1, 2 or 3

Characteristics & Problems

Bell-shaped, sweetly fragrant, white flowers (corollas to 1/3" long) which bloom in early to mid-spring. For use in shady areas where aggressive spreading is desired.



Delosperma nubigenum
Yellow iceplant
Hardiness Zone 4-10
Size H/W 3"x30"
Succulent yes
Landscape Zone
 1, 2 or 3

Characteristics & Problems

Mat-forming species that reportedly has the best winter hardiness of the ice plants currently in cultivation. It typically grows to only 2" tall but spreads to 20" wide.



Dianthus species & hybrids
Pinks
Hardiness Zone 2-9
Size H/W 12"x16"
Succulent no
Landscape Zone
 1, 2 or 3

Characteristics & Problems

Flowers bloom from late spring to late summer with continued but somewhat sporadic additional bloom into fall.



Groundcovers



Fragaria species & cultivars
Strawberries
Hardiness Zone 3-9
Size H/W 9"x24"
Succulent no
Landscape Zone 1, 2 or 3

Characteristics & Problems

Several varieties and cultivars available.



Marrubium rotundifolium
Silver edged horehound
Hardiness Zone 4-9
Size H/W 10"x18"
Succulent no
Landscape Zone 1, 2 or 3

Characteristics & Problems

One of the best xeric groundcovers for poor soil areas with hot, sunny growing conditions.



Pachysandra terminalis
'Green Sheen'
Japanese spurge
Hardiness Zone 4-9
Size H/W 8"x15"
Succulent no
Landscape Zone 1, 2 or 3

1, 2 or 3

Characteristics & Problems

Flowers are not particularly showy, but on close inspection are quite attractive.



Penstemon davidsonii v. menziesii
Green mat penstemon
Hardiness Zone 4-8
Size H/W 2"x12"
Succulent no
Landscape Zone 1, 2 or 3

Landscape Zone 1, 2 or 3

Characteristics & Problems

Evergreen, with beautiful flowers that are very attractive to hummingbirds.



Phlox subulata
Creeping phlox
Hardiness Zone 4-8
Size H/W 6"x24"
Succulent no
Landscape Zone 2 or 3

Characteristics & Problems

A vigorous groundcover phlox that blooms in mid-spring.



Saponaria ocymoides
Rock soapwort
Hardiness Zone 2-10
Size H/W 6"x24"
Succulent no
Landscape Zone 1, 2 or 3

Characteristics & Problems

Lovely pink flowers in spring draw attention.



Groundcovers



Sedum lanceolatum
Yellow stonecrop
Hardiness Zone 5-9
Size H/W 4"x12"
Succulent yes
Landscape Zone 1, 2 or 3

Characteristics & Problems

Cannot grow in shade. Thrives in dry or moist soil and can tolerate drought.



Sempervivum tectorum & cultivars
Hens & chicks
Hardiness Zone 4-10
Size H/W 6"x10"
Succulent yes
Landscape Zone

1, 2 or 3

Characteristics & Problems

Primarily grown in gardens for their attractive and unusual foliage.



Stachys byzantina
Lambs' ear
Hardiness Zone 4-8
Size H/W 4"x24"
Succulent no
Landscape Zone 2 or 3

Characteristics & Problems

Leaves evergreen in warm climates, but will depreciate considerably in harsh winters.



Thymus praecox
Creeping thyme
Hardiness Zone 4-10
Size H/W 2"x48"
Succulent no
Landscape Zone 2 or 3

Characteristics & Problems

Clusters of tiny, tubular, whitish-to-rose-purple flowers appear in summer. Flowers are attractive to bees.



Veronica liwanensis
Speedwell
Hardiness Zone 3-8
Size H/W 1"x18"
Succulent no
Landscape Zone 1, 2 or 3

Characteristics & Problems

Small erect clusters of blue flowers appear above the foliage (to 2" tall) in late spring, covering the mat with a profuse blossoms. Can be invasive into lawns.



Vinca minor
Lesser periwinkle
Hardiness Zone 4-8
Size H/W 6"x18"
Succulent no
Landscape Zone 1, 2 or 3

Characteristics & Problems

Tubular, lavender blue, phlox-like flowers (to 1" across) appear in the leaf axils in spring and continue to flower intermittently throughout summer into fall.



Groundcovers

Aegopodium podagraria

Bishop's weed

Hardiness Zone 4-9

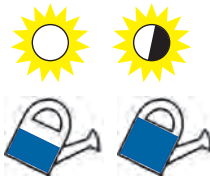
Size H/W 6"x24"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Becomes invasive if over watered. Good for shady areas.



Antennaria microphylla

Little-leaf pussytoes

Hardiness Zone 3-8

Size H/W 6"x18"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Ideal for open sunny places or is good for rock gardens and around stepping stones and pathways.



Antennaria parvifolia

Small-leaf pussytoes

Hardiness Zone 4-7

Size H/W 2"x24"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Blooms first appear in early spring and continue into late spring. Features small, tubular flower heads in tight terminal clusters.



Arabisspecies & cultivars

Rockcress

Hardiness Zone 4-7

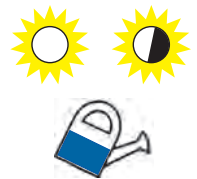
Size H/W 6"x6"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Easily grown in gritty or sandy, well-drained soils in full sun. Tolerates hot, dry conditions.



Artemisia schmidtiana 'Silvermound'

Silver mound artemisia

Hardiness Zone 3-9

Size H/W 2"x8"

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Silvery, aromatic foliage is finely textured with silky pubescence. Excellent accent for borders.



Artemisia caucasica

Silver spreader

Hardiness Zone 4-7

Size H/W 5"x24"

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Prostrate low grower.



Artemisia stelleriana

Silver brocade

Hardiness Zone 2-9

Size H/W 6"x24"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Plants form a spreading mat of bright silvery-white scalloped leaves.



Artemisia viridis

Creeping artemisia

Hardiness Zone 3-8

Size H/W 2"x8"

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Needs some shade.



Groundcovers

Aubrieta species & cultivars

False rockcress

Hardiness Zone 4-7

Size H/W 2"x15"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Colorful flowers cover plants in spring. Flowers generally four-petaled, cross-shaped and can be purple, pink or white.



Callirhoe involucrata

Poppy mallow

Hardiness Zone 4-8

Size H/W 6"x36"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Plants typically form a low foliage mound from 6-9" tall on procumbent stems which spread along the ground to 3' wide.



Campanula poscharskyana

Serbian bellflower

Hardiness Zone 3-8

Size H/W 6"x18"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Prostrate, sprawling habit. Typically forms a low, mounding ground cover.



Campanula carpatica

Carpathian bellflower

Hardiness Zone 3-8

Succulent no

Characteristics & Problems

Typically forms low-growing clumps of basal foliage which slowly spread to form an attractive ground cover.



Duchesnea indica

Mock strawberry

Hardiness Zone 5-9

Size H/W 4"x3"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Known for its small, red fruit, yellow flowers, and little leaves.



Delosperma basuticum

White eyed ice plant

Hardiness Zone 5-10

Size H/W 1"x24"

Succulent no

Landscape Zone

1, 2 or 3

Characteristics & Problems

Good soil drainage is essential for, particularly in winter where moist-to-wet soils can be fatal.



Delosperma cooperi

Purple ice plant

Hardiness Zone 5-10

Size H/W 4"x30"

Succulent yes

Landscape Zone 1, 2 or 3

Characteristics & Problems

Heat, drought and salt tolerant, this adaptable plant thrives with little care, even in rocky, unimproved soils.



Delosperma cooperi

Pink ice plant

Hardiness Zone 5-10

Size H/W 1"x24"

Succulent yes

Landscape Zone 1, 2 or 3

Characteristics & Problems

The neon-like intensity of the flowers' color and length of bloom enhance the ornamental interest. Succulent, fleshy, cylindrical, medium-green leaves.



Groundcovers

Delosperma hybrid 'John Proffit'

John Proffit Ice plant

Hardiness Zone 5-10

Size H/W 1"x24"

Succulent yes

Landscape Zone 1, 2 or 3

Characteristics & Problems

Good soil drainage is essential, particularly in winter where moist-to-wet soils can be fatal.



Ephedra regeliana

Creeping ephedra

Hardiness Zone 4-7

Size H/W 6"x24"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Slowly creeps with more leafless, thin, green stems which look like a miniature equisetum until they become bejeweled with red fruits in mid to late summer.



Fragaria indica 'Pink Panda'

Mock strawberry

Hardiness Zone 3-9

Size H/W 8"x48"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Prompt removal of fruit as it appears encourages additional flowering.



Galium boreale

Northern bedstraw

Hardiness Zone 4-8

Size H/W 8"x40"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Can be difficult to find in commerce because usually few nurseries, other than native plant specialists, sell it.



Galium odoratum

Sweet woodruff

Hardiness Zone 4-8

Size H/W 8"x24"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Small, fragrant, 4-petaled, white flowers appear in loose cymes in spring.



Lamium armenum

Dead nettle

Hardiness Zone 4-8

Size H/W 10"x24"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

A tufted-to-small-mat-forming perennial from a stout rootstock. Do not plant *L. galiobdolon* because it is invasive.



Liriope muscari

Liriope

Hardiness Zone 5-10

Size H/W 4"x24"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Has good tolerance for heat, humidity and drought.



Liriope spicata

Liriope

Hardiness Zone 4-10

Size H/W 9"x15"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

A rhizomatous, grass-like perennial which forms a clump of narrow, arching, glossy, dark green leaves (to 1/4" wide) typically growing 9-15" high.



Groundcovers

Penstemon caespitosus

Mat penstemon

Hardiness Zone 4-7

Size H/W 8"x48"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Lavender-purple, two-lipped flowers (to 1/4" long) with hairy throats bloom in summer.



Penstemon davidsonii

Davidson's penstemon

Hardiness Zone 5-8

Size H/W 2"x12"

Succulent yes

Landscape Zone 1, 2 or 3

Characteristics & Problems

Huge lavender-pink flowers held over its dark green evergreen foliage.



Phlox stolonifera

Creeping phlox

Hardiness Zone 5-9

Size H/W 12"x18"

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Loose clusters of fragrant, tubular, lavender flowers as large as to 3/4" wide.



Phlox x procumbens

Creeping phlox

Hardiness Zone 5-9

Size H/W 6"x12"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Excellent for edging, cascading over walls, or as a groundcover.



Saponaria officinalis

Bouncing bett

Hardiness Zone 4-8

Size H/W 8"x3"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Can be invasive. It may persist for years around abandoned home sites and other areas.



Saponaria x lempergii 'Max Frei'

Giant flowered soapwort

Hardiness Zone 3-7

Size H/W 6"x48"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Clusters of pink flowers (1" wide) cover the plant in summer.



Sedum rupestre

Stonecrop

Hardiness Zone 5-8

Size H/W 6"x20"

Succulent yes

Landscape Zone 1, 2 or 3

Characteristics & Problems

Excellent groundcover. Ideal for border fronts or rock gardens.



Sedum sichotense

Creeping stonecrop

Hardiness Zone 4-9

Size H/W 3"x6"

Succulent yes

Landscape Zone 1, 2 or 3

Characteristics & Problems

Flat, tapering, toothed green leaves turn glowing crimson in fall. Yellow bloom in summer.



Groundcovers

Sedum sieboldii 'October Daphne'

October Daphne stonecrop

Hardiness Zone 5-9

Size H/W 4"x12"

Succulent yes

Landscape Zone 1, 2 or 3

Characteristics & Problems

Large light-blue leaves trimmed with rose edges. Arched stems. Rose-pink flowers.



Sedum spathulifolium & cultivars

Stonecrop

Hardiness Zone 3-9

Size H/W 5"x18"

Succulent yes

Landscape Zone 1, 2 or 3

Characteristics & Problems

The wild variety grows on rocky outcroppings and along trail.



Sedum spurium & cultivars

Stonecrop

Hardiness Zone 3-8

Size H/W 4"x12"

Succulent yes

Landscape Zone 1, 2 or 3

Characteristics & Problems

Thick, succulent, opposing, flattened leaves (to 1" long) with wedge-shaped bases are toothed near the ends.



Thymus serpyllum & cultivars

Mother of Thyme

Hardiness Zone 4-8

Size H/W 2"x48"

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

A hairy, prostrate, creeping, woody-based perennial primarily grown as an ornamental ground cover. Rarely used in cooking.



Veronica oltensis

Speedwell

Hardiness Zone 4-9

Size H/W 8"x8"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Profuse blue flowers cover this groundcover in spring. Can be invasive into lawns.



Veronica gentianoides

Gentian speedwell

Hardiness Zone 4-7

Size H/W 12"x18"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Easily grown in average, medium, well-drained soil in full sun.



Veronica pectinata

Woolly speedwell

Hardiness Zone 4-7

Size H/W 6"x9"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Deer resistant. Evergreen.



Veronica peduncularis

Creeping veronica

Hardiness Zone 6-9

Size H/W 9"x12"

Succulent no

Landscape Zone

1, 2 or 3

Characteristics & Problems

After the main flush of bloom, a sparse, intermittent rebloom might continue throughout summer.



Groundcovers

Veronica rupestris

Prostrate speedwell

Hardiness Zone 4-8

Size H/W 9"x12"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Sparse, intermittent rebloom might occur in summer and fall.



Veronica austriaca sub.teucrium

Large speedwell

Hardiness Zone 4-8

Size H/W 18"x12"

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Blue flowers in spring on mounding-to-sprawling plants clad with toothed, oblong, green leaves.



Waldsteinia species, varieties & cultivars

Barren strawberry

Hardiness Zone 4-7

Size H/W 5"x12"

Succulent no

Landscape Zone 1, 2 or 3

Characteristics & Problems

Features 5-petaled yellow flowers (3/4" diameter) which bloom singly or in clusters in spring.



Key for Symbols



Prefers full sun (6 or more hours).



Prefers part shade.



Prefers full shade (6 or more hours).
Avoid afternoon sun.



Very low water-use plant; performs well in dry sites.



Low water-use plant; performs well with minimal supplemental irrigation.



Moderate water-use plant; performs well with supplemental irrigation.



High water-use plant performs well with regular irrigation.



Achillea species

Yarrow

Hardiness Zone 4-8

Size H/W 6"-23"x12"-24"

Succulent no

Deciduous

Landscape Zone 2 or 3

Characteristics & Problems

Easily reseeds. Drought tolerant.



Agastache species

Hyssop

Hardiness Zone 5-9

Size H/W 1'-4'x1'-2'

Succulent no

Deciduous

Landscape Zone 2 or 3

Characteristics & Problems

Easy to grow, no serious problems.



Alcea rosea

Hollyhock

Hardiness Zone 4-8

Size H/W 72"x24"

Succulent no

Deciduous

Landscape Zone 2 or 3

Characteristics & Problems

Biennial or short-lived.



Alchemilla species

Lady's Mantle

Hardiness Zone 4-8

Size H/W 15"x24"

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Self-seeding, clumping perennial.



Allium species

Chives/Onion

Hardiness Zone 4-8

Size H/W 12"-24"x20"-24"

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Easy to grow. More than 700 species available.



Anemone blanda species

Windflower

Hardiness Zone 4-8

Size H/W 8"x6"

Succulent no

Deciduous

Landscape Zone 2 or 3

Characteristics & Problems

Naturalizes by rhizomes and reseeding.





Aquilegia species
Columbine
Hardiness Zone 3-9
Size H/W 10"-36"x10"-12"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3
Characteristics & Problems
 Short-lived, but will reseed.



Armeria maritima
Sea thrift
Hardiness Zone 4-8
Size H/W 6"-10"x8"-12"
Succulent no
Deciduous
Landscape Zone
 1, 2 or 3

Characteristics & Problems
 Low-growing mounded tuft.



Asclepias species
Milkweed
Hardiness Zone 4-8
Size H/W 24"x6"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3

Characteristics & Problems
 Food source for Monarch butterfly.



Aster species
Aster
Hardiness Zone 4-8
Size H/W 24"x12"
Succulent no
Deciduous
Landscape Zone 1,
 2 or 3

Characteristics & Problems
 Easy to grow. Blooms in fall.



Aurinia saxatilis
Basket-of-gold
Hardiness Zone 3-7
Size H/W 8"-18"x1'-2'
Succulent no
Deciduous
Landscape Zone 1, 2
 or 3
Characteristics & Problems
 Low-growing, spreading habit. Bright yellow flowers.



Baptisia species
False indigo
Hardiness Zone 4-8
Size H/W 3"x3"
Succulent no
Deciduous
Landscape Zone 2 or 3
Characteristics & Problems
 Slow-expanding clumps with deep root system.





***Bergenia cordifolia* & cultivars**
Pig squeak

Hardiness Zone 3-8
Size H/W 12"-14"x12"-18"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3
Characteristics & Problems
Clump-forming perennial often grown as groundcover.



***Campanula species* & cultivars**
Bellflower

Hardiness Zone 3-8
Size H/W 6"-30"x12"-18"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3
Characteristics & Problems

Clump-forming. Spreads by rootstocks. Reseeds, but not to point of being unmanageable.



Centranthus ruber
Jupiter's beard

Hardiness Zone 4-8
Size H/W 24"x24"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3

Characteristics & Problems

Can be somewhat invasive in average soils.



Chamerion angustifolium
Fireweed

Hardiness Zone 3-7
Size H/W 22'-3'x2'-3'
Succulent no
Deciduous
Landscape Zone 2

or 3

Characteristics & Problems

Native. Spreads by rhizomes and seeds. Can be aggressive.



Coreopsis species
Coropsis or tickseed

Hardiness Zone 3-9
Size H/W 10"-24"x12"-18"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3
Characteristics & Problems

70-80 species available. Shear late summer for rebloom.



***Delphinium species* & cultivars**
Delphinium

Hardiness Zone 3-7
Size H/W 1'-7'x1'-3'
Succulent no
Deciduous
Landscape Zone 2 or 3
Characteristics & Problems

Requires protection from strong winds, staking.





Dianthus species & cultivars
Pinks

Hardiness Zone 4-8
Size H/W 6"-12"x1"-18"
Succulent no
Evergreen
Landscape Zone 1, 2 or 3
Characteristics & Problems
Forms compact mound.
Prefers slightly alkaline soil.



Echinacea purpurea
Coneflower

Hardiness Zone 3-8
Size H/W 2'-3'x1.5'-2'
Succulent no
Deciduous
Landscape Zone 2 or 3
Characteristics & Problems
Good cut flower. Birds like cones in winter.



Erigeron species
Fleabane

Hardiness Zone 4-8
Size H/W 6-12"x12"-18"
Succulent no
Deciduous
Landscape Zone 2

or 3

Characteristics & Problems

About 200 species of annuals, biennials, perennials.



Gaillardia species & cultivars
Blanket flower

Hardiness Zone 3-10
Size H/W 8"-36"x12"-24"
Succulent no
Deciduous
Landscape Zone 2 or 3

Characteristics & Problems

Look for disease-resistant varieties. Cut back to encourage late fall bloom.



Geranium species
Cranesbill hardy geranium

Hardiness Zone 4-9
Size H/W 4"-6"x10"-12"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3

Characteristics & Problems

Plants may be cut back to rejuvenate.



Guem triflorum
Prairie smoke

Hardiness Zone 4-9
Size H/W 18"x12"
Succulent no
Semi-Evergreen
Landscape Zone 1, 2 or 3
Characteristics & Problems

Spreads by rhizomes and can be naturalized. Likes dry, well-drained soil.





Helianthemum nummularium

Sun rose

Hardiness Zone 4-7

Size H/W 8"-

12"x12"-16"

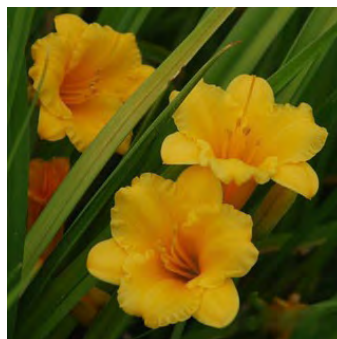
Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Low-growing, woody stemmed, shrub-like habit.



Hemerocallis cultivars

Daylily

Hardiness Zone 3-9

Size H/W 1'-4'x1'-3'

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

More than 60,000 cultivars. Flowers open for 1-2 days. Flowers produced in succession, so bloom time is extended.



Heuchera species & cultivars

Coral bells

Hardiness Zone 3-8

Size H/W 12"-20"x12"-15"

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Herbaceous, clump forming.

Remove stems of spent flowers to encourage rebloom.



Hosta species & cultivars

Plantain lily

Hardiness Zone 3-8

Size H/W 6"-36"x20"-24"

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Genus of about 70 shade-loving, rhizomatous, clump-forming perennials.



Iris species & cultivars

Iris, tall bearded

Hardiness Zone 3-10

Size H/W 16"-30"x14"-24"

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Several varieties available including dwarf, tall bearded, Japanese, and Siberian.



Kniphofia species & hybrids

Red-hot poker

Hardiness Zone 4-9

Size H/W 1'-4'x2'-3'

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Best in evenly moist, well-drained soil. Intolerant of wet, heavy soils.





Lavandula species
Lavender

Hardiness Zone 4-8
Size H/W 1-3'x1-4'
Succulent no
Deciduous
Landscape Zone 2 or 3
Characteristics & Problems

Although it contains scented oils, this plant is slow to ignite if kept moist



Leucanthemum x superbum
Shasta daisy

Hardiness Zone 4-8
Size H/W 36"x36"
Succulent no
Deciduous
Landscape Zone 2 or 3
Characteristics & Problems

Long-lasting summer bloomer.



Lilium species & hybrids
Lilies

Hardiness Zone 4-8
Size H/W 3' x 6"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3
Characteristics & Problems

Genus of about 100 species of bulbous plants including Asiatic, oriental, and trumpet.



Linum perenne
Blue flax

Hardiness Zone 2-8
Size H/W 12"-20"x12"-14"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3
Characteristics & Problems

Reseeds. Deadhead to encourage new flowers.



Lupinus species & cultivars
Lupine

Hardiness Zone 4-6
Size H/W 18-48"x24-26"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3
Characteristics & Problems

Deadhead spent flowers to encourage rebloom. Attractive tall border plant.



Monarda species & hybrids
Bee balm

Hardiness Zone 4-8
Size H/W 24" x 32"-36"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3
Characteristics & Problems

Attracts bees, butterflies, and hummingbirds when massed.





Oenothera species & hybrids

Evening primrose

Hardiness Zone 3-7

Size H/W 6"-12"x12"-24"

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Showy. Somewhat aggressive spreading habit.



Papaver orientale

Oriental poppy

Hardiness Zone 3-7

Size H/W 2'-3'x1'-2'

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Tends to need support. Foliage dies back after bloom in early summer.



Penstemon species & hybrids

Beardtongue

Hardiness Zone 3-8

Size H/W 4"-48"x6"-36"

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Excellent for low-water garden.



Phlox paniculata

Summer phlox

Hardiness Zone 4-8

Size H/W 3'x12"-18"

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Many cultivars available. Look for mildew-resistant types.



Polemonium species

Jacob's ladder

Hardiness Zone 3-8

Size H/W 24"x24"

Succulent no

Deciduous

Landscape Zone 1, 2 or 3

Characteristics & Problems

Foliage may scorch in too much sun. Needs consistently moist soil.



Ratibida columnifera

Prairie conflower

Hardiness Zone 4-9

Size H/W 18"-24"x12"-24"

Succulent no

Deciduous

Landscape Zone 2 or 3

Characteristics & Problems

Intolerant of moist, heavy, clay soil. Drought tolerant.





Rudbeckia fulgida
Black-eyed Susan
Hardiness Zone 3-9
Size H/W 2'x2'
Succulent no
Deciduous
Landscape Zone 2 or 3
Characteristics & Problems
 Biennial or short-lived perennial. Freely self seeds.



Salvia species & hybrids
Sage
Hardiness Zone 4-9
Size H/W 18"-28"x2"4-34"
Succulent no
Deciduous
Landscape Zone 2 or 3
Characteristics & Problems
 Hardiness varies among species. Formal, spike-like flowers in many colors. Remove spent blooms to promote reblooming.



Veronica prostrate, longifolia, spicata
Speedwell
Hardiness Zone 4-8
Size H/W 12"-20"x12"-15"
Succulent no
Deciduous
Landscape Zone 1, 2 or 3
Characteristics & Problems

Taller varieties might need support. Deadhead or shear back to promote regrowth and rebloom.



Yucca filamentosa
Adam's needle
Hardiness Zone 4-6
Size H/W 2'x3'
Succulent yes
Evergreen
Landscape Zone 1, 2 or 3
Characteristics & Problems
 Best of yuccas for low maintenance, drought-resistant landscaping.



Zauschneria garrettii
'Orange Carpet'
Creeping hummingbird carpet
Hardiness Zone 5-9
Size H/W 18"x25"
Succulent no
Deciduous
Landscape Zone 2 or 3
Characteristics & Problems

Regular watering promotes continuous flowering.





Actinidia kolomikta
'Arctic beauty'
Kiwi vine
Hardiness Zone 4-8
Size H/W 20'x10'
Landscape Zone 1, 2 or 3

Characteristics & Problems

Requires a substantial trellis. Protect spring growth.



Akebia quinata
Chocolate vine
Hardiness Zone 4-8
Size H/W 30'x9'
Landscape Zone 1, 2 or 3
Characteristics & Problems
Rampant grower.
Reseeds readily.



Bignonia capreolata
'Tangerine beauty'
Crossvine
Hardiness Zone 5-9
Size H/W 35'x9'
Landscape Zone 2

or 3

Characteristics & Problems

Vigorous, woody fast-growing vine.



Campsis radicans
Trumpet vine
Hardiness Zone 4-9
Size H/W 40'x10'
Landscape Zone 1, 2 or 3
Characteristics & Problems
Rampant grower

through seeds and roots.



Campsis x tagliabuana
'Madame Galen'
Trumpet creeper
Hardiness Zone 4-9
Size H/W 20'x12'
Landscape Zone 1, 2 or 3

Characteristics & Problems

Rampant grower through seeds and roots.



Clematis species & cultivars
Clematis*
Hardiness Zone 5-9
Size H/W 15'x15'
Landscape Zone 1, 2 or 3

Characteristics & Problems

**Clematis orientalis* is a Class A weed in Chelan County.





Humulus lupulus
Hops

Hardiness Zone 4-8

Size H/W 15'x15'

Landscape Zone

1, 2 or 3

Characteristics & Problems

Must be pruned and maintained appropriately to be fire-resistance.



Hydrangea anomala subspecies petiolaris
Climbing hydrangea

Hardiness Zone 4-8

Size H/W 50'x6'

Landscape Zone 1, 2 or 3

Characteristics & Problems

Non-showy yellow fall color. Fragrant white flowers in flat-topped clusters in late spring, early summer.



Lonicera sempervirens 'Magnifica'
Trumpet honeysuckle

Hardiness Zone 4-7

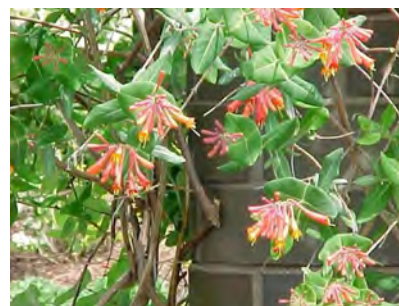
Size H/W 11'x8'

Landscape Zone

1, 2 or 3

Characteristics & Problems

Rampant grower. Readily reseeds. Reproduces via roots.



Lonicera heckrottii 'Goldflame'
Honeysuckle

Hardiness Zone 5-9

Size H/W 15'x6'

Landscape Zone 1, 2 or 3

Characteristics & Problems

L. japonica Japanese honeysuckle can be rampant grower through seed and roots.



Parthenocissus quinquefolia
Virginia creeper

Hardiness Zone 3-9

Size H/W 30'x30'

Landscape Zone

1, 2 or 3

Characteristics & Problems

Rampant grower. Reseeds readily.



Vitis coignetiae
Crimson glory vine

Hardiness Zone 5-9

Size Variable

Landscape Zone

2 or 3

Characteristics & Problems

Good fall color. Insignificant flowers, inedible purplish black berries.





Vitis vinifera
'Purpurea'
Purpleleaf grape
Hardiness Zone 6-9
Size H/W 9'x9'
Landscape Zone
2 or 3



Characteristics & Problems

Grapes are adapted to a wide variety of soil conditions. Irrigation can be detrimental except for table or raisin grapes.



Fire-resistant does not mean fireproof!



Even fire-resistant plants will burn if not well maintained. Be sure to keep all of your landscape plants healthy with appropriate watering, proper pruning, etc.

Key for Symbols



Prefers full sun (6 or more hours).



Prefers part shade.



Prefers full shade (6 or more hours).
Avoid afternoon sun.



Very low water-use plant; performs well in dry sites.



Low water-use plant; performs well with minimal supplemental irrigation.



Moderate water-use plant; performs well with supplemental irrigation.



High water-use plant performs well with regular irrigation.



Amelanchier species
Serviceberry

Hardiness Zone 4-5
Size H/W 12'x8'
Landscape Zone 3
Characteristics & Problems
White-pink flowers yield blue berries. Attractive fall color. Resprouts.



Ceanothus americanus
New Jersey tea
Hardiness Zone 4-8
Size H/W 3'x5'
Landscape Zone 2
Characteristics & Problems
Requires winter cold protection.



Cornus sericea
Red osler dogwood

Hardiness Zone 4-8
Size H/W 8'x10'
Landscape Zone 2 or 3
Characteristics & Problems

White flowers yield red ornamental fruit. Red branches provide winter color. Cut back at least every 5 years.



Corylus cornuta
Filbert, Beaked hazel

Hardiness Zone 4-8
Size H/W 4'x8'
Landscape Zone 2 or 3
Characteristics & Problems

A small, suckering, deciduous shrub. Typically found in rich thickets, woodland borders, along streams and in clearings.



Euonymus alatus
'Compactus'

Dwarf burning bush
Hardiness Zone 4-8
Size H/W 4'x6'
Landscape Zone 2 or 3

Characteristics & Problems
Leaves turn brilliant red in autumn. Grows best on eastern exposure.



Forsythia species
Forsythia

Hardiness Zone 5-8
Size H/W 15'x15'
Landscape Zone 3
Characteristics & Problems

Showy yellow flowers bloom in early spring. Fertilize and prune post-bloom. Select low-growing variety.





Hibiscus syriacus
Rose of Sharon
Hardiness Zone 5-8
Size H/W 12'x10'
Landscape Zone 3
Characteristics & Problems

Leaves emerge in late spring. Depending on variety, flowers are lavender, white, rose, or bluish. Can serve as a hedge.



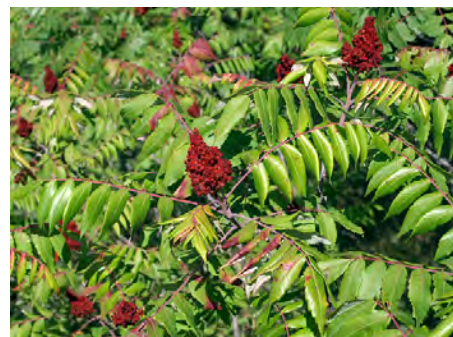
Holodiscus discolor
Oceanspray
Hardiness Zone 5-9
Size H/W 6'x6'
Landscape Zone 2 or 3
Characteristics & Problems

Features clusters of small white flowers.



Philadelphus hybrid species
Mock orange
Hardiness Zone 4-8
Size H/W 8'x8'
Landscape Zone 2 or 3
Characteristics & Problems

Fragrant pretty white flowers. Leggy growth habit. Prune every other year.



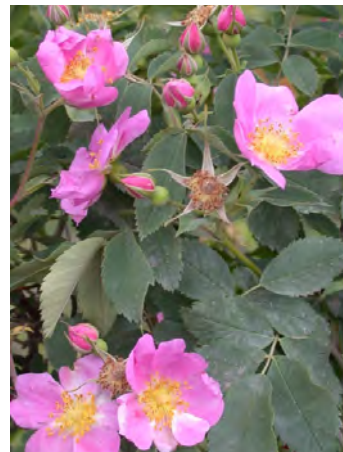
Rhus glabra
Smooth sumac
Hardiness Zone 3-9
Size H/W 10'x5'
Landscape Zone 3
Characteristics & Problems

Provides red fall color. Forms thickets. Can be invasive. Use on slopes.



Rosa hybridi
Nearly wild rose
Hardiness Zone 4-8
Size H/W 3'x4'
Landscape Zone 3
Characteristics & Problems

Pink blossoms all summer.



Rosa woodsii
Wood's rose
Hardiness Zone 4-8
Size H/W 6'x6'
Landscape Zone 2 or 3
Characteristics & Problems

Every 5 years in early spring, prune to 12 inches. Resprouts readily.



Spirea bumaldi 'Bumalda'

Japanese spirea

Hardiness Zone 3-8

Size H/W 4'x4'

Landscape Zone 2 or 3

Characteristics & Problems

Pink flowers. Prune after flowering.



Spirea japonica 'Goldmound'

Goldmound

spirea

Hardiness Zone

3-8

Size H/W 3'x4'

Landscape Zone 2 or 3

Characteristics & Problems

Pink flowers. Prune after flowering.



Syringa species

Lilac

Hardiness Zone 3-7

Size H/W 10'x8'

Landscape Zone

2 or 3

Characteristics & Problems

Prune after flowering.

Rhamnus frangula 'Columnaris'

Tall hedge buckthorn

Hardiness Zone 2-7

Size H/W 12'x3'

Landscape Zone 3

Characteristics & Problems

Can become leggy. Fruit can be messy when it falls to ground. Can be planted to form a hedge.



Rhamnus frangula 'Aspelenifolia'

Fernleaf buckthorn

Hardiness Zone 2-7

Size H/W 11'x9'

Landscape Zone 3

Characteristics & Problems

Fern-like foliage. Prefers morning sun and afternoon shade. Grows best in moist, rich soil. When it falls, fruit can be messy on ground.



Viburnum carlesii 'Korean spice'

Korean spice viburnum

Hardiness Zone 4-7

Size H/W 5'x7'

Landscape Zone 2 or 3

Characteristics & Problems

Pink buds become fragrant, white flower clusters. Prefers acidic, moist soil.



Viburnum opulus 'Compactus'

Snowball bush

Hardiness Zone 3-8

Size H/W 6'x6'

Landscape Zone 3

Characteristics & Problems

White flat-top flowers yield red fruit. Prefers acidic, moist soil.



Viburnum opulus 'Roseum'

European snowball viburnum

Hardiness Zone 3-8

Size H/W 12'x12'

Landscape Zone 3

Characteristics & Problems

Large 3" snowball flower heads. No berries. Red-yellow fall color. Prefers moist, acidic soil.



Fire-resistant does not mean fireproof!



Even fire-resistant plants will burn if not well maintained. Be sure to keep all of your landscape plants healthy with appropriate watering, proper pruning, etc.

Key for Symbols



Prefers full sun (6 or more hours).



Prefers part shade.



Prefers full shade (6 or more hours).
Avoid afternoon sun.



Very low water-use plant; performs well in dry sites.



Low water-use plant; performs well with minimal supplemental irrigation.



Moderate water-use plant; performs well with supplemental irrigation.



High water-use plant performs well with regular irrigation.



Atriplex confertifolia
Shadescale
saltbush
Hardiness Zone
3-4
Size Varies H/W
1'x3'
Succulent no
Landscape Zone

2 or 3

Characteristics & Problems

Drought tolerant.



Berberis thunbergii 'Crimson Pygmy'
Japanese barberry

Hardiness Zone 5-8

Size H/W 1'x2'

Succulent no **Landscape Zone** 2 or 3

Characteristics & Problems

A spiny, broad-rounded, deciduous shrub with obovate green leaves. Leaves typically turn attractive shades of orange, yellow and red in fall.



Berberis x lologensis 'Apricot Queen'
Warty barberry

Hardiness Zone 5-8

Size H/W 10'x10'

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Dense grower with delicately arching branches. Small, dark evergreen leaves have bright, bluish-white undersides. Hidden stems are full of needle-sharp spines that make *Berberis verruculosa* an excellent barrier hedge.



Ceanothus gloriosus
Point Reyes ceanothus

Hardiness Zone 7-9

Size H/W 3'x6'

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Varieties available. Small, wide-spreading shrub with dark-green, leathery foliage and purple-blue flowers in spring. Useful on steep slopes. Needs to be protected from wind. Lives 5-10 years.



Cotoneaster species
Cotoneaster

Hardiness Zone 5-8

Size Varies H/W 1'x3'

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Some are deciduous. Vary in size from 6" ground cover to 10' hedge plant. All species of cotoneaster feature a wide spread three times or more their height, glossy leaves, and red or black fall and winter berries. Most species shrug off adverse conditions like drought, strong winds, salt spray, infertile soil and variable pH.



Cotoneaster dammeri
Barberry cotoneaster

Hardiness Zone 5-8

Size H/W 1'x6'

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Low-growing variety; makes good ground cover. In spring small white flowers, followed in late summer by red berries. Fall foliage is bronze/purple.



***Daphne x burkwoodii* 'Carol Mackie'**
Carol Mackie daphne

Hardiness Zone 4-8

Size H/W 4'x4'

Succulent no **Landscape Zone** 2 or 3

Characteristics & Problems

Semi-evergreen shrub with variegated leaves. Features fragrant, pink/white star-shaped flowers in spring.



Daphne cneorum
Rock daphne

Hardiness Zone 5-8

Size H/W 1'x3'

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Low growing with bright hot-pink fragrant flowers that open mid spring. Can be kept at almost any size by pruning after flowering. Highly fragrant, showy flowers. Keep from excessively wet soils. Can tolerate hot sun and drought.



Euonymus x fortunei
Winter creeper

Hardiness Zone 4-7

Size H/W 4'x3.5'

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

A low-growing, erect to semi-erect shrubby form which typically grows as a dense, sprawling, tangled, bushy mat. Features lustrous, ovate to elliptic, toothed, dark green leaves (1-1.5" long) edged with gold. Leaves turn pinkish-red in fall and winter. Inconspicuous, greenish-white flowers might appear in June. Flowers at best sparse,

but usually not present. If given support, 'Emerald 'n' Gold' will climb a wall.



Lonicera pileata
Privet honeysuckle

Hardiness Zone 5-9

Size H/W 3'x8'

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Dense, spreading, evergreen to semi-evergreen shrub which is typically grown as a high ground cover. Glossy green leaves to 1 1/4" long. Small fragrant yellowish-white flowers in spring. Flowers give way to small translucent purple berries (1/4" wide) which mature in fall.



Mahonia aquifolium
Oregon grapeholly

Hardiness Zone 3-9

Size Varies H/W 5'x6'

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Upright growth habit. Shiny, dark-green foliage in summer. Yellow flowers open in spring, followed by blue/black berries in late summer. In autumn leaves turn red-purple.



Mahonia repens
Creeping Oregon grape

Hardiness Zone 3-8

Size H/W 1.5'x2'

Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Similar to Oregon grapeholly, but smaller. Yellow flowers produce blue/black berries. Spreading branches feature green leaves that turn red/purple in autumn.





Paxistima myrtifolia
Oregon boxwood
Hardiness Zone 5-8
Size H/W 4'x4'
Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Thick, light-green leaves on low-growing shrub. Remains more compact in areas with full sun.



Potentilla fruticosa
Shrubby cinquefoil
Hardiness Zone 3-8
Size H/W 3'x3'
Succulent no
Landscape Zone 2 or 3

Characteristics & Problems

Easily grown in average, medium-moisture, well-drained soils in full sun. Best flowering occurs in full sun, but plants tolerate part shade. Established plants grow well in a wide range of conditions and have good drought tolerance. Plants have excellent winter hardiness. Prune in late spring after bloom.



Prunus laurocerasus
Cherry laurel

Hardiness Zone 6-8
Size H/W 18'x25'
Succulent no
Landscape Zone 2 or 3

Characteristics & Problems

Broad, dense, spreading habit. No fall color. Tiny, cup-shaped, creamy white flowers in upright clusters bloom from the leaf axils in April-May. Highly fragrant flowers give way to somewhat inconspicuous black drupes that ripen in mid-summer. This bitter fruit loved by birds.



Prunus laurocerasus
'Otto Luyken'
Compact cherry laurel

Hardiness Zone 6-8
Size H/W 4'x8'
Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Compact cultivar. Free-flowering.



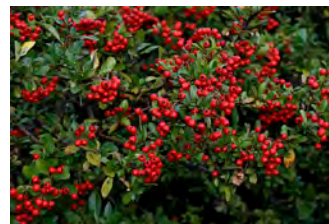
Pyracantha angustifolia '**Gnome**'
Gnome pyacantha

Hardiness Zone 6-7
Size Varies H/W 6'x8'
Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Noted for spring white flowers in drooping clusters, glossy green leaves, needle-like spines, and orange-red berries in fall.



Pyracantha species
& cultivars

Firethorn, pyracantha
Hardiness Zone 6-8
Size H/W 12'x10'
Succulent no

Landscape Zone 2 or 3

Characteristics & Problems

Impenetrable shrub for informal hedges, hedgerows, or dense screens. Also effective when massed to cover slopes. Severe pruning performed after flowering will adversely affect fruit production. Espaliers trained on



wall or fence. Best planted in areas where thorns will not present hazard.



Rhododendron macrophyllum
Pacific
rhododendron
Hardiness Zone 6-9
Size H/W 12'x12'
Succulent no
Landscape Zone 3

Characteristics & Problems

Native to the Northwest. Dark green leaves. Pale pink to lavender flowers in spring. Grows best in acidic soil.



Rhododendron species & cultivars
Rhododendron/azalea

Hardiness Zone 6-9
Size H/W Varies 1'x3'
Succulent no **Landscape Zone** 2 or 3
Characteristics & Problems

A genus of 500 to 900 species that includes both of what are commonly called rhododendrons and azaleas. Most are evergreen; some deciduous. Appreciated for their showy spring flowers and, in the case of evergreen types, for their attractive winter foliage. Colors range from white to pink, red, and purple.

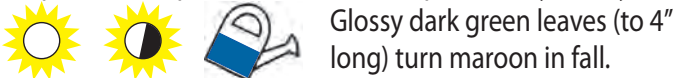


Viburnum x burkwoodii
cultivars and varieties
Burkwood viburnum

Hardiness Zone 5-8
Succulent no
Size H/W 10'x5'
Landscape Zone 3

Characteristics & Problems

Densely branched, multi-stemmed habit. Fragrant white flowers arranged in flat-topped cymes (2-4" wide) in spring. Flowers are followed by pendulous clusters of red berry-like drupes which ripen black. Fruit is not particularly showy.



Glossy dark green leaves (to 4" long) turn maroon in fall.



Viburnum species & hybrids
Viburnum

Hardiness Zone 2-9
Size H/W 4'x15' **Succulent** no
Landscape Zone 2 or 3

Characteristics & Problems

Not all are evergreen. This group of shrubs has showy flowers, many of which are fragrant. Flowers followed by clusters of berries that may be yellow, orange, red, blue or black. Grow in full sun to partial shade in well-drained soil amended with organic matter. Useful in a shrub border or as a screen. Not



bothered by rabbits, squirrels or deer.

Yucca glauca
Small soapweed

Hardiness Zone 4-6
Size Varies H/W 2'x4'
Succulent yes
Landscape Zone 1 & 2

Characteristics & Problems

Adapted to low-water growth conditions. Also known as small soapweed, soapweed yucca, Spanish bayonet, Great Plains yucca and beargrass. *Yucca glauca* forms colonies of rosettes.



Yucca harrimaniae 'Neomexicana'
New Mexico yucca

Hardiness Zone 4-6
Size H/W 2'x2'
Succulent yes
Landscape Zone 1 & 2

Characteristics & Problems

Small species forming clumps of rosettes.





Yucca filamentosa
Adam's needle

Hardiness Zone 4-10

Size Varies H/W 4'x3'

Succulent yes

Landscape Zone 2 or 3

Characteristics & Problems

Swordlike, stiff leaves in various tones of green, gray-green or variegated yellow

and green. In summer produces tall stalks topped by plumes of white flowers.



Fire-resistant does not mean fireproof!



Even fire-resistant plants will burn if not well maintained. Be sure to keep all of your landscape plants healthy with appropriate watering, proper pruning, etc.

Key for Symbols



Prefers full sun (6 or more hours).



Prefers part shade.



Prefers full shade (6 or more hours).
Avoid afternoon sun.



Very low water-use plant; performs well in dry sites.



Low water-use plant; performs well with minimal supplemental irrigation.



Moderate water-use plant; performs well with supplemental irrigation.



High water-use plant performs well with regular irrigation.



Festuca glauca
Blue fescue
Hardiness Zone 3-6
Size H 6-10"
Form bunch
Landscape Zone 2 or 3

Characteristics & Problems

Fine-textured. When watered stays green well into the summer.



Festuca idahoensis
Idaho fescue
Hardiness Zone 3-6
Size H 6-10"
Form bunch
Landscape Zone 2 or 3

Characteristics & Problems

Native bunchgrass with fine texture.



Festuca ovina
Sheep fescue
Hardiness Zone 3-6
Size H 6-10"
Form bunch

Landscape Zone 2 or 3

Characteristics & Problems

A species from Europe and Asia that has become somewhat naturalized in North America.



Poa secunda
Sandberg bluegrass
Hardiness Zone 3-6
Size H 6-10"
Form bunch
Landscape Zone 2

or 3

Characteristics & Problems

Hardy grass that grows well in rocky areas.



Poa secunda
'Mountain Home'
Sandberg bluegrass
Hardiness Zone 3-6
Size H 6-10"
Form bunch
Landscape Zone 2 or 3
Characteristics & Problems
More drought tolerant than some grasses.



Pseudoroegneria cristatum
Crested wheatgrass
Hardiness Zone 3-6
Size H 12-16"
Form bunch
Landscape Zone 3
Characteristics & Problems
Early season, hardy grass. Course texture.





Koeleria glauca
Blue hairgrass

Hardiness Zone 3-6
Size H 6-24"
Form bunch
Landscape Zone 2 or 3
Characteristics & Problems
Grows well in dunes and sandy soils.



Koeleria macrantha
Prairie junegrass

Hardiness Zone 3-6
Size H 10-14"
Form bunch
Landscape Zone 3
Characteristics & Problems
Cool-season grass. Turns dormant in late summer.



Sporobolus cryptandrus
Sand dropseed

Hardiness Zone 3-6
Size H 8-20"
Form bunch
Landscape Zone 3
Characteristics & Problems
Produces a dense, sand-binding network of roots which can spread up to 2' laterally and 8' deep.



Nassella tenuissima
Mexican feather grass

Hardiness Zone 3-6
Size H 24-36"

Form bunch
Landscape Zone 3
Characteristics & Problems
Readily reseeds.



Carex species & cultivars
Sedge

Hardiness Zone 3-6
Size H 12-20"
Form sod
Landscape Zone 1, 2 or 3
Characteristics & Problems
Many different species. Prefers swampy areas.



Pseudoroegneria spicata
Bluebunch wheatgrass

Hardiness Zone 3-6
Size H 12-30"
Form bunch
Landscape Zone 3
Characteristics & Problems
Native bunchgrass.





Pascopyrum smithii
Western wheatgrass
Hardiness Zone 3-6
Size H 12-36"

Form sod

Landscape Zone 2 or 3

Characteristics & Problems

Often covered with a white coating, lending a silvery cast to its blue-green leaves.



Pseudoroegneria spicata inermis
Beardless wheatgrass
Hardiness Zone 3-6
Size H 8-20"
Form bunch
Landscape Zone 3
Characteristics & Problems

Good competitor with cheatgrass. Stays green longer.



Elymus wawawaiensis cultivars
Snake River wheatgrass
Hardiness Zone 3-6
Size H 8-16"
Form bunch
Landscape Zone 3

Characteristics & Problems

Good competitor with cheat grass. Stays green longer.



Fire-resistant does not mean fireproof!



Even fire-resistant plants will burn if not well maintained. Be sure to keep all of your landscape plants healthy with appropriate watering, proper pruning, etc.



Acer glabrum
Rocky Mountain maple
Hardiness Zone 2-7
Size H/W 30'x15'
Landscape Zone 2 or 3
Characteristics & Problems
Resprouts from root crown. Can be small tree or shrub.



Acer Saccharum
Sugar maple
Hardiness Zone 2-9
Size H/W 80'x60'
Landscape Zone 3
Characteristics & Problems
Source of maple syrup. Excellent shade tree. The sugar maple leaf is the national symbol of Canada.



Acer negundo
Boxelder
Hardiness Zone 2-9
Size H/W 50'x35'
Landscape Zone 3
Characteristics & Problems
Not recommended because of a variety of problems. Use cultivars in lieu of boxelder.



Acer macrophyllum
Bigleaf maple
Hardiness Zone 4-9
Size H/W 75'x50'
Landscape Zone 3
Characteristics & Problems
Native of Northwest. Leaves sometimes greater than 15" across.



Acer rubrum
varieties & cultivars
Red maple
Hardiness Zone 3-9
Size H/W 60'x40'
Landscape Zone 3
Characteristics & Problems
Adaptable. Easy to transplant and establish. Tolerant of many conditions.



Aesculus hippocastanum
Common horsechestnut
Hardiness Zone 4-8
Size H/W 60'x50'
Landscape Zone 3
Characteristics & Problems
Resprouts from root crown. Water deeply to prevent root surfacing.





Aesculus hippocastanum 'Braumannii'
Braumannii horse chestnut

Hardiness Zone 4-8
Size H/W 60'x50'
Landscape Zone 3
Characteristics & Problems
White flowers on this fruitless cultivar.



Alnus species
Alder

Hardiness Zone 4-9
Size H/W 40'x20'
Landscape Zone 2 or 3
Characteristics & Problems
Resprouts from root crown. Not ideal ornamental tree.



Alnus glutinosa
Black alder

Hardiness Zone 4-9
Size H/W 50'x30'
Landscape Zone 2 or 3
Characteristics & Problems
Resprouts from root crown. Not ideal ornamental tree.



Alnus tenuifolia
Mountain alder

Hardiness Zone 5-9
Size H/W 25'x20'
Landscape Zone 2 or 3
Characteristics & Problems
Resprouts from root crown. Not ideal ornamental tree.



Betula species
Birch

Hardiness Zone 2-9
Size varies
Landscape Zone 2 or 3
Characteristics & Problems
A wide variety of

fire-resistant birch is available.



Betula occidentalis
Water birch

Hardiness Zone 4-6
Size H/W 33'x15'
Landscape Zone 2 or 3
Characteristics & Problems
Resprouts from root crown. Basal buds & seeds.





***Betula nigra* 'Cully'**
Heritage
Heritage river birch
Hardiness Zone 4-9
Size H/W 55'x50'
Landscape Zone 2 or 3

Characteristics & Problems

One of the most disease-free birches.



Carpinus betulus
European hornbeam
Hardiness Zone 4-8
Size H/W 40'x30'
Landscape Zone 2 or 3
Characteristics & Problems

Name comes from the extremely hard wood that takes a horn-like polish.



***Carpinus betulus* 'Frans Fontaine'**
Frans Fontaine hornbeam
Hardiness Zone 4-8
Size H/W 40'x20'

Landscape Zone 2 or 3

Characteristics & Problems

Columnar variety that can be hard pruned to create large-scale screens or hedges.



Catalpa speciosa
Northern catalpa
Hardiness Zone 4-8
Size H/W 90'x45'
Landscape Zone 3
Characteristics & Problems

Forms high canopy & deep roots.



Celtis occidentalis
Common hackberry
Hardiness Zone 2-9
Size 60'x50'
Landscape Zone 3

Characteristics & Problems

Resprouts from root crown. Tolerates heat, wind, drought, poor soil and air pollution.



Celtis reticulata
Netleaf hackberry
Hardiness Zone 4-9
Size H/W 30'x25'
Landscape Zone 2 or 3
Characteristics & Problems

Deep-rooted, so less likely to crack pavement and facilitates lawn growth beneath tree.





Cornus florida
varieties & cultivars
Florida flowering dogwood
Hardiness Zone 5-9
Size H/W 30'x25'
Landscape Zone

2 or 3

Characteristics & Problems

Prone to scorch in this area without some shade.



Cotinus coggygia
varieties & cultivars
Smoketree
Hardiness Zone 5-8
Size H/W 25'x15'
Landscape Zone 3
Characteristics & Problems

Amount of fine fuel this tree produces results in lowered fire resistance rating.



Fagus sylvatica
'Dawycck purple'
Columnar purple European beech
Hardiness Zone 4-9
Size H/W 50'x15'
Landscape Zone 3
Characteristics & Problems

Dark purple foliage of this columnar tree is noticeable. In spring deep reddish-purple leaves emerge and darken to burgundy purple.



Fagus sylvatica
European beech
Hardiness Zone 4-7
Size H/W 60'x45'
Landscape Zone 2 or 3
Characteristics & Problems

There are a number of varieties and cultivars.



Ginkgo biloba
Maidenhair tree
Hardiness Zone 3-8
Size 80'x40'
Landscape Zone 2 or 3
Characteristics & Problems
An ancient genus of tree.



Gleditsia triacanthos inermis
'Sunburst'
Sunburst honeylocust
Hardiness Zone 3-8
Size H/W 40'x35'

Landscape Zone 2 or 3
Characteristics & Problems
Prone to wind damage.





Gymnocladus dioica
Kentucky coffeetree
Hardiness Zone 3-8
Size H/W 70'x55'
Landscape Zone 3
Characteristics & Problems
High canopy. Frost sensitive. Very fire-resistant tree.



Juglans nigra
Black walnut
Hardiness Zone 4-9
Size H/W 65'x65'
Landscape Zone 3
Characteristics & Problems
Resprouts from root crown. Prone to disease.



Liriodendron tulipifera
Tulip tree
Hardiness Zone 4-9
Size H/W 100'x50'
Landscape Zone 3
Characteristics & Problems
Roots may surface in lawn if not watered deeply and independently of turf.



Maclura pomifera 'White shield'
White shield Osage-orange
Hardiness Zone 5-7
Size H/W 30'x40'
Landscape Zone 2
or 3
Characteristics & Problems
Both fruitless and thornless.



Malus floribunda
Japanese flowering crabapple
Hardiness Zone 4-7
Size 15'x25'
Landscape Zone 2 or 3

Characteristics & Problems

Disease resistant. Slightly susceptible to scab, powdery mildew, and fireblight.



Morus alba
White mulberry
Hardiness Zone 4-8
Size H/W 30'x50'
Landscape Zone 2 or 3
Characteristics & Problems
Tolerates heat, drought, wind, cold & air pollution. Berries produce a mess when they drop to ground.

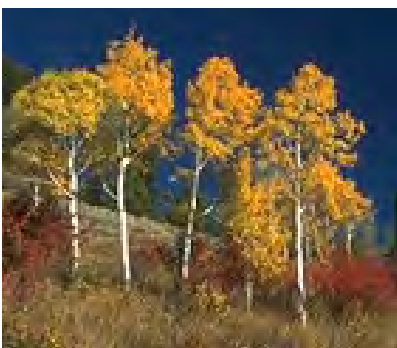




Platanus acerifolia
London plane tree/
sycamore
Hardiness Zone 4-8
Size H/W 100'x75'
Landscape Zone 3
Characteristics & Problems
Plant 25'-30' from any concrete.



Populus species
Aspen/cottonwood/
poplar
Hardiness Zone 1-9
Size H/W 60'x40'
Landscape Zone 2 or 3
Characteristics & Problems
Fairly short-lived genus, 50-70 years. Some species can be problematic.



Populus tremuloides
Quaking aspen
Hardiness Zone 1-6
Size H/W 50'x30'
Landscape Zone 3
Characteristics & Problems
Sprouts readily, so can be problematic in landscapes.



Quercus gambelii
Gambel oak
Hardiness Zone 3-8
Size H/W 10'x5'
Landscape Zone 2 or 3
Characteristics & Problems

Higher tolerance to fire compared to other oaks.



Quercus macrocarpa
Bur oak
Hardiness Zone 3-8
Size 60'x30'
Landscape Zone 3
Characteristics & Problems
Acorns can be an important source of food for wildlife.



Quercus rubra
Red oak
Hardiness Zone 4-8
Size H/W 75'x70'
Landscape Zone 3
Characteristics & Problems

Generally a durable and long-lived tree.





Robinia pseudoacacia 'Purple Robe'
Purple robe locust
Hardiness Zone 4-8
Size H/W 40'x30'
Landscape Zone 2 or 3
Characteristics & Problems
Very adaptable in tough environments.



Tilia americana
American linden
Hardiness Zone 2-7
Size H/W 80'x50'
Landscape Zone 3
Characteristics & Problems
Dense canopy may inhibit turf growth, if planted in or near lawn.



Fire-resistant does not mean fireproof!



Even fire-resistant plants will burn if not well maintained. Be sure to keep all of your landscape plants healthy with appropriate watering, proper pruning, etc.

Key for Symbols



Prefers full sun (6 or more hours).



Prefers part shade.



Prefers full shade (6 or more hours).
Avoid afternoon sun.



Very low water-use plant; performs well in dry sites.



Low water-use plant; performs well with minimal supplemental irrigation.



Moderate water-use plant; performs well with supplemental irrigation.



High water-use plant performs well with regular irrigation.

Acer species

Maple

Hardiness Zone 2-9

Size H/W 75'x75'

Landscape Zone 3

Characteristics & Problems

Often reseeds and sprouts.



Acer saccharum 'green mountain'

Green Mountain maple

Hardiness Zone 4-8

Size H/W 60'x45'

Landscape Zone 2 or 3

Characteristics & Problems

Rapid growth rate. Straight central trunk branching to a narrow ovate head. Thickened and strong crotched. Thick deep-green foliage. Resistance to leaf hoppers and leaf scorch.



Acer negundo 'Sensation'

Sensation boxelder maple

Hardiness Zone 2-8

Size H/W 30'x25'

Landscape Zone 2 or 3

Characteristics & Problems

Grown for attractive foliage.



Acer negundo 'Violaceum'

Boxelder

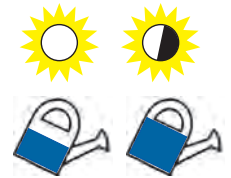
Hardiness Zone 2-9

Size H/W 15'x20'

Landscape Zone 2 or 3

Characteristics & Problems

Very pretty spring flowers.



Acer ginnala varieties & cultivars

Amur maple

Hardiness Zone 2-9

Size H/W 30'x20'

Landscape Zone 2 or 3

Characteristics & Problems

Resprouts from root crown. Low-branched, multi-stemmed growth habit. Might become invasive by reseeding.



Aesculus species

Horsechestnut & Buckeye

Hardiness Zone 4-8

Size H/W 60'x50'

Landscape Zone 2 or 3

Characteristics & Problems

The genus *Aesculus*, with varieties called 'buckeye' and 'horse chestnut', comprises 13-19 species.



Aesculus x carnea 'Briotii'

Red horse chestnut

Hardiness Zone 5-8

Size H/W 35'x35'

Landscape Zone 2 or 3

Characteristics & Problems

A beautiful landscape tree for large lawns. Noted for its dark red flowers.



Betula populifolia 'Whitespire'

Whitespire birch

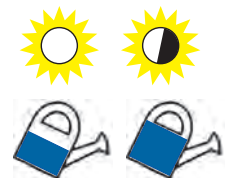
Hardiness Zone 3-6

Size H/W 40'x20'

Landscape Zone 2 or 3

Characteristics & Problems

Noted for its non-peeling chalky, white bark with dark chevron trunk patches appearing below each branch base and its long, pointed, triangular, green leaves.



Catalpa × erubescens ‘Purpurea’

Purple leaf catalpa

Hardiness Zone 4-8

Size H/W 45'x40'

Landscape Zone 2 or 3

Characteristics & Problems

Blackish-purple, heart-shaped leaves in spring.



Catalpa bignoniodes ‘Nana’

Umbrella catalpa

Hardiness Zone 5-9

Size H/W 20'x15'

Landscape Zone 2 or 3

Characteristics & Problems

Nonflowering. Good in small spaces, under power lines, or in street right-of-way.



Cercis canadensis varieties & cultivars

Eastern redbud

Hardiness Zone 4-8

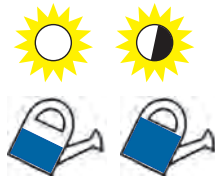
Size H/W 35'x30'

Landscape Zone 2 or 3

Characteristics & Problems

Leaves turn pale yellow to greenish-yellow in fall.

Several varieties and cultivars available.



Cercocarpus montanus

Mountain mahogany

Hardiness Zone 5-10

Size H/W 12'x8'

Landscape Zone 2 or 3

Characteristics & Problems

A native American small tree which grows in dry foothills and lower mountain regions of the West.



Cercocarpus ledifolius

Curl-leaf mountain mahogany

Hardiness Zone 4-8

Size H/W 15'x12'

Landscape Zone 2 or 3

Characteristics & Problems

Can be considered an evergreen shrub or small tree depending on how maintained.



Cornus stolonifera

Pacific dogwood

Hardiness Zone 3-7

Size H/W 15'x20'

Landscape Zone 2 or 3

Characteristics & Problems

Attractive flowers in the spring.



Cornus kousa

Kousa dogwood

Hardiness Zone 5-8

Size H/W 15'x30'

Landscape Zone 2-3

Characteristics & Problems

A stunning flowering tree or large shrub with good fall color. Effective as shrub border.



Cornus sericea

Red twig dogwood

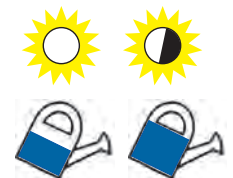
Hardiness Zone 3-8

Size H/W 9'x12'

Landscape Zone 2 or 3

Characteristics & Problems

Small tree if pruned to remove canes; without pruning more like a shrub.



Diospyros virginiana

American persimmon

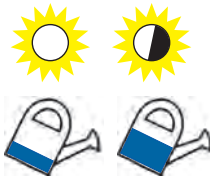
Hardiness Zone 4-9

Size H/W 25'x30'

Landscape Zone 2 or 3

Characteristics & Problems

Resprouts from root crown & buds. Frost sensitive.



Fagus species

Beech

Hardiness Zone 3-9

Size H/W 80'x80'

Landscape Zone 3

Characteristics & Problems

No serious insect or disease problems.



Fagus sylvatica 'Aspleniifolia'

Fernleaf beech

Hardiness Zone 4-7

Size H/W 60'x60'

Landscape Zone 3

Characteristics & Problems

Leaves turn golden brown in fall.



Fraxinus species

Ash

Hardiness Zone 3-9

Size H/W 70'x40'

Landscape Zone 2 or 3

Characteristics & Problems

Emerald ash borer is a problem for this genus. There are several varieties and cultivars.



Fraxinus americana

White ash

Hardiness Zone 3-9

Size H/W 60'x40'

Landscape Zone 3

Characteristics & Problems

There are several varieties and cultivars.



Fraxinus americana 'Autum purple'

Autumn purple ash

Hardiness Zone 3-9

Size H/W 80'x40'

Landscape Zone 3

Characteristics & Problems

Beautiful purplish-red fall color. Ash borer can become a problem.



Fraxinus pennsylvanica 'Marshall'

Marshall green ash

Hardiness Zone 3-7

Size H/W 60'x40'

Landscape Zone 3

Characteristics & Problems

Glossy, dark-green foliage turn yellow in fall. This cultivar is seedless.



Ginkgo biloba 'Autum Gold'

Autumn gold

Hardiness Zone 3-8

Size H/W 40'x30'

Landscape Zone 2 or 3

Characteristics & Problems

Bright golden autumn leaves.



Gleditsia triacanthos inermis

Thornless honeylocust

Hardiness Zone 3-8

Size H/W 60'x50'

Landscape Zone 3

Characteristics & Problems

Thornless; Tolerant of poor soils, heat, drought, wind and cold.



Gleditsia triacanthos inermis 'Impcole'

Imperial honeylocust

Hardiness Zone 3-8

Size H/W 40'x35'

Landscape Zone 2 or 3

Characteristics & Problems

No fall color.



Gleditsia triacanthos inermis 'Rubylace'

Rubylace honeylocust

Hardiness Zone 4-8

Size H/W 30'x25'

Landscape Zone 2 or 3

Characteristics & Problems

Prone to wind change.



Gleditsia triacanthos inermis 'Shademaster'

Shademaster honeylocust

Hardiness Zone 3-8

Size H/W 70'x50'

Landscape Zone 3

Characteristics & Problems

Provides denser shade than other honeylocusts. Avoid planting near utility lines. Thornless.



Gleditsia triacanthos inermis 'Skyline'

Skyline honeylocust

Hardiness Zone 3-8

Size H/W 45'x35'

Landscape Zone 2 or 3

Characteristics & Problems

A thornless and nearly seedless variety.



Gymnocladus dioicus 'Espresso'

Espresso Kentucky coffeetree

Hardiness Zone 3-7

Size H/W 50'x35'

Landscape Zone 2 or 3

Characteristics & Problems

Free of insect and disease problems. Features classic elm-like form. Fruitless.



Juglans major

Arizona walnut

Hardiness Zone 5-9

Size H/W 30'x30'

Landscape Zone 2 or 3

Characteristics & Problems

Bears small walnuts known in Spanish as "nogale".



Koelreuteria paniculata

Goldenrain tree

Hardiness Zone 5-9

Size H/W 40'x40'

Landscape Zone 2 or 3

Characteristics & Problems

Showy, long, yellow flowers. Reseeds readily.



Laburnum watereri

Goldenchain tree

Hardiness Zone 5-7

Size H/W 30'x30'

Landscape Zone 2 or 3

Characteristics & Problems

Poisonous seed pods might pose danger to children or pets.



Liquidambar styraciflua

American sweetgum

Hardiness Zone 5-9

Size H/W 80'x45'

Landscape Zone 3

Characteristics & Problems

Resprouts from root crown. Spiny fruit in yard could be a nuisance.



Maackia amurensis

Maackla

Hardiness Zone 3-7

Size H/W 30'x30'

Landscape Zone 2 or 3

Characteristics & Problems

Dark, olive-green leaves are attractive in summer but produce no fall color.



Phellodendron amurense

Amur corktree

Hardiness Zone 3-7

Size H/W 45'x60'

Landscape Zone 3

Characteristics & Problems

Noted for its attractive shape, bark and foliage.



Populus tremula 'Erecta'

Columnar swedish aspen

Hardiness Zone 1-6

Size H/W 40'x10'

Landscape Zone 2 or 3

Characteristics & Problems

Upright, columnar growth habit; does not sucker as much as quaking aspen.



Quercus species

Oaks

Hardiness Zone 3-9

Size H/W Variable

Landscape Zone 2 or 3

Characteristics & Problems

Oaks cover a wide spectrum of size and habitat.



Quercus acutissima

Sawtooth oak

Hardiness Zone 6-9

Size H/W 60'x60'

Landscape Zone 3

Characteristics & Problems

Sawtooth oak is considered a low-maintenance tree with good pest resistance.



Quercus alba

White oak

Hardiness Zone 3-9

Size H/W 75'x75'

Landscape Zone 3

Characteristics & Problems

Most oaks survive periodic fires.



Quercus bicolor
Swamp white oak

Hardiness Zone 3-8

Size H/W 55'x55'

Landscape Zone 2 or 3

Characteristics & Problems

Tolerates wet soil.



Quercus douglasii
Blue oak

Hardiness Zone 5-8

Size H/W 30'x50'

Landscape Zone 2 or 3

Characteristics & Problems

Medium-sized. Drought-resistant. Might retain its leaves year-round on moist sites.



Quercus garryana

Oregon White oak

Hardiness Zone 6-8

Size H/W 90'x60'

Landscape Zone 3

Characteristics & Problems

Open-grown trees develop very broad, rounded crowns with massive, crooked branches on short, massive trunks.



Quercus lobata

Valley oak

Hardiness Zone 5-8

Size H/W 75'x75'

Landscape Zone 3

Characteristics & Problems

In autumn leaves turn yellow to light orange, but become brown during mid to late fall. Pewter-colored, rippled bark.



Quercus palustris

Pin oak

Hardiness Zone 4-8

Size H/W 75'x40'

Landscape Zone 3

Characteristics & Problems

Infrequently attacked by the common diseases of oaks.



Quercus robur

English oak

Hardiness Zone 5-8

Size H/W 70'x70'

Landscape Zone 3

Characteristics & Problems

Considered to be a low-maintenance tree with few problems.



Quercus robur 'Fastigiata'

Columnar English oak

Hardiness Zone 5-8

Size H/W 60'x20'

Landscape Zone 3

Characteristics & Problems

Good substitute for lombard poplar.



Rhamnus purshiana

Cascara

Hardiness Zone 5-8

Size H/W 30'x20'

Landscape Zone 2 or 3

Characteristics & Problems

Readily reseeds.



Robinia species

Locust

Hardiness Zone 4-9

Size H/W Variable

Landscape Zone 2 or 3

Characteristics & Problems

Numerous varieties best grown in dry or native planting areas. Regular watering promotes dense, weak branching which increases maintenance. Can be invasive.



Salix species

Willow

Hardiness Zone 3-7

Size H/W Variable

Landscape Zone 2 or 3

Characteristics & Problems

Readily sprouts and reseeds. Short-lived.



Salix alba

Golden willow

Hardiness Zone 2-8

Size H/W 65'x65'

Landscape Zone 2 or 3

Characteristics & Problems

White willow generally not recommended for residential landscapes. Susceptible to numerous diseases and insect pests.



Salix amygdaloides

Peachleaf willow

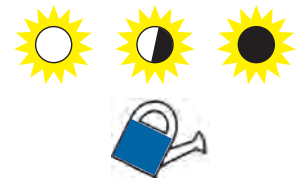
Hardiness Zone 3-7

Size H/W 25'x40'

Landscape Zone 2 or 3

Characteristics & Problems

Grows very quickly. Short-lived. Can only spread by seeds, while most other willows can propagate from roots or snapped bits of twig.



Sophora japonica

Japanese pagoda tree

Hardiness Zone 4-8

Size H/W 75'x75'

Landscape Zone 2 or 3

Characteristics & Problems

Cultivated for its attractive compound foliage and fragrant late-summer flowers.



Sorbus alnifolia

Korean mountain ash

Hardiness Zone 3-7

Size H/W 50'x25'

Landscape Zone 2 or 3

Characteristics & Problems

Considered one of the best of the mountain ashes because of its pest resistance and form.



Sorbus aucuparia

European mountain ash

Hardiness Zone 3-6

Size H/W 30'x20'

Landscape Zone 2 or 3

Characteristics & Problems

Flowering ornamental.



Sorbus sitchensis

Western mountain ash

Hardiness Zone 2-7

Size H/W 13'x13'

Landscape Zone 2 or 3

Characteristics & Problems

Small growth habit. Colorful berries attract birds.



Tilia cordata

Littleleaf linden

Hardiness Zone 3-7

Size H/W 70'x50'

Landscape Zone 3

Characteristics & Problems

Dense canopy may inhibit turf growth, if planted in or near lawn.



Tilia × euchlora

Caucasian linden

Hardiness Zone 3-8

Size H/W 40'x30'

Landscape Zone 2 or 3

Characteristics & Problems

Small cultivar of linden.



Fire-resistant does not mean fireproof!



Even fire-resistant plants will burn if not well maintained. Be sure to keep all of your landscape plants healthy with appropriate watering, proper pruning, etc.

Key for Symbols



Prefers full sun (6 or more hours).



Prefers part shade.



Prefers full shade (6 or more hours).
Avoid afternoon sun.



Very low water-use plant; performs well in dry sites.



Low water-use plant; performs well with minimal supplemental irrigation.



Moderate water-use plant; performs well with supplemental irrigation.



High water-use plant performs well with regular irrigation.

Note on Maples (Genus Acer)

Maples produce many seeds that germinate at a high rate. One tree can produce thousands of seeds each year. When these wind-dispersed seeds germinate, they grow into plants that can displace natives as well as landscape plants. To keep maples in the desired locations, annual maintenance is required. Weeding out unwanted maple seedlings will help keep the area lean, clean and green.

Note on fruit-bearing trees

Chelan and Douglas counties are important fruit-growing regions. To protect the valuable commercial fruit production in our area, the Chelan County Horticultural Pest Board can require a home owner/occupant to spray or remove a fruit tree. Organic and conventional spray schedules are available on the Chelan/Douglas County Master Gardener website. The following pests specifically are required to be prevented and controlled:

- Codling moth and San Jose Scale on apples and pears.
- Pear psylla on pears.
- Western cherry fruit fly and spotted wing drosophila on cherries.

This publication intentionally omits orchard-type fruit-bearing trees so as to not encourage homeowners to plant potentially problem-causing vegetation. If homeowners and occupants choose to select orchard-type fruit-bearing trees or shrubs, it is imperative that they perform proper maintenance and pest control. Ornamental flowering fruit trees with fruit less than 3/8 inch in diameter are considered safe but should be monitored for pests.

Deciduous trees

These are trees that shed their leaves at the end of a growing season and regrow them at the beginning of the next growing season. Most deciduous trees bear flowers and have woody stems and broad leaves rather than needle-like leaves.

Deciduous trees are fire-resistant, as a general rule. In Chelan and Douglas counties shade in the summer and sun in the winter are desired amenities. Most deciduous trees do a good job of providing these attributes, while conifers do not provide the same attributes. Consider the use of deciduous trees in place of conifers on the east, west and south sides of your home for summer shade, winter sun, and fire-resistant characteristics.

Conifers

Conifers are evergreen trees or shrubs of the class Coniferinae (or group Coniferales) including pine, fir, spruce, and other cone-bearing trees and shrubs. This category also includes yews and their plant relatives that bear drupe-like seeds.

Most conifers do not possess fire-resistant attributes. However, some conifers are very fire resilient, meaning they are adapted to survive in fire-prone environments. Many people enjoy conifers for the other characteristics these trees offer. To help reduce the flammability of conifers, owners can employ maintenance techniques to reduce fire hazards. Some of these techniques include spacing, thinning, pruning, removing dead needles in the tree, raking, planting a proper distance from structures (greater than 30 feet), as well as keeping the area clean and properly disposing of vegetative debris. It is important to keep in mind that these trees continue to pose a fire hazard.

Turfgrasses, Annuals and Bulbs

Annuals, bulbs and turfgrasses planted anywhere in Landscape Zones 1, 2, or 3 can provide an excellent fuel break around a home or business. These plants create defensible space for the home and firefighters. These plants, when properly maintained, have a very high moisture content, grow close to the ground, and are difficult to ignite.

Hardiness Zones and Heat Zones

The United States Department of Agriculture (USDA) Plant Hardiness Zone Map (<http://planthardiness.ars.usda.gov/PHZMWeb/InteractiveMap.aspx>) is the standard gardeners use to determine which plants are most likely to thrive at a location. The map is based on the **average** annual minimum winter temperature.

Chelan and Douglas counties are within Plant Hardiness Zones 5 to 7 depending on your specific location within the counties. It is important to remember that the zones are based on **average** annual minimum temperatures, not the lowest winter temperature experienced. For this reason, one may choose plants that will survive in lower winter temperatures.

American Horticulture Society Heat Zones have the same concept with a zone range from Zone 1 to Zone 12. Plants with a heat zone rating between 4 and 7 will generally thrive in Chelan and Douglas counties depending on your specific location.

Key for Symbols



Prefers full sun (6 or more hours).



Prefers part shade.



Prefers full shade (6 or more hours).
Avoid afternoon sun.



Very low water-use plant; performs well in dry sites.



Low water-use plant; performs well with minimal supplemental irrigation.



Moderate water-use plant; performs well with supplemental irrigation.



High water-use plant performs well with regular irrigation.



Maintenance

Maintenance is essential to a fire-resistant landscape. Plants listed as fire-resistant, if allowed to grow unchecked and poorly maintained, can become fire hazards.

Proper maintenance of landscaping is crucial and cannot be ignored.

Remember: "Lean, clean, and green" are the essentials to a fire-resistant landscape.

Maintenance practices for fire-resistant landscapes

- Washing dead debris out of plants
- Pruning to remove ladder fuels
- Thinning
- Spacing
- Raking
- Weeding
- Mowing/Weed Eating
- Using only inorganic mulch close to structures
- Watering
- Clean roofs and gutters
- Cleaning up and properly disposing of yard waste
- Removing dead fuels
- Separating shrubs horizontally so they are no closer than twice their height
- Separating plants vertically so the space between the top of a shrub and the lower branches of a tree are at least three times the height of the shrub
- Practice "Lean, Clean and Green" maintenance at least 30 feet around the structure
 - ▶ Reduce spread and intensity
 - ▶ Prevent ignitions

Invasive plants and noxious weeds

Invasive plants, not native to a specific location, unfortunately have been introduced to the landscape. They tend to spread.

An invasive plant is a plant which grows aggressively, spreads, and displaces other plants. Invasive plants tend to appear on disturbed ground, and the most aggressive can actually invade healthy ecosystems.

A “noxious weed,” according to the Washington State Noxious Weed Control Board, is the legal term used for an **invasive, non-native plant** that is so aggressive it harms the local ecosystem or disrupts agricultural production. These plants crowd out native plant species that fish and wildlife depend upon. They also cost farmers, orchardists and ranchers millions of dollars because of control efforts and lost production.

None of the plants in this publication is on the Chelan County Noxious Weed List as of the date of publication. However, there are some species in this publication that can be considered invasive if proper care and maintenance are not performed.

Favorable plant characteristics and attributes



Fire-resistant attributes of plants

- Low growing
- Herbaceous plant parts
- Open configuration
- High moisture content/ succulent parts
- Water-like sap
- Broad leaves
- Low accumulation of dead materials
- Tight bark

Favorable vs. Unfavorable fire-resistant plant attributes

Favorable	Unfavorable
Short	Tall
Herbaceous	Woody
High moisture	Low moisture content
Deciduous	Evergreen
Watery	Thick/Sticky Sap
Spread out	Thick/dense
Broad leaves	Needles
Tight	Loose Bark/Wood

Unfavorable plant characteristics

Arborvitae, the common name given to at least eight different species and cultivars of the genus *Thuja*, are one of the most fire-prone, and least fire-resistant shrubs planted in the Chelan/Douglas county region. Arborvitae is not a recommended fire-resistant plant. There are several species of juniper that also are not recommended fire-resistant species. Both arborvitae and juniper have a thin covering of green vegetation and a dense mat of dead, very flammable material underneath the green covering.

Below is a short list of some of the plants that are **not** recommended for use in fire-prone environments. The plants in this category have some common characteristics:

- High surface area to volume ratio, that is they have fine-textured parts.
- Low moisture content.
- High percentage of dead fuel matter or debris.

Trees	Shrubs	Grasses
Pine	Bitterbrush	Pampas grass
Firs	Sagebrush	Cheat grass
Larch	Mugo pine	'Karl Foerster'
Spruce	Arborvitae	
Douglas fir	Juniper	
Yew	Yew	
Arborvitae		
Hemlock		
Cedar/Juniper		



Arborvitae may look green on the outside but the interior of the plant is mostly dry, dead fuel, presenting a major threat to nearby structures.

Further reading and websites for Fire-resistant plants and Firewise Information

Choosing the Right Plants for Northern Nevada's High Fire Hazard Areas.

<https://www.unce.unr.edu/publications/files/nr/2007/eb0701.pdf>.

This publication has a plant list and extensive Firewise information.

Fire Resistance of Plants Master Database & Placement of Species within Firewise Landscape Zones for Southern Idaho.

<http://idahofirewise.org/assets/library/Homeowner%20Information/Firewise%20Landscaping/Fire%20Resistance%20of%20Plants%20Master%20Database.pdf>

This publication has a comprehensive plant list that rates plants by flammability. Also, it has a significant amount of fire-resistant plant information.

Firewise Plant Materials.

<http://extension.colostate.edu/topic-areas/natural-resources/firewise-plant-materials-6-305/>

A publication from Colorado that has a comprehensive plant list and discusses landscaping and maintenance.

Protecting and Landscaping Homes in the Wildland/Urban Interface.

<http://www.uidaho.edu/~media/Files/Extension/Forestry/Fire/WUI/FireProtectBro2010final>

A complete Firewise document that discusses a broad spectrum of topics starting with a plant list and including preventing loss of home and evacuation, if necessary.

Defensible Space Landscaping in the Urban/Wildland Interface: A compilation of fire performance ratings of residential landscape plants.

<http://cesutter.ucanr.edu/files/156934.pdf>

A comprehensive reference source about plants, with citations.

Arizona Fire-resistant Plant List.

<http://www.cals.arizona.edu/pubs/natresources/az1289.html> A list of trees, shrubs and grasses.

Fire-Resistant Plants for Home Landscaping.

<https://catalog.extension.oregonstate.edu/pnw590> A list and description of plants for Oregon and Washington.

California Division of Fire – CDF, Cal Fire. www.fire.ca.gov

Ready for Wildfire CDF website. www.readyforwildfire.org

Idaho Firewise. www.idahofirewise.org

Washington State University extension service. www.extension.wsu.edu/

University of Nevada- Reno. <https://www.unce.unr.edu/>

Living with fire. www.livingwithfire.info

U.S. Forest Service. www.fs.fed.us

Bureau of Land Management. www.blm.gov

National Interagency Fire Center. www.nifc.gov

Cascadia Conservation District. <http://cascadiacd.org/wildfire-preparedness>

Fire adapted communities. www.fireadaptedcommunities.org

Fire-Resistant Plants for Oregon Home Landscapes. Fitzgerald, Stephen; Waldo, Amy Jo. OSU Extension Service.

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<http://www.ext.colostate.edu/PUBS/NATRES/06305.html>

Washington State Department of Natural Resources. <https://washingtondnr.wordpress.com/category/wildfire/>
USDA Rocky Mountain Research Station. <http://firelab.org>

National Fire Protection Association. <http://www.nfpa.org/safety-information/fire-prevention-week>

National Interagency Fire Center. <http://www.nifc.gov/>

Protecting and Landscaping Homes in the Wildland and Urban Interface. Barkely, Y, C. Schnepf and J. Cohen. September 2010.
University of Idaho Extension.
<http://www.urbanforestrysouth.org/resources/library/ttresources/protecting-and-landscaping-homes-in-the-wildland-urban-interface>

Living with Fire: A Guide for the Homeowner.
http://extension.oregonstate.edu/tough_times/sites/default/files/documents/livingwithfirepnw.pdf

Fire education for landowners: Fuel reduction series. Information about fire behavior and fuels reduction methods from Oregon State University.
<http://www.cof.orst.edu/cof/extended/extserv/wildlandfire/woodlandowners.php>.

Let's clear the air about outdoor burning. Washington State Dept. of Ecology Website.
http://www.ecy.wa.gov/programs/air/outdoor_woodsmoke/2007Burn_Ban_FAQ.htm.

National Firewise. Web site of the National Firewise Communities Program. <http://www.firewise.org/>

Chumstick Wildfire Stewardship Coalition. Example of an eastern Washington Firewise Community.
<http://www.chumstickcoalition.org/>

Tolt Firewise. An example of a western Washington Firewise community.
<http://www.firewise.org/wildfire-preparedness/be-firewise/success-stories/washington/tolt.aspx?sso=0>
University of Idaho Extension Forestry. <http://www.uidaho.edu/extension/forestry>

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<http://extension.colostate.edu/topic-areas/natural-resources/firewise-plant-materials-6-305/>

Fire-resistant Plants for Home Landscapes.
<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/pnw590.pdf>

USDA Plants Database: Washington Noxious and Invasive Plant List.
<http://plants.usda.gov/java/noxious?rptType=State&statefips=53>

Chelan County Noxious Weed List.
http://www.co.chelan.wa.us/files/noxious-weed/documents/county_selected_list.pdf

Forestry Images

<https://www.forestryimages.org/>

Defensible Space Landscaping in the Urban/Wildland Interface. <http://cesutter.ucanr.edu/files/156934.pdf>

Arizona fire-resistant plant list. Good list of trees, shrubs and Grasses.

<http://www.cals.arizona.edu/pubs/natresources/az1289.html>

Protecting and Landscaping Homes in the Wildland/Urban Interface.

<https://www.uidaho.edu/extension/forestry/topic/fire>

National Resource Conservation Service (NRCS).

https://plants.usda.gov/factsheet/pdf/fs_elwa2.pdf

Marin County Firesafe Council. www.Firesafemarin.org

Fire-resistant Plants for Ashland Oregon. www.ashland.or.us

Eastern United State Fire performance plant selector. <http://www.fire.sref.info/>

Missouri Botanical Garden. <http://www.MissouriBotanicalGarden.org>

Acknowledgements

The information and photos in this publication have been gathered from numerous sources, all of which are listed in the literature-referenced section. This publication lists only fire-resistant plants that are in other Firewise documents. Master Gardener volunteers did not perform any empirical research, but only compiled existing information about plants that are likely to thrive in Chelan and Douglas counties, Washington. We wish to thank those who “went before us” in researching and gathering this valuable information.

Plant availability

If you are unable to find a fire-resistant plant at a local nursery, you can contact the Washington State University (WSU) Chelan/Douglas Counties Master Gardeners Plant Diagnostic Clinic at (509) 667-6540 for assistance in finding a nursery that might carry the plant.

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Washington State University (WSU) Master Gardeners

WSU Master Gardeners are university-trained community volunteers who provide research-based, sustainable landscape education to communities across Washington State. Volunteers teach about environmental stewardship through providing information about best gardening practices for the goal of protecting natural resources in a sustainable manner.

Glossary of Terms

Annual Plant – A plant that completes its life cycle in one growing season.

Aspect – Cardinal direction toward which a slope faces.

Climate – The prevalent or characteristic meteorological conditions of any place or region and their extremes.

Deciduous Shrub – A woody, generally multi-stemmed plant that loses its leaves and becomes dormant during the winter.

Deciduous Tree – A tree that sheds its leaves at the end of a growing season and regrows them at the beginning of the next growing season. Most deciduous trees bear flowers and have woody stems and broad, rather than needle-like, leaves.

Drought – A period of relatively long duration with substantially below-normal precipitation, usually occurring over a large area.

Duff – The layer of decomposing organic materials below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.

Ecosystem – An interacting natural system including all the component organisms together with the abiotic environment and processes affecting them.

Environment – The complex surroundings of an item or area of interest such as air, water, natural resources, and their physical conditions (temperature, humidity).

Evaporation – The transformation of a liquid to its gaseous state; heat is released by the liquid during this process.

Evergreen shrub – A woody, multi-stemmed shrub that retains its leaves throughout the year.

Fine Fuels – Fast-drying dead or live fuels, generally characterized by a comparatively high surface area-to-volume ratio, which are less than 1/4-inch in diameter and have a timelag of one hour or less. These fuels (grass, leaves, needles, etc.) ignite readily and are consumed rapidly by fire when dry.

Fire Frequency – A general term referring to the recurrence of fire in a given area over time.

Fire Hazard – A fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree of ease of ignition and of resistance to control.

Fire Interval – The number of years between two successive fire events for a given area; also referred to as fire-free interval or fire-return interval.

Fire Risk – The chance of fire starting as determined by the presence and activity of causative agents.

Firebrand – Any source of heat, natural or human-made, capable of igniting wildland fuels. Flaming or glowing fuel particles that can be carried naturally by wind, convection currents, or by gravity into unburned fuels.

Fire – Rapid oxidation, usually with the evolution of heat, fuel, oxygen and the interaction of the three.

Firewise – A national program that emphasizes community involvement and provides important information for residents to reduce the risk of wildland fire igniting homes.

Fuelbreak – A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled.

Fuel – Any combustible material, especially wildland fuels.

Groundcover Plant – A low-growing or trailing group of plants usually used to cover bare earth and create a uniform appearance.

Hazard Fuel – A fuel complex defined by kind, arrangement, volume, condition, and location that presents a threat of ignition and resistance to control.

Hazard Reduction – Any treatment of living and dead fuels that reduces the potential spread or consequences of fire.

Hazard – Any real or potential condition that can cause injury, illness or death of personnel, or damage to, or loss of equipment or property.

Heat Zone – The American Horticultural Society (AHS) developed the [Heat Zone Map](#), which parallels the USDA Hardiness Zone Map. This map is based on the number of "heat days" experienced in an area. A heat day is defined as a day in which the temperature climbs to over 86 degrees F. At this temperature, many plants begin to experience physiological damage and start to shut down. Heat Zones range from 1 (no heat days) to 12 (210 or more heat days).

Herbaceous Perennial – A plant with soft, rather than woody, tissues. Perennials die back to the ground each year but their roots remain alive and send up new top growth each spring.

Home Assessment – Evaluation of a dwelling and its immediate surrounding to determine its potential to escape damage by an approaching wildland fire. Includes the fuels and vegetation in the yard and adjacent to the structure, roof environment, decking and siding materials, prevailing winds, topography, fire history, etc., with the intent of mitigating fire hazards and risks.

Invasive Plant – A plant that is both non-native and able to establish on many sites, grow quickly, and spread to the point of disrupting plant communities or ecosystems.

Ladder Fuels – Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

Landowner – The person or entity that owns the land or has the authority to convey title to others.

Limbing – Removing branches from a standing tree or shrub.

Live Fuel Moisture Content – Ratio of the amount of water to the amount of dry plant material in living plants.

Live Fuels – Living plants such as trees, grasses, and shrubs in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.

Live Herbaceous Moisture Content – Ratio of the amount of water to the amount of dry plant material in herbaceous plants (i.e., grasses and forbs).

Live Woody Moisture Content – Ratio of the amount of water to the amount of dry plant material in shrubs.

Maintenance – The work of keeping something in proper condition, care or upkeep including taking steps to avoid something breaking down (preventative maintenance) and bringing something back to working order (corrective maintenance).

Native Species – A species which is a part of the original fauna or flora of the area in question.

Natural Barrier – Any area where lack of flammable material obstructs the spread of wildfires.

Non-turf grass – A grass that is generally not used in the formation of a lawn or in a continuous mat of grass. Often referred to as conservation grasses.

Noxious Weed – An invasive species of a plant which is designated as harmful to agricultural crops, ecosystems, or humans or livestock.

Probability of Ignition – The chance that a firebrand will cause an ignition when it lands on receptive fuels.

Risk – The chance of fire starting as determined by the presence and activity of causative agents. A chance of suffering harm or loss. A causative agent such as ignition source.

Shrub – A woody perennial plant differing from a perennial herb by its persistent and woody stem, and from a tree by its low stature and habit of branching from the base.

Slope Percent – The ratio between the amount of vertical rise of a slope and horizontal distance as expressed in a percent. One hundred feet of rise to 100 feet of horizontal distance equals 100 percent.

Spot Fire – Fire ignited outside the perimeter of the main fire by a firebrand.

Structure – A constructed object, usually a free-standing building above ground.

Tree – A woody perennial plant, typically having a single stem or trunk growing to a considerable height and bearing lateral branches at some distance from the ground.

Vine – A plant having a long, slender stem that trails or creeps on the ground or climbs by winding itself about a support or holding fast with tendrils or claspers.

Volatiles – Readily vaporized organic materials which, when mixed with oxygen, are easily ignited.

Wildland Fire – Any non-structure fire that occurs in vegetation or natural fuels. Wildland fire includes prescribed fire and wildfire.

Wildland Urban Interface (WUI) - The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Describes an area within or adjacent to private and public property where mitigation actions can prevent damage or loss from wildfire.

Wildland - An area in which development is essentially non-existent, except for roads, railroads, powerlines, and similar transportation facilities. Structures, if any, are widely scattered.

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