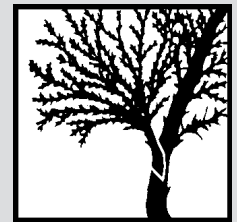
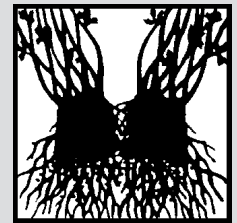


Grow Your Own Native Landscape

Written & Edited by Michael Leigh

**A Guide to
Identifying,
Propagating
& Landscaping
with Western
Washington
Native Plants**



*Native Plant
Salvage Project*



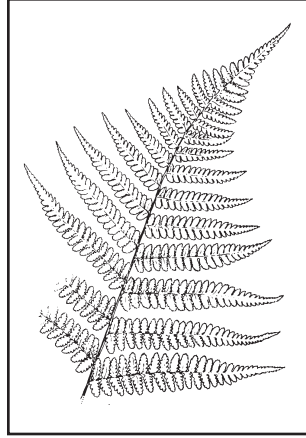
WASHINGTON STATE UNIVERSITY
EXTENSION

About the Native Plant Salvage Project

The WSU Extension Native Plant Salvage Project began in 1994 to involve Thurston County residents in direct action to protect water resources and improve habitat. Through action projects and educational activities to people of all ages, the Project works to preserve existing vegetation, restore compromised habitat, revegetate habitats as diverse as prairies and marine shorelines, and reduce the impacts of stormwater runoff. The Project depends on hundreds of volunteers and landowners eager to make a difference to protect water resources.

Under its auspices, WSU NPSP has produced publications and videos on revegetation, proper planting techniques, building rain gardens, low-impact development, and multi-season plant identification. For more information, see **nativeplantsalvage.org** and **thurston.wsu.edu**, or email: nativeplants@wsu.edu.

Support for this project was provided by the U.S. Environmental Protection Agency, the Washington State Department of Ecology, and Washington State University Extension.



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Special thanks to the King County Water & Land Resources Division, who has joined with us in reprinting this second edition and whose guides *Aquatic Plants: Identification, Benefits, and Management*, *Noxious Weeds: A Guide to Invasive Non-native Plants*, and *Northwest Native Plants: Identification and Propagation for Revegetation and Restoration Projects* served as the basis for parts of this guide. This last document, and King County's Native Plant Salvage Program, have served as models for similar programs in western Washington and around the nation. Our thanks for permission to extensively revise these publications for this guide. Those wishing to contact the King County program should call (206) 296-6519.

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Why This Guide

Soon after the founding of the Native Plant Salvage Project in 1994, coordinator Ernie Paul and his colleagues Kit Paulsen and Gina Suomi recognized the need for a comprehensive guide to enable residents to obtain more native plants for landscaping. The Project was blessed with the hard work, diligent research skills, and attention to detail provided by Mike Leigh, who produced the original guide in 1995 to provide concise yet detailed information on identification, propagation and ethical salvaging, and complete descriptions of local plants likely to succeed in home landscapes. Since its initial release, and a revision in 1999, the demand has steadily grown each year. Many thousands of copies are in circulation throughout western Washington. With this latest revision, we have updated scientific names and family assignments to reflect new understanding in taxonomy based on DNA analysis.

Those who are new to our work may wonder what landscapes have to do with protecting water resources. As our urban landscapes become our dominant landscapes with increasing development, it is more crucial than ever that we re-create—albeit on a smaller scale—the habitat and hydrological values of native vegetation that are disappearing from our dwindling native forests.

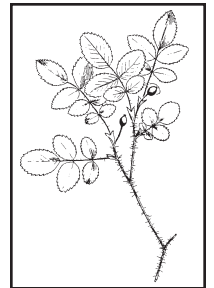
When we landscape our yards with a diverse array of native plants, we do more than just create beautiful, low-maintenance landscapes. We provide multiple layers of vegetation to “intercept” rainwater, slow it down, and allow it time to percolate back into the ground or to return to the atmo-

sphere through evapotranspiration. This prevents the many detrimental impacts of too much stormwater—flooding, erosion of stream channels, siltation of streams, increased pollution run-off—as well as recharging the groundwater. That water is especially needed during dry times—for us, and to feed the streams when the salmon are returning to spawn at the end of summer.

Native plants are especially good landscaping choices because they don’t require chemical pesticides or fertilizers, and when planted appropriately, require no extra water once they are established. Creating a native plant landscape provides much needed habitat for aquatic and terrestrial animals, and will attract beautiful birds and butterflies to your garden. Perhaps most important, when we use natives in our home landscapes, we demonstrate the enduring beauty and benefits of natives to others who may be moved to incorporate more diverse, native plantings into their own landscapes, and support the preservation of native ecosystems in future developments.

We hope this guide proves as useful to you as it has to the thousands of others who have already discovered the joys of identifying, obtaining, and landscaping with native plants. Happy planting!

Erica Guttman
WSU WATER RESOURCES PROGRAM
NATIVE PLANT SALVAGE PROJECT
January 2013



HOW TO USE THIS GUIDE

Part I is an introduction to native plants, and explains what native plants are and lists the benefits of using them for landscaping. **Part II** outlines two approaches for deciding which native plants are appropriate for your yard, and contains lists of native plants that occur together in certain sunlight and moisture combinations. **Part III** details various methods for obtaining native plants, and contains pointers for buying plants, guidelines for collecting plant material from natural settings, and in-depth instructions for propagating and salvaging native plants.

The bulk of this guide is **Part IV**, the “Native Plant Descriptions,” which provides detailed information on more than 80 native plants found in western Washington, with an emphasis on Puget Sound lowlands. Each species and its habitat are described in some detail, its advantages and disadvantages are listed (including how it is used by animals), and information is provided on how it can be propagated and whether it can be salvaged. This section is organized into five sections according to plant size, growth form, and habitat:

trees (woody plants that are usually over 20 feet tall and have a single trunk);

shrubs (woody plants that are usually under 20 feet tall and have several main stems);

ferns, ground covers, and herbaceous perennials;

emergents (aquatic or wetland plants that carry most of their foliage above the water); and
submerged and floating-leaved plants (aquatic plants that are mostly under or on the surface of the water).

Part V, “Problem Aquatic and Terrestrial Plants,” is one of the most important in the guide. It lists plants that should never be planted and may need to be controlled. It provides an overall strategy for dealing with problem plants, and contains descriptions of some of the worst problem plants in western Washington, their impacts on natural environments, and methods for controlling them.

Part VI, “Lakes and Aquatic Plants,” was written for people who live near lakes or other bodies of water. This section highlights the importance of aquatic plants and some of the factors that are of concern.

At the end of the guide, you’ll find a list of resources, suggestions for further reading, a glossary with definitions of many of the terms used in this guide, and a numbered list of references corresponding to the superscripts appearing throughout the text. Finally, there is an index to the species described; this is arranged according to the most frequently used common name, and scientific name(s).

I. Introduction to Native Plants

What Are Native Plants?

Native plants are plants that occur naturally in your region. For example, Douglas-fir is a native plant in much of western Washington. English holly, on the other hand, is not a native plant in Washington because it was originally brought here by humans (it is, however, a native plant in England).

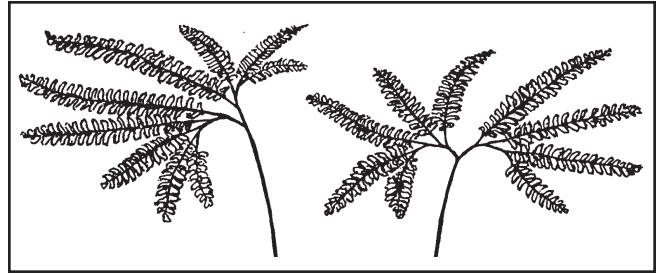
Non-native plants are often called “exotic plants” or “introduced plants.” Occasionally they can become a problem, spreading aggressively and damaging wildlife habitat. Some of the more problematic non-natives are described in Part V.

Why Use Native Plants?

The plants native to your region have grown alongside the native insects, fungi, plant diseases, wildlife, and other native plants for thousands of years. This long-time association has produced a complex web of inter-relationships, by which the native plant may depend upon numerous other native organisms to survive and flourish, and a multitude of native organisms may, in turn, depend upon that native plant to survive.

In the process, native plants have evolved the ability to attract native animals that benefit them (such as pollinating and seed-dispersing insects and birds), and repel or survive native organisms that harm them (such as plant viruses and munching insects).

As a result, native plants often attract a wider variety of native animals than do exotic plants. In addition, the plants native to your area are adapted to growing in your region’s soils and climate, and so generally require less maintenance (such as watering) than do non-natives.



When Is A Native Plant NOT Native?

Using native plants raises important issues about exactly what “native” means. For example, red-osier dogwood (*Cornus sericea*), is native to western Washington. However, it is also native to a number of other places, including Alaska, California, Michigan, and Maine! Although they are all the same species, red-osier dogwoods growing naturally in other areas have adapted to a very different combination of climate, soil, diseases, and other plants and animals than are found in western Washington. As a result, you could say that dogwoods native to Michigan are about as “native” to western Washington as are palm trees!

Ideally, you want to use plants similar to those that occur naturally nearby. Such plants will be adapted to the climate and soils specific to your area. In addition,

using truly native plants will protect local native plants from crossing with similar plants from other regions (which can water down the local adaptations native plants have evolved over time).

Unfortunately, the red-osier dogwood sold here in nurseries frequently has been propagated from plants adapted to growing on the East Coast. Since most nurseries do not track the origin of their stock, it can be difficult to know what you are getting, and you may prefer to go to a nursery that knows its stock is from our region, or grow your own.



II. Which Native Plants Should I Use?

Imitate Nearby Natural Settings

The best way to determine which native plants are appropriate for your property is to identify the native plants growing in the surrounding area under similar conditions, including amount of sun, type of soil, amount of moisture in the soil, and types of neighboring plants. (Books for plant identification are listed in Part VII, Resources and Further Reading, at the end of this guide.)

Note which native species grow near other native species, because this can be a good indication of which plants can be planted together without one species taking over. In order to attract a variety of native birds and butterflies, plant as many of the plant species you see growing nearby as possible. In addition, select and arrange the plants so that they vary in height from taller trees to ground covers, and so that you create a mixture of plant densities (some clumped, some spaced, and some open areas).

Starting From Scratch

1. Evaluate Your Yard

If there aren't many native plants nearby, you can still figure out which natives are appropriate once you determine how much moisture and sunlight the planting area gets and how well the soil holds moisture. Take note of which areas receive full sun throughout the day, which receive sunlight only part of the day, and which areas are in the shade most or all of the day. Also notice whether the shade is complete, or if patches of sunlight filter through. You may find it helpful to draw a rough map of your yard.

To evaluate how moist the soil is and how well it holds moisture, dig a hole in the ground about six inches deep and six inches wide. Look at and feel the material you remove from the hole to see how moist or dry it is, and whether it has a lot of sand, gravel, organic matter, or clay. Then fill the hole with water, and watch how fast the water soaks into the ground. There is no hard-and-fast rule here, but if the soil soaks the water up so fast you can't fill it with water, you have very well-drained soil. And if the water is still in the hole two hours later, you definitely have poorly draining soil. You may want to dig a number of these test holes in different areas to see if soil conditions are the same throughout your yard.

Take note of areas that are near streams or other bodies of water. Also pay attention to whether there are areas of pooling or continual dryness.

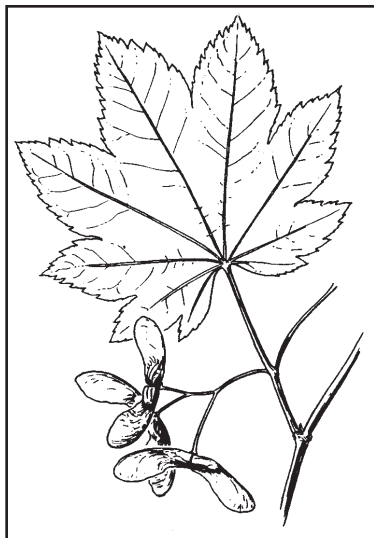
2. Use Native Plant Associations to Mimic Nature

Once you have determined the amount of sunlight and moisture and type of soil on your site, you can use the native plant associations on pp. 4–5 to decide what to plant. Rather than provide a list of plants from which to haphazardly pick-and-choose, we suggest using these plant associations so you can recreate the mix of natives that normally grow together under natural conditions.

Each native plant association is named after the amount of sunlight and soil moisture occurring where that association grows. To find the association appropriate to your property, look for the sun-moisture combination existing in the area you want to plant. While not exhaustive, the associations listed cover the most common situations and species found in our region.

Each native plant association begins with a description of the setting (sunlight, soil, water) and what the vegetation growing there would look like in the wild. Although the area you wish to plant probably won't fit the whole description, it should match the amount of sunlight, type of soil, and amount of moisture. The rest of the description will give you an overall idea of what the area will eventually look like if you plant the suggested species.

Most of the descriptions simply refer to "canopy" (the uppermost layer of vegetation), "understory" (smaller trees and shrubs below the canopy), or "ground covers" (herbaceous plants, ferns, and other low-lying plants). Below the description are lists of plant species included in these categories.



Try to plant as many of the natives listed as possible, as this will create diversity that will attract native birds and butterflies and continue looking natural over the years. Take note of the native plants that grow in the area, and feel free to add these species to your list of plants.

Before you go shopping for any of these plants, write down each plant's unique, scientific (Latin) name, as many of the plants listed have more than one common name or share their common name with some other plant.

Native Plant Associations For The Landscape

By MARY JO BUZA (GARDENS BY DESIGN, OLYMPIA, WA)

1. Deep Shade & Moist Soils

DESCRIPTION: If you have a yard with evergreen trees that provide consistent year-round shade, the following plants will do well on your site. If your yard has seasonal shade that deciduous trees furnish during the summer months, these plants will thrive. The plants in the following list are tolerant of a moist soil due to poor drainage, or proximity to a stream or lake.

While developing your planting scheme, keep in mind that in a natural setting with deep shade, the understory shrubs are usually sparse and located near pockets of light or along the edges of the shady area. In contrast, the groundcover layer consisting of ferns and perennials grows thickly in deep shade.

Native huckleberries do well in a moist soil, with plenty of organic matter; they do not like heavy clay soils. Avoid using huckleberries if you have clay soils.

CANOPY: western hemlock (*Tsuga heterophylla*); western redcedar (*Thuja plicata*); cascara (*Rhamnus purshiana*); Douglas-fir (*Pseudotsuga menziesii*).

UNDERSTORY: black twinberry (*Lonicera involucrata* var. *involucrata*); evergreen huckleberry (*Vaccinium ovatum*); low Oregon-grape (*Berberis nervosa*); red elderberry (*Sambucus racemosa* ssp. *pubens* var. *arborescens*); red huckleberry (*Vaccinium parvifolium*, usually on stumps and logs); red-osier dogwood (*Cornus sericea* ssp. *occidentalis*); vine maple (*Acer circinatum*).

GROUND COVERS: bunchberry (*Cornus unalaschensis*); deer fern (*Blechnum spicant*); false Solomon's seal (*Maianthemum racemosum* ssp. *amplexicaulis*); foamflower (*Tiarella trifoliata*); lady fern (*Athyrium filix-femina* var. *cyclosorum*, in the wettest sites); Pacific bleedingheart (*Dicentra formosa* ssp. *formosa*); piggyback plant (*Tolmiea menziesii*); redwood oxalis (*Oxalis oregana*); salal (*Gaultheria shallon*); snowberry (*Symphoricarpos albus*); wood sorrel (*Oxalis oregana*); sword fern (*Polystichum munitum*); trailing yellow violet (*Viola sempervirens*); twinflower (*Linnaea borealis* ssp. *longiflora*); western trillium (*Trillium ovatum* ssp. *ovatum*); wild-ginger (*Asarum caudatum*); wild strawberry (*Fragaria* spp.).

2. Partial Shade & Well-Drained Soils

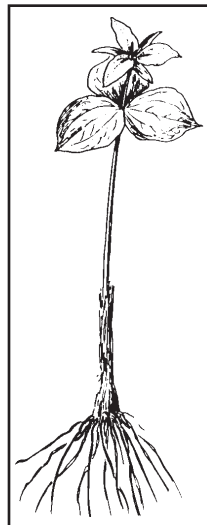
DESCRIPTION: In a native plant community with partial shade, enough dappled light passes through the tree canopy to support a diverse understory layer of shrubs. In this plant community the tree canopy consist primarily of Pacific dogwood, bitter cherry, bigleaf maple, and a scattering of conifers. The soils are well drained, and dry out during the summer months. Soils that tend to dry out in the summer months consist mostly of sand or the rocky glacial till common in the Puget Sound region. If this description matches the conditions in your yard, the plants listed below will do well.

CANOPY: bigleaf maple (*Acer macrophyllum*); bitter cherry (*Prunus emarginata* var. *mollis*); Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*); western redcedar (*Thuja plicata*); grand fir (*Abies grandis*); highbush cranberry (*Viburnum edule*); Pacific dogwood (*Cornus nuttallii*).

UNDERSTORY: baldhip rose (*Rosa gymnocarpa* var. *gymnocarpa*); beaked hazelnut (*Corylus cornuta* var. *californica*); evergreen huckleberry (*Vaccinium ovatum* var. *ovatum* or var. *saporosum*); Indian-plum (*Oemleria cerasiformis*); low Oregon-grape (*Berberis nervosa*); mock-orange (*Philadelphus lewisii* var. *gordonianus*); oceanspray (*Holodiscus discolor*); Oregon boxwood (*Paxistima myrsinites*); Pacific rhododendron (*Rhododendron macrophyllum*, in moist spots); western serviceberry (*Amelanchier alnifolia* var. *humptulipensis* or var. *semiintegrifolia*); red-flow-

ering currant (*Ribes sanguineum* var. *sanguineum*); snowberry (*Symphoricarpos albus*); red huckleberry (*Vaccinium parvifolium*, on stumps and logs); salal (*Gaultheria shallon*); vine maple (*Acer circinatum*).

GROUND COVERS: sword fern (*Polystichum munitum*), trailing yellow violet (*Viola sempervirens*); twinflower (*Linnaea borealis* ssp. *longiflora*); deer-foot vanilla-leaf (*Achlys triphylla* ssp. *triphylla*); western trillium (*Trillium ovatum* ssp. *ovatum*).



Native Plant Associations For The Landscape

3. Sun & Moist Soils

DESCRIPTION: The plants in the following list are well-suited for sites near lakes, rivers, or wetlands that may experience periodic flooding or seasonal high water tables. As a result of their closeness to lakes, rivers, and wetlands, the soils are moist to wet many months of the year. If your site has moist to wet soils and does not currently have trees to provide shade, the plants on this list will do well. These plants love a sunny location.

CANOPY: bigleaf maple (*Acer macrophyllum*); bitter cherry (*Prunus emarginata* var. *mollis*); black cottonwood (*Populus balsamifera* ssp. *trichocarpa*); black hawthorn (*Crataegus suksdorfii*); common chokecherry (*Prunus virginiana* var. *demissa*); Oregon ash (*Fraxinus latifolia*); Pacific crabapple (*Malus fusca*), red alder (*Alnus rubra*); Pacific dogwood (*Comus nuttallii*, in well-drained sites).

UNDERSTORY: black twinberry (*Lonicera involucrata* var. *involucrata*); clustered wild rose (*Rosa pisocarpa*); Nootka rose (*Rosa nutkana* var. *muriculata* or var. *nutkana*); Pacific willow (*Salix lucida* ssp. *lasiandra*); red-osier dogwood (*Cornus sericea* ssp. *occidentalis*); Pacific ninebark (*Physocarpus capitatus*); red elderberry (*Sambucus racemosa* ssp. *pubens* var. *arborescens*); salmonberry (*Rubus spectabilis* var. *spectabilis*), Sitka willow (*Salix sitchensis*); thimbleberry (*Rubus parviflorus* var. *parviflorus*); vine maple (*Acer circinatum*).

GROUND COVERS: false lily-of-the-valley (*Maianthemum dilatatum*); Pacific bleeding-heart (*Dicentra formosa* ssp. *formosa*); sawbeak sedge (*Carex stipata*), small-fruited bulrush (*Scirpus microcarpus*), lady fern (*Athyrium filix-femina*); sword fern (*Polystichum munitum*), violets (*Viola* species).



4. Sun & Well-Drained Soils

DESCRIPTION: The plants in this community are tolerant of sun but prefer a well-drained soil. Soils that are well-drained often are sandy or coarse with various sizes of rocks. A well-drained soil typically will dry out during the summer months. Therefore, the plants in the following list can survive summer drought once established. Included in the list are both red huckleberry and evergreen huckleberry. Our native huckleberries prefer a soil enriched with organic matter. Often seen growing on decaying logs and stumps, our native huckleberries benefit from both composted organic matter and partially composted organic matter such as wood chips. Before planting huckleberries always improve the soils with organic matter.

CANOPY: bigleaf maple (*Acer macrophyllum*); bitter cherry (*Prunus emarginata* var. *mollis*); common chokecherry (*Prunus virginiana* var. *demissa*); Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*); grand fir (*Abies grandis*); Pacific madrone (*Arbutus menziesii*, most common along the shores of Puget Sound); Pacific dogwood (*Cornus nuttallii*); shore pine (*Pinus contorta*), beaked hazel (*Corylus cornuta* var. *californica*).

UNDERSTORY: baldhip rose (*Rosa gymnocarpa* var. *gymnocarpa*); blue elderberry (*Sambucus cerulea* var. *cerulea*); common snowberry (*Symphoricarpos albus* var. *laevigatus*), evergreen huckleberry (*Vaccinium ovatum* var. *ovatum* or var. *saporesum*); hairy manzanita (*Arctostaphylos columbiana* ssp. *columbiana*); Indian-plum (*Oemleria cerasiformis*); mock-orange (*Philadelphus lewisii* var. *gordonianus*); oceanspray (*Holodiscus discolor*), red-flowering currant (*Ribes sanguineum* var. *sanguineum*); red huckleberry (*Vaccinium parvifolium*); salal (*Gaultheria shallon*); western serviceberry (*Amelanchier alnifolia* var. *humptulipensis* or var. *semiintegrifolia*); snowbrush (*Ceanothus velutinus* var. *hookeri*); vine maple (*Acer circinatum*); orange honeysuckle (*Lonicera ciliosa*).

GROUND COVERS: kinnikinnick (*Arctostaphylos uva-ursi*); Mahala mat (*Ceanothus prostratus*); coastal strawberry (*Fragaria chiloensis*); twinflower (*Linnaea borealis*) (requires organic matter); sedum (*Sedum*) (several varieties); sword fern (*Polystichum munitum*); lupine (*Lupinus polyphyllus*); Cardwell's penstemon (*Penstemon cardwellii*).

III. How Can I Get Native Plants?

Many native plants can be bought from nurseries, or you can grow them yourself from seeds or cuttings collected in the wild, by layering or dividing plants already in your yard, or by transplanting whole plants from the wild. Of the do-it-yourself methods, growing from seed is the most ecologically sound method, as it does not damage existing plant populations (provided seeds are not collected over-zealously). On the other hand, propagation from cuttings or transplanting plants may be preferable if the plants are going to be destroyed by land development, and these may grow more quickly than from seed.

Details on each of these methods appear later in this section. Keep in mind that the instructions are general: instructions specific to each species can be found in the species descriptions of Part IV. If you choose one of the do-it-yourself methods, collect the plant materials you need from areas similar to your planting site in elevation, slope, rainfall, frost dates, and annual temperature—ideally, somewhere near the planting site. Following these guidelines will improve plant survival and ensure that your plants (and their offspring) are well-adapted to local conditions.

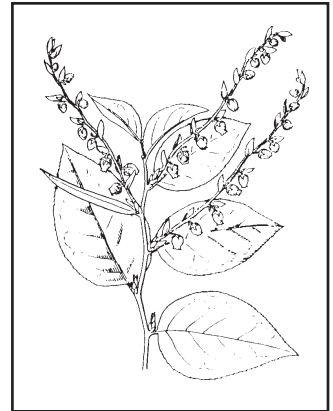
Several of the propagation methods recommend collecting plant materials during the dormant season, a period generally from late fall through winter. It is called “dormant” because plants are not actively growing, due to the shorter days and cold weather. Because plant dormancy in western Washington is often interrupted by spells of warm, spring-like weather, plants should

be considered dormant only if the previous two weeks consisted of uninterrupted cold weather.

As you consider these options keep in mind that one purpose for using native plants is to create and improve natural habitat. Therefore, we strongly discourage collecting whole plants from their natural settings. Not only has this practice brought some plants to the brink of extinction, it is frequently unsuccessful because many of the plants have low transplant survival rates.

The **only** situation in which one should consider collecting whole plants from natural settings is when a plant is in the path of planned bulldozing. This type of collecting is called “plant salvaging,” and the appropriate conditions and methods for salvaging are described later in this section.

Because knowledge about propagating native plants is still evolving, we encourage you to take careful notes to document your successes and failures. Record the dates and locations from which seeds and cuttings are collected; planting dates; germination periods; and times of initial leaf production, flowering, fruiting, seed production, and leaf-fall.



Nurseries & Other Commercial Sources



More and more nurseries are beginning to carry native plants, and many even specialize in native plants. On the plus side, nursery plants have high survival rates, and you don't have to wait for them to grow from seed. On the minus side, some native plants may be difficult to find in

a nursery and, as mentioned earlier, it may be difficult to determine whether a nursery plant truly is native.

Before buying from a nursery, look closely at the scientific name used in Part IV (Native Plant Descriptions). If you see the abbreviation “var.” (for “variety”) or “ssp.” (for “sub-species”), there is a particular variety or sub-species native to western Washington. Other varieties or sub-species are probably not native to our area.

It is best to buy varieties or sub-species native to your area, because they come closest to having the qualities of a truly native plant. If you need a particular variety or sub-species and the nursery doesn't know which it has, ask where the seeds or cuttings for the plant were collected. If the collection site is not in western Washington, or they don't know, or they just purchased the plant from another nursery, it is probably safest to assume the nursery plant is the wrong variety or sub-species.

Because commercial collecting of whole plants from the wild can have devastating effects on plant populations, reputable nurseries grow their own native plants from seed (collected from the wild or from nursery stock), from cuttings or divisions, or sell plants salvaged from development sites. However, some nurseries do collect carelessly from the wild, so ask where they got their plants.

How Can I Get Native Plants?

Generally, fall is the best time to shop, because that is when most nurseries have the most stock of native plants. Look for plants that are a healthy color. Since this varies from species to species, familiarize yourself with the species you are interested in purchasing. Select plants with larger stems over those with greater height—taller plants often get that way through an infusion of fertilizers, rather than slow natural growth.

Look the plant over carefully. There should be no wounds on the stems, other than pruning scars, and no obvious signs of disease or ongoing insect infestation (though a little insect damage is fine). In the fall, it is okay for dying leaves on deciduous plants to have fungus spots.

If the plant is in a container, carefully tip the plant out and look at the roots. (Don't do this with every plant: just those you are seriously interested in buying! To avoid upsetting nursery staff, you may want to ask them to do it for you.) Beware of rootbound plants with tightly packed or encircling roots. Since prices are usually based upon the container size (rather than plant size), the roots should fill the pot sufficiently to hold the dirt together. If the nursery will not allow you to look at the roots, be suspicious and shop elsewhere. If the plant is bareroot, it should have lots of small, fibrous roots, and the smaller roots should look moist and plump.

The Ethics Of Collecting Native Plant Materials



Most methods of obtaining native plants involve removing plants or portions of plants from natural environments. Careless use of these techniques can damage natural settings. Since you don't want to create natural habitats and restore degraded sites at the expense of natural sites, we urge you to observe the guidelines to the right when collecting plants, cuttings, and seeds.

- Before collecting on public lands, obtain all necessary permits.
- Get permission from the property owner before entering private property for any reason.
- Do not collect from wetlands or other environmentally sensitive areas.
- If a plant or group of plants looks weak or unhealthy, do not collect from it—the extra stress may harm the plant, and you may transport a disease to your site.
- Collect only as much as you will be able to use. Care properly for any material you collect—don't let it go to waste. Share extras with neighbors or friends.
- When collecting cuttings, do not take more than $\frac{1}{20}$ (5%) of any plant.
- When collecting seeds, do not take more than $\frac{1}{20}$ (5%) of a particular species' seeds in an area. Collect from as many different plants as possible. Always leave enough seed for each plant to regenerate itself and for wildlife that may depend on the seeds for food.
- Collect whole plants only from construction sites where native vegetation will be destroyed. Be sure to get the property owner's permission first, and collect only from those portions of the property that will actually be bulldozed.
- Do not collect plants, seeds, or cuttings of rare or endangered species unless they are on a construction site and are actually in danger of being destroyed. However, if you find what you think is a rare plant in such an area, first contact the Washington Natural Heritage Program in Olympia (360-902-1650 or 360-902-1661).
- If you encounter an unfamiliar plant, or one that is different from what you are used to (for example, a different flower color), assume it is rare and do not collect seed or cuttings from it until you have determined it is not rare.
- Unless you are collecting from a future construction site, avoid encouraging others to collect from the same area—the more people collecting from a given area, the heavier the impact on the environment. Be prepared to explain what you are doing and why.
- Avoid unnecessary damage to sites. Avoid frequent visits to the same site.

Growing From Seed



Almost all native plants can be propagated from seeds, although it can be time-consuming and, with some species, undependable. However, using seeds is a valuable propagation method because it reduces the likelihood of injuring the parent plant, minimizes your impact on natural settings, and

makes it possible to grow a large number of seedlings.

Most seeds can be planted as soon as they are ripe, or dried and stored for later use. The best time to collect seeds is when they are mature. Most seeds begin to ripen in early summer and can be harvested in the fall (see Part IV for details on each species' ripening dates).

As the seeds or fruits mature, check them frequently for ripeness—seeds are ripe when they have turned dark and hard, while berries are ripe when they turn their ripe color(s). Try to collect shortly before they reach full maturity; you don't want to wait too long and lose all the seeds or berries to animals or the wind. When collecting seed capsules or cones, look to see whether there are still seeds inside. Make a note of the dates you find particular species of seed ripening so that in future years you will know when to collect them.

It is important to consider genetic diversity when propagating plants from seed. Collect seeds from several different plants to ensure genetic diversity—preferably plants at least 100 feet apart. Collect from areas that are similar to your planting site and, if possible, from within the same watershed. These strategies will help ensure that plant genes match their growing environment for the best chance of successful propagation.²⁹

1. Collecting Seeds

Collect seeds in paper bags, as plastic bags will trap moisture and rot the seed. However, plastic bags do work well for moister berries, such as cascara and salmonberry. Be sure to write the plant species and the collection date and location on the bags.

Most fruits or seed capsules can be picked directly off the plant. You may need to use a ladder to reach them on trees and taller shrubs. Don't cut off branches to get the seeds!

Cones should be collected before they open, usually after they start to turn brown. To remove cones from conifers, pick easy-to-reach cones and use a ladder or long pruners to reach cones in upper branches. Don't cut off branches to get the cones, and take care not to damage the tree.

The seed heads of rushes, sedges, and bulrushes should be picked just before they are ripe, and placed in a paper bag to dry. As they dry, the seed capsules will burst open and the seed will fall to the bottom of the bag. If not planted immediately, these seeds should be stored in moist sand at about 40°F.

2. Extracting the Seeds

Most seeds need to be separated from their fruits before planting. The exceptions to this rule are conifer seeds (once they are out of their cone they do not need to be separated from their "wing") and acorns.

Capsules: Separate the seed by hand-crushing the capsules, and then sift through a strainer or shake in a bag so the seed falls to the bottom.

Maple seeds: Separate pairs of maple seeds, if still attached. They can be planted with the "helicopter blade" still attached. They don't store well, so sow immediately.

Fleshy fruit:⁸ Place fruits in a jar of warm water and crush the pulp with your fingers. Let the jar sit in a warm place until it stinks; this will make separating the pulp from the seeds much easier. The pulp can then be removed from many fruits by hands. For fruit with many seeds (e.g., berries), place some of the fermented fruit in a blender or food processor, add water, and then run the machine just long enough to mash the fruit (to avoid ruining the seeds, use a plastic blade and a slow speed). Allow the seeds to settle, then pour off most of the water and any floating pulp or seed ("floaters" are not good seed). If you are going to plant the seeds right away, they do not need to be completely clean, and can be strained out at this point.⁵ However, if you wish to dry and store the seeds, they will need to be fairly clean. After pouring off the water with the floating pulp and bad seed, add more water, blend, and pour off excess water again. Repeat the process until the water runs fairly clear. Strain the good seeds out with an appropriately sized screen or sieve (very small seeds can be strained through pantyhose), and dry them.

Cones: Cones must be dried to remove the seeds. To preserve the seeds and prevent molding, spread out the cones on a screen or sheet in a warm place with good air circulation immediately after collecting them. Turn them every few days to prevent molding. When the cones have opened fully (a few days to a couple weeks), the seeds can be extracted.⁸ Cones can also be dried in an oven set below 100°F (drying times can be found under the species descriptions of Part IV), but they should first be allowed to dry at room temperature for 3–7 days.⁴³ If your oven will not keep such a low temperature, turn it off and use a light bulb on an extension cord to heat the oven.

How Can I Get Native Plants?

Once the cones have opened, dump them in a large paper bag, roll the top shut, and shake the bag vigorously for at least 5–10 minutes, until you think your arm is going to fall off! When you remove the cones, the seeds will be lying at the bottom of the bag. If you are not sure you have recovered all the seeds, put the cones back on the drying screen, wait a few more days, and try again.⁸

An alternative to shaking is to place the cones in a heavy cloth bag (not your best bag, since you will get pitch on its interior). Tightly tie the neck of the bag shut with strong rope or cord, place the bag in a heavy-duty clothes dryer, and turn it on without heat—the seeds will drop from the cones to the bottom of the bag.

3. Drying and Storing Seeds

Native plant seeds perform best when planted soon after collecting. Try to plan your projects so you can sow the seed on-site or in beds or trays shortly after collecting and cleaning it. If you are not going to use the seeds immediately, spread them thinly on screens in a warm, well-ventilated area that is not in the sun. DO NOT dry seeds in an oven. If you use a food dehydrator, turn off most of the heating elements, and don't let the temperature exceed 100°F. Turn the seeds over every other day to avoid damage from insects, fungi, or moisture. Berry seeds are sufficiently dry if, when you try to crush them between your fingernails, they feel totally hard.⁸

You can separate dried seeds from chaff or debris by using different-sized screens, but don't spend too much time trying to obtain pure seeds—a little debris is usually okay. However, be sure to throw out broken, shrivelled, moldy, and bug-eaten seeds.

Place the dried seeds in a labelled, airtight container, and store in the coolest place in the refrigerator or in a cool, dry place. However, DON'T expose them to freezing temperatures (the ideal storage temperature is 34°–38°F) unless there are instructions to the contrary in the species description in Part IV.

4. Breaking Seed Dormancy

Seed dormancy is a state of delayed growth, and is a seed's way of ensuring it does not germinate (sprout) until conditions are suitable (usually in the spring). In the Pacific Northwest, the dormancy of almost all native seeds is naturally broken by exposure to cold and moisture (winter), followed by lengthening amounts of daylight (spring).

If you sow the seeds in the fall, either directly on-site or in containers that are kept outside over the winter, you won't have to do anything special to break the seeds' dormancy—the weather will do it

for you. However, if you want the seeds to germinate without over-wintering outside (say, by storing them and then planting them in the spring), you will need to artificially recreate the conditions that break the seeds' dormancy. The seeds of a few species require additional factors to break their dormancy, such as the heat from a fire or passing through a bird's digestive system, and you will need to artificially recreate these conditions if you want the seeds of these species to germinate.

Three of the easier methods for breaking seed dormancy are described below. Which method should be used with which species can be determined by consulting the section on propagation for that species in Part IV.

COLD, MOIST , STRATIFICATION

(Mimics over-wintering): Combine one part water with four parts sand, perlite, or other absorbent, sterile material. Add seeds to the mixture, place in a sealable polyethylene bag (small ziplock bags work well), and label the bag. Put it in the refrigerator (NOT the freezer). Once a week the bag should be opened (lets fresh air in), checked for adequate moisture and seed germination, resealed, and turned over (prevents compaction). The chilling time needed may vary from 3–18 weeks, depending on the species.⁵ However, unless noted otherwise in Part IV, 2–3 months generally works fine.¹ Toward the end of the prescribed time period, look for emerging white root tips—if any are detected, sow the whole batch of seeds immediately.¹¹

HOT WATER

(Mimics passage through a stomach or heat from a fire): Boil 3–6 cups of water for every cup of seeds. Don't use an aluminum pan or softened water, as either might introduce chemicals toxic to seeds.¹¹ Turn off the heat when it reaches boiling, and let the water cool for a minute or two. Pour the seeds into the water and let them sit at room temperature for 24 hours. Seeds may still need to overwinter or be cold-stratified before they will sprout. Try this technique with *Arctostaphylos columbiana*, *Arctostaphylos uva-ursi*, or *Ceanothus velutinus*.

SCARIFICATION

(Mimics passage through a stomach): Line the inside of a lidded jar with a strip of sandpaper so the rough side faces inward. Put the seeds in the jar so they are surrounded by the sandpaper, close the lid, and swirl the seeds around until their seed coats are worn down enough to take in water.²⁵ Unfortunately, it is difficult to tell how much scarring is enough and it varies from species to species, so we have no guidelines to offer. However, you might want to try this method with species that produce a berry or a pulp-covered seed.

5. Planting Seeds



Planting seeds in flats, pots, or seed beds, and carefully tending them until they are ready to be transplanted will improve

their survival rate. However, it also requires a certain amount of time, effort, and space. Furthermore, seedlings growing in flats need to be replanted into pots once they have their second set of leaves—before they develop too much root growth.⁸

Planting seeds directly onto the final planting site requires less time and effort, and produces satisfactory results in most cases if a few guidelines are followed:

- Rake the area free of large clods of earth and rocks, and compress the soil slightly.
- Press the seed into the soil to a depth equal to its diameter, and cover it, preferably with sifted soil or sand; don't bury the seed too deeply. Small seed can be raked into the soil surface.
- Cover the soil with a thin layer of mulch, such as leaves, straw, or composted sawdust. This will soften the impact of raindrops and prevent the seeds from being splashed or washed away.
- Don't plant the seeds too close together! Try to space them so the plants will not compete with each other for sunlight and water. Be aware that some seed may be eaten by birds or rodents; you may find that certain species, such as beaked hazelnut, must be raised under some sort of protection and planted out as seedlings to prevent this.
- Keep the seed well-watered. If the planted area will receive occasional visitors and is near a convenient water source, consider marking your plot and posting a sign asking visitors to water it.

Hardwood Cuttings



Propagation from cuttings involves removing certain parts of a living plant and putting them in a growing medium so they form roots. Cuttings are a good way to obtain new plants, and often produce useable plants more quickly than seeds.

Hardwood cuttings are cuttings taken when the plant is not actively growing—usually late fall through winter. Hardwood cuttings can be taken from both deciduous and evergreen plants. (Hardwood cuttings from broadleaf and conifer evergreens are sometimes called semi-hardwood cuttings.) Because hardwood cuttings from deciduous plants are collected after their leaves have fallen off, the cuttings can focus on developing roots and require less care than other types of cuttings.

1. Cuttings from deciduous plants can be taken as soon as the plant has dropped its leaves. Wait until early winter to take cuttings from needle or broadleaf evergreens.¹⁶
2. To avoid spreading disease, clean your pruning shears with rubbing alcohol or a 10% bleach solution (1 part bleach to 9 parts water) before using them in a new area. Protect the donor plant by using only sharp tools, making all of your cuts just above a leaf node (so you don't leave stubs that will die back), and taking no more than $\frac{1}{20}$ (5%) of the branches for cuttings.
3. Select young, straight shoots growing up from the center of the plant or from near the ground, as these usually root better than those taken from other regions. Take shoots that are at least the diameter of a pencil (except snowberry, which can be thinner). Collect long branches—you will be dividing them into individual cuttings later.
4. Put the cuttings in a plastic bag, and keep them cool, moist, and out of direct sunlight.
5. To prepare individual cuttings:
 - a) Clean your shears again with rubbing alcohol or a 10% bleach solution to avoid spreading disease.
 - b) Cut the branches into pieces long enough to have at least two leaf nodes—preferably three or four (about six inches long for most species). The end of the cutting closest to the roots (the “bottom”) should be cut at a 45° angle, just below a node. In order to avoid confusing the bottom with the top of the cutting (which is critical), cut the top at a right angle (straight across).
 - c) Continue making cuttings out of the branch until it becomes too short or too thin, then discard the remainder into your compost pile.
 - d) For cuttings from needle or broadleaf evergreens, strip off all needles or leaves on the lower half of each cutting (the end near the slant cut).
 - e) If you are not planning to plant the cuttings immediately, store them in bundles, covered with damp sawdust or bark, in a cool place. Be sure to label them!

How Can I Get Native Plants?

6. Before planting, treat the bottom inch of the cutting with rooting hormone. (Follow the directions on the hormone container; usually you have to wet the cutting, then dip the slanted end in rooting hormone.) This will stimulate the cutting to produce roots. Always wear rubber gloves when using rooting hormone. A few species, such as willows, do not require rooting hormone, but the success rate for most species will improve dramatically with it, and many species will not root without it.
7. Cuttings can be planted in pots (one-gallon containers work well) or in outdoor beds. Garden soil will work fine, but you may want to add vermiculite, perlite, or well-composted sawdust to help retain water and avoid soil compaction. Plant the cuttings with the top (straight-cut) ends up, deep enough that only one or two nodes protrude above the soil.
8. Cuttings can stay outside over the winter, but they should be protected from freezing, wind, and full sunlight. Cuttings from needle and broadleaf evergreens need to be kept under plastic and misted at least once a day to keep them from losing too much moisture through their leaves. Cuttings from deciduous plants can be left exposed to the rain, but need to be in containers that drain well; if kept inside, they need to be kept in a spot that is cool and humid. By the end of their first growing season, most cuttings should be well-established and ready to plant.

Native plants that propagate well from hardwood cuttings:

Cornus sericea (red-osier dogwood)
Holodiscus discolor (oceanspray)
Lonicera ciliosa (orange honeysuckle)
Lonicera involucrata (black twinberry)
Oemleria cerasiformis (Indian-plum)
Philadelphus lewisii (mock-orange)
Physocarpus capitatus (Pacific ninebark)
Populus trichocarpa (black cottonwood)
Ribes sanguineum (red-flowering currant)⁴
Rubus parviflorus (thimbleberry)
Rubus spectabilis (salmonberry)
Rubus ursinus (wild blackberry)
Salix species (willows)
Sambucus species (elderberries)
Spiraea douglasii (spirea)
Symphoricarpos albus (common snowberry)
Taxus brevifolia (western yew)
Thuja plicata (western redcedar)

Live Stakes

Live stakes are long hardwood cuttings that are planted outdoors without rooting hormone. Live stakes can be used only if the soil is fairly wet at the time of planting, and the stakes need to be long enough to reach the moisture. As with other hardwood cuttings, cut the lower end of the stake at an angle, and the upper end flat across.

- Live stakes can be planted in late fall through early spring. If they are going to be stored before planting, bundle them in groups of 50–100 and place in plastic bags. They can be left outdoors—normal freezing should not harm them. However, if the stakes have been sitting around for awhile and have developed roots, they need to be kept just above freezing, since freezing will kill the roots.
- Live stakes can be driven into the ground with a mallet, and should be placed in a random fashion (not in rows). Spacing should take into account how large the plants will eventually become, and the fact that some of them will probably die. Leave the top

Native plants that propagate well from live stakes:

Cornus sericea (red-osier dogwood)
Lonicera involucrata (black twinberry)¹
Physocarpus capitatus (Pacific ninebark)¹
Populus trichocarpa (black cottonwood)
Rosa nutkana (Nootka rose)¹
Rubus spectabilis (salmonberry)
Salix species (willows)
Sambucus species (elderberries)

two nodes above ground. To make sure no one trips over them, paint the tops of the cuttings a bright color or fence off the area.

- Water the cuttings occasionally through at least the first growing season, and cut back any encroaching vegetation.

Root Cuttings



A root cutting is a piece of root that, when cut and replanted, will produce an entirely new plant. Because taking root cuttings can harm the parent plant, this technique should not be used in a natural area unless it is slated for bulldozing. You can also take root cuttings from

plants already established in your yard in order to multiply those plants.

The best time to collect root cuttings is during the dormant season (late fall through winter).⁵ As you dig around the plant, try to disturb it as little as possible. Look for roots that are $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter. Each cutting should be long enough to have at least four buds (they will look like small bumps, or may actually have rootlets growing from them). Root cuttings grow best in warm soil, so if you collect them during the winter bury them in moist sand and keep them at 40°F until spring.²⁵

To plant the cuttings, dig a hole and place a cutting in it horizontally. Cover it with soil so the root cutting is one inch below the surface of the soil. Do not over-water, or it will rot; if planted in a reasonably moist area, they should be fine on their own. Root cuttings can also be planted in trays or pots, and then planted out after they develop leaves and the root system fills the pot.

Native plants that propagate well from root cuttings:

Corylus cornuta (hazelnut)

Oemleria cerasiformis (Indian-plum)

Rosa species (most native roses)¹

Sambucus species (elderberries)¹

Symphoricarpos albus (common snowberry)⁸

Rhizome Cuttings



Many herbaceous plants have underground stems called rhizomes. These can be used to propagate plants in a manner similar to root cuttings. Rhizome cuttings are best taken during the dormant season (late fall through winter). Again, because this technique can harm

the parent plant, it should not be used in a natural area unless it is slated for bulldozing.

1. With your hands or a hand trowel, carefully dig around the plant to locate the rhizomes. They will be white or pale, and smooth with buds and visible roots (sort of a cross between a root and a stem).
2. Once located, sever the rhizome from the parent plant and dig up the segment. Then cut the rhizome into sections that are at least three inches in length, making sure each section has at least two buds (buds will be a bump or ridge).

Native plants that propagate well from rhizome cuttings:

Carex species (sedges)

Epilobium angustifolium (fireweed)

Juncus species (rushes)

Maianthemum dilatatum (false lily-of-the-valley)

Rosa species (roses)¹

Rubus parviflorus (thimbleberry)¹

Rubus spectabilis (salmonberry)¹

Scirpus acutus (hardstem bulrush)

Scirpus microcarpus (small-fruited bulrush)

Symphoricarpos albus (common snowberry)¹

3. Immediately plant the rhizome sections horizontally in pots, flats, or on-site.

How Can I Get Native Plants?

Layering



Layering involves burying part of a living, attached branch in order to make it produce roots. This creates a branch that can be detached from the parent plant and planted elsewhere. It is a good technique for multiplying native plants already established in your yard. Layering is best done in early spring.

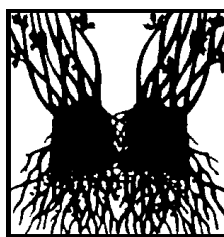
1. Take a branch of the parent plant and gently bend it in a “U” shape so that the bottom of the “U” is touching the ground. It should crack a bit at the bend; if it doesn’t crack, nick it with a knife at that point.²⁷
2. Stake down the cracked—but still connected—branch, and bury the “U” portion in 3–6 inches of soil. Rooting hormone can be used on the cracked or nicked area to facilitate rooting,

3. After six months to a year, cut the newly rooted branch from the parent plant. You can then dig up the new plant and transplant it to a new location.

Native plants that propagate well by layering:

Acer circinatum (vine maple)
Cornus sericea (red-osier dogwood)
Gaultheria shallon (salal)
Lonicera ciliosa (orange honeysuckle)¹
Lonicera involucrata (black twinberry)¹
Malus fusca (Pacific crabapple)⁴
Oemleria cerasiformis (Indian-plum)
Ribes sanguineum (red-flowering currant)
Salix species (willows)
Sambucus species (elderberries)
Thuja plicata (western redcedar)
Vaccinium parvifolium (red huckleberry)

Dividing Plants



Propagation by division involves digging up a plant and dividing the plant into two or more pieces by splitting its crown and root ball. Because this method is high-impact, its use should be limited to plants already established in your own yard and salvaged plants (see next section).

Dividing should be done when the plants are dormant (late fall through winter). Dig up the entire plant, then carefully divide the crown and root ball into two equal parts with your hands or a sharp spade or knife (if

the root ball is particularly large, you may be able to divide it into more parts). Replant each division.¹

Native plants that can be propagated by division:

Athyrium filix-femina (lady fern)
Blechnum spicant (deer fern)
Carex species (sedges)
Dicentra formosa (Pacific bleeding-heart)
Juncus species (rushes)
Polystichum munitum, (sword fern)
Scirpus acutus (hardstem bulrush)
Scirpus microcarpus (small-fruit bulrush)

Transplanting Suckers



Suckers are young plants that sprout from the horizontal roots of a parent plant. If they have adequate roots, the suckers can often be dug up, separated from the parent plant, and planted elsewhere. However, because this technique can harm the parent plant, it should not be used in a natural area unless it is slated for

bulldozing. It can be used with plants already established in your yard.

Try to disturb the parent plant as little as possible—dig up just enough root to separate the plants. With a sharp

shovel or pruners, sever the root connecting the sucker to the parent plant. Be sure the sucker has enough roots to survive on its own. Try to keep the sucker’s roots encased in their soil, and keep the roots moist until replanted.

Native plants that propagate well from transplanted suckers

Corylus cornuta (hazelnut)
Philadelphus lewisii (mock-orange)
Rosa species (native roses)
Rubus spectabilis (salmonberry)
Symphoricarpos albus (common snowberry)

Salvaging Native Plants

Salvaging involves transplanting whole plants from their natural settings when the plants are scheduled to be destroyed. Salvaging is an excellent way to obtain larger plants at little cost. Two appropriate types of salvage sites are property that is being developed, and portions of roadsides scheduled for widening. Forests slated for clearcutting are generally NOT appropriate for salvaging, because most native plants can survive timber harvesting, and collecting plants from the site will reduce the number of plants available to revegetate the area after the cut.

1. Finding Development Sites

Finding development sites suitable for salvaging can be a race against the bulldozer. As you look, remember that you want to find salvage sites similar to your planting site, preferably within the same watershed.

The best sources of information on future development sites are your local city and county planning departments. Most planning departments keep records of who has applied for building and other permits, and many planning departments conduct regular reviews of large proposed development projects within their jurisdictions. All of this information is public.

Talk to your local planning departments to find out what applications must be filed and what permits issued before development can occur. If you explain to them your interest in removing plants before they are bulldozed, they may be willing to direct you to specific development projects. At the very least, they should be able to tell you when in the permitting process you are most likely to still find salvageable plants.

Once you determine which type of permit application to look at, ask to see the applications. From each application that looks promising, copy down the name, address, and phone number of the person seeking the permit, the location of the property, the name, address, and phone number of the owner of the property, and the size and nature of the proposed development. (If the landowner's phone number is not in the file, you can often get that information from the property's tax record in the county assessor's office.)

If there is a particular site that interests you, talk to someone in the planning department to determine how much work has already occurred, and whether they know of any opposition to the project. (You don't want to remove plants before it is certain the development is going to receive all of the necessary permits and actually happen.)

Once you have some addresses in hand, drive by the properties to see whether there is anything worth salvaging.

However, **DO NOT GO ON THE PROPERTY UNTIL YOU HAVE PERMISSION FROM THE OWNER!** If you see plants you are interested in, contact the landowner.

When you call the landowner, be up-front about your interest in salvaging plants. Many landowners will be happy to know some of the plants are going to a good home rather than being flattened. If the landowner is willing to let you salvage, find out exactly where bulldozing is planned, so you can limit your efforts to those plants actually slated for destruction and avoid removing plants from designated green areas or open spaces. If a contractor or logging operation is already involved, you may also need to talk to them and coordinate your activity so you don't place yourself at risk or interfere with their work.

2. Finding Road-widening Projects

Sections of roadside slated for paving or clearing as part of a road-widening project can also be good salvage sites. The persons "in the know" about such projects are in the city and county roads departments, and the state Department of Transportation.

For safety reasons, you should get permission from the agency planning the widening before you check out the area for suitable plants. Once you find plants you want, you will need to get permission to salvage—usually from the contractor doing the work or from the agency planning the widening. If they have safety concerns, permission may be denied.

3. Salvaging Methods

Most native plants can be salvaged. However, successful salvaging requires some knowledge about salvaging techniques and the plants you are trying to rescue. **Salvaging will be most successful if done on wet, cloudy days, during the late fall through winter when plants are dormant.**

You will need the following equipment: a shovel or flat-bladed spade; a metal file (for sharpening the spade); pruning shears (for pruning branches or roots); and wet burlap bags, lined with wet leaves or mulch (for transporting the plants). Before each salvaging session you should sharpen your spade (wear gloves), so that roots are cut cleanly and easily.

Finding appropriate plants: Focusing on species that are easily salvaged, look for a plant that is growing by itself, trees and shrubs growing in clumps connected by underground runners are unlikely to survive trans-planting. With few exceptions, trees and shrubs are most likely to survive if they are under three feet tall (see the list on p. 16 and individual plant descriptions for exceptions).

How Can I Get Native Plants?

Preparing the plant: Check to make sure the plant looks healthy. If it does, clear the area around it of leaves and twigs (wear gloves). If some of its branches are too long for transporting, they can be pruned back.

Digging the plant: At least eight inches from the plant's main stem (one foot if the plant is over three feet tall), plunge the spade straight down into the ground as deep as possible. Continue doing this until you've gone all the way around the plant. Gently work the spade under the plant's roots. If you encounter a root the spade will not cut in two strokes, cut it with clippers to prevent mangling the root.

Moving smaller plants: Plants under two feet tall can simply be lifted out of the hole (supporting the roots and attached dirt with your hand), placed in a wet burlap bag, and the roots covered with wet leaves or mulch.

Moving larger trees and shrubs: Root balls (roots plus the surrounding dirt) should be wrapped with burlap and tied. This will protect the roots from drying out and ensure that you take with you microorganisms the plant might need to flourish. Two people are usually needed for this procedure, especially for trees and shrubs over three feet tall. Place a piece of burlap about two or three feet square alongside the plant. Once the root mass has been loosened, place the spade under the plant. While one person holds the spade handle, the other person (who is wearing gloves) should grasp the stem of the plant and, using the blade to support the root ball, lift the blade and the plant out of the hole. (Be sure to lift with your legs, not with your back!) Transfer

the root ball onto the burlap. Pull the corners and edges of the burlap up to enclose the root ball, and wrap twine around the root ball and burlap to keep it together.

If you happen to lose most of the dirt around the roots, place the roots in moistened burlap or in plastic bags, and pack wet leaves around the roots. **The roots will dry out and die in seconds if exposed to the air, so make sure they stay wet!** Roots can be kept moist with a spray bottle, if necessary.

Storing plants: If you need to store plants before you plant them, you might want to build a capillary bed. This is a wooden frame about one foot deep and usually four feet wide by 8–10 feet long. (You can make it smaller, as long as it is still about one foot deep.) Line the frame with heavy plastic (>3 mil), half fill it with soil or mulch, and then saturate the soil or mulch with water. Punch holes through the plastic in the corners, halfway up the sides of the bed (level with the layer of soil or mulch), to prevent the entire bed from filling with water.

If possible, pot the plants before placing them in the bed, as this will lessen the number of times the roots have to be pulled up and traumatized. Then place the plants in the bed on the saturated layer, surround and cover the pots with soil or mulch, and spray the mulch with water. Capillary action will provide the plants with sufficient water so long as there is water in the bed's reservoir; watch the water level, especially during the summer and dry periods, to make sure plant roots are staying moist. Plants stored in a capillary bed can survive for up to a year with very little maintenance.



Native plants that are easily salvaged:

<i>Abies grandis</i> (grand fir)	<i>Malus fusca</i> (Pacific crabapple)
<i>Acer circinatum</i> (vine maple)	<i>Oemleria cerasiformis</i> (Indian-plum)
<i>Acer macrophyllum</i> (bigleaf maple)	<i>Philadelphus lewisii</i> (mock-orange)
<i>Achlys triphylla</i> (deerfoot vanilla-leaf)	<i>Physocarpus capitatus</i> (Pacific ninebark) ¹
<i>Alnus rubra</i> (red alder)	<i>Picea sitchensis</i> (Sitka spruce)
<i>Amelanchier alnifolia</i> (western serviceberry)	<i>Polystichum munitum</i> (sword fern)
<i>Arctostaphylos uva-ursi</i> (kinnikinnick)	<i>Prunus emarginata</i> (bitter cherry)
<i>Asarum caudatum</i> (wild-ginger)	<i>Prunus virginiana</i> (common chokecherry)
<i>Athyrium filix-femina</i> (lady fern)	<i>Pseudotsuga menziesii</i> (Douglas-fir)
<i>Carex</i> species (sedges)	<i>Rhododendron macrophyllum</i> (Pacific rhododendron)
<i>Ceanothus velutinus</i> (snowbrush) ¹	<i>Ribes sanguineum</i> (red-flowering currant)
<i>Cornus sericea</i> (red-osier dogwood) ¹	<i>Rosa</i> species (roses)
<i>Corylus cornuta</i> (hazelnut)	<i>Rubus parviflorus</i> (thimbleberry)
<i>Crataegus suksdorfii</i> (black hawthorn)	<i>Rubus spectabilis</i> (salmonberry)
<i>Dicentra formosa</i> (Pacific bleeding-heart)	<i>Sambucus</i> species (elderberries)
<i>Frangula purshiana</i> (cascara) (Formerly <i>Rhamnus purshiana</i>)	<i>Scirpus acutus</i> (hardstem bulrush)
<i>Fraxinus latifolia</i> (Oregon ash)	<i>Scirpus microcarpus</i> (small-fruited bulrush)
<i>Holodiscus discolor</i> (oceanspray)	<i>Spiraea douglasii</i> (spirea)
<i>Juncus</i> species (rushes)	<i>Symphoricarpos albus</i> (common snowberry)
<i>Linnaea borealis</i> (twinflower)	<i>Thuja plicata</i> (western redcedar)
<i>Lonicera involucrata</i> (black twinberry)	<i>Trillium ovatum</i> (western trillium)
<i>Maianthemum dilatatum</i> (false lily-of-the-valley)	<i>Tsuga heterophylla</i> (western hemlock)
<i>Maianthemum racemosum</i> (false Solomon's seal)	<i>Viola</i> species (violets)

Native plants that do not salvage well:

Arbutus menziesii (Pacific madrone)
must be less than six inches tall

Berberis aquifolium (tall Oregon-grape)

Berberis nervosa (low Oregon-grape)

Gaultheria shallon (salal)

Quercus garryana (Oregon white oak)
only if small

Vaccinium ovatum (evergreen huckleberry)
unless very small (less than four inches)⁴

Vaccinium parvifolium (red huckleberry)



Planting⁷

To create a landscape that looks natural, avoid planting in rows or spacing the plants evenly. Instead, plant randomly. If you are planting several species and have multiple plants of each, clump each species together in groups of two or three. Spacing between plants should take into account how large they are going to grow and what you want it to look like when the plants are mature. While spacing varies from species to species,

generally trees should be at least 10–12 feet apart, and small shrubs at least three feet apart. Be sure to locate each plant so that it gets enough sun or shade.

Plant in the early morning or late afternoon to avoid intense sunlight and heat, which can dry out the roots and kill the plant. Remember to keep the roots moist at all times!

How To Plant: Step by Step

1. Dig a hole twice as wide and at least as deep as the plant's roots. If the soil is very hard, loosen the soil at the bottom of the hole. If the soil is clay, roughen the sides of the hole with the edge of your shovel or spade (this will eliminate slick sides, which act as barriers to water and roots).
2. If you wish to add "good soil" or other material to your soil, make sure you add less than one bucket of new material for every bucket of old soil—otherwise, the roots may refuse to spread beyond the hole. If you want to add fertilizer, use a slow-release organic fertilizer and add it only to the soil below the roots.
3. Put enough soil back in the hole so that the plant will be buried just as deeply as it was before being disturbed.
4. Water the hole well (saturate the soil).
5. Putting the plant in the hole:
 - a. If the roots are in a burlap ball or encased in soil: Untie the burlap and peel it back so the soil is exposed; carefully lift the root ball out of the burlap, place it in the hole, and arrange any exposed roots so they point outward.
 - b. If the plant is in a container: Remove the plant from the container, and move the root ball around to break it up and roughen the sides (roots should stick out). Curving roots should be straightened out, and encircling roots should be cut off where they begin to circle (otherwise they will encircle and eventually kill the plant). Then place the plant in the hole, and arrange the roots so they point outward.
 - c. If the roots are bare, with no surrounding soil: Add soil to make a cone in the middle of the hole. Hold the plant in the hole over the cone, and arrange the roots around the cone so that none of the roots are curled around or bent. If a root can't be uncurled or unbent, cut it off, as it will only harm the plant's development.
6. Fill the remainder of the hole with soil half-way, and soak the soil (make mud!).
7. Finish filling the hole, then press the soil down firmly with your hands or feet (don't stomp) to close up any air holes. You usually do not need to water the top layer of soil. However, if you do so, don't allow puddles to form, as this will cause smaller soil particles to float to the top and form a barrier to water in the future.
8. If you are concerned about the plant not getting enough moisture (for example, if it's on a steep slope, or watering will be infrequent), encircle the filled-in hole with a mound of soil to create a watering well.
9. Cover the bare ground around the plant with mulch. This will help retain moisture, reduce surface erosion, moderate the temperature around the roots, discourage weeds, and if an organic mulch is used, add nutrients.⁸ Composted leaves work best, but you can use any weed-free organic matter, or even rocks or (as a last resort) wood chips. Fine sawdust is not a good choice, as it tends to form a water-repellent mat. Do not use cedar, anything with weed seeds (e.g., hay), or sawdust from painted or treated wood. Do not pile mulch around the stem itself.⁴
10. Stake the plant only if it is so big and the root ball so small that the wind might blow it over. The plant should still be loose enough for it to move a little ($1\frac{1}{2}$ to 1 inch) in the wind, and should not remain staked for longer than one year.

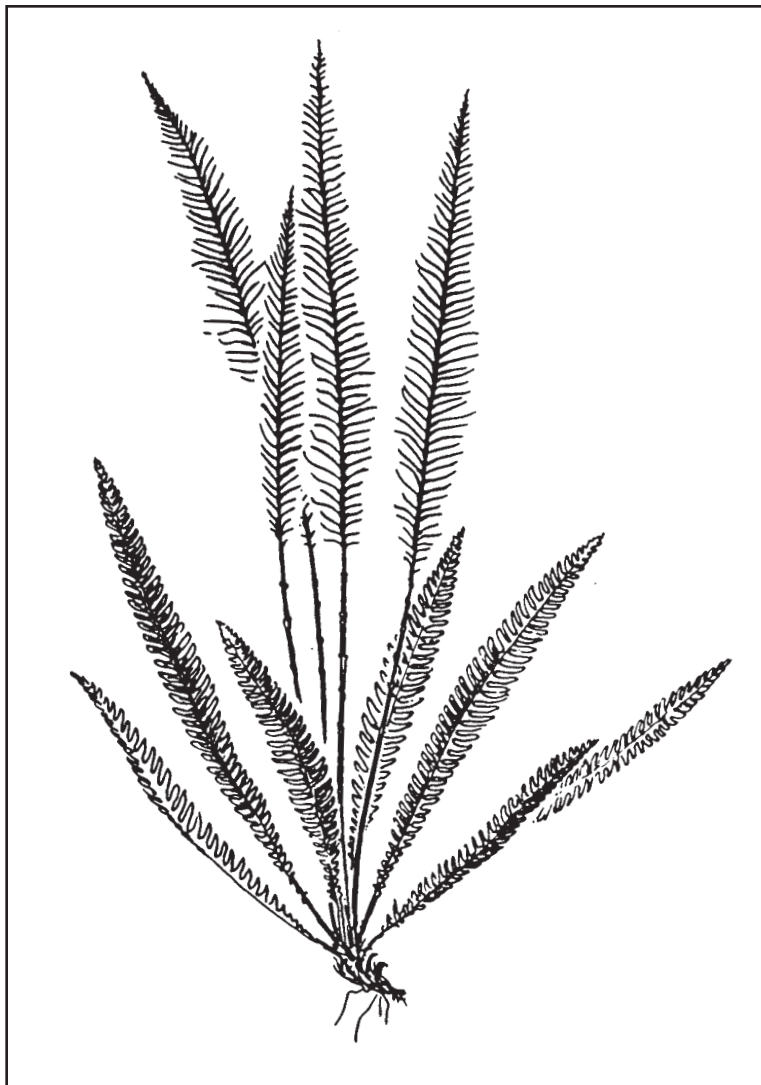
IV. Native Plant Descriptions

A Note Regarding Species Names

Scientific names consist of a genus name followed by a species name, such as *Alnus rubra*. This can be shortened to *A. rubra* if the previous genus name mentioned is the same name.

Scientific names are universally recognized, but they do sometimes change. Every attempt has been made here to list plants under their most current scientific name based upon the best information, and to mention other scientific names that might still be in use. Both old and new scientific names are listed in the index at the end of this guide.

Some of the scientific names listed are longer than two words, and include a variety ("var.") or sub-species ("ssp.") name. If only one variety or sub-species is native to western Washington, its name will appear in the heading along with the species name. If more than one variety or sub-species is native to western Washington, or there is some problem with the variety or sub-species names, this information will appear in the Description or Propagation/Salvaging section.



Information on each plant is arranged as follows:

SCIENTIFIC NAME • COMMON NAME(S)

Former Or Alternate *Scientific Name*, If Any

OTHER COMMON NAMES

Family Name

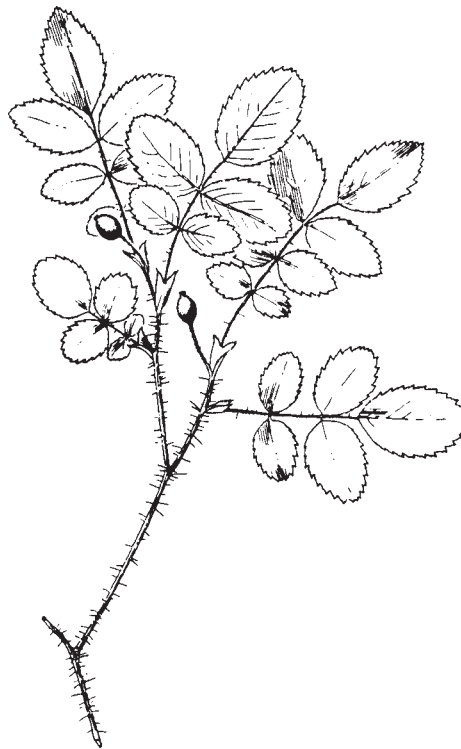
Description: The plant's most notable physical characteristics, including descriptions of the form, leaves, flowers, fruits, and pointers for winter identification.

Advantages/Disadvantages: Why the plant is particularly useful or valuable to humans and other wildlife, and any limitations or problems to consider before using it.

Habitat: Under what conditions the plant is likely to be found and thrive in western Washington. (Keep in mind that light and moisture tolerance are connected: many plants can tolerate more sunlight if there is sufficient moisture in the ground, and many will die despite optimal amounts of light if there is insufficient moisture. Regardless of moisture requirements, most transplants need supplemental watering their first year, until their root systems are well-established.)

Propagation/Salvaging: Methods of propagation most likely to succeed. (Readers should consult the previous sections on propagation for details on using each of the methods mentioned.) Also includes information for nursery shopping if there is confusion over the plant's name.

Illustration of plant



IV. Native Plant Descriptions • Trees

Usually over 20 feet tall at maturity, with a single, erect stem.

ABIES GRANDIS • GRAND FIR

LOWLAND WHITE FIR, WHITE FIR, BALSAM FIR

Pine Family (*Pinaceae*)

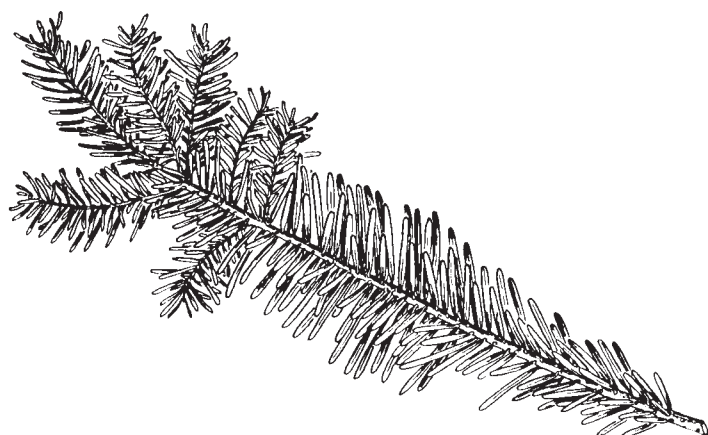
Trees

Description: This tall (100–250 feet), straight evergreen tree can be identified by its flat, shiny, dark-green needles; its green to yellow-green or greenish-purple cones; and its bark, which is grayish with light-colored mottling. Needles are 1½ inches long, have two white lines on their undersides, and look like they are on opposite sides of each branch. Cones are cylindrical, 2–4 inches long, held upright, and are found only on higher branches, where they remain through autumn as they gradually fall apart. The bark on young trees is smooth with resin blisters; with age, the resin blisters disappear and the bark becomes somewhat ridged.

Habitat: Dry to moist coniferous or mixed forests, from fairly dry mountain slopes to river valleys. Prefers deep, well-drained, alluvial soils.¹⁸ Full sun to partial shade:⁴¹ although seedlings are shade-tolerant, older trees require full sun.^{1a}

Advantages/Disadvantages: An excellent species for restoration, due to the broad range of habitats to which it has adapted, and its drought-tolerance.¹ Though a large tree, its deep, wide-spread roots make it windfirm.¹⁸ Provides cover and nesting sites for wildlife.⁴¹ Seeds are eaten by numerous birds, Douglas squirrel, and Townsend chipmunk. Not a good choice for most urban yards due to its size.¹

Propagation/Salvaging: Can be grown from seed, collected early to mid-August.⁴³ Seeds can be planted immediately, or dried and planted in spring.⁴³



ACER CIRCINATUM • VINE MAPLE

Soapberry Family (*Sapindaceae*)
(Formerly Maple Family [*Aceraceae*])

Description: This deciduous native often grows to 25 feet tall, taking the form of an erect tree (often with multiple stems) or a tangle of branches creeping vine-like along the ground before turning upward. Branches are usually green or slightly reddish. Leaves are 2–4 inches in diameter, opposite, round in form with 5–9 (usually 7) shallow, fanlike and finely toothed lobes, and palmate veins. In the fall, leaves turn gold or bright red before falling. Like other maples, it has “helicopter” seeds. However, its paired seeds are held wide apart, almost in a straight line, while those of most other maples form a “V.” In winter, look for small (less than $\frac{1}{4}$ inch), opposite buds and a pair of terminal buds.

Habitat: Common understory plant in coniferous forests, and in clear-cut or burnt-over areas. Dry to moist sites. Full sun to full shade; prefers some shade, but becomes leggy in deep shade.

Advantages/Disadvantages: Has excellent soil-binding qualities, is shade-tolerant, and produces beautiful fall color. Provides valuable forage for deer and elk, and cover for deer, elk, birds, and small mammals.²³ Flowers attract butterflies. Several species of birds and mammals eat the seeds.

Propagation/Salvaging: Best grown from salvaged plants or by layering. Two-leaf seedlings growing around trees in urban settings may be dug up and potted immediately. Water sparingly for the first summer after potting; after planting out the young seedlings, water only as necessary. Even mature specimens can be successfully salvaged given sufficient care. Layering can be used to multiply plants you already have.²⁵ It can also be grown from seed, but seeds are difficult to germinate.⁸ Collect seeds September to October as they begin to dry out and turn brown, and sow immediately. Water seedlings sparingly for the first summer.¹¹



ACER MACROPHYLLUM • BIGLEAF MAPLE

OREGON MAPLE, BROADLEAF MAPLE

Soapberry Family (*Sapindaceae*)
(Formerly Maple Family [*Aceraceae*])

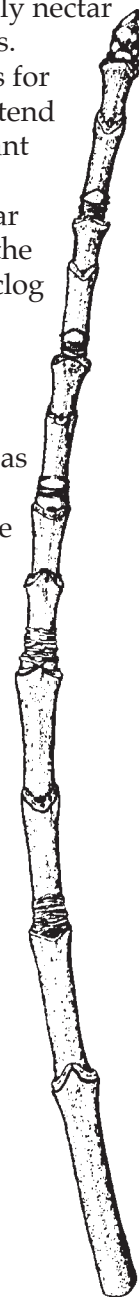
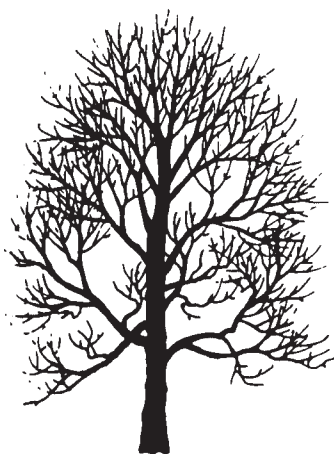
Trees

Description: This broad-leaved, deciduous tree grows 40–100 feet tall, with a single trunk 2–4 feet in diameter, and can have a branch spread of up to 50 feet. It has a distinctive form of a single, squat trunk that separates into several thick limbs. Leaves are opposite, large (up to one foot across), have five palmate lobes or points, and turn yellow and then brown in the fall. Greenish-yellow flowers appear in the spring before the leaves, and hang in cylindrical clusters. Fruits are winged, and disperse by flying “helicopter style.” In winter, look for a large ($1\frac{1}{4}$ inch) terminal bud with two smaller buds on each side.

Habitat: Lowland areas, usually in moist, well-drained soils, but also on dry sites. Almost never in saturated soils. In mixed stands with conifers, along stream banks, and in the open. Full sun to partial shade.

Advantages/ Disadvantages: This beautiful, majestic tree is excellent for stream banks and steep slopes due to its erosion-resistant and soil-binding properties. It also forms moderately long-lasting, large woody debris. Trees produce numerous seedlings within a large radius. Wildlife eat seeds, leaves, and new sprouts. Flowers are an early nectar source for bees and other insects. Provides cover and nesting sites for birds and other wildlife. Plants tend to drop large limbs, so don’t plant near structures. Not tolerant of saturated soils. Do not plant near sewer, water, or septic lines, as the roots tend to invade pipes and clog the lines.¹

Propagation/Salvaging: Easy to grow from seed. Collect seeds September to October, and sow as soon as possible, as they do not store well. Seedlings under three feet tall can be salvaged.



ALNUS RUBRA • RED ALDER

OREGON ALDER, WESTERN ALDER

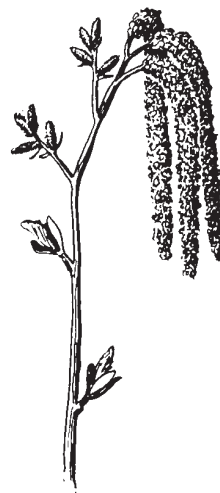
Birch family (*Betulaceae*)

Description: This familiar tree has thin, smooth, gray bark, frequently with patches of white lichen, and grows 30–120 feet tall. Leaves are deciduous, alternate, 3–6 inches long, broad and elliptic, with pointed ends. Leaf surfaces are shiny green to yellow-green and smooth above; paler with hairs along the veins below. Leaf edges are wavy and slightly rolled-under, with coarse, blunt teeth. Male and female flowers are on the same tree and appear in catkins before the leaves. The small, winged seeds are shed August to October from small, brown cones that remain on the tree for several years. In winter, look for small “cones” and alternate buds on short stalks.

Habitat: Disturbed sites, landslides, stream banks, moist woods, wetlands, and flood-plains. Grows in various types of disturbed soils. Tolerates drought, flooding, or brackish conditions. Full sun to partial shade. Often mixed with other trees, but can form pure stands in nutrient-poor soils or on logged-over or otherwise disturbed lands.

Advantages/Disadvantages: This tree has been greatly under-valued in our region. Its quick growth and ability to fix nitrogen makes it particularly useful for stabilizing disturbed soils and revegetating nutrient-poor soils. Deer and elk browse the leaves, as do large numbers of invertebrates (which in turn, feed many insect-eating bird species).²¹ Beaver use the branches. Larger trees provide habitat for numerous cavity-nesting birds and small mammals. Seeds are eaten by some birds and small mammals, and are an important source for food for over-wintering birds.⁴ Hosts butterfly caterpillars. Plants are relatively short-lived (60–90 years), and somewhat subject to wind-throw. Roots can be invasive to vegetable gardens.^{1,4,8}

Propagation/Salvaging: Seeds germinate easily. Collect seeds September to October. Seed not planted in the fall must be cold-stratified for 30 days to break seed dormancy.⁴⁰ Seedlings under four feet tall can be salvaged;⁴⁰ when digging them, notice the nitrogen-fixing bacteria nodules on the roots! Layering may also work.¹⁶



AMELANCHIER ALNIFOLIA • WESTERN SERVICEBERRY

PACIFIC SERVICEBERRY, SASKATOON,

SASKATOON-BERRY, SASKATOON SERVICEBERRY

Rose Family (*Rosaceae*)

Trees

Description: This multi-stemmed, deciduous native usually grows 10–12 feet tall, and has smooth, dark gray to reddish bark. Leaves are alternate, thin, oval, 1–2 inches long, and mostly smooth-edged on the lower half of the leaf, becoming regularly toothed on the outer half, with veins running out to the teeth. Flowers are white with five long, thin petals, and form showy, erect or droopy clusters. Fruits are small ($1\frac{1}{2}$ inch in diameter) and initially dull-red, becoming dark purple when ripe, and look somewhat like small blueberries. Difficult to identify in winter, but look for slender, curved, alternate buds and a larger terminal bud. Two of the varieties found in western Washington are var. *humptulipensis* and var. *semiintegrifolia*.

Habitat: In moist to dry areas, on well-drained soils; often in open conifer forests. Full sun to partial shade. Common throughout the Northwest, frequently in thickets. Very drought-tolerant.¹

Advantages/Disadvantages: Though largely unnoticed except when in bloom, its showy flowers and delicious fruit make it a good ornamental plant for open, wooded sites, or woodland edges. Can form soil-holding thickets via rooting branch tips. Provides good wildlife cover. Foliage and new twigs are prized by deer and elk. Fruits are eaten by many birds and mammals. In some areas, it is susceptible to a disfiguring leaf rust disease.

Propagation/Salvaging: Can be grown from seed or salvaged seedlings. Collect fruit when ripe (in late summer) and separate seeds from pulp. Seed not sown in the fall should not be allowed to dry out,¹⁰ and needs to be cold-stratified for 3–6 months to break seed dormancy.^{10,11,25} Seedlings under three feet tall can be salvaged.¹ Plants in your yard can be layered to produce new plants.¹⁶



ARBUTUS MENZIESII • PACIFIC MADRONE

MADRONE, MADRONA, ARBUTUS

Heath Family (*Ericaceae*)

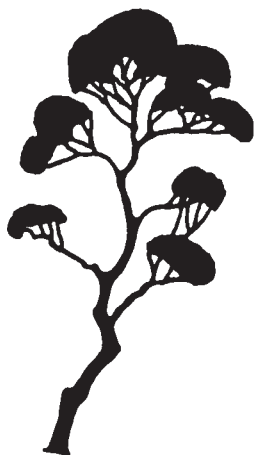
Description: This 30–50 foot tall broad-leaved evergreen tree is easily identified by its smooth peeling bark, and stout, often leaning and twisted trunk. Young bark is yellow-green and satin-smooth, while older bark is reddish-brown and flakes off in strips. Leaves are alternate, leathery, 2½ to 6 inches long, oval and rounded at both ends, and dark shiny green above and gray-green beneath. The small, fragrant, white, urn-shaped flowers appear in spring in drooping clusters, and develop into small (less than ½ inch in diameter), round, bright orange to dull red fruits with pebbled skins and many seeds.

Habitat: Dry, well-drained, often rocky soils, usually near sea level. Prefers full sun.^{1,17,18,35}

Advantages/Disadvantages: This beautiful tree is drought and salt-spray tolerant, and is suitable for well-drained sites, especially those with western or southern exposure.²⁵ Plants host butterfly caterpillars. Flowers are a nectar source for bees, butterflies, and other insects. Fruits are eaten by small mammals and numerous birds. Plants are susceptible to a number of diseases and pests,²⁵ and trunks

need to be protected from lawn mower damage, which can expose it to disease. It should not be used in urban settings, as it is sensitive to air pollution. Trees drop a lot of litter year-round (bark, leaves, flowers, fruits). Few understory plants can survive beneath Pacific madrones; the notable exceptions being salal, Oregon-grape, and snowberry.²⁵

Propagation/Salvaging: Can be purchased from nurseries, but plants should be under one foot tall as they quickly grow deep taproots.²⁵ Can be grown from seed. Collect fruit October to December, and remove pulp before sowing. To reduce transplant trauma to roots, sow each seed into its own small container.⁸ Seeds not planted in the fall may need to be cold-stratified 1–2 months to break seed dormancy.^{11,37,43} Seedlings should be transferred into larger containers until they are two feet tall before planting out.³⁷ Can be grown from hardwood cuttings or layered.¹⁶ Seedlings under six inches can be salvaged, but should be kept in deep containers until they are two feet tall.⁸



CORNUS NUTTALLII • PACIFIC DOGWOOD

WESTERN FLOWERING DOGWOOD,
MOUNTAIN DOGWOOD

Dogwood Family (*Cornaceae*)

Description: This deciduous tree usually grows 20–30 feet tall with an irregularly shaped trunk and smooth, dark bark that develops rectangular scales with age. Twig ends curve upward, and branchings are often in whorls of four, making branch tips look somewhat like candelabras. Leaves are opposite, 3–5 inches long, generally oval with a sharp tip, and deep to bright green above, paler below. Leaf veins are in opposite pairs that parallel the curves of the leaf, and leaf edges are smooth or wavy. In autumn, leaves turn dull- to pinkish-red before falling. Trees flower April to June, and some individuals flower a second time in August or September. When in flower, trees are covered with numerous sets of four to six large ($\frac{3}{4}$ to $2\frac{3}{4}$ inches long), creamy white to pale pink floral leaves which encircle the inconspicuous true flowers (which are small and greenish-white). Clusters of plum-like fruits are produced in the fall.

Habitat: Moist, well-drained soils.^{18,35,36} Partial to full shade. A common understory tree in open to fairly dense, mixed forests,^{35,36} though it may not produce fruit in heavy shade.³⁶ Found throughout most of our region.

Advantages/ Disadvantages: Its attractive branching pattern, flowers, fruits, and fall foliage make this a beautiful tree in all seasons. Once established, it can do without summer watering,²⁵ and is long-lived (to 150 years).² Very shade tolerant. Plants host butterfly caterpillars. Birds, especially band-tailed pigeons, eat fruit clusters. Deer browse on twigs and foliage. Many trees develop a fungal infection which causes large, brown blotches on the leaves and sometimes premature death of the plant. Trunks must be protected against damage from lawn mowers, as this can expose trees to the fungus. Trunks should also be partially shaded to prevent sunburn damage.²⁵

Propagation/Salvaging: Seed is the best method.²⁵ Collect fruit as soon as ripe (September to October), before the birds get them. One source⁴³ says they can be sown as is, while another²⁵ recommends removing the pulp. Plants under three feet high can be salvaged.²⁵ Plants in your yard can probably be multiplied by layering small branches.²⁵



CRATAEGUS SUKSDORFII • BLACK HAWTHORN

(FORMERLY *CRATAEGUS DOUGLASII* VAR. *SUKSDORFII*)

SUKSDORF HAWTHORN, DOUGLAS HAWTHORN

Rose Family (*Rosaceae*)

Description: This deciduous native grows as a small tree (20–30 feet tall), or smaller thicket-forming shrub (10 feet tall), with sharp, single spines up to one inch long. Leaves are alternate, 1½ to 4 inches long, generally oval, and serrated on the outer half of the leaf. Small white flowers (about ½ inch in diameter) appear in spring in clusters, and produce black berries by August. New twigs often turn reddish in early summer. A related species, *C. douglasii* (formerly called *C. douglasii* var. *douglasii*) is also native to western Washington.

Habitat: Dry to moist areas, especially on the edges of pastures along streams.⁸ Well-drained, sandy, or gravelly soils.^{26,36} Full sun to partial shade. Forms dense thickets.

Advantages/Disadvantages: Stabilizes soil and is well-adapted to disturbed sites.³⁴ Can be used to create a thorny barrier. The thickets provide excellent nesting sites for birds, and cover for birds and small mammals. Flowers attract hummingbirds and butterflies. Fruits are a food source for birds and small mammals. Deer usually shun the foliage.³² Produces a fair amount of small, leafy debris in the fall.

Propagation/Salvaging: Grow from seed or salvage. Seed should be collected as soon as it ripens (late July through August), because it is harvested quickly by birds. Separate seeds from pulp and sow seeds immediately in trays containing ordinary soil. Sow very thickly, because some seeds may not germinate until the second spring, and place the trays in an unheated area. Seed not planted in the fall needs to be cold-stratified for 2½ months to break seed dormancy.⁴³ Plants quickly develop a long taproot, so they should be transplanted into a permanent location as soon as possible. Will grow up to two feet per year in the first couple years.



FRANGULA PURSHIANA • CASCARA

(FORMERLY *RHAMNUS PURSHIANA*)

CASCARA BUCKTHORN, CASCARA SAGRADA

Buckthorn Family (*Rhamnaceae*)

Trees

Description: This deciduous tree rarely grows over 35 feet tall. Its bark is thin and smooth, becoming scaly on relatively rare, mature trees. Leaves are alternate, 2–6 inches long, dark glossy-green, egg-shaped to oblong, with smooth or finely toothed margins. Leaf veins are distinctive, being very visible, recessed, and pinnately arranged. Flowers are tiny and greenish, with minute petals. Berries are small (under 1/2 inch long), and yellow or red, ripening to black. In winter, look for alternate, naked buds (the tiny, new leaves are not protected by bud scales).

Habitat: In moist, well-drained soils. Prefers southfacing aspects with conifers, or swampy clearings. Full sun to full shade.⁸ Large, mature trees are rare due to the harvesting of cascara bark for making laxatives.

Advantages/Disadvantages: Possesses good soil-binding qualities, grows well on disturbed sites, and tolerates shade.³⁴ The leaves and berries are attractive. Berries are eaten by birds, raccoons, and small mammals. Provides cover for wildlife, and insects for insect-eating birds. Deer browse on foliage and twigs.⁴¹ Flowers are pollinated by yellow jackets and related insects. The bark contains a laxative that is toxic in excess. It is fairly sensitive to pollution.²⁵

Propagation/Salvaging: Nursery-grown seedlings work best.³⁴ Can also be grown from seed. Collect berries in early August when ripe (they should be purplish-black), before they are eaten by birds. Remove pulp and sow seeds in pots in the fall, making sure they do not touch, and cover with mulch. Seed not sown in the fall requires three months' cold stratification to break seed dormancy.^{11,37,43} Seedlings under four feet tall may be salvaged.



FRAXINUS LATIFOLIA • OREGON ASH

Olive Family (*Oleaceae*)

Description: This deciduous tree grows 40–80 feet tall with opposite branches and leaves. Bark is dark-gray or brown, with thick, furrowed, and forking, scaly ridges. Leaves are pinnately compound, up to one foot long, with five, seven, or nine bright-green, broadly tapered leaflets that turn yellow in the fall. Flowers are greenish and in dense clusters which, on female trees, bear winged fruits 1–2 inches long. In winter, the opposite twigs are distinctive.

Habitat: Low-lying areas, on moist, saturated, or ponded soils. Full sun to partial shade.¹ May form pure stands, or mixed stands with black cottonwood and red alder.⁴⁰ Tolerates standing water early in the growing season.⁴⁰

Advantages/Disadvantages: This is the only true ash native to the Northwest. Its flood tolerance makes it a good choice for wet sites and riparian areas. Provides nesting sites for birds; and cover for birds, deer, and fish. Plants are an important food source for deer, elk, beavers, small mammals, and birds. Leaves are susceptible to a disfiguring, but not serious, fungal blight late in the growing season.¹

Propagation/Salvaging: Best grown from seeds or salvaged seedlings.²⁵ Collect seed from August to October, and sow as soon as possible in trays or garden beds. Mulch in the fall, and carefully rake off mulch in the spring. Plant out seedlings in 1–2 years. If seeds must be stored, air-dry them thoroughly. Seed not sown in the fall require three months' cold stratification to break seed dormancy.¹¹ Seedlings under four feet tall can be salvaged.



MALUS FUSCA • PACIFIC CRABAPPLE

(FORMERLY *PYRUS FUSCA*)

PACIFIC CRABAPPLE, WESTERN CRABAPPLE

Rose Family (*Rosaceae*)

Trees

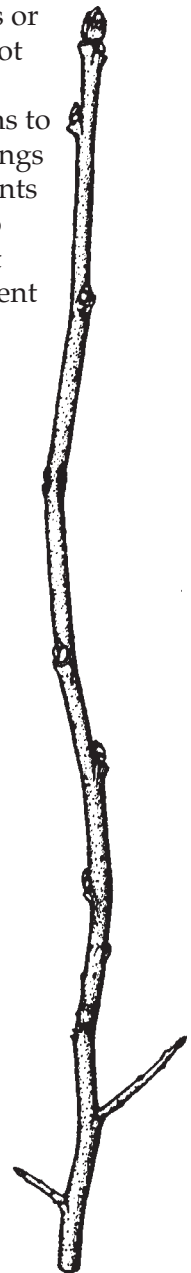
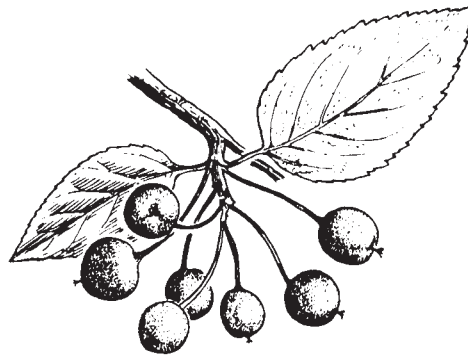
Description: This deciduous native grows as a tree up to 40 feet tall, or as a large shrub growing in dense thickets, sometimes with sharp thorns on limbs and young trunks. Leaves are alternate, 1–4 inches long, ovate, oval, or elliptical in shape, with serrated or lobed margins, dark-green to yellow-green on the upper surface and paler below. Flowers are small ($1\frac{1}{2}$ inch), white, borne in clusters in the spring, and develop into small crabapples that vary in size and color. Can be identified in winter by its sprawling branches, peeling bark, and alternate buds that (on older branches) appear on spur shoots.

Habitat: Swamps, marshes, and other moist sites near streams. Full sun to partial shade.

Advantages/Disadvantages: Has attractive flowers and fruits, and is an excellent plant for creating thickets. Does well near salt water, sloughs, and estuaries,⁴ and is tolerant of prolonged soil saturation.¹ Provides nesting sites for birds, and shelter for birds and other wildlife. Fruits are eaten

by birds, squirrels, elk, and deer. Foliage and twigs are browsed by deer and elk.⁴¹ Beavers use the whole plant. Somewhat untidy, as it sheds twigs, bark, leaves, and flowers, but this is more than offset by its value to wildlife.

Propagation/Salvaging: Can be grown from seed. Separate seeds from pulp, and plant immediately in flats or directly in the ground. Seed not planted in the fall needs to be cold-stratified for three months to break seed dormancy.⁴³ Seedlings are small and start slowly. Plants in your yard can be layered to produce new offshoots,⁴ but it may take two years for sufficient roots to develop.¹⁶



PICEA SITCHENSIS • SITKA SPRUCE

COAST SPRUCE

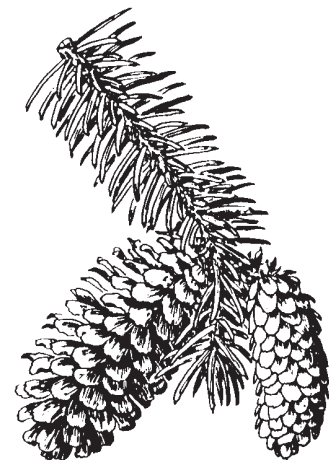
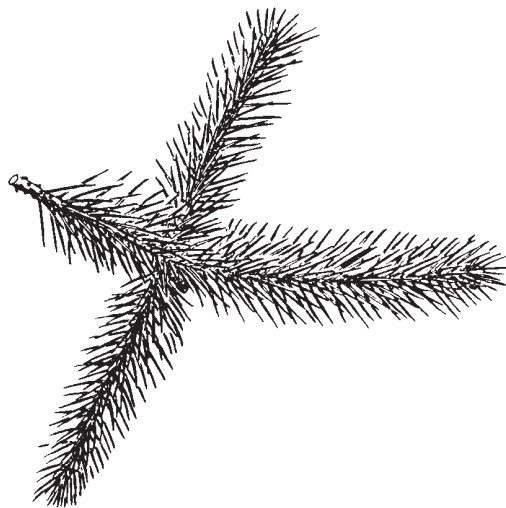
Pine Family (*Pinaceae*)

Description: This majestic conifer grows 100–210 feet tall, and can be identified by its gray, scaly bark; fairly straight branches that are often raised sharply upward; stiff four-sided, sharp needles (if you grab a handful of needles, it hurts!); and four-inch long papery cones.

Habitat: Moist forests and forested bogs; usually in lowland, coastal areas, in moist or saturated soils.¹ Full sun to full shade.⁴¹ Tolerates flooding. The numbers of Sitka spruce have been greatly reduced due to large-scale harvesting during the World Wars for making airplanes.

Advantages/ Disadvantages: This moderately fast-growing, long-lived conifer thrives in moist, acid soils high in organic matter. Root masses can become very dense, resisting washout and erosion in riparian settings. Provides roosting, nesting, and winter cover for birds. Provides food for birds, deer, elk, and squirrels. It is vulnerable to budworms and other insect pests,²⁵ and is subject to blowdown in areas with high water tables, due to shallow rooting.⁴ At higher elevations, it is susceptible to injury from late frosts unless grown from plants that naturally occur at those elevations.¹

Propagation/Salvaging: Can be grown from seed. Collect cones August to October, and promptly dry them (a few weeks at air temp, or 6–24 hours at 100°–120°F). Seed can be sown immediately, or stored and planted without any pretreatment.¹⁰ Seedlings under three feet can be salvaged.¹



PINUS CONTORTA VAR. **CONTORTA** • **SHORE PINE**

BEACH PINE, COAST PINE

Pine Family (*Pinaceae*)

Trees

Description: This pine, together with *P. contorta* var. *latifolia* (lodgepole pine, a variety more common to eastern Washington) is our only native two-needled pine. In exposed areas near the Pacific coast, it grows 15–50 feet tall, often with a crooked trunk, bushy form, and windblown crown. Slightly further inland, it can have a similar form, or grow as a straight tree to a height of 100 feet with an irregular, pillowy crown. With age, the bark becomes dark-brown and deeply furrowed into flaky plates. Needles are deep green, stiff, sharp-pointed, 1–3 inches long, paired, and often twisted into a spiral. Cones are numerous, small (1–2 inches long), egg-shaped, usually covered with sharp prickles, attached to the branch in a lopsided manner, and are slow to open, sometimes remaining on the branch for several years.

Habitat: A highly adaptable species found in saturated to excessively well-drained soils. Occurs along the coast and on lowlands,^{24,35} especially on marshy or gravelly sites, where Douglas-fir and western hemlock can't grow well enough to exclude it. Also found in sphagnum bogs in some areas of western Washington.¹ Tolerant of low-nutrient soils.³⁵ Full sun.^{36,41}

Advantages/Disadvantages: A beautiful, fairly open, small tree with an attractive branching pattern. Its tolerance of salt and low nutrient conditions makes it an especially good choice for seaside plantings.²⁵ Grows rapidly, and is easy to train to produce various shapes.²⁵ Used by numerous species of wildlife, some of which eat the seeds, others eat the insects attracted to it, and some use the tree for cover.⁴¹ Porcupines eat the bark.²

Propagation/Salvaging: Easy to grow from seeds. Collect ripe cones September to October (they should be lustrous light yellowish-brown to yellow-brown), and immediately dry them to remove seeds. Plant seeds in the fall, or in the spring after 20–30 days' cold stratification.⁴³ Seeds should germinate in 30–50 days.^{25,43} Seedlings under two feet tall can be successfully salvaged.^{1,25}



PINUS MONTICOLA • WESTERN WHITE PINE

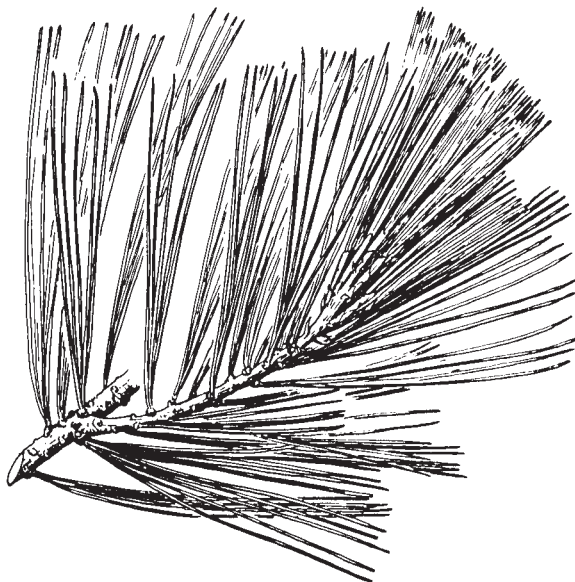
Pine Family (*Pinaceae*)

Description: This evergreen grows to be 80–130 feet tall in the wild (occasionally much taller), though usually only to 50 feet in gardens. It can be recognized by its whorls of widely spaced, horizontally held branches, and relatively long (2–4 inches), flexible, bluish-green needles in bundles of five. Bark of young trees is grayish-green, thin, and smooth, often with resin blisters; with age, it becomes dark gray and broken into thick, square to rectangular, scaly plates. Only a few cones in the upper branches are produced each year. They are cylindrical, slender, 4–10 inches long, usually curved, thin-scaled, pitchy, lack prickles, and are bright green to purple when young, maturing in late summer to reddish-brown.

Habitat: Usually in well-drained soils, from moist valleys to drier, gentle slopes.^{18,11,36} Occasionally found in sphagnum bogs.¹ Fairly common throughout the lowland areas bordering Puget Sound, though widely scattered and rarely in great numbers.^{2,24,25} Prefers full sun.¹

Advantages/ Disadvantages: A beautiful tree that grows rapidly even in nutrient-poor, gravelly soils² and is very windfirm due to its tendency to form a few deep roots.¹⁸ Its size makes it best suited for large gardens, but it can be kept small by pinching back elongating shoots or by shearing.²⁵ Seeds are relished by squirrels.² It is susceptible to a deadly, human-introduced fungal disease (white pine blister rust), which also infects some currants and gooseberries, and should not be planted if those plants are nearby.³⁵

Propagation/Salvaging: Can be grown from seed. Collect ripe cones June to August. They should be yellowish-brown to dark brown.⁴³ You will probably need to use a ladder or cutting hook, because cones are produced only on the upper branches (don't cut off branches!). Immediately dry the cones to remove seeds. Plant seeds in the fall, or in the spring after 1–4 months' cold stratification.⁴³ Seeds should germinate in 30–70 days.⁴³ Young plants under three feet tall can be salvaged.¹



POPULUS BALSAMIFERA • BLACK COTTONWOOD

SSP. *TRICHOCARPA*

BALSAM POPLAR

Willow Family (*Salicaceae*)

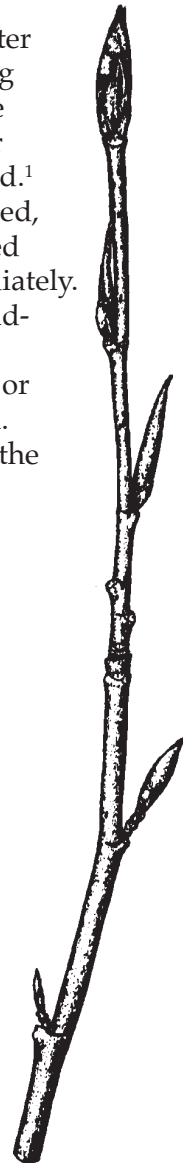
Description: This deciduous tree grows 100–200 feet tall and 3–6 feet in diameter. Young trees have smooth, green bark that forms hard, dark-gray ridges as the tree matures. Leaves are alternate, oval to lance-shaped, finely toothed, resinous, and fragrant when crushed. The upper sides of leaves are shiny and dark bronze-green. The undersides are pale and silvery-gray. Leaf buds are long, brown, sticky, and emit a balsamic odor. Male and female flowers occur in drooping catkins on separate plants (male clusters grow to 1½ inches long, female clusters 3–8 inches). In the late spring, the air fills with masses of seeds and their cottony hairs. In winter look for alternate, aromatic buds, and single long (¾ inch), slender terminal buds.

Habitat: Along river and stream banks, lake shores, and in forested wetlands. Moist soil. Full sun. Tolerates seasonal flooding. Sometimes forms pure stands.

Advantages/Disadvantages: Excellent choice where quick cover and fast growth are needed. Especially valuable in restoring flooded lands or other wet habitats, and many people enjoy the smell of its buds. Trees will re-sprout when cut. Used by numerous small mammals and birds for cover, roosting, and nesting sites. Mature and standing dead trees make excellent habitat for cavity-dwellers such as woodpeckers and wood ducks. Provides food

for mountain beavers, beavers, deer, and elk. Attracts insects and the birds that eat them. A fairly messy tree, given its falling flowers and the large amount of cottony seed produced. Do not plant near sewer, water, or septic lines, as the roots tend to invade pipes and clog the lines.

Propagation/Salvaging: Hardwood cuttings are very successful—either root in beds or containers, or plant them in the field as longer (3–4 foot) live stakes. Rooting can be enhanced by soaking the cuttings or live stakes in water for 48 hours prior to planting (though they usually do fine regardless). Seedlings under three feet tall can be salvaged.¹ It can also be grown from seed, but seeds are very short-lived and must be planted immediately. Collect seeds late-May to mid-July⁴³ and sow them on the surface—do not cover them or press them into the medium. Keep seedbed saturated for the first month.^{11,43}



PRUNUS EMARGINATA* VAR. *MOLLIS

(FORMERLY *PRUNUS MOLLIS*)

Rose Family (*Rosaceae*)

• **BITTER CHERRY**

NARROWLEAF CHERRY

Trees

Description: This deciduous native grows as a large shrub or small tree, to heights of 20–50 feet tall, and has shiny, reddish-brown bark with thin, horizontal stripes. Leaves are alternate, 2–4 inches long, oval to oblong, with rounded tips and fine teeth on the margins; and bright to dark-green in color, turning bright-yellow in the autumn before they fall. Flowers are small, white to pinkish, and form loose, flat-topped clusters of 5–10 flowers. The small cherries are bright-red when ripe. Another cherry native to western Washington is *P. virginiana* var. *demissa* (common chokecherry), which can be distinguished from *P. emarginata* by its flowers and fruit being in long clusters of more than ten, its darker (purple to black) cherries, and its strikingly silver bark.^{1,35}

Habitat: Both species occur on dry to moist sites, in full sun to partial shade, though *P. virginiana* prefers settings that are slightly more open. Both are intolerant of full shade.

Advantages/Disadvantages: *P. emarginata* makes a stately ornamental tree in open, conifer forests. The fruits of both species are an important food source for birds and small mammals (especially in early winter), and deer and elk feed on the leaves and twigs. Provides nesting sites for cavity-nesting birds, mammals, and sometimes bees.⁴ Plants are short-lived (40–60 years).¹

Propagation/Salvaging: Both species grow best from seed. Collect fruit when fully mature (July to September for *P. emarginata*; late August to September for *P. virginiana*). Remove pulp, keep soaking time to a minimum to avoid damage to seeds.⁴³ Sow liberally in the fall. Seed not sown in the fall must be cold-stratified for 3–4 months to break seed dormancy.⁴³ Seedlings under six feet tall can be salvaged.^{1,4}



Prunus virginiana
common chokecherry



Prunus emarginata
bitter cherry



***PSEUDOTSUGA MENZIESII* VAR. *MENZIESII*¹³ • DOUGLAS-FIR**

COAST DOUGLAS-FIR

Pine Family (*Pinaceae*)

Trees

Description: This massive (100–250 feet tall), elegant, fast-growing conifer is a common and familiar tree in western Washington. It can be identified by its tall, straight trunk and corky, brown bark which becomes deeply furrowed on older trees. The 3–4 inch cones consist of woody, brown scales with protruding, papery, three-pointed seed bracts.

Habitat: Throughout the Pacific Northwest in all but the wettest and driest sites, often growing in mixed stands with hemlock and redcedar. Does best in deep, moist, sandy loams; poorest on gravelly soils.³⁶ Prefers full sun.

Advantages/Disadvantages: An excellent ornamental. The cone and needle-drop makes great humus and mulch for acid-loving plants.⁴ Can be used for stream-side or buffer zone plantings. Seeds are eaten by numerous birds and small mammals. Deer and grouse eat new shoots.⁴¹ Plants also provide many species of wildlife with shelter, nest sites, and insects (food). Due to its fast growth, it should not be planted near homes or buildings.

Propagation/Salvaging: Easily grown from seed collected mid-August to October. Stored seed does not need pretreatment to break seed dormancy.⁴³ Seedlings can be salvaged, with smaller seedlings (under two feet tall)⁴ salvaging much easier than older seedlings. Extra care should be taken while salvaging to protect roots, as they are particularly sensitive.⁴



QUERCUS GARRYANA VAR. GARRYANA

• OREGON WHITE OAK

GARRY OAK

Beech Family (*Fagaceae*)

Trees

Description: This is the only oak native to western Washington. It grows up to 75 feet tall, often with a beautiful, complex branching pattern when mature. Its bark is pale-gray with thick ridges and furrows. Leaves are deciduous, alternate, up to five inches long, have rounded, blunt-tipped, deeply cut lobes, and are dark-green above, and paler with brownish hairs beneath. Separate male and female flower clusters appear on the same tree in the spring with the leaves, but are small and inconspicuous. Acorns can be over one inch long, and have brown, rough-textured caps.

Habitat: While scattered populations can be found throughout the Puget Sound region, the majority of plants occur south of Tacoma. Dry to moist, well-drained, gravelly soils. Occasionally found in saturated soils, frequently with Oregon ash.¹ Requires full sun, and can be shaded out by faster-growing conifers.⁸ Its numbers have greatly declined from loss of habitat to development and competing tree species.

Advantages/Disadvantages: Though very slow-growing, it makes a beautiful tree for a larger yard. The western gray squirrel is dependent on this species for food and habitat, and squirrel populations have declined with the tree. Several species of birds eat the acorns.⁴¹ Many seedlings are produced from its numerous acorns.⁸

Propagation/Salvaging: There can be two to three years between acorn crops.⁴³ When they do appear, they must be harvested early to beat the squirrels and birds. Because acorns do not store well, they should be planted soon, in a soil that has plenty of organic matter and will drain well. Given sufficient moisture, acorns will germinate almost immediately after falling and require no pretreatment to break seed dormancy.⁴³ If planted in containers, do not plant out until about two feet tall.³⁷ Due to its deep taproot, only seedlings under six inches tall should be salvaged.^{8,25}



SALIX SPECIES • WILLOWS

Willow Family (*Salicaceae*)

NOTE: There are several species of willow found in western Washington, and many are difficult to tell apart. The three most common species are described below. In winter, willows can be distinguished from similar species by their smooth, flexible twigs, alternate buds, and lack of a true terminal bud.

Advantages/Disadvantages: Willows have excellent soil-binding qualities, and control erosion along stream banks and in wetlands. They provide important food, nesting, or cover for many fish, bird, mammal, and insect species. Plants host butterfly caterpillars. Deer, elk, rabbits, and other small mammals eat the leaves and young branches, several species of birds feed on the buds, and beavers use the whole plant. Willows should not be planted near water lines or septic systems, as their roots can clog septic and sewer lines. Willows are relatively short-lived.⁴

SALIX LUCIDA SSP. LASIANDRA • PACIFIC WILLOW

RED WILLOW

Description: Our tallest willow (40–60 feet tall) usually has one or a few main trunks. Leaves are deciduous, alternate, 2–6 inches long, lance-shaped tapering to a long tip, with finely serrated margins. Older leaves are shiny green above, whitish below, and lack the hairs found on younger leaves. Catkins appear with the leaves, and are 2½ to 5 inches long, with hairy, yellow-brown scales. Male and female flowers are on separate trees. On female trees, the catkins develop into light reddish-brown capsules, about ½ inch long, which mature in early summer.

Habitat: Wet soils along streams, lakes, roadside ditches, and in wet meadows. Full sun. Tolerates seasonal flooding. Often grows as isolated individuals with other willows and red alder.

Propagation/Salvaging: Easy to grow from hardwood cuttings, including live stakes.^{1,34} Plants in your yard can be layered, or it can be grown from seed.⁴³



***SALIX SCOULERIANA* • SCOULER WILLOW**

FIRE WILLOW

Description: This willow grows 6–40 feet tall as a shrub or small tree. Twigs are covered with dense velvet. Leaves are deciduous, alternate, 1–4 inches long, narrowly oval, widest above the middle of the leaf, pointed or rounded at the tip, with smooth edges or a few rounded teeth near the tip. Young leaves are densely velvety, while older leaves are dark green and nearly hairless above, and almost hairless or hairy with some rust-colored hairs below. Catkins appear well before the leaves, are 1 to 2¹/₂ inches long, and are nearly stalkless. Catkins on female plants develop into ³/₈ inch-long, narrow, light-brown capsules that mature in early summer.

Habitat: Our most abundant upland willow. Grows on dry to moist sites in gravelly soils. In upland forests under larger trees and in clearings; also found in wetlands. Full sun to partial shade. Extremely drought-tolerant.¹

Propagation/Salvaging: Can be grown from seed, but they are very short-lived and must be planted immediately.⁸ Obtain seeds directly from trees, and plant in trays containing moist sand; sprinkle seeds onto sand, and do not cover them or press them down. Seeds should germinate in two to five days. Be sure to keep the soil moist for the first month.¹¹ Also propagates well from hardwood cuttings, including live stakes. Can also be layered to multiply plants in your yard.



***SALIX SITCHENSIS* • SITKA WILLOW**

Description: This willow grows 3–26 feet tall with a round top. Twigs are covered with dense velvet. Leaves are deciduous, alternate, bright green above, satiny with short hairs below, 1¹/₂ to 3¹/₂ inches long, tapering from beyond the middle of the leaf to the base, blunt-pointed, with smooth edges. Catkins appear before or with the leaves, and are on short leafy shoots. Fruits mature in the spring and are light brown capsules covered with silvery hairs.

Habitat: Moist soils on stream banks, lake shores, wetlands, forest edges, and clearings. Full sun to partial shade. Tolerates seasonal flooding.

Propagation/Salvaging: Same as *Salix lucida* (Pacific willow).



TAXUS BREVIFOLIA • WESTERN YEW

PACIFIC YEW

Yew Family (*Taxaceae*)

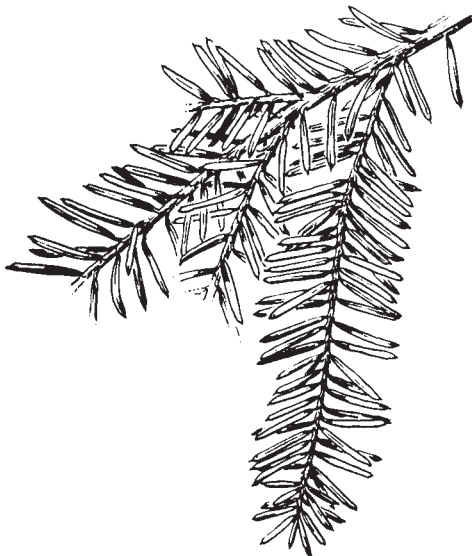
Trees

Description: This evergreen conifer usually grows 10–25 feet tall, often as a small, scraggly tree with sparse, droopy branches and twisted trunk. The bark is very thin, and flakes off in long reddish scales to reveal a smooth, dark red to purplish inner bark. Needles are soft to the touch, yellow-green above, paler below, usually under one inch long, end abruptly with a slender point, and are arranged along stems in two opposite rows to form flat sprays. Only female trees bear fruit; a waxy-looking, pea-sized, bright red, fleshy cup that partially encloses a large, dark seed. Western yew can be distinguished from non-native yews by its lanky form, longer and abruptly pointed needles, and the flat arrangement of its needles (those of other yews are arranged in a V-shape).

Habitat: A common tree in the understory of larger conifers, especially Douglas-fir and western hemlock.² In well-drained soil, usually in moist sites (though also found in dry, rocky locations). Partial sun to deep shade.^{2,36}

Advantages/Disadvantages: Though scraggly in the wild and slow-growing, in cultivation it forms a vigorous, spreading tree.² Fruits are eaten by a wide variety of birds, but are poisonous to humans.³⁵ Foliage is poisonous to cattle and horses.³⁵

Propagation/Salvaging: Can be grown from hardwood cuttings^{1,2} or seeds, and plants already in your yard can be multiplied by layering.²⁵ Fruits ripen August to October, and should be collected as soon as ripe, before birds get them.^{24,43} Remove fleshy coat from seeds before sowing. Germination is very slow, and may take two years.^{11,43} Pretreating seeds with hot water or scarification may speed up germination.



THUJA PLICATA • WESTERN REDCEDAR

PACIFIC REDCEDAR, GIANT ARBORVITAE

Cypress Family (*Cupressaceae*)

Description: This evergreen conifer can grow over 200 feet tall, with a massive (3–10 feet in diameter) tapering trunk that flares at the base to form buttresses. Bark is thin, shaggy, reddish, and easily peels off into long strips. Needles are flat, overlapping like scales, and are shiny bright-green above, and paler on the underside with white markings. The needles form flattened sprays on drooping branches that turn up at the tips. Cones are clustered near the ends of branches, and are bluish-green when young, becoming brown, half-inch, tulip-shaped cones with woody scales.

Habitat: Prefers moist to swampy soils. Full sun to full shade, though seedlings require some shade.² Tolerates seasonal flooding and perennially saturated soils.⁴⁰

Advantages/Disadvantages: Aromatic, long-lived (up to 1,000 years), and fairly rot-resistant. An excellent choice for wetland and riparian sites, as it thrives in wetter soils

better than other evergreens. Forms a shallow, widely spreading root system, and creates exceptionally durable, large woody debris in streams and on the forest floor. Though it naturally becomes a massive tree, it responds to pruning by sprouting new foliage along the trunk (unlike many conifers), and so can be made into a hedge.² Seeds are eaten by numerous species of birds. Deer and elk browse seedlings.⁴¹ Provides nesting sites and cover for many species of birds and small mammals. Plants host butterfly caterpillars. Despite its shallow roots, it tends to be windfirm except in very wet sites.^{2,4}

Propagation/Salvaging: Easily grown from seeds or by layering. Collect cones early September to October, and dry to remove seeds. Do not de-wing the seeds.⁴³ Seeds can be sown right away, or in the spring without any pretreatment.^{11,43} Seedlings under three feet tall salvage well.¹ Hardwood cuttings can also be used.¹⁰



TSUGA HETEROPHYLLA • WESTERN HEMLOCK

LOWLAND HEMLOCK

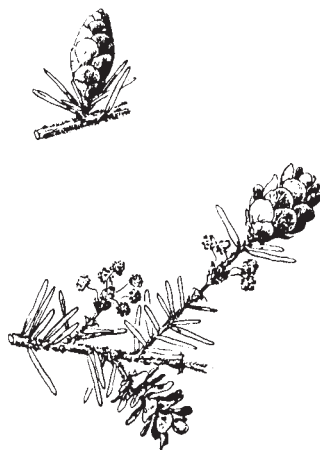
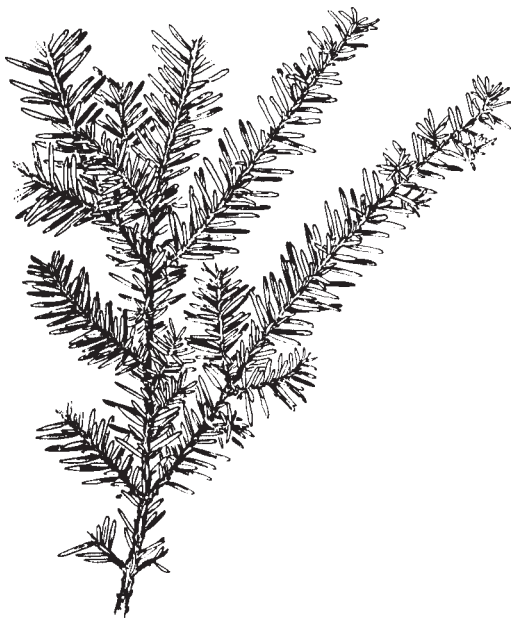
Pine Family (*Pinaceae*)

Description: This evergreen conifer with drooping branches and furrowed, dark-brown to reddish-brown bark grows to 225 feet tall. It can often be identified from a distance by the drooping new growth at the top of the tree. Needles on the same branch vary in length from $1/2$ to $3/4$ inch; are flat, distinctly grooved, glossy yellow-green above, with two broad, white stripes below; and form flat sprays. Cones turn from green to brown at maturity, and are abundant, one inch long, oval-shaped, attach directly to the branch, and fall intact to the ground.

Habitat: Throughout the region, especially in moist conditions. Does best on deep, moist, well-drained soils,³⁶ and requires high organic content in the soil.³⁵ Seedlings are frequently found on nurse logs. Full sun to full shade, though seedlings are often dried out by full sun.^{2,12} Can be found in pure stands or mixed with other species. Not drought-tolerant.

Advantages/Disadvantages: A long-lived conifer (up to 650 years) suitable for wetland edges and buffer zones, and able to grow in dense shade. Provides food, nesting, and cover (especially winter cover) for birds and mammals. Seeds are eaten by several species of birds and small mammals. Trees are somewhat susceptible to blow-down due to shallow rooting.²

Propagation/Salvaging: Propagation is best from seed or salvaged seedlings. Collect cones September to October, before they open, but after they turn brown. Dry cones to remove seeds. Seeds do not need to be de-winged.⁴³ If not planted immediately, dried seeds should be stored in a refrigerator.⁴³ Stored seeds may germinate well with no pretreatment.^{11,43} Seedlings under four feet tall can be salvaged. Smaller seedlings (under one foot) should be kept in a pot for one year before planting out. Extra care should be taken while salvaging to protect roots, as they are particularly sensitive.⁴



IV. Native Plant Descriptions • Shrubs

Usually under 20 feet tall at maturity, with several stems.

ARCTOSTAPHYLOS COLUMBIANA • **HAIRY MANZANITA**

SSP. COLUMBIANA

COLUMBIA MANZANITA

Heath Family (*Ericaceae*)

Description: This broadleaf evergreen grows as a bushy shrub or small tree, usually to a height of 6–8 feet. It can be identified by its hairy, grayish-green evergreen leaves, and peeling, reddish-brown bark on older, often somewhat gnarled branches. Leaves are alternate, egg- to lance-shaped, and 1–2 inches long. Flowers are small, white to slightly pink, urn-shaped, and appear May to July in clusters at the ends of branches. Fruits are small, smooth, tea-colored berries about 1/2 inch across.

Habitat: Full sun, often on southern or western exposures.²⁵ In loose, sandy or rocky, well-drained, slightly acid soils.^{35,36,39}

Advantages/Disadvantages: The leaves, bark, flowers, fruit, and branching pattern combine to make this plant beautiful year-round. Good for sunny sites with rocky, dry soils.³⁹ Provides cover for birds and small mammals, many of which also eat the fruits.

Propagation/Salvaging: Not available in most nurseries,²⁵ but can be propagated from seeds or hardwood cuttings, and by layering or salvaging.^{25,39} Seeds are notoriously difficult to germinate and normally require fire to break seed dormancy (try hot water treatment).³⁷ Cuttings can be taken from the firm, semi-ripe wood of the current year's growth.³⁷



CEANOTHUS VELUTINUS VAR. HOOKERI • SNOWBRUSH

MOUNTAIN-BALM, STICKY-LAUREL,

TOBACCO-BRUSH, CINNAMON-BUSH

Buckthorn Family (*Rhamnaceae*)

Shrubs

Description: This tall (to 20 feet), spreading, evergreen shrub often forms thickets, and is easily identified by the sweet, spicy smell produced by the leaves on warm days or when crushed. Leaves are alternate, oval, 2–5 inches long, shiny, and usually sticky on top, with velvety veins on the underside. Flowers are small, white, and appear in long (2–5 inches), fluffy, fragrant, conical clusters, June through August. Fruits are small, explosive capsules.

Habitat: On dry to moist (but well-drained) sites; in open, sunny locations. Full sun—even a small amount of shade will cause it to become leggy.²⁵ Often appears after a fire, as its seeds require the heat from a fire to germinate. Found primarily around Hood Canal and in the Cascade foothills.⁸

Advantages/Disadvantages: This attractive shrub can grow in very poor soils due to the ability of its roots to fix nitrogen.³⁵ In addition, it can tolerate extremely dry conditions.^{25,39} Its spreading habit makes it an attractive screen.³⁹ Birds and other wildlife eat the seeds, and the leaves are browsed by deer and elk.^{39a}

Propagation/Salvaging: Can be propagated from seeds (though results may be variable), and probably from hardwood cuttings. Seed should be collected mid-summer (before the seed capsules explode),^{39a} pre-treated with hot water to break seed dormancy, planted in the fall, and allowed to overwinter.⁸ Seed planted at other times of the year requires 2–3 months' cold stratification,^{11,25} and still may not sprout until it has over-wintered.^{1a,8}



CORNUS SERICEA SSP. **OCCIDENTALIS** • **RED-OSIER DOGWOOD**

(FORMERLY *C. STOLONIFERA* VAR. *OCCIDENTALIS*)

CREEK DOGWOOD, RED-TWIG DOGWOOD

Dogwood Family (*Cornaceae*)

Description: This many-stemmed, deciduous shrub grows up to 15 feet tall. Leaves are opposite, 2–6 inches long, elliptical, pointed, with 5–7 distinct, curving veins that merge at the smooth or wavy leaf margin. In autumn, leaves turn a deep red before falling. Twigs and stems are often reddish or purple. Small, greenish-white flowers grow in dense, flat-topped clusters at the ends of branches, and produce bluish-white berries in the fall.

Habitat: In moist, well-drained soils, especially along stream banks and in swamps. Full sun to partial shade. Tolerates seasonal flooding.

Advantages/Disadvantages: Possesses excellent soil-binding qualities. Red stems make it attractive with or without foliage. Provides excellent wildlife cover, and is browsed by rabbits, deer, and elk.⁴¹ Hosts butterfly caterpillars. Buds and fruit provide food for numerous birds, small mammals, and black bear.

Propagation/Salvaging: Easiest to propagate from hardwood cuttings, including live stakes.^{25,40} Cuttings taken in the spring will also root readily and grow rapidly, but must be well-watered over the summer. Can also be grown from seed collected August to September. Plant the whole berries (you don't need to clean them)⁴ in flats, one-gallon pots, or garden beds (if the berries are dry, soak them for 24 hours before planting). Some of the seeds will germinate soon after sowing, and should be transplanted into gallon containers. The rest of the seeds will germinate the following spring. Transplant seedlings or rooted cuttings before roots grow too large. Can also be propagated by layering, but hardwood cuttings are generally preferred.



CORYLUS CORNUTA VAR. *CALIFORNICA* • **BEAKED HAZELNUT**

CALIFORNIA HAZELNUT, WESTERN HAZEL, FILBERT

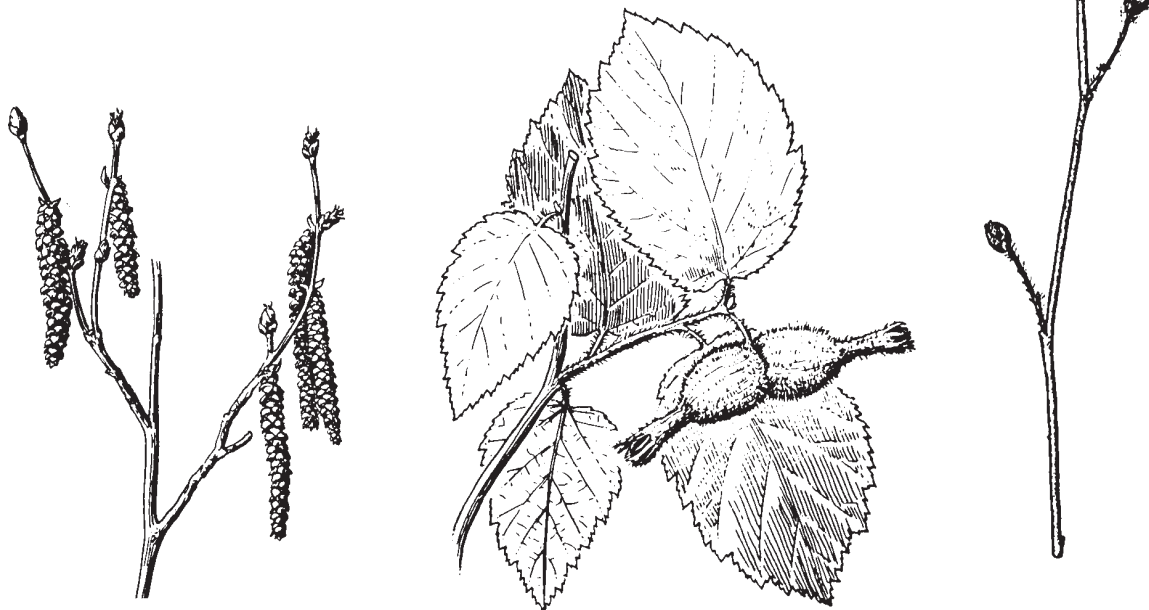
Birch Family (*Betulaceae*)

Description: This deciduous shrub grows up to 20 feet tall in dense, arching clumps, or occasionally as a small tree up to 30 feet tall. Leaves are alternate, oval, 2–4 inches long and 1½ to 3 inches wide, with toothed or serrated edges. Buds and new leaves are covered with fuzzy, white hairs. Male catkins, 2–3 inches long, appear in early fall and gradually lengthen by spring. Tiny bright red or magenta female flowers emerge from ends of buds in early spring, before the leaves. Nuts are small (half-inch), round, in clusters of 2–4, and each nut is surrounded by modified leaves that extend beyond the nut to form a vase-like husk (hence the name “beaked”). In winter it can be identified by its distinctively zig-zag branchlets, small catkins, and round, hairy, alternate buds.

Habitat: In moist (but well-drained) to dry sites. Intolerant of saturated soil.¹ Full sun to full shade.³⁶ Often found in the understory of coniferous forests, along streams, and on burned-over and logged-over lands.³⁶

Advantages/Disadvantages: Clumps form attractive fountains of vegetation. Provides excellent food and cover for wildlife. Nuts are eaten by birds, numerous small mammals, deer, and humans.⁴¹ Spreads to form clumps.

Propagation/Salvaging: Grows best from seed, though they can be difficult to find. Collect seed August through September once the nuts are nearly ripe, but before squirrels harvest the entire crop. Before sowing, allow the nuts to ripen and dry until the husk turns brown; husks can be left on or removed.⁴ Sow nuts in trays. Nuts not sown in the fall need two to three months’ cold stratification to break seed dormancy.^{11,37} Suckers can be transplanted, and plants under five feet tall can be salvaged.^{1,4} Plants in your yard can be layered to produce new offshoots.



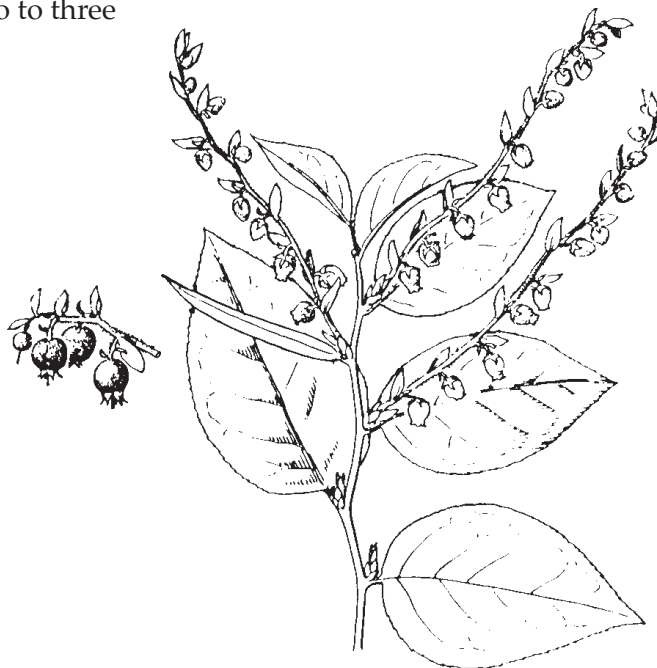
GAULTHERIA SHALLON • SALALHeath Family (*Ericaceae*)

Description: This thicket-forming broad-leaf evergreen usually grows 3–7 feet tall (though more compact in full sun or full shade), with branches that zigzag. Leaves are alternate, thick, leathery, glossy, broadly oval (2–4 inches long by 1–2 inches wide) and pointed, with fine teeth. Flowers are shaped like small (about $\frac{1}{4}$ inch) pinkish to white urns, and hang from stalks in loose clusters of 5–15. Berries are small (under $\frac{1}{2}$ inch), dark-purple to black, oval, have minute hairs, and hang in clusters.

Habitat: One of the most common understory shrubs in our forests. Prefers dry places or raised areas within forested wetlands. Full sun to full shade, but does best with some shade, and requires some sunlight to produce much fruit.⁴

Advantages/Disadvantages: Has good soil-binding qualities, delicious berries, and is tolerant of poor soils.²⁸ Provides cover for birds and small mammals.⁴¹ Hosts butterfly caterpillars. Flowers attract butterflies. Fruits are eaten by birds, deer, bear, and humans.⁴¹ Plants are often slow to establish and begin spreading (often two to three years after transplanting).¹

Propagation/Salvaging: Can be grown from seed. Collect berries August through September, and separate seeds from the fruit (seeds are minuscule, so use pantyhose to strain out the seeds). Using flats or small pots filled with a mixture of sand, composted leaves, and loam, sow the seeds on the surface (a salt shaker can be used for sowing). Newly germinated plants are tiny, and must be protected from late frosts, as well as from drying during warm spring weather. Once they are large enough to handle (perhaps a whole year), separate and plant one or two per four-inch pot. When they have filled these pots, they are large enough to plant out. Hardwood cuttings are worth trying—they root slowly, but if you are successful you will get a bigger plant more quickly than from seed. Rhizome cuttings are moderately successful.⁸ Seedlings under six inches tall can be salvaged.¹ Plants in your yard can be layered to produce new offshoots.



HOLODISCUS DISCOLOR • OCEANSPRAY

CREAMBUSH, ARROWWOOD, ROCK-SPIRAEA

Rose Family (*Rosaceae*)

Description: This deciduous shrub usually has several, thin, main stems and grows up to 15 feet tall. Leaves are alternate, oval, $\frac{3}{4}$ to $2\frac{1}{2}$ inches long, with shallow lobes or teeth. Flowers are profuse, white to cream, and form cascading clusters. Small, dry fruits form in drooping clusters that persist into the winter. The presence of drooping fruit clusters and alternate buds are the best clues for winter identification.

Habitat: On well-drained to dry sites. Full sun to partial shade.⁴¹ Intolerant of saturated soils.¹

Advantages/Disadvantages: Does well on disturbed sites, has good soil-binding qualities, and is very attractive when blooming. Extremely drought-tolerant. Provides cover for small mammals and birds. Deer and elk browse branches. Nectar source for butterflies and numerous other insects. Birds eat seeds.⁴¹

Propagation/Salvaging: Best grown from hardwood cuttings,²⁵ salvaged plants, or seed. Collect seed September to November, and plant them in the fall in trays or garden beds. They should be sown thickly, as only small percentage of the seed typically germinates. However, because the seeds are so numerous, this is not a serious problem. Seeds not sown in the fall need $4\frac{1}{2}$ months' cold stratification to break dormancy.¹¹



LONICERA CILIOSA • ORANGE HONEYSUCKLE

TRUMPET HONEYSUCKLE

Honeysuckle Family (*Caprifoliaceae*)

Description: This deciduous, woody-stemmed, perennial vine can grow along the ground or, more often, up into shrubs and trees to a height of 10–20 feet. Leaves are opposite, oval, $1\frac{1}{2}$ to 4 inches long, dull-green above and whitish below, with small hairs along the edges. The terminal (end) pair of leaves on each twig is distinctive, as they are fused together to form an indented disk. Flowers are orange to orange-red, narrow and trumpet-shaped, $\frac{3}{4}$ inch to $1\frac{1}{2}$ inches long, odorless, and appear in small whorls at the ends of branches, above the fused disk-leaves. Fruits are clustered, small (less than $\frac{1}{2}$ inch across), orange-red to red, translucent berries.

Habitat: Common in open woods,²⁵ forest clearings, and at the edges of woods.²⁴ Full sun to partial shade. Intolerant of soil saturation.¹

Advantages/Disadvantages: One of the few vines native to the Pacific Northwest.⁸ Flowers provide nectar for hummingbirds, which are its main pollinator.^{24,28} Birds and small mammals eat the fruit, though it may be poisonous to humans.

Propagation/Salvaging: Easy to grow from hardwood cuttings.²⁵ Can also be grown from seed.⁸ Collect seed as soon as ripe (August to September),¹ before birds eat them all. If sown immediately, fruits can be sown whole. However, if you plan to store the seeds, the fleshy fruit should be removed.⁴³ Stored seeds may be slow to germinate unless cold-stratified for three months.^{25,39a} May also be salvaged, but may be slow to establish after transplanting.¹

Shrubs



LONICERA INVOLUCRATA • BLACK TWINBERRY

VAR. *INVOLUCRATA*

BEARBERRY HONEYSUCKLE, BUSH HONEYSUCKLE

Honeysuckle Family (*Caprifoliaceae*)

Description: Almost everything on this deciduous shrub grows in opposite pairs—branches, leaves, flowers, and berries. It usually grows 2–7 feet high, with an erect or straggly form. Leaves are elliptical to broadly lance-shaped, pointed, $1\frac{1}{2}$ to 5 inches long, and hairy on the undersides of veins. In coastal areas with high precipitation, leaves are leathery and dark green; in the Puget Sound area, they are likely to be thin and bright green. Flowers are small ($\frac{1}{2}$ to $\frac{3}{4}$ inch long), tubular, yellow, and appear in pairs. Berries are small (about $\frac{1}{4}$ inch in diameter), glossy black, and in pairs framed by conspicuous maroon bracts. Another variety, var. *flavescens*, is also found in western Washington.⁷

Habitat: Moist, open sites, usually near streams or bodies of water. Partial to full shade; rarely in full sun.⁸ Prefers loamy soils. Tolerant of shallow flooding early in the growing season.

Advantages/Disadvantages: Has good soil-binding qualities⁴⁴ and is fast-growing. Twigs and leaves are browsed by deer.¹² Nectar source for hummingbirds. Birds and other wildlife eat berries.¹

Propagation/Salvaging: Extremely easy to propagate from cuttings at any time of the year, and can be live-staked.¹ Keep plants growing from cuttings moist over the first summer.²⁵ Can also be grown from seed, but seeds are often difficult to find. Collect seeds when berries are ripe (they should be purple-black), from early July to August.



MAHONIA AQUIFOLIUM

(ALSO CALLED *BERBERIS AQUIFOLIUM*)

MAHONIA NERVOSA

(ALSO CALLED *BERBERIS NERVOSA*)

• TALL OREGON-GRAPE

TALL OREGON HOLLY-GRAPE
SHORT-LEAVED OREGON GRAPE

• LOW OREGON-GRAPE

DULL OREGON-GRAPE, CASCADE OREGON GRAPE,
LOW OREGON HOLLY-GRAPE
LONG-LEAVED OREGON GRAPE

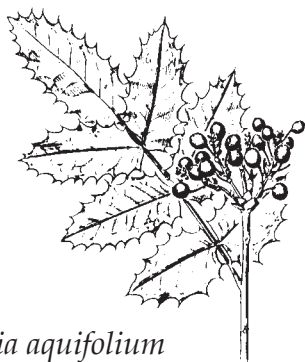
Barberry Family (*Berberidaceae*)

Description: Both species are among the most common evergreen shrubs in our region. Both have multiple erect, unbranched stems; alternate, pinnately compound leaves with prickly, holly-like leaflets; and yellow bark, wood, and roots. They can be distinguished by height, number of leaflets, and number of central veins on the leaflets. *M. nervosa* rarely grows over two feet tall and usually has 9–19 leaflets with three central veins. *M. aquifolium* can grow to over ten feet tall (usually under five feet) and has 5–9 leaflets with one central vein. Flowers on both are yellow, clustered, and appear March through May (through June for *M. nervosa*). Fruits are waxy blue berries that appear in grape-like clusters.

Habitat: Both species grow in dry to moist, well-drained soils, in sun or shade. However, *M. aquifolium* is more often found on drier, sunnier, and more open sites, while *M. nervosa* prefers moister, shadier sites and can tolerate deep shade.^{24,35,36}

Advantages/Disadvantages: Both species spread freely from underground stems,¹ have beautiful leaves, flowers, and berries. The tart berries can be used for making jelly or wine. *M. aquifolium* can be used to hide unsightly fences, or can be pruned to form a hedge or prickly barrier.³⁹ *M. nervosa* makes an attractive ground cover, suffocating weeds and requires no pruning or special care.³⁹ Flowers attract butterflies. Fruits are eaten by many birds and mammals.⁴¹

Propagation/Salvaging: Best grown from seed.^{8,37} Seed not sown in the fall requires cold stratification to break seed dormancy—three months for *M. aquifolium*,³⁷ and three to seven months for *M. nervosa*.¹¹ Plants rarely survive salvaging.



Mahonia aquifolium



Mahonia nervosa

OEMLERIA CERASIFORMIS • INDIAN-PLUM

(FORMERLY *OSMARONIA CERASIFORMIS*)

OSOBERY

Rose Family (*Rosaceae*)

Description: This deciduous shrub grows 5–16 feet tall and is one of the first natives to put on leaves and flower in early spring. Leaves are alternate, bright yellow-green, 1½ to 5 inches long, narrowly oval and pointed, with smooth edges. Flowers appear before the leaves in February and early March, and hang in elongated, greenish-white clusters. Only female plants produce the small (about ½ inch long), plum-like fruit, which ripen from peach to orange to dark purple by early June. In winter look for long, slender, alternate buds.

Habitat: Moist to dry sites; along stream banks, rivers, and wetlands (but never in saturated soils), and in open woodlands. Full sun to partial shade, but prefers shade.¹

Advantages/Disadvantages: Particularly attractive in bloom and when its spring-green leaves first appear. While it cannot be used in wet sites, it can grow on the edges of such sites. Flowers are an early nectar source for bees and other insects. Fruits are edible to humans, but are quickly eaten by birds and other wildlife.

Propagation/Salvaging: Easy to grow from seeds. Fruits should be collected in June as soon as they ripen, before birds eat them. Dry the whole fruit and sow in the fall. Seed stored for later sowing needs to be cleaned before storing and, if not sown in the fall, cold-stratified for four months to break dormancy. During cold stratification sporadic germination may occur, and sprouting seeds should be removed and potted biweekly.¹¹ Propagates well from hardwood cuttings.⁴ Plants under five feet tall salvage well.¹ Can be grown from root cuttings, and plants already in your yard can be layered to produce new offshoots.⁴



PHILADELPHUS LEWISSI • MOCK-ORANGE

VAR. GORDONIANUS

LEWIS MOCK-ORANGE, SYRINGA

Hydrangea Family (*Hydrangeaceae*)

Description: This multiple-stemmed, loosely branched shrub grows 5–10 feet tall, and can be distinguished from similar shrubs by its showy, fragrant, white flowers; thin, scaly bark; and pairs of opposite branchlets. Leaves are opposite, deciduous, oval, 1–3 inches long, with short stems, smooth or sparingly toothed edges, and 3–5 conspicuous veins originating near the leaf base. Flowers appear May through July in showy clusters of 3–15 flowers at the ends of branches. Fruits are oval, woody capsules about $\frac{1}{4}$ inch long. In winter, plants can be recognized by the light, somewhat reddish-orange color of younger twigs, opposite bud scars, and the absence of any noticeable buds.²⁴

Habitat: Grows in moist, well-drained soils to dry soils. Full sun to partial shade.

Advantages/Disadvantages: It is highly prized as an ornamental due to its showy and fragrant blooms. Deer browse on twigs and foliage.³⁶ Flowers attract butterflies and bees.

Propagation/Salvaging: Easy to grow from hardwood cuttings.¹ Can be grown from seed, which are so numerous they can be sown directly on-site. Seed not planted in the fall can be sown without any pre-treatment, or cold-stratified for eight weeks at 41°F.²⁵ Can also be grown from rooted suckers transplanted from salvage sites.³⁹ Most of the mock-orange sold by nurseries is not native to western Washington. Since many nurseries do not use the variety name, make sure the nursery's stock originally came from this region before buying.



PHYSOCARPUS CAPITATUS • PACIFIC NINEBARK

NINEBARK

Rose Family (*Rosaceae*)

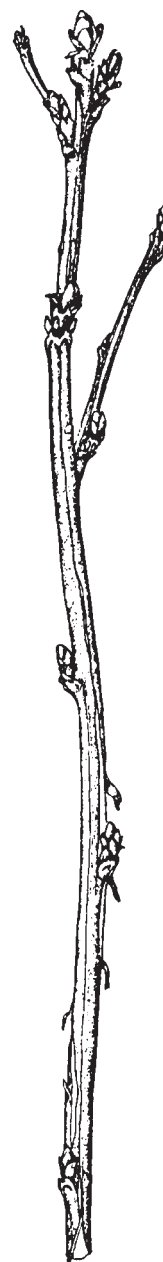
Shrubs

Description: This multi-stemmed, deciduous shrub grows 6–13 feet tall, with thin, reddish-brown or yellowish-brown bark that flakes away in thin strips. Leaves are alternate, 1½ to 3½ inches long, and serrated, with 3–5 toothed lobes. Flowers are small, white, and are borne in dense, round pom-pom clusters about 1–3 inches in diameter. Fruits form inconspicuous, reddish clusters, each fruit being about ¼ inch in diameter.

Habitat: Moist to wet sites, in somewhat open areas (e.g., wooded edges bordering meadows and along water). More often in wetlands than in dry, brushy areas.^{24,25} Full sun to partial shade.

Advantages/Disadvantages: Has excellent soil-binding qualities,⁴⁴ attractive leaves, and beautiful flowers. Provides cover, nesting sites, and food for birds and small mammals. Deer and elk browse on the twigs, foliage, and buds.¹² Bears eat the berries.⁴¹

Propagation/Salvaging: Grows best from hardwood cuttings, is easy to propagate from cuttings at any time of the year, and can be live-staked. Can also be grown from seed (collect late August to September), but germination is spotty.³⁷ Seed not sown in the fall may need 2–3 months' cold stratification to break seed dormancy.¹¹ Plants under six feet tall salvage well.¹



RHODODENDRON MACROPHYLLUM • PACIFIC RHODODENDRON

CALIFORNIA RHODODENDRON

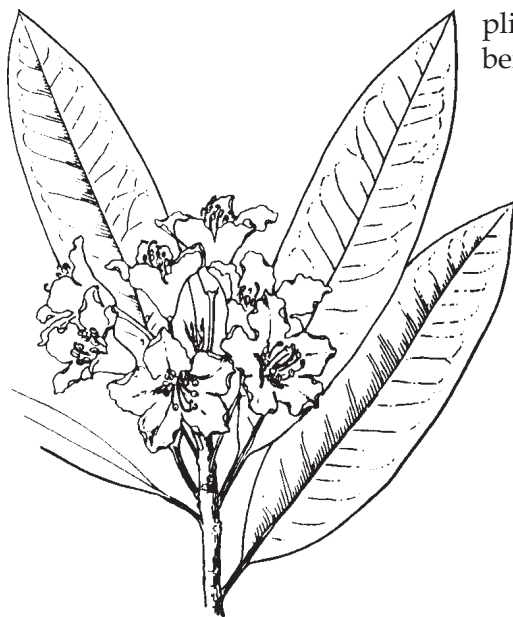
Heath family (*Ericaceae*)

Description: This broadleaf evergreen shrub is the state flower of Washington. Usually 3–15 feet tall, it tends to have a straggly form in shade and a more compact form in the open. Leaves are alternate, thick and leathery, 3–8 inches long, oblong, with smooth and often rolled-under edges, and range in color from gray green (in the sun) to dark green (in the shade). Flowers are pale pink to deep rose, broadly bell-shaped with five partially fused petals, $\frac{3}{4}$ to $1\frac{1}{2}$ inches long, and appear May to July, often in dense clusters of 10–20 flowers. The fruit is a small (less than one inch long), woody, capsule that contains hundreds of tiny seeds, and remains on the plant long after the seeds have been dispersed.

Habitat: In coniferous or mixed forests.³⁵ Prefers moist, well-drained, acid soils,³⁶ though also found on excessively well-drained sites.¹ Common on the Olympic and Kitsap peninsulas, Whidbey Island, and the western slopes of the Oregon Cascades at elevations of 3,000–5,000 feet; less common in the San Juan Islands and in other areas around Puget Sound.^{24,25} Grows in sun or shade,³⁶ though blooms are most profuse in partial shade.³⁵

Advantages/Disadvantages: Though often leggy in the shade, it can be pruned.³⁵ Its beautiful floral display often rivals that of cultivated rhododendron hybrids.^{1,35} Due to toxins in the leaves and flowers, it has limited food value for animals, and is considered poisonous to sheep.³⁶ However, it does host butterfly caterpillars and provide year-round cover for wildlife.³⁹

Propagation/Salvaging: Due to past over-collecting, plants or cuttings should not be collected from a natural setting, unless it is a salvage site. Plants are available from some nurseries and it can be grown from seed,²⁵ though it can take up to seven years for plants grown from seed to bloom.³⁹ Collect capsules as soon as they start to lose their green color and turn brown, before they open (late July through fall);⁴⁵ because each capsule contains hundreds of seeds, you will only need a few. Dry the capsules (air-dry, or oven-dry at 95°F).⁴³ Crush the dried capsules and shake out the minute seeds. Sow in acid soil with a lot of organic matter. Seedlings should be kept in partial shade and need to be well-watered, though the planting medium should be well-drained.⁴³ Plants already in your yard can be multiplied from cuttings (taken August to October)³⁹ or by layering.²⁵



***RIBES SANGUINEUM* VAR. *SANGUINEUM* • RED-FLOWERING CURRANT**

RED CURRANT, BLOOD CURRANT

Currant/Gooseberry Family (*Grossulariaceae*)

Shrubs

Description: This erect, thornless, deciduous plant grows 3–12 feet tall, with reddish-brown bark. Leaves are alternate, rounded, with five lobes and serrated edges, 1–3 inches wide (occasionally larger), and lighter in color and slightly hairy on the undersides. Flowers are light-pink to deep-red, tubular, and held in upright to drooping clusters of 10–20 flowers. Fruits are round, hairy, dark-blue to black berries with a white, waxy bloom. In winter, buds are alternate, conspicuous, rosy-red, and on short stalks.¹⁴

Habitat: Dry to somewhat moist, wooded or open sites, from the coast to the Cascades. Intolerant of saturated soils.¹ Full sun to partial shade, but may get leggy in shade.²⁵

Advantages/Disadvantages: The beauty of the flowers is this shrub's greatest attraction. It is ideal for home landscaping, as well as upland buffers near streams or wetlands. Flowers attract hummingbirds and butterflies. Berries are persistent and do not ripen all at once, providing a longer term food source for numerous birds, small mammals, deer, and elk.^{4,41}

Propagation/Salvaging: Can be grown from seed, which should be collected as soon as ripe (blue to black), mid-July to late August. Seed can be stored for long periods,⁴³ but seed not sown in the fall requires 3 to 5½ months' cold stratification (at 32°–36°F) to break seed dormancy.^{11,37,43} Can also be grown from hardwood cuttings, and plants in your yard can be layered.



ROSA SPECIES • ROSES

Rose Family (*Rosaceae*)

Description: The roses listed can be distinguished from each other by: the type of thorns; the presence or absence of sepals attached to the fruit; the size of the flowers or fruit; and whether flowers and/or fruits are mostly single or clustered. All have alternate, deciduous leaves.

Advantages/Disadvantages: The beauty of the flowers is this shrub's greatest attraction. It is ideal for home landscaping, as well as upland buffers near streams or wetlands. Flowers attract hummingbirds and butterflies. Berries are persistent and do not ripen all at once, providing a longer term food source for numerous birds, small mammals, deer, and elk.^{4,41}

Propagation/Salvaging: Native roses can be grown from seed, though the success rate is

quite variable.^{8,25} Collect fruit August to September, soon after the hips' dark-green color changes to a reddish color.⁴³ Remove seed by either drying and crushing, or by soaking and pulping the fruit. Sow in trays. Seed not planted in the fall requires cold stratification to break seed dormancy (for length of time, see species descriptions below). Germination may be improved by preceding the cold stratification with 2–3 months warm/moist stratification.^{11,43} Because digestion by birds has been shown to increase germination rate of *Rosa* seeds,⁴³ you might also want to try scarification, which mimics passage through a bird's digestive system. Suckers can be transplanted.²⁵ Root cuttings can also be used.¹ Plants under five feet tall salvage well.¹ The tops tend to initially die back, but they will re-sprout. Can also be grown from hardwood cuttings.¹

ROSA GYMNOCARPA VAR. GYMNOCARPA • BALDHIP ROSE

NAKED-HIP ROSE, LITTLE WILD ROSE,
LITTLE WOOD ROSE, WOOD ROSE

Rose Family (*Rosaceae*)

Description: This rose grows up to 6 feet tall, usually with soft, straight prickles densely covering the stems, though younger stems and an occasional plant may lack prickles altogether. Leaves are deciduous, alternate, 2 to 3½ inches long, and contain 5, 7, or 9 toothed leaflets. Flowers are small (under one inch), pink to rose, and are usually borne singly at the tips of branches. Fruits (hips) are small (less than ½ inch across), pear-shaped and, when ripe, are orange to scarlet and have no attached sepals (thus the name "baldhip").

Habitat: This is our main upland wild rose. Partial shade.⁸ Dry or moist soils, but never wet areas.⁸ Extremely drought-tolerant.

Propagation/Salvaging: Seed not planted in the fall needs to be cold-stratified for three months at 40°F to break seed dormancy.^{11,43}



ROSA NUTKANA • NOOTKA ROSE

Rose Family (*Rosaceae*)

Description: This thorny rose grows 2–8 feet high, and has a pair of large prickles at the base of each leaf or bud. Leaves are deciduous, alternate, and contain 5 or 7 toothed leaflets. Flowers are large (to three inches across), pink to purplish, and are usually borne singly or in pairs at the tips of branches. Fruits are large ($1\frac{1}{2}$ to $3\frac{3}{4}$ inch across) and round; when ripe, they are purplish-red and retain their sepals. Two varieties native to western Washington are var. *muriculata* and var. *nutkana*.

Habitat: Fairly dry to wet areas. Grows in bogs, wet meadows, grasslands, forests, and on mountain slopes. Full sun to partial shade. Tolerates saturated soils or inundation for much of the growing season.¹ Can grow near salt water.⁴

Propagation/Salvaging: Seed not planted in the fall needs to be cold-stratified for five months at 40°F to break seed dormancy.^{11,43} Can also be livestaked.¹



ROSA PISOCARPA • CLUSTERED WILD ROSE

PEAFRUIT ROSE, SWAMP ROSE

Rose Family (*Rosaceae*)

Description: Like Nootka rose, this rose grows up to eight feet tall, and has a pair of large prickles at the base of each leaf or bud. Leaves are deciduous alternate, and contain 5, 7, or 9 toothed, sharply pointed leaflets. Flowers are usually smaller than those of Nootka rose (less than $1\frac{1}{2}$ inches across), pink, and appear in clusters of several flowers. The bright-red hips, with sepals attached, can stay on the plant well into the winter and are the best clue for winter identification.

Habitat: Edges of marshes and streams, roadside ditches, and other wet areas. Full sun to partial shade. Fairly tolerant of dry conditions and infertile soils.¹

Propagation/Salvaging: Seed not planted in the fall must be cold-stratified for 3–4 months at 40°F to break seed dormancy.¹¹



RUBUS PARVIFLORUS VAR. PARVIFLORUS • **THIMBLEBERRY**

WESTERN THIMBLEBERRY

Rose Family (*Rosaceae*)

Description: This is the only member of the genus *Rubus* (blackberries, raspberries, etc.) native to western Washington that does not have thorns or prickles. It grows 2–10 feet tall, with cane-like stems and shredding, brown bark. Leaves are deciduous, alternate, large (3–8 inches across), and shaped like maple leaves, with 3–7 palmate lobes and minute, fuzzy hairs on both sides of the leaf. Flowers are borne singly or in clusters at the end of branches, and are large (1½ inches across) and white, with petals that look like crumpled tissue paper. Berries are red, slightly fuzzy, and look and detach like raspberries. Spreads by a vigorous underground stem system.¹

Habitat: Open areas such as road edges, clearings, avalanche tracks, and shorelines, or under a light forest canopy. Spreads by a vigorous underground stem system. Intolerant of saturated soils. Full sun to partial shade.

Advantages/Disadvantages: An excellent choice for steep slopes, due to its good soil-binding abilities. Thickets provide good wildlife cover. Foliage is browsed by deer and elk. Flowers attract butterflies. Fruits are eaten by birds and mammals, including humans.

Propagation/Salvaging: Seed germinates readily, but should be separated from the pulp. Seed not planted in the fall needs three months' cold stratification to break seed dormancy.¹¹ Hardwood cuttings grow easily. Small plants salvage well, but are somewhat slow to establish.⁸ Can also be grown from rhizome cuttings or divisions.¹



RUBUS SPECTABILIS var. *SPECTABILIS* • **SALMONBERRY**

Rose Family (*Rosaceae*)

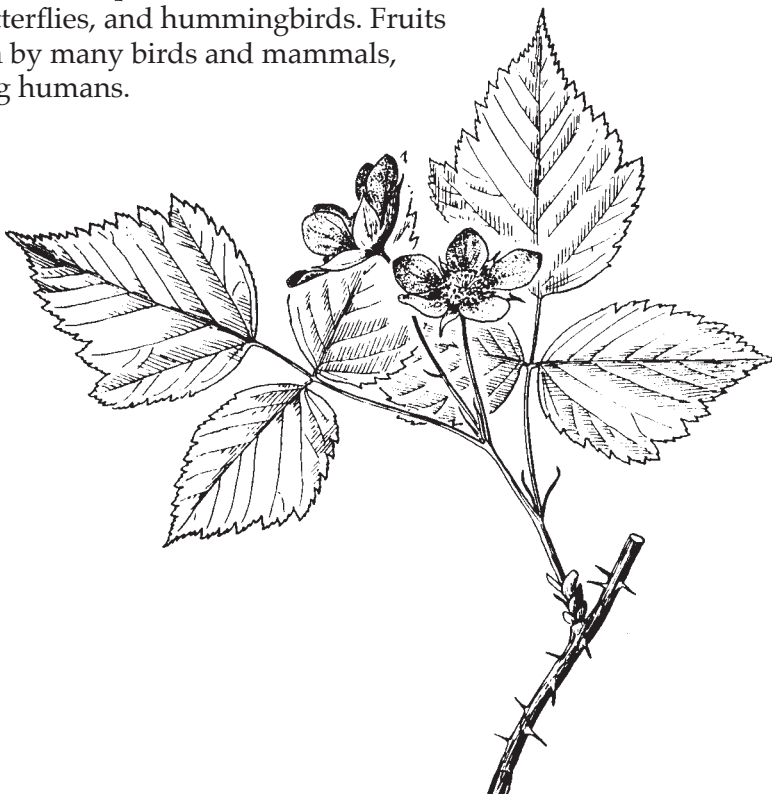
Shrubs

Description: Grows 3–10 feet high, with shredding, light- or golden-brown bark; weak, woody, sparsely thorned stems; and zigzag twigs. Leaves are deciduous, alternate, and contain three leaflets which are 1–3 inches long, dark green, pointed, sharply toothed, and often wrinkled. Flowers are large (about 1½ inches across), borne singly, and are pink to magenta or purplish-red. Large raspberry-like fruits appear in late spring, ripening over a fairly long period to become yellow to orange or deep red.

Habitat: Moist places, such as stream banks, roadsides, ravines, edges of marshes and lakes, avalanche clearings, and wet, logged areas. Spreads by a vigorous underground stem system. Full sun to full shade.⁸

Advantages/Disadvantages: Has good soil-binding qualities once established, and is well-adapted to eroded or disturbed sites.³⁴ Provides cover and forage for deer, elk, bears, birds, and small mammals.²² Flowers provide an important nectar source for bees, butterflies, and hummingbirds. Fruits are eaten by many birds and mammals, including humans.

Propagation/Salvaging: Easily grown from root cuttings⁴ and hardwood cuttings. Suckers under four feet tall can be transplanted, or can be cut into pieces for hardwood cuttings or live stakes.^{4,25} Branches that touch the ground tend to root, and they can be separated from the parent plant and planted in one-gallon pots. Can also be grown from fresh seed. Collect fruit when ripe (it should be orange or red) and remove the pulp. Seed not planted in the fall needs 90 days' cold stratification at 36°–41°F to break seed dormancy.^{11,43} Some authors also recommend a 90-day warm / moist stratification before the cold stratification.⁴³ Grows very rapidly in moist, shady conditions.



***SAMBUCUS CERULEA* VAR. *CERULEA* • BLUE ELDERBERRY**

Elderberry Family (*Adoxaceae*)

(Formerly Honeysuckle Family [*Caprifoliaceae*])

Description: This leggy deciduous shrub grows up to 20 feet tall, and has soft, pithy stems, and reddish-brown bark with short, wart-like lines. Leaves are opposite, 6–12 inches long, and divided into five to (usually) nine leaflets. Leaflets are 2–6 inches long, narrow, pointed, and fine-toothed. Flowers are tiny, creamy-white, and packed into dense, flat-topped clusters. Fruits are blue to dark-blueblack berries covered with a white, waxy bloom. In winter, look for warty bark and opposite buds.

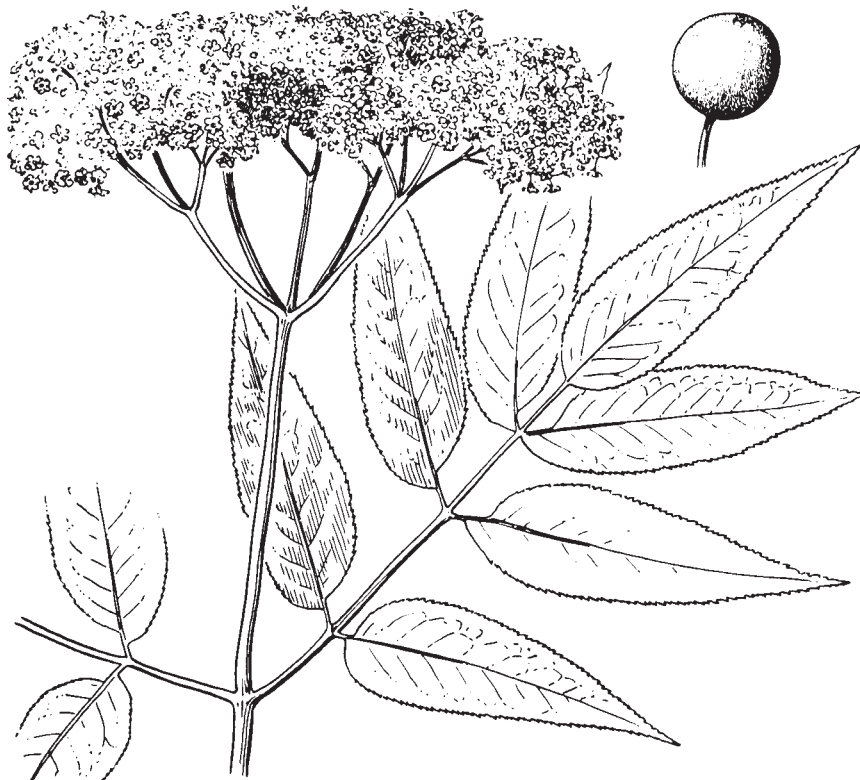
Habitat: Mostly in clearings, in moist to dry soils. Full sun to partial shade.

Advantages/Disadvantages: Grows very fast once established, and is a good soil-binder. Twigs and foliage are favorite foods of deer and elk. Flowers attract hummingbirds and butterflies. Berries are eaten by numerous

birds and small mammals. Berries are used to make jellies and wines, but the twigs, foliage, roots, and bark are all toxic to humans.

Propagation/Salvaging: Very easy to grow from hardwood cuttings, including live stakes. Cuttings should be taken October to December for best success; however, cuttings can be successful all year. Cuttings root quickly and vigorously. Can also be grown from seed, though this is more difficult. Collect seed August to September and remove pulp. Seed not planted in the fall requires 2–3 months cold stratification to break seed dormancy.^{11,43} Seedlings can be planted out by the end of the first year. Can be layered to multiply plants in your yard. Plants under six feet tall can be salvaged,¹ but be sure to get as much of the long, fleshy root system as possible.⁴

Shrubs



SAMBUCUS RACEMOSA • RED ELDERBERRY

ssp. *PUBENS* var. *ARBORESCENS*

COAST RED ELDERBERRY

(FORMERLY *S. RACEMOSA* var. *ARBORESCENS*)

Elderberry Family (*Adoxaceae*)

(Formerly Honeysuckle Family [*Caprifoliaceae*])

Description: Similar to blue elderberry, differing only in the number of leaflets (5–7, rather than 5–9), the shape of the flower clusters (pyramidal, rather than flat-topped), and the color of the berries (bright red). It is difficult to distinguish between the two elderberries in winter, though the wart-like lines on red elderberries are more pronounced than those on the blue.¹⁴

Habitat: Moist to dry soils. In clearings and open forest, and on stream banks. Full sun to partial shade.

Advantages/Disadvantages: Same as blue elderberry. Grows very fast once established, and is a good soil-binder. Twigs and foliage are favorite foods of deer and elk. Flowers attract hummingbirds and butterflies. Berries are eaten by numerous birds and small mammals. Berries are used to make jellies and wines, but the twigs, foliage, roots, and bark are all toxic to humans. Eating raw berries may cause nausea.⁴² Relatively short-lived, but reseeds easily.⁴

Propagation/Salvaging: Very easy to grow from hardwood cuttings, including live stakes. Cuttings should be taken October to December for best success; however, cuttings can be successful all year. Cuttings root quickly and vigorously. Can also be grown from seed, though this is more difficult. Collect seed August to September and remove pulp. Seed not planted in the fall requires 2–3 months cold stratification to break seed dormancy. Seedlings can be planted out by the end of the first year. Can be layered to multiply plants in your yard. Plants under six feet tall can be salvaged,¹ but be sure to get as much of the long, fleshy root system as possible.⁴ Notice also that this resembles the blue elderberry.



***SPIRAEA DOUGLASII* • DOUGLAS SPIREA**

HARDHACK, STEEPLEBUSH

Rose Family (*Rosaceae*)

Shrubs

Description: This common, deciduous, wetland shrub grows 4–7 feet tall, with slender, straight stems. Leaves are alternate, up to three inches long, oblong to oval with a rounded tip, and lighter on the underside. Leaf margins are serrated along the outer half of the leaf. Flowers are pink, small, and borne in dense, elongated clusters at the ends of stems. The distinctive, dry, brown flower heads remain on the plant through the winter and are the best clue for winter identification. Two varieties are found in our region, var. *douglasii* and var. *menziesii*.

Habitat: Growing by rhizomes, it forms dense thickets in shrubby wetlands and along lake shorelines. Tolerates a variety of settings, from moist soil to seasonally inundated areas such as marshes and bogs. Full sun to partial shade.

Advantages/Disadvantages: Provides valuable cover for birds and small mammals. Flowers are a nectar source for butterflies and other insects, and some wildlife eat the seed capsules.^{39a} It can be invasive and push out other native plants, especially in fairly level wetland areas with uniformly shallow water depths. However, it can be a good choice for hilly wetland areas with both shallow and deep water, as these variations will prevent it from taking over.¹

Propagation/Salvaging: Easily grown from seed or hardwood cuttings.⁴⁰ Seed not planted in the fall requires 1–3 months' cold stratification to break dormancy.¹¹ Can also be grown from root cuttings, or divided.¹



SYMPHORICARPOS ALBUS VAR. *LAEVIGATUS* • **COMMON SNOWBERRY**

SNOWBERRY, WAXBERRY

Honeysuckle Family (*Caprifoliaceae*)

Shrubs

Description: This low-growing (2–6 feet tall) deciduous shrub has very slender, opposite-branching stems, and a dense system of rhizomes. Leaves are deciduous, opposite, small ($\frac{3}{4}$ inch to $2\frac{1}{2}$ inches long), dull green in color, and have smooth or lobed edges. While roughly oval, leaf shape varies greatly, and leaves on new growth may be deeply lobed. Flowers are small ($\frac{1}{4}$ inch or less), pink to white, bell-shaped, and appear in short, dense clusters. Berries persist through winter and are white, up to $\frac{1}{2}$ inch in diameter, and grow in tight clusters. In winter, look for white berries and small, opposite buds on very slender twigs.

Habitat: Dry to wet sites.¹ In forests, shrub thickets, open slopes, dense woods, along roadsides, on sandy river banks, in deciduous uplands, and under Pacific madrones. Full sun to partial shade.

Advantages/Disadvantages: Excellent for binding soil and forming thickets.³⁴ Plant is particularly attractive when in fruit. Tolerates some flooding when dormant. Deer and elk browse foliage.⁴¹ Flowers attract butterflies. Fruits are eaten by many birds, and may be an important food source for wildlife at winter's end.

Propagation/Salvaging: Grows easily from hardwood cuttings;^{25,39} you can use any branch but the thinnest (outermost). Small to even full-grown plants can be salvaged.¹² Can also be grown from seed. Collect seed mid-October through winter, and separate seeds from fruit before sowing. Seed sown in the fall should germinate in the second spring. If stored, seeds should be kept in a moist mixture of peat and sand, and given 60–90 days' warm stratification at room temperature, followed by 90–180 days' cold stratification at 40°–50°F to break seed dormancy.^{4,43}



VACCINIUM OVATUM • EVERGREEN HUCKLEBERRY

CALIFORNIA HUCKLEBERRY, SHOT HUCKLEBERRY

Heath Family (*Ericaceae*)

Description: This bushy shrub is easy to recognize due to its small, glossy, evergreen leaves and small, shiny, purplish-black berries. Plants growing in full sun tend to be 3–5 feet tall and compact, while those in deep shade may reach 15 feet tall and be somewhat spindly. Leaves are alternate, $\frac{1}{2}$ inch to 2 inches long, leathery, oval with a pointed tip, have a slight fold along the midrib, are smooth with small, sharp teeth along the leaf edges, closely spaced along the twigs, and are usually dark green (though they may be copper bronze when new, or reddish-purple when in full sun). Flowers are small (under $\frac{1}{2}$ inch in diameter) pinkish-white bells that appear March to August^{39,43} in clusters of 3–10 flowers. Fruits are less than $\frac{1}{4}$ inch in diameter, and are edible and sweet. The two varieties found in our region are var. *ovatum* and var. *saporosum*.³¹

Habitat: Common in coniferous forests at low elevations, especially along edges and clearings. Also found near beaches in the salt spray zone.³⁵ Particularly abundant on the Olympic and Kitsap peninsulas,²⁵ in moist to slightly dry soils.⁸ Full sun to full shade,^{8,36} though plants seem to do best with some shade.¹

Advantages/Disadvantages: Its beautiful foliage and tolerance of a wide range of light levels makes this an excellent choice for just about any yard. Foliage is often used in flower arrangements, and is browsed by elk and deer.³⁶ Flowers attract butterflies. Fruits are eaten by birds, chipmunks, black bear, and humans.⁴¹

Propagation/Salvaging: It is difficult to propagate or transplant, but is available in some nurseries. Can be grown from cuttings or seed,^{25,39} or by layering.³⁹ Cuttings root fairly sporadically,²⁵ and should be taken July to October.³⁹ Berries should be collected (August to September), and the pulp removed from the seeds before sowing.⁴³ Seed not planted in the fall may require 1–3 months cold stratification to break dormancy.^{11,37} Seedlings are slow-growing, and it may take 2–3 years for a nursery-sized plant to develop.²⁵ Young plants can be salvaged, but they should be under one foot tall. Frequently, these will turn out to be new shoots of a mature plant reviving from deer browsing or logging, and will die from lack of roots.²⁵



VACCINIUM PARVIFOLIUM • RED HUCKLEBERRY

RED WHORTLEBERRY

Heath Family (*Ericaceae*)

Shrubs

Description: This common deciduous shrub grows 4–10 feet tall, with dense, strongly angled, bright-green branches. Leaves are alternate, small (usually less than one inch across), and oval, mostly with smooth edges. Flowers are small, white, and bell-shaped. Fruits are small (about $\frac{1}{4}$ inch in diameter), pinkish-red to bright-red, round, and fleshy. In winter look for small, alternate red buds pressed against bright green twigs and branches.

Habitat: In coniferous forests, in dry to slightly moist, humusy soil, or on rotting stumps and logs. Prefers loamy, acid soils or rotting wood. Partial to full shade (prefers full shade).

Advantages/Disadvantages: The persistent fruits and attractive branching habit and color make this an excellent landscape plant. A good choice for upland, wooded areas, due to its tolerance of dry, shady conditions. Leaves and twigs are browsed by deer and elk. Berries are eaten by birds, chipmunks, black bear, and humans.⁴¹

Propagation/Salvaging: Best grown from seed or by layering. Collect fruit August to September when ripe (they should be bright red). Clean seeds carefully—they are minuscule, so you may want to use pantyhose to strain the seeds out. Sow seed directly into flats or small pots (a salt shaker can be used for sowing). Seeds are very slow to sprout, and seedlings are small and grow very slowly. Seed not planted in the fall may germinate better if cold-stratified for 1–3 months before sowing.¹¹ Does not salvage well!



IV. Native Plant Descriptions • Ferns, Ground Covers & Herbaceous Perennials

Small plants that grow beneath trees and shrubs, or in cleared areas.

ACHLYS TRIPHYLLA SSP. **TRIPHYLLA**⁷

(FORMERLY *A. TRIPHYLLA*)

Barberry Family (*Berberidaceae*)

• **DEERFOOT VANILLA-LEAF**

DEER FOOT, SWEET-AFTER-DEATH

Description: This perennial, deciduous ground cover can be identified by its large (up to eight inches across) compound leaf, which consists of three horizontally-spread, fan-shaped and blunt-toothed leaflets atop a 4–12 inch stem. These stems arise at close intervals along the widely spreading, slender rhizomes. Dried leaves have a vanilla-like smell. The veins of dead leaves are slow to decompose, forming distinctive, lacy, leaf skeletons. Flowers appear above the leaves, April to June in white, bottlebrush-like spikes, and develop into small, dry, nut-like fruits. A similar species, *A. californica*, is also found in western Washington.⁷



Habitat: Common in western Washington in moist settings with partial to full shade, from deep woods to forest edges and openings; often along streambanks.^{1a,17,35} Prefers slightly acidic soils with high amounts of organic matter.^{1a} While it needs constant moisture, it cannot survive in standing water.^{1a}

Advantages/Disadvantages: Moderately slow to spread.¹ Leaves have a sweet smell when dried.

Propagation/Salvaging: Can be grown from seed or rhizome cuttings.²⁵



ADIANTUM ALEUTICUM¹³

(FORMERLY *A. PEDATUM*)

Common Fern Family (*Polypodiaceae*)

• **WESTERN MAIDENHAIR FERN**

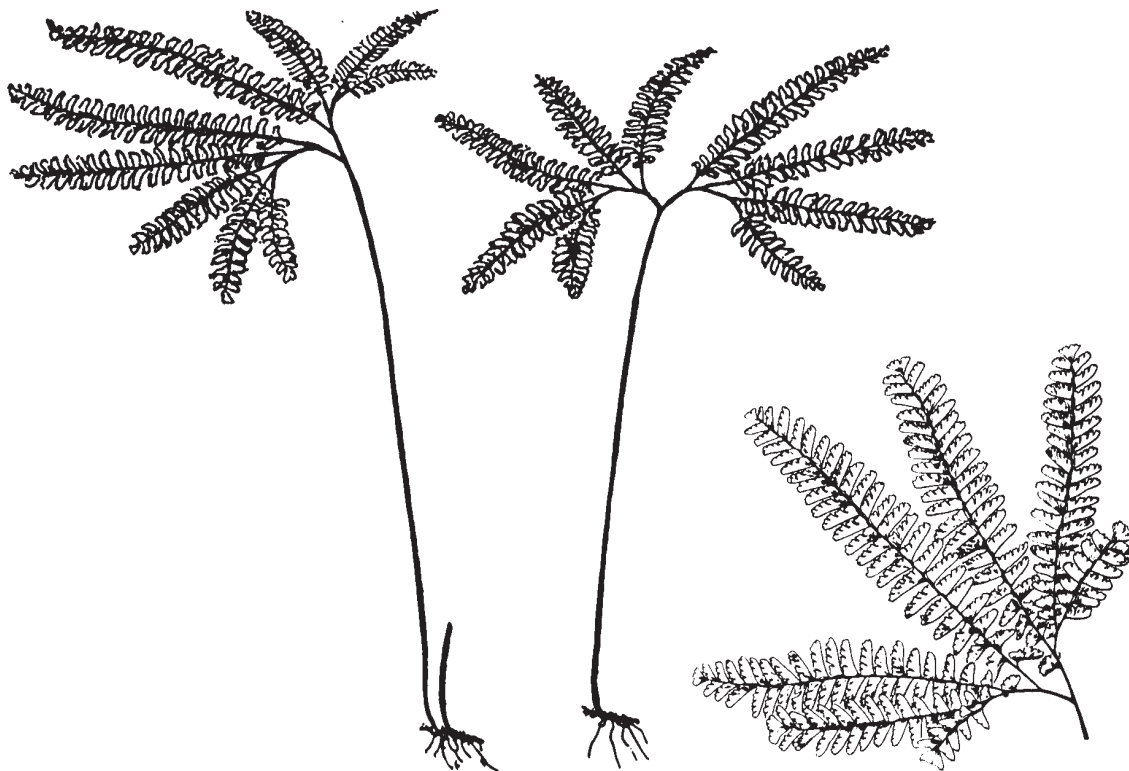
MAIDENHAIR FERN

Description: This deciduous fern grows 1–2 feet tall and has distinctive shiny, wiry, black leaf stalks. Individual stalks arise from rhizomes, branch in two, and then branch palmately into 5–7 black, finger-like branchlets. These branchlets are covered with many dull-green, oblong or fanshaped, toothed leaflets.

Habitat: Found in moist, shady sites throughout our region, especially on wet cliffs, near waterfalls, and on stream-banks.^{25,35} Likes heavy-textured soils²⁵ and soils rich in humus.³⁵

Advantages/Disadvantages: A beautiful plant for areas with partial shade, especially in boggy areas or along stream-banks or pond edges.²⁵ Probably provides cover for wildlife.

Propagation/Salvaging: Can be salvaged, but should not be removed from natural areas unless they are bona fide salvage sites. Salvaged plants can be multiplied by dividing clumps or by taking rhizome cuttings.²⁵ Rhizome cuttings should be taken in late winter or early spring; removing fronds from rhizome sections may encourage new growth.³⁷ Many nurseries still call this *A. pedatum*, but that name belongs to a related fern found only on the East Coast; be sure the nursery's stock is not from the East Coast before buying.



ARCTOSTAPHYLOS UVA-URSI • KINNIKINNICK

ssp. *UVA-URSI*⁷

BEARBERRY, SANDBERRY

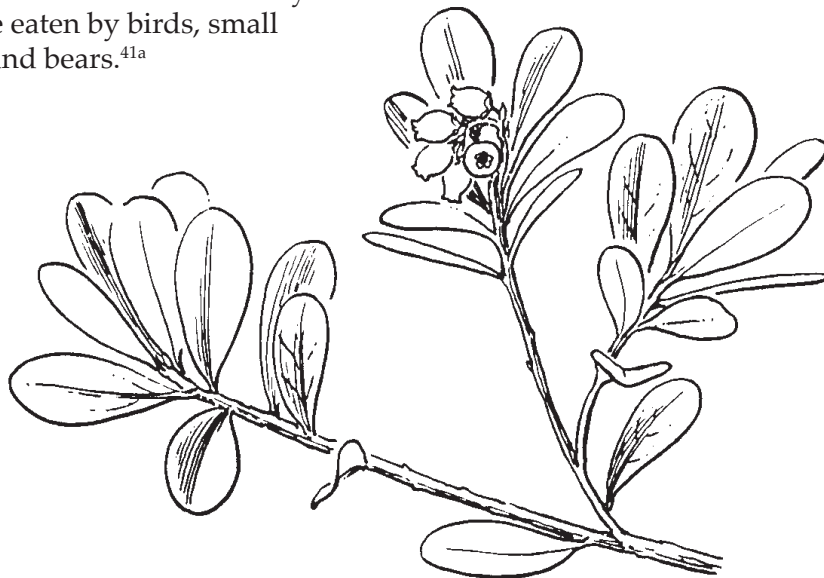
Heath Family (*Ericaceae*)

Description: This trailing ground cover can grow to be 12 feet long, though it rarely gets more than eight inches above the ground. It can be identified by its small, evergreen leaves and thin, gray bark that flakes off to reveal smooth, red bark. Leaves are alternate, dark-green, oval, and about one inch long. Flowers are small (about $\frac{1}{4}$ inch across), drooping pinkish-white bells, and appear in few-flowered clusters at the ends of branches April to June. Fruits are small ($\frac{1}{4}$ inch) bright-red berries that remain on the plant into the winter.

Habitat: Fairly common and widespread in western Washington. In well-drained soils, especially sandy to rocky ones. Full sun to partial shade, though it grows and flowers best in full sun.^{25,39} Prefers low summer moisture.²⁵

Advantages/Disadvantages: One of a handful of native ground covers that will grow in full sun and tolerate dry soils.⁸ Its wide-spreading rooting stems make it especially useful for stabilizing steep banks.^{25,39} Hosts butterfly caterpillars. Fruits are eaten by birds, small mammals, deer, elk, and bears.^{41a}

Propagation/Salvaging: Can be grown from seeds or cuttings, though both methods are slow. Seed should be collected as soon as the fruit ripens, separated from the pulp, and planted. Seeds may take two years to germinate, and another 2–3 years to produce blooms.³⁹ Cuttings of the current year's growth should be taken August to November.³⁹ Each cutting should be about four inches long, and the lower leaves should be removed before planting in a container.³⁷ Cuttings may take up to two years to grow enough roots to plant out.³⁹ Plants already in your yard can be multiplied by layering. Plants are generally difficult to salvage,⁸ though young, naturally layered shoots can be salvaged successfully.²⁵ Although sold by many nurseries, their stock is often from other regions and is not native to western Washington.



ASARUM CAUDATUM • WILD-GINGER

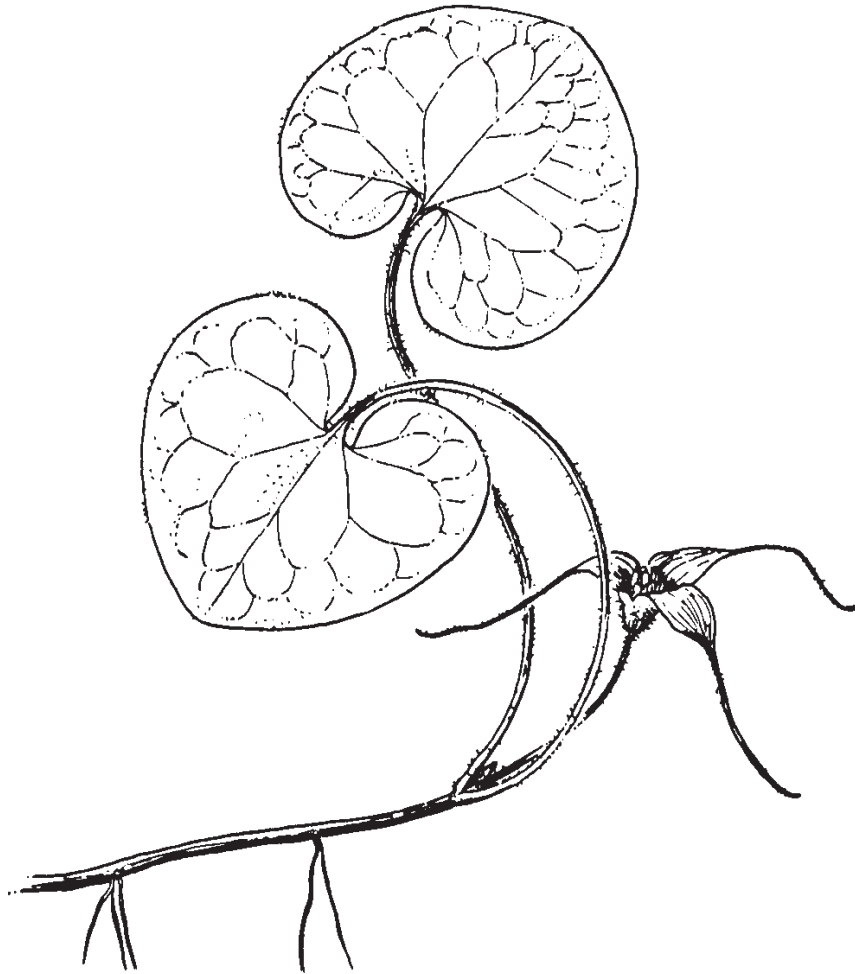
Birthwort Family (*Aristolochiaceae*)

Description: This low-growing evergreen perennial can be identified by its large (2–5 inches across), shiny, heart-shaped leaves, and the lemony-ginger smell of its leaves when bruised. Each leaf is attached to a hairy, 2–8 inch tall stalk, and the stalks are in pairs from each of the rhizome's nodes. The solitary, reddish-brown flowers are rarely seen due to concealing leaves, and produce a fleshy capsule.

Advantages/Disadvantages: Its beautiful leaves and willingness to spread by extensive rhizomes makes it a popular choice for gardens.

Propagation/Salvaging: Easily grown from seed.³⁷ Can also be grown from rhizome cuttings²⁵ and by transplanting rooted sections.³⁷

Habitat: Common at low to middle elevations in moist, coniferous forests, in soils with a high organic content. Partial to full shade.



ATHYRIUM FILIX-FEMINA var. *CYCLOSORUM*¹³ • **LADY FERN**

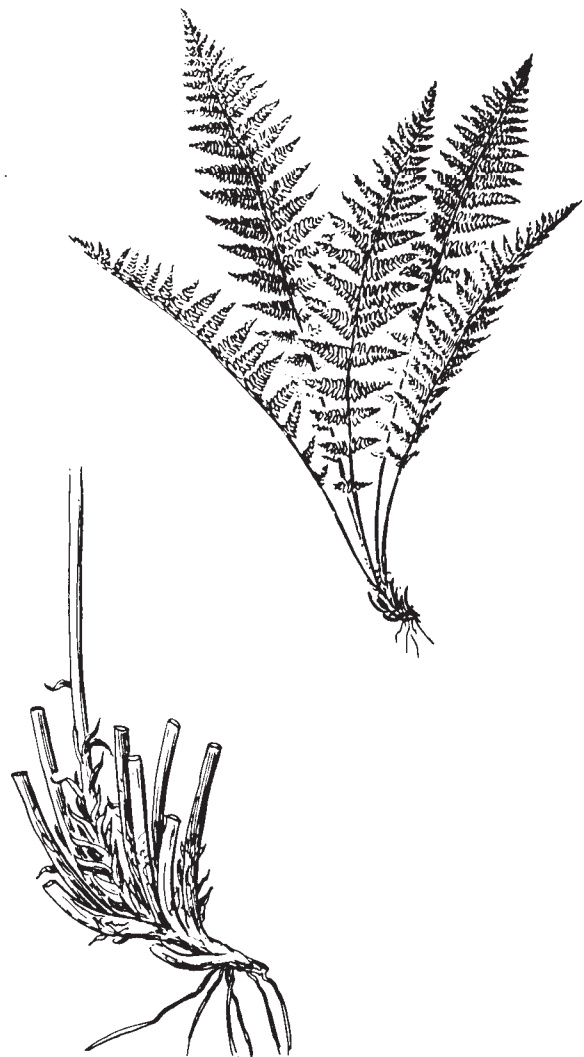
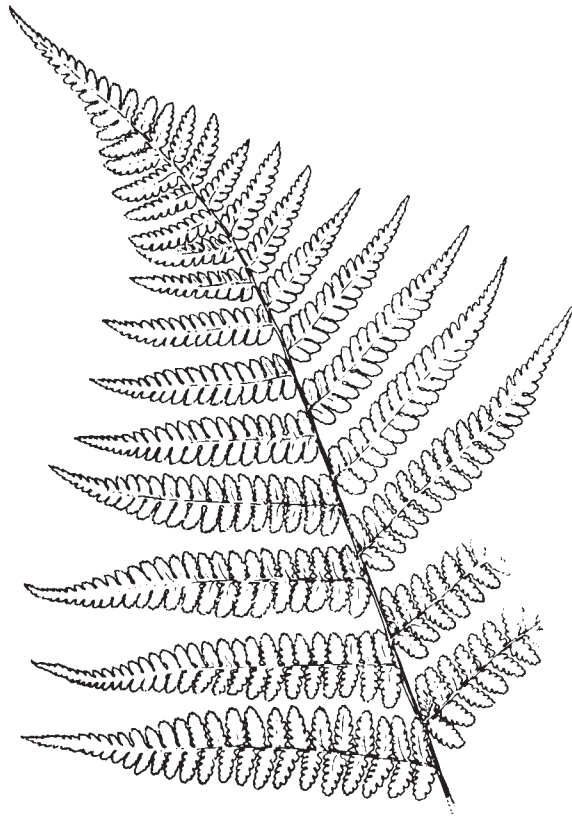
Common Fern Family (*Polypodiaceae*)

Description: This large (2–5 feet tall) fern has multiple fronds growing from a central clump. Fronds are deciduous, bright yellow-green, lance-shaped, tapered at both ends, and 2–3 times pinnate (though the smallest leaflets are just coarsely serrated).

Habitat: Wet meadows, forested wetlands, bogs, and nearly any damp area. In moist to wet, organic soils. Full sun to full shade.⁸

Advantages/Disadvantages: An excellent addition to wetland restoration projects due to its rapid growth and adaptability to a variety of environmental conditions.¹ It can also be used as an ornamental plant in a wet site. Provides cover for wildlife.

Propagation/Salvaging: Easily salvaged during the dormant season (November to March), when the dead fronds can be used to locate individual plants. Once established in a favorable environment, it spreads readily from spores. Salvaged plants or plants already in your yard can be multiplied by division.⁴⁰



BLECHNUM SPICANT • DEER FERN

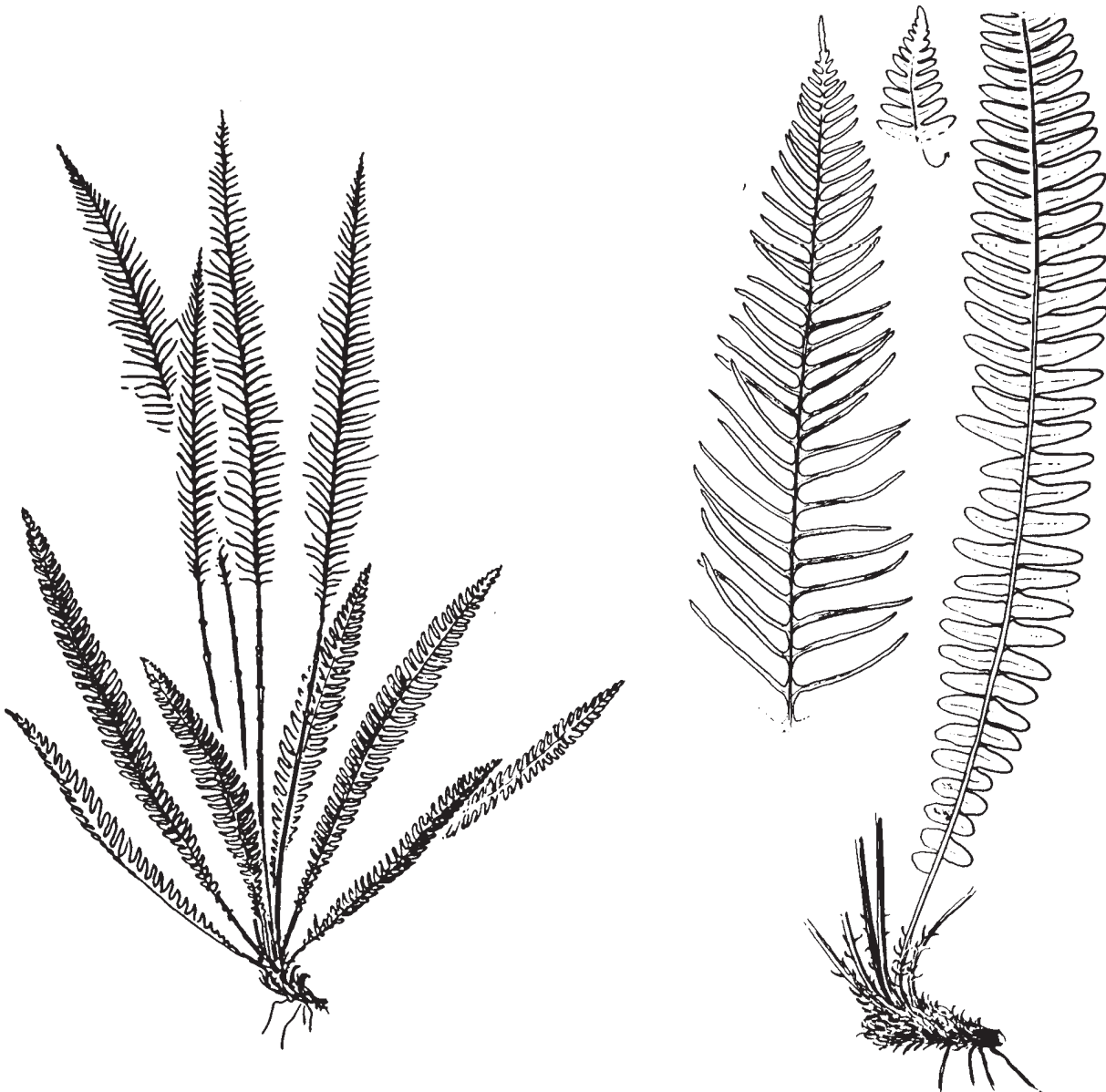
Common Fern Family (*Polypodiaceae*)

Description: This 1–3 foot tall fern consists of sterile fronds encircling a central clump of fertile fronds. Both types of fronds have widely spaced, oblong leaflets that become progressively smaller as one moves from the middle of the frond toward either end. The surrounding sterile fronds are evergreen and frequently lie on the ground, while the central fertile fronds are deciduous and erect, with much narrower and often rolled-up leaflets.

Habitat: In moist, coniferous forests. Full sun (in moister areas) to full shade.²⁴ Prefers shade, and takes dry shade well.¹

Advantages/Disadvantages: An attractive addition to appropriate landscapes. In some areas, it is an important winter food for deer and elk.³⁵

Propagation/Salvaging: Can be salvaged.^{4,25}



CHAMERION ANGUSTIFOLIUM • FIREWEED

FORMERLY *EPILOBIUM ANGUSTIFOLIUM*

Evening-primrose Family (*Onagraceae*)

Description: This deciduous perennial grows 3–8 feet tall, usually with unbranched stems, and is easiest to identify when in bloom or fruit. Leaves are alternate, lance-shaped, 3–8 inches long, have paler undersides with distinct veins, and are crowded together. Flowers are bright pink with flat four-petalled faces that are $\frac{3}{4}$ to $1\frac{1}{2}$ inches across, and appear in long clusters at the end of the stem. Seeds are in green to red pod-like capsules about three inches long, which split open to release hundreds of seeds with long, cottony hairs. Two of the sub-species native to western Washington are *ssp. angustifolium* and *ssp. circumvagum*.⁷

Habitat: Common throughout our region, especially in recent burns and other disturbed areas.^{25,35} Moist to dry soils.³⁵ Full sun.

Advantages/Disadvantages: In spring, the young shoots add a lushness to the landscape, and it is beautiful in bloom. However, its weedy appearance at other times of the year may make this plant best for wilder parts of the garden.²⁵ Flowers are visited by bees, moths, and hummingbirds.^{32,35} Spreads remarkably quickly, and may be invasive in small gardens.¹

Propagation/Salvaging: Easily grown from rhizome cuttings or division.¹ Seed not planted in the fall may germinate better if given one month of cold stratification before sowing.¹¹



CORNUS UNALASCHKENSIS¹³

FORMERLY *C. CANADENSIS* VAR. *INTERMEDIA*

• **BUNCHBERRY**

BUNCHBERRY DOGWOOD,
DWARF DOGWOOD, DWARF CORNEL

Dogwood Family (*Cornaceae*)

Description: This perennial ground cover grows 2–10 inches tall and, when in flower, looks like a miniature dogwood with its whorl of leaves topped by a dogwood-like flower. Upright stems arise in the spring or early summer, and support a terminal whorl of 4–7 leaves. Leaves are 1–3 inches long, pointed, oval, and have parallel veins. Flowers appear May to June, with four pure-white or purple-tinged “petals” (actually modified leaves that surround the inconspicuous real flowers). Fruits are small (about $\frac{1}{4}$ inch in diameter), bright orange to bright-red, single-seeded berries.

Habitat: Usually near the coast, in moist coniferous forests and along the edges of bogs.^{24,35} Where there is a lot of precipitation, it may grow on stumps and on tree trunks.³⁵ Prefers acid soils that are somewhat damp for most of the year.²⁵ Partial to full shade.⁴¹

Advantages/Disadvantages: This beautiful ground cover is particularly delightful when in bloom, and will form extensive beds.²⁴ Birds eat the berries, and grouse eat the buds.⁴¹

Propagation/Salvaging: Can be salvaged (which must be done while the leaves are still on so you can find them), but seedlings grown from seeds have a greater chance of survival.²⁵ Collect seeds August to October, as soon as the fruit is ripe. If sown right away, you don’t need to remove the flesh. Some seeds may not germinate until the second spring.⁴³ Many nurseries still use the former name. However, plants sold as simply *Cornus canadensis* (without the label “var. *intermedia*”) are often from the East Coast and are **not** native to our area.



DICENTRA FORMOSA SSP. *FORMOSA*⁷ • **PACIFIC BLEEDING-HEART**

Fumitory Family (*Fumariaceae*)

Description: This succulent, creeping perennial grows 6–20 inches tall, with deeply and much divided (almost fern-like) leaves and drooping, heart-shaped flowers. Leaves arise from a slender, brittle rhizome on long stalks, and are numerous and smooth. The heart-shaped flowers have two deep, sac-like spurs, are pale to deep pink, about one inch long, and appear above the leaves in clusters of 5–15. Seeds are in pod-like capsules up to two inches long.

Habitat: A common low- to mid-elevation plant in moist, rich soils, in partial to full shade.^{8,35}

Advantages/Disadvantages: Transplants and spreads easily, but is not aggressive.⁸ Hosts butterfly caterpillars, and flowers attract butterflies.³²

Propagation/Salvaging: Can be grown from seed or rhizome cuttings, and can be salvaged.^{8,37} Seed not planted in the fall may need three months' cold stratification to break dormancy.¹¹



LINNAEA BOREALIS SSP. *LONGIFLORA*²⁰ • **TWINFLOWER**

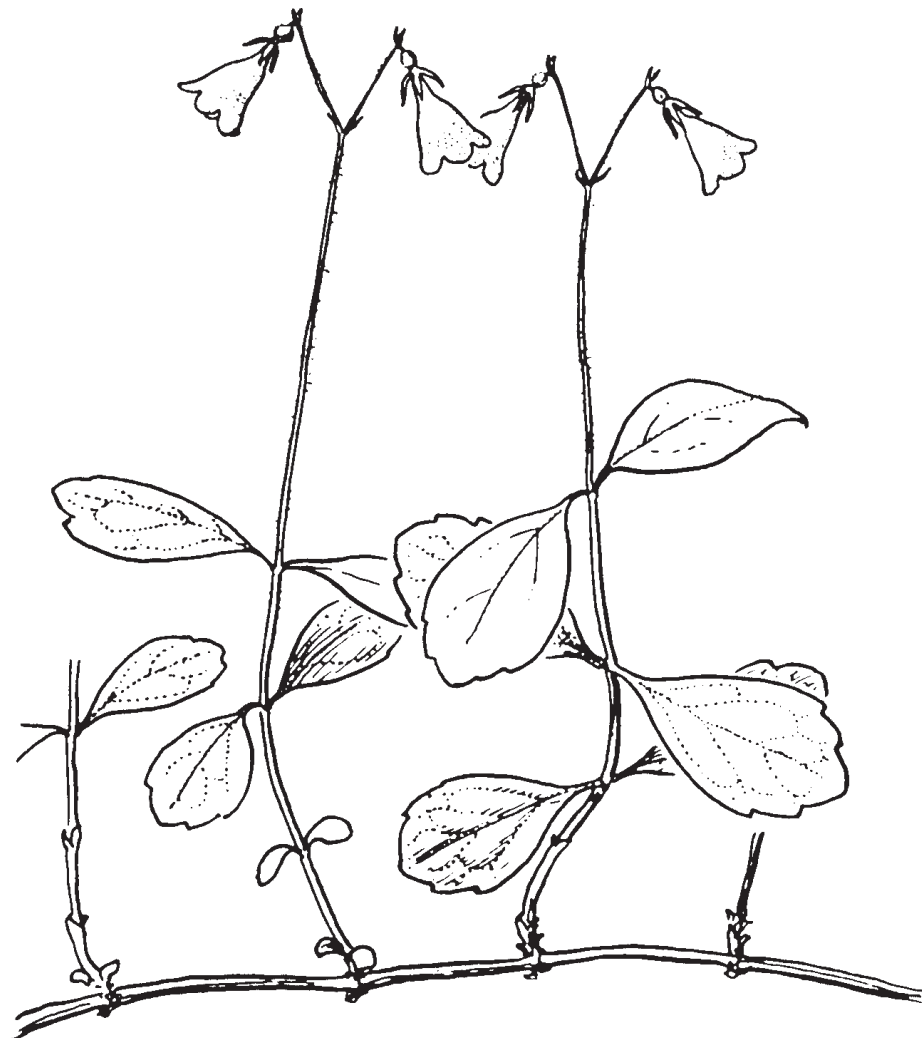
Honeysuckle Family (*Caprifoliaceae*)

Description: This trailing ground cover is easily recognized by its small, shiny, evergreen leaves and dainty pairs of nodding flowers. Plants are usually under two inches tall, spread by long runners, and can form large mats. Leaves are opposite, oval, less than one inch long, and bright to dark green in color. Flowers appear May to June in pairs at the end of a thin Y-shaped stalk, and are small (under 1/2 inch long), fragrant, white to pink, and cone-shaped.

Habitat: Grows in partial shade, in a variety of forested settings and soils from dry to moist.²⁴

Advantages/Disadvantages: Its glossy evergreen leaves, beautiful fragrant flowers, and rapid, but non-aggressive spreading habit, make this a glorious choice for partially shaded settings.^{17,25}

Propagation/Salvaging: Easy to propagate from young, rooted sections of runner, carefully detached from parent plants.²⁵ Can also be grown from hardwood cuttings.⁸



MAIANTHEMUM DILATATUM • FALSE LILY-OF-THE-VALLEY

MAY-LILY

Lily Family (*Liliaceae*)

Description: This perennial has erect stems 3–12 inches high. Each stem supports 1–3 (usually two) leaves that are attached to the main stem by 1 to 1½ inch stalks. Leaves are deciduous, heart-shaped, dark glossy green, 2–4 inches long, with parallel veins that converge at the pointed tip. The tiny white flowers are arranged in crowded, upright, cylindrical clusters 1 to 2½ inches long. Fruits are small (under ¼ inch in diameter) and round, maturing from light green and mottled brown, to red.

Habitat: Near shaded or moist stream banks and wetlands in open to dense woods.

Advantages/Disadvantages: Spreads fairly rapidly, forming a dense ground cover that protects the soil from erosion in summer, making it suitable for restoration as well as ornamental purposes. Fruits are eaten by some birds and small mammals.^{28,39a} May be overly aggressive in ornamental gardens unless appropriately placed and managed.

Propagation/Salvaging: Grows from seed, rhizome cuttings, and salvaged plants. Seeds should be collected as soon as the berries turn red in mid-July. Salvaging usually needs to occur in the spring or summer, while leaves are present and the plant is still identifiable. The above-ground portion of the plants die back after salvaging (the deep roots are easily damaged), but usually grow back in the second year.⁸



MAIANTHEMUM RACEMOSA *ssp. AMPLEXICAULIS*⁷ • FALSE SOLOMON'S SEAL

(FORMERLY CALLED *SMILACINA RACEMOSA* VAR. *AMPLEXICAULIS*)

Lily Family (Liliaceae)

Description: This perennial grows 1–3 feet tall with an unbranched, arching stem. Leaves are alternate (forming two rows along the stem), pointed at both ends, 3–8 inches long, and have distinct parallel veins. Flowers are creamy white, numerous, very small, strongly scented, and form showy clusters at the tips of the stem. Fruits are showy round berries, about $\frac{1}{4}$ inch in diameter, which ripen from a mottled green and red, to a deep red, and are edible (though not tasty).

Habitat: Found in moist soils, in partial shade.^{25,35}

Advantages/Disadvantages: Foliage and flowers make this a good ornamental for shaded gardens.³⁵ Birds eat the fruit.

Propagation/Salvaging: Easy to grow from rhizome cuttings or by division, and is easy to salvage.^{1,25} Can be grown from seed.¹¹



POLYSTICHUM MUNITUM • SWORD FERN

Common Fern Family (*Polypodiaceae*)

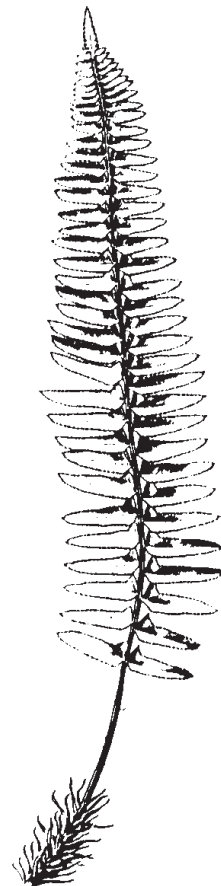
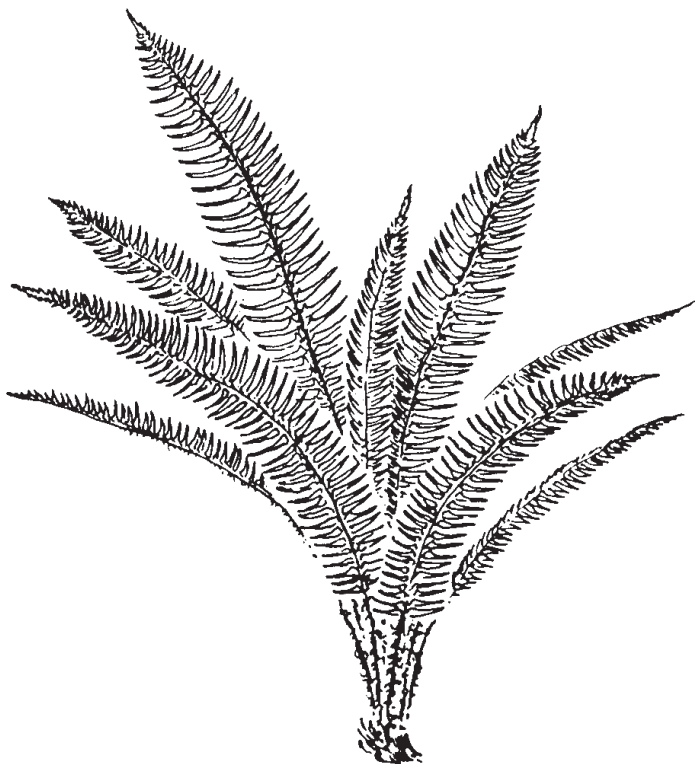
Description: This evergreen fern should be familiar to residents of western Washington. Its dark-green fronds arch from a central clump, and are 2–5 feet long and lance-shaped, with simple, alternate, pointed, sharp-toothed leaflets. In spring, young fiddleheads sprout gracefully from the center of the plant and unroll to reveal new fronds. Roots form a dense, fibrous mass.

Habitat: Throughout lowland mixed conifer and deciduous forests; especially prevalent in moist areas and on steep slopes with loose soil. Full sun to full shade, though it prefers some shade. Plants can be remarkably drought-tolerant, even in full sun.¹

Advantages/Disadvantages: A hardy plant suitable for nearly any upland site with shade or partial shade. It makes an attractive orna-

mental ground cover, and is good for restoration work due to its easy propagation and transplantation. Provides cover for ground-dwelling animals. Deer and elk browse on the leaves.^{1,12}

Propagation/Salvaging: Most successfully grown from salvaged plants. Fronds can be sheared off about six inches from the base to facilitate digging and reduce water loss through the leaves. Small specimens can be dug up and transported with their soil. In order to move larger plants you may need to divide them or carefully shake the dirt off the roots; make sure the roots do not dry out by wrapping them in wet sawdust or leaves and then in plastic, and transplant as quickly as possible. Keep well-watered for the first year, if possible. Large clumps can be divided during the dormant season to multiply plants.¹



RUBUS URSINUS var. **MACROPETALUS** • **WILD BLACKBERRY**

ssp. *amplex*

DEWBERRY, TRAILING BLACKBERRY

Rose Family (*Rosaceae*)

Description: This is our only native blackberry, and grows as a prostrate, trailing plant up to 20 feet long, with slender, curved prickles. Leaves are alternate, more or less deciduous, and are composed of three (or five) toothed leaflets, each 1–3 inches long. Female (berry-producing) and male flowers are on separate plants; both are white or pink and borne in clusters, but male flowers have noticeably longer petals (up to 1/2 inch long). Fruits are small (less than one inch long), edible blackberries that ripen from red to black by July. In winter one can recognize it by its sprawling, slender, silvery vines and its prickles.

Habitat: Common on drier, disturbed sites and in open forest. In sun or shade.^{24,35}

Advantages/Disadvantages: Birds and mammals (including humans) eat the fruit. Not often deliberately planted, as its tendency to spread widely and its clinging prickles cause it to be viewed as a weed in suburban and rural areas. However, these factors are more than offset by its delicious berries.^{24,35} A highly effective erosion control species due to its spreading habit and aggressive growth.¹

Propagation/Salvaging: Can be grown from seeds or hardwood cuttings, layered, or salvaged.^{1,8} Portions of the vine that have rooted can also be separated and transplanted from salvage sites.⁴



TRILLIUM OVATUM *ssp. ovatum*⁷ • **WESTERN TRILLIUM**

TRILLIUM, WAKE-ROBIN

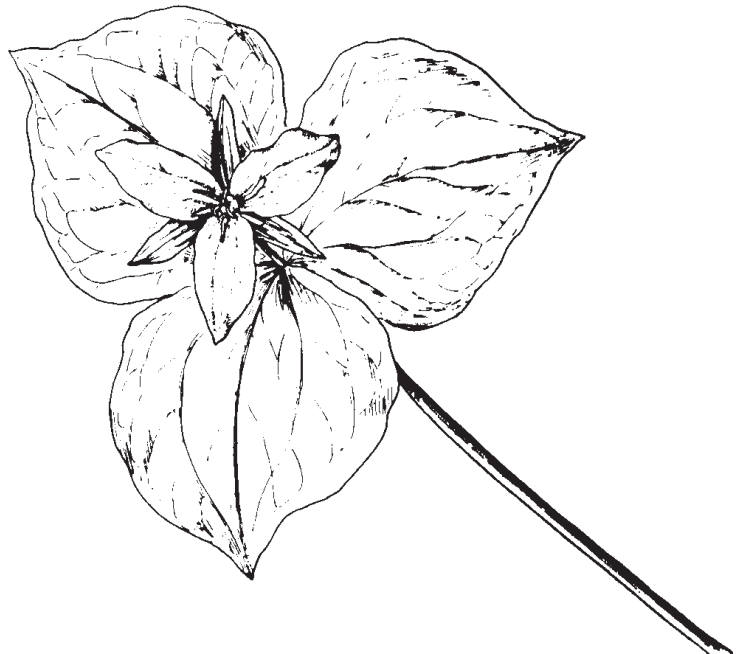
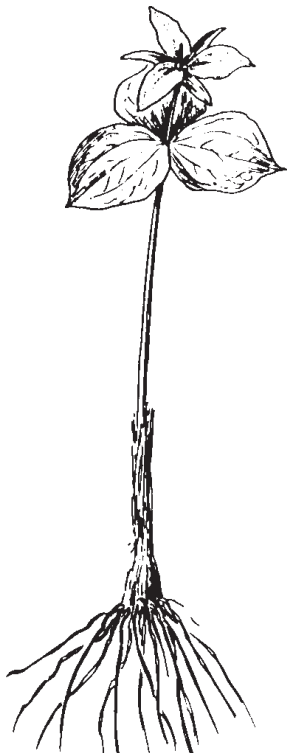
Lily Family (*Liliaceae*)

Description: This perennial grows 6–18 inches high from a short, fat, fleshy rhizome, and is recognizable by its whorl of (usually) three leaves and showy, three-petalled flowers. Leaves are broad, 3–7 inches long, and have a pointed tip. Single white flowers appear March to May above the leaves on a short stalk, and have three long (1–3 inches), white petals nested atop three shorter, narrower, green, petal-like leaves. As the flowers age, they turn pink and then maroon. Fruits are fat and green, with wing-like ridges, and contain numerous seeds in a gooeey substance.

Habitat: Found in moist to well-drained soils almost throughout our region.^{1,8,24,35} Partial to full shade.⁸

Advantages/Disadvantages: A beautiful addition to gardens with shade and moist soils. Chipmunks and squirrels eat the seeds.

Propagation/Salvaging: Easy to grow from seed,¹⁷ but may take a long time to flower.⁸ Collect and sow seeds as soon as ripe, separating seeds from pulp prior to sowing. Some sources suggest that seed may take two years to germinate; if true, you might be able to reduce the time by placing the seeds in a freezer for a few weeks before planting.^{28,37} Once planted, soil should be kept moist and shaded until seeds germinate.³⁷ Somewhat difficult to salvage, as you must dig deeply to ensure minimal damage to roots and rhizomes, take special care to not break the stems, and transplants may die back before reappearing the following spring.¹ Due to past over-harvesting, plants should be taken only from sites scheduled for development. Salvaged plants or plants already in your yard can be multiplied by division.²⁵



VIOLA SPECIES • VIOLETS

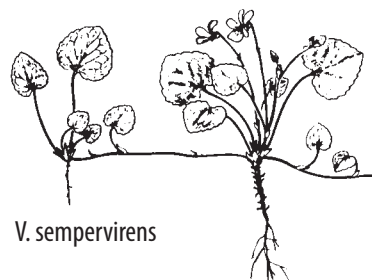
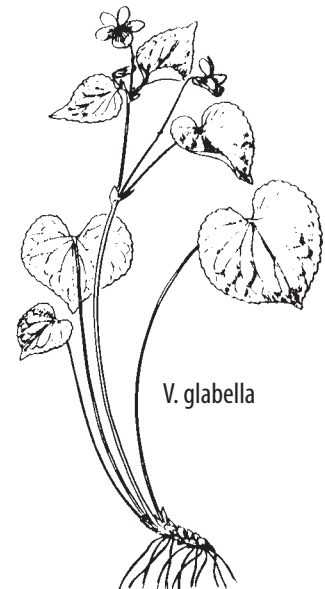
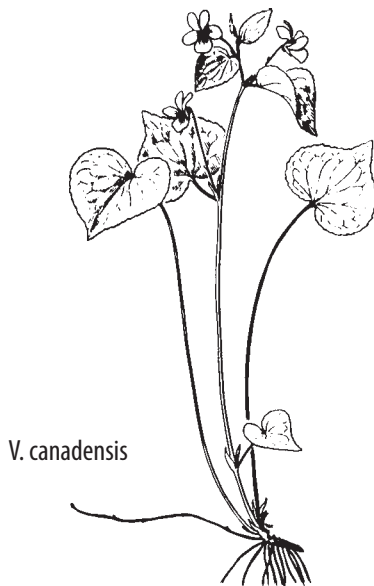
Violet Family (*Violaceae*)

Description: There are several violets native to our region, all of which possess violet-shaped flowers. Two of the more common yellow-flowering violets are *V. glabella* and *V. sempervirens* (trailing yellow violet), and one of the more common blue-flowering violets is *V. adunca*. Persons wishing to differentiate among the various species should consult other field guides.

Habitat: *V. glabella* and *V. sempervirens* are both found in shady, moist woods, while *V. adunca* grows in dry to moist open woods and meadows.^{24,35} Other native violets are more suited to wet settings, such as *V. canadensis* and *V. palustris*.

Advantages/Disadvantages: All of the named violets are suitable for use in the garden. Violets host butterfly caterpillars and attract deer (which eat them). Violet flowers attract butterflies.³²

Propagation/Salvaging: Can be grown from seed. However, the seed capsules of many violets disperse their seeds explosively, so harvest with care.



IV. Native Plant Descriptions • Emergents

Emergents are non-woody plants that need to be in standing water at least part of the year, and that carry much of their foliage above the water's surface. They are often found in marshy areas around a lake, near a stream, or in other wetland sites, or on land where the water level is high enough to keep the roots wet.

CAREX SPECIES • SEDGES

Sedge Family (*Cyperaceae*)

Description: Sedges are grass-like, herbaceous plants with solid, triangular stems and fibrous roots or rhizomes. Most have grass-like leaf blades. Leaves are arranged in sets of three, and have parallel veins. Flowers are arranged in several, dense clusters, usually at the ends of long stems. Fruits are enclosed in a membranous sac.

Habitat: Over 100 different sedges grow in moist and dry areas of western Washington. Many, such as *Carex obnupta* (slough sedge) and *Carex aquatilis* var. *dives* (Sitka sedge), grow in areas that are seasonally saturated or inundated. Others, such as *C. hendersonii* (Henderson sedge) or *C. pennsylvanica* (long-stolonated sedge), prefer moist to well-drained soil.

Advantages/Disadvantages: Sedges are easily propagated, provide excellent soil-binding and erosion resistance, are quite attractive, and need little care. Used for food by ducks and numerous other birds, and by deer, beavers, and small mammals.

Propagation/Salvaging: Can be grown from seed, by sowing in the fall, either on-site or in trays, and allowed to over-winter. Rhizome cuttings are effective, but should be taken only from appropriate salvage sites. Plants can be multiplied by division, though this should be used only with salvaged plants or plants already in your yard.



JUNCUS SPECIES • RUSHES

Rush Family (*Juncaceae*)

Description: Rushes are grass-like herbaceous plants with cylindrical or flattened, solid stems. At their bases, leaves are tightly sheathed around the stem, and leaves are sometimes absent or little more than bladeless sheaths on green stems. Flowers are small, greenish-brown to purplish-brown, and borne in clusters near or at the ends of small flower stems.

Habitat: Generally found growing in clumps in wet soils or shallow, standing water. Rushes are widely distributed, and there are more than 20 rush species in western Washington.

Advantages/Disadvantages: Rushes provide excellent soil-binding and erosion resistance, and are attractive additions to gardens. Although rushes are believed to have low value for wildlife,⁴⁰ they provide cover for small mammals and marsh birds, who probably also eat the seed heads.^{4,39a} There are numerous rushes native to western Washington, and interested persons should consult other references. The most common species in our area is *Juncus effusus*, but it can be invasive and push out other native plants, especially in level wetland areas with uniform water depths. However, it can be a good choice for hilly wetland areas with both shallow and deep water, as these variations will prevent it from taking over.¹

Propagation/Salvaging: Seeds are tiny, but germinate easily. Sow on soil surface, barely cover, and keep moist. Rhizome cuttings are effective. Division can be used to multiply salvaged plants or plants already in your yard.



SAGITTARIA LATIFOLIA • BROADLEAF ARROWHEAD

VAR. LATIFOLIA

DUCK-POTATO, WAPATO

Water-plantain Family (*Alismataceae*)

Description: This native grows up to three feet above the water from tubers. Leaves are quite variable in shape, but are often arrowhead-shaped at maturity. Flowers consist of four white petals with a yellow center, and are in whorls of 2–8 (usually three) flowers on a separate flower stalk.³³

Habitat: Shorelines, in mud and to depths of one foot.

Advantages/Disadvantages: Its attractive leaves and flowers, non-aggressive growth (plants will remain in shallow areas), and usefulness to wildlife make this an excellent choice for shoreline areas and shallow water, especially where erosion might be a problem. Tubers are eaten by waterfowl and humans, and muskrats, beavers, and porcupines eat the entire plant. Numerous species of birds eat the seeds,⁴⁵ and numerous insects and amphibians use the plant.

Propagation/Salvaging: Can be grown from seeds planted in mud, and tubers can be divided.³³



SCIRPUS ACUTUS • HARD-STEMMED BULRUSH

(FORMERLY *SCIRPUS LACUSTRIS* VAR. *OCIDENTALIS*)

TULE

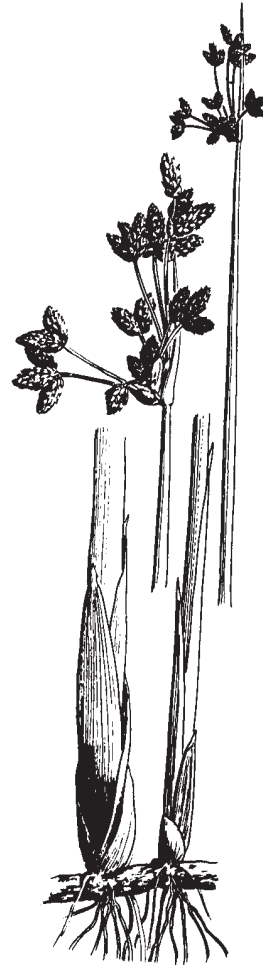
Sedge Family (*Cyperaceae*)

Description: This emergent perennial grows in a clump from rhizomes, and reaches a height of 4–8 feet. Stems are bright green, cylindrical, erect, often $\frac{1}{2}$ inch wide at the base, with small, poorly developed leaves clasped around the stem. Flowers appear near the tops of stems, and are contained in compact, grayish-brown spikelets clustered at the ends of short offshoots from the main stem.

Habitat: Periodically or permanently flooded marshes, in water up to three feet deep. Full sun.

Advantages/Disadvantages: Its value to wildlife and excellent soil-binding qualities make it an ideal plant for restoring marshes and the edges of streams, ponds, or lakes. Stems help reduce shoreline erosion from wave action. Plants destroy pathogenic bacteria in soil or water near the root zone.⁴⁰ Muskrats eat the rhizomes and use the stems to build dens. Provides cover for fish and waterfowl, and nesting habitat for the western grebe.⁴⁰ Seeds are eaten by many species of birds. Plants also provide important food and shelter for small mammals and amphibians, and are a favorite site for dragonfly eggs.³²

Propagation/Salvaging: Can be propagated from seed, from rhizome cuttings, by salvaging clumps, or by dividing salvaged plants or plants already established in your yard. Seed should be gathered in mid-summer (July) and scattered onsite immediately, or stored in damp sand at about 40°F and sown in pots in the fall or spring. If sown in containers, use a water-saturated mix of organic soil and sand, and plant out seedlings the following fall (seeds should germinate in 3–4 weeks).⁴⁰ Plants can be divided during winter and spring. To plant divisions or rhizome cuttings, bury the rhizome portion 4–6 inches under saturated or shallowly inundated soil. Divisions planted during the growing season must be placed so that the stem projects above the water surface to supply the roots with oxygen. Firm the soil around the rhizome.⁴⁰



***SCIRPUS MICROCARPUS* • SMALL-FRUITED BULRUSH**

SMALL-FLOWERED BULRUSH

Sedge Family (*Cyperaceae*)

Description: This tall (2–5 feet), grass-like plant has coarse, slightly triangular stems and numerous clusters of tiny, dark, scaly flower spikes arranged within a larger cluster. Plants may have one or several stems, with several thin, prow-shaped, grass-like leaf blades extending from the base and stem. Flowers and fruits are in numerous small clusters at the ends of arching or drooping stalks, and several long, leaf-like bracts emerge from the base of these stalks.

Habitat: Wetlands, roadside ditches, and wet clearings. Tolerates shade, but often found in open areas.¹

Advantages/Disadvantages: Has good soil-binding qualities, due to creeping rhizomes that spread and multiply rapidly. Provides cover for birds and small mammals. Ducks and many small birds eat the seeds.

Propagation/Salvaging: Rhizome cuttings are effective. Seeds germinate readily after a 2–3 month period of cool, moist conditions. Sow seeds into flats and then transplant when plants are two inches tall. Easy to divide during the dormant season.^{1,40}



SPARGANIUM SPECIES • BUR-REEDS

Bur-reed family (*Sparganiaceae*)

Description: Bur-reeds are emergent or submersed, grass-like perennials. Their ribbon-like leaves grow from a central clump, sometimes reaching three feet long or longer. Seeds are borne in round, bur-like heads up to two inches across. Among the native species more common to western Washington are *S. angustifolium*, *S. eurycarpum*, and *S. minimum*.

Habitat: Typically at lake margins and in slow-moving streams with other emergents such as bulrushes. Some species grow in deeper water with ribbon-like leaves floating upon the surface.

Advantages/Disadvantages: Waterfowl and marsh birds eat the seeds, and muskrats and deer eat the entire plant.⁴⁵ Bur-reeds also help protect lake shores from erosion.

Propagation/Salvaging: Can be divided, and then planted in shallow water.⁴⁵



***TYPHA LATIFOLIA* • CATTAIL**

COMMON CATTAIL, REEDMACE

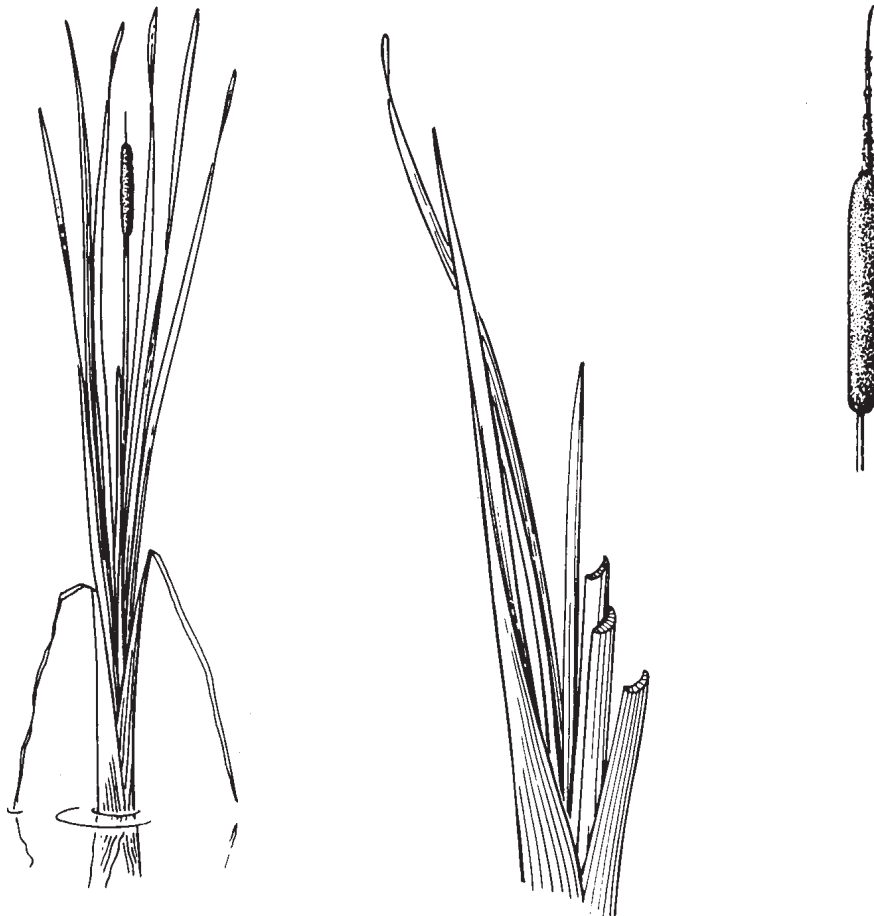
Cattail Family (*Typhaceae*)

Description: This perennial has fibrous rhizomes, from which grow long, strap-like, fleshy leaves. Brown, cigar-shaped, female flowers are borne on erect stems up to eight feet tall, and persist for months (the male flowers are above the female and quickly disintegrate).

Habitat: In a wide range of habitats, from seasonally saturated soil to areas with standing water up to two feet deep. Often found in marshes, ponds, ditches, and along lake-shores.

Advantages/Disadvantages: Provides wildlife habitat and food, water quality protection, and erosion prevention. Rhizomes are edible, and are an important food source for geese and muskrats.⁴⁵ Cattail stands provide nesting sites for waterfowl and wading birds,⁴⁵ and are frequently used for such by red-winged blackbirds. In disturbed areas, cattails often push out other, desirable, native emergents like sedges or bulrushes. Their tendency to grow tall and spread rapidly makes them inappropriate for small garden pools, unless planted in a restricting container.⁴⁵

Propagation/Salvaging: Can be grown from seeds. Stored seeds require two months' cold stratification to break seed dormancy.¹¹



IV. Native Plant Descriptions

Submerged & Floating-leaved Plants

Submerged plants have foliage that is completely underwater, though some develop above-water flower stalks. In contrast, the foliage of floating-leaved plants is primarily on the surface of the water. Both usually grow in still water from the shoreline to depths of 30 feet (depending on water clarity)³³ and should be planted only where there is substantial water year-round

***BRASENIA SCHREBERI* • WATERSHIELD**

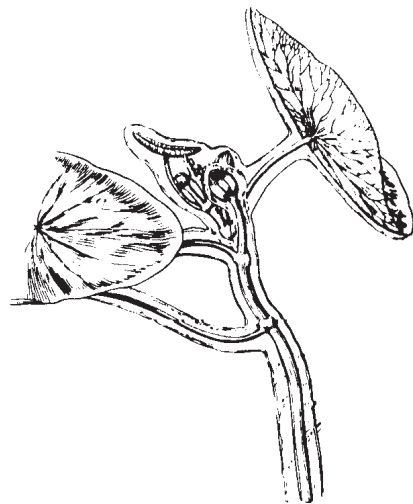
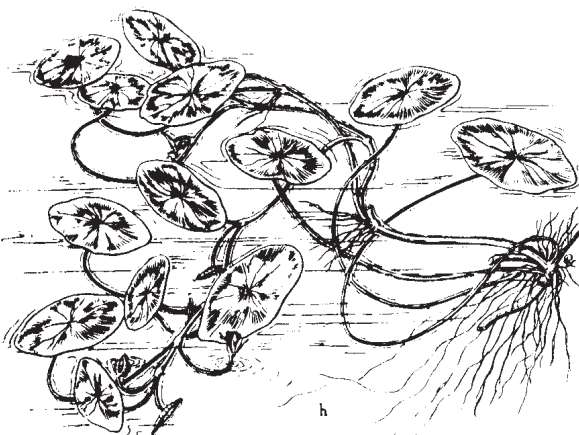
Water-lily Family (*Nymphaeaceae*)

Description: This floating-leaved plant has alternate leaves that are round to elliptical, 1 to 4¹/₂ inches long, with centrally attached leaf stems. Underwater growth and undersides of leaves are covered with slippery jelly when young. Flowers are small, purplish, and appear singly in summer above the water on long stalks attached to leaf stems.

Habitat: In ponds, sluggish streams, and shallow lake areas, usually to depths of about nine feet.³³

Advantages/Disadvantages: Provides shade and shelter for fish. The seeds, leaves, and underwater stems are eaten by a wide variety of waterfowl.⁴⁵ In favorable settings it can cover large areas and inhibit boating and swimming.

Propagation/Salvaging: Can be grown from seeds. Collect seeds in late summer from underwater seed casings,³³ and sow the seeds immediately in trays containing wet mud.⁴⁵



CERATOPHYLLUM DEMERSUM • COONTAIL

HORNWORT

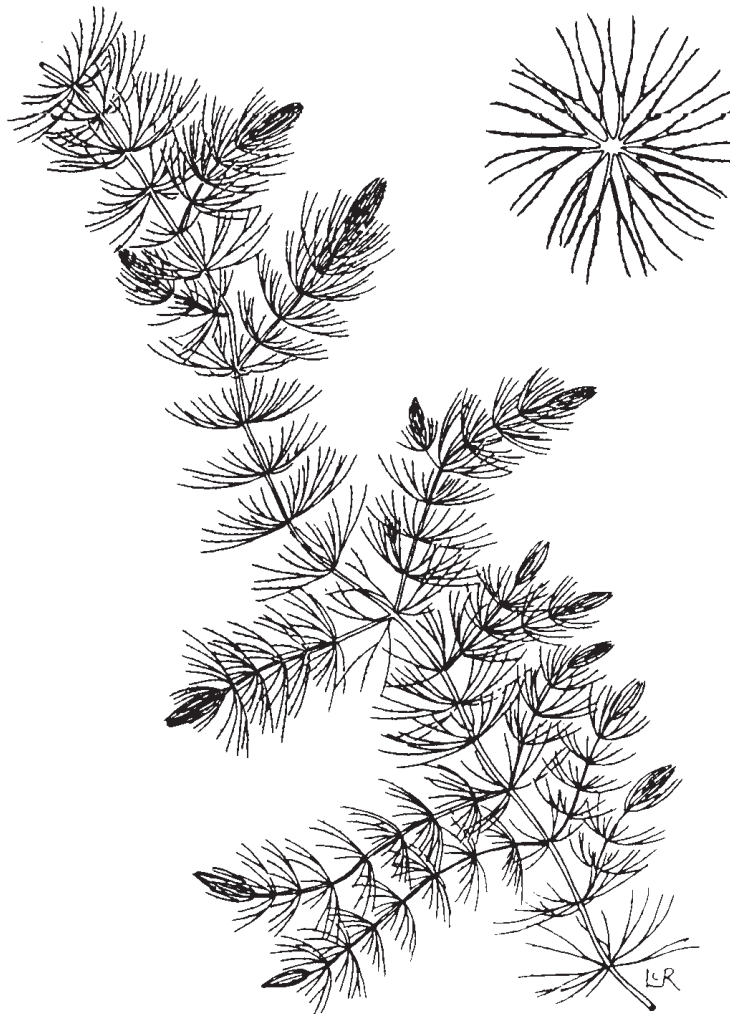
Hornwort Family (*Ceratophyllaceae*)

Description: This submergent has forked leaves arranged in whorls of 7–12 along the stem, giving a bushy “coontail” appearance. Although bases of stems are often buried in sediment, it has no roots. Flowers and fruit are borne underwater, at the base of leaves, and are hard to find. This native is often mistaken for *Myriophyllum spicatum* (Eurasian water-milfoil); however, coontail leaves are forked, while those of Eurasian water-milfoil look like feathers, with numerous, paired leaflets.

Habitat: Throughout the region in lakes and ponds, to depths of 30 feet.

Advantages/Disadvantages: Provides shelter for small fish, and habitat for insects and other invertebrates (read, “fish-food”). Leaves and seeds are eaten by waterfowl. Can form dense blobs or mounds, but does not usually become a problem unless there has been a recent influx of nutrients.

Propagation/Salvaging: From fragments.



ELODEA CANADENSIS • ELODEA

AMERICAN WATERWEED, CANADIAN PONDWEED,
OXYGEN WEED

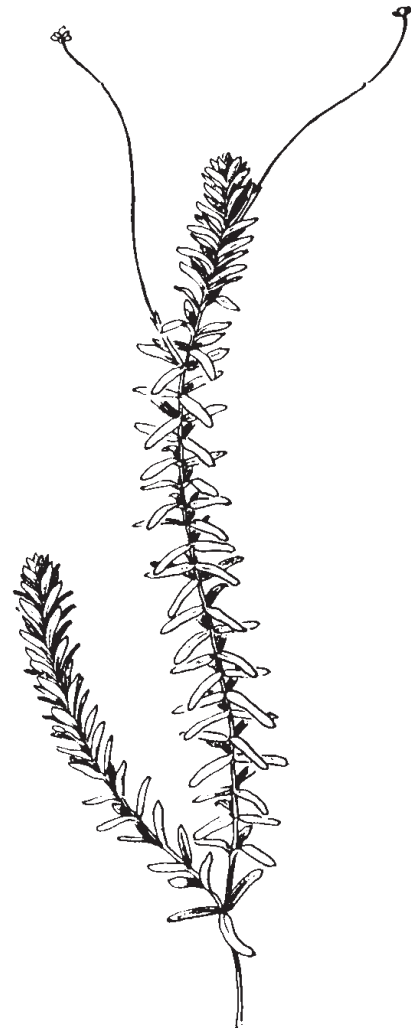
Frog's-bit Family (*Hydrocharitaceae*)

Description: This common submergent is often used as an aquarium plant. Stems are flexible and green, and have small, green, strap-like leaves arranged in whorls of three which are usually more densely spaced at the end of branches. Flowers appear July to September³ and are minute, white, and rise to the surface on long, thin stems. Roots are fibrous and may be anchored in the substrate, or unattached and free-floating.

Habitat: Along the bottom of lakes throughout western Washington, at depths of up to 30 feet. Grows best in fairly cool, nutrient-rich water with full sun.⁴⁵

Advantages/Disadvantages: An important food source for ducks and beaver. Also provides habitat for insects eaten by other animals.⁴⁵ Studies indicate it removes a number of pollutants from the water.⁴⁵ It is typically not a nuisance, unlike its exotic cousin, *Egeria densa* (Brazilian elodea) (see Part V).

Propagation/Salvaging: From fragments.



MYRIOPHYLLUM SPECIES • NATIVE WATER-MILFOILS

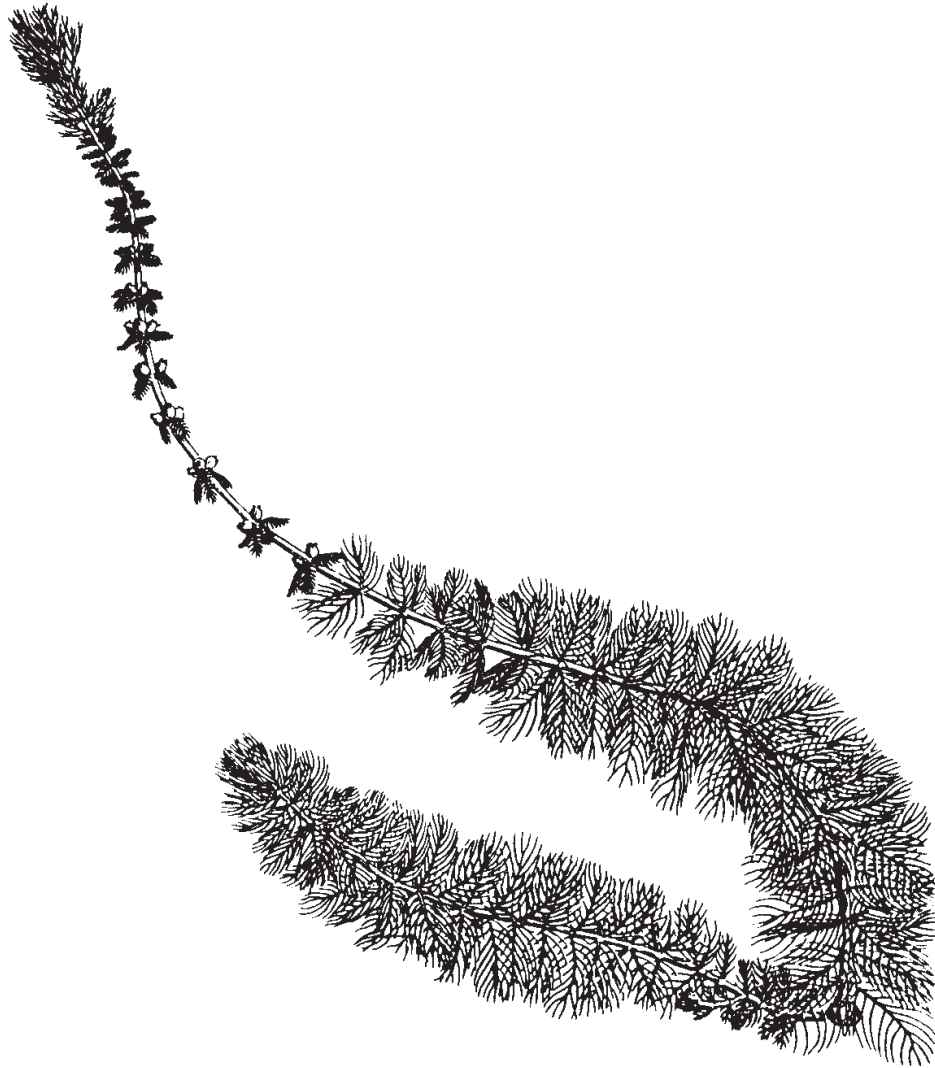
Water-milfoil Family (*Haloragaceae*)

Description: These perennials usually have both submerged and above-water leaves. Submerged leaves look like small feathers and attach to the stems in whorls of 3–6. Flower spikes may have simple or feather-like emergent leaves. *Myriophyllum* species native to western Washington include *M. hippuroides*, *M. quitense*, *M. sibericum*, and *M. verticillatum*.

Habitat: Throughout the region in lakes and ponds.

Advantages/Disadvantages: Provides shelter for small fish and zooplankton, and the leaves are eaten by waterfowl. Native species of *Myriophyllum* do not cause the problems that Eurasian water-milfoil does, unless there has been a recent influx of nutrients. However, due to the difficulty of identifying water-milfoils to species and the existence of invasive, non-native water-milfoil species, they should not be introduced to areas where they do not naturally occur.³³

Propagation/Salvaging: Can be grown from fragments or seeds.³³



NUPHAR LUTEA SSP. **POLYSEPALA**

(ALSO CALLED *N. LUTEUM* SSP. *POLYSEPALUM*)

(FORMERLY *N. POLYSEPALUM*)

Water-lily Family (*Nymphaeaceae*)

• **YELLOW POND-LILY**

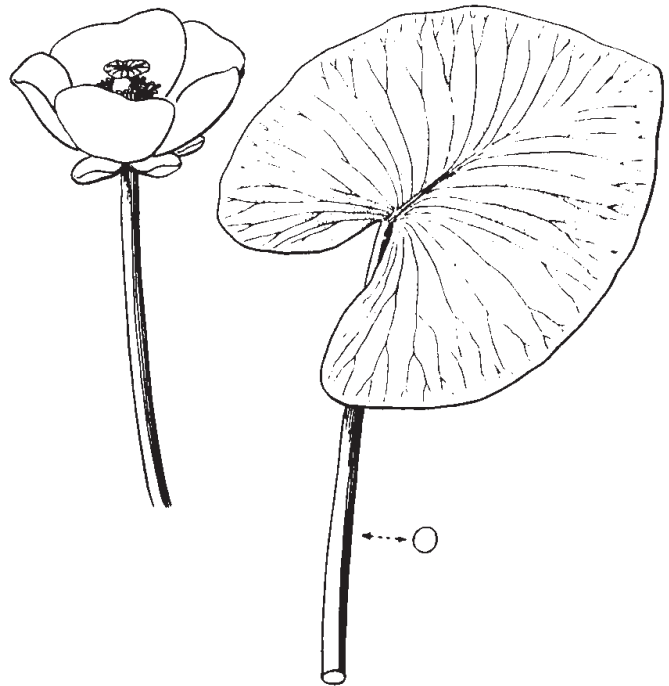
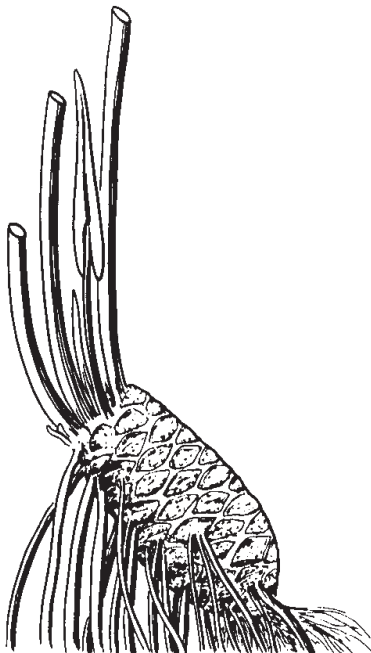
COW-LILY, SPATTERDOCK

Description: This plant has large (4–17 inches long) leaves shaped like a heart (or an oval with a cleft), and usually float on the water's surface (though sometimes slightly above or below the surface). Rhizomes are thick, large, and scaly—sometimes up to six inches wide by 15 feet long! Flowers float on the surface of the water, and are large (about three inches across), yellow, waxy, and cup-shaped, and have an alcoholic odor.

Habitat: In ponds, shallow lake margins, and other sluggish water to depths of 12 feet. In clear or turbid water, in shade or full sun (but only blooms in well-lit locations).⁴⁵

Advantages/Disadvantages: Seeds and rhizomes are edible to humans.⁴⁵ Seeds are also eaten by waterfowl, and the rhizomes are eaten by muskrats and beavers. Deer browse on the leaves, stems, and flowers. Plants provide shelter and shade for fish. Leaf surfaces are used by dragonflies and frogs as resting places, and many insects make their homes on the undersides of the leaves. While it grows slowly and tends to stay in shallower waters,⁴⁵ dense growths can cover large areas in a shallow pond or lake, and inhibit swimming and boating.

Propagation/Salvaging: Grow from seed or rhizome cuttings. Plant in nutrient-poor sand and give lots of light.⁴⁵



POTAMOGETON SPECIES • PONDWEEDS

Pondweed Family (*Potamogetonaceae*)

Description: All of the native pondweeds have long, flexible, rooted stems with scattered, underwater leaves. Pondweeds that have floating leaves often have radically different submerged and floating leaves on the same plant, the underwater leaves being thin and delicate, the floating leaves often tough, leathery, and oval. Some pondweeds have narrow, grass-like leaves with no floating leaves. Flowers are usually in oblong or ball-like spikes above or just below the water's surface. *Potamogeton* species native to western Washington include: *P. amplifolius*, *P. epiphydrus*, *P. gramineus*, *P. natans*, *P. nodosus*, *P. pectinatus*, *P. praelongus*, *P. pusillus*, *P. richardsonii*, *P. robbinsii*, and *P. zosteriformis*. It is often difficult to distinguish between different pondweed species.

Habitat: Varies according to species, but typically found in lakes to a depth of 12–15 feet.

Advantages/Disadvantages: Pondweeds are probably the most important food plant for waterfowl in North America, especially those that produce tubers (*P. nodosus* and *P. pectinatus*). In addition to being eaten by ducks, geese, and marsh and shorebirds, they are consumed by muskrats, beaver, and deer. Pondweeds also support an abundance of aquatic insects, and so provide excellent foraging areas for waterfowl, fish, and amphibians.⁴⁵ Pondweeds can form dense growths, hampering swimming and boating.

Propagation/Salvaging: Can be grown from seeds³³ or cuttings of erect shoots.³⁰ Species that form tubers can be grown from tuber divisions.³³



Submerged & Floating Leaf Plants

RANUNCULUS AQUATILUS • WHITE WATER BUTTERCUP

WHITE WATER-CROWFOOT

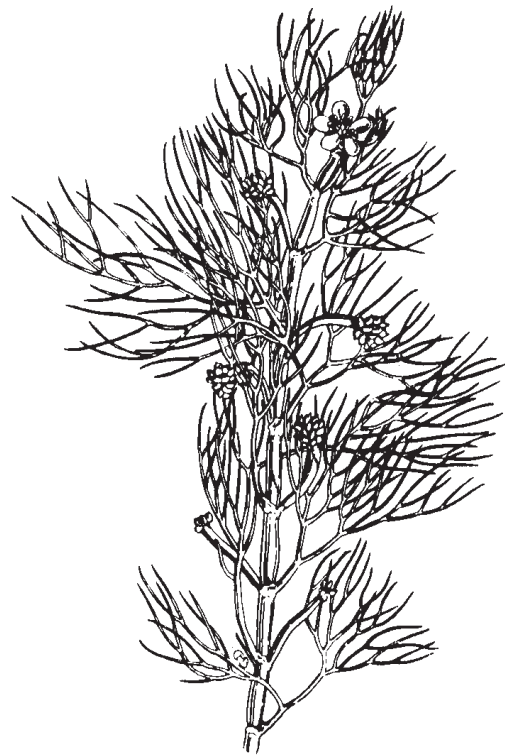
Buttercup Family (*Ranunculaceae*)

Description: This perennial has two types of leaves: flat floating leaves, sometimes with three to five palmate lobes, and finely divided, feathery, fan-like submerged leaves. Small, solitary, five-petaled white flowers appear on the surface. The two varieties native to western Washington are var. *capillaceus* and var. *hispidulus*.

Habitat: Along margins of lakes, in moderately rich waters, to depths of three feet.

Advantages/Disadvantages: Leaves and flowers are attractive. Plants also provide habitat for aquatic invertebrates, which are food for fish and amphibians.³³ Often forms dense floating mats.³³

Propagation/Salvaging: Can be grown from cuttings or seeds.³⁰



UTRICULARIA MACRORHIZA • GREATER BLADDERWORT

(ALSO CALLED *UTRICULARIA VULGARIS*)

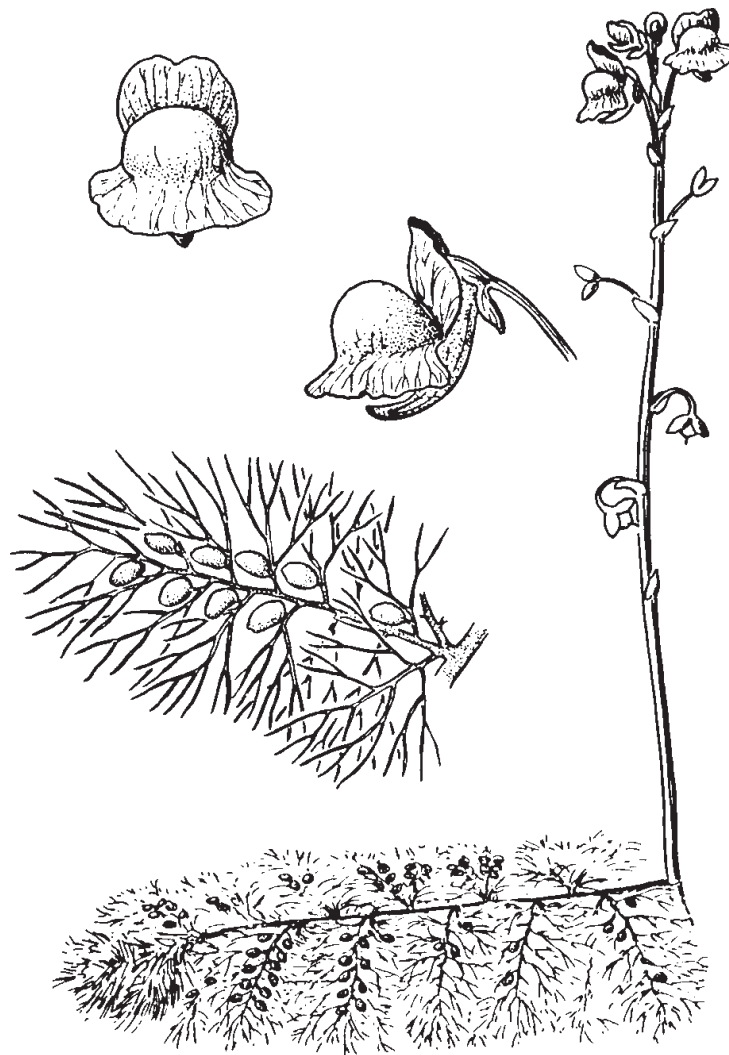
Bladderwort Family (*Lentibulariaceae*)

Description: This carnivorous submerged plant lacks roots, and so often floats freely just below the surface, though it sometimes is anchored in sediment. Leaves are alternate, divided into many hair-like segments, and are intermixed with small, seed-like bladders. These bladders act as vacuum traps which, when triggered, suck in and digest aquatic invertebrates and tiny fish. Flowers look like small yellow snapdragons, and are supported on a thin stem above the water's surface.

Habitat: Usually in shallow, still water over mucky lake bottoms.

Advantages/Disadvantages: Plants provide important shelter for fish and habitat for the aquatic invertebrates fish feed upon.⁴⁵ In addition, plants may decrease the number of mosquito larvae present.⁴⁵ Bladderworts tend to form thick floating mats.⁴⁵

Propagation/Salvaging: Can be grown from fragments and possibly seeds.³³ It is easily confused with *U. inflata*, a non-native that can become a nuisance in western Washington, so plants should be identified by an expert before introducing them to a new area.



V. Problem Aquatic and Terrestrial Plants

Most of the problem aquatic and terrestrial plants in western Washington are not native to this area, having been introduced to our region through human activities. Due to their aggressive growth patterns and a lack of natural enemies here, they spread rapidly into native plant communities. This reduces habitat diversity, food and shelter for many wildlife species, and the ability of the natural environment to perform a wide variety of important ecological functions.



Because of these habits, problem aquatic and terrestrial plants are often referred to as invasive non-native plants or invasive weeds. This section provides descriptions of some of the most invasive aquatic and terrestrial plants which can impact natural habitats, with specific information on the impact of the plant and methods for controlling it.

Preparations and Planning

Before trying to control invasive non-native plants, make sure you have correctly identified them. (Your local conservation district or weed control board can often help with this.) In certain situations you may need to get permits (for example, to work in or next to a stream or lake, or to burn plant material): consult local land use departments for guidance. If you wish to remove the plants from public or vacation land, you will also need to get the property owner's permission.

Plan for ongoing maintenance to ensure your efforts are not wasted. In addition, plan on replacing invasive non-natives with native plants to prevent reinvasion by the same or another non-native.

Removing and Disposing of Invasive Non-Native Plants

Many control methods are available, including hand removal, herbicides, and biological controls.

Care should be taken to choose a strategy that causes the least environmental harm while still being effective. Controlling invasive weeds without negatively impacting water quality or spreading the weed is sometimes difficult.

As much as possible avoid disturbing the soil, since disturbed soils are ideal sites for the seeds of invasive non-native plants to germinate. Often the best control method is to remove only part of the plant, such as seed heads or the above-ground portion. Avoid leaving any fragments which might resprout, and take particular precautions to not spread the seeds if the plant is in seed. Also be careful not to disturb wildlife: if birds or other wildlife might be nesting, reschedule your removal efforts.

Dispose of invasive weed materials in a manner that will prevent further infestation. All species except Scot broom should be removed from the site or burned to prevent resprouting. Purple loosestrife, in particular, should be bagged securely in plastic and hauled to a landfill. (Some counties may pay dump fees for invasive weed material—check with your local weed board or conservation district.) Other weeds, such as invasive blackberries, may be shredded and composted.

Replanting with Native Plants

Replant disturbed areas with appropriate native plants to prevent regrowth of the invasive weeds. Emergents such as bulrushes are effective in wetter soils. Shrubs such as salmonberry or red-osier dogwood, or trees such as back cottonwood, western redcedar, or willows work well in areas infested with reed-canary grass or



invasive blackberries. Avoid highly aggressive plants such as cattail or spirea, so you don't replace a problem non-native with a problem native plant.

CALYSTEGIA SEPIUM • HEDGE BINDWEED

(FORMERLY *CONVULVUS SEPIUM*)

MORNING-GLORY

Morning-glory Family (*Convolvulaceae*)

Description: This showy, perennial vine is a highly invasive species. Its trailing or climbing stems can grow up to nine feet long from rhizomes. Leaves are 1–5 inches long and heart-shaped with a distinct point. Flowers are showy, white to pink, and shaped like a wide-mouthed trumpet. It can be distinguished from most native morning-glories by leaf shape.

Habitat: Common in gardens, but will also grow in all but the most dry areas.

Impact: This vine is a problem in many wetland areas, especially those which have been disturbed. Its stems grow quickly, covering other vegetation and smothering it.

Control Methods: Difficult to control once it is intertwined with desirable vegetation. New plants can grow from root fragments, and tilling can spread the plant to new areas.^{28a} Each vine must be removed by hand, and the rhizomes dug up as completely as possible.



CYTISUS SCOPARIUS • SCOT BROOM

Scot's Broom, Scotch Broom

Pea Family (*Leguminosae*)

Description: This flowering shrub is common throughout western Washington, where it grows 3–10 feet tall. It is loosely branched, with slender, green-ribbed branches and small leaves. Flowers are pea-like and bright yellow. Seeds are borne in dark-brown to black, hairy, flattened, pea-like pods which split to release the seed.

Habitat: Primarily in open, dry meadows and roadsides.

Impact: Spreads by seed, which are scattered for yards by the bursting seed pods. It is highly aggressive, pushing out native plants and forming dense, single-species stands. Its greatest impact has been to reduce wildlife habitat and hinder revegetation of upland sites and wetland buffers.

Control Methods: Hand removal is best. While smaller plants can be pulled up by hand, you may need special tools to uproot larger plants. Another method is to cut plants at ground level for two or three seasons in a row, which should give native trees an opportunity to outgrow it. Most plants will die if they are cut down while in full bloom and any regrowth re-cut in August. It is not recommended to cut plants once they have gone to seed, since seed pods are easily burst. Fortunately, it cannot resprout from cut branches.

Controlled burning of Scot broom has also been used, but is not a feasible option in urban areas and may have the undesired effect of killing native tree seedlings. Because seeds remains viable for up to 40 years, control can be a long-term project.



Problem Aquatic and Terrestrial Plants

EGERIA Densa • **Brazilian Elodea**

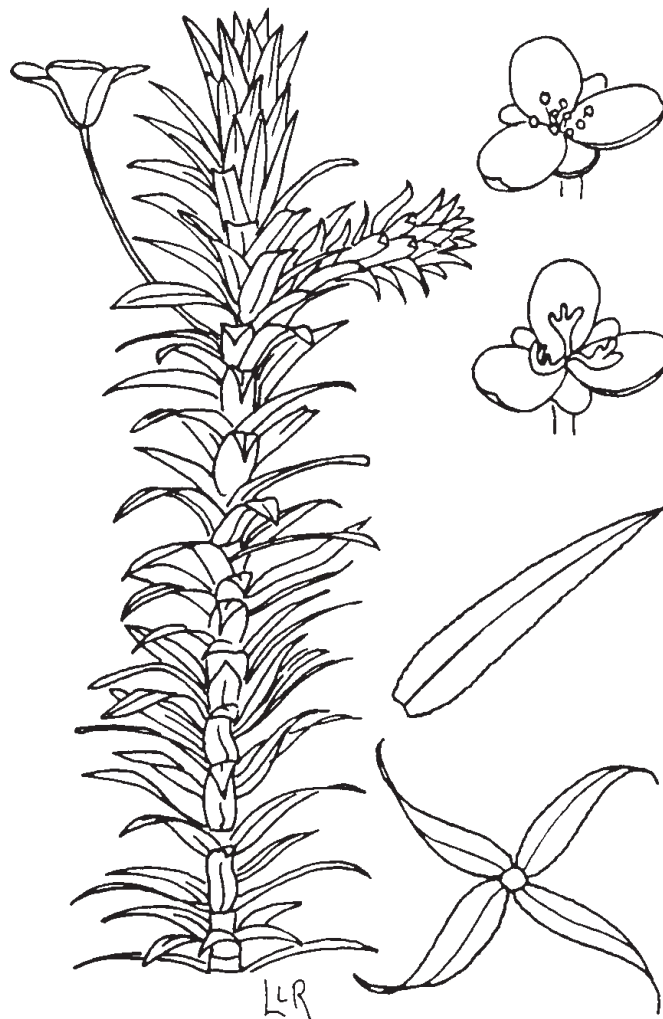
ANACHARIS

Frog's-bit Family (*Hydrocharitaceae*)

Description: This invasive aquatic plant is usually rooted in sediment, though fragments can be found floating free, especially in the fall.³³ It is easily recognized in summer by the numerous white flowers held just above the surface of the water.⁹ Plants consist of dense whorls of bright-green leaves or, in insufficient light, of widely spaced whorls of dark green leaves. It can be distinguished from similar plants by its whorls of four leaves (though sometimes eight), and the fact that each leaf is usually at least 1/2 inch long.

Habitat: Lake margins and slow rivers.³³

Impact: Spreads prolifically by fragments. Outcompetes native plants. Forms thick mats near the water surface, shading out other plants, and interfering with boating. Thick growths reduce oxygen in water column and make it difficult for fish to find food.³³ **NOTE:** It is illegal to sell or transport *E. densa* in Washington. If you find a plant you think might be *E. densa*, make a note of where you found it, and take or send a sample of it to an aquatic plant specialist (WSU extension agent, county weed board, or state Department of Ecology) so they can determine what it is and monitor its spread.



HEDERA HELIX • ENGLISH IVY

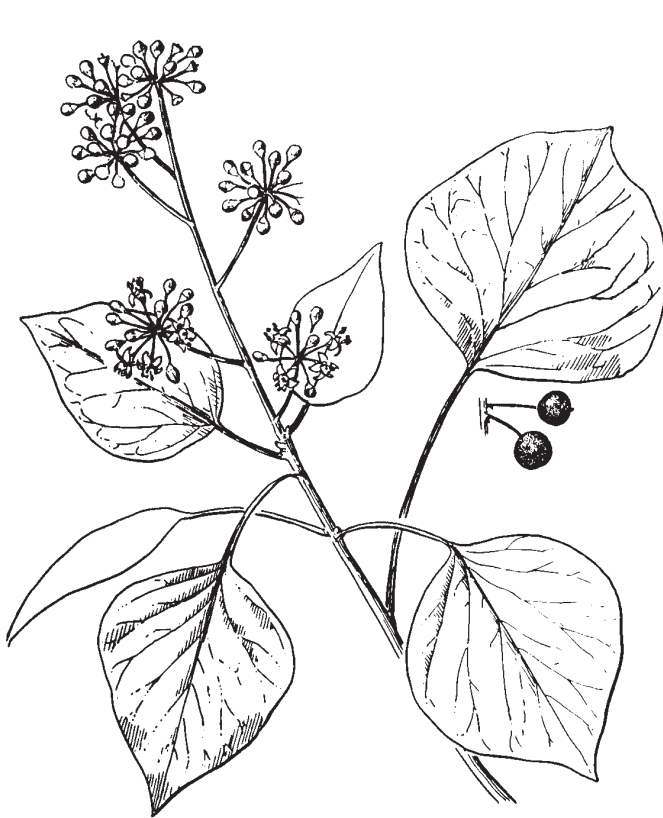
Ginseng Family (*Araliaceae*)

Description: This evergreen vine often forms dense mats on the ground and can climb to the top of most trees. Leaves are glossy, green, five-lobed, and triangular or diamond-shaped. Mature portions of the vine become shrubby and erect, bearing clusters of white flowers that produce dark blue to black berries.

Habitat: In shaded wooded areas, in dry to all but the wettest soils.

Impact: This common ornamental vine, though seemingly harmless, may pose a serious threat to native environments. On the ground, it forms a dense layer of foliage, often covering every surface, eliminating all native ground covers and herbaceous plants, and preventing the establishment of conifer seedlings. It also grows up the trunks of bigleaf maple, red alder, and Douglas-fir trees, killing them or stunting their growth.

Control Methods: Control of English ivy is a difficult problem that has not received enough attention or research. Because it is spread by birds, containment is not feasible. Removing or cutting the vines that climb trees is the most important step, since the seed-bearing branches seem to grow primarily on upright portions of the vine. Plants can also be uprooted.^{8a}



IRIS PSEUDACORUS • YELLOW IRIS

YELLOW FLAG

Iris family (*Iridaceae*)

Description: This emergent grows up to three feet high from very stout rhizomes. Its flattened, sword-shaped leaves are arranged in a fan-like pattern. The flowers are showy and yellow.

Habitat: Lake margins and slow rivers.³³

Impact: This non-native replaces native emergents such as cattails, sedges, and bulrushes. While beautiful, it provides little wildlife habitat, and threatens native plant communities.

Control Methods: Plants with their rhizomes can be dug up. Spreading can be slowed by clipping seed heads.³³



Problem Aquatic and Terrestrial Plants

LYTHRUM SALICARIA • PURPLE LOOSESTRIFE

Loosestrife Family (*Lythraceae*)

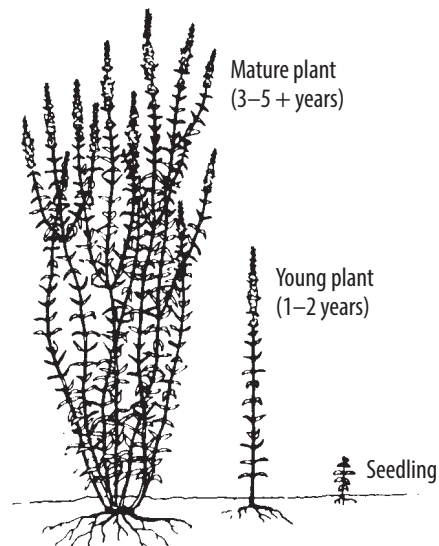
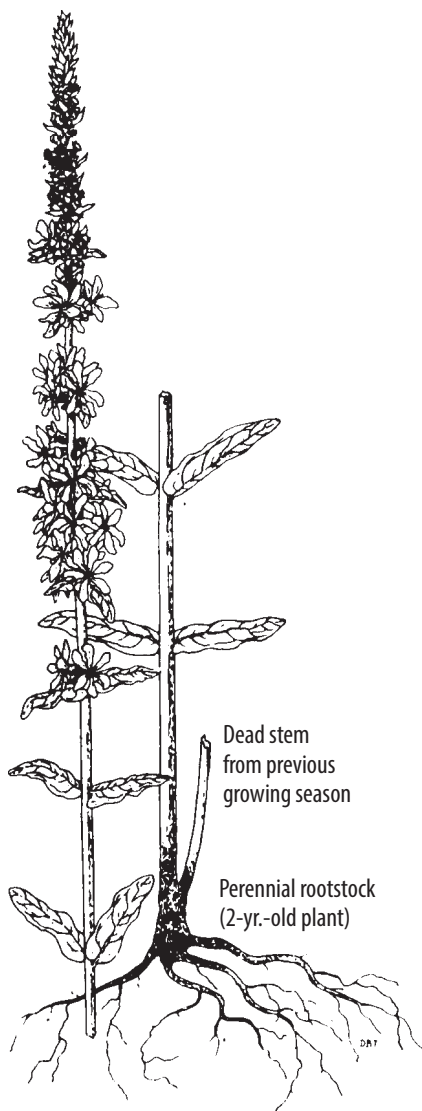
Description: This tall (up to six feet), perennial emergent has multiple, typically square stems growing from a woody root system. Leaves are lance-shaped, 1–4 inches long, and generally opposite (though sometimes alternate or whorled). Flowers usually have six petals, and are bright-magenta to deep-purple and arranged in spikes at the ends of the main stems.

Habitat: Will grow in any open environment with saturated soil or shallow, standing water.

Impact: Crowds out native emergents, destroying habitat diversity. It can take over a wetland

area in just a few seasons, as each mature plant produces over a million seeds. In addition, a new plant can sprout from a piece of root or stem. Few wildlife species use this plant, and the dense thickets of dead stems makes access difficult for waterfowl and other wildlife. Because of these attributes, in the state of Washington, it is illegal to sell, buy, transport, or otherwise cause purple loosestrife to be spread. Its only asset is its beautiful, purple flowers.

Control Methods: The surest control technique is hand-removal by digging up the roots, and then replanting with native vegetation to discourage regrowth. It can also be cut at ground level before it blooms.^{28a} Because plant fragments root easily,^{28a} all parts of the stems and roots should be burned, or securely bagged and transported to a landfill to prevent further spread. Particular care must be taken once the plant is in bloom to avoid spreading the seeds—clip the flower and seed heads off and seal them in a plastic bag before digging up the plant. Hand-cutting the plants at ground level several years in a row can also be successful if the plants are cut frequently enough to prevent renewal of the root masses' store of nutrients.



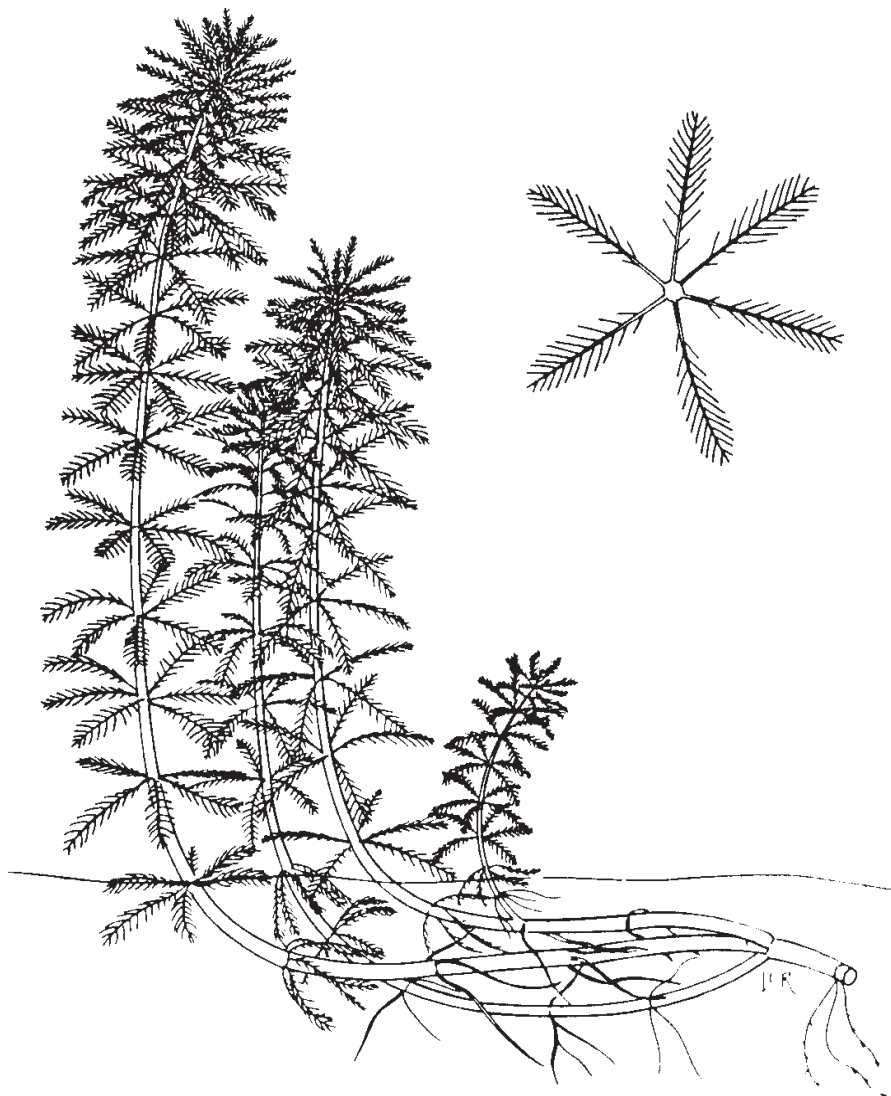
MYRIOPHYLLUM AQUATICUM • PARROTFEATHER

Water-milfoil Family (*Haloragaceae*)

Description: This invasive, aquatic plant has both below- and above-water leaves. Submerged leaves are in whorls of 4–6 (usually five), and look somewhat like that of the next species, *M. spicatum*. However, it has distinctive emergent stems that protrude a few inches to a foot above the water. Emergent leaves are bright green, stiff, and feathery-shaped.

Habitat: Can grow in standing or flowing water. Often roots in the streambank from which it spreads farther out over water to depths of about eight feet.⁹

Impact: Creates excellent habitat for mosquito larvae, and crowds out native plants along shorelines, particularly grasses. Can form dense mats of floating vegetation, interfering with recreational activities. Spreads by fragments. It is illegal to sell or transport *M. aquaticum* in Washington. If you find a plant you think might be *M. aquaticum*, make a note of where you found it, and take or send a sample of it to an aquatic plant specialist (WSU extension agent, county weed board, or state Department of Ecology) so they can determine what it is and monitor its spread.



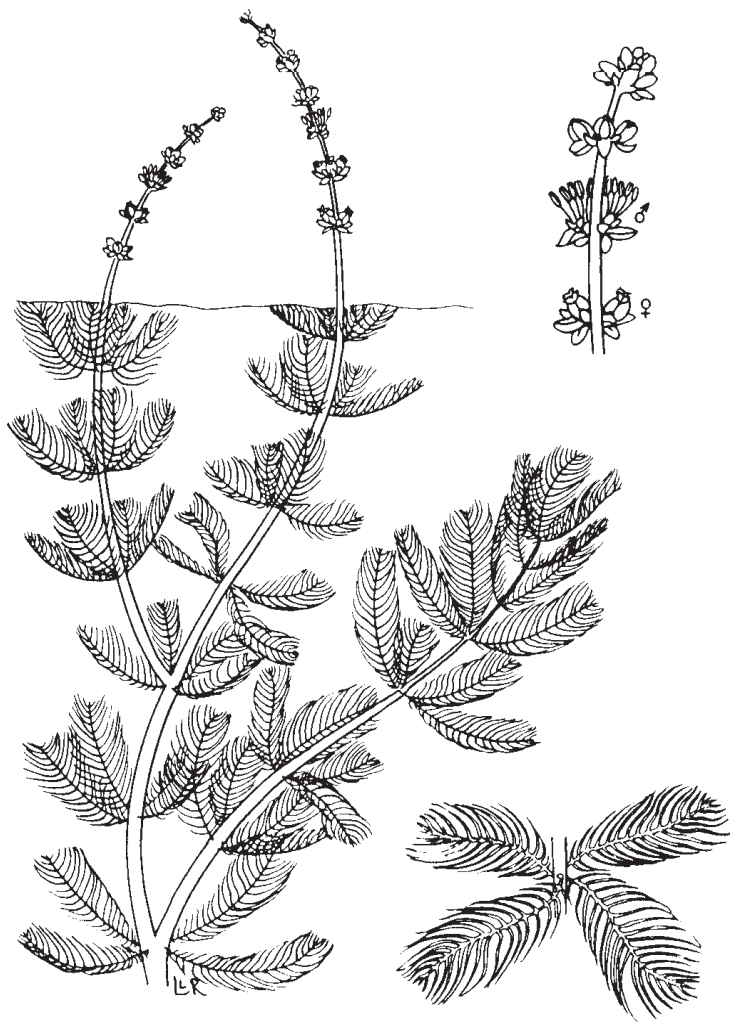
MYRIOPHYLLUM SPICATUM • EURASIAN WATER-MILFOIL

Water-milfoil Family (*Haloragaceae*)

Description: This aquatic plant grows thickly along the bottom of lakes, and forms dense, tangled mats of vegetation on the water surface. Leaves usually have 12 or more pairs of closely spaced leaflets, which are arranged so as to make each leaf look like a feather. Leaves are usually in whorls of four, though anywhere between two and five leaves are possible. Plants range in size from less than one foot to 15 feet tall.

Habitat: Found in many lakes to depths of 30 feet, and in slow rivers.³³

Impact: This plant is the major problem aquatic plant in our region. It can regrow from tiny fragments, and can grow so dense it hinders many recreational lake uses and reduces fish habitat. It is commonly spread to new lakes by careless boaters who do not remove fragments from their boat or trailer when leaving an infested lake. It is of little value to native wildlife. It is illegal to sell or transport *M. spicatum* in Washington. If you find a plant you think might be *M. spicatum*, make a note of where you found it, and take or send a sample of it to an aquatic plant specialist (WSU extension agent, county weed board, or state Department of Ecology) so they can determine what it is and monitor its spread.



NYMPHAEA ODORATA • FRAGRANT WHITE POND-LILY

FRAGRANT WATER-LILY, AMERICAN WATER-LILY

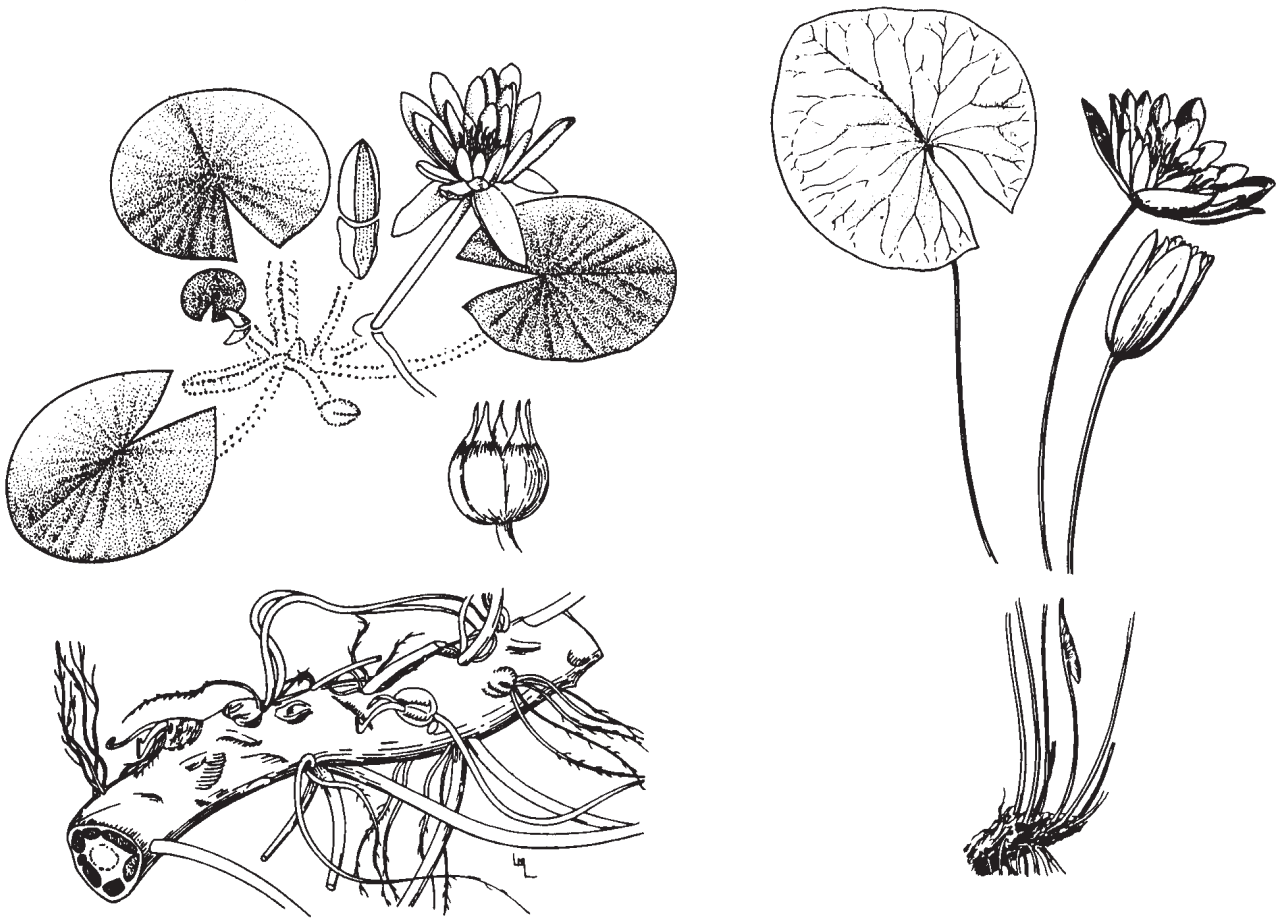
WHITE WATER-LILY

Water-lily Family (*Nymphaeaceae*)

Description: This non-native floating-leaved plant is the most commonly recognized aquatic plant. Leaves are up to one foot in diameter, nearly circular, with a deep cleft at the base. Flowers are large (2½ to 6 inches across), white to purplish, with many (25-plus) petals, and are very fragrant.

Habitat: This plant covers large areas of lake margins, growing to a depth of eight feet. Common in many lowland lakes in our region.

Impact: Though beautiful and frequently planted, it pushes out native aquatic plants. In addition, dense growths can result in low levels of dissolved oxygen, negatively affecting fish, and can cover large areas of shallow lakes and inhibit swimming and boating.



PHALARIS ARUNDINACEA • REED-CANARY GRASS

Grass Family (*Gramineae*)

Description: This tall (2–6 feet), perennial grass grows from long, rapidly spreading pinkish rhizomes. Leaf stems are round, hollow, and up to five feet tall. Leaf blades are attached high on the stem (rather than at ground level), and are flat, rough to the touch, and less than one inch wide. Flower cluster is borne on a stem high above the leaves during spring and summer, and the tiny flowers are reddish when in full bloom.

Habitat: Invades wet, open areas such as wet meadows, marshes, and the margins of lakes and deep wetlands. It is ideally suited to highly fluctuating water levels, and cannot tolerate standing water for an extended period of time.

Impact: Spreads by rhizomes and seed, pushing out other plants and creating large, single-species stands in wet meadows and marshes. While it provides erosion control, once mature, few wildlife species eat it and it grows too densely for birds or small mammals to use it for cover. There is evidence that reed-canary grass is native to western Washington, but its incidence was probably limited by forested shorelines. Widespread logging of shorelines

and the planting of reed-canary grass for cattle forage have greatly increased its distribution and impact on local ecosystems.

Control Methods: The only long-term control strategy is to establish a tree canopy to shade out the grass. However, this requires ongoing mowing of the grass; otherwise, it will outgrow and shade out most tree saplings. Large (over six feet tall) black cottonwood, red alder, Sitka spruce, western redcedar, or western hemlock can be planted if they are maintained for the first year. Clearing the grass within three feet of each sapling and providing each sapling with compost or slow-release fertilizer increases success as does digging out the grass and covering the ground within three feet of each sapling with water permeable weed barrier cloth.



***POLYGONUM CUSPIDATUM* • JAPANESE KNOTWEED**

FALSE BAMBOO, MEXICAN BAMBOO

Buckwheat Family (*Polygonaceae*)

Description: This large, ornamental perennial grows 4–8 feet tall on reddish-brown stems, dying back to its rhizome in the fall. Leaves are large (up to six inches long) and egg-shaped, with a sharply pointed tip and a squared-off base. Flowers are whitish and grouped in plume-like clusters at the ends of stems and in leaf nodes.

Habitat: Found in many disturbed areas, but grows best in slightly moist, open areas with rich soil.

Impact: Grows in thick stands, shading out and displacing native shrubs and herbaceous plants. Spreads by rhizomes and seeds.

Control Methods: Hand removal is best. However, the roots are tenacious and difficult to remove. Cutting Japanese knotweed at ground level for two or three seasons in a row may give native trees an opportunity to outgrow it.



Problem Aquatic and Terrestrial Plants

RUBUS DISCOLOR • HIMALAYAN BLACKBERRY **RUBUS LACINIATUS • EVERGREEN BLACKBERRY**

CUT-LEAF BLACKBERRY

Rose Family (*Rosaceae*)

Description: These widespread weeds grow as trailing brambles which bear edible berries. Himalayan blackberry's leaves are divided into 3–5 oval, serrated leaflets. Its extremely thorny vines create impenetrable thickets which reach eight feet in height. Evergreen blackberry has deeply divided leaflets, and more curved or hook-like thorns. Flowers are white to pinkish-white with five petals, and produce purple to black berries up to one inch long. Both species can be distinguished from our native blackberry, *R. ursinus*, by their stout stems and thorns (both are slender on the native) and larger berries.

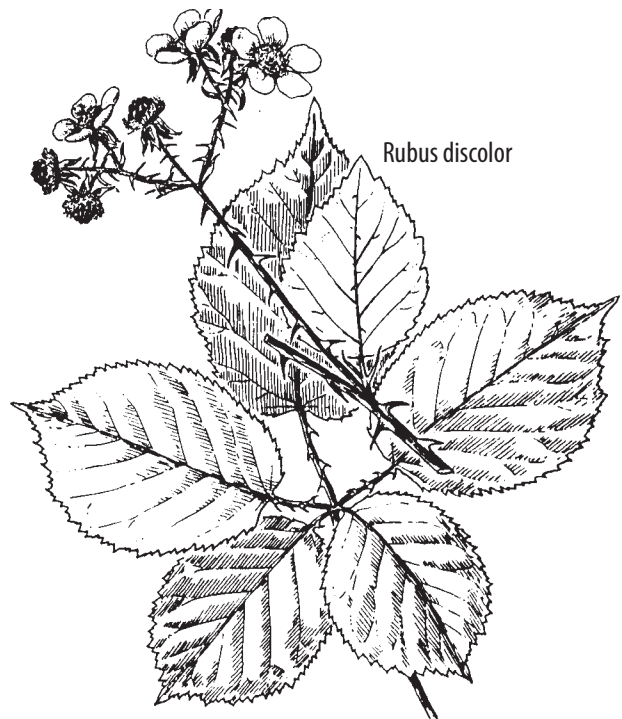
Habitat: Evergreen blackberry can be found in many disturbed (and many undisturbed) environments, from dry, open areas to saturated riparian or wetland areas. Himalayan blackberries can be found in similar settings, though not in wet soils.

Impact: These vines are highly aggressive, and can easily grow over native shrubs and tree seedlings in a single season, shading and killing them. They spread easily, rooting wherever the stem touches the ground and growing from seeds voided by berry-eating birds. As a result, they can dominate many riparian corridors, wet meadows, and other open wetland areas.

Control Methods: Cutting and removing vines at least once during the growing season for two or three years in a row should give fast-growing native plants, such as common snowberry or salmonberry or large conifers, a fighting chance. Digging up the roots is a more effective technique. Cut vines must be removed from the site or thoroughly shredded, since they can re-sprout. Himalayan blackberries can also be discouraged by creating shade.^{8a}



Rubus laciniatus



Rubus discolor

VI. Lakes and Aquatic Plants

Property owners with lakes, ponds, or other aquatic or wetland habitats have a number of concerns not usually faced by other landowners, such as erosion, water quality, and algae blooms. In addition, many of the plants growing in these areas are unique to aquatic settings, and a few of them are non-native problem species that should be controlled.

Lake Aging

Lake aging is a slow, natural process whereby lakes collect nutrients and sediments from in-flowing waters. With time, algae levels increase, and water visibility and depth decrease. Eventually, most lakes will become sufficiently shallow to form wetlands.

Human activities can greatly accelerate the natural process of lake aging by causing a rapid influx of nutrients and sediments. Common sources of these nutrients and sediments are storm-water runoff from developed areas, failing septic systems, overuse of fertilizers, logging, and improperly managed construction activities and agricultural practices. The influx of nutrients can produce explosive algae population growths, called blooms, resulting in reduced water quality and unpleasant, smelly scums. It can also lead to an overabundance of aquatic plants, which can degrade fish habitat, limit human recreational uses and deplete the oxygen supply in the water.

Aquatic Plant Benefits

Regardless of the age of the lake or pond, aquatic plants serve many important functions. These include:

Stabilizing shorelines: The roots of many aquatic plants, particularly emergent plants (those growing in standing water with much of their growth above the water), reinforce shorelines and protect soil against erosion from wind and wave action, boating wakes, currents, and other forces.

Providing habitat: Many aquatic plants provide cover, food, nesting sites, and resting areas for fish, amphibians, invertebrates, birds, and mammals. Settings with a diversity of native aquatic plants will attract a variety of native animal species.

Resisting invasion by non-native plants: A healthy native aquatic plant community will resist the establishment of invasive non-native plants, and often prevent them from becoming a serious problem.

Reducing nutrients: Aquatic plants tend to bind up nutrients, leaving less available for algae and making algae blooms less likely. Emergent plants also slow water movement along shorelines, caus-

ing nutrient-laden sediment to settle to the bottom, where it is less available to algae.

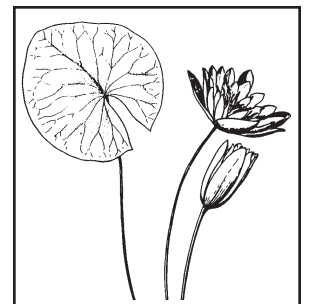
Providing shade: Aquatic plants, particularly those with floating leaves, create shade below their leaves. This restricts algal growth to open areas where light is available. The shade also reduces water temperature, which allows more oxygen to dissolve in the water, making the water more hospitable to animals that use dissolved oxygen (such as fish).

Producing oxygen: As a by-product of photosynthesis, aquatic plants release oxygen into the water. This is important to fish and other aquatic organisms that depend on dissolved oxygen to survive.

Persons interested in planting native plants in or around lakes, ponds, streams, or other aquatic or wetland habitats should consult the sections on Emergent Plants and Submerged & Floating-leaved Plants in Part IV, and Problem Aquatic and Terrestrial Plants (Part V). These sections will help you identify which species are appropriate for your setting, and prevent planting problem species.

Although some native aquatic plants can be purchased at nurseries, often the only way to obtain them is to propagate them from plants growing in your area. Species-specific propagation instructions can be found in Part IV. However, before you start collecting seeds, plants, or cuttings, review the guidelines listed on page 7 (plant collecting ethics).

Because many aquatic plants are difficult to identify, be sure to take samples of the plants you intend to use to an aquatic plant specialist for identification before you plant them: otherwise, you may end up introducing a noxious weed or problem plant to your property. For help identifying aquatic plants and determining which plants are appropriate for your lake, contact your county Extension–WSU agent, local university staff familiar with aquatic plants, or one of numbers on page 112 for the Washington State Department of Ecology.



Aquatic Plant Management

While many landowners are interested in establishing native aquatic plant communities in and around their lakes or ponds, some property owners may be more concerned with controlling aquatic plants, particularly if the plants are non-native or are creating problems.

Aquatic plant management should take into account all of a lake's users. Not only are lakes important to people for reasons ranging from aesthetics to recreation, but there are other lake dwellers to consider: fish, amphibians, and other aquatic organisms, plus the birds and other wildlife that depend on a healthy lake. In addition, downstream residents and resources are impacted by the quality and quantity of water flowing out of the lake.

The most effective long-term control of problem aquatic plants will include efforts to control the sediments and nutrients entering the lake. Certain practices should be encouraged, including landscaping with native vegetation to reduce and filter runoff, and properly maintaining septic systems to prevent nutrient-rich effluent from leaching into the lake. Contaminants such as used motor oil, car washing detergents, and soil from landscaping projects should be kept out of stormwater draining into the lake. Fertilizers and pesticides should be kept out of the lake by planting native vegetation and by using few or no garden chemicals.

Before you begin using any aquatic plant control technique, salvaging desired plants from a lake or wetland, or placing desired plants into a lake or wetland, consult with the Washington Department of Ecology and your county or city government. Many jurisdictions have regulations that limit or prohibit removing plants from or adding plants to wetlands or lakes. Because these regulations were designed to protect habitat and water quality, they usually have exceptions or allow you to obtain a permit for changes that will actually improve habitat and water quality. You will save yourself a lot of headaches (and possibly money) if you check first and get all of the required permits.

Contacts and Other Resources

Washington State Department of Ecology publishes the Citizen's Manual for Developing Integrated Aquatic Vegetation Management Plans. In addition, it administers the Aquatic Weed Management Fund, a grant program to assist in the management of aquatic weeds. Contact numbers are:

Lakes monitoring: 360-407-6680

Aquatic weeds: 360-407-6562

Aquatic plants: 360-407-6679

**United States Environmental Protection Agency
Clean Lakes Program:** 206-553-1571

Washington State Noxious Weed Control Board
206-872-2318 or 206-872-2972

Some counties also have specific agencies to assist you with the long-term planning necessary to address the complexities of aquatic plant management.



VII. Resources and Further Reading

Master Gardeners are trained volunteers who can answer questions about plants, plant diseases, and fertilizers and pesticides. Most of the counties in western Washington have Master Gardeners available for consultation. Look in the county government section of your phone directory, under the listing “Extension–WSU.”

Washington Native Plant Society is an organization of people interested in the native plants of Washington, with local chapters throughout the state. For information about the nearest chapter, write to WNPS at P.O. Box 28690, Seattle WA 98118-8690, or call 206-760-8022.

County Conservation Districts can provide information on using native plants to stabilize streambanks or create a buffer around a wetland.

Assistance designing your landscape or doing the work can often be obtained from landscapers and landscape designers. However, many of them work primarily with non-native plants and are not very familiar with using plants native to our region. You may be able to find a qualified landscape designer by asking designers about their experience, or through a local nursery that carries or specializes in native plants.

Plant Identification

Guard, B. Jennifer. 2010. *Wetland Plants of Oregon and Washington*. Redmond, WA: Lone Pine Publishing. Contains excellent photos for field identification of aquatic and wetland plants.

Pojar, Jim and Andy Mackinnon. 2004. *Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia & Alaska*. Redmond, WA: Lone Pine Publishing. A handy, photograph-filled field guide for identifying native plants of our region, including grasses, ferns, mosses, and lichens. Also contains a wealth of information on the use of native plants by our region’s indigenous peoples.

Randall, Warren R. 1990. *Manual of Oregon Trees and Shrubs*. Corvallis, Oregon: Oregon State University Book Stores, Inc. Handy and very helpful book for doing winter identification. Contains much more thorough plant descriptions than Pojar’s work, but covers only trees and shrubs, and lacks photographs.

Guttman, Erica and Rod Thurman. 2012. *Winter in the Woods: A Winter Guide to Deciduous Native Plants in Western Washington*. Native Plant Salvage Project, WSU Extension—Thurston County. A handy illustrated guide with detailed descriptions of trees and shrubs in their winter form.

Gardening with Natives

Kruckeberg, Arthur R. 1996. *Gardening with Native Plants of the Pacific Northwest: An Illustrated Guide*. Seattle: University of Washington Press. A primary resource on using Northwest natives in the garden.

Oregon Department of Fish and Wildlife. 1993. *Naturescaping: A Place for Wildlife* (Address: PO Box 59, Portland, Oregon 97201 Phone: 503-229-5410 x432). An excellent and fairly comprehensive resource on creating habitat for wildlife in your yard.

Washington Department of Wildlife. 2012. *Landscape Design for Wildlife*. For more information on the Living with Wildlife series, contact the WDFW Wildlife program: 360-902-2515. <http://wdfw.wa.gov/living/landscaping/>.

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Plant Propagation

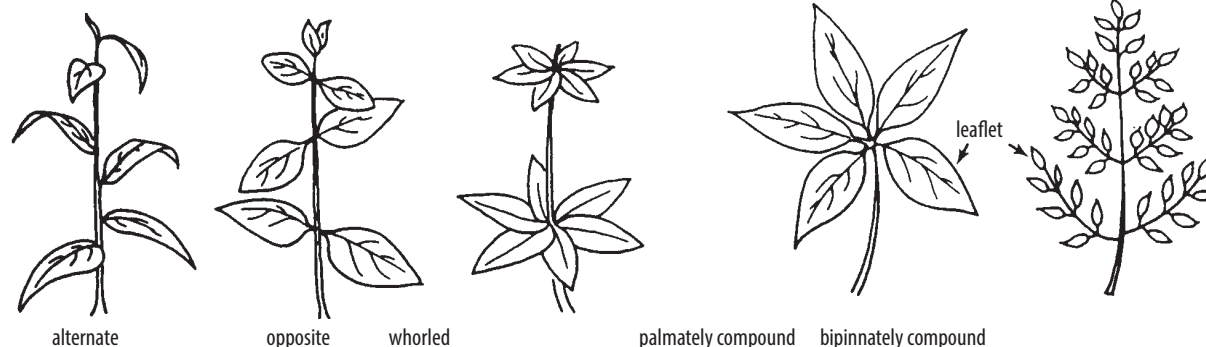
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VIII. Glossary



Leaf Arrangements

bloom (on fruit)—a whitish, powdery coating.

bract—a leaf-like appendage, green or variously colored.

broadleaf—having wide-bladed leaves (as opposed to needles).

browse—twigs and leaves eaten by browsing animals such as deer and elk.

canopy—the topmost layer formed by the leaves and branches of a forest's tallest plants.

catkin—a spike of tiny, single-sex flowers which lack petals.

cold stratification; cold-stratified—a treatment used on seeds to break seed dormancy (see page 9 for details).

compound leaf—a leaf that is made up of several smaller leaflets.

deciduous—plants with leaves that last only one growing season.

dividing (plants); division—splitting a plant's root ball and crown to create two separate plants (see page 13 for details).

dormant—not actively growing; plants are usually dormant during the winter.

hardwood cuttings—stem cuttings taken when a plant is not actively growing (see page 10 for details).

hot water treatment—a treatment used on seeds to break seed dormancy (see page 9 for details).

layering—burying part of a living, attached branch in order to cause it to produce roots (see page 13 for details).

live stakes; live-staking—long hardwood cuttings which can be planted without using rooting hormone (see page 11 for details).

node—the place on a stem from which a leaf or branch grows.

nodule—a small, rounded growth on some plant roots which contain nitrogen-fixing bacteria.

nurse log—a fallen, rotting log upon which tree seedlings are growing.

organic matter—any material derived from a living organism (such as peat moss, ground bark, compost, or manure) which can be dug into soil to improve fertility, moisture retention, and texture.

palmate—radiating out like, or shaped like, the palm and fingers of the hand.

perennial—a plant which lives for more than two years.

pinnate—divided in the pattern of a feather.

pithy—stems that are soft and spongy inside.

pretreatment—a treatment used to break seed dormancy before planting (see page 9 for details).

restoration—returning land to an original state or repairing damage done by human or natural disturbance.

revegetation—replanting a cleared area with native plants.

rhizome—a horizontal underground stem that can bear roots and shoots, and which usually persists from season to season. Although root-like in form, rhizomes are not roots.

rhizome cutting—pieces of rhizome used to start new plants (see page 12 for details).

riparian (area, zone)—the land adjacent to a stream, river or other waterbody, which is at least periodically influenced by flooding.

root collar—the place on a stem or trunk where the roots begin, typically at ground level.

root cutting—pieces of root used to start new plants (see page 12 for details).

salvaging—the transplanting of whole plants from natural settings slated for destruction by activities such as land development and road widening.

scale—any small, thin, flat structure on a bud, cone, catkin, or bark.

scarification—a treatment used on seeds to break seed dormancy (see page 9 for details).

snag—an upright, dead tree trunk. Snags often provide habitat for a broad range of wildlife.

sucker—a young plant sprouting from the horizontal roots of a parent plant (see page 13 for transplanting instructions).

taproot—the main root of a plant.

vein—a strand of conducting tissue extending into the leaves, especially if plainly visible.

watershed—the total land area from which a lake, stream, or other body of water collects its water.

wetland—a transitional area between land and water which is typically saturated or inundated by surface or shallow groundwater for a significant part of the year, resulting in the formation of soils with distinctive characteristics and communities of plants adapted to life in wet growing conditions. Wetlands include marshes, swamps, and bogs.

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