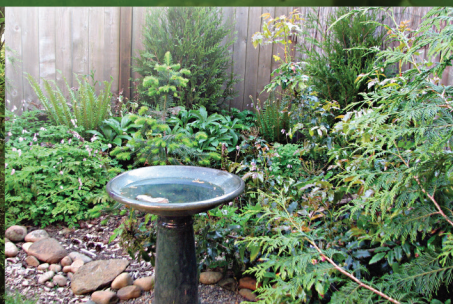




NATURESCAPING



beautiful landscapes ▲ backyard wildlife ▲ healthy environment



East Multnomah Soil and Water Conservation District

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Please keep in mind:

All information in this workbook should be considered general guidance. Each property has unique features that will influence the success of any project. Some properties have complicating factors that may require hiring a professional.

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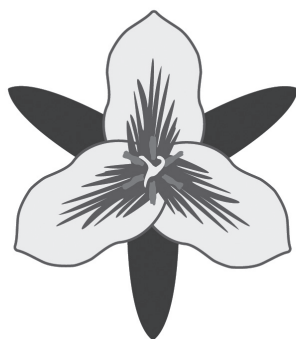
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NATURESCAPING

1: Introduction to naturescaping

Naturescaping is beauty and function. It is the practice of designing (or redesigning) a landscape so that it reduces water use, stormwater runoff, and pollution without sacrificing splendor. Plus, it saves you time, money, and energy – all while providing a beautiful habitat for birds, wildlife, and you. The practice focuses primarily on native plants, helping you to choose the best ones for your particular setting and needs. Native plants are recommended because they are adapted to our soil and climate so they need relatively little or no watering, fertilizing, or care once established. They are also less susceptible to common garden pests and diseases, and they attract a variety of native birds and butterflies by providing food and shelter - which is beneficial as well as enjoyable. Naturescaping helps to bring a bit of wild nature back into our increasingly artificial urban environment.

Naturescaping helps protect streams, rivers, and your watershed.

You may have heard the expressions “we all live in a watershed” or “we all live downstream.” These statements are absolutely true. Everything we put on the land, around our homes, and elsewhere eventually soaks into the groundwater or runs off into the streams and rivers of our watershed. Nature is a complex balance that is easily affected by human activity. Here in the Northwest, one of the most important elements that runs through it all is water. Every action we take has some effect, good or bad, in this intricate arrangement.

Watershed: The land, ridgetop to ridgetop, from which rain collects and runs to a specific body of water. The health of that water is affected by everything that happens within the watershed.

Many groups and agencies work tirelessly towards watershed health. Soil and Water Conservation Districts (SWCD's), Watershed Councils, government agencies, and other groups partner with citizens to maintain and improve water quality in our rivers and streams. Contaminants from our yards; air pollution that settles on our roofs; tire dust, brake dust, and oils from our cars on the road - all of this and more is picked up by the rain and washed into the rivers. These suspended oils, metals, chemicals and sediments that accumulate one bit at a time from so many different places can only be reduced in the same way: by thousands of individuals doing

some simple things to reduce their contribution to this problem. We can all do our part to take care of this world we share.

Naturescaping can be an attractive, enjoyable, and simple way for you to help improve the health of your watershed. Naturescaped areas generally require less water, fewer (or no) chemical fertilizers or pesticides, and less maintenance than other types of landscaping. There are many other often surprising environmental benefits of Naturescaping that you will learn about in this workbook.

Why would I want to naturescape my yard?

Naturescaping is fun, and it creates a connection to the global community. You will learn about our interesting and beautiful native plants, attracting wildlife, and creating a beautiful environment for you and the ones you love. Imagine relaxing on your patio in the shade of a tree, watching swallowtail butterflies feeding in the sunny wildflower garden while robins pluck the ripe berries from an Oregon grape. A cool late-summer breeze sighs through the boughs of the Douglas fir, while a happy little chickadee frolics in the birdbath cooling itself from the heat.

Naturescaping is easier than traditional landscaping. It takes a lot of energy, chemicals, and plain hard work to get some exotic flowers, trees, and grasses to grow where they have not adapted to grow. Many non-native plants are susceptible to pests and diseases that they are not prepared to resist. On the other hand, native plants thrive here naturally without sprinklers or chemical pesticides and fertilizers. They are adapted to our summer droughts and are naturally attractive to birds, butterflies, and small mammals.

The reduction in your water, chemical, and energy use can put money back in your pocket. Plus, it's good for our watersheds, our communities, and the environment as a whole.

How will this workbook help me?

This workbook will help you get started on naturescaping your own yard by giving you ideas and handy tips, and by helping you organize your project. It can help you decide what and how much to do. It will also direct you to excellent sources for more information.

Remember, you can start small with a single plant or natural corner, or you can let the concepts of naturescaping reverberate throughout your yard and your life. If we each do a little, together we can do a lot for our neighborhoods, our community, and the water that runs through it all.

BENEFITS OF NATURESCAPING

- Reduce stormwater runoff
- Reduce water pollution
- Reduce air pollution
- Reduce solid waste
- Reduce water use
- Reduce energy use
- Improve the health of the watershed
- Increase and improve wildlife habitat
- Increase residential security
- Increase community livability

2: Getting started

Care of new and existing landscapes

Assess your current landscape. Many landscapes contain mostly lawn, a small number of shrubs and some large trees if you are lucky. This chapter addresses two subjects that are important whether or not you create a naturescaped yard. First is the management of lawns – notorious users of energy, water, and chemicals. Secondly, trees are a very important resource that should not be taken for granted.

Lawn care

Homeowners apply more chemicals per acre than do large agricultural operations. Much of this is used to keep lawns rich and green throughout the long, dry summers of the Pacific Northwest. Many millions of gallons of increasingly precious water are poured on those same lawns. Excess water washes pesticides and fertilizers onto driveways and streets, and eventually into streams and rivers. These chemicals harm fish and upset the ecological balance of streams. These chemicals also harm people and pets. Don't spoil your play or relaxation by exposing yourself, your children, or your pets to dangerous chemicals!

Lawns need about one inch of water each week. See Chapter 4 for ways you can conserve this precious resource.

This is not to say that all lawns should be eliminated! They should be used where necessary and appropriate, reduced where possible, and maintained naturally. Some ways to limit the damage caused by excessive lawn maintenance are listed below. Remember, every little bit helps, and any efforts to reduce water use and chemical runoff are valuable.

Reduce lawn area

Use ground cover vegetation in areas where grass is not necessary or is difficult to maintain, such as on steep slopes and under trees. Consider using other materials such as mulch, gravel, or porous paving blocks in high-traffic areas.

Lawn and weed removal

Existing grasses and invasive plants may need to be removed and/or controlled in the areas you are planning to plant. This can be done without the use of toxic chemicals or a lot of strenuous digging. For example, one way to convert a lawn or weed patch into a planting bed is to place a thick layer (10-15 sheets) of newspapers or a single layer of cardboard over the area in the fall, thoroughly dampen the newspapers, then put a 3-6 inch layer of soil or organic material (compost, leaves, mulch etc) over the newspaper and let it sit 4-6 weeks or over the winter. You can also plant through the newspapers. For best results overlap the newspaper edges by at least 6 inches for complete coverage.

Try experimenting with different ground covers, mulches, and grass alternatives. Some examples include: moss, Oregon oxalis, kinnikinnick, strawberries, creeping thyme, clover, sedums, etc.

The best time to do this is in the fall or early spring. It takes a minimum of four weeks, sometimes 6-8 weeks, and occasionally even longer to kill the existing lawn. This process sun-starves the grass. Worms and other micro-organisms will break down the newspaper and dead grass and mix

all this new organic matter into your soil, creating food for the incoming new plants.

This is much better than using black plastic, which overheats the surface of the soil – killing the very micro-organisms that would be helping you break down organic matter into nutrients for your incoming plants. Cardboard and newspaper are also 100% biodegradable, unlike plastic which harms the environment.

Some invasive plants like Himalayan blackberries, English ivy and reed canary grass are stubborn and may require more aggressive tactics, including digging them out or removing them by the roots. Removal of these plants requires patience and diligence. (Please see **Chapter 7: Weeds and other pests** for more information on this topic)

Water carefully

Water only in the early morning (best) or late in the evening to minimize evaporation. Water only as much as the soil can absorb at one time. Observe watering restrictions during times of drought. (Please see **Chapter 4: Water conservation** for more information)

Mow thoughtfully and avoid using leaf blowers

Reduce air pollution; gas powered mowers, blowers, and trimmers pollute our air, water and ears. Use reel (push) or electric mowers when possible, practice grasscycling, and avoid using leaf blowers.

Allow dormancy

The natural cycle for grass in the Pacific Northwest includes a period of dormancy in the summer. Let it gradually dry up and turn brown. You might want to tell your neighbors what you are doing and why. It will grow thick and green again with the fall rains.

Weeding

Manually remove weeds before they set seed. There are many new and handy tools available these days that will make your job easier than you could have imagined. Before turning to chemical solutions, please see **Chapter 7: Weeds and other pests** for more information on this topic. Chemicals, even if labeled “natural”, can be harmful to you, your family, your pets and the environment.

Trees

Trees are one of our greatest Northwest natural resources, having aesthetic appeal as well as practical value. Treat them with care to achieve the maximum benefit. Take a class on pruning to keep your trees and shrubs in tip-top shape.

The first rule for existing trees according to the Oregon State Department of Forestry is **“Do Not Top Them!”** Topping, or any excessive trimming, makes a tree more susceptible to storm damage, insects and disease. A topped tree regrows in unusual ways from damaged branches causing the tree to become weakened and unbalanced. If you have a problem tree, consult a certified arborist. An arborist may be able to help a sick or damaged tree, or carefully prune one that has developed an undesirable form.

Grasscycling: Grasscycling is the natural practice of leaving clippings on the lawn when mowing. This can save time, money and other resources like landfill space. The clippings quickly decompose, returning nutrients to the soil.

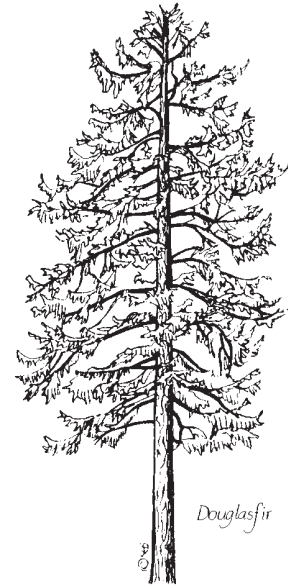
LEAF BLOWER FACTS

Leaf blowers that use gasoline create more air pollution than cars. A standard residential leaf blower emits 145 times more hydrocarbons and 7.5 times more carbon monoxide than a car driving at 30 miles an hour! What’s worse is that the powerful engine jets of leaf blowers disturb dust and debris which might include pesticides, fungi, chemicals, fecal matter and street dirt containing lead, while also compacting the soil surface, making plants more vulnerable to drought.

It is also a good idea to keep your lawn away from the tree trunk. Create a mulch circle at least three feet wide around the tree. This keeps grass from competing with the tree for water and also protects the bark from mowers and power trimmers. Do not pile the mulch soil or compost against the trunk, as it could promote fungal disease in the tree or shrub.

The good work of trees

- Shading your house in summer
- Shading your yard to protect delicate plants and retain soil moisture
- Providing windbreaks
- Acting as sound barriers
- Cleaning and filtering the air
- Cleaning and filtering water (with their leaves and roots)
- Shading streams and reducing water temperatures for healthier riparian (streamside) environments
- Catching and using rain, reducing runoff
- Holding soils and slopes with their root systems, reducing erosion
- Providing food, nesting, and resting areas for wildlife
- Increasing your property value
- Pulling carbon dioxide from the air and using it to build their roots, shoots and leaves.
- Reducing heat island effect



3: Healthy soil

To have healthy plants, you must have healthy soil.

Soil is more than a structural element that holds your plants upright. Healthy soil is a complex, living layer. When properly cared for, it provides water, food, air and stability in the right amounts to your plants. Soil consists of four major components: minerals, organic matter, water and air. Soil's organic matter also contains a multitude of living organisms that assist with the breakdown of the mineral and organic elements of the soil, thus providing important nutrients to your plants.

Understanding your soil type

Understanding the basic characteristics of your soil is important not only to what you plant, but where you plant it (and if watering, which methods and how often you will water your landscape). Soils in this region are primarily clay loam or sandy loam.

Clay soils are sticky when wet and can be made into a ball in your hand. Clay absorbs water so slowly that water typically runs off the surface if it is applied too quickly. It also remains wet longer after being soaked. Sandy soils on the other hand, have such large air spaces they do not hold water or nutrients very well. The water soaks in quickly, but the soil dries out faster.

Creating and maintaining healthy soil - add compost

All soils benefit when organic matter is added. Do this by applying a mulch and letting it decompose over time or by using a soil amendment (such as compost) on top or mixed into the soil.

Often urban soils have been abused and degraded from years of compaction, intensive chemical applications, or from having the topsoil removed or washed away. The best way to make up for this loss and nourish your plants is through using compost as a mulch for existing landscapes and as a soil additive for new areas being planted.

Compost and the soil life it contains (bacteria, fungi and worms) keep your soil and plants healthy by:

- Storing natural fertilizers and nutrients for gradual release – which prevents them from washing off into our streams
- Storing water – which reduces both run-off and your irrigation needs
- Supplying balanced nutrients to plants
- Fighting plant diseases and pests
- Aiding with water infiltration in clay soils
- Helping reduce compaction in clay soils
- Aiding with water retention in sandy soils
- Reducing erosion of valuable topsoil

Add compost/organic material in the fall to allow beneficial microorganisms to multiply enough so when it warms up in the spring, they will be actively providing nutrients for your plants.

Compost

Composting reduces yard debris and other solid waste in landfills. It is also an excellent way to recycle your kitchen scraps and yard “debris” right back into your own yard. It can be used to improve both sandy and clay soils. It helps fill up pore spaces in sandy soil and open up pore spaces in clay soil. Because organic matter decomposes (into beneficial nutrients for your plants), it needs to be added periodically.

Apply compost:

- To entire planting beds prior to planting annual flowers or vegetables
- To a new lawn, prior to seeding or as a thin layer to existing lawn as a fertilizer
- To raised beds in the vegetable garden when constructed and each year prior to planting
- Before installing perennial beds, or when perennials are divided
- When shrubs are transplanted, or new shrubs are added
- To the spaces between plants for water retention, erosion and weed control, soil amendment, and added nutrients

EXAMPLES OF COMPOST MATERIALS

- Grass clippings
- Leaves
- Flowers
- Twigs
- Old plants
- Old potting soil
- Annual weeds (no seedheads)
- Vegetable scraps
- Coffee, filters, and tea bags
- Yard debris
- Sawdust
- Manure

How to make compost

The simplest method is to create a pile at least three feet by three feet by three feet of organic wastes. The formula is: four parts brown (dead leaves and twigs), one part green (fresh cuttings), air, water, and time. Heat from the sun, microorganisms from the ground, and some occasional turning of this mixture by you will transform this into a high-quality compost for use as a soil additive, potting mixture, mulch, or even as a fine top dressing for your lawn or garden.

Other methods include building your own compost bin, purchasing commercial bins and turning systems, and enlisting the help of redworms to facilitate the breakdown of the compost. These methods can be faster and more efficient than the simple compost pile, but are generally more expensive and sometimes more labor intensive.

Composting tips

- **Brown:green ratio** - A mixture of dry leaves, sawdust, or other sources of carbon combined with manure or green plants (approximately 4:1 by volume).
- **Microorganisms** - A few shovels full of rich garden soil or compost will supply these.
- **Air** - A compost pile should be turned periodically to promote decay of its contents. Turning the pile adds oxygen, so the more you turn it, the faster it breaks down.
- **Water** - The pile should have the moisture of a well-squeezed sponge. Add water as needed.
- **Time** - The finer the particle size, the more surface there is for microorganisms to work. Shredding leaves and larger materials generates compost faster.

If you can't use all of your yard debris as compost, make sure it gets recycled instead of going to the landfill. For more information on composting visit <https://www.oregonmetro.gov/tools-living/yard-and-garden/composting> or contact the Metro Recycling Information Center at (503) 234-3000.

Some things to think about

- If you have a lawn, do you use a push or mulching mower?
- Do you compost your excess clippings? Or leave them on the lawn?
- How do you encourage and protect the beneficial microorganisms in your soil?
- Do you use chemical pesticides, herbicides, or fertilizers on your soil or landscape?
- Do you compost your kitchen scraps?
- Do you add compost to your soil to aid in water infiltration?

4: Water conservation

The Pacific Northwest is well known for its abundant rainfall, so why do gardeners need to be concerned with water conservation? Unfortunately, during the wet months, much of the bountiful rainfall that could nourish the landscape is not absorbed into the soil where it lands. Instead, it falls onto our houses, sidewalks and streets, and then flows off into storm drains or other sewer infrastructure - eventually into our rivers and streams. Therefore, the wet season's rainfall doesn't get to soak in where it lands.

In Portland, our water predominantly comes from the Bull Run Reservoir. However, due to the reservoir's limited storage capacity, in the summertime we tap into our local aquifers as well. The summertime water-use is often two to three times greater than our winter water-use, so this heavy reliance on alternative water sources can have consequences for those sources. Water conservation is therefore important in order to ensure that both the reservoir and aquifer stay healthy and full.

Steps for conservation

When you naturescape, the ultimate goal is to create a landscape that, much like nature, sustains itself – needing little to no maintenance, water for irrigation (other than rain), chemical pesticides or chemical fertilizers.

The six steps listed below can help you create a water-efficient landscape. None of these steps are new or revolutionary, but when they are incorporated into one holistic method, the result is a unique landscaping approach that combines the necessary elements to achieve a beautiful and water efficient landscape.

1: Make a plan for your yard.

Your yard is made up of numerous microclimates (areas that have specific growing conditions) such as sun exposure, humidity, soil type and wind conditions. Different plants need different amounts of water, sun, shade, as well as different soil types and nutrients. Use the plant list in the **Appendix A** to help you select plants that are appropriate for your space. Understanding and designing your garden with these microclimates in mind will affect how well your plants grow and will help you save water. This way you can put the "Right Plant in the Right Place". (See **Chapter 8: A plan of action**, for more detail on how to create a landscape plan for your yard)

2: Understand and nurture your soil.

Understanding the basic characteristics of your soil is important not only to what you plant, but where you plant it (and if watering, which methods and how often you will water your landscape). Soils in this region are primarily clay loam or sandy loam.

Clay soils remain wet long after being soaked, which can cause rotting problems for some plants if the soil is kept too wet. Therefore, clay soils need water added slowly in short stints over a longer period of time. Adding organic soil amendments, such as compost, will help clay soils absorb more water, allowing you to shorten your irrigation time.

Sandy soils dry out quickly because they have such large air spaces. You may need to water plants in sandy soils for shorter periods of time but more frequently (depending on the plants' moisture needs of course). Adding organic soil amendments like compost will improve the water-holding capacity of sandy soils so you can water less frequently.

3: Use mulches to make your soil more water efficient.

Mulches come in two forms – organic and inorganic. Organic mulches include: aged manure, compost, bark or wood chips, hazelnut shells, etc. Organic mulches increase the soil's ability to store water by covering and cooling the soil thereby minimizing evaporation. Organic mulches also reduce erosion, help with weed control, and some even provide nutrients. Different kinds of mulch can also provide interesting landscape textures. Inorganic mulches include rocks and gravel products. Be aware that mulches such as gravel and river rock absorb the sun's heat and re-radiate it. This can increase the amount of water that surrounding plants will need to survive.

4: Use rainfall to water your landscape.

We can use the abundant rainfall to our advantage and have a stunning landscape using (almost exclusively) the water that falls from the sky! There are many ways to utilize the rain that falls on your property that will benefit your garden. See **Chapter 5** for more information. Disconnect your downspouts and create a rain garden in your landscape. Visit our website for more information on how to do this at www.emswcd.org.

5: Water wisely.

If you choose to water your garden, a well-planned watering system can help you avoid over-watering, which not only wastes water but can lead to plants developing diseases or even dying. Knowing how much water your plants need and periodically monitoring and adjusting your irrigation system are key to saving both water and money.

A few water-wise tips and tricks:

- Create watering zones in your landscape where the plants have the same general watering needs, allowing you to give each plant the water it needs – not too much, or too little. Watering zones help you avoid wasting water while reducing the amount of time and effort needed to maintain your garden. Place plants that need to be watered close to your living areas, and keep these areas small and manageable. Place the plants that require less maintenance (after establishment of course) on the outer edges.
- Water early in the morning when the air is calm, the temperature is cooler, and evaporation is minimal. Watering in the evening is next best, but water left standing on plants overnight can promote mold and disease.
- The amount you water should be based on soil conditions and plant needs. Watering thoroughly but infrequently will help roots go deeper, resulting in more water-efficient, drought-tolerant plants.
- You can test whether your plants need water by checking the soil on the surface and in the root zones of your plants. Push a screwdriver into the soil, dig a small hole, or use a soil-core sampler to determine if the soil is moist enough near the plant roots.
- Water applied by sprinkling or hand-spraying may never reach the plants' roots. Usually it is applied faster than the soil can absorb it, and it runs off or is lost to evaporation. This causes plants to develop shallow roots that are less drought-resistant. If you do choose to use a sprinkler, select one that sends large drops of water close to the ground instead of one that sprays a fine mist, which loses a lot of water through evaporation.

Don't water your sidewalk or driveway – they won't grow no matter how much you water them!

- Use a timer – they are inexpensive and easy to use. They can also save you time and money by allowing you to do something else while you are watering, and they will help you avoid accidentally leaving the water running.
- Drip systems or soaker hoses are great alternatives for trees, shrubs, perennials, and ground covers. Little or no water is lost to evaporation as the water is applied at ground level, near the plants' roots. There is some maintenance involved with drip systems, but overall they are much more efficient.

6: Keep up on the maintenance.

Water-efficient landscaping means paying attention. Routine maintenance such as pruning and pest management will keep your plants healthy and your landscape at its peak while saving water. If you have lawn, de-thatch (if needed) and aerate it annually to ensure that the roots are receiving the right amount of water.

Weeds compete with plants for nutrients, light, and water. Weed frequently by hoeing or pulling them by hand. A good layer of mulch, or planting more densely will help with weed suppression. Water and fertilize plants only as needed.

If using an irrigation system, check it regularly to make sure it is providing the right amount of water at the right place and at the right time, and inspect for leaks and broken pieces/components.

7: Grow a smarter lawn.

Grass requires more water and maintenance than many other plants. In your landscape plan you will want to evaluate your need for lawn areas to ensure these areas are practical and functional. If you find you must have some lawn, consider letting your turf "brown out" in the summer. Lawn goes into a natural dormancy during the summer and will return lush and green again with the fall rain. Plus you'll be surprised at the water, time and money savings! Look into some of the new grass varieties or grass alternatives that require less upkeep and watering than standard varieties. Turf areas need to be watered separately from other plant areas. An established lawn needs about 1 inch of water a week and more during hot, dry spells (see inset). Don't forget to

ONE INCH EXERCISE

To figure out how to measure 1 inch of water, follow these steps:

1. Set out 5 empty tuna or pet food cans (all the same size) at various spots, halfway between the sprinkler and the parts of the lawn that get the least amount of water from the sprinkler.
2. Turn on the sprinkler for exactly 15 minutes.
3. Measure the depth of the water in each can.
4. Add up the numbers and divide by 5 (the number of cans you've set out).
5. The result tells you the average water depth of all the cans.

Find your average water depth on the chart below, the column to the right of that number is the total weekly watering time needed from your sprinkler.

Average water depth 15 minutes	Number of minutes to water each week
1/8"	120
3/16"	80
1/4"	60
5/16"	46
3/8"	40
1/2"	30
5/8"	24
3/4"	20
1"	15
1 1/4"	12

adjust your watering schedule to compensate for changing weather conditions (rain, temperature, cloud cover etc.).

Water only as much as you need to. To see the weekly watering number (the amount of water in inches that lawn will need that week), visit **conserveh20.org**!

5: Stormwater

*Utilize this valuable resource and reduce pollution
at the same time!*

The Portland metro area gets an average of 37 inches of precipitation a year. This can turn out to be a valuable resource, or it can contribute to local pollution and flooding. Whether this stormwater becomes a solution or a problem depends on where it lands, how it is managed, and whether it becomes stormwater runoff. To visualize this, it may be helpful to consider these two scenarios:

First, imagine yourself standing at the edge of a forested meadow on a rainy day. The leaves of trees and other plants capture much of the rainfall before it hits the ground, which is then returned to the atmosphere via evapotranspiration. The rest lands on twigs, fallen leaves and other debris on the forest floor, then soaks into the soil where it slowly seeps deep underground, eventually recharging streams, wetlands and groundwater. In this spongy forested setting, very little rainfall (less than 1%) becomes stormwater runoff, except in very large storms.

Now, for the second scenario: imagine standing on a sidewalk outside of your favorite grocery store on that same rainy day. The scene is very different in this urban setting. Hard surfaces like buildings, sidewalks, roads and parking lots do not absorb rainfall. When rain falls on these impervious surfaces, it flows quickly and travels (often untreated) to local waterways. In this highly-paved urban setting, much more stormwater runoff is produced (approximately 30%) when compared to natural areas.

Stormwater Pollution

Stormwater runoff can carry dirt, chemicals, and other pollutants directly into local waterways, which is a major cause of stream pollution in urban areas. These pollutants come from a variety of sources, including landscape chemicals (fertilizers, pesticides, etc.), pet waste (bacteria), vehicles (oils, heavy metals, etc.), construction sites, illegal dumping, and spills.

In addition to carrying pollutants to local waterways, runoff can also cause local flooding and erosion when heavy storms produce more rain than the ground can absorb in a short time. All these combined factors harm fish, wildlife, people and properties.

WHAT IS STORMWATER AND STORMWATER RUNOFF?

Stormwater is just what it sounds like: rainwater produced by a storm. In fact, any precipitation that falls from the sky (rain, sleet, hail, snow) can become stormwater.

Stormwater runoff is the stormwater that falls on rooftops, roads, driveways, parking lots, and other hard surfaces that can't soak into the ground naturally and therefore runs off the property above ground as surface runoff or below ground in pipes.

NATURAL AREA

Stormwater runoff = <1%



Most rainfall is captured by trees and plants, or soaked up by the forest floor.

DEVELOPED URBAN AREA

Stormwater runoff = 30%



Most rainfall lands on hard surfaces, and flows untreated into waterways.

What can you do?

Soak it up! The simplest thing you can do to actively protect local waterways is to capture and absorb the rain that falls onto your property. There are many ways you can reduce stormwater runoff from your yard to improve the health of local waterways (also known as stormwater management.) Managing and retaining stormwater on site also helps recharge groundwater, which is used to supplement water supply during our long dry summers.

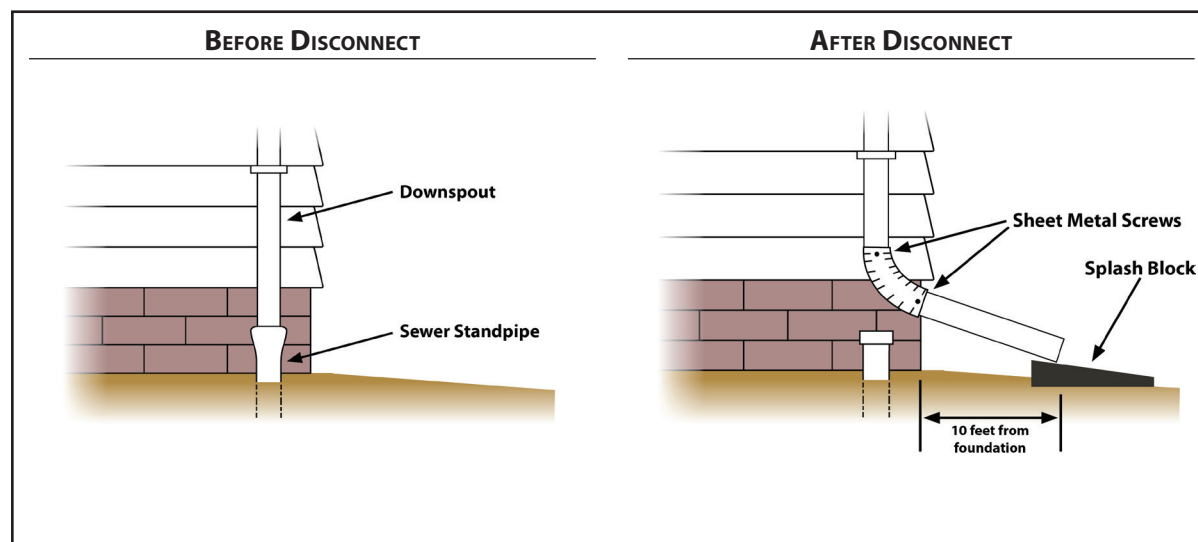
How do you do this?

Ask yourself: *Where does the rain go now, and how can I slow it down, or soak it up?* The rain that falls in urban areas generally gets carried from homes and businesses to local waterways via gutters and downspouts, then through a system of streets and underground pipes. Instead, you can use that water in your yard or garden!

Disconnecting your downspouts

Soaking up the rain that falls on your property also reduces the flow into local sewer pipes that are often over-loaded. When pipes within the sewer system are over-loaded with sewage and stormwater, they overflow into the nearest waterbody. This means that stormwater carries raw sewage right into our rivers and streams, without being filtered or treated. Preventing these overflows can protect the quality of rivers, streams, and groundwater. You can help by disconnecting your downspouts!

If you have a suitable site, disconnecting downspouts is a quick and easy way to prevent stormwater runoff from overloading the stormwater-sewer system. It involves detaching your gutter downspouts from the standpipe (usually located at the lowest corner/edge of a home or business) that leads to the sewer main-pipe. You then connect a gutter extension to divert the water onto your landscape or better yet, into a rain garden.



Disconnecting downspouts can be a low-maintenance option to help move water away from a house or building foundation and allow it to soak into the ground. Disconnecting from its underground connection is quite simple and (once the materials are obtained) usually takes less than an hour. Visit www.emswcd.org for step-by-step instructions. Please also see safety considerations in **Appendix F**.

BEFORE YOU DISCONNECT YOUR DOWNSPOUTS

1. Determine where they currently discharge.

Knowing where your roof runoff currently goes may influence what you decide to do with the water. City plumbing or building records generally include that information. Contact your local jurisdiction or city stormwater division to inquire about your best options for making use of your roof runoff.

2. Not all yard drainage situations are suitable for downspout disconnection.

For example, if you live in an area with steep slopes (10% or more) or impermeable (heavy clay) soils, it may not be advisable to disconnect or install a rain garden.

It's always best to contact your local jurisdiction before you disconnecting your downspouts.

Once your downspouts are disconnected, there are many options for you to utilize that rain water. The system you choose can be as simple or complex as you like.

3. Direct downspouts to your landscape

If you have enough space in your yard, and the ground slopes away from your house, you may decide to simply discharge your downspouts onto your landscape. This can be done by installing a simple downspout extension to redirect runoff into your yard without changing the surrounding landscape.

4. Rain gardens

If you have disconnected your downspouts and you have enough area with proper drainage, consider installing a rain garden. A rain garden is a "sunken garden bed" that collects runoff from rooftops, driveways, sidewalks, parking lots and other impervious surfaces. They are typically planted with hardy, native perennials (such as Slough sedge, Dagger-leaf rush, Western fescue, Oregon iris, Pacific ninebark, etc.) that absorb water and filter out pollutants.

Rain gardens are an easy, affordable and beautiful way to help protect local waterways from flooding and pollution because they capture stormwater and allow it to soak into the ground naturally rather than running off into streams and rivers. Rain gardens:

- Add beauty to your yard
- Keep stormwater from running off your property and contributing to pollution
- Improve drainage and prevent minor flooding
- Filter toxins from stormwater before they pollute waterways
- Recharge groundwater aquifers by letting water to soak into the ground
- Provide habitat for pollinators, butterflies and songbirds



When considering a rain garden, the first thing to do is to conduct a percolation test to determine if your yard has proper drainage. If you have proper drainage and plan to install a rain garden, attend an EMSWCD Rain Garden workshop! You will learn how to determine the best location and size, calculate impervious surfaces, choose appropriate plants and get step-by-step instructions for how to build your new rain garden. Visit www.emswcd.org to learn more.

HOW TO DO A PERCOLATION TEST

1. Dig a hole at least 12" deep.
2. Fill it with water and let it drain.
3. Fill it with water a second time.
If the water drains at least ½' in one hour, your soil has adequate drainage for a rain garden.

5. **Water catchment: cisterns and rain barrels**

In the Pacific Northwest where we experience wet winters and extended dry periods in the summer, larger catchment systems like cisterns (5,000 gallon or larger) are a far more effective water conservation method than rain barrels.

A single rain barrel can satisfy some of your watering needs (such as window boxes or very small garden patches), as long as it gets refilled with the next rainfall. However, your first summertime watering may empty an entire 55-gallon rain barrel – leaving it empty much of the summer when it is driest and irrigation is needed most. Before installing a rain barrel, you may want to consider the following:

- The Willamette Valley receives such regular rainfall it may not be necessary to water your yard. This is especially the case if the yard is planted with native plants.
- When planted in the right spot (and once they are established), most native plants don't need irrigation - even in the summer.
- During extended dry summer periods, a single 55-gallon rain barrel of stored water will not be a significant contribution to your watering requirements if using it to water a vegetable garden.

- ***Do you have the space to store multiple rain-barrels?***

A 1" rainstorm falling on a 1000 sq. ft home produces 623 gallons of water. That is equal to over ten 55-gallon rain barrels – from just one moderate storm on a very modest-sized house. (Larger homes and/or bigger storms will produce even more run-off, and therefore require even more rain barrels!)

- Any water catchment system ***absolutely*** needs an overflow mechanism that allows the excess water to flow away from the building safely and effectively, and a debris filter that allows leaves etc. to flow out of the downspout but not into the barrel or cistern.

If you are interested in some sort of water catchment system, it is worth your while to consider a larger (5,000 gallon or larger) cistern-style catchment system that has capacity to capture enough rainfall that will sustain your watering needs through the dry season.

If disconnecting downspouts is not for you, there are still many other simple things you can do in your yard to help minimize the impact of urban stormwater pollution.

- **Depave!**

Removing pavement and concrete pathways, patios or unused areas of your driveway that don't get used often can have a big impact on stormwater management. Do you have other impervious areas that are unnecessary? If so, replace it! You can create a pathway with gravel

and/or pavers. You might opt to beautify that area by amending the soil and adding native plants. If you cannot remove an impervious surface, you can still create a planting area and capture and clean rainwater by installing raised beds.

- **Amend soil with compost**

If you have heavy clay soils, even landscaped/vegetated areas can get so compacted that they generate almost as much runoff as impervious surfaces. If you have sandy or rocky soil, you may be losing water too quickly. Adding organic matter improves soil structure, drainage and infiltration. Soil that is high in organic matter can absorb and hold water better. It also allows plants to develop deep roots that can soak up more stormwater. Compost is the most common and effective form of organic matter.

- **Install trees and native plants**

Mimic nature by planting a variety of native trees, shrubs and groundcovers. (*Refer to page 30 in Chapter 8 for a list of native plants that are suitable for a variety of conditions.*) Having multiple layers (heights) of vegetation captures and uses some of the rainfall before it even hits the ground. A diversity of plant sizes and types means there are varying depths and types of underground root systems, which loosen the soil and increase absorption, while also preventing erosion much more effectively than roots of a single type. Native plants are a great choice because they are naturally adapted to our dry summers, wet winters, and local pests and diseases so they thrive without chemicals or extra fertilizers. Be sure to put the right plant in the right place.

- **Replace lawn with naturescaping**

If you have lawn that isn't used much, you might consider converting it to something with more ecological benefit. Removing lawn doesn't have to be back-breaking either - you can sheet-mulch it! Sheet mulching is the process of placing layers of cardboard or newspaper and mulch over your lawn. These layers prevent light from reaching the grass, which helps it to die back. Bugs and other beneficial micro-organisms also break down the organic matter, creating healthier soil for future plantings. Visit www.emswcd.org to learn more!

- **Explore lawn alternatives**

Groundcovers and other lawn alternatives can be more functional, less demanding, and add beauty to your yard. Plus, they provide habitat for birds, beneficial insects and small mammals. Start with areas where lawn is tough to grow or hard to mow, and continue from there.

For areas with minimal foot traffic, consider wildflower-grass mixes (also known as "eco-lawns"). They still have the appeal of an all-grass lawn, but require less mowing (once every 3 weeks!), and stay green with just a third to a fourth the amount of water needed to keep an all-grass lawn green. While varieties vary, most include clover, yarrow, daisy and perennial grasses.

If you want to quit mowing all together, consider these low-growing groundcovers that spread easily and over time, will form a lovely, undulating blanket where your lawn used to be.

- Kinnikinnick: This low-growing groundcover forms a thick mat of shiny leaves that stay green all year. Its red berries last into the winter when other food for birds is scarce.
- Coastal strawberry: This low-maintenance groundcover is known for its dark, glossy green leaves, and long red runners that send down new roots as it spreads quickly to form a lush, textured surface.

- Wild thyme, Heather and Chamomile: These are great choices if you are looking for an even lower-growing option that offer a more delicate, almost spongy-looking effect.

- **Organic lawn care**

If you have lawn, consider these organic lawn care tips to help keep harmful products away from people, pets and streams:

- Go chemical free. Lawn chemicals often make their way to storm drains, introducing toxins to rivers and streams.
- Use tools, not toxics. Replacing toxic chemicals with compost, organic fertilizers and hand tools makes for a safer yard and healthier waterways.
- Mow high and often with a push mower. Leave grass clippings on the lawn as a natural fertilizer.
- Let your lawn go brown in the summer. It does not die and will green up again when it rains.
- Don't blow it! Using leaf blowers on soil surfaces creates bare and compacted soil which increases runoff. Instead, leave the grass clippings. They decompose quickly and fertilize your plants!

If you don't have a yard that you are able to modify, there are still ways to help minimize pollution from stormwater runoff:

- **Cars:**

- Wash car at carwash or on the lawn instead of the driveway.
- Keep vehicle maintained and check for leaks regularly.
- Recycle motor oil.
- Drive slower – Breaking aggressively releases toxic brake dust and tire fragments onto the street.
- Drive less! Walk, bike, carpool or use public transit.

- **Storm drains:** Never dump anything down storm drains. Ever.

- **Household:** Use water friendly cleaners, soaps, and beauty products.

- **Pets:** Pick up after pets, in your own yard, on walks, at parks... everywhere!

- **Household debris, trash and large item disposal:** Furniture, carpets and other large household items are often manufactured with fire retardants or contain heavy metals. Dispose of them properly - never dump them in natural areas!

STORMWATER RUNOFF

- Where does the water from your roof drains go?
 - Yard?
 - Street?
 - Dry Well?
 - Other?
- Where does the runoff from the driveway go?
- Do you have a system to store stormwater for reuse?
- Do you have patios, decks, sidewalks or other impervious (water runs off rather than soaking in) areas? Where does the runoff from these areas go?
- Does your yard have slopes or varying elevations? Where does the runoff from the yard go?
- What do you do with pet waste?
- What are your soil types?
- Do you have existing problems with erosion?
- Does a stream run through or adjacent to your property?
- Where and how often do you wash your vehicles? Where does the soapy water go?
- Does your yard receive runoff from an adjacent yard, driveway or street?

6: Wildlife habitat

One of the most enjoyable benefits of any naturescaping project is creating wildlife habitat. A yard full of birds, butterflies and other busy insects is a pleasant place to be or to just watch through your window. Certain species even prey on pests and help keep your yard and garden healthy. To begin, your naturescaped area needs to contain all of the features wildlife need: water, food, shelter and space.

Water

Of all the features of naturescaping, the one that most reliably attracts wildlife is water. Open, clean water is an increasingly rare resource in urban environments. Something as simple as a plant saucer, refreshed every 3-5 days with clean water, will attract a variety of interesting birds. More sophisticated water sources can be constructed including ponds and recirculating streams. The sound of running water such as a fountain, or even a drip watering system, will help wildlife find your naturescape. Be sure to provide shallow areas with nonslip bottoms for birds to bathe and drink, and some areas of wet mud and exposed rocks so butterflies and pollinators can sip safely.

Be aware: mosquitoes can complete their life-cycle from egg to adult in 7-10 days! Minimize mosquitoes and prevent the spread of diseases such as West Nile Virus by keeping water moving or replacing the water every 3-5 days.

Food

Bird feeders and hummingbird feeders are good ways to attract birds to your naturescaped yard, but it is better to provide wildlife with naturally growing sources of seeds, berries, and nectar. Plants that attract the insects that birds like to eat are also a good way to provide food.

GREAT PLANTS FOR WILDLIFE*					
Trees	Cascara	Western Red Cedar	Pacific Crabapple	White Oak	Red Alder
	Grand Fir	Incense Cedar	Red-osier Dogwood	Birch	Hazelnut
	Noble Fir	Western Hemlock	Elderberry	Western White Pine	
	Douglas Fir	Black Hawthorn	Bigleaf Maple	Shore Pine	
Shrubs	Oceanspray	Native Roses	Mockorange	Serviceberry	Lilac
	Blueberry	(Baldhip, Nootka, and Woods' rose)	Oregon Grape	Douglas Spiraea	Salal
	Huckleberry		Snowberry		Red-flowering Currant
	Pacific Ninebark				
Ground Covers	Kinnickinnick	Bunchberry	Wild Strawberry	Oregon Oxalis	Bleeding Heart
Flowers	Penstemon	Fuschia	Lupine	Cardinal Flower	Goldenrod
	Columbine	Poppy	Sunflower	Oregon Iris	Pearly Everlasting
	Rose Checkermallow	Yarrow	Black-eyed Susan	Douglas Aster	Camas
	Sweet Alyssum				
Herbs	Thyme	Rosemary	Sage	Chives	Lavender
*Native and appropriate non-native species					

Cover and shelter

Birds and other creatures require protection from predators, the weather, and places to nest and raise their young. Provide some dense evergreen trees, native shrubs, and nesting boxes designed for particular species. It is also important to provide nesting materials such as soft, dried plant material and even bits of string or hair. (It has been noted that birds prefer dog or human hair over cat hair.) It can be very entertaining to watch birds gather nesting material from around your naturesscaped yard. Observe what they use and be sure to provide more next year.

At the end of the growing season, don't be too thorough about cleaning up flower beds (unless you have disease or pest problems). Leave some soft, dried plant stalks for birds and beneficial insects.

Space

In addition to a place to hide and nest, animals need space to live undisturbed. Hunting and foraging areas are important as well as places to raise young. Consider leaving part of your yard secl. Think about starting a community project to create larger areas of wildlife habitat, in a group of yards, or on commercial or public property.

In small yards, you might not have room to provide much habitat diversity. Look around at what is available for wildlife in neighboring yards; then try to supply what is lacking.

Other visitors

Birds are the creatures you are most likely to see in your yard, but other wild creatures can also be attracted and provided for in a naturesscaped area.

Bats are useful neighbors to have. Most eat insects and one bat can consume as many as 2,000 mosquito-sized insects in one night (and they won't bite you or get tangled in your hair). Bat boxes can be constructed or purchased to provide roosting and rearing space for bats. Detailed information on bats and bat boxes can be obtained from Bat Conservation International (see **Appendix C: Resources**).

Amphibians such as salamanders, newts and frogs are declining in large numbers worldwide, so providing pond or marsh habitat for them in your naturesscaping plan can be very important.

Dealing with predators

One caution about inviting wildlife into your backyard: you will also be bringing in other natural activities such as predation. Animals naturally eat one another, of course, but when the meal is a creature that you have painstakingly lured to your backyard, the results can be unpleasant. One naturesscaper stocked her small pond with goldfish, and visiting raccoons ate half of them that same night. When she provided shelter using a turned over milk crate held down by a heavy rock, the fish found safe cover from predators.

Cats are the most prevalent predator in your urban wildlife preserve. There are an estimated 73 million cats in the United States and as many as 750,000 in the six county service area of the Oregon Humane Society. They are natural hunters, and the cumulative effect on bird and small mammal populations is devastating. It is difficult to reason with a cat, so it is up to you to find or invent ways to discourage them from hunting in your and your neighbors' yards. Start by making sure bird feeders and nesting boxes are inaccessible by mounting them on metal poles or wrapping wooden poles and trees with metal collars. Birdbaths should be located within a few feet of overhead branches to which the birds can escape quickly (they can't fly very well when wet).

The Backyard Habitat Certification Program provides technical assistance, discounts, encouragement and recognition to people that want to create natural, low-maintenance gardens that support people, wildlife and the planet.

Surround your birdbath with Oregon grape – cats avoid the prickly leaves.

Providing Wildlife Habitat

- Are you interested in creating backyard wildlife habitat?
- Are your neighbors interested in wildlife habitat?
- What wildlife have you seen in your yard?
- Are you aware of any wildlife that already nests in your yard?
- What shrubs, trees, flowers, birds, mammals, or insects do you want in your yard?
- What shrubs, trees, flowers, birds, mammals, or insects do you not want in your yard?
- Are there any water features in your yard?
- Is there any dead woody material for shelter (logs, snags, or stumps)?
- Are there any rock walls or brush piles for shelter?
- Are there any trees?
- Are there existing plants that produce seeds and berries?
- Are there existing plants that provide year-round shelter?
- Is there a diversity of plant species?
- Is there a diversity of plant heights and textures?
- What plants and habitats are available on adjacent property?
- Do you have supplemental feeders or nesting boxes for wildlife?
- How often do you change stagnant water of a pond or bird bath?

7: Weeds and other pests

Alternatives to chemicals

Gardens and lawns can be successfully maintained without the use of harmful pesticides and other chemicals. Keeping these products off our lawns and out of our gardens helps keep rivers, streams, people, pets, fish and other wildlife healthy.

3-step approach to solving pest and disease problems

Step 1. Prevention

Create a healthy soil environment for your plants. Pests and diseases often attack stressed or unhealthy plants. Planting the right plant in the right place and caring for it properly will often prevent problems from the beginning.

Tip: Over-watering is the most common cause of plant stress and disease.

Step 2. Problem identification

If pests or diseases crop up, identify them. Most insects are harmless and many are beneficial. Don't make a mistake and kill or injure a friend. For help with identification contact your local OSU Extension Service, Metro, Northwest Center for Alternatives to Pesticides (NCAP), or natural garden store.

Once you have determined that you indeed have a pest, you should next examine your tolerance level. Even "pest" species can be relatively harmless in small numbers. How many and what kind of pests will you tolerate? Keep in mind that small populations of pests in our landscapes or neighboring landscapes help us build populations of the beneficial insects that eat them. You may consider planting a sacrifice plant or area that you "let go" to the pests.

Step 3. Controlling populations

Try the safest methods first. See if you can use traps or barriers to discourage the pests. Sometimes even physical removal (handpicking) can be possible and effective.

Biological helpers: The next step is to take advantage of bacteria, parasites, or other natural predators such as nematodes or parasitic wasps to control the pests. An example of this would be using ladybugs to control aphids. Spiders are also useful for pest control, as are birds, bats and dragonflies. Many wasps are also beneficial and are quite skilled at devouring pests.

Organic pest controls: There are many new products out on the market today – see **Appendix C: Resources**, or consult organic gardening specialists or publications.

Least-toxic chemical controls: If none of the above methods work, find the least-toxic product available for the specific problem that will reduce the unwanted insects, plants, or diseases to acceptable levels. It is also important to apply the product at the right time in the pest's life cycle. Apply it carefully, **following the directions to the letter**.

Invasive plants

Invasive plants pose a serious threat here in Northwest Oregon. Our mild climate enables plants from throughout the world to thrive. Without the checks and balances they would encounter in their native ecosystems, aggressive plants thrive at the expense of everything around them.

A single species can take over and alter an entire forest, wetland, or grassland. Infestations can alter the ecosystem by:

- Allowing erosion and/or flooding – some invasives have fewer or shallower root systems that doesn't hold onto soils as well.
- Increasing the amount and/or temperature of fires – some plants contain oils that cause them to burn hotter and catch fire more easily.
- Changing soil chemistry – some invasive plants release chemicals from their roots that inhibit the growth of other plants.
- Reducing wildlife – migratory birds recognize the flowering and fruiting cycles of many native trees and shrubs. Some invasive plants may alter that migration.
- And many other serious problems.

Some plants do so well here they threaten to overrun many of our gardens and natural spaces. As a result, some individual homeowners, non-profit groups and government agencies have turned to toxic chemicals in an attempt to slow their rapid spread in our natural areas.

Hints to Avoid Planting Potential Weeds

Help minimize this serious problem by refusing to purchase and plant those species of plants known to be aggressive and invasive. Know before you go – find out what species are known to be weedy or aggressive before you go to the nursery to pick out plants. Choosing plants that are aggressive or weedy means you have to work harder in your garden, and it may put you in a position where you are contributing to this growing problem within our communities. (See the **Appendix C: Resources** section in the back of this book for places to find weed lists and info.)

Take particular care when buying or planting mixtures of seeds, especially wildflowers mixes (even those distributed by nonprofit groups as thank-you gifts). Many mixes contain seeds of invasive plants and many are mislabeled or too poorly labeled to tell.

- Be particularly careful if you live near wild areas, parks, open spaces, streams, or bodies of water that could be invaded by things you plant in your garden or fish pond.
- Identify any plants that “show up” in your yard.
- When getting a plant from a friend or plant swap, be sure to positively identify it and make sure it is not on the nuisance plant list (see **Appendix D**). Unfortunately, many plants received in this manner are plants that spread quickly or “just appeared” in the gifter’s yard. Don’t let people pass their problems to you even if they are beautiful at first glance!

WILL IT BECOME INVASIVE?

With the variety of plants available and continually changing, it's difficult for any agency to be aware of the numerous plants that **could become** invasive in our area. Here are some tips to help you.

If there is a particular non-native plant you're interested in growing, be wary if the plant:

1. Produces very large amounts of water or wind-borne seeds
2. Provides berries for wildlife, which might spread the plant to other areas
3. Is unusually pest- and weather-resistant
4. Tends to shade out neighboring plants or out-compete them for food and water
5. Spreads quickly by runners, underground roots, or plant fragments

8: A plan of action

Native plants and trees are an important part of a naturescaping project. The natural beauty of the Pacific Northwest is hard to beat, and by using local plants in your yard you can bring a bit of that nature into the city. As mentioned in previous chapters, plants that are native to the Northwest are naturally adapted to our unusual climate of wet, mild winters and dry summers. When placed in an appropriate location (right plant, right place), they will be healthy enough to resist pests and diseases that would attack a stressed plant. This natural adaptation allows you to use much less supplemental water (once the plant is established) during the warmer, dryer months, and helps you to eliminate your use of chemical pesticides and fertilizers.

This bit of nature in the city can be enhanced even further by choosing native plants that attract birds and other creatures that prey on insect pests. A mosquito control agent that swoops through the evening light is certainly preferable to one that comes from a spray can.

Native Plants: Trees, shrubs or herbs that grow naturally in the local region. They have evolved to thrive in local conditions and are naturally resistant to native pests and diseases. Our native plants region is the Willamette Valley.

It is also important to choose plants that are appropriate for specific locations. Even a native plant, if it has adapted to a sunny wet meadow, will do poorly if planted in a wet, shady spot. Examine your own space and identify areas that are sunny or shady and wet or dry, and then determine which plants will do well in those areas. On the following page you will find some favorite Northwest varieties. See **Appendix A: Native Plant Selection Guide** for a more detailed list of local native plants. Refer to **Appendix C: Resources** for local sources of native plants.

SIX STEPS TO A NATURESCAPED YARD

After reading this far and perhaps consulting some other references, it's time to get started. We suggest you approach your project following these six steps.

1. Map the area to be naturescaped.

Make this map as detailed and accurate as you can, but don't get lost in the inches. Take note of all of the features of your property that will affect your plan, such as your house and garage, driveway, windows, doors, walks and decks, walls, fences, trash and recycling containers, faucets, electrical outlets, and utilities. Mark the slopes, open sunny areas, wet areas where water collects, dry areas under dense trees, areas of unusual soil or rocks, and other features that might affect your plan. Watch your yard through a sunny day and make note of areas that are in full or partial sun all day, or in perpetual shade. Keep in mind the season and try to imagine what it would look like in the light of a different season (with or without leaves on the trees, for example). Also consider anything else that might have an influence on your yard, such as a neighbor's large trees. Finally, don't forget to indicate north to help determine the path of the sun and the direction of the prevailing winds. See the checklist and sample maps at the end of this chapter.

2. Sketch your ideas.

Here's the fun part. Let your imagination run wild with what your ideal naturescaped yard would be, then temper it by figuring out what will work (right plant, right place) and what you can afford in time, energy and money. Use tracing paper on top of your map of existing conditions, and place your features and plants based on what you have learned through researching the needs, benefits, eventual sizes, and availability of different species (see **Appendix C: Resources** section at the end of this workbook, if you haven't already). Think about what your purpose for

naturescaping is: do you want wildlife, a flower garden, a forest scene, fall color, just a low-maintenance yard, or some of each? Don't be afraid to try different ideas.

Examples of Native Plants for Specific Micro-Climates

Wetlands or Riparian	HERBS: Blue-Eyed Grass Camas Tufted Hairgrass Slough Sedge Dagger-Leaf Rush Western Coltsfoot Wapato	SHRUBS: Red-Osier Dogwood Pacific Ninebark Twinberry Douglas Spiraea	TREES: Bigleaf Maple Red Alder Oregon Ash Cottonwood Columbia Willow Scouler's Willow Red Cedar Red Elderberry Birch
Prairie or Meadow	HERBS: Pearly Everlasting Balsamroot Blue Wildrye Camas	Shooting Star California Fescue Oregon Iris Lupine species	Cinquefoil Self-Heal Grass Widow
Sunny Border or Rock Garden	HERBS: Red Columbine Kinnickinnick Oregon Sunshine	Broad Leaf Penstemon Rock Penstemon	Sedum Madrone
Shade Garden	HERBS: Goat's Beard Wild Ginger Deer Fern Bleeding Heart Oxalis Sword Fern False Solomon Seal Piggyback Plant Inside-Out Flower	SHRUBS: Serviceberry Salal Osoberry Snowberry Baldhip Rose Red Elderberry Evergreen Huckleberry Red Huckleberry	TREES: Vine Maple Douglas Fir Cascara Western Hemlock Pacific Yew Birch
Hedgerow or Shrub Border	SHRUBS: Serviceberry Oceanspray Oregon Grape Indian Plum Black Hawthorn	Pacific Ninebark Red Flowering Currant Western Azalea Baldhip Rose Nootka Rose	Blue Elderberry Snowberry Salal Mock Orange

Please see **Appendix A** for more plants.

Consider the following features for your yard:

Swales: These are rocky, grassy, or otherwise vegetated ditches that are constructed to move water from one place to another while allowing the water to soak into soil. Swales can flow to ponds, wet areas or rain gardens.

Snags, logs and downed woody material: This material is very useful to wildlife for nesting, roosting and foraging for insects. Large decaying logs retain moisture through dry periods for creatures that need it. Carefully placed logs and sticks can also prevent erosion. Keep woody debris at least 20 feet from your house to keep pests away.

Ground cover: This can be a low-maintenance alternative to lawn in many places.

Rock gardens, walls or terraces: These can be beautiful ways to utilize the rain and reduce runoff and erosion from a sloped area.

Ponds: Lined or unlined areas where there is standing water. Make sure the surface of the water is flowing or agitated, or replace the water every 3-5 days so mosquitoes won't breed in the pond.

Rain gardens: These are unlined, vegetated depressions used to collect rainwater. The water soaks into the ground within one or two days after a rainstorm.

Water features: Birdbaths, ponds, wetlands or recirculating streams can be the focal point of your yard, for you and wildlife.

Water zoning: This is a way to group plants together that need similar amounts of water. You can water more precisely and reduce waste and runoff. Another example of "right plant, right place."

Downspout disconnection: This is a good way to use the rainwater from your roof to water your landscape, if appropriate and permitted, in your area. (See **Chapter 5** more information)

Cisterns: Consider reuse of stormwater. Larger cisterns allow you to capture and use roof stormwater in your yard.

Trees: Plant new trees and plan carefully where they should be placed. Again, native species planted in areas similar to their natural sites (for example: willows in wet areas, firs and hemlocks in drier areas, and pines in the driest, well-drained soils) will do well after they get established without much additional care.

For example, once fir trees have established they almost never need additional water, even in our driest summers. You might also consider choosing trees that produce seeds or berries attractive to wildlife, such as Oregon white oak, crabapple, cascara, osoberry and black hawthorne. Use the following guidelines to place your new trees in the most advantageous locations:

- Use deciduous trees on south and west sides of your home. They will shade your house in the summer, and then lose their leaves in the winter to let the warming sun through.
- Place evergreen trees on the north or east side, to act as a wind break in the winter.
- Place a small tree or shrub to shade the air conditioner to help it to work more efficiently.

- Consider the size of the mature tree or shrub and plant it a sufficient distance from any overhead wires, structure, or paved area.
- Consider your view and the views of your neighbors.
- Consider security: don't place trees or shrubs where they provide hiding places for burglars, provide access to windows, or obscure the view of your windows and doors.

3. Laws, rules and general courtesy.

If you plan to make any major changes to your property (construct a large building, build a retaining wall, change fencing, or plant tall hedges), check with your local zoning or building authorities. Consult with them about specifications for rerouting your downspouts. If you live in an HOA you will want to consult with them as well. And lastly, be sure to check with your neighbors if they will be affected by your naturescaping activities.

4. Create your naturescape.

Now it's time to turn your dreams into reality! But before you get your hands dirty it's a good idea to do some planning at this stage, too. Don't forget that this can be a big project, and it will probably turn out to be bigger than you expect. If you decide not to do this project yourself, there are many qualified landscape architects, designers and contractors who can help with all or part of your project.

- Plan the job in stages. Do a little bit at a time so that you can get one satisfying part of it done before starting on the next phase. Consider the best time of year to do different aspects of the project.
- Prioritize each stage. Start with large features such as paths, ponds, and streams. Next, complete the ground preparation, then plant large trees and shrubs, followed by flowers and smaller plants.
- Try to imagine what your landscape will look like in a year, five years or even twenty years, and plan accordingly.
- Prepare your soil carefully. Determine your soil type and add the appropriate organic amendments (such as compost or mulch) to give your plants a healthy start.
- **Call before you dig!** Before you dig large holes for trees, rain gardens or ponds, call the Utility Notification Center. Open 24 hours a day, they accept calls from anyone planning to dig. They will come to your home free of charge to locate underground lines. This prevents damage to underground facilities, service interruptions and bodily injury. It's also the law. Call 811 or visit www.callbeforeyoudig.org.
- Erosion prevention is another important reason to naturescape a little bit at a time. Take precautions like covering soil piles with a tarp to prevent and control erosion during construction.
- Carefully choose environmentally-friendly products and methods.
- Even with all of this planning, don't be afraid to change your mind and try something a little different. This is a natural landscape that develops over time. Many shrubs and flowers are easy to transplant to new locations while still young (< 2-3 years).
- Make a chart of your progress and plans so you can keep track of what you have accomplished as well as what you have yet to do. Before and after photographs are also a satisfying way to record and share your accomplishments. EMSWCD is always looking

for good before and after examples of naturescaping. Please share your photographs with us!

5. Nurture your Naturescape.

There will be some work to do, especially at first. Watering, mulching, pruning and weeding will need to be done regularly until the naturescape is well established. Continued maintenance will be required to repel invaders and nourish soil that has been abused for years. Water features such as ponds and streams will have to be maintained and cleaned. Feeders will need to be filled and cleaned, and nest boxes need to be cleared out for the next tenant. However, these activities allow you to be out in your beautiful new naturescape – right where you want to be!

6. Enjoy!

Watch the butterflies, listen to the birds, and mark the passage of the seasons in your slice of nature. Watch the flowers open and the leaves turn. Keep a chart of birds that you see. A handy checklist is included in **Appendix B: Backyard wildlife checklist**; tape it to the wall or keep it on a clipboard near your binoculars.

Another source of pleasure is the thought of how your backyard is helping to create a healthy community for all! Your naturescape is reducing energy use, water use, stormwater runoff, erosion, solid waste and air pollution, as well as providing space for living things of all kinds. Congratulations! You have become a steward of your watershed.

As part of this stewardship, it is hoped that you will share your naturescaped yard with your friends and neighbors, and encourage them to turn at least a corner of their yard into another small haven for wild things. Provide them with information about how to attend a naturescaping workshop.

CHECKLIST FOR PLANNING YOUR NATURESCAPING PROJECT

Gathering this information beforehand will help you plan your project. Use this list and the example plan maps in this section to help guide you.

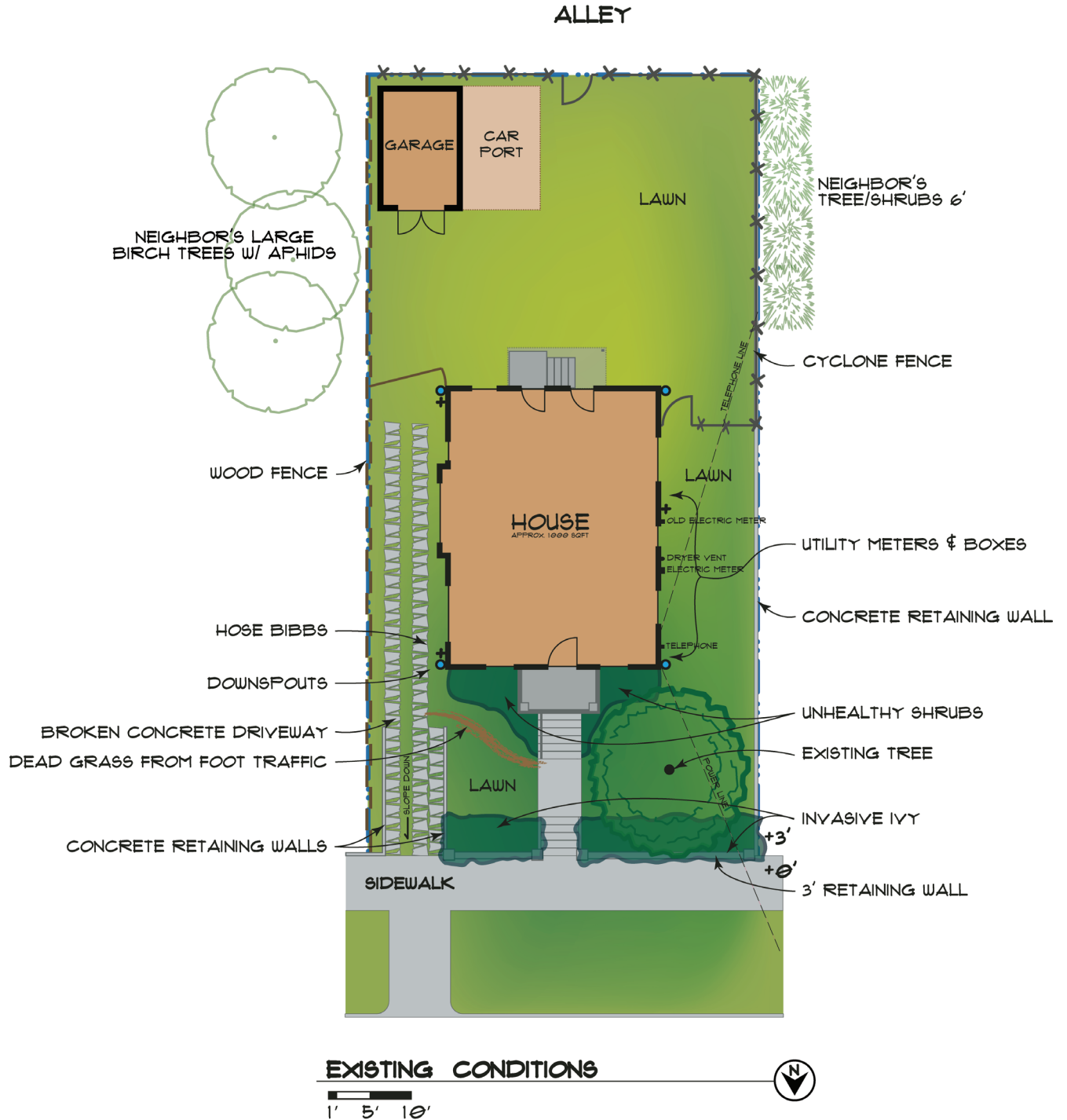
- How large is your lot? Your house?
- Are there other existing fences, buildings or structures?
- Where are the utilities?
 - Electric
 - Telephone
 - Cable
 - Sewer
 - Gas
 - Water
 - Oil tank
 - Septic tank/
drainfield
- Are there any easements across your property?
- Is there an existing irrigation system? Where?
- Which part of the yard gets the most sun? How many hours?
- Which part of the yard gets the most shade? How many hours?
- Are there areas that are exceptionally dry?
- Are there areas where water tends to puddle up and drain slowly?
- Are there areas of bare soil?
- Are there any steep slopes?
- Do you have any problems with erosion?

- What is the direction of the prevailing winds?
- Are there any windbreaks (trees, walls, hedges)?
- Where do you store your garbage cans and recycling bins?
- Do you have children? Or grandchildren that will visit?
- Do you have pets that will use the yard?
- Will anyone with limited ability be using the yard?
- What do you like best about your yard now? And least?
- What are your goals for your naturescaping?
 - More shade
 - More color
 - More wildlife
 - Less maintenance
 - More native plants
 - Fewer chemicals
 - Others _____

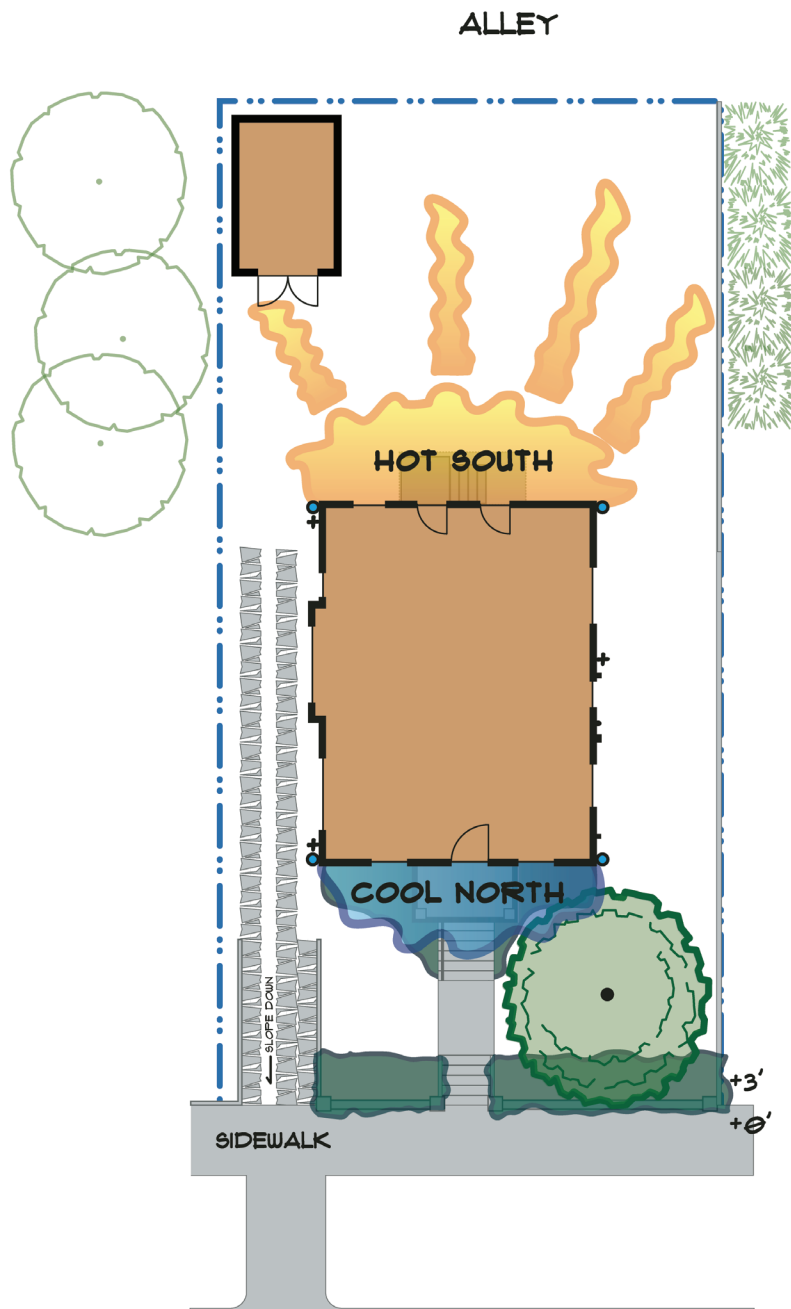
- Does anyone in the household have allergies to consider?
- How many hours per week would you like to work in your yard?
- How many hours per week do you work in your yard now?
- How much money do you want to spend on your yard (including maintenance)?
- Are you home year-round?
- Do you want to use the yard year-round or only in one season?
- Do you, or do you want to, use your yard for entertaining?
- Do you have, or do you want, a vegetable garden?
- Do you need storage structures or space?
- Do you need a noise barrier?
- Is there a view you would like to protect? Or one that you'd like to block?
- Does your property include a river, lake or stream?
- Are there neighborhood restrictions or covenants to follow?
- Are there barrier plants to deter burglars from entering windows?
- Are there plants that could conceal burglars while entering doors or windows?
- Are there trees or trellises that could provide access to upstairs windows?
- Are there plants or materials near the house that could be a fire danger?
- Are pools and ponds adequately fenced for safety?

Sample plans to help you visualize the process

EXISTING CONDITIONS



EXPOSURE

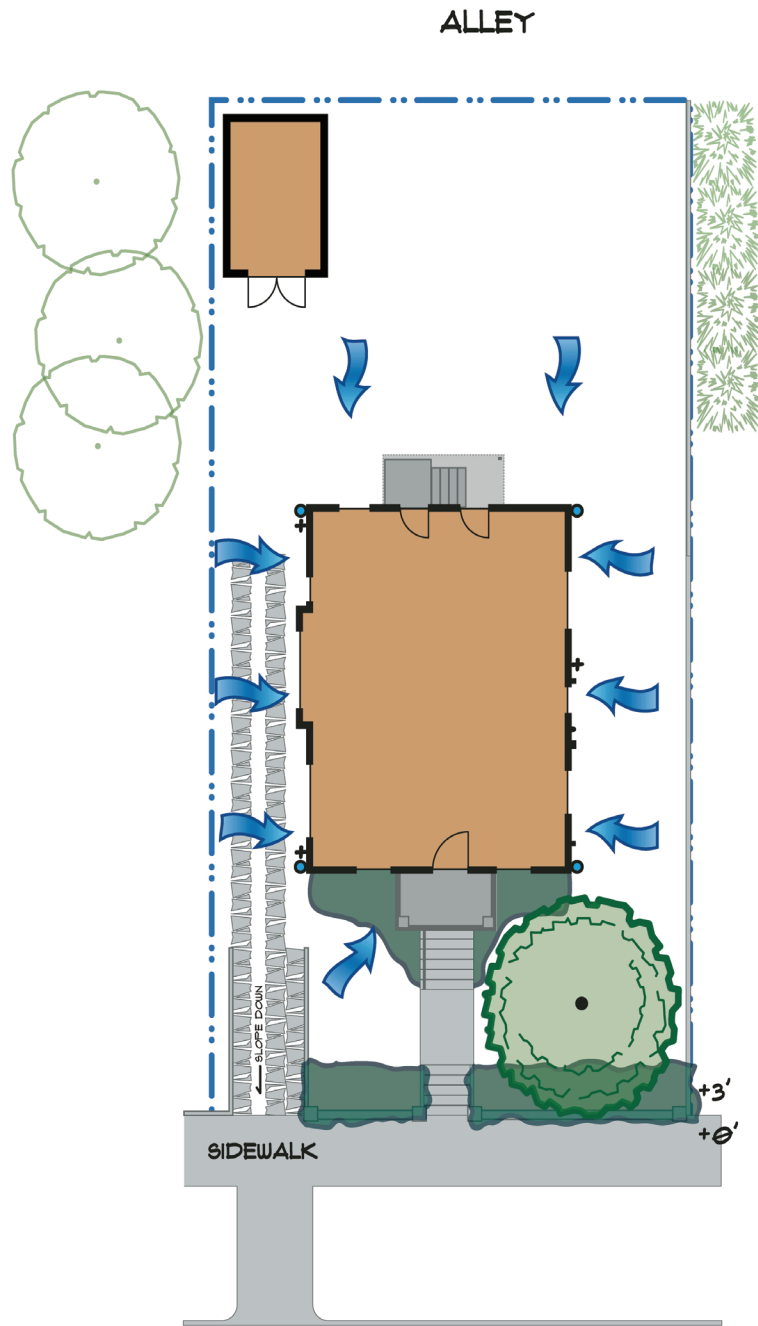


SITE ASSESSMENT: EXPOSURE

1' 5' 10'



DRAINAGE

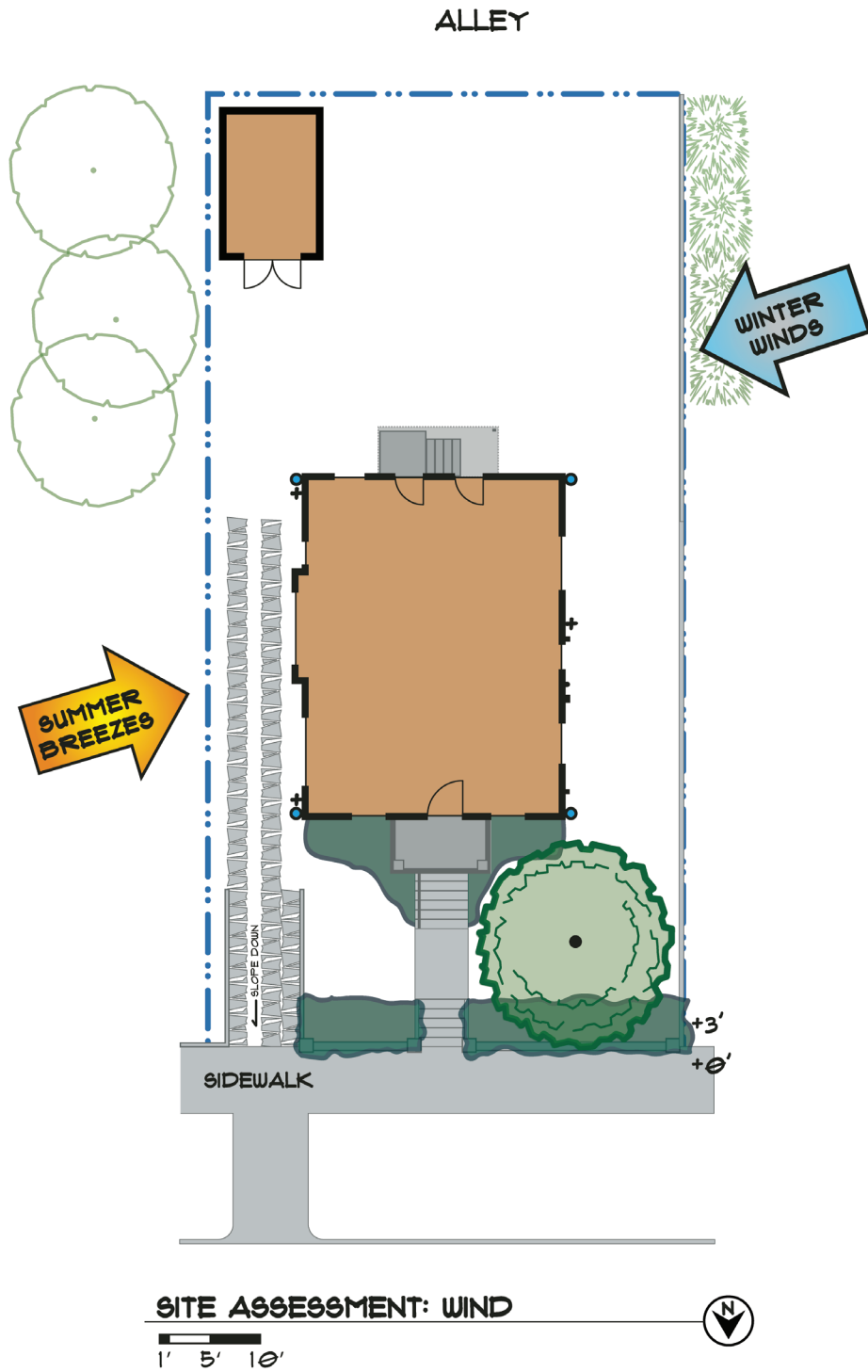


SITE ASSESSMENT: DRAINAGE

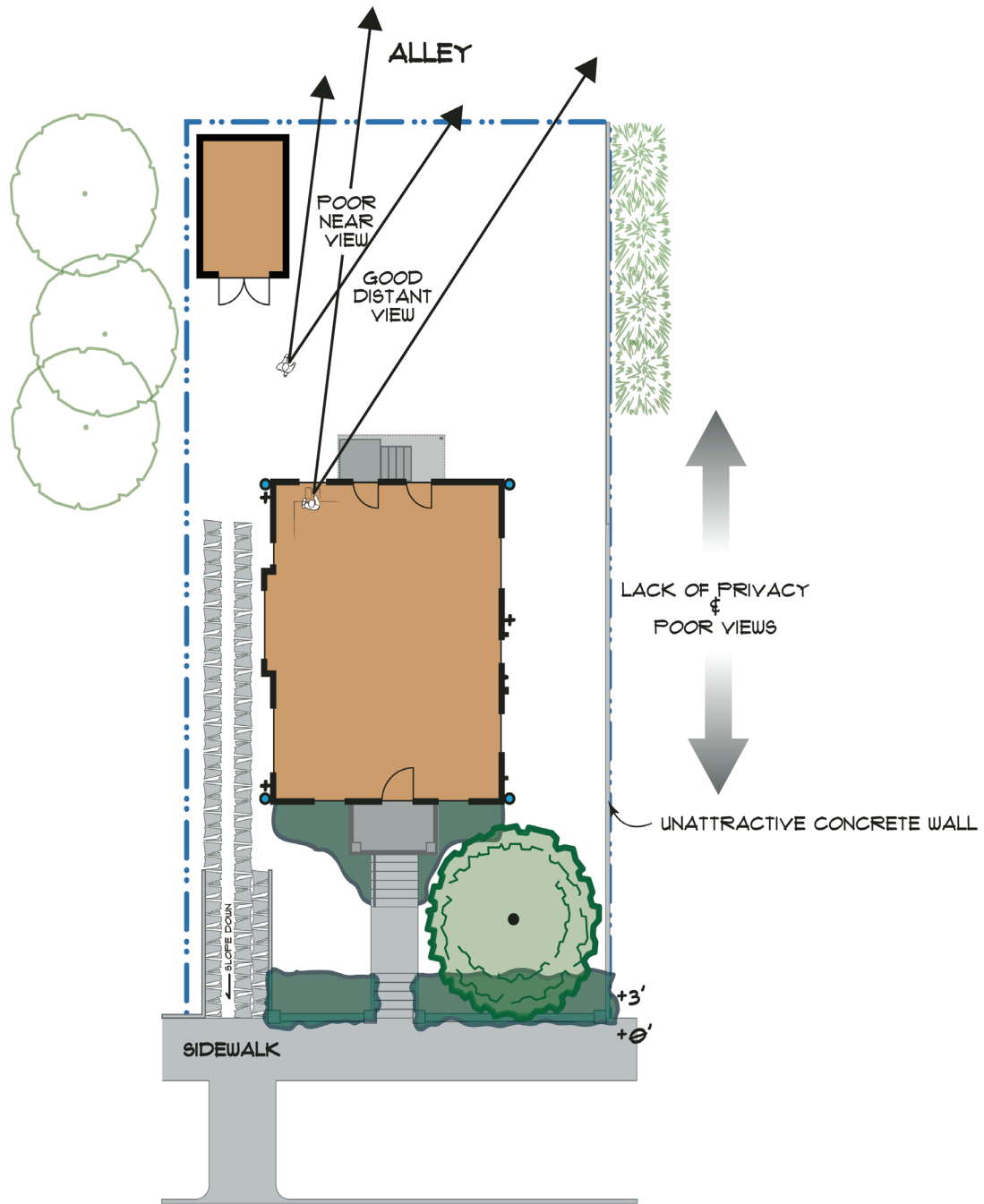
1' 5' 10'



WIND



VIEW

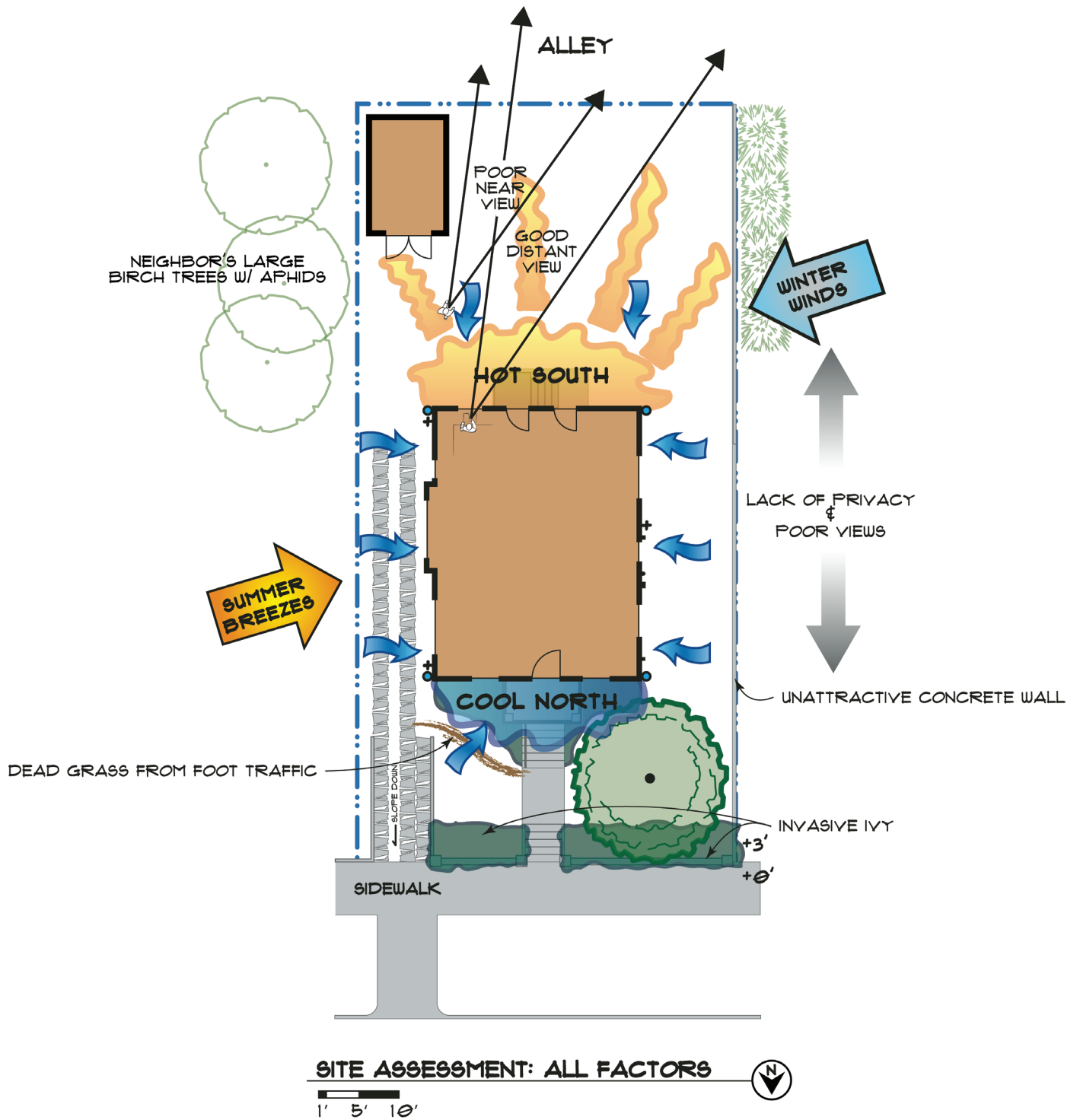


SITE ASSESSMENT: VIEWS

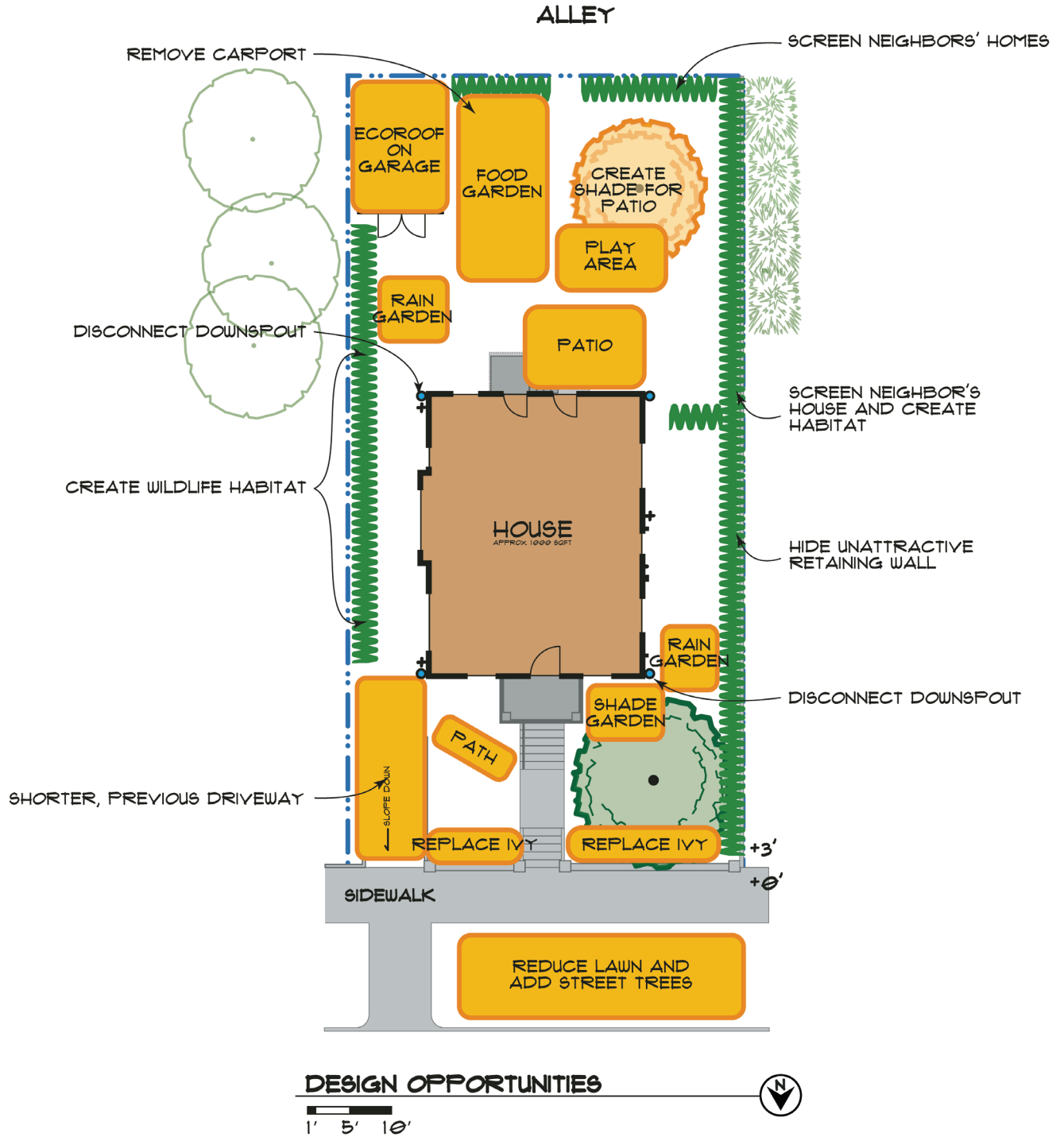
1' 5' 10'



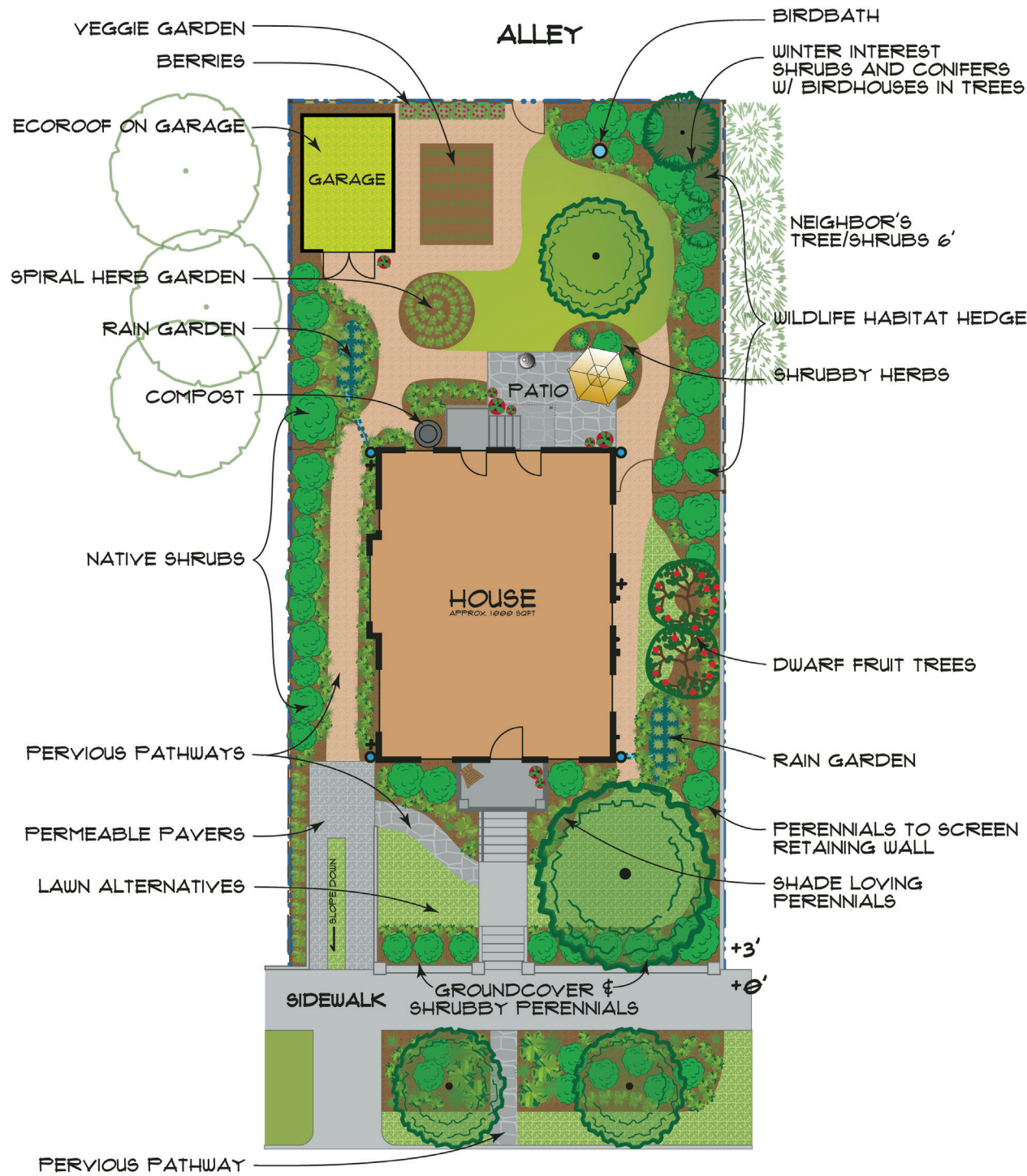
COMBINED FACTORS



DESIGN OPPORTUNITIES



MASTER PLAN



MASTER PLAN

1' 5' 10'



9: Streamside stewardship

Living along a stream or river is rewarding on many levels; however, these come with a high level of responsibility on your part as a steward of that water source. Your activities near or along the banks affect not only your stretch of water but everyone and everything downstream. Your responsibilities are opportunities to protect and enhance the quality of the water in the stream.

Protect water quality

All the guidelines about stormwater runoff discussed in this book also apply to streamside property.

- Keep garbage, yard debris and compost piles well away from streambanks.
- If you have a septic system, be sure it is working properly.
- Clean up after your animals. Do not allow dog, cat, horse, chicken, or other animal manure to wash into the stream. Place animal wastes in a manure composting system, the trash or the sanitary sewer system.
- Don't use chemical pesticides, fertilizers, or other chemicals. They can be deadly in the stream.

Enhance the streambank

The riparian zone, the narrow border of moist soils and plants, is the most delicate and most important area in the stream ecosystem. Overhanging plants help shade and cool the water and provide food and habitat for aquatic creatures. The thick vegetation also filters out pollutants and helps prevent erosion. As a stream steward, you can help protect and enhance this critical part of the stream ecosystem.

- Do not plant lawn all the way to the stream's edge.
- Keep animals (and humans) from trampling the vegetation in the riparian (streamside) zone.
- Never use pesticides or fertilizers in the riparian zone.
- Do not remove native vegetation from the riparian zone.
- Carefully remove non-native plants and replace with appropriate native species. To identify and select plants, contact your local Soil and Water Conservation District. They offer free technical and sometimes financial assistance.
- Do not divert water from the stream. Do not hold back the stream to make a dam. It is illegal to take water from a stream without a permit from the Oregon Department of Water Resources.
- Seek expert help (and a permit) from the Division of State Lands before attempting any stream bank restoration project. Maintain the stream bank and repair when necessary. Use caution: even well-intentioned stream bank repairs can end in disaster.
- Join a "friends group" for your stream. Most major waterways in this region have existing citizen action committees working on their protection. If your stream does not have such a group, start one.

Stewardship

The responsibility of stream stewardship, like Earth stewardship, belongs to every one of us. If you have a stream, river or other body of water in your own backyard, you have a special opportunity to take the lead in the protection and restoration of our precious natural waterways.

10: Living lightly

Your low-impact lifestyle

We can all multiply the benefits of our naturescaped yards, based on the principle of “if we each do a little, together we can do a lot”. We can all do some things to make our lifestyles even more sustainable. Look at the following list to find ideas for things that you are not already doing.

Ways you can start living a low-impact lifestyle

1. REDUCE your waste, especially hazardous waste

Consume less.

Buy less **STUFF**. Try not to be an impulse shopper. When you do need something, ask yourself: “Do I need this object more than once per month?” If not, try borrowing first. Sometimes a friend or neighbor has just what you need. Create a community trade within your neighborhood where you share what other neighbors don’t have and vice-versa. Things such as lawn mowers, saws, chippers, trimmers, drills, and other equipment can be successfully shared. Find out if you have access to a tool library where you can check out tools for free (Search “tool library” on your web browser)! If you do need it on a regular and frequent basis, consider buying it second-hand. Tools, lumber, furniture, clothes, you name it – it is truly amazing how easy it is to find used products in great shape.

Reduce, reuse, recycle.

Reduce the amount of packaging you buy. Reuse what you can rather than recycling it or throwing it away. We are all doing a pretty good job of recycling already and making it part of our lifestyles. Remember, even recycling has to go somewhere to be processed and that process takes energy.

Use alternative pest control methods.

As discussed in the section on alternatives to pesticides, determine your tolerance level for creatures that want to share your house and yard. A few ants or spiders may not be worth using a chemical that could have long-lasting negative effects on your family, pets and wildlife. There are some less-toxic approaches to controlling these and other pests. Do some research (see **Appendix C: Resources**) and experiment with the least-toxic methods of dealing with household and garden pests.

Eliminate/reduce hazardous chemical use.

Choose products carefully, avoiding oil-based paints, solvents and aerosol containers whenever possible. Buy and use small amounts, store carefully, and dispose of waste and containers properly. Alternative cleaners that you can make yourself are often as effective as dangerous commercial ones and are usually less expensive. More information is available from Metro Regional Government.

Dispose of hazardous chemicals properly.

Many materials, especially pesticides, oil-based paints, organic solvents, and motor oil, are extremely toxic to the environment and should not be disposed of in our soils, street drains, sewers, or landfills. Recycle motor oil and take the other products to the facility near you that

handles household hazardous waste (call Metro at (503) 797-1700 for information). Consider the extra effort and expense to be part of the cost of using these products.

2. Conserve water

Reduce in-home water use.

Even in the Pacific Northwest, the increasing population is putting stress on our water supply, especially in the dry summer months. Water is not an infinite resource. Reducing water use also reduces wastewater costs (sewer bills).

3. Reduce energy use

Producing energy always has negative environmental consequences. Remember to turn off lights, and switch to energy-efficient LED bulbs. Think of other ways to save a few more watts. Natural gas and fuel oil are both nonrenewable and contribute to air pollution. Improve the insulation and weatherization of your home to save on these fuels.

Use alternative energy sources.

Solar energy works, even here in cloudy western Oregon. Solar hot water systems and solar-cell electrical generating systems can be installed on your roof. If you are planning to build or remodel, consider incorporating passive solar designs. Research and experiment with other alternative energy ideas. Consider converting to biofuel if you heat your home with oil.

Buy locally grown food or grow some of your own, and emphasize plant-based meals.

Many foods travel over 1,500 miles to make it into our stores. Consider joining a CSA farm (Community Supported Agriculture). These farm products come to you fresh and in-season. What could be better than eating organic produce and getting to know the individuals that actually grow it?

Furthermore, reducing meat consumption, especially beef, can drastically decrease our impact on the environment. It is estimated that if everyone in the United States ate vegetarian for one day, the country would save 100 billion gallons of water, 70 million gallons of gasoline and 3 million acres of land, and would prevent 1.2 million tons of CO₂ emissions, while also preventing \$70 million in economic damage from soil erosion and 4.5 million tons of animal excrement production.

4. Consider transportation choices

Reduce automobile produced pollution.

Driving cars is still one of the most negatively impactful things that we do to the environment, and it is not just the air pollution from the exhaust. A study of the Columbia Slough in northeast Portland has shown that even in a relatively industrial area, the majority of the heavy metal pollution in the water comes from the runoff from streets and roads. Exhaust washed from the air by rain, fuel, oil, and other fluid leaked from engines, transmissions and brake systems, and even rubber and metal particles from tires and brakes accumulate in amazing quantities in our streams and rivers. This kind of pollution can be deadly to the aquatic and riparian ecosystem.

Keep your car well maintained. If you must drive, it is important to keep your car in the best condition possible. Fix leaks as soon as you notice them. Also, a vehicle with well-tuned engine and properly inflated tires burns fuel more efficiently, reducing the amount of pollution released into the air and your fuel bill at the same time.

Living a low-impact lifestyle

Reducing your waste

- Do you use curb-side recycling? What more could you recycle?
- Do you buy used goods or those made from recycled and recyclable/compostable materials?
- Can you reduce the amount of plastic, especially single-use plastic, you buy?
- Are there any hazardous materials in your home or yard?
- Do you take chemical waste (paint, antifreeze, solvents, batteries, etc.) to hazardous waste drop-off sites?
- Have you tried non-chemical alternatives to control unwanted plants or insects?
- Have you tried safe alternatives to household chemicals?

How can you conserve more water?

- Do you have native plants that require less water-use over their lifetime?

How can you conserve energy?

- Are there shade trees to the south or west of the house?
- Does the house have air conditioning or a heat pump? Is the air conditioner shaded in the afternoon?
- What type of heating do you have? Have you considered solar heating?
- Do you have storm windows or double-paned windows?
- Do you have insulation? Have you added extra insulation?
- Have you ever done an energy audit for your home? Business?
- Do you use LED fixtures or low-energy bulbs instead of halogen incandescent, or fluorescent?
- Do you have an attic air fan? Attic air vents?

Can your transportation choices improve?

- Do you fix auto leaks as soon as you notice them?
- Does anyone in your household carpool or use public transportation? Occasionally? Regularly?
- Does anyone in your household ever walk or bike to work, school, shopping, etc.?

Appendices

A: Native plant selection guide

This table is a compilation of information from several sources. It is designed to help select the “right plant for the right place.” It does not include the complete list of plants native to the Portland area. It does include those most commonly used in residential settings, most readily available at retail nurseries, and plants suited to a wide range of growing conditions. Where data were inconsistent, the information provided by the preponderance of sources was used. The following definitions are provided as assistance in using the table:

Name

The common name is listed first, followed by the botanical name (in italics). Where the plant is known by more than one common name, other names are included in the comment column. Plants with an asterisk (*) have soil-binding characteristics that are good for erosion control.

Form and habit

The plants are divided into six groups: Trees, Tree-like Shrubs, Shrubs, Ferns, Vines, and Forbs (herbs, annuals, flowers etc.)

Each of these groups may be either:

Deciduous: Lose their leaves or needles but retain their woody structure during winter.

Evergreen: Retain their leaves or needles and their woody structure through the winter.

Annual: Dies to the ground during winter; may grow back from seed in the spring.

Perennial: Dies to the ground; grow back from roots, bulb, or rhizomes in the spring.

Mature size

These are estimates only. Actual size at maturity (and rate of growth) can vary significantly, based on a combination of many factors at the planting site. Where available, the spread of the plant is also included. (H= height S= spread)

Light needs

S: Full Sun

PS: Partial Sun

Sh: Full Shade

S-PS: Full Sun to Partial Sun

Sh-PS: Full Shade to Partial Sun

S-Sh: Sun to Shade (prefers sun)

Sh-S: Shade to Sun (prefers shade)

Water needs

SW: Seasonally Wet

PW: Perennially Wet

M: Moist

D: Dry

PDX List (Portland Plant List)

Y: The plant is on the Portland Plant List as an acceptable plant to use in Environmental Zones.

N: The plant is not on the Portland Plant List.

Setting (from Portland Plant List)

Wetland: Includes all forms of wetlands found in Portland.

Riparian Includes the riparian areas along the Willamette and Columbia Rivers, and other streams in Portland.

Forest: Refers to upland forested areas with little or no slope.

Forest Slopes: Refers to steeply sloping upland forests such as the west hills and various buttes in Portland.

Thicket: Refers to edges of forests and meadows, including hedgerows and clumps of vegetation that may be found in meadows.

Grassland: Refers to open areas of forests and meadows; may include clearings in forested areas.

Rocky: Refers to rocky upland areas; may include cliffs.

Comments

Additional comments have been added to assist in plant selection. These comments are brief due to space considerations.

NAME	FORM & HABIT	MATURE SIZE	LIGHT	WATER	PDX	SETTING	COMMENTS
*Alder, Red <i>Alnus rubra</i>	Deciduous Tree seeds prolifically on bare soil	H: 80–120' S: 40'	S	M SW	Y	Riparian Forest F. Slope	Aggressive seeder and fast grower, even in poor soil. Relatively short lifespan - 50 years. Provides food for birds.
Alumroot, Small-flowered <i>Heuchera micrantha</i>	Perennial Forb	H: 12–24"	S PS	M	Y	Riparian Forest	Often found on stream banks and in rocky crevices. Numerous, very small flowers in open clusters, bloom May to July.
*Ash, Oregon <i>Fraxinus latifolia</i>	Deciduous Tree	H: 40–80' S: 25'	S	D SW	Y	Wetland Riparian	Has winged fruit, not berries like other ashes. Often grow near streams or areas that flood.
Aster <i>Aster species</i>	Perennial Forb	H: 1–3'	S	D M	Y	Varies	Late summer and fall bloom. There are several native asters; some prefer meadows or open slopes; one prefers wetlands; others like moist woods.
Azalea, Western <i>Rhododendron occidentale</i>	Deciduous Shrub	H: 14'	S PS	M	N	Forest	Often forms dense thicket. Most common on coast, where they grow only 2 – 3' tall.
Balsamroot <i>Balsamorhiza species</i>	Perennial Forb	H: 1–3'	S	D	N	Grassland Rocky	Spectacular bloom. Most common in the Columbia hills (The Dalles, Hood River, etc).
Bleeding Heart, Western <i>Dicentra formosa</i>	Perennial Forb spreads by rhizome	H: 6–12"	Sh PS	M	Y	Wetland Forest F. Slope	Fernlike leaves. April to June bloom. Prefers rich soil. Does well along stream banks.
Blue-eyed Grass <i>Sisyrinchium angustifolium</i>	Perennial Forb	H: 8–12"	S PS	M SW	Y	Wetland Grassland	Grass-like, sharp pointed leaves. Likes wet stream banks.
*Bulrush, Small-Fruited <i>Scirpus microcarpus</i>	Perennial Forb spreads by rhizome	H: 2–5'	S	PW M	Y	Wetland Forest Grassland	Grass-like plant common in wetlands and roadside ditches. Good soil binding characteristics, spreads rapidly
Bunchberry <i>Cornus canadensis</i>	Perennial Forb	H: 6"	Sh PS	M	Y	Forest	Also called dwarf dogwood. Very low growing ground cover, lush with no woodiness.
Camas, common <i>Camassia quamash</i> , <i>Camassia leightinii</i>	Perennial Forb Bulb	H: 1–2.5'	S PS	SW M	Y	Wetland Grassland	Can be used in wet meadow or wetland. Late spring – early summer bloom. Tolerates heavy soil.
Cascara <i>Rhamnus purshiana</i>	Deciduous Tree	H: 30–40'	S PS	SW	Y	Riparian Forest F. Slope	Also called chittim or buckthorn. Purplish black berries are bitter but edible; they-attract birds. Cannot tolerate deep shade. Seldom reach maturity.
Cedar, Western Red <i>Thuja plicata</i>	Evergreen Tree	H: to 200'	Sh PS	M SW	Y	Wetland Riparian Forest	Found mostly in moist to wet soils, usually in shaded forests. Will grow in drier areas with rich soil. Probably most important tree to coastal Indians. Bark shreds easily.
Cherry, Bitter <i>Prunus emarginata</i>	Deciduous Tree	H: 30–50' S: 20'	S PS	M SW	Y	Riparian F. Slope Thicket	Also called wild cherry. Grows in woods or along streams. Can succeed in sunny, dry sites. Produces bright red, bitter cherries.

LIGHT S: Full Sun PS: Partial Sun Sh: Full Shade

WATER SW: Seasonally Wet PW: Perennially Wet M: Moist D: Dry

* Erosion control

NAME	FORM & HABIT	MATURE SIZE	LIGHT	WATER	PDX	SETTING	COMMENTS
*Chokecherry, Common <i>Prunus virginiana</i>	Deciduous Tree	H: 15–30' S: 15'	S PS	M SW	Y	Riparian Forest Thicket	Prefers forest edges and clearings. Purple to black drupes (like cherries) grow in elongated clusters; edible but extremely sour; excellent in syrups and jellies.
Clarkia <i>Clarkia species</i>	Annual Forb	H: 10–24"	S	D M	N	Grassland Thicket	Summer bloom. Also called Farewell-to-Spring. Often found at forest edge or on open slopes.
Coltsfoot, Sweet	Perennial Forb	H: 1–2'	Sh PS	W	Y	Wetland Riparian Forest Grassland	Needs large, moist, wild setting in wet meadow, bog or riparian area. One of earliest wildflowers to bloom.
Columbine, Red <i>Aquilegia formosa</i>	Perennial Forb	H: 12- 18"	S PS	M	Y	Riparian Forest Thickets Rocky Grassland	Can grow in wide variety of settings. Prefers light shade. Easy to start from seed. One of our most beautiful wild flowers; spring bloom. Flowers attract humming birds and butterflies.
*Cottonwood, Northern Black <i>Populus trichocarpa</i>	Deciduous Tree does not spread	H: 100–175' S: 25'	S	M SW	Y	Wetland Riparian	Fast grower in moist to saturated soils; widely used for streambank stabilization
Crabapple, Pacific <i>Pyrus fusca</i> or <i>Malus fusca</i>	Deciduous Tree- like Shrub	H: 10–30' S: 35'	S	M SW	Y	Riparian Forest Thicket	Native to coastal bogs. Small clustered apples are tart but edible.
*Currant, Red-Flowering <i>Ribes sanguineum</i>	Deciduous Shrub	H: 3–9'	S Sh	D M	Y	Riparian Forest F. Slope Thicket Grassland	Very attractive, erect shrub with red, tubular flowers that bloom early in the spring. Produces unpalatable berries that are quickly eaten by birds.
Currant, Sticky <i>Ribes viscosissimum</i>	Deciduous Shrub	H: 3–6'	S PS	D M	Y	Riparian Forest	Medium-sized shrub with straggly but stiff branches. Soft sticky hairs cover the leaves and flowers.
*Dogwood, Red-Osier <i>Cornus sericea</i>	Deciduous Tree- like Shrub; spreads to form thicket	H: 6–18' S: 20'	S PS	M SW	Y	Wetland Riparian Thicket	Attractive shrub that produces bright red stems. Makes good barrier hedge. Sometimes called <i>Cornus stolonifera</i> .
Elderberry, Blue <i>Sambucus mexicana</i>	Deciduous Tree- like Shrub	H: 4–30'	S PS	M SW	Y	Riparian Forest Thicket	More common east of the Cascades. Berries edible; good food source for wildlife. Flower resembles that of red elderberry but is flat-topped. Fast growing.
Elderberry, Red <i>Sambucus racemosa</i>	Deciduous Tree- like Shrub	H: 4–30'	S Sh	M SW	Y	Riparian Forest F. Slope	Fast growing, with weak, sprawling branches. Hollow stems. Berries are not edible, but birds love them. Bloom and ripen earlier than Blue Elderberry.
Fairy-Bell, Hooker's <i>Disporum hookeri</i>	Perennial Forb	H: 11- 36"	PS Sh	M	Y	Forest F. Slope	Creamy-white, nodding, bell-shaped flowers.
Fern, Deer <i>Blechnum spicant</i>	Evergreen Forb spreads by rhizomes	H: 12–36"	PS Sh	M SW	Y	Riparian Forest	Often a major understory plant in moist conifer forests. Two kinds of fronds: outer frond horizontal, center fronds erect.

LIGHT S: Full Sun PS: Partial Sun Sh: Full Shade

WATER SW: Seasonally Wet PW: Perennially Wet M: Moist D: Dry

* Erosion control

NAME	FORM & HABIT	MATURE SIZE	LIGHT	WATER	PDX	SETTING	COMMENTS
Fern, Lady <i>Athyrium filix-femina</i>	Perennial Forb spreads by rhizomes	H: 2–4'	S PS	M	Y	Riparian Forest Thicket	Often form dense populations in moist, wooded areas and along stream banks.
Fern, Maidenhair <i>Adiantum aleuticum</i>	Perennial Fern	H: 1–2'	PS Sh	M	Y	Riparian Forest F. Slope Rocky	Delicate, black-stemmed fern. Unusual in appearance and very attractive.
Fern, Sword <i>Polystichum munitum</i>	Evergreen Forb	H: 2–4'	PS Sh	D M	Y	Forest F. Slope Thicket	Grows in wide variety of conditions. Probably the best known fern in Pacific NW. Excellent plant for dry shade.
Fescue, Idaho <i>Festuca idahoensis</i>	Perennial Forb	H: 1–3.5"	S	D	N	Grassland	Densely tufted perennial grass with narrow leaves. Similar to Western Fescue but tolerates drier conditions.
*Fescue, Red <i>Festuca rubra</i>	Perennial Forb	H: 6–40"	S PS	D M	N	F. Slope Thicket Grassland Rocky	Tall, common grass species. Loosely tufted perennial.
Fescue, Western <i>Festuca occidentalis</i>	Perennial Forb	H: 6–40"	S PS	D M	Y	Riparian Thicket	Tufted perennial grass with hair-like leaves. Common understory plant west of Cascades.
Fir, Douglas <i>Pseudotsuga menziesii</i>	Evergreen Tree	H: 200' + S: 50'	S PS	D M SW	Y	Forest F. Slope	Fast-growing. Grows in all but the wettest and driest sites. Shallow rooting, potential for windthrow in thin or disturbed soils; good wind break in groupings. Good wildlife nest potential.
Fir, Grand <i>Abies grandis</i>	Evergreen Tree	H: 150–250' S: 40'	S Sh	M SW	Y	Wetland Riparian Forest F. Slope	Largest true fir. Tall, straight and stately. Cones sit upright on the branches.
Fir, Pacific Silver <i>Abies amabilis</i>	Evergreen Tree	H: 200'	S	M	Y	Forest F. Slope	Tall, straight symmetrical tree. Grows in variety of conditions but most common in moist forests with deep, well-drained soil.
Foamflower <i>Tiarella trifoliata</i>	Perennial Forb	H: 6–15"	Sh	M	Y	Riparian Forest	Also called laceflower. Tiny delicate white flowers at the end of short wirestalk. Dense patches look like foam on forest floor.
Fringecup <i>Tellima grandiflora</i>	Perennial Forb	H: 1–3'	Sh PS	M	Y	Forest F. Slope	Basal leaves with long, hairy stalks. Leaves similar to piggyback but flowers are distinctively different.
Ginger, Wild <i>Asarum caudatum</i>	Evergreen Forb	H: 3–6"	Sh	M	Y	Forest F. Slope	Heart-shaped, smooth, dark green leaves. Grows freely in damp soil of woodlands. Trailing stems root at nodes. Beautiful ground cover. Inconspicuous flowers.
Goat's Beard <i>Aruncus sylvestris</i>	Perennial Forb	H: 3–6'	Sh PS	M	Y	Riparian Forest F. Slope	Also known as Sea Foam. Commonly found in 'edge' habitats (edges of roadsides, forests and streams).

LIGHT S: Full Sun PS: Partial Sun Sh: Full Shade

WATER SW: Seasonally Wet PW: Perennially Wet M: Moist D: Dry

* Erosion control

NAME	FORM & HABIT	MATURE SIZE	LIGHT	WATER	PDX	SETTING	COMMENTS
Goldenrod, Canada <i>Solidago canadensis</i>	Perennial Forb	H: 1–5'	S	D	Y	Grassland	Small yellow ray flowers in dense clusters. Often grows in disturbed areas. Spreads by rhizomes.
Grass-widow <i>Sisyrinchium douglasii</i>	Perennial Forb	H: 4–16"	S	M SW	N	Wetland	Showy, tufted perennial. Leaves like iris but much smaller. Attractive spring bloom. Does well on edge of streams.
Hairgrass, Tufted <i>Deschampsia caespitosa</i>	Perennial Forb	H: 1–4'	S PS	M SW PW	Y	Wetland	Densely tufted perennial grass. Grows in bunches.
Hawthorn, Western Black upland form <i>Crataegus douglasii</i> var. <i>suksdorfii</i>	Perennial Forb	H: 25–45' S: 15–25'	S PS	D SW	Y	Wetland Riparian Forest F. Slope Thicket	Wetland Riparian Forest F. Slope Thicket Sometimes called Douglas hawthorn or black haw. Good fall color. Common, thorny, thicket forming, good hedgerow plant. Doesn't spread as aggressively as non-native species. Grows slowly. Valuable food and cover for wildlife.
Hazelnut, Western <i>Corylus cornuta</i>	Deciduous small Tree -spreads by suckers	H: 5–18' S:	S PS	M	Y	Forest F. Slope Thicket	Good hedgerow shrub. Produces edible nut. Also called hazelnut or filbert. Male catkins are attractive.
Hemlock, Western <i>Tsuga heterophylla</i> Evergreen tree	Evergreen Tree	H: 125' + S: 40'	S PS	M	Y	Riparian Forest F. Slope	Can be used as hedge. Needs space. Fairly fast growth. Prefers moist, acid soil.
Honeysuckle, Hairy <i>Lonicera hispidula</i>	Deciduous Vine	H: 6–18'	S PS	D	Y	Forest Thicket	Sometimes called California honeysuckle. Usually trailing or crawling vine; sometimes climbing vine. Berries not edible; may be somewhat poisonous.
Honeysuckle, Orange <i>Lonicera ciliosa</i>	Deciduous Vine	H: 15–20'	S PS	D M	Y	Forest Thicket	Found on margins of wooded areas. Attracts humming birds and swallowtail butterflies.
Huckleberry, Evergreen <i>Vaccinium ovatum</i>	Evergreen Shrub	H: 3–12'	Sh PS	M	Y	Forest	Attractive ornamental with shiny, leathery leaves. Shiny purple-black berries are edible. Grows taller in shade.
Huckleberry, Red <i>Vaccinium parvifolium</i>	Deciduous Shrub	H: 3–12'	S PS	D M	Y	Forest F. Slope	Usually grows beneath conifers west of Cascades, often on nurse logs/stumps. Can be difficult to establish.
Inside-out Flower <i>Vancouveria hexandra</i>	Perennial Forb spreads widely by rhizomes	H: 8"	Sh S	D M	Y	Riparian Forest F. Slope	Also called ducks foot, because of the shape of the leaf. Common plant along streamsides. Dainty, unusual white flower.
Iris, Oregon <i>Iris tenax</i>	Perennial Forb	H: 10–20"	S	M	Y	Forest Thicket Grassland	Showy, clumped perennial with narrow, grasslike leaves.

LIGHT S: Full Sun PS: Partial Sun Sh: Full Shade

WATER SW: Seasonally Wet PW: Perennially Wet M: Moist D: Dry

* Erosion control

NAME	FORM & HABIT	MATURE SIZE	LIGHT	WATER	PDX	SETTING	COMMENTS
Kinnikinnik <i>Arctostaphylos uva-ursi</i>	Evergreen Shrub	H: 2–8" S: to 15'	S PS	D M	Y	Grassland Rocky	Also called Bearberry. Prostrate spreading woody ground cover; roots as it creeps. Excellent on steep. Slow to start; mulch to keep down weeds until established. Drought tolerant once established. Has red berries in fall.
Lily, Tiger <i>Lilium columbianum</i>	Perennial Forb bulb	H: 1–4'	S Sh	M	Y	Forest F. Slope	Also called Columbia lily and Oregon lily. Spectacular wild-flower; orange blossoms with purplish spots. Grows in broad variety of habitats.
Lily-of-the-Valley, False <i>Maianthemum dilatatum</i>	Perennial Forb rhizomes	H: 3–15"	Sh PS	M SW	Y	Forest F. Slope	Also called wild lily-of-the-valley or deerberry. Grows near shaded or moist stream banks, in woods where ground is moist. Forms dense ground cover and good for ornamental as well as restoration purposes. Edible fruit
Lupine, Large-Leaved <i>Lupinus polyphyllus</i>	Perennial Forb	H: 2'–5'	S Sh	D M	Y	Grassland	Short-lived perennial that sometimes reseeds itself. Tolerates broad range of conditions.
Maple, Big Leaf <i>Acer macrophyllum</i>	Deciduous Tree	H: 50'–100' S: 50'–75'	S PS	D M	Y	Forest	Abundant west of the Cascades. Excellent shade tree. Best in a large yard. Often mixed with Douglas Fir. Very large leaves. Typically these trees are laden with mosses, lichens & ferns.
Maple, Vine <i>Acer circinatum</i>	Deciduous Tree	H: 5–35' S: 20'	Sh PS	M	Y	Forest F. Slope Grassland	Often grows in conifer forest understory. Very shade tolerant, but can be sprawling in the shade; excellent fall color.
Milkweed, Showy <i>Asclepias speciosa</i>	Perennial Forb rhizomes	H: 2–5'	S	M	N	Grassland	Often seen along roadsides, ditches and moist waste areas. Important food source for caterpillar stage of Monarch butterfly. Often confused with prickly lettuce, a non-native weed.
Mockorange, Western <i>Philadelphus lewisii</i>	Deciduous Shrub	H: 4–12'	S PS	D M	Y	Forest F. Slope	Erect, loosely branched shrub. May- June bloom, very fragrant. Tolerates a wide range of soil conditions.
Monkey Flower <i>Mimulus guttatus</i>	Perennial Forb spreads by runners	H: 3"–30"	S PS	M SW	Y	Wetland Riparian	Summer bloom of bright yellow flowers. Spreads by runners
Mountain Balm <i>Ceanothus velutinus</i> var. <i>Laevigatus</i>	Evergreen Tree-like Shrub	H: 20'	S	D	Y	Forest Thicket Grassland	Also called sticky laurel, buckbrush, and cinnamon bush. Once established, resents watering. Found on dry, open sites. Has a sticky leaf.
*Ninebark, Pacific <i>Physocarpus capitatus</i>	Deciduous Shrub	H: 15' S: 10'	PS S	M SW	Y	Forest Riparian	Maple-like leaves; shredding bark. Produces masses of tiny white flowers which change to reddish seed clumps. Excellent soil-binding characteristics.

LIGHT S: Full Sun PS: Partial Sun Sh: Full Shade

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* Erosion control

NAME	FORM & HABIT	MATURE SIZE	LIGHT	WATER	PDX	SETTING	COMMENTS
Oak, Oregon White <i>Quercus garryana</i>	Deciduous Tree	H: 30' +	S	D	Y	Grassland	Also called Garry Oak. Often found on dry, rocky slopes at low elevations. Important food source for wildlife. Slow to moderate growth. Deep, non-aggressive roots.
Oceanspray <i>Holodiscus discolor</i>	Deciduous Shrub	H: 6–20' S: 8–12'	S PS	D	Y	Forest F. Slope Thicket	Good background plant. Water until established. Does well in most soils. Blooms May-June.
Onion, Wild <i>Allium species</i>	Perennial Forb bulb	H: 6–18"	S	M	Y	Grassland Rocky	Native species usually grow in rocky, exposed sites; need ample water when growing but not when dormant. Usually bloom in May or June.
Oregon Grape, Creeping <i>Mahonia repens</i>	Evergreen Shrub	H: 1–3'	Sh S	D M	N	Forest F. Slope	Also called Low Oregon grape. One of the best groundcovers for dry shade. Good barrier plant. Tolerates dry, sunny (Berbis repens) sites best. Sometimes classified in Berbis family instead of Mahonia.
Oregon Grape, Dull <i>Mahonia nervosa</i> or <i>Berbis nervosa</i>	Evergreen Shrub	H: 1–3'	S PS	D M	Y	Forest F. Slope	Also called Cascade Oregon grape. One of the best groundcovers for dry shade. Good barrier plant. Sometimes classified in Berbis family instead of Mahonia.
Oregon Grape, Tall <i>Mahonia aquifolium</i> or <i>Berbis aquifolium</i>	Evergreen Shrub	H: 5–8'	S PS	M	Y	Riparian Forest F. Slope	Needs well-drained soil. Good in hedge, good barrier plant. Not as tolerant of dry conditions as the two low-growing varieties. Sometime classified in Berbis family instead of Mahonia.
Osoberry <i>Oemleria cerasiformis</i>	Deciduous Shrub	H: 8–5'	S Sh	D M	Y	Riparian Forest	Also called Indian plum. Fruit resembles small plums, edible but bitter. One of first to flower in spring. Open woods, stream-banks, roadside. Need both male and female.
Oxalis, Oregon <i>Oxalis oregana</i>	Perennial Forb spreads rapidly by under-ground stems	H: 2–6"	Sh	M	Y	Forest F. Slope	Also called redwood sorrel or wood sorrel. Ground-hugging plant with clover-shaped leaves. Leaves fold at night or cloudy weather. Edible leaves.
Paintbrush <i>Castilleja miniata</i>	Perennial Forb	H: 1–2'	S	M	N	Grassland	Summer bloom. Difficult to grow. Most common of several Paintbrush varieties.
Pearly Everlasting <i>Anaphalis margaritacea</i>	Perennial Forb rhizomes	H: 1–2'	S PS	D M	Y	Grassland	Tends to grow in clumps. Long-lasting white flower that retain their color when dried. Some consider it a weedy species.
Penstemon, Cascade <i>Penstemon serrulatus</i>	Perennial Forb	H: 10"–24"	S PS	M	Y	Wetland Grassland Rocky	Sometimes called Coast Penstemon. Dark blue to purple flowers in large-clusters at end of stem.

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* Erosion control

NAME	FORM & HABIT	MATURE SIZE	LIGHT	WATER	PDX	SETTING	COMMENTS
Piggyback Plant <i>Tolmiea menziesii</i>	Perennial Forb rhizomes	H: 1–2'	Sh	M SW	Y	Riparian Forest F. Slope	Good along stream banks. Sometimes called youth-on-age. Buds form at base of leaves, making the leaf appear to carry a second, smaller leaf. Often used as houseplant.
Poppy, California <i>Eschscholzia californica</i>	Perennial Forb spreads by seed	H: 12"	S	D M	Y	Grassland	Also called Gold Poppy. Widely cultivated as an ornamental. Parsley-like leaves. Sun-loving flowers close at night or during cloudy weather. Sprouts easily from seed.
Rhododendron, Pacific <i>Rhododendron macrophyllum</i>	Evergreen Shrub	H: 4–15' S: 4–10'	Sh PS	M	Y	F. Slope	Flowers very showy. Blooms most profuse in clearings or forest edge. Slow growing; can be difficult to establish.
Rose, Baldhip <i>Rosa gymnocarpa</i>	Deciduous Shrub	H: 3'–8'	S PS	D M SW	Y	Forest F. Slope	Grows in wide variety of habitats, from open to wooded, dry to wet. Summer bloom, produces large hips. Good barrier plant. Can be distinguished from introduced species by presence of curved prickles.
*Rose, Nootka <i>Rosa nutkana</i> var. <i>Nutkana</i> *	Deciduous Shrub	H: 3–10'	S	D M	Y	F. Slope	Grows in a variety of open habitats. Pair of large spines at base of each leaf. Attractive flower.
Rose, Swamp <i>Rosa pisocarpa</i>	Deciduous Shrub	H: 3–10'	S	D M	Y	Riparian F. Slope	Also called Clustered Rose because the pink flowers usually occur in groups of 3 – 20.
*Rush species <i>Juncus ensofolius</i> , and other <i>Juncus</i> species	Perennial Forb	H: varies	S	M	Y (7)	Wetland Riparian	They provide excellent soil-binding for erosion control. The most common rush (<i>Juncus effusus</i>) can be invasive but is good in poor soils.
Salal <i>Gaultheria shallon</i>	Evergreen Shrub spreads by layering, suckering and sprouting	H: 1–6'	S Sh	D M	Y	Forest F. Slope Rocky	Common in a variety of habitats, from bogs to dry, well-drained slopes. Most abundant in evergreen forests. Makes an excellent ground cover. Pinkish bell flowers, fruit edible. Low-growing in dry, sunny conditions; much taller in moist, shady conditions.
*Salmonberry <i>Rubus spectabilis</i>	Deciduous Shrub	H: 3–12'	S PS	M SW	Y	Riparian	Grows in wet slopes or valleys. Often grows under red alder in forested wetlands. Good soil-binding characteristics and well-adapted to eroded or disturbed sites. Edible fruit. Tends to be spiny. Can spread aggressively.
*Sedge <i>Carex obnupta</i> and other <i>Carex</i> species	Perennial Forb	H: varies (8"–46")	S PS	M SW PW	Y	Wetland	An important family of wetland plants with many native species. Grasslike with triangular stems. All possess excellent soil-binding characteristics. <i>Carex obnupta</i> especially good for swales.

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* Erosion control

NAME	FORM & HABIT	MATURE SIZE	LIGHT	WATER	PDX	SETTING	COMMENTS
Serviceberry, Western <i>Amelanchier alnifolia</i>	Deciduous Shrub	H: 4–15'	S PS	M SW	Y	Forest F. Slope Thicket	Also called Saskatoon berry or shadbush. Can grow up to 30 ft in ideal conditions. Edible fruit. Good spring flowers and fall color. Prefers good soil and moderate water.
Shooting Star, Few-flowered- <i>Dodecatheon pulchellum</i>	Perennial Forb	H: 6–12"	S PS	M W	Y	Wetland	Needs rich, well-drained soil during spring growing/blooming season; needs dry soil after bloom.
Shooting Star, White <i>Dodecatheon dentatum</i>	Perennial Forb	H: 5–16"	S	M W	Y	Riparian Rocky	Needs rich, well-drained soil during spring growing/blooming season; needs dry soil after bloom.
Skunk Cabbage <i>Lysichitum americanum</i>	Perennial Forb spreads by stems underground	H: 1–5'	S. PS	M SW PW	Y	Wetland Riparian	Swampy ground or slow streams. Large, shiny cabbage-like leaves. Bright yellow sheath surrounds the flower in early spring.
*Snowberry, Common <i>Symphoricarpos albus</i>	Deciduous Shrub spreads by rhizomes	H: 2–6'	S Sh	D M SW	Y	Forest F. Slope Thicket	Erect form of snowberry. White berries not palatable. Important wildlife food because berries persist into winter. Excellent soil-binding characteristics.
*Snowberry, Creeping <i>Symphoricarpos mollis</i> ,	Deciduous Shrub-spreads above ground stems	H: 12–18"	Sh S	D	Y	Forest	Trailing form of snowberry. White berries not palatable. Important wildlife food because berries persist into winter. Excellent soil-binding characteristics.
Solomon's Seal ,Star-Flowered <i>Smilacina stellata</i>	Perennial Forb	H: 1–2'	Sh PS	M D	Y	Forest	Small perennial, usually found in rocky but moist soil. Small, delicate flower clusters.
Solomon's Seal, False <i>Smilacina racemosa</i>	Perennial Forb	H: 1–3'	Sh PS	M SW	Y	Wetland Forest Riparian Thicket	Wetland Forest Similar to Star-Flowered Solomon's Seal; more robust; leaves are larger, flowers more fragrant. Good ornamental in shady gardens. Large, many-branched flower clusters
*Spiraea, Douglas <i>Spiraea douglasii</i>	Deciduous Shrub	H: 3'–6'	S PS	D M SW	Y	Wetland Riparian Thicket	Also called hardtack or steeple-bush. Erect, leggy, often forming thickets. Blooms in midsummer; pyramid shaped clusters of fragrant pink flowers that appear fuzzy.
*Spruce, Sitka <i>Picea sitchensis</i>	Evergreen Tree	H: 150–200'	S PS	M SW	N	Wetland Riparian	Fast-growing, long-lived conifer found in low-lying, moist forests. Root mass can become very dense and resistant to erosion in riparian settings. Needles stiff and sharp.
Stonecrop, Oregon <i>Sedum oreganum</i>	Perennial Forb	H: 2–4"	S	D M	Y	Rocky	Bright yellow flowers becoming pinkish with age. Needs well-drained site.

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* Erosion control

NAME	FORM & HABIT	MATURE SIZE	LIGHT	WATER	PDX	SETTING	COMMENTS
Stonecrop, , Spatula-leaf <i>Sedum spathulifolium</i>	Perennial Forb	H: 3–8"	S PS	D M	Y	Rocky	Pale yellow flowers. Leaves vary in color from gray-green to deep red, becoming more reddish in full sun.
Strawberry, Broadpetal <i>Fragaria virginiana</i> var. <i>platypetala</i>	Perennial Forb spreads rapidly by stolons	H: 4"	S PS	M	Y	Riparian Forest Grassland	Also called wild strawberry. Leaves are often bluish-green on top. Berries are usually smaller than the flower.
Strawberry, Coastal <i>Fragaria chiloensis</i>	Evergreen perennial Forb spreads rapidly by stolons	H: 3"	S PS	M	N	Grassland	Sometimes called Beach Strawberry. Shiny dark green leaves with prominent veins. Runners (stolons) are reddish & hairy sand dunes.
Strawberry, Wood <i>Fragaria vesca</i> var. <i>Bracteata</i> or <i>crinita</i>	Perennial Forb spreads rapidly by stolons	H: 3–8"	S PS	M	Y	Riparian Forest Grassland	Also called woodland strawberry. Often found in forest openings. Berries are usually smaller than the flower. There are two varieties on the PDX list.
*Thimbleberry <i>Rubus parviflorus</i>	Deciduous Shrub spreads by rhizomes	H: 3–6'	S Sh	D M SW	Y	Riparian Forest F. Slope	Large maple-like leaves with velvety texture. Berries edible, resemble raspberries. Stems lack thorns. Can spread to form dense thickets. Drought tolerant.
Trillium, Western <i>Trillium Ovatum</i>	Perennial Forb rhizomes	H: 6–18"	Sh PS	M	Y	Forest	Early spring bloom. Attractive flower. Prefer acidic soil. Usually found in moist to wet woods, stream banks or shaded open areas.
Twinberry, Black <i>Lonicera involucrata</i>	Deciduous Shrub; does not spread	H: 10' S: 8'	S. PS	M SW	Y	Wetland Riparian Grassland	Also called bearberry honeysuckle. Produces yellow twin flowers followed by black, unpalatable berries cupped in bracts.
Twinflower <i>Linnaea borealis</i>	Evergreen Shrub Recumbent	H: 6" S:	S PS	M SW	Y	Forest F. Slope	Creeping, semi-woody evergreen shrub with delicate, fragrant flowers.
Twisted-stalk, Clasp-ing Leaved <i>Streptopus amplexifolius</i>	Perennial Forb	H: 18–36" S:	Sh PS	M	Y	Riparian Forest F. Slope	Single, greenish-white bell-shaped flowers hang from thread-like stem on underside of leaf.
Vanilla Leaf <i>Achlys triphylla</i>	Perennial Forb	H: 8–12"	Sh PS	M	Y	Riparian Forest F. Slope	Sometimes called Deerfoot, because of the shape of the leaf. Sends up single, 3-lobed leaf, with showy spike of small white flowers sticking up above the leaf.
Violet, Evergreen <i>Viola sempervirens</i>	Perennial Forb runners & rhizomes	H: 2–5"	PS Sh	M	Y	Forest F. Slope	Pale yellow flower. Shiny thick leaves with purple blotches.

LIGHT S: Full Sun PS: Partial Sun Sh: Full Shade

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* Erosion control

B: Backyard wildlife for western Oregon

GROUP	SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
BIRDS													
Blackbirds	Red-winged Blackbird												
	Brewer's Blackbird												
	Brown-headed Cowbird												
Chickadees	Black-capped Chickadee												
	Chestnut-backed Chickadee												
Ducks	Mallard												
	Wood Duck												
Finches	House Finch												
	Purple Finch												
	American Goldfinch												
	Lesser Goldfinch												
	Pine Siskin												
Flycatchers	Olive-sided Flycatcher												
	Western Flycatcher												
	Western Wood Pewee												
Gulls	California Gull												
	Glaucous Winged Gull												
Hawks	Cooper's Hawk												
	Red-tailed Hawk												
	Sharp-shinned Hawk												
	American Kestrel												
Hummingbirds	Anna's Hummingbird												
	Rufous Hummingbird												
Jays	Scrub Jay												
	Stellar's Jay												
Kinglets	Golden-crowned Kinglet												
	Ruby-crowned Kinglet												
Nuthatches	Red-breasted Nuthatch												
	White-breasted Nuthatch												
Owls	Barn Owl												
	Great Horned Owl												
	Northern Pygmy Owl												
	Northern Saw-whet Owl												
	Western Screech-Owl												
Pigeons	Mourning Dove												
	Band-Tailed Pigeon												
Sparrows	Black-headed Grosbeak												
	Evening Grosbeak												
	Dark-eyed Junco												
	Chipping Sparrow												
	Fox Sparrow												
	Golden-crowned Sparrow												
	Song Sparrow												
	White-crowned Sparrow												
	Spotted Towhee												

GROUP	SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Swallows	Barn Swallow												
	Tree Swallow												
	Violet-green Swallow												
Thrushes	Hermit Thrush												
	Swainson's Thrush												
	American Robin												
	Varied Thrush												
Vireos	Hutton's Vireo												
	Cassin's Vireo												
	Warbling Vireo												
Warblers	Black-throated Gray												
	McGillvrey's Warbler												
	Orange-crowned Warbler												
	Townsend's Warbler												
	Wilson's Warbler												
	Yellow Warbler												
	Yellow-rumped Warbler												
Woodpeckers	Northern Flicker												
	Downy Woodpecker												
	Hairy Woodpecker												
	Pileated Woodpecker												
Wrens	Bewicks Wren												
	House Wren												
	Winter Wren												

Other Native Birds	Brown Creeper												
	Common Crow												
	Ruffed Grouse												
	Great Blue Heron												
	Belted Kingfisher												
	California Quail												
	Raven												
	Western Tanager												
	Turkey Vulture												
	Cedar Waxwing												

Non-native Birds	English house sparrow												
	European starling												
	Ring Necked Pheasant												
	Rock Dove												

Bats	Big Brown Bat												
	Hoary Bat												
	Long-eared Bat												

Deer	Black-tailed Deer												
	Elk												

GROUP	SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Mole & Shrews	Vagrant Shrew												
	Marsh Shrew												
	Townsend's Mole												
	Coast Mole												
	Shrew Mole												

Rabbits & Rodents	Brush Rabbit												
	Mountain Beaver												
	American Beaver												
	American Porcupine												
	Douglas Gray Squirrel												
	Western Gray Squirrel												
	Northern Flying Squirrel												
	California Ground Squirrel												
	Townsend's Chipmunk												
	Camas Pocket Gopher												
	Deer Mouse												
	Voles (8 species)												
	Common Muskrat												
	Pacific Jumping Mouse												
	Bushy-tailed Woodrat												

Carnivores	Coyote												
	Red Fox												
	Gray Fox												
	Bobcat												
	Mountain Lion												
	Black Bear												
	Raccoon												
	Weasels												
	Mink												
	River Otter												
	Striped Skunk												

Seals	Harbor Seal												
	California Sea Lion												

Non-native Mammals	Virginia Opossum												
	Eastern Cottontail Rabbit												
	Nutria												
	Fox Squirrel												
	Eastern Gray Squirrel												
	House Mouse												
	Norway Rat												

C: Resources

Annual Plant Sales C:1

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Annual Native Plant Sales

AUDUBON SOCIETY OF PORTLAND

(April/May)

CLACKAMAS COUNTY MASTER GARDENERS' SPRING GARDEN FAIR

(May)

EAST MULTNOMAH SOIL AND WATER CONSERVATION DISTRICT

January/February

LEACH BOTANICAL GARDEN

(April and September)

THE HARDY PLANT SOCIETY

(April and September)

TRYON CREEK TRILLIUM FESTIVAL

(usually in April)

TRYON CREEK WATERSHED COUNCIL

(April)

TUALATIN HILLS NATURE PARK

(April)

NOTE: These lists are not comprehensive and are not intended as an endorsement.

Books & Publications

BIRDS & OTHER WILDLIFE

A FIELD GUIDE TO COMMON PLANTS, BIRDS AND MAMMALS OF THE PORTLAND-BEAVERTON AREA

Simpson, Lenore B

1987. Beaverton School District, Beaverton, OR.

A GUIDE TO BIRD BEHAVIOR

Stokes, Donald and Lillian Stokes

1979. Little, Brown and Company, Boston, MA

[Series of three; other guidebooks also available.]

THE AUDUBON SOCIETY HANDBOOK FOR BUTTERFLY WATCHERS

Pyle, Robert

1984. Charles Scribner's Sons, New York, NY

[Pacific Northwest author.]

THE BUTTERFLY BOOK

Stokes, Donald, Lillian Stokes, and Ernest Williams

1991. Little, Brown and Company, Boston, MA.

AMPHIBIANS OF OREGON, WASHINGTON, AND BRITISH COLUMBIA: A FIELD IDENTIFICATION GUIDE

Corkran, Charlotte C. and Chris Thoms

1996. Lone Pine Publishing, Redmond, WA.

ATTRACTING BIRDS TO YOUR BACKYARD: 536 WAYS TO TURN YOUR YARD AND GARDEN INTO A HAVEN FOR YOUR FAVORITE BIRDS

Roth, Sally

1998. Rodale Press, Emmaus, PA.

THE BACKYARD NATURALIST

Tufts, Craig E.

1987. National Wildlife Federation, Washington, DC.

BIRDS OF THE PACIFIC NORTHWEST MOUNTAINS

Wassink, Jan L.

1995. Mountain Press Publishing, Missoula, MT.

BUTTERFLIES AFIELD IN THE PACIFIC NORTHWEST

Neill, W.A. and D.J. Hepburn

1976. Pacific Search Press, Seattle, WA.

FAMILIAR BIRDS OF THE NORTHWEST

Nehls, Harry B.

1981. Portland Audubon Society, Portland, OR

THE FORGOTTEN POLLINATORS

Buchman, Stephen L. and Gary Paul Nabhan

1996. Island Press, Washington, DC.

GARDENING WITH WILDLIFE KIT

National Wildlife Federation

1990. National Wildlife Federation, Washington, DC.

HUMBLEBEE BUMBLEBEE: THE LIFE STORY OF THE FRIENDLY BUMBLEBEES AND THEIR USE BY THE BACKYARD GARDENER

Griffin, Brian L.

1997. Knox Cellars Publishing, Bellingham, WA.

HUMMINGBIRD GARDENS: ATTRACTING NATURE'S JEWELS TO YOUR BACKYARD

Newfield, Nancy L. and Barbara Nielsen

1996. Chapters Publishing, Shelburne, Vermont.

LITTLE MAMMALS OF THE PACIFIC NORTHWEST

Kritzman, Ellen

1977. Pacific Search Press, Seattle, WA.

THE ORCHARD MASON BEE: THE LIFE HISTORY, BIOLOGY, PROPAGATION AND USE OF A TRULY BENEVOLENT AND BENEFICIAL INSECT

Griffin, Brian L.

1993. Knox Cellars Publishing, Bellingham, WA.

PLANTS AND ANIMALS OF THE PACIFIC NORTHWEST

Kozloff, Eugene N.

1976. University of Washington Press, Seattle, WA.

WILD NEIGHBORS: THE HUMANE APPROACH TO LIVING WITH WILDLIFE

Hadidian, John, Guy R. Hodge, and John W Grandy (Eds)

The Humane Society of the United States, Washington, DC.

COMPOST & SOIL**GROUNDWORK: A GARDENER'S ECOLOGY**

Swaim, Roger

1994. Houghton Mifflin Company, Boston.

IMPROVING THE SOIL

Hynes, Erin

1994. Rodale Press, Emmaus, PA.

LET IT ROT: THE HOME GARDENER'S GUIDE TO COMPOSTING

Campbell, Stu

1975. Storey Communications, Inc., Pownal, VT.

THE MULCH BOOK: A COMPLETE GUIDE FOR GARDENERS

Campbell, Stu

1991. Storey Publishing, Pownal, VT.

LANDSCAPING**THE BUTTERFLY GARDEN**

Tekulsky, Mathew

1985. The Harvard Common Press, Boston, MA.

THE CHEMICAL-FREE LAWN

Schultz, Warren

1989. Rodale Press, Emmaus, PA.

GARDENING FOR WILDLIFE

Tufts, Craig E. and Peter Loewer

1995. Rodale Press, Emmaus, PA.

GARDENING WITH NATIVE PLANTS OF THE PACIFIC NORTHWEST

Kruckeberg, Arthur R.

1996. University of Washington Press, Seattle, WA
[Original edition published in 1982.]

GOING NATIVE: BIODIVERSITY IN OUR OWN BACKYARDS

Marinelli, Janet (Ed.)

1994. Brooklyn Botanical Garden, Brooklyn, New York.

GREAT GARDEN SOURCES: A SOURCEBOOK OF DESIGN IDEAS AND GARDEN SUPPLIERS FOR BOTH NOVICE & EXPERIENCED NORTHWEST GARDENERS

Simpson, Nan Booth

1994. The Authors Communication Team, Portland, OR.

GROW WILD

Johnson, Lorraine

1998. Low-Maintenance, Sure-Success, Distinctive Gardening with Native Plants
Fulcrum Pub, Golden, CO.

GROWING PLANTS FOR FREE

Bryant, Geoff

1995. Cassell Publishers Limited, London.

MARIA RODALE'S ORGANIC GARDENING

Rodale, Maria

1998. Rodale Press Inc, Emmaus, PA.

MOSS GARDENING: INCLUDING LICHENS, LIVERWORTS AND OTHER MINIATURES

Schenk, George

1997. Timber Press, Portland, OR.

THE NATURAL GARDEN BOOK: A HOLISTIC APPROACH TO GARDENING

Harper, Peter

1994. Simon & Schuster, New York, NY.

THE NATURAL WATER GARDEN: POOLS, PONDS, MARSHES & BOGS FOR BACKYARDS EVERYWHERE

Burrell, C. Colston (Ed.)

1997. Brooklyn Botanical Garden, Brooklyn, NY.

NATURALISTIC GARDENING: REFLECTING THE PLANTING PATTERNS OF NATURE

Lovejoy, Ann

1998. Sasquatch Books, Seattle, WA.

NATURESCAPING: A PLACE FOR WILDLIFE

Weston, Shann (Ed.)

1993. Oregon Department of Fish & Wildlife, Portland, OR

NOAH'S GARDEN: RESTORING THE ECOLOGY OF OUR OWN BACKYARDS

Stein, Sara B

1993. Houghton Mifflin Co, New York, NY.

NORTHWEST GARDEN STYLE: IDEAS, DESIGNS, AND METHODS FOR THE CREATIVE GARDENER

Whitner, Jan Kowalczewski

1996. Sasquatch Books, Seattle, WA.

THE NORTHWEST GARDENERS' RESOURCE DIRECTORY, 7TH EDITION

Feeney, Stephanie (Ed.)

1997. Cedarcroft Press, Bellingham, WA
[Updated frequently] Ferns to Know in Oregon
Oregon State University Extension Service, Corvallis, OR.

NORTHWEST NATIVE PLANTS: IDENTIFICATION AND PROPAGATION FOR REVEGETATION AND RESTORATION PROJECTS

King County Dept of Natural Resources, Seattle, WA.

PLANTING NOAH'S GARDEN: FURTHER ADVENTURES IN BACKYARD ECOLOGY

Stein, Sara B

1997. Houghton Mifflin Co, New York, NY.

PRACTICAL WATER GARDENING

Rees, Yvonne

1994. Crowood Press, Wiltshire, England.

PROPAGATION OF PACIFIC NORTHWEST NATIVE PLANTS

Rose, Robin, Caryn Chachulski and Diane Haase

1998. OSU Press, Corvallis, OR.

REDESIGNING THE AMERICAN LAWN: A SEARCH FOR ENVIRONMENTAL HARMONY 1993. BORMANN, F. HERBERT, ET AL

1992. Yale University Press, New Haven, CT.

SECOND NATURE: A GARDENER'S EDUCATION

Pollan, Michael

1991. Atlantic Monthly, New York, NY.

STEP-BY STEP PONDS, POOLS AND ROCKERIES

Swift, Penny and Janek Szymanowski

1995. New Holland Press, London.

SUCCESS WITH YOUR GARDEN POND

Stadelmann, Peter

1994. Merehurst Limited, London.

SUNSET IDEAS FOR SMALL-SPACE GARDENS

Editors of Sunset Books

1978. Lane Publishing Company, Menlo Park, CA.

SUNSET WESTERN GARDEN BOOK

Editors of Sunset Magazine

1995. Lane Magazine and Book Company, Menlo Park, CA.

THE 20-MINUTE GARDENER: THE GARDEN OF YOUR DREAMS WITHOUT GIVING UP YOUR LIFE, YOUR JOB, OR YOUR SANITY

Christopher, Tom and Marty Asher
1997. Random House, New York, NY.

THE WILD LAWN HANDBOOK: ALTERNATIVES TO THE TRADITIONAL FRONT LAWN

Daniels, Stevie
1995. Macmillan, New York, NY.

YOUR GARDEN POND

Wieser, K.H. and P.V. Loisell

WATER-SAVING GARDENING

Taylor's Guide
1990. Houghton Mifflin Company, Boston, MA.

MISCELLANEOUS

GUIDE TO RECYCLED PRODUCTS

Metro
Published Periodically
Metro, Portland, OR.

THE HAZARDLESS HOME HANDBOOK: A GUIDE TO HAZARDOUS HOUSEHOLD PROJECTS AND EFFECTIVE ALTERNATIVES

Metro and Oregon Department of Environmental Quality
Metro Recycling Information Center, Portland, OR.

HOUSEHOLD ECOTEAM WORKBOOK: A SIX-MONTH PROGRAM TO BRING YOUR HOUSEHOLD INTO ENVIRONMENTAL BALANCE

Gershon, David and Robert Gilman
1992. Global Action Plan for the Earth, Woodstock, NY.

TOOLS, TREES, AND TRANSFORMATION: A COLLECTION OF RESTORATION STORIES FROM SCHOOLS AND COMMUNITY GROUPS IN AND AROUND PORTLAND

Wetlands Conservancy
1997. The Wetlands Conservancy, Tualatin, OR.

WATERSHEDS, WETLANDS, FORESTS, STREAMS: LEARNING OPPORTUNITIES NEXT DOOR, LINKING SCHOOLS WITH NATURAL RESOURCE AREAS

Cross, Susan and Patrick Willis
Jackson Bottom Wetland Preserve, Hillsboro, OR.

THE WETLANDS CONSERVANCY, TUALATIN, OR.

Citizens' Regional Watershed Handbook
1995

WHY WE GARDEN: CULTIVATING A SENSE OF PLACE

Nollman, Jim
1996. Henry Holt and Co.

PLANTS

COASTAL WILDFLOWERS OF THE PACIFIC NORTHWEST: WILDFLOWERS AND FLOWERING SHRUBS FROM BRITISH COLUMBIA TO NORTHERN CALIFORNIA

Horn, Elizabeth L.
1993. Mountain Press, Missoula, Montana.

DISCOVERING WILD PLANTS: ALASKA, WESTERN CANADA, THE NORTHWEST

Schofield, Janice J.
1989. Alaska Northwest Books, Seattle, WA.

FAMILIAR FRIENDS: NORTHWEST PLANTS

Whittlesey, Rhoda
1985. Rose Press, Portland, OR.

FLORA OF THE PACIFIC NORTHWEST

Hitchcock, Leo C. and Arthur Cronquist
1973. University of Washington Press, Seattle, WA.

HORTUS WEST: A WESTERN NORTH AMERICA NATIVE PLANT DIRECTORY & JOURNAL

Shank, Dale (Ed.)
Published semi-annually
PO Box 2870, Wilsonville, OR 97070. [Single issues available.]

MOSSES, LICHENS & FERNS OF NORTHWEST NORTH AMERICA

Vitt, Dale H., et al
1988. Lone Pine Publishing, Redmond, WA.

MOUNTAIN PLANTS OF THE PACIFIC NORTHWEST

Taylor, Ronald J. and George W. Douglas
1995. Mountain Press Publishing Co, Missoula, MT.

MY WEEDS: A GARDENER'S BOTANY

Stein, Sara B
1988. Houghton Mifflin, New York, NY.

NATIVE PLANTS IN THE COASTAL GARDEN

Pettinger, April
1996. Whitecap Books, Vancouver, BC.

PACIFIC COAST BERRY FINDER

Keator, Glenn
1978. Nature Study Guild, Berkeley, CA.

PACIFIC COAST FERN FINDER

Keator, Glenn & Ruth Atkinson
1981. Nature Study Guild, Berkeley, CA.

PACIFIC COAST TREE FINDER

Watts, Tom
1973. Nature Study Guild, Berkeley, CA.

PLANTS AND ANIMALS OF THE PACIFIC NORTHWEST

Kozloff, Eugene N.
1976. University of Washington Press, Seattle, WA.

PLANTS OF THE PACIFIC NORTHWEST COAST: WASHINGTON, OREGON, BRITISH COLUMBIA & ALASKA

Pojar, Jim and Andy MacKinnon (Ed.)
1994. Lone Pine Publishing, Redmond, WA.

PORTLAND PLANT LIST

Portland Bureau of Planning
2004. City of Portland, Portland, OR
[Available on-line at www.naturescape.org]

TREES & SHRUBS FOR PACIFIC NORTHWEST GARDENS, 2ND EDITION

Grant, John A. and Carol L. Grant
1990. Timber Press, Portland, OR.

TREES TO KNOW IN OREGON

Jensen, Edward C. and Charles R. Ross
1950. Oregon State University Extension Service and the Oregon State Forestry Department, Corvallis, OR
[OSU Extension Circular No 1450; reprinted 1995]

WAYSIDE WILDFLOWERS OF THE PACIFIC NORTHWEST

Strickler, Dee
1993. The Flower Press, Columbia Falls, MT.

WILDFLOWERS 1: THE CASCADES

Horn, Elizabeth L.
1972. Touchstone Press, Beaverton, OR.

WILDFLOWERS OF THE COLUMBIA GORGE

Jolly, Russ
1988. Oregon Historical Society Press, Portland, OR

WILDFLOWERS OF THE OLYMPICS AND CASCADES

Stewart, Charles
1994. Nature Education Enterprises, Port Angeles, WA

WILDFLOWERS OF THE WESTERN CASCADES

Ross, Robert A. and Henrietta L. Hambers"
1988. Timber Press, Portland, OR

WETLAND PLANTS OF OREGON & WASHINGTON

Guard, B. Jennifer
1995. Lone Pine Publishing, Redmond, WA.

WEEDS & OTHER PESTS

COMMON SENSE GARDENING: A GUIDE TO ALTERNATIVES TO PESTICIDES

Metro and the City of Portland Bureau of Environmental Services
1995. Metro Recycling Information Center, Portland, OR.

COMMON SENSE PEST CONTROL QUARTERLY

Olkowski, William (Ed.)
Published quarterly

COMMON-SENSE PEST CONTROL

Olkowski, William, Sheila Daar, Helga Olkowski
1991. The Taunton Press, Newtown, CT.

THE IPM PRACTITIONER

Olkowski, William and Helga Olkowski (Ed.)
P.O. Box 7414, Berkeley, CA 94707, (510) 524-2567

INVASIVE PLANTS: WEEDS OF THE GLOBAL GARDEN

Randall, John M. & Janet Marinelli
1996. Brooklyn Botanical Garden, Brooklyn, New York.

LEAST TOXIC PEST MANAGEMENT FOR LAWNS

Daar, Sheila (Ed)
1992. Bio-Integral Resource Center, Berkeley, CA

**NORTHWEST WEEDS: THE UGLY AND
BEAUTIFUL VILLAINS OF FIELDS, GARDENS,
AND ROADSIDES**

Taylor, Ronald J.

1990. Mountain Press Publishing Co, Missoula, MT.

**ORGANIC PEST & DISEASE CONTROL: HOW TO
GROW A HEALTHY, PROBLEM-FREE GARDEN**

Ellis, Barbara

1997. Houghton Mifflin Co, New York.

WEEDS OF THE PACIFIC NORTHWEST

Gilkey, Helen M.

1975. Oregon State University, Corvallis, OR.

WEEDS OF THE WEST, 5TH EDITION

Whitson, Tom D. (Ed.)

1996. The Western Society of Weed Science,
Newark, CA

[In cooperation with the Western U.S
Land Grant Universities Cooperative Extension
Services

Organizations

AUDUBON SOCIETY OF PORTLAND

5151 NW Cornell Rd

Portland, OR 97210

(503) 292-6855

<http://www.audubonportland.org>

BAT CONSERVATION INTERNATIONAL

PO Box 162603

Austin, TX 78716

(512) 327-9721

<http://www.batcon.org>

THE BERRY BOTANIC GARDEN

11505 Summerville Ave

Portland, OR 97219

(503) 636-4112

<http://www.berrybot.org>

CLEAN WATER SERVICES

155 N. First Avenue Suite 270

Hillsboro OR 97124

(503) 648-8621

<http://www.cleanwaterservices.org>

CORNELL LABORATORY OF ORNITHOLOGY

Project Feederwatch

159 Sapsucker Woods Rd

Ithaca, NY 14850

(607) 254-2414

<http://www.birds.cornell.edu>

**EAST MULTNOMAH SOIL AND WATER
CONSERVATION DISTRICT (EMSWCD)**

5211 N Williams Ave.

Portland, OR 97217

<https://www.emswcd.org>

EMPOWERMENT INSTITUTE

84 Yerry Hill Rd.

Woodstock, NY 12498

(914) 679-4830

<http://www.empowermentinstitute.net>

FRIENDS OF TREES

3117 NE Martin Luther King Blvd

Portland, OR 97212

(503) 282-8846

<http://www.friendsoftrees.org>

THE HARDY PLANT SOCIETY

PO Box 5090

Oregon City, OR 97045

<http://www.hardyplantsociety.org>

HOYT ARBORETUM VISITORS CENTER

4000 SW Fairview Blvd

Portland, OR 97221

(503) 228-8733

<http://www.hoytarboretum.org>

LADY BIRD JOHNSON WILDFLOWER CENTER

2600 FM 973 North

Austin, TX 78725

(512) 929-3600

<http://www.wildflower.org>

LEACH BOTANICAL GARDEN

6704 SE 122nd Ave

Portland, OR 97236

(503) 761-9503

<http://www.leachgarden.org>

METRO

600 NE Grand Ave

Portland, OR 97232

(503) 797-1700 Switchboard

(503) 797-1850 Reg. Parks & Greenspaces

(503) 234-3000 Recycling Info. Center

(recycling, composting, alternatives)

to pesticides)
<http://www.metro-region.org>

NATIONAL WILDLIFE FEDERATION

Backyard Habitat Program
Hampden Station, Box 50281
Baltimore, MD 21211-4281
(703) 438-6000
<http://www.nwf.org>

NATIVE PLANT SOCIETY OF OREGON

2584 NW Savier St
Portland, OR 97210
<http://www.npsoregon.org>

THE NATURE CONSERVANCY

821 SE 14th Ave.
Portland, OR 97214
(503) 230-1221
<http://www.nature.org>

NW COALITION FOR ALTERNATIVES TO PESTICIDES

PO Box 1393
Eugene, OR 97440
(503) 344-5044
<http://www.pesticide.org>

OREGON DEPT OF ENVIRONMENTAL QUALITY

811 SW 6th Ave
Portland, OR 97204
(503) 229-5913
(800) 452-4011
<http://www.oregon.gov/DEQ>

OREGON DEPT OF FISH AND WILDLIFE

2509 SW 1st Ave
PO Box 59
Portland, OR 97207
(503) 872-5264
<http://www.dfw.state.or.us>

OREGON DIVISION OF STATE LANDS

Permitting Stream Bank Repairs
775 Summer St NE
Salem, OR 97310
(503) 378-3805 x 274
<http://www.oregon.gov/DSL>

OREGON WATER RESOURCES DEPARTMENT

955 Center NE
Salem, OR 97310
(503) 378-8455
<http://egov.oregon.gov/OWRD>

OSU EXTENSION SERVICE

211 SE 80th Ave
Portland, OR 97215
(503) 725-2000 Multnomah County
(Master Gardeners & Master Recyclers)
(503) 725-2054 (Wildlife Stewards)
<http://extension.oregonstate.edu>

OREGON TILTH

31615 Fern Rd
Philomath, OR 97370
(503) 929-6742
<http://www.tilth.org>

PACIFIC NORTHWEST CHAPTER INTERNATIONAL SOCIETY OF ARBORICULTURE

PO Box 30713
Seattle, WA 98103
(206) 784-1945
<http://www.pnwisa.org>

CITY OF PORTLAND

1120 SW 5th Ave
Portland, OR 97204
(503) 823-7740 Environmental Services
(503) 823-5858 Downspout Disconnection Program
(503) 823-4489 Forestry Division
(503) 823-7222 Office of Sustainable Development
(503) 823-7770 Water Bureau
(503) 823-7300 Office of Planning and Development
(503) 823-7526 Planning Bureau (zoning)
(503) 823-2862 SW Watershed Resource Center
<http://www.portlandonline.com>

RECYCLING ADVOCATES

P.O. Box 6736
Portland, OR 97228
(503) 777-0909
<http://www.recyclingadvocates.org>

SUSTAINABLE COMMUNITIES NORTHWEST

2333 NE 11th Ave.
Portland, OR 97212
(503) 288-1099

TRYON CREEK NATURE CENTER

11321 SW Terwilliger Blvd
Portland, OR 97219
(503) 646-4398 (friends office)

USDA NATURAL RESOURCES CONSERVATION SERVICE

2115 SE Morrison St
Portland, OR 97214
(503) 231-2270
<http://www.nrcs.usda.gov>

THE WETLANDS CONSERVANCY

Urban Streams Council
PO Box 1195
Tualatin, OR 97062
(503) 691-1394
<http://www.wetlandsconservancy.org>

THE XERCES SOCIETY

4828 SE Hawthorne Blvd.
Portland, OR 97215
(503) 232-6639
(Conservation of butterflies and other invertebrates)
<http://www.xerces.org>

*Places to See Native Plants in
Natural Settings in the Portland
Metro Area*

PORTLAND

BERRY BOTANICAL GARDEN

<http://www.berrybot.org>

FOREST PARK

<http://www.portlandonline.com/parks/finder/index.cfm?PropertyID=127&action=ViewPark>

HOYT ARBORETUM IN PORTLAND

<http://www.hoytarboretum.org>

LEACH BOTANICAL GARDEN

<http://www.leachgarden.org>

MARQUAM NATURE PARK

http://www.40mileloop.org/trail_marquam.htm

PORTLAND COMMUNITY COLLEGE, ROCK CREEK CAMPUS

<http://www.pcc.edu/resources/rcesc>

SMITH BYBEE LAKES

<http://www.portlandonline.com/parks/finder/index.cfm?PropertyID=672&action=ViewPark>

TRYON CREEK STATE PARK

http://www.oregonstateparks.org/park_144.php

HEADING NORTH

RIDGEFIELD WILDLIFE REFUGE

<http://www.fws.gov/ridgefieldrefuges>

SAUVIE ISLAND WILDLIFE REFUGE

<http://sauvieisland.org/visitor-information/natural-attractions/sauvie-island-wildlife-refuge>

HEADING WEST

JACKSON BOTTOM WETLAND

<http://www.jacksonbottom.org>

TUALATIN HILLS NATURE PARK

<http://www.thprd.org/facilities/naturepark/home.cfm>

HEADING EAST

POWELL BUTTE

<http://www.portlandonline.com/parks/finder/index.cfm?PropertyID=528&action=ViewPark>

JOHN INSKEEP ENVIRONMENTAL LEARNING CENTER AT CLACKAMAS COMMUNITY COLLEGE

<http://depts.clackamas.cc.or.us/elc>

LEWIS & CLARK STATE RECREATION AREA

http://www.oregonstateparks.org/park_159.php

OWBOW REGIONAL PARK

<http://www.oregonmetro.gov/index.cfm/go/by.web/id=150>

BRIDAL VEIL STATE PARK

http://www.oregonstateparks.org/park_149.php

Weeds & Invasive Species

FOUR COUNTY COOPERATIVE WEED MANAGEMENT AREA

info@4countycwma.org
<http://www.4countycwma.org>

D: Nuisance plant list *from the Portland Plant List*

These plants which are considered a nuisance because of their tendency to dominate plant communities, and/or plants which are considered harmful to humans. For updates to this list, please search for "Portland Plant List" in your web browser.

BY COMMON NAME **EXCEPT CULTIVARS AND VARIETIES*

Alsike Clover, <i>Trifolium hybridum</i>	English, Portugese Laurel, <i>Prunus laurocerasus</i>
Annual Bluegrass, <i>Poa annua</i>	Eurasian Watermilfoil <i>Myriophyllum spicatum</i>
Annual Ryegrass <i>Lolium multiflorum</i>	European Avens, <i>Geum urbanum</i>
Bamboo Sp., <i>various genera</i>	European Mountain Ash, <i>Sorbus aucuparia*</i>
Bird's Foot Trefoil <i>Lotus corniculatus</i>	European Soft Rush, <i>Juncus effusus</i> v. <i>effusus</i>
Black Locust, <i>Robinia pseudoacacia*</i>	European Watercress, <i>Rorippa nasturtium-aquaticum</i>
Blessed Milk Thistle, <i>Silybum marianum</i>	Evergreen Blackberry, <i>Rubus laciniatus</i>
Blue Bindweed, <i>Solanum dulcamara</i>	Fall Dandelion <i>Leontodon autumnalis</i>
Brown Knapweed, <i>Centaurea jacea</i>	False Brome, <i>Brachypodium sylvaticum</i>
Butterfly Bush, <i>Buddleia davidii</i>	Fennel, <i>Foeniculum vulgare</i>
Canada Thistle, <i>Cirsium arvense</i>	Field Morning-Glory, <i>Convolvulus arvensis</i>
Chameleon Plant, <i>Houttuynia cordata</i>	Fragrant Water Lily <i>Nymphaea odorata</i>
Cheatgrass, <i>Bromus tectorum</i>	Garden Nightshade, <i>Solanum nigrum</i>
Chicory, <i>Chicorum intybus</i>	Garlic Mustard, <i>Alliaria officinalis</i>
Climbing Bindweed, <i>Polygonum convolvulus</i>	Giant Hogweed, <i>Heracleum mantegazzianum</i>
Common Bladderwort, <i>Utricularia vulgaris</i>	Giant Horsetail, <i>Equisetum telemateia</i>
Common Burdock, <i>Arctium minus</i>	Giant Knotweed, <i>Polygonum sachalinense</i>
Common Dandelion, <i>Taraxacum officinale</i>	Golden Chain Tree, <i>Laburnum watereri</i>
Common Horsetail, <i>Equisetum arvense</i>	Gorse, <i>Ulex europaeus</i>
Common Reed, <i>Phragmites australis</i>	Goutweed, <i>Aegopodium podagraria</i> and <i>variegated varieties</i>
Common Tansy, <i>Tanacetum vulgare</i>	Hairy Nightshade, <i>Solanum sarrachoides</i>
Common Teasel, <i>Dipsaucus fullonum</i>	Hairy Vetch, <i>Vicia villosa</i>
Common Thistle, <i>Cirsium vulgare</i>	Harding Grass, <i>Phalaris aquatica</i>
Common Vetch, <i>Vicia sativa</i>	Hare's Foot Clover, <i>Trifolium arvense</i>
Crane's Bill, <i>Erodium cicutarium</i>	Hawthorn (except native species), <i>Crataegus sp. except suksdorfii</i>
Creeping Buttercup, <i>Ranunculus repens</i>	Hedge Mustard, <i>Sisyrimbium officinale</i>
Creeping Jenny <i>Lysimachia nummularia</i>	Himalayan Knotweed, <i>Polygonum polystachyum</i>
Cultivated Rye, <i>Secale cereale</i>	Hoary Cress, <i>Cardaria draba</i>
Curly Dock, <i>Rumex crispus</i>	Hydrilla, <i>Hydrilla verticillata</i>
Curly Leaf Pondweed, <i>Potamogeton crispus</i>	Italian Thistle, <i>Carduus pycnocephalus</i>
Cutleaf Birch, <i>Betula pendula lacinata</i>	Japanese Brome-Grass, <i>Bromus japonicus</i>
Dalmation Toadflax <i>Linaria dalmatica sp. dalmatica</i>	Japanese Knotweed, <i>Polygonum cuspidatum</i>
Diffuse Knapweed, <i>Centaurea diffusa</i>	Johnson Grass, <i>Sorghum halepense</i>
Doorweed, <i>Polygonum aviculare</i>	Kudzu, <i>Pueraria lobata</i>
Duckweed, Water Lentil <i>Lemna minor</i>	Lady's-Nightcap, <i>Convolvulus seppium</i>
English Holly, <i>Ilex aquafolium</i>	

Lemon Balm <i>Melissa officianalis</i>	Scotch Thistle <i>Onopordum acanthium</i>
Lesser Celandine, <i>Chelidonium majou</i>	Shining Geranium, <i>Geranium lucidum</i>
Lesser Celandine, <i>Ranunculus ficaria</i>	Siberian Elm, <i>Ulmus pumila</i>
Meadow Foxtail, <i>Alopecurus pratensis</i>	Slender Flowered Thistle, <i>Carduus tenuifolius</i>
Meadow Knapweed, <i>Centaurea pratensis</i>	Smooth Brome-Grasses, <i>Bromus inermis</i>
Medusahead, <i>Taeniatherum caput-medusa</i>	Smooth Hawkweed, <i>Hieracium laevigatum</i>
Mole Plant, <i>Euphorbia lathyris</i>	Soft Brome, <i>Bromus hordeaceus</i>
Money Plant <i>Lunaria annua</i>	South American Waterweed, <i>Egeria densa</i>
Moth Mullein, <i>Verbascum blattaria</i>	South American Waterweed, <i>Elodea densa</i>
Mouse-Ear Hawkweed, <i>Hieracium pilosella</i>	Spatula Leaf Purslane <i>Lythrum portula</i>
Mullein, <i>Verbascum thapsus</i>	Spiny Cocklebur, <i>Xanthium spinosum</i>
Multiflora Rose, <i>Rosa multiflora</i>	Spotted Cat's Ear, <i>Hypochaeris radicata</i>
Musk Thistle, <i>Carduus nutans</i>	Spotted Knapweed, <i>Centaurea biebersteinii</i>
Nipplewort <i>Lapsana communis</i>	St. John's Wort, <i>Hypericum perforatum</i>
Norway Maple, <i>Acer platanoides</i>	Subterranean Clover, <i>Trifolium subterraneum</i>
Orange Hawkweed, <i>Hieracium aurantiacum</i>	Sweet Briar, <i>Rosa eglanteria</i>
Oxeye Daisy <i>Leucanthemum vulgare</i>	Sweet Cherry, <i>Prunus avium*</i>
Pampas Grass, <i>Cortaderia selloana</i>	Sweet Vernalgrass, <i>Anthoxanthum odoratum</i>
Parentucellia <i>Parentucellia viscosa</i>	Sweet Woodruff, <i>Galium odoratum</i>
Parrots Feather <i>Myriophyllum aquaticum</i>	Sweetclover <i>Melilotus alba</i>
Penny Royal <i>Mentha pulegium</i>	Swollen Bladderwort, <i>Utricularia inflata</i>
Perennial Sowthistle, <i>Sonchus arvensis</i> sp. <i>arvensis</i>	Tall Fescue, <i>Festuca arundinacea</i>
Periwinkle (Large Leaf), <i>Vinca major</i>	Tall Oatgrass, <i>Arrhenatherum elatius</i>
Periwinkle (Small Leaf), <i>Vinca minor</i>	Tall Verbena, <i>Verbena bonariensis</i>
Plumeless Thistle, <i>Carduus acanthoides</i>	Tansy Ragwort, <i>Senecio jacobaea</i>
Poison Oak, <i>Rhus diversiloba</i>	Timothy Grass, <i>Phleum pratensis</i>
Poison-Hemlock, <i>Conium maculatum</i>	Traveler's Joy, <i>Clematis vitalba</i>
Pokeweed, <i>Phytolacca americana</i>	Tree-Of-Heaven, <i>Ailanthus altissima</i>
Policemen's Helmet, <i>Impatiens glandulifera</i>	Tufted Vetch, <i>Vicia cracca</i>
Pond Water Starwort, <i>Callitriche stagnalis</i>	Velvet Grass, <i>Holcus lanatus</i>
Poverty Grass, <i>Bromus sterilis</i>	Wall Lettuce <i>Lactuca muralis</i>
Prickly Lettuce <i>Lactuca serriola</i>	Water Primrose <i>Ludwigia hexapetala</i>
Princess Tree <i>Paulownia tomentosa</i>	Water Smartweed, <i>Polygonum coccineum</i>
Privet <i>Ligustrum vulgare</i>	Western Clematis, <i>Clematis ligusticifolia</i>
Quack Grass, <i>Agropyron repens</i>	White Campion <i>Lychnis alba</i>
Queen Anne's Lace, <i>Daucus carota</i>	White Campion, <i>Silene alba</i>
Rat-Tailed Fescue, <i>Vulpia myuros</i> [<i>Festuca myuros</i>]	White Clover, <i>Trifolium repens</i>
Red Sorrel, <i>Rumex acetosella</i>	White Nancy <i>Lamium maculatum</i>
Ripgut, <i>Bromus diandrus</i>	White Poplar, <i>Populus alba</i>
Robert Geranium, <i>Geranium robertianum</i>	Witchgrass <i>Panicum capillare</i>
Rush Skeletonweed, <i>Chondrilla juncea</i>	Yellow Flag, <i>Iris pseudacorus</i>
Russian Knapweed, <i>Acroptilon repens</i>	Yellow Hawkweed, <i>Hieracium cespitosum</i>

Yellow Sweetclover, *Melilotus officinalis*

Yellow Toadflax, *Linaria vulgaris*

BY SCIENTIFIC NAME *except cultivars and varieties

Acer platanoides, Norway Maple

Acroptilon repens, Russian Knapweed

Aegopodium podagraria, Goutweed and variegated varieties

Agropyron repens, Quack Grass

Ailanthus altissima, Tree-Of-Heaven

Alliaria officinalis, Garlic Mustard

Alopecurus pratensis, Meadow Foxtail

Anthoxanthum odoratum, Sweet Vernalgrass

Arctium minus, Common Burdock

Arrhenatherum elatius, Tall Oatgrass

Bamboo various genera, Bamboo Sp.

Betula pendula lacinata, Cutleaf Birch

Brachypodium sylvaticum, False Brome

Bromus diandrus, Ripgut

Bromus hordeaceus, Soft Brome

Bromus inermis, Smooth Brome-Grasses

Bromus japonicus Japanese Brome-Grass

Bromus sterilis, Poverty Grass

Bromus tectorum, Cheatgrass

Buddleia davidii, Butterfly Bush

Callitriche stagnalis, Pond Water Starwort

Cardaria draba, Hoary Cress

Carduus acanthoides, Plumeless Thistle

Carduus nutans, Musk Thistle

Carduus pycnocephalus, Italian Thistle

Carduus tenuifolius, Slender Flowered Thistle

Centaurea biebersteinii, Spotted Knapweed

Centaurea diffusa, Diffuse Knapweed

Centaurea jacea, Brown Knapweed

Centaurea pratensis, Meadow Knapweed

Chelidonium majou, Lesser Celandine

Chicorium intybus, Chicory

Chondrilla juncea, Rush Skeletonweed

Cirsium arvense, Canada Thistle

Cirsium vulgare, Common Thistle

Clematis ligusticifolia, Western Clematis

Clematis vitalba, Traveler's Joy

Conium maculatum, Poison-Hemlock

Convolvulus arvensis, Field Morning-Glory

Convolvulus sepium, Lady's-Nightcap

Cortaderia selloana, Pampas Grass

Crataegus sp. except suksdorfii, Hawthorn (except native species)

Daucus carota, Queen Anne's Lace

Dipsaucus fullonum, Common Teasel

Egeria densa, South American Waterweed

Elodea densa, South American Waterweed

Equisetum arvense, Common Horsetail

Equisetum telemateia, Giant Horsetail

Erodium cicutarium, Crane's Bill

Euphorbia lathyrus, Mole Plant

Festuca arundinacea, Tall Fescue

Festuca myuros, Rat-Tailed Fescue

Foeniculum vulgare, Fennel

Galium odoratum, Sweet Woodruff

Geranium lucidum, Shining Geranium

Geranium robertianum, Robert Geranium

Geum urbanum, European Avens

Heracleum mantegazzianum, Giant Hogweed

Hieracium aurantiacum, Orange Hawkweed

Hieracium cespitosum, Yellow Hawkweed

Hieracium laevigatum, Smooth Hawkweed

Hieracium pilosella, Mouse-Ear Hawkweed

Holcus lanatus, Velvet Grass

Houttuynia cordata, Chameleon Plant

Hydrilla verticillata, Hydrilla

Hypericum perforatum, St. John's Wort

Hypochaeris radicata, Spotted Cat's Ear

Ilex aquafolium, English Holly

Impatiens glandulifera, Policemen's Helmet

Iris pseudacorus, Yellow Flag

Juncus effusus v. effusus, European Soft Rush

Laburnum watereri, Golden Chain Tree

Lactuca muralis, Wall Lettuce

Lactuca serriola, Prickly Lettuce

Lamium maculatum, White Nancy

Lapsana communis, Nipplewort

Lemna minor, Duckweed Water Lentil
Leontodon autumnalis, Fall Dandelion
Leucanthemum vulgare, Oxeye Daisy
Ligustrum vulgare, Privet
Linaria dalmatica sp.dalmatica, Dalmation Toadflax
Linaria vulgaris, Yellow Toadflax
Lolium multiflorum, Annual Ryegrass
Lotus corniculatus Bird's Foot Trefoil
Ludwigia hexapetala, Water Primrose
Lunaria annua, Money Plant
Lychnis alba, White Campion
Lysimachia nummularia, Creeping Jenny
Lythrum portula, Spatula Leaf Purslane
Melilotus alba, Sweetclover
Melilotus officinalis, Yellow Sweetclover
Melissa officianalis, Lemon Balm
Mentha pulegium, Penny Royal
Myriophyllum aquaticum, Parrots Feather
Myriophyllum spicatum, Eurasian Watermilfoil
Nymphaea odorata, Fragrant Water Lily
Onopordum acanthium, Scotch Thistle
Panicum capillare, Witchgrass
Parentucellia viscosa, Parentucellia
Paulownia tomentosa, Princess Tree
Phalaris aquatica, Harding Grass
Phleum pratensis, Timothy Grass
Phragmites australis, Common Reed
Phytolacca americana, Pokeweed
Poa annua, Annual Bluegrass
Polygonum aviculare, Doorweed
Polygonum coccineum, Water Smartweed
Polygonum convolvulus, Climbing Bindweed
Polygonum cuspidatum Japanese Knotweed
Polygonum polystachyum, Himalayan Knotweed
Polygonum sachalinense, Giant Knotweed
Populus alba, White Poplar
Potamogeton crispus, Curly Leaf Pondweed
Prunus avium, Sweet Cherry*
Prunus laurocerasus, EnglishPortugese Laurel
Pueraria lobata, Kudzu
Ranunculus ficaria, Lesser Celandine
Ranunculus repens, Creeping Buttercup

Rhus diversiloba, Poison Oak
Robinia pseudoacacia, Black Locust*
Rorippa nasturtium-aquaticum, European Watercress
Rosa eglanteria, Sweet Briar
Rosa multiflora, Multiflora Rose
Rubus laciniatus, Evergreen Blackberry
Rumex acetosella, Red Sorrel
Rumex crispus, Curly Dock
Secale cereale, Cultivated Rye
Senecio jacobaea, Tansy Ragwort
Silene alba, White Campion
Silybum marianum, Blessed Milk Thistle
Sisyrinchium officinale, Hedge Mustard
Solanum dulcamara, Blue Bindweed
Solanum nigrum, Garden Nightshade
Solanum sarrachoides, Hairy Nightshade
Sonchus arvensis sp. Arvensis, Perennial Sowthistle
Sorbus aucuparia, European Mountain Ash*
Sorghum halepense, Johnson Grass
Taeniatherum caput-medusa, Medusahead
Tanacetum vulgare, Common Tansy
Taraxacum officinale, Common Dandelion
Trifolium arvense, Hare's Foot Clover
Trifolium hybridum, Alsike Clover
Trifolium repens, White Clover
Trifolium subterraneum, Subterraneum Clover
Ulex europaeus, Gorse
Ulmus pumila, Siberian Elm
Utricularia inflata, Swollen Bladderwort
Utricularia vulgaris, Common Bladderwort
Verbascum blattaria, Moth Mullein
Verbascum thapsus, Mullein
Verbena bonariensis, Tall Verbena
Vicia cracca, Tufted Vetch
Vicia sativa, Common Vetch
Vicia villosa, Hairy Vetch
Vinca major, Periwinkle (Large Leaf)
Vinca minor, Periwinkle (Small Leaf)
Vulpia myuros, Rat-Tailed Fescue
Xanthium spinosum, Spiny Cocklebur

E: A personal plan for stewardship

As has been suggested throughout this workbook, naturescaping is but one way to increase your positive impact on your watershed and its ecological systems. Here is a worksheet where you can list, in one place, the good things you already do and the changes you would like to make in your lifestyle.

Name and address: _____

The Yard

(naturescaping, composting, water use, chemical use, stormwater runoff...)

Good things I do right now: _____

Things I will start doing right away: _____

Things I plan to do in the future: _____

The Home

(water use, chemical use, energy use, recycling...)

Good things I do right now: _____

Things I will start doing right away: _____

Things I plan to do in the future: _____

Transportation

(vehicle maintenance, leaks, used oil, driving less, walking, carpooling, mass transit, bicycling...)

Good things I do right now: _____

Things I will start doing right away: _____

Things I plan to do in the future: _____

At Work

(recycling, energy use, telecommuting, changing the organization...)

Good things I do right now: _____

Things I will start doing right away: _____

Things I plan to do in the future: _____

Personal Life

(other ideas, spreading the word...)

Good things I do right now: _____

Things I will start doing right away: _____

Things I plan to do in the future: _____

F: Downspout disconnect safety considerations

Before you disconnect your downspouts, first consider how best to protect your property as well as your neighbor's property. The following guidelines will help prevent problems for you and your neighbors:

Slope:

- Ensure that slope of the ground allows water to flow away from structures.
- Do not disconnect downspouts and direct water onto slopes over 10%.

Drainage:

- Make sure you have enough landscaped area for rain to soak safely into the ground. (The ground area receiving the water must be at least 10-15% of the roof area that drains to the disconnected downspout.)
- Conduct a percolation test to determine if your yard has proper drainage.

Extensions:

- For houses with basements: Downspout disconnection should discharge at least 6' away.
- For houses without basements: Downspout disconnection should discharge at least 2' from crawl spaces or foundation.
- Downspout extensions and surrounding landscape surface must drain water away from any structures.

Distance: The end of your downspout extension must be:

- 5' from your neighbor's property line.
- 3' from a public sidewalk.
- NOTE: You may need more room if your yard slopes toward your neighbor or the sidewalk.

Access:

- Don't place above-ground extensions where they may limit access and present tripping hazards, such as across walkways, patios, driveways or near gates.

Other hazards:

- Do not disconnect directly over a septic system, drain field or underground oil tank unless they have been decommissioned.
- Do not disconnect within 10' of a retaining wall.

Refer to the Oregon Rain Garden Guide for more detailed instruction, or take a free workshop at www.emswcd.org/workshops.

You can also contact a licensed landscape professional or engineer to find out how to safely store and route water off-site without damage.

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