



Willamette Riverkeeper's **Riverscaping**

A Guide to River-Friendly Landscaping



Produced by
Willamette Riverkeeper
(503) 223-6418
All rights reserved © 2002
Printed on Recycled Paper



TABLE OF CONTENTS

| | |
|---|----|
| Introduction | 2 |
| 1. Minimizing Our Impact | 3 |
| 2. Using Riverscaping to Care for Your Lawn | 4 |
| 3. Riverscaping | 11 |
| Important Considerations | 12 |
| Introduction to Native Plants | 14 |
| Planning Your Landscape | 16 |
| References | 19 |
| Publications and Books | 19 |
| Organizations | 20 |
| Nurseries, Landscapers/Lawn Care | 21 |



The Willamette River
© WRK



You can incorporate structures and native and non-native species to attract wildlife and provide habitat.

Protecting the Willamette—A River of Opportunity

For those of us who live not only in the Willamette Valley, but anywhere in Oregon, the health of the Willamette River is important to our quality of life. Over the years, toxic pollution, habitat degradation and other activities have greatly affected the health of our great Oregon river.

The symptoms are easy to see. The river has resident fish consumption advisories due to toxic contaminants, polluted sediments throughout its reach, threatened listings for spring chinook and steelhead, and diminished water quality. These problems clearly demonstrate that we need to do more to protect and restore the Willamette.

Willamette Riverkeeper is a Willamette Valley non-profit organization whose goal is to protect and restore the Willamette River and its tributaries. We work in communities across the Willamette Valley to identify opportunities for improvement and restoration, and to protect the Willamette where it is threatened.

Because of the difficulties the river faces today, any opportunity to improve conditions, in our view, must be seized. This new guide from Willamette Riverkeeper is one such opportunity that can be used by thousands of people in communities large and small.

Today we know that the effects of our “everyday” activities can directly impact the Willamette River and its tributaries. Small streams and storm drains near our homes can collect local pollutants and transport them to larger streams, and eventually to the Willamette itself. Because of this connection, local activities on a small scale are added to others, creating a larger *cumulative* effect. This effect is well illustrated by our landscaping and lawn care practices.

From the insecticides that are used on our roses, to common herbicides used on our lawns, toxic chemicals are present in the Willamette River system. We know that some commonly used chemicals can diminish the health of certain fish. This *Riverscaping Guide* provides ways that we can reduce our impact on the Willamette River through the actions we take at our own homes. This *Guide* presents thoughtful suggestions and real alternatives to all-too-commonly-used practices.

Protection and restoration of the Willamette Riverscape — those vital waters and lands that sustain the river ecosystem and our quality of life — is a Willamette Valley community endeavor. We hope that this guide helps you do your part to reduce your impact on this great local river. If you have any questions about this guide, or our programs and projects, feel free to give Willamette Riverkeeper a call at 503-223-6418.

For the River,


Travis Williams, Riverkeeper & Executive Director



FROM
STORM
DRAIN



1. MINIMIZING OUR IMPACT: RIVER-FRIENDLY LAWN AND LANDSCAPING CARE

Whether you live on the banks of the Willamette or near a creek, stream, or even a storm drain miles from the nearest visible body of water, the choices you make with regard to your landscaping can have a big impact on water quality throughout the Willamette Valley. The chemicals we use to kill weeds and insects and maintain lush green grass can cause problems as it runs off and leaches into storm drains, creeks, and ground water, eventually winding up in the Willamette. These chemicals can pose

a threat not only to human health but also to the fish and wildlife that call the Willamette River and its tributaries home.

While the impacts of chemicals from one or two lawns might not be that great on a large river such as the Willamette, the cumulative effects of all the lawns and yards on the 187-mile mainstem and all the tributaries and storm drains in the Willamette Watershed can be tremendous!

The U. S. Environmental Protection Agency (EPA), states, “The rate per acre of residential application of pesticides is typically twenty times that of agriculture.”

For example, a U. S. Geological Survey study of pesticides in the Willamette River Basin found that concentrations of several common residential pesticides, including diazinon, were higher in urban sites than in agricultural sites where these products are also commonly used (Anderson, Wood and Morace, 1997).

The commonly used insecticide diazinon has been shown to disrupt predator avoidance and homing behaviors in Chinook salmon (Scholz, et al., 2000) and to disrupt activities important to reproduction in Atlantic salmon (Moore and Waring, 1995).

This leaves many of us wondering what we can do in our yards to minimize our impact on water quality and wildlife while maintaining a healthy landscape. This *Riverscaping Guide* provides practical answers to these kinds of questions as well as resources where you can explore your options in more detail.

Riverscaping is not simply about strategies for landscaping — it’s learning to appreciate the beauty of natural cycles returning to your landscape. Riverscaping is also about seeing how your choices fit into the water quality puzzle. As you begin implementing these ideas, you can help attract wildlife to your yard, learn how to improve the nutrient content and physical structure of your soil, explore the use of native plant species, and become familiar with the seasonal changes that take place in your yard — all while helping to improve water quality on the Willamette River!



2. USING RIVERSCAPING TO CARE FOR YOUR LAWN

Many of us are accustomed to lush green lawns throughout the year. However, maintaining that emerald green grass often means using lots of pesticides, fertilizer and water. According to the EPA, “A lawn has less than 10% of the water absorption capacity of a natural woodland...” (EPA Region 10). This means that the chemicals we apply to our lawns are extremely prone to runoff and leaching which can then lead to contamination of rivers and streams.

While only 6% of the 12,000 square miles of the Willamette Basin is urban, nearly 70% of Oregon’s population lives within the Willamette watershed (WRI, 1999). If even a small percentage of those people are using chemicals on their lawns, you can easily imagine the cumulative effects that these practices can have on the Willamette River.

Seeing the Perfection in Natural Cycles

Decreasing reliance on chemicals and water to maintain a lawn requires, in part, a change in our attitudes about what makes a lawn beautiful. One key to managing your lawn naturally is learning to see the beauty in allowing your lawn to complete natural cycles without overwatering, overfertilizing or killing every pest and weed in sight.

Giving up chemical fertilizers and pesticides doesn’t mean accepting a brown lawn all summer long or trading in fine fescue grasses for dandelions. On the contrary, there are a many ways to maintain a healthy and attractive lawn without the use of harmful chemicals.

Fertilizers: Feed the Soil to Feed the Plant



The basic components of fertilizers, known as macro-nutrients, are nitrogen (N), phosphorous (P), and potassium (K). Calcium is another important nutrient for balancing the Northwest’s highly acidic soils and can be supplied using lime or dolomitic lime. (City of Seattle, 1999)

BASIC CONCEPTS

- Minimize the use of chemical fertilizers that run off into our streams and rivers. Period!
- Focus on building soil nutrients and healthy plants that are able to resist pest and disease damage.
- Re-establish healthy earthworm and soil micro-organism populations that help aerate the soil and break down nutrients.
- Use compost and natural and organic fertilizers that break down slowly and are less likely to run off.
- Minimize lawn area where possible.
- Choose grass species that grow well in the Willamette Valley such as fescues and ryegrass blends.



This lawn is kept healthy using aeration, compost, and other natural, river-friendly practices.

Leaving your grass on the lawn has another benefit – landfills and even compost facilities are overflowing with grass clippings. Leaving them on your lawn helps reduce solid waste as well!

RIVER-FRIENDLY PRACTICES

- **Grasscycling:**

Leaving grass clippings on the lawn (*grasscycling*) does not contribute to thatch build-up. Instead, grasscycling has significant benefits to your lawn such as adding nutrients and helping to control weeds.

- **Compost:**

Compost adds nutrients and improves soil structure. It can be used prior to planting a lawn and also applied to an existing lawn. Be sure you buy a finely screened compost that can easily incorporate into the soil. Ideal application times are during mid-spring and fall. Raw manure is susceptible to leaching and runoff, so be sure to use a finished compost product rather than raw (hot) manure.

- **Natural Fertilizers:**

There is an increasing number of “natural” and “organic” fertilizers on the market made from ingredients such as bat and bird guano, bone and blood meal, rock phosphate, fish-meal, kelp, and other natural materials.



- **Slow release fertilizers:**

Though compost and natural fertilizer products are recommended, if you choose to use a synthetic fertilizer, try to choose a “slow release” product. These fertilizers are generally coated with clay or other materials to slow down the nutrient release which decreases runoff into streams.

- **Synthetic fertilizers:**

While these products are clearly a **last-resort** choice, using them with extreme care can minimize their impacts on the environment. Remember, that they can be very detrimental to your soil microorganisms so use them as little as possible. Avoid using synthetic fertilizers before rain and water sparingly to minimize leaching.

- **Timing fertilizer applications:**

When you apply fertilizers is just as important as **what** you apply. If you only apply fertilizer once during the year, apply it in the fall. If you apply two doses of fertilizer, make one application in the late fall and one in the late spring after your grass has gone through its spring growth spurt (fertilizing prior to rapid spring growth encourages thatch). If you have questions about when to apply fertilizers, contact your extension agent for information (see page 16).

- **Mow high!**

The shorter you mow your lawn, the more stress you put on it, reducing its ability to resist pests and disease and develop deep roots needed to store nutrients. Never mow your lawn shorter than 2–2.5 inches in length and never remove more than the top one-third of your grass at one time.

- **Aeration:**

Aerating increases infiltration of water, prevents runoff, facilitates the absorption of fertilizers, and reduces thatch build-up. You should aerate your lawn once a year, usually in the fall prior to overseeding and applying compost or fertilizer.



The process of aeration removes plugs of soil and thatch from your lawn. Walk-behind aerators are usually adequate for home use and can be rented at your local equipment rental store. For very small lawns, you can aerate using aeration sandals or a regular garden fork by inserting the tines all the way into the soil and wiggling the handle to make small holes. (City of Seattle, 1999)

Managing without Chemicals: Disease, Weed, and Insect Pest Control

BASIC CONCEPTS

- Healthy grass and nutrient rich soils are your greatest allies in overcoming weed, pest and disease problems.
- Avoid chemical pesticides and herbicides that run off into streams and harm wildlife.
- Learn how many pests your plants (and you!) can handle before you need to take action. The healthier your plants are, the more pest damage they can handle and the higher your tolerance for damage can be.
- Early detection is critical. Monitor your lawn frequently for pests and diseases, such as red thread and other fungal diseases.
- Don't overfertilize. This can encourage weeds that thrive in nitrogen-rich soil. Rapid shoot growth caused by too much nitrogen can also weaken grass roots and encourage disease.
- Learn to identify pests and diseases to control them properly.
- Water carefully. Most lawns require an inch of water a week. Try to water deeply only once or twice a week rather than applying less water more frequently. Over-watering can encourage diseases and weeds.



RIVER-FRIENDLY PRACTICES

Diseases:

- Make sure soil is rich in organic matter by using compost and natural fertilizers.
- Apply compost if you notice the beginning of a disease outbreak.
- Be sure soils are aerated and well drained to prevent diseases that thrive in moist spots.
- Avoid the use of fungicides — they are very harmful to soil organisms and earthworms.
- When outbreaks do occur, it is usually too late to treat the problem. Continue with compost and natural fertilizers and aerate and overseed damaged areas to encourage regrowth of grasses.

Insect Pests (European Crane Fly):

- European Crane Fly is really the only major lawn pest in the Willamette Valley and does its damage in the larval stage.
- Watch for larvae in the fall — they like moist, poorly drained soils so avoid providing those conditions.
- Encourage birds — which feast on Crane Fly larvae into your yard by providing bird feeders, nest boxes, and bird baths.
- Use predatory nematodes to attack the larvae. These beneficial nematodes are microscopic worms that attack larvae, grubs, and other pests. You can purchase predatory nematodes at most local nurseries. Always follow application instructions to maximize effectiveness.



Weed Control:

Whether you have weeds in your lawn or in your landscaped areas, it is important to know the difference between annual and perennial weeds because you can manage them differently. Annual weeds are those that go to seed and die off in a year. Perennial weeds are those that continue to grow from year to year.

- **Overseed:**
Overseeding fills in holes and increases your grasses' ability to crowd out weeds. It is best to overseed following aeration in the fall. Fall seeding gives your grasses (and especially their roots) time to get established, making them more resistant to drought, before summer arrives.

"You fight dandelions all weekend, and late Monday afternoon there they are, pert as all get out, in full and gorgeous bloom, pretty as can be, thriving as only dandelions can in the face of adversity."

— Hal Borland



Too busy to do it all yourself? There are a number of lawn care companies in the Willamette Valley that specialize in natural lawn care. See the Resource list on page 19.

If you can't afford a professional, consider hiring one of the kids in your neighborhood to pull weeds for a day instead of spraying herbicides! Little steps like these can go a long way!

Knowing the difference between annual and perennial weeds is important in their management. Below is a brief list of some problematic weeds that may pop up in your lawn or landscaped areas:

Annuals: Crabgrass, common chickweed, groundsel, and common mallow.

Perennials: Morning glory, Himalayan blackberry, dandelion, and quackgrass.

If you are unsure of what type or species of weed you have in your yard, take a sample in to your local nursery and ask for help in identifying it!

Controlling Annual Weeds:

- Mow or use a scythe to remove plant tops before they go to seed.
- Use a mulch to prevent light from reaching weed seeds in the soil so they are unable to germinate.
- Hand weeding annuals can be fairly easy—just be sure to remove the plants before they go to seed.

Controlling Perennial Weeds:

- When hand weeding, try to pull plants out by the root. The best way to control perennial weeds is to get as much of the root system up as possible. Ask at your local nursery for special tools that can make this easier. Have patience — it may take several seasons to eradicate some species.
- The best defense against annual and perennial weeds is healthy grass. Applying natural fertilizers and compost encourages grass if applied in the appropriate amounts. Avoid overfertilizing because it can encourage the growth of certain weed species.

Moss:

- Make sure soils are properly aerated and avoid over-watering to prevent soil from retaining too much moisture.
- Consider pruning plants that are shading lawn areas and preventing the soil from drying out.
- Adding lime and proper fertilizer helps balance soil pH and encourages grass to grow and outcompete moss.
- If chemical control is necessary, use an iron-based product.
- Consider making moss part of your landscape plan and allowing it to grow in certain areas.



Chemical Controls – The Last Resort

If you choose to turn to chemicals to manage pests in your yard, follow these suggestions:

- **Spot apply only:** Treat only affected areas. Spray or sponge herbicide directly on weeds rather than broadcast spraying. Never apply herbicides on a windy day.
- **Follow the label:** Use the utmost care in applying pesticides. Always follow the label with regard to wildlife toxicity, precautionary measures, and application rates. Use as little of the product as possible.
- **Keep out of waterways:** Avoid spraying pesticides in or near waterways. Also avoid spraying them near storm drains which lead to waterways.
- **Disposal:** Always dispose of hazardous materials properly. Contact your local management agency for information on disposing of herbicide and pesticide containers.

Consider Minimizing Your Lawn

One of the best ways to manage runoff from landscaping is to minimize the size of your lawn. Consider removing areas of your lawn to make room for natural landscaping with native plants that provide habitat for wildlife species.



This yard uses minimal lawn area which serves as a grassy path through landscaped areas.

3. RIVERSCAPING: LANDSCAPING THAT BENEFITS RIVERS, WILDLIFE, AND YOU

Whether you are managing your existing landscape or installing a new one, there are many ways you can protect habitat and water quality while maintaining beautiful, vibrant, and healthy flower beds, shrubs and trees.

In many residential areas of the Willamette Valley, lawns come right up to the edge of streams and rivers. These are ideal areas to consider some of the suggestions in this section.

However, even if you live miles from the nearest waterway, what runs off your yard and into the storm drain eventually ends up in the river. These are useful tips for anyone looking to reduce reliance on chemicals and minimize environmental impacts. All of us can be part of the solution!

Riverscaping means making your yard friendly for you as well as the river.



Incorporating seating areas, walkways, and other human elements helps you and your family enjoy your natural, chemical-free yard and the wildlife it attracts!

IMPORTANT CONSIDERATIONS IN RIVERSCAPING

As you begin your planning process, whether you are buying a few plants to fill in holes in your landscaping or designing a new landscape, consider the following questions to help guide your decisions:

Do you live in a riparian area? If so, consider types of plants that provide shade, filtration, and bank stabilization. Willows, black cottonwood, and Oregon ash are excellent trees that thrive in riparian areas and are often used in watershed restoration. Native grass species provide bank stabilization and filtration.

Riparian areas are the vegetated areas adjacent to a river or stream.

Riparian buffers along streams and rivers serve as particularly important habitat for wildlife and can filter pollutants.

Are certain areas of your yard usually wet or damp? If so, you will want to consider plants that can tolerate moist soil conditions such as those listed above, as well as red alder, Oregon grape, maidenhair fern, bleeding heart and others. Also consider native grasses, such as sloughgrass, tufted hairgrass, and other groundcovers, such as native sedges, rushes, and bulrushes, to hold your soil in place and prevent erosion during the rainy winter. Mulches can also be effective at reducing erosion.

Are parts of your yard on a slope? Many species of turf grass used for lawns are not well-adapted to growing on a slope of more than about 6° and cannot grow at a slope of more than 12° (City of Seattle, 1999). For areas of your lawn that have significant slope, consider using plants that are better adapted to these conditions. Native ground covers and other plants that are good at stabilizing soil are important in these areas. You may also want to consider a retaining wall or a terraced landscape to prevent erosion.

This riverside yard uses a filter strip of native and non-native species to capture runoff from the lawn and help prevent erosion. © WRK



OTHER CONSIDERATIONS

Because our rain-leached soils in the Willamette Valley are typically acidic, native plants that are adapted to these conditions will do well with minimal help from you (or additional fertilizers)!

Learn what areas of your yard get light at what time of day. Once you have identified shady spots and sunny spots, choose plants that are suited to your yard's light conditions. Shade plants include native ferns, bunchberry, western red cedar, and many others.



These and many other suggestions can be found in the *City of Portland's Plant List* and *Landscaping for Wildlife in the Pacific Northwest* by Russell Link. There are additional resources at the back of this Guide that can help steer you in the right direction regarding plant choices for your soil and light conditions.

This yard incorporates trees, shade-tolerant species, and wetland species that are well suited to the light and soil types.

Native, Non-native or Invasive?

Know the difference between native, non-native, and invasive plants. Riverscaping encourages the use of native plants whenever possible (see page 14 for more information on native plant species and their benefits). However, there are a wide variety of non-native, non-invasive ornamental plants that are well suited to the climate and soil types in the Willamette Valley. Choose these plants carefully in order to avoid selecting species that will require additional fertilizers and pesticides to survive. And ALWAYS avoid invasive species such as English ivy, Scot's (Scotch) broom, Himalayan blackberry, Morning glory, and bamboo. These plants can easily get out of hand and choke out native species.



INTRODUCTION TO NATIVE PLANTS

Native plants are “...trees, shrubs, flowers, 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.” (*Naturescaping*, 1999)

In many areas, the introduction of invasive plants and other activities has dramatically reduced native species populations that once thrived in the Willamette Valley for thousands of years. By using native plants in your Riverscape, you can help restore the integrity of the Willamette Valley ecosystem and maintain a link to our cultural and ecological history.

Using native plants is by no means limiting because Oregon is home to an incredible diversity of species. They come in all shapes and sizes and can be selected for light conditions, soil conditions, and even the types of wildlife you want to attract. There are species with vibrant flowers and great foliage colors and textures. Native plants make an excellent choice for your landscape.



Blue Elderberry

False Solomon's Seal



Bleeding-heart



Photos on pages 14 and 15 by Susan Peter.
From *Exploring The Tualatin River Basin* ©.



The benefits of planting native plants are many and include:

- Habitat for birds and other wildlife.
- Resistance to pests and diseases.
- Stabilization of banks and prevention of erosion.
- Filtration of pollutants before they reach the river or storm drains.
- Minimal fertilizers and pesticides are required.

This and other information can be found in the *Guide for Using Willamette Valley Native Plants Along Your Stream*, published by the Linn Soil and Water Conservation District. To find out more about native plants, check out some of the Resources listed on page 19.

Native plants are available at a wide variety of nurseries throughout the Willamette Valley. (See Nursery Resources on page 20.) Another excellent resource for native plants are plant sales held annually by Soil and Water Conservation Districts. Contact your local Conservation District office for more information.



Bluebird box



Pacific Dogwood and Western red-cedar

Plants illustrated are (l to r): false Solomon's seal, sword fern, wood violets, bleeding-heart, Oregon grape, lupine, vine maple.

PLANNING YOUR LANDSCAPE

Remember that the goal is to choose plants that are well adapted to the conditions of the Willamette Valley so they will thrive without the use of chemical fertilizers and pesticides and will provide habitat for wildlife. As with lawns, the healthier, stronger and better adapted your plants are, the more able they are to fight pests and disease.

- Select species based on soil and light conditions in your yard as well as other considerations such as those listed on pages 12-13.
- Draw a Riverscaping plan to ensure that your selected species are located in soil and light conditions where they will thrive.
- If you have questions about where to plant certain species, contact your extension agent, master gardener, or ask at your local nursery.
- If you are planting trees as part of your Riverscape, remember that they will begin to produce more and more shade as they grow. As part of your plan, include plants and shrubs that like shady areas.
- Attend a workshop to learn more about planning your Riverscape, Naturescape, or whatever you choose to call it! Check out the workshops list in the Resources section or contact Willamette Riverkeeper for workshop sponsors and locations.

WHO ARE EXTENSION AGENTS AND MASTER GARDENERS?

They are part of the Oregon State University Extension Service and are available to answer questions about your garden and landscaping needs.

To find your county's extension service office, go to <http://extension.orst.edu/county.html>.

MANAGING YOUR RIVERSCAPE

An effective management strategy is just as important to your Riverscape as the initial planning phase. As the plants get established, there will be less maintenance required than in a landscape based on non-native species or those not well adapted to your conditions. However, in the beginning it is important to make sure they have a chance to settle in to their new homes before having to cope with warm summers, pests, weeds, and other problems.

Patience is an important component of Riverscaping! Just like natural cycles, Riverscaping takes time. Your new plantings need to get established before they will begin to flourish. Enjoy watching the development of your new landscape as natural cycles are restored over time!

Watering

Because plants native to the Willamette Valley are adapted to our long wet winters and drier summers, they require less water than many non-native species. This has obvious benefits to the environment when it comes to conserving water, and also means less work for you! Be sure to know the water needs of the plants you include in your Riverscape and water accordingly.





Birdbaths, houses, feeders, and other structures help attract wildlife and provide habitat.

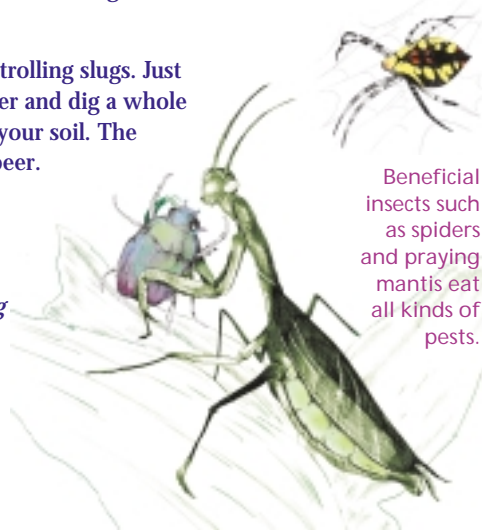
Remember, one of the goals of Riverscaping is to provide habitat for wildlife. The last thing you want to do is poison the animals you attract with pesticides! Steer clear of toxic chemicals and use biological controls, natural predators, and organic pesticides when needed.

Weeding

Weeds compete with your desired plants for water, nutrients, and light. Keeping your new plants weed-free is important as they get established. Once they are established and well-maintained, they will be better able to outcompete weeds. Follow the weed control suggestions in the Lawn Care section on page 4.

Pest Control

- **Handpick** to control worms and larvae, snails, and slugs. Snails and slugs are best controlled at night when they come out of hiding. To kill them during the day, look under rocks and other areas where they like to hide out.
- **Beneficial insects** are effective at controlling pests in the garden. There are generalist predators such as ladybugs, lacewings, and praying mantis that will make a meal out of aphids, mites, and other soft bodied insects. Other beneficials include parasitic wasps, beneficial nematodes, spider mite predators. A variety of beneficial insects are available at most nurseries. Talk to your local nursery or extension agent for information about your specific needs.
- **Beer traps** work well for controlling slugs. Just fill a plastic container with beer and dig a whole so the container is flush with your soil. The slugs will be attracted to the beer.
- **Plants that attract beneficials** help increase the population of predators in your yard. See *Landscaping for Wildlife in the Pacific Northwest*, by Russell Link, or ask at your local nursery for more information.



Beneficial insects such as spiders and praying mantis eat all kinds of pests.

- **Natural Pesticides:** There are a variety of natural pesticides on the market that are effective on common landscape and garden pests. Early detection is key when using any kind of natural or biological control, so frequent monitoring of your yard is essential.

Remember, your best defense against pest infestations and damage is healthy plants that are planted in conditions in which they will thrive. If you do have pest problems, consider the big picture and think about what might be causing a weakness in your plant community or affecting your beneficial insect populations before turning to any kind of pesticide.

Be sure that they have appropriate nutrients, soil moisture, and light conditions, and that you are working to foster a healthy community of beneficial insects to help control pests.

A list of the more common natural pesticides and their uses follows. Always use these products with care and follow the label. Many of them can be harmful to beneficial insects as well as pests and should only be used as a last resort and in conjunction with good management practices.

Bt: *Bacillus thuringiensis*, also commonly known as Bt, is a bacteria that disrupts the digestive systems of plant-eating larvae.

Neem: Neem is derived from a tree native to India and Africa. Neem-based products can be used to control Japanese beetles, thrips, flea beetles, mites, scale, root weevils and about 500 other species. These products work by disrupting the development of the insects and is most effective when used in the early life stages of your pest's life cycle.

Insecticidal soaps: There are a number of insecticidal soaps on the market that are effective on landscaping pests such as thrips, mites, aphids, and many others. You can also make your own soap solution at home, however, soaps can damage plant tissue so use with caution and talk to your extension agent before using soap products extensively.



Pyrethrum: Pyrethrum is a pesticide derived from chrysanthemum flowers that is toxic to both pests and beneficials and should be used with extreme care. *Avoid products containing piperonyl butoxide (PBO) as it is a known carcinogen.*

These are just a few of the natural pesticide products on the market. If you have questions regarding these or any products you intend to use on your landscape, talk to a customer service representative at your local nursery or contact your extension agent.

Anderson, C.W., T.M. Wood, and J.L. Morace. 1997. *Distribution of dissolved pesticides and other water quality constituents in small streams, and their relation to land use, in the Willamette River Basin, Oregon*. 1996. USGS Report 97-4268. Portland, OR.

City of Portland Bureau of Environmental Services and East Multnomah Soil and Water Conservation District. *Naturescaping for Clean Rivers*, March, 1999. Portland, OR.

Environmental Protection Agency, Region 10. *Beneficial Landscaping: What, Why, Where, and How*. April 4, 2002. <http://yosemite.epa.gov/r10/ecocomm.nsf/ecoweb/+blwwww>.

Guide for Using Willamette Valley Native Plants Along Your Stream. 1998. Linn Soil and Water Conservation District, South Santiam Watershed Council, and Natural Resources Conservation Service.

Link, Russell. 1999. *Landscaping for Wildlife in the Pacific Northwest*. University of Washington Press, Seattle, WA.

McDonald, David K. 1999. *Ecologically Sound Lawn Care for the Pacific Northwest: Findings from the Scientific Literature and Recommendations from Turf Professionals*. Seattle Public Utilities, City of Seattle, Seattle, WA. www.ci.seattle.wa.us/util/rescons.

Moore, Andrew and Colin Waring. 1996. *Sublethal effects of the pesticide Diazinon on olfactory function in mature male Atlantic salmon parr*. *Journal of Fish Biology*. 48:758-775.

Natural Gardening: A Guide to Alternatives to Pesticides. 1998. Metro Regional Services and Oregon Department of Environmental Quality. Portland, OR.

Northwest Coalition for Alternatives to Pesticides (NCAP). 1994. *Landscape Weed Control*. *Journal of Pesticide Reform*. Winter, 1994, Vol. 14, Num. 4. Eugene, OR.

Willamette Restoration Initiative (WRI). *Restoring the Willamette Basin: Strategic Issues and Challenges*. 1999. Salem, OR.

Bormann, F Herbert, et al. 1992. *Redesigning the American Lawn: A Search for Environmental Harmony*. 1993. Yale University Press, New Haven, CT.

Campbell, Stu. 1998. *Let It Rot: The Home Gardener's Guide to Composting*. Storey Books Pownal, VT.

Campbell, Stu. 1975. *The Mulch Book: A Complete Guide for Gardeners*. Storey Books, Pownal, VT.

Citizen's Guide to Pest Control and Pesticide Safety. 1995. U.S. Environmental Protection Agency, Washington, DC.

Daniels, Stevie. 1995. *The Wild Lawn Handbook: Alternatives to the Traditional Front Lawn*. Macmillan, New York, NY.

Gilkey, Helen M. 1980. *Handbook of Northwestern Plants*. OSU Press, Corvallis OR. Hynes, Erin. 1994.

Johnson, Lorraine. 1998. *Grow Wild! Low-Maintenance, Sure-Success, Distinctive Gardening with Native Plants*. Fulcrum Pub., Golden, CO.

Kruckeberg, Arthur R. 1996. *Gardening with Native Plants of the Pacific Northwest*. University of Washington Press, Seattle, WA.

Lovejoy, Ann. 1998. *Naturalistic Gardening: Reflecting the Planting Patterns of Nature*. Sasquatch Books, Seattle, WA.

Naturescaping: A Place for Wildlife. 1993. Oregon Department of Fish and Wildlife.

Rodale's Successful Organic Gardening: Low Maintenance Landscaping. Rodale Press, Emmaus, PA.

Rose, Robin, Caryn Chachulski and Diane Haase. 1998. *Propagation of Pacific Northwest Native Plants*. OSU Press, Corvallis, OR.

Schultz, Warren. 1989. *The Chemical-Free Lawn*. Rodale Press, Emmaus, PA.

Whittlesey, Rhoda. 1985. *Familiar Friends: Northwest Plants*. Rose Press, Portland, OR.



ORGANIZATIONS

Many of these organizations have annual native plant sales as fundraisers.
Contact a group in your area or call Willamette Riverkeeper for more information.



Native Plant Society of Oregon
PO Box 902
Eugene, OR 97440
www.npsoregon.org

Northwest Coalition for
Alternatives to Pesticides
(NCAP)
PO Box 1393
Eugene, OR 97440-1393
(541) 344-5044
www.pesticide.org

Oregon Association of
Conservation Districts
Check their website to find
your local Soil and Water
Conservation District:
www.oacd.org

Oregon Department of
Fish and Wildlife (ODFW)
2501 SW 1st Ave.
Portland, OR 97207
(503) 872-5268
www.dfw.state.or.us/

Oregon State University
Extension Service
422 Kerr Administration
Corvallis, OR 97331
(541) 737-3311
www.orst.edu/extension/

Oregon Tilth
470 Lancaster Drive NE
Salem, OR 97301
(503) 378-0690
www.tilth.org

USDA Natural Resources
Conservation Service
101 SW Main St., Suite 1300
Portland, OR 97204
(503) 414-3200
www.or.nrcs.usda.gov

Willamette Riverkeeper
380 SE Spokane St.
Suite 305
Portland, OR 97202
(503) 223-6418
www.willamette-riverkeeper.org

Audubon Society of Portland
5151 NW Cornell Rd.
Portland, OR 97201
(503) 292-6855
www.audubonportland.org

Berry Botanic Garden
11505 Summerville Ave.
Portland, OR 97219
(503) 636-4112
www.berrybot.org

City of Portland, Bureau of
Environmental Services (BES)
1120 SW Fifth Ave.
Portland, OR 97204-1972
(503) 823-7740
www.cleanrivers-pdx.org

Corvallis Environmental
Center
214 SW Monroe Ave.
Corvallis, OR 97339
(541) 753-9211
www.peak.org/~ecenter/

Friends of Trees
3117 NE Martin Luther
King Blvd.
Portland, OR 97212
(503) 284-8733
www.friendsoftrees.org

Hardy Plant Society of Oregon
1930 NW Lovejoy St.
Portland, OR 97209
(503) 224-5718
www.hardyplantsociety.org

Hoyt Arboretum
4000 SW Fairview Blvd.
Portland, OR 97221
(503) 228-8733
www.hoytarboretum.org

Leach Botanical Garden
6704 SE 122nd Ave.
Portland, OR 97236
(503) 823-9503

Metro Regional Services
600 NE Grand Ave.
Portland, OR 97232-2736
(503) 797-1700
www.metro-region.org/metro/rem/garden/natgar.html



Special thanks to
Meyer Memorial Trust, The Collins Foundation, and NW Natural
for their generous support of this *Guide*.

We would also like to thank
**Joy Creek Nursery, Portland Nursery,
Natural Lawn of America, Bosky Dell Natives,
Dennis' Seven Dees Landscaping, and Linda Robinson of Naturescaping
for Clean Rivers and the East Multnomah Soil and Water Conservation
District** for their review and/or input on the *Guide*.

Finally, we would like to thank
**Betsy Ray, Darcy Daniels, Linda Robinson,
Rae Edlin, Marcia Peck and Rita Alm**
for the use of photos of their wonderful yards and gardens.

Written by Libby McCulley
with editorial assistance from
Travis Williams, Laura Hunter, and Chris Sparks

Graphic Design: BeBop Graphics
Original Illustrations: Sarah Hiltunen
Photography: Linda Robinson and Susan Peter

SPECIAL MEMBERSHIP OPPORTUNITY FOR RIVERSCAPING FANS!

Become a member of **Willamette Riverkeeper** today and help us protect
and restore the Willamette River! We are offering a special membership offer
at \$25 if you mention this *Riverscaping Guide*.

To become a member, send your contribution to:
Willamette Riverkeeper
Attn: New Memberships
380 SE Spokane St, Suite 305
Portland, OR 97202

For information about our programs and projects, or to volunteer,
give us a call at (503) 223-6418, or check out our website at
www.willamette-riverkeeper.org.



NURSERIES

Alder View Natives
Wilsonville, OR
(503) 570-2894

Bosky Dell Natives
West Linn, OR
(503) 638-5945

Down to Earth
Eugene, OR
(541) 342-6820

Forestfarm
Williams, OR
(541) 846-7269

Fruit of the Bloom
Springfield, OR
(541) 726-8997

Greer Gardens
Eugene, OR
1-800-548-0111

Joy Creek Nursery
Scappoose, OR
(503) 543-7474

Loen Nursery
Sherwood, OR
(503) 625-6309

Northwest Garden Nursery
Eugene, OR
(541) 935-3915

Northwest Native Plants
Oregon City, OR
(503) 632-7079

Portland Nursery
Portland, OR
(503) 231-5050

Wallace Hansen
Native NW Plants
Salem, Oregon
(503) 581-2638

Willamette Gardens
Corvallis, OR
(541) 754-0893

LANDSCAPERS/LAWN CARE

Cascadia Landscape Design
Eugene, OR
(541) 342-1160

Dennis' Seven Dees
Landscaping
Portland, OR
(503) 777-7777

Rob Handy
Eugene, OR
(541) 689-6372

Native and Urban Gardens
Eugene, OR
(541) 344-5317

Naturalawn of America
Portland, OR
(503) 408-7296

Organicare
Portland, OR
(503) 287-2282

Urban Ecogardens and
Organic Maintenance
Eugene, OR
(541) 485-7245

