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Plant Selection for Sustainable Landscapes

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A sustainable landscape is more than exterior decoration. By using less water, fertilizer, and pesticides than a traditional landscape, it has minimal impact on the environment. Thus, it is both aesthetically pleasing and environmentally sound. Creating a sustainable landscape means working toward a thoughtful balance between resources used and results gained. Generally, a sustainable landscape also is low-maintenance.

In order to create a sustainable garden, you might need to change your idea of what a landscape should look like. Perfect lawns, plants, and fruits are all desirable. However, by adjusting your expectations slightly, you can reduce the labor and chemicals used in your landscape, while still achieving pleasing results.

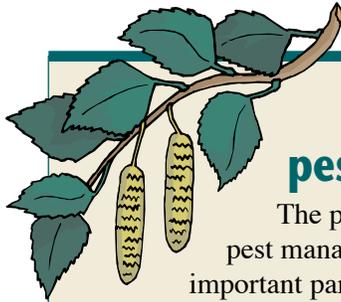
A sustainable landscape requires as much, if not more, planning as a traditional landscape. The goal is to create a plant community that becomes easier to care for as it matures. Because plants are a major part of home landscapes, this publication focuses on proper plant selection. For detailed “how-to” steps in developing a sustainable landscape, see *Basic Design Concepts for Sustainable Landscapes*, EC 1533.

Careful plant selection is the key to developing a self-perpetuating landscape. By selecting the right plant for the right place, you can reduce greatly the need for water, fertilizer, pesticides, and labor. Proper plant placement also prevents soil erosion, influences a household’s summer cooling and winter heating needs, and attracts beneficial insects and wildlife, all of which make the landscape an asset to the local environment.

Thousands of varieties of trees, shrubs, vines, perennials, and annuals are available. However, to achieve your desired sustainable landscape, you must choose plants carefully. Be sure to consider both their needs and aesthetic value. Many references are available to help with your selection. See, for example, *Plant Materials for Landscaping: A List of Plants for the Pacific Northwest*, PNW 500.



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Sustainable pest management

The principles of integrated pest management (IPM) are an important part of sustainable landscapes. This pest management strategy centers on preventing and managing pests with minimal impact on human health, the environment, and nontarget organisms. The first steps are to choose plants that will have few pest problems and to care for them properly to keep them healthy. Choose plants that are labeled resistant or tolerant and are healthy to start with, put them in the right growing environment, and follow good sanitation practices in the garden.

Regularly check your plants for signs and symptoms of pest damage. If you see a problem, be sure to identify the cause correctly. Finally, if the damage is severe enough, select a control measure.

IPM control measures include physical, biological, and chemical methods. Physical methods include removing pests from plants by hand, pruning out infected areas, and protecting plants with sticky traps and plant cages. Maintaining a well-balanced ecosystem is the key to biological control methods. Beneficial insects and animals feed on many pests and keep populations under control. Chemicals are used as a last resort. Start with the least toxic products first and move to more toxic ones only if necessary. (See OSU Extension publication EC 1532, *Gardening with Fewer Pesticides: Integrated Pest Management*, for more information.)

Well-adapted plants

A key to creating a sustainable landscape is to include plants that are either native to your area or well adapted to similar growing conditions. These plants need less water, fertilizer, and pesticides. There are several environmental factors to consider when selecting plants:

- ✿ Your plant hardiness zone
- ✿ Seasonal rainfall distribution
- ✿ Humidity
- ✿ Soil characteristics
- ✿ Water availability
- ✿ Duration and intensity of light

Every plant tolerates a range of conditions for each of these factors. The combined effects of all of them determine which plants are adapted to your site.

Interest in native plants for home landscapes is growing. “Natives” are plants that grow naturally on undisturbed sites in the local area. Generally, they are better adapted to local growing conditions, less prone to disease and insect problems, and provide better habitat (food and shelter) for native wildlife than introduced species.

However, it is important to realize that natives are not a magic answer to creating sustainable landscapes. Some native species have difficulty in home landscapes because the environment is very different from their natural growing conditions.

Also, even with natives, it is important to find the right plant for each specific location in your yard. For example, putting a vine maple in a hot, sunny spot without supplemental irrigation is a poor use of this native. A better alternative for such a spot would be a native Oregon grape or serviceberry, since they are better adapted to sites with full sun and limited soil moisture.

Many nonnative species are suitable additions to home landscapes. The key is to look for plants that are not invasive, adapt to a range of growing conditions, and provide habitat for local wildlife. Thoughtful plant selection and proper site preparation can create a sustainable landscape that is a unique blend of well-adapted native and exotic species.

Pest resistance

Look for insect- and disease-resistant plants in order to reduce the need for insecticides and fungicides. You can obtain information about a plant's pest resistance from reference books, plant catalogs, garden centers, nurseries, and your local Extension office. For example, if you want to plant a crabapple, select a cultivar, such as 'Prairiefire' or 'Red Jewel,' that has good disease resistance compared to some older cultivars.

Roses also have a range of disease and insect resistance. Rugosa roses are among the most resistant, while many hybrid tea roses can be severely affected by disease. Consult a good rose reference before you choose a variety.

Other considerations

Plant survival with minimal maintenance is not the only issue in sustainability. It is important to know a plant's growth rate, expected life span, and whether it spreads rapidly. Placing a plant where it will quickly outgrow its space guarantees the need for frequent pruning. Thus, this plant will not be low-maintenance even if it is drought-tolerant and disease-resistant.

For a low-maintenance landscape, use annuals only in small areas. Trees, shrubs, and perennials reduce yearly planting costs and maintenance.

Reducing the use of invasive plants that might escape, displace native plants, and disrupt natural ecosystems is another factor to consider.

Groundcovers

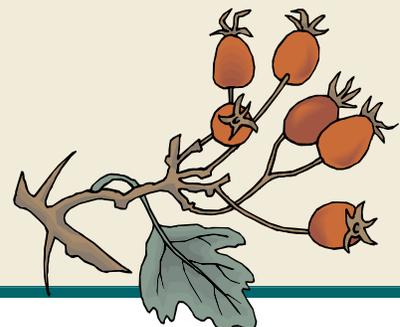
Groundcovers such as turf, low-spreading shrubs, creeping plants, and prostrate vines are essential landscaping materials. Turfgrass lawns can be grown successfully under a wide range of inputs of water, fertilizer, and pesticides. For example, a pure perennial ryegrass lawn requires regular fertilizing to look good, while one dominated by bentgrass can go several years without fertilizer if the clippings are left on the lawn.

Altering your expectation of perfection is a large part of sustainable landscaping, and turf is one area where you can easily create a more sustainable landscape. In areas where turfgrass does not grow well or is difficult to maintain, such as shady areas and steep slopes, consider replacing it with another type of groundcover.

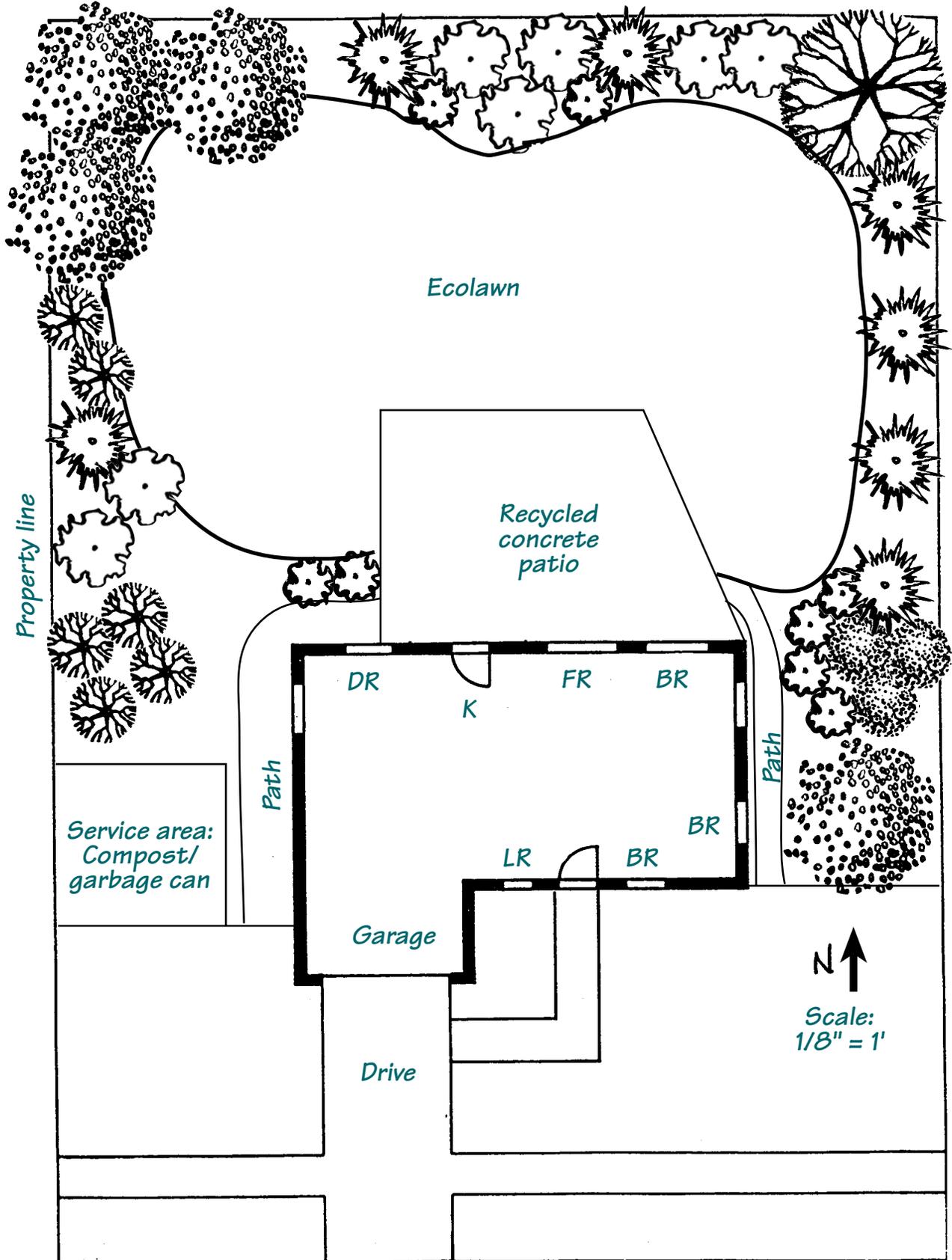
Evaluating landscape sustainability

Many home landscapes already contain some aspects of sustainability. However, most can benefit from a critical review and some improvement. Use the following checklist as a guide to determine how sustainable your landscape is.

- What are the environmental benefits of the landscape?
- Are mulches used to maintain soil fertility and earthworm activity?
- Were plants selected properly to reduce the need for pruning, spraying, and fertilizing?
- Are plants placed in ideal growing conditions (e.g., correct light and drainage)?
- Were plants sited properly so that, when mature, they complement rather than compete with each other?
- Have drainage problems been corrected to provide adequate water penetration?
- Was the landscape planned to help prevent erosion?
- Has water runoff been handled properly?
- Has the landscape been developed to reduce the need for high-nitrogen fertilizers?
- Does plant selection take into consideration the effect of sunlight on the household's summer cooling and winter heating needs?
- Has the landscape created a better environment for people?
- Does the landscape attract beneficial wildlife?



Sustainable Landscape Planting

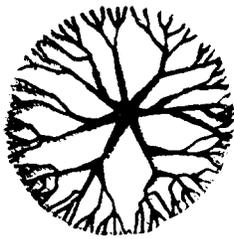


Key to Sustainable Landscape Planting



Witchhazel

Valuable in naturalized planting sites; no serious disease or insect problems



Japanese maple

No serious problems; medium to slow growth rate



Loropetalum

Fast growth rate, looks best when it is not pruned; no serious disease or insect problems



Dwarf nandina (dwarf heavenly bamboo)

No serious disease or insect problems; creates dense, stiff mound of reddish foliage, produces spectacular red fruit



'Emerald Gaiety' euonymus

Forms low mound; generally disease- and insect-free



Dwarf fothergilla

Considered a trouble-free plant



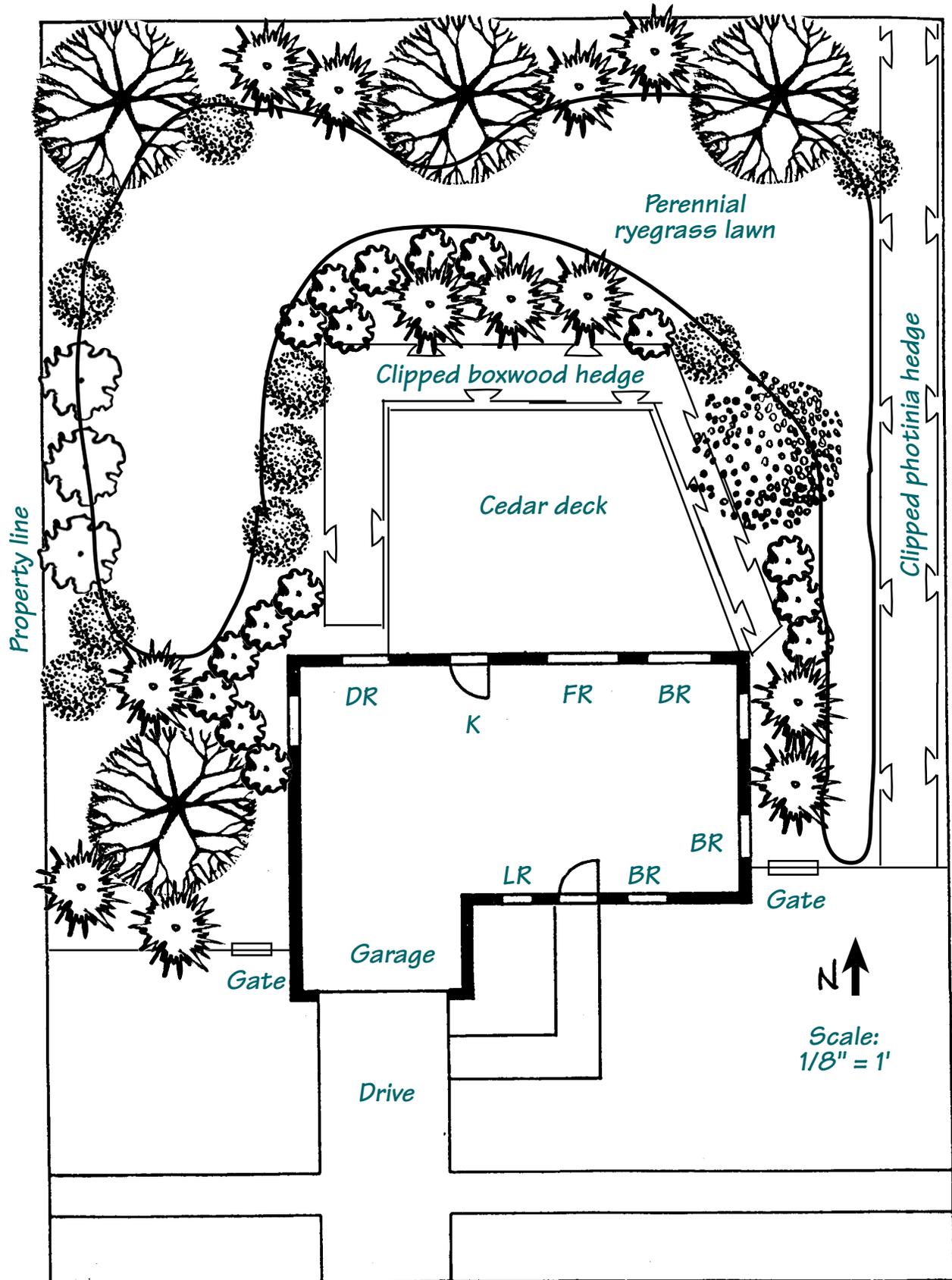
'Rotunda' Chinese holly

No serious disease or insect problems; keeps a tight and compact growth habit; is tough and durable

Ecolawn

A low-input turf alternative that consists of clover, yarrow, English daisy, and various turf species

Nonsustainable Planting

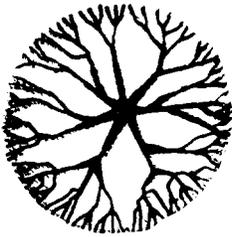


Key to Nonsustainable Planting



Flowering crabapple

Susceptible to fireblight, cedar apple rust, apple scab



Flowering pear

Weak wood and dense branching will require excessive pruning; susceptible to fireblight and scab diseases



Weigela

Densely branched shrub that will require substantial pruning to keep it within bounds in this landscape



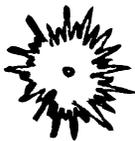
Forsythia

Will require excessive pruning to keep it from overgrowing the area where it is planted



Hybrid Tea rose

Susceptible to black spot, rust, powdery mildew, and aphids



Photinia

Susceptible to leaf spot disease; will require excessive pruning to keep it in bounds as a hedge along the east side of the landscape

Perennial ryegrass lawn

Requires regular fertilization and watering in order to keep it looking good and to maintain health so it can outcompete weeds

Clipped boxwood hedge

Will require frequent trimming to maintain shape

Summary

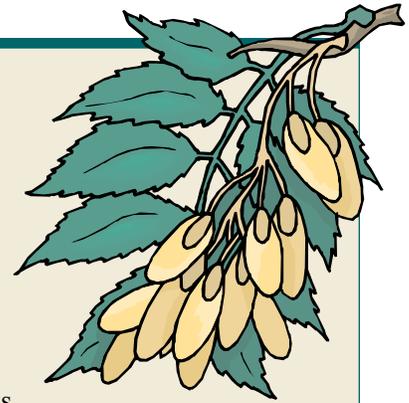
When choosing plants for a sustainable, low-maintenance landscape, consider the following.

- Choose plants that require minimal care. Compact varieties require less pruning, insect- and disease-resistant varieties require less spraying, and drought-tolerant plants require less water.
- Use native or adapted plant materials.
- Use annuals only in small areas.
- Use turfgrass where appropriate and maintain it with minimal inputs.

The following additional strategies will help you create a sustainable, low-maintenance landscape.

- Use groundcovers, bark dust, bark chips, and other mulches for weed control.
- Use hardscapes, such as bricks, pavers, or stone, in heavy traffic areas.
- Use fences, walls, or informal plantings (instead of clipped formal hedges) for screening.
- Install a drip irrigation system if your area receives little summer rainfall. Monitor it carefully during the growing season to make sure it is working properly.

Creating a landscape that is both environmentally sound and aesthetically pleasing is not difficult, but it does require careful attention to detail. As human populations grow, there is more pressure on our natural resources. Incorporating the principles of sustainability into new or existing landscapes will enhance the environment for humans, plants, and wildlife. Sustainable landscapes ultimately might be part of the solution to some of our environmental concerns.



For more information

Basic Design Concepts for Sustainable Landscapes, EC 1533 (2001).

Conserving Water in the Garden: Designing and Installing a New Landscape, EC 1530-E (2001).

Deer-resistant Ornamental Plants, EC 1440 (1994).

Fire-resistant Plants for Home Landscapes: Selecting Plants That May Reduce Your Risk from Wildfire, PNW 590 (2006).

Gardening with Fewer Pesticides: Integrated Pest Management, EC 1532 (2001).

Gardening with Oregon Native Plants West of the Cascades (CD), EC 1577 (reprinted 2006).

Plant Materials for Landscaping: A List of Plants for the Pacific Northwest, PNW 500 (1999).

Selecting, Planting, and Caring for a New Tree, EC 1438 (reprinted 1997).

Southwestern Oregon Tree Selection Guide for Coos, Curry, Douglas, Jackson, and Josephine Counties, EC 1505 (1999).

Sustainable Gardening: The Oregon-Washington Master Gardener Handbook, EM 8742 (reprinted 2006).

Water-efficient Landscape Plants, EC 1546 (revised 2004).

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