

**Full
Circle**

**Control noxious weeds
Grow healthy plant communities
Support bees and other pollinators**

Washington State Noxious Weed Control Board - www.nwcb.wa.gov

Go beyond controlling weeds - plant and encourage desirable species

Noxious weeds are invasive plants that harm our native ecosystems and agriculture and can pose a threat to the health of people and animals. In Washington State, they are legally defined as plants that when established, are highly destructive, competitive, or difficult to control by cultural or chemical practices (RCW 17.10.10). Not all invasive plants are listed as noxious weeds, but these other aggressive species may need to be controlled to reach your land management goals.

We often focus on the control of invasive weeds. However, simply removing existing plants can allow new populations of other invasive plants to colonize. This is why reseeding and/or replanting with desirable species is just as important as weed removal. Otherwise, you might find yourself repeating weed control year after year without desired results. Developing and managing healthy plant communities that contain a diversity of plants will help resist weed invasions while meeting other land-use objectives.

Determine land-use goals

From gardens to fields and forests, no matter the size you are working with, it is important to set your land-use goals. Think about the purpose of the plant community. For example, is the land to be used for wildlife habitat, native plant conservation, farming, forage for horses and livestock, recreation, or for attractive home landscaping?



Plant identification

Before you get started, you will need to know what plant species you have growing on your land and which of these are invasive weeds that need to be controlled. Identify the plant species and learn how they grow and reproduce. Are they annuals, biennials or perennials? Do they only spread by seed or can they also spread by rhizomes or by other vegetative means? It may be unlikely that you will be able to eradicate all invasive species so decide how much of each species is acceptable to have on your site to reach your goals, and have a control plan ready when populations exceed your threshold. Be sure to control noxious weeds as required by law. Your county noxious weed control board and WSU Extension personnel are great resources if you need help with plant identification.

Make a plan

Next, develop a long-term plan to control your noxious and invasive weeds, and promote desirable plants using integrated weed management (IWM), a kind of integrated pest management (IPM). Assess your progress regularly and adapt your management methods as needed. Whether site conditions change or new plants species are introduced, be ready to adapt your plan over time. Develop your management plan to create sites for desired species and to help prevent new weeds from invading.

Planting and Seeding

Select plants that will help you achieve your goals. Determine your specific site conditions, such as rainfall and soil type, to select the best plant species for your location. Your local Conservation District, WSU Extension office, USDA Natural Resources Conservation Service, or your local nursery can help you.

Incorporate Pollinator Friendly Plants

Bees, butterflies, and other pollinators play an important role in our landscapes, pollinating many of the world's crops and native species. Create pollinator-friendly habitats - the larger the better - to provide pollen and nectar. It is easy to add pollinator forage plants along edges of unused areas of your land, such as hedgerows, edges of windbreaks, and irrigation pivot corners.

Left, Beehives ready to pollinate an orchard; right, unused pivot corners are an ideal location for pollinator plantings around cropland.



Images: left by Laurel Baldwin; right from google maps

Integrated weed management: the basics

In integrated weed management (IWM), you choose the best combination of methods and timing to control weeds based on your site conditions and species present, while reducing the use of herbicides alone where possible.

Prevention: Prevention of new invasive species and previously established weeds will be ongoing as you manage your land. Regularly monitor for new weeds, and don't allow them to go to seed or spread vegetatively. Learn to identify invasive weeds in their seedling stage so you can control them while they are small.

Manual/Mechanical methods: physical control of weeds using methods such as hand-pulling, digging, mowing, and tilling. For a few plants and small infestations, hand-pulling or digging can minimize soil disturbance while leaving desirable species intact. Other mechanical methods, such as tillage, can be effective on larger infestations. However, tilling can stimulate weed seed germination, so further control methods may be needed. Mowing may be used as a first step to prevent weeds from going to seed before conducting other control methods. Repeated mowing in the same season may be used on some weed species to drain the weeds of their resources, eventually leading to control. Be aware that other species flower later and at a lower height after mowing.



San Juan County NWCB

Pulling Scotch broom with a weed wrench



Sheet mulching, here with layers of cardboard and woodchip mulch, serves to smother the noxious weed yellow archangel and prevent any weed seeds from growing in a park.

Cultural methods: altering site conditions to be less favorable for weeds and more favorable for desired plants. For example, increasing soil moisture or nutrients can increase the competitiveness of desirable species. Soil solarization uses clear plastic to heat the soil for a full growing season to destroy or reduce weed seeds within the upper soil layer. Controlled burns can be effective against some weed species, although regrowth may need to be burned again. Check for state and local restrictions, burn bans, or permit requirements before burning. For smaller areas that will be landscaped, mulching, including sheet mulching, or covering the soil after control work can help reduce or suppress seed

germination. Replant the area to provide competition and create shade, while continuing to monitor for and remove weed seedlings.

Biological control methods: releasing biological control agents, such as insects that feed on seeds or other plants parts, and using animals such as goats for grazing, to control weeds. Classical biological control agents are organisms, commonly insects, introduced from the native range of the target invasive weed, which are intensely researched and tested to make sure they will only attack the target plant. These agents will take time to build up their populations, but can be self-sustaining and able to reduce the target invasive weed to low population numbers in time, though there are some natural population fluctuations. There are several widespread noxious weed species in Washington with approved classical biological agents.



Goats grazing on leafy spurge (*Euphorbia esula*) in eastern Washington.

Some biological control agents, like the rush skeletonweed gall mite (*Eriophyes chondrillae*), are already widespread in the state and redistribution is likely not needed. Other biological control agents need particular habitat conditions for survival, such as the Russian knapweed gall midge (*Jaapiella ivannikovi*) which depends on plants having season-long access to water to provide a consistent supply of fresh new growth throughout the spring and summer to maintain midge populations. To find out about using biological control agents in Washington, visit WSU Extension's Integrated Weed Control Project website invasives.wsu.edu or talk to your county noxious weed control board.

Chemical methods: using herbicides to control weeds. You may choose to use non-selective herbicides that will kill all treated plants, or selective herbicides that are formulated to kill certain types of plants, such as broadleaf weeds or grasses. Be sure to read and follow the label instructions carefully (the label is the law) and ask for advice in choosing the best product for your site and weeds. Visit the Pacific Northwest Weed Management Handbook online at pnwhandbooks.org.

Monitor your progress to see whether noxious weeds are decreasing, new weeds are appearing, and if desired plants are establishing. Take pictures and make notes to help track your progress. Comparing before and after pictures is also rewarding. Adjust your control methods as needed. Talk to your county weed board, conservation district, or WSU Extension personnel if you need advice.

Combination of methods

Integrated weed management combines several weed control strategies whenever possible. For example, some weed species may be mowed or cut back before they produce flowers; later, the regrowth on the plants can be treated with an herbicide. Or, biological control insects may be released in the center of a large weed infestation while satellite populations are controlled with herbicides or mechanical methods to keep the infestation from expanding.

An infestation of oxeye daisy (*Leucanthemum vulgare*) dominates a neglected orchard (left) and has begun to spread into the adjacent woodland habitat (right).



In this case, the large

infestation in the orchard may be mowed and then treated with herbicide before later reseeding. The smaller satellite populations growing among the native woodland plants can be hand-pulled.

Avoid wasting time and resources by using control methods at the wrong time or those that work against each other. For example, once annuals have produced seeds, they will die on their own. If you are using herbicide to treat them, apply it to plants before they flower. Do not spray, mow, or burn infestations where biological control agents are present, as you can eliminate their populations.

Be mindful of timing

- Control weeds when they are young. Seedlings and rosettes take less effort and resources to treat, whether you are tilling, hand-pulling, digging, or applying herbicide. This will also control plants before they set seed, preventing more weed seeds from entering the soil.
- Understanding a weed's life cycle helps you determine which stages are most vulnerable to stress or control. Pulling, mowing, or spraying annual weeds such as kochia and shiny geranium, prior to seed production, will decrease their spread in later seasons.
- Fall and spring are often the best times to control noxious weeds and establish native plants. Hand-pull weeds in the spring and fall where the soil is moist and roots - especially taproots - are more easily removed. This is also a great time to reseed with grasses, since disturbing the soil can cause buried weed seeds to germinate. The grass will compete with the weed seedlings for space and nutrients.

- Time the method of control when it will have the biggest impact on weeds. For example, mowing annual weeds too early may allow them to recover and regrow, while mowing too late, once plants have developed seed, may actually help with seed dispersal. The best time to mow annuals is usually when they are just starting to develop flowers, but make sure to check specific recommendations for your weed species. Additionally, remember that many herbicides are most effective against established perennial weeds if applied just prior to flowering, so don't apply too early. For other perennial weeds, a herbicide application in the fall can also be effective. Monitor recently disturbed areas for resprouts and seedlings and control them before they reestablish.
- If you are unable to treat weeds before they bloom, try to time control efforts at times of day when pollinators are not visiting the flowers. If possible, remove the spent flowers and put them in trash bags before they release seeds.
- Well-established infestations take longer to convert to desirable vegetation. It may be best to reseed with an annual grass as a placeholder for the first few years. During this time, you can hand-pull or use a selective herbicide to treat any emerging weeds and then plant native and desirable broadleaf species when the seedbank (seeds stored in the soil) has been depleted and established perennial weeds have been eliminated.
- Base your plan on the type of weed species you have. For example, in areas dominated by weedy, invasive grasses, seed first with forbs (herbaceous, broadleaf plants), use selective herbicides and introduce desirable grass species later. Or, control invasive broadleaf weed species by establishing a grassland that can be treated with a broadleaf herbicide, and then reintroduce native or other desirable forb species.

Jennifer Andreas, WSU Extension



David Giblin, 2009

Left, Knapweed seedhead damaged by *Larinus minutus* Releasing the seedhead feeding weevil, *Larinus minutus*, as a biological control for diffuse and spotted knapweed will reduce larger weedy patches. The adults feed on the foliage and the larvae feed on the developing seeds. **Right, Sandberg bluegrass, *Poa secunda***, perennial bungrass. Do not remove or cut back a desirable plants until they go to seed. A landowner in Wilbur mowed an empty lot full of Sandberg's bluegrass (*Poa secunda*) to a low height instead of allowing it to grow to its normal height of 12-24 inches. After it was mowed, it didn't go to seed and allowed noxious weeds to take root.

Pollinator Conservation Tips

- Time your noxious weed control so that it minimizes disturbance to bees and other pollinators. Conduct control work in the morning or in the evening when bees and other pollinators are less active.
- Control as many noxious weeds as you can in early spring, fall, or even winter if possible, when plants are not in bloom, keeping in mind the best time to control the particular weed species on your land.
- Plant desirable species in nearby areas in conjunction with weed control so the bees still have a source of nectar and pollen. If you are converting a large infestation, replace sections over time instead of all at once.
- Transform underutilized patches of land into pollinator-friendly forage by planting native and pollinator-friendly species along field edges, roadsides, field pivot corner, gardens, and yards.
- Many crops are also pollinator friendly, including alfalfa, apples, blueberries, buckwheat, canola, cherries, corn, raspberries, soybeans, and sunflowers.
- When choosing ornamental plants, avoid double-flowers, (having double or more petals), which typically produce fewer stamens and less pollen.
- When possible, leave some areas of bare ground to provide ground nesting sites for native bees and other insects. The Xerces Society recommends that these bare patches be flat to sloped, well drained, in sunny conditions and as small as a few inches, ranging up to several feet. Monitor these spots for weeds that may try to invade. Including plants with hollow stems, like non-invasive Rubus and elderberry species, will also provide important bee habitat.
- An at-home tip to help pollinators: mow lawns less frequently, about once every two weeks. A recent study found that when lawns could grow longer, less aggressive lawn weed flowers, such as clovers, can provide some pollen and nectar for bees. Be aware that these weeds may spread in your lawn, so make sure you do not mind them being there.
- Minimize tilling in areas that may have pollinators underground, turning the ground only when necessary.



Images: left, Rod Gilbert and right, Holly Graef

Site Preparation

Preparing your site for the planting and seeding of desired species will increase their ability to establish and succeed. Reducing the amount of weed seeds in the soil prior to revegetating diminishes future weed competition with the newly established plants. Also, it is easier to control weeds before they are mixed with the desired plants.

Questions to consider before you start: Is your plan to add native seeds to an existing plant community or is the site being prepared to establish all new plants? What site preparation is needed? Use IWM methods to eliminate weeds as much as possible. If there will be a period of time between weed control and seeding, establishing a cover crop could be a good short-term option to help prevent a new weed invasion. Spot-spraying herbicides on weeds around desirable plants can prepare a site for planting while protecting desirable plants that can provide a valuable seed source. Seeds will need good soil contact to germinate, so remove weeds as much as possible to create areas where the soil is exposed just prior to seeding.

Site preparation in fields where all the vegetation will be treated before planting commonly uses plows and disks to turn the soil, then smoothing and firming soil for seed drilling. Loose soil on the surface (e.g., not compacted) is recommended to increase the seeding germination rate. However, soil cannot be too loose, as seeds can become buried and not germinate. In areas that are wheat-fallow, the seedbed is left loose (and without weeds) after cultivation and seeded in late fall. The seeds are slightly buried by natural soil settling. Cereal grain stubble on coarse to medium soils provides a fairly firm seedbed for seeding. See the publication *Eastern Washington Range and Pasture Seeding: Planning-Installation-Evaluation* in our resources section for more information.

Cover Crops

If appropriate for your site, consider using a cover crop to help improve the soil, prevent erosion, suppress weeds, and benefit insects before replanting with desired species. However, one cover crop rarely provides all of these functions, so choose one that is best for your landscape goals. Cover crops that protect the soil during the winter are typically planted in the late summer to fall. In the Columbia Basin area, winter wheat is a commonly used cover crop by Washington growers.

- Cover crop examples for eastern WA: winter wheat, hairy vetch, and peas.
- Cover crop examples for western WA: winter oats and common vetch; cereal rye and hairy vetch; and annual ryegrass and crimson clover.

Have a plan ready when it's time to replace the cover crop with your long-term desired species.



Seeding, planting, and other considerations

A healthy plant community resists invasion by invasive weeds and can consist of a diverse assortment of species or a few dominant species such as a pasture or cropland. Invasive noxious weeds can often fully dominate a site where there may have been a variety of native plant species prior to invasion. This can disrupt entire ecosystems. For example, abandoned cropland that is taken over by cheatgrass (*Bromus tectorum*) may never return to a healthy community of perennial grasses without intensive management.

By establishing a mix of desirable plants, resources such as light, water, and nutrients are used and are unavailable to new weeds that may try to invade. Diverse plant communities also provide habitat for birds, insects, and other animals that depend on native plants for food and shelter. Choose plants that are adapted to your soil, light, temperature, and moisture conditions on the site. A number of organizations provide online climate data such as mean annual precipitation rate. WSU's AgWeatherNet, <http://weather.wsu.edu/> is a helpful resource.



nick.com/photos/larry/environmental/409193300/

There are resources and groups available to provide helpful information if you are restoring a native plant community to provide habitat for wildlife, see our Resources Page for further information.

When planning your plant list, look at nearby examples of plant communities with similar conditions to use as a guide for those species that will thrive at your site. Some things to consider when choosing plants to meet your goals include:

- When using native plants, choose those that are sourced as close to your location as possible, as they will be best adapted to local conditions.
- When selecting non-native plants, make sure they are not invasive or listed noxious weeds.
- Choose plants that have different bloom times and aim, if possible, to have at least three species to be blooming at any one time from spring through fall to support pollinators. This will provide a reliable source of pollen and nectar throughout the growing season.
- A greater diversity of plants will attract and support a greater diversity of pollinators and other wildlife.
- Depending on your landscape goals, include a mix of some or all types

of plants: forbs (herbaceous flowering plants), grasses, shrubs and trees – both evergreen and deciduous species. Depending on your landscape and the weed seeds in the soil, it may be more effective to establish trees and shrubs before planting and seeding the groundcover layer.

- Consider transplanting seedlings or plugs in addition to seeding to increase the likelihood of successful plant establishment. This may not be practical for large fields but it can often result in a desirable plant community more quickly than relying on seeding alone.
- Weed seeds may germinate along with your new plants. Learn how to identify weed seedlings from your planted seedlings. Plan ahead for how you will control weeds as they emerge and how this may guide your plant selection. For example, grasses could be seeded on site first so that selective broadleaf herbicides can be used on weed seedlings. The following year, native broadleaf species can be seeded on site or planted as seedlings. If you are controlling invasive grasses, seed first with broadleaf species and use herbicides that target grass species.
- Consider using plant species that root at different soil depths to more fully utilize resources.
- Seed quality: use certified seed when possible. These seedlots have been inspected to be free of noxious weeds and seed germinability will have been tested. Look for blue certification tags on the seed containers.
- For planting in rangeland and other areas that will be grazed, consider nutritive value, palatability, growth stage when grazing will occur, and regrowth ability when choosing the seed mix. Forage species need to be able to persist when grazed and suppress invasive weeds. Seedling establishment may take two to three years in non-irrigated conditions and even longer for native seedlings. To protect new seedlings, restrict grazing of plants at least during the first year.



Image by Sue Bird

In general, it is not recommended that nitrogen fertilizer be used for new native plants and seedlings, as an increase in nitrogen tends to favor annual grasses and weedy species over the slower establishing native perennial species. If the habitat is highly disturbed though, it may be beneficial to test the soil to see if it is deficient in any particular nutrients before planting.

Remember, it is critical to revegetate bare ground with desired plant species before weeds get a chance to grow back. Have a plan in place before you begin your noxious weed control

Mulches

Mulches may be added to your landscape to provide a variety of benefits, depending on the type, including reduction of weed competition, soil moisture retention, and soil health improvement. In yards and other smaller landscapes, it can be applied around trees and shrubs and in plant beds.

- Arborist wood chips: can suppress weed seedlings and some pathogens, retain soil moisture, and is attractive in landscaping.
- Coconut fiber (typically sold as mats or blankets) can suppress weed seedlings and plants and looks great in landscaping.
- Compost: can provide nutrients and organic matter to soil.
- Straw: can protect soil from erosion and provide texture and surface when reseeding

Use certified weed-free straw mulch (Washington Wilderness Hay and Mulch – WWHAM) whenever possible and ask your compost supplier about the presence of noxious weed seeds. Remember to provide small patches of bare ground for bees where feasible

Planting material considerations:

- Contact and work closely with seed growers to ensure adequate supply of seeds when you need them. Sources of native seed providers and nurseries are available on our resource page
- New plantings of trees and shrubs may need to be protected with fencing or using tubes around plant bases to protect from foraging wildlife and physical damage.
- Trees, shrubs, and perennials may need supplemental water during dry months for the first couple of years while they establish.
- Seeds are typically more cost effective than plant starts and are used more often.
- Some perennial herbaceous plants can be difficult to establish from seed and planting plugs (small plant starts) may ensure a higher success rate of establishment. For example, a pollinator friendly species that establishes better from plugs is common camas (*Camassia quamash*)

Left, trays of perennial plant plugs ready to be planted; right, a blooming meadow of Puget Sound native plants.



Pollinator Plantings

No matter the size of land you have, everyone can include plants to support pollinators. Pollinator species lists are available from the Xerces Society and other sources. The plants you choose do not have to be native for your yard or garden, but make sure they are not invasive. Plantings should include plants that flower in the spring, summer, and fall. Make sure to protect pollinator plantings from insecticides; provide a buffer between the plantings and areas where insecticides may have to be used and always read the label.

Ornamental plants to support pollinators

Herbaceous flowering plants

- blazing star, *Liatris* species
- blue flax, *Linum perenne*
- cardinal flower and hybrids, *Lobelia splendens*
- cosmos, *Cosmos bipinnatus*
- lacy phacelia, *Phacelia tanacetifolia*
- lavender, *Lavandula* species
- meadowfoam, *Limnanthes douglasii*
- non-invasive sages, *Salvia* species
- oregano, *Origanum* species
- pincushion flower, *Scabiosa caucasica*
- plains coreopsis, *Coreopsis tinctoria*
- purple coneflower, *Echinacea purpurea*
- Russian sage, *Perovskia atriplicifolia*
- sneezeweed, *Helenium* species
- upright prairie coneflower, *Ratibida columnifera*
- violets, *Violas* species



Image by Cindy Orr

Shrubs

- blueblossom, *Ceanothus thyrsiflorus*, and other ceanothus species
- Rosemary, *Rosmarinus officinalis*
- Rhododendron, *Rhododendron* species

Seed Packet Tips:

Buying seeds to plant in your garden? Read the label and check the species list to make sure weedy species are not included. Not sure? Ask your local county weed board, conservation district, extension office. Also, follow planting instructions, and make sure you have the correct conditions for what you are buying.



Eastern Washington

Plant recommendations to support pollinators

- Choose from this sample list or from the many other species available that support pollinators.
- Check with your conservation district and other local resources if you are restoring your landscape to a specific native plant community.

Forbs (herbaceous flowering plants)

Common name	Scientific name	Estimated flowering	Life cycle
native biscuitroot species	<i>Lomatium species</i>	spring	P
native balsamroot species (1.)	<i>Balsamorhiza species</i>	April-July	P
Idaho blue-eyed grass	<i>Sisyrinchium idahoense</i>	April-July	P
common camas,	<i>Camassia quamash</i>	April-June	P
common yarrow	<i>Achillea millefolium</i>	April-Oct.	P
desert yellow fleabane	<i>Erigeron linearis</i>	May-June	P
blue flax (6.)	<i>Linum lewisii</i>	May-July	P
purple sage	<i>Salvia dorrii</i>	May-July	P
pale evening-primrose	<i>Oenothera pallida</i>	May-July	B, P
shaggy fleabane	<i>Erigeron pumilus</i>	May-July	P
threadleaf fleabane	<i>Erigeron filifolius</i>	May-July	P
western prairie clover	<i>Dalea ornata</i>	May-July	P
parsnip-flower buckwheat	<i>Eriogonum heracleoides</i>	May-July	P
northern mule-ears	<i>Wyethia amplexicaulis</i>	May-July	P
grand collomia (5.)	<i>Collomia grandiflora</i>	May-August	A
woolly sunflower	<i>Eriophyllum lanatum</i>	May-August	P
Munro's globemallow (4.)	<i>Sphaeralcea munroana</i>	May-August	P
silver-leaf phacelia	<i>Phacelia hastata</i>	May-August	P
blanket flower (2.)	<i>Gaillardia aristata</i>	May-Sept.	P
dusty maidens	<i>Chaenactis douglasii</i>	May-Sept.	B, P
common sunflower,	<i>Helianthus annuus</i>	June-Sept.	A
yellow bee plant,	<i>Peritoma lutea</i>	June-Sept.	P
smoothstem blazing star,	<i>Mentzelia laevicaulis</i>	July-Sept.	B, P
hoary aster	<i>Dieteria canescens</i>	July-Oct.	P

Life cycle: A=annual, B=biennial, P=perennial

Shrubs and trees

common name	Scientific name	Estimated flowering
tall Oregon grape	<i>Berberis aquifolium</i>	March-May
golden currant	<i>Ribes aureum</i>	April-May
antelope bitterbrush	<i>Purshia tridentata</i>	April-June
creeping Oregon-grape	<i>Berberis repens</i>	April-June
native ceanothus	<i>Ceanothus species</i>	spring-summer
black hawthorn	<i>Crataegus douglasii</i>	May-June
mock orange	<i>Philadelphus lewisii</i>	May-July
Nootka rose	<i>Rosa nutkana</i>	May-July
snow buckwheat	<i>Eriogonum niveum</i>	June-September
yellow rabbitbrush	<i>Chrysothamnus viscidiflorus</i>	July-September
rubber rabbitbrush (3.)	<i>Ericameria nauseosa</i>	August-Sept.

Grasses:

Common name	Scientific name	Estimated flowering	Life cycle
curly blue grass	<i>Poa secunda</i>	April-July	P
Idaho fescue (7.)	<i>Festuca idahoensis</i>	May-July	P
bluebunch wheatgrass	<i>Pseudroegneria spicata</i>	June-August	P
tufted hairgrass	<i>Deschampsia cespitosa</i>	June-September	P



Images: 2., 4., 5., 6., 8. Ben Legler, 2004; 3. Tad Dillhoff, 2008; 7. Bluestem Nursery.

Western Washington

Plant recommendations to support pollinators

- Choose from this sample list or from the many other species available that support pollinators.
- Check with your conservation district and other local resources if you are restoring your landscape to a specific native plant community.

Forbs (herbaceous flowering plants)

Common name	Scientific name	Estimated flowering	Life cycle
Pacific bleeding heart (5.)	<i>Dicentra formosa</i>	March-July	P
sea-thrill,	<i>Armeria maritima</i>	March-July	P
sea blush (2.)	<i>Plectritis congesta</i>	April-June	A
common camas	<i>Camassia quamash</i>	April-June	P
Idaho blue-eyed grass	<i>Sisyrinchium idahoense</i>	April-July	P
Philadelphia fleabane	<i>Erigeron philacelphicus</i>	April-August	B, P
large-leaf avens	<i>Geum macrophyllum</i>	April-August	P
riverbank lupine	<i>Lupinus rivularis</i>	April-September	P
farewell to spring (1.)	<i>Clarkia amoena</i>	May-July	A
nodding onion	<i>Allium cernuum</i>	May-July	P
woolly sunflower (8.)	<i>Eriophyllum lanatum</i>	May-August	P
red columbine	<i>Aquilegia formosa</i>	May-August	P
silver-leaf phacelia	<i>Phacelia hastata</i>	May-August	P
tall alumroot	<i>Heuchera chlorantha</i>	May-August	P
Self-heal	<i>Prunella vulgaris</i> var. <i>lanceolata</i>	May-September	P
native penstemon species (7.)	Penstemon species	late spring to summer	
bluehead gilia	<i>Gilia capitata</i>	June-July	A
bigleaf lupine (6.)	<i>Lupinus polyphyllus</i>	June-September	P
slender cinquefoil,	<i>Potentilla gracilis</i>	July-August	P
Canada goldenrod	<i>Solidago canadensis</i>	July-October	P
Pacific aster	<i>Symphotrichum chilense</i>	July-October	P

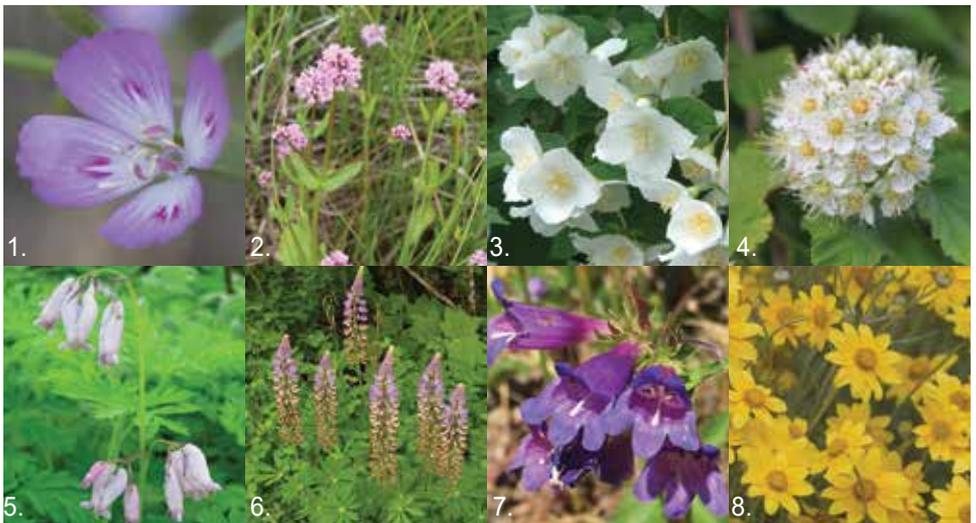
Life cycle: A=annual, B=biennial, P=perennial

Trees, shrubs and vines

Common name	Scientific name	Estimated flowering
osoberry	<i>Oemleria cerasiformis</i>	March-April
tall Oregon grape	<i>Berberis aquifolium</i>	March-May
salmonberry	<i>Rubus spectabilis</i>	March-June
red elderberry	<i>Sambucus racemosa</i>	March-July
kinnikinnick	<i>Arctostaphylos uva-ursi</i>	April-June
Pacific ninebark (4.)	<i>Physocarpus capitatus</i>	May-June
mock orange (3.)	<i>Philadelphus lewisii</i>	May-July
salal	<i>Gaultheria shallon</i>	May-July
Nootka rose	<i>Rosa nutkana</i>	May-July
native maple species	<i>Acer species</i>	spring
huckleberry species	<i>Vaccinium species</i>	spring to summer
oceanspray	<i>Holodiscus discolor</i>	June-August
hairy honeysuckle	<i>Lonicera hispidula</i>	June-August

Grasses

Common name	Scientific name	Estimated flowering	Life cycle
curly blue grass	<i>Poa secunda</i>	April-July	P
Roemer's fescue	<i>Festuca roemerii</i>	May-July	P
tufted hairgrass	<i>Deschampsia cespitosa</i>	June-September	P



Images: 1. Rod Gilbert, 2006; 6. Ben Legler, 2004; 8. Rod Gilbert, 2007.

Reminders and Resources

Evaluate plant germination and establishment. New plants may need extra care for the first few years as they establish. Note that perennial species may take longer to establish, so it can be a few years before you begin to see flowers. Monitor weed seedlings and resprouts and control as necessary using IWM methods, modifying control methods as needed.

Do not spread seeds to new locations. Clean boots, clothings, equipment, vehicles before you leave weedy areas.



Native Plant Sources

- Washington Native Plant Society: www.wnps.org
- Reforestation, Nurseries, and Genetics Resources (USDA Forest Service and Southern Regional Extension Forestry) www.rngr.net/resources/directory
- Native Seed Network: www.nativeseednetwork.org
- Pollinator Conservation Resources – PNW Region <http://xerces.org/pollinators-pacific-northwest-region/>

Other Plant Guides

The USDA Natural Resources Conservation Service www.nrcs.usda.gov provides many helpful publications including:

Conservation Plant Species for the Intermountain West

Plants for Pollinators in the Inland Northwest

Plant and Seed Vendors for ID, MT, NV, Eastern OR, UT, Eastern WA and WY

Native Seed Production Manual for the Pacific Northwest

Eastern Washington Range and Pasture Seedings: Planning-Installation-Evaluation

USDA Forest Service's Gardening with native plants

www.fs.fed.us/wildflowers/Native_Plant_Materials/Native_Gardening/index.shtml

Western WA native plant guide and gardening tips

green2.kingcounty.gov/gonative/index.aspx

Pollinators

The Xerces Society for Invertebrate Conservation: <https://xerces.org/>

WSDOT - www.wsdot.wa.gov/Design/Roadside/Pollinators.htm

Insects and Pollinators by USDA NRCS many sources located here

www.nrcs.usda.gov/pollinators

Pollinator Partnership www.pollinator.org/

Pollinators continued

North American Butterfly Association www.naba.org/

Bumble bees of Western U.S.

www.xerces.org/wp-content/uploads/2008/09/Western_BB_guide.pdf

IPM

WSU's Integrated Weed Control Project, biological control, invasives.wsu.edu/invasives

Pacific Northwest Weed Management Handbook: pnwhandbooks.org/

Soil solarization <http://ipm.ucanr.edu/PMG/PESTNOTES/pn74145.html>

Sustainable Agriculture Research & Education: www.sare.org/Learning-Center/

Your local county noxious weed control board, conservation district, and WSU Extension office

Other resources:

Washington Wilderness Hay & Mulch Management (WWHAM) Program

agr.wa.gov/plantsinsects/wwham/wwham.aspx

PlantServices@agr.wa.gov, or call (360) 902-1984

Washington does not have a weed-free gravel program but gravel/aggregate suppliers can voluntarily use the North American Invasive Species Management Association (NAISMA) standards: www.naisma.org/weed-free-forage

WSU Guide to Mulches: <https://s3.wp.wsu.edu/uploads/sites/2076/2017/07/C075-Guide-to-Mulches-15.pdf>

USDA Forest Service Mowing the Lawn Less: <https://www.nrs.fs.fed.us/pubs/55816>

Other restoration sources:

WA Department of Natural Resources: www.dnr.wa.gov

Palouse Prairie Restoration:

https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_035839.pdf

Books:

Attracting native pollinators: protecting North America's bees and butterflies: the Xerces Society guide, E. Mader et al. 2011

Encyclopedia of Northwest Native Plants for Gardens and Landscapes by K. A. Robson et al. 2008

For more information please contact us at

Washington State Noxious Weed Control Board

www.nwcb.wa.gov

360-725-5764; noxiousweeds@agr.wa.gov

Or contact your county noxious weed control board or weed district

Special Thanks to Contributors: Tim Miller, Tricia MacLaren, Jennifer Andreas, Alison Halpern, Laurel Baldwin and Greg Haubrich.

Inspired and adapted from 'Full Circle Noxious Weed Control' by the Lincoln County Noxious Weed Control Board



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OUR RESOURCES**

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bottom center circle: Rod Gilbert

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