DON'T BE *THAT* NEIGHBOR

CONTROLLING WEEDS REQUIRES COMMUNITY-WIDE ACTION

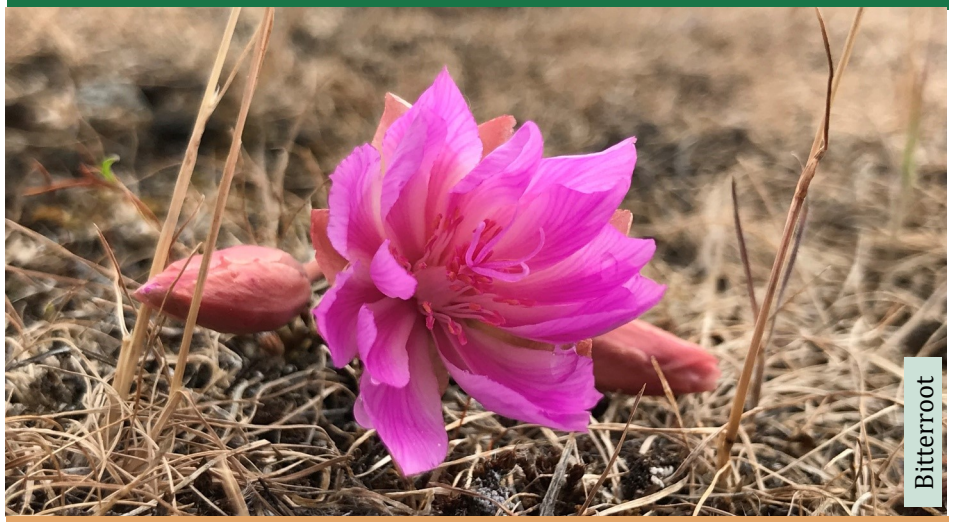
Canada thistle uncontrolled (left of fence) and controlled (right of fence).

Hoary alyssum growing profusely in a lot prepped for development.

Spokane County Noxious Weed Control Board
(509) 477-5777 · WeedBoard@SpokaneCounty.org
222 N Havana St, Spokane WA, 99202 · @spokanenoxiousweeds

FULL CIRCLE NOXIOUS WEED CONTROL

LONG TERM PLANNING KEEPS NOXIOUS WEEDS OUT



Bitterroot

DEVELOP HEALTHY, WEED-RESISTANT PLANT COMMUNITIES

Blanket flower

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IT'S NOT JUST ABOUT CONTROL

Promoting Desirable Vegetation

Noxious Weeds are invasive plants that were accidentally or intentionally introduced outside of their native range. Once established, they are very destructive, competitive or difficult to control (RCW 17.10.10).

Controlling noxious weeds, at minimum, prevents plants spreading by seed. However, many noxious weeds can spread vegetatively, and seeds may remain viable in soil for several years or decades.

Controlling noxious weeds may entail tilling, hand-pulling or applying herbicide. These activities disturb the plant community, and may open up bare ground or expose buried noxious weed seed banks. Bare ground is readily colonized by invasive plants and may compound your noxious weed problems long term if further steps are not taken.

Make a plan for encouraging the establishment of thriving desirable plants. This begins with considering your long term land-use plans.

A thorough plan consists of:

1. Determining land-use objectives.
2. Identifying and controlling noxious weeds.
3. Establishing desirable vegetation.
4. Monitoring and maintaining landscape for desirable vegetation.


Blue Flax


Fireweed


Goldenrod

STOP THE SPREAD, CLEAN YOUR TREAD...

And animals, outdoor gear, equipment...

An Ounce of Prevention is Worth a Pound of Cure

- Clean equipment such as tractors, trailers and mowers before moving to new sites or fields.
- Clean boots, clothing, animals and gear before and after using trails.
- Read seed mixes to ensure you're not unintentionally introducing unwanted plants.
- Clean watercraft before moving to a new body of water
- Put all reproductive parts of invasive plants in curbside trash, not backyard compost or municipal green waste bins.

Achieve full circle control

1. Know your land-use objectives.
2. Identify and control noxious weeds.
3. Establish desirable vegetation.
4. Monitor and maintain landscape for desirable vegetation.


Balsamroot

All photos provided by Spokane County Noxious Weed Control Board Staff.

MONITORING & MAINTENANCE

Long-Term Success

As your new plant community gets established, it is likely that you will still find noxious weeds here and there. Maybe it's a heavily used pathway where disturbance is inevitable, or a formerly bare area where your desired plants are still working to establish themselves. Noxious weed seeds may remain viable in the soil for years, even decades. New noxious weeds may arrive on contaminated equipment, clothing, animals and more.

Keep an eye out for the weeds you've been combating and spot treat, by whatever methods appropriate, to ensure they do not spread. New, unknown plants may show up on your property, in bird seed, hay, mulch, fill soil, etc. If you find an unknown plant, identify it before it goes to seed.


Chokecherry

Plant Identification Resources

- Spokane County Noxious Weeds: www.spokanecounty.org/weedboard
- WA State Noxious Weeds: https://www.nwcb.wa.gov/
- USDA PLANTS database: https://plants.usda.gov/java/
- Forbs Seedling Identification Guide for the Inland Northwest: Online PDF
- Weeds of the West: Online PDF

Booklet inspired by and adapted from Full Circle Control booklets developed by the Lincoln County and Washington State Noxious Weed Control Boards.

MAKE A PLAN

Determine Land-Use Objectives


Balsamroot


Buckwheat


Lupine

Is your goal to have a farm, pastures, open rangeland, wildlife habitat, a flourishing home garden? Your long term goals will guide your approach to tackling noxious weeds on your property. Not all invasive plants are listed as noxious weeds, but may also need to be controlled to reach your land management objectives.

Noxious weeds are a symptom of a larger issue: the lack of desirable vegetation to fill each ecosystem niche (e.g. early, mid, and late season plant species). Desirable vegetation filling each niche will increase competition and reduce the ability of many noxious weeds to invade the site. A healthy, competitive plant community is the best defense against noxious weed invasion.

Unfortunately there is no 'magic bullet' that will eradicate invasive noxious weeds in one season. Developing and implementing a multi-year plan will improve your success.

Timing is critical to the success of your plan. Plants are typically more vulnerable when they are young and actively growing. Different invasive plants germinate and grow at different times throughout the year, requiring ongoing monitoring to determine when and what control methods will be most effective.

INTEGRATED PEST MANAGEMENT

For Noxious Weed Control

Positively identifying the noxious weeds you want to control is crucial, as it determines what time of year the plants are most vulnerable and what methods are most effective. Identification and control information can be found on the Spokane County Noxious Weed Control Board website: *www.spokanecounty.org/weedboard*

During the growing season, field inspectors are available to conduct 'weed walks' with local landowners to determine what weeds are present and help develop a course of action.

Blueweed, or Viper's bugloss, is one of several noxious weeds in the Borage plant family growing in Spokane County.

Integrated pest management (IPM) is the principle of choosing the best tools and timing for control on a particular site. Plans integrating multiple forms of control can lead to greater success. These tools may be:

Mechanical: Tillage, hand-pulling, mowing, etc. For small infestations, hand-pulling can minimize soil disturbance and leave desirable species intact. Mowing may reduce seed production, or encourage plants to bloom at mower blade height and spread vegetatively.

Cultural: Altering site conditions so they are less favorable for noxious weeds and better for desired plants. Includes planting or seeding desirable vegetation, improving soil conditions, and managing light and water availability. Targeted grazing can be effective when executed properly.

Biological: Releasing insects that control noxious weeds. Approved biological control agents are host specific and target specific noxious weeds. Learn more: *http://invasives.wsu.edu/biological/weed.htm*

Chemical: Treatment with herbicides. Some herbicides can open sites up for other plants, including noxious weeds, to take root. Noxious weeds are very competitive and typically are the first plants to take advantage of newly open sites. Using the appropriate herbicide along with seeding, planting or other activities can reduce potential for reinvasions.

NOXIOUS WEEDS AND POLLINATORS

Support pollinator populations

Did you know that native pollinators are responsible for an estimated 15% of crop pollination in the US? Managed introduced bees contribute the other 85% of pollination services. Our world, and dinner plates, would not be the same without them. Some highly invasive noxious weeds, such as common bugloss and knotweed, have been utilized by honeybee keepers for bee forage. However, noxious weeds often form dense monocultures, reducing plant biodiversity and consequently the number of insect species able to utilize the habitat.

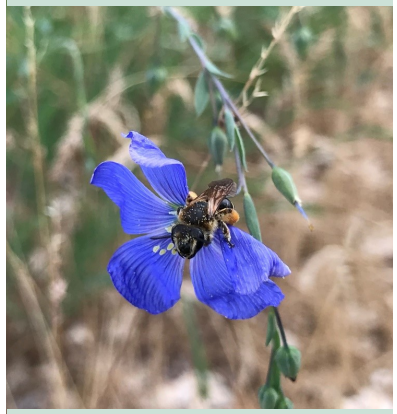
Replace noxious weeds with native or non-invasive introduced plants that provide a diversity of habitat and overlapping bloom times for season-long foraging. Native plants support a greater range of insect species and are adapted to the Inland Northwest climate, thriving with little care once established.

Consider adding a variety of shrubs and wildflowers to your landscape to help support pollinator populations. Underutilized corners of yards, roadsides, and field edges are all great areas to add some pollinator habitat. Bee-u-tify wildflower seed packet are available from the Noxious Weed Board to get a jump start on your pollinator patch.

When purchasing seed mixes, read the species list to ensure it doesn't contain invasive or listed noxious weeds.

Smoothstem blazing star

Blue flax



Balsamroot

CHANGE A WEED PATCH TO HEALTHY LAND

Establish a diverse plant community

Whether it is rangeland, pasture, your yard or your business, establishing diverse, competitive, desirable vegetation is the best way to prevent the invasion of noxious weeds. Review your land-use objectives, and select plants that fill every habitat niche. A mix of plant species that grow and mature at various times throughout the growing season can create a healthy, competitive landscape, making it harder for noxious weeds to invade. Below are a few examples of native and hardy non-invasive plants that might be used when establishing desirable, non-invasive, vegetation:


1


2


3

- Grasses: Idaho fescue, Sandberg's bunchgrass, bluebunch wheatgrass, basin wild rye, Indian ricegrass, needle and thread grass
- Wildflowers: Lupine, balsamroot, yarrow, globemallow, blanket flower, blue fax, coneflower, fleabanes (1), evening primrose
- Shrubs: Mock orange, lilac, rabbit brush, sagebrush, golden currant, buckwheats, Oregon grape, antelope bitterbrush, ceanothus, roses, purple sage (2)
- Trees/Large Shrubs: Ponderosa pine, larch (3), quaking aspen, birch, spruce, chokecherry, serviceberry

Finding Seeds and Plants*

Rainier Seeds
http://rainierseeds.com/
509-725-1235

L & H Seeds
http://www.lhseeds.com/
509-234-4433

Landmark Turf & Native Seed
https://landmarkturfandnativeseed.com/
509-835-4967

Plants of the Wild
http://www.plantsofthewild.com/
509-284-2848

Desert Jewels
https://www.desertjewelsnursery.com/
509-893-3771

Derby Canyon Natives
https://derbycanyonnatives.com/
509-548-9404

**List does not constitute an endorsement, and is not an exhaustive listing of suppliers in the region.*

BIOLOGICAL CONTROL AGENTS

Bug Your Weeds

Noxious weeds are so successful in part because they lack natural predators in their new environment. Biological control allows the introduction of tested biocontrol agents to target specific species of plants, re-establishing a natural predator.

In Spokane County, biocontrol insects have most notably reduced the population of Dalmantian toadflax. Insects have also been released to control leafy spurge, knapweeds and rush skeletonweed.

Pros:

- Target specific species of plant and ignore non-host plants.
- Can colonize difficult to access areas like rough terrain and areas near water.
- Reduces ground disturbing treatments and chemical applications.

Cons:

- Takes 3-5 years to establish a population of biocontrol agents.
- Not all sites are suitable for biocontrol agent release.
- Will not eradicate the target population.

More information about Biological Control:

USDA Animal and Plant Health Inspection Service (APHIS), Spokane Office

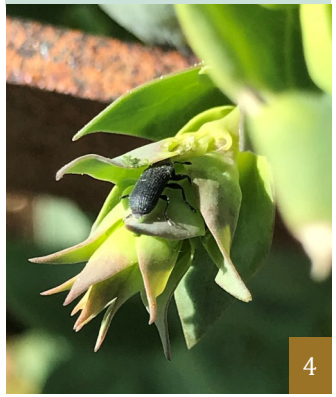
- (509) 353-2950

WSU Extension, Puyallup

- http://invasives.wsu.edu/index.htm
- (253) 445-4657


Adult stem-boring weevils on Dalmatian toadflax.


Curled, dead stem tip of weevil-infested D. toadflax. This stem will not flower.



TARGETED GRAZING

Using Livestock to Control Noxious Weeds

Like any other IPM tool, targeted grazing can be effective when it is part of a larger plan that includes re-seeding, planting, herbicide spot treatment, or other actions. Using multiple tools will help build and maintain a healthy pasture or rangeland full of nutritious forage.

Goats and sheep can be effective on broadleaf plants, and goats in particular are less susceptible to some of the toxins in some plants that may injure other livestock.

Heavy grazing alone can disturb a weed-infested area further, allowing more noxious weeds to grow. Absinth wormwood, a weed of concern in Spokane County, is very adept at rapidly spreading in over-grazed pastures.

Some noxious weeds are toxic to livestock and horses. Before letting livestock out, ensure their grazing areas are free of potentially harmful weeds. Hoary alyssum is a noxious weed that is toxic to horses, effects ranging from diarrhea to death.

Targeted grazing is most effective while plants are in the most susceptible and palatable growth stage, and appropriate stocking densities are used. Grazing and other steps, such as establishing competing vegetation or spot spraying, can be a key step to moving from a weed patch to a healthy landscape full of desirable vegetation.

Sheep and goats can effectively graze leafy spurge (above) and spotted knapweed (below). Consistent grazing can prevent flowering, seed set and over time, reduce the population.

Toxic Plants and Livestock

- Protect Your Horses and Livestock From Toxic Plants (WSNWCB, online PDF)
- Plants Poisonous to Livestock in the Western States (USDA, online PDF)

CHEMICAL CONTROL

Herbicides and Noxious Weeds

Herbicides can be an effective tool when dealing with large populations of noxious weeds, or weeds that view mechanical control attempts as an opportunity to spread and regrow vigorously, such as rush skeletonweed.

Always **READ THE LABEL** on the herbicide you choose and follow the directions for application and PPE use. Ineffective treatment will result in poor control, wasting your time and money. Using the wrong herbicide may damage desirable vegetation or make it difficult to establish a new plant community (e.g. used an herbicide with residual soil activity that inhibits broadleaf plant growth).

Remember, **TIMING IS CRITICAL** to achieve good control. Different species of plants may be most vulnerable at different stages of growth or times of the year. Check the weather for temperature, rainfall and wind predictions. Ensure all actively growing plants are treated. When treating an infestation over multiple seasons, rotate using herbicides with **DIFFERENT MODES OF ACTION** to reduce the chance of herbicide resistance developing locally.

Improve control by adding a **SURFACTANT** to your herbicide mix. It lowers the surface tension of liquids, giving solutions better coverage and allowing them to penetrate plant structures better. This is especially important for hairy plants, like common bugloss, and waxy plants, like Dalmatian toadflax. Surfactants help reduce waste and increase the effectiveness of herbicides.

LIMIT INTERACTIONS WITH POLLINATORS by applying during a time of day when they are less active, or treating when plants are growing but not many pollinators are present. For example fall can be a great time to treat perennial weeds; fewer pollinators are active in the cooler fall days.

ALWAYS FOLLOW HERBICIDE TREATMENT WITH ANOTHER ACTION to restore or enhance desirable vegetation to the treated area. Herbicide application alone has potential to create disturbed open habitat which invasive plants are highly adept at invading, creating a vicious cycle.

The **Pacific Northwest Weed Management Handbook** provides information on herbicide(s) effective on different weeds found in the Northwest: *https://pnwhandbooks.org/weed/control-problem-weeds*