



JEFFERSON COUNTY NOXIOUS WEED CONTROL BOARD
380 Jefferson Street, Port Townsend 98368
360 379-5610 Ext. 205
noxiousweeds@co.jefferson.wa.us



BEST MANAGEMENT PRACTICE

Reed canarygrass (*Phalaris arundinacea*) (Family—*Poaceae*—Grass Family)

Legal Status in Jefferson County: Class C Noxious Weed (non-native species selected for control under State Law RCW 17.10). Jefferson County Noxious Weed Control Board requires public road managers to control and prevent the spread of new infestations of reed canarygrass on roadsides throughout the county. State Weed Law defines control as *to prevent all seed production and to prevent the dispersal of all propagative parts capable of forming new plants.* (See WAC 16-750-003)

BACKGROUND INFORMATION

Impacts and History

- Highly invasive perennial grass that forms dense monocultures—often in wetlands or on streambanks.
- Unlike native vegetation, dense stands of reed canarygrass have little value for wildlife. Few species eat it and the stems grow too densely to provide adequate cover for small mammals and waterfowl.
- Because it starts growing early in the spring it can out-compete many native species. Several rare Pacific Northwest plants are threatened by reed canarygrass.
- Rhizomes trap sediment and clog small streams, slowing water flow and raising water temperatures..
- Dense colonies can form a physical barrier to migrating adult and juvenile fish species.
- Produces abundant pollen which may aggravate allergies in people.
- Because of its vigorous growth and high productivity, reed canarygrass was in the past planted as a forage crop and has also been used for erosion control. It is likely that introduced European cultivars were used.
- Some sources indicate that there may be native strains of reed canarygrass in the Pacific Northwest. If this is the case, they have most likely been exposed to gene flow from non-native strains, making it difficult to distinguish between native plants and European cultivars.



Description



- Reed canarygrass grows from 3 to 9 feet tall, with hairless, round stems.
- The leaves are bright green, flat, rough-textured, tapered at the ends and grow at a 45-degree angle to the stem.
- There is a prominent ligule (papery membrane) at the base of the leaves.
- The flower heads are narrow clusters on the stems, high above the leaves.

Habitat

- Usually found on streambanks, wetlands, damp meadows or on roadsides.
- This cool-season sod-forming grass can tolerate a wide range of conditions but is reduced in very dense shade.
- Typically found in soils that are saturated or nearly saturated for most of the growing season.
- Can also tolerate periods of drought.

Reproduction and Spread

- Spreads by seeds and vegetatively by rhizomes that produce a thick mat of stems.
- Both seeds and root fragments float easily and can be dispersed via streams and ditches.
- One flower head can produce 600 seeds, which adhere to human clothing, animal fur, or to vehicles, and are then dispersed.
- Seeds do not germinate readily—the aggressive growth of reed canarygrass is mainly due to rhizomatous spread.
- Frost tolerant; one of the first grasses to sprout in the spring.
- Flowering occurs in June and July—usually not until the second year of growth.
- Vegetative growth peaks in mid-June and declines in mid-August; goes dormant in the winter with visible dead stalks.

Local Distribution

Reed canarygrass is extremely common in east Jefferson County and is spreading in the west county, especially in the Hoh and Clearwater watersheds. While primarily found in wetlands and creeks, especially Chimacum Creek, it is also widely found on roadsides and in pastures.

CONTROL INFORMATION

Integrated Pest Management

- The preferred approach for weed control is Integrated Pest Management (IPM). IPM involves selecting from a range of possible control methods to match the management requirements of each specific site. The goal is to maximize effective control and to minimize negative environmental, economic and social impacts.
- Use a multifaceted and adaptive approach. Select control methods that reflect the available time, funding, and labor of the participants, the land use goals, and the values of the community and landowners. Management will require dedication over a number of years, and should allow for flexibility in method as appropriate.

Planning Considerations

- Plan your control effort including: 1) surveying of the area thoroughly for reed canarygrass, 2) setting priorities for control, 3) selecting the best control method(s) for the site conditions and regulatory compliance issues and 4) monitoring the success of control and implementing follow up control as necessary.
- Generally work first in least infested areas, moving towards more heavily infested areas.
- Ensure habitat protection by targeting only reed canarygrass and preserving all native and beneficial vegetation.
- Control practices in critical areas should be selected to minimize soil disturbance and reduce the potential for erosion. Minimizing disturbance also avoids creating more opportunities for germination of reed canarygrass and other weeds.
- If the control site requires extensive clearing or grading, or is located near a shoreline, steep slope, stream, or wetland, contact the Jefferson County Department of Community Development to find out whether or not a permit may be necessary.
- Because reed canarygrass is a state-listed noxious weed, control (both manual and chemical) in critical areas is allowed as long as the landowner consults with the Jefferson County Noxious Weed Control Board and follows their guidelines.

Early Detection and Prevention

- Because reed canarygrass starts to grow in the spring before most other grasses it can easily be identified early in the year.
- New infestations should be controlled as early as possible.
- Clip seed heads to prevent seeds from moving in water or by other means.
- Dig out or spray isolated or small populations before the infestation spreads.
- Remove any floating clumps found in streams and ponds, and place so roots cannot contact soil or water.
- Prevent seeds and root fragments from spreading to other un-infested areas by washing vehicles, equipment and boots that have been in infested areas.

Manual

- Clip seed heads to ensure seeds will not fall and be transported by water or other means.
- After removing any surface obstruction such as rocks or woody debris, carefully pull small clumps with slow steady pressure. This is best done when soils are saturated.
- Hand pulling is ineffective on reed canarygrass because root fragments are almost always left behind and will regrow.
- For small, newly established infestations, digging may be effective but care should be taken to dig out the entire root system. This is most easily done early in the year, when plants are small and the soil is moist.
- Dispose of material carefully since rhizomes and stems can develop new roots if left on moist ground.
- The site should be monitored for several years and new plants removed.

Mechanical

- Mowing or weed-whacking are effective at eliminating seed production, but are not good long-term control measures, and if done just once or twice a year can actually stimulate additional stem production.
- Continued mowing—five or more times per year for several years—has been shown to successfully control reed canarygrass, by preventing photosynthesis and “starving” the roots.
- If no other control measures are available, mowing prior to flowering will prevent seed production and is better than no action.
- Mowing prior to herbicide application or covering can increase the efficiency of these methods.
- Covering with several layers of cardboard, topped with 4-6 inches of wood-chip mulch, OR landscape fabric, held firmly in place for a whole year, have been used effectively to control reed canarygrass. If landscape fabric is used, it should not be covered with mulch, because this may encourage animals to walk across it and make holes in it. The site should be visited several times during the growing season and it may be necessary to stomp down plants which are trying to grow under the fabric. The edges should be checked for plants coming up there. Covering will kill all plants so may not be appropriate if desirable plants are present on site and it will leave bare ground so re-vegetation is essential.
- Flooding has been used successfully. When wetlands have had their water levels lowered (for example, by ditching), restoration of original water levels may control reed canarygrass. The seeds are short-lived when inundated with water, and some studies have found that vegetative portions do not survive long inundation, but these studies are not conclusive. Flooding, if used as a control measure, should be continued for at least two years.

Shading:

- Planting trees or shrubs may eventually eliminate reed canarygrass since it is intolerant of year-round shade.
- Native evergreens are most desirable, since they provide shade year-round, but high-density plantings of cottonwood or alder have had some success.
- Creating a dense layer of grasses and herbaceous plants can help exclude reed canarygrass, once established.

Biological

Biological control is the deliberate introduction of insects, mammals or other organisms that adversely affect the target weed species. Biological control is generally most effective when used in conjunction with other control techniques.

- No biocontrol agents are currently available for reed canarygrass

Chemical

- Effective chemical control of biennial and perennial weeds can be achieved only with *translocated* herbicides (ones that move through the plant and kill the roots).
- For reed canarygrass, use either a non-selective herbicide (one that kills grasses and broadleaf plants), or one that is selective for grasses.
- Herbicides are most effective on actively growing plants in warm, dry weather.
- Herbicides should only be applied at the rates and for the site conditions and/or land usage specified on the label. **Follow all label directions.**
- Treated areas should not be mowed or cut until after the herbicide has had a chance to work. This can be as long as 2-3 weeks.
- It is important to establish new vegetation after treating an area. Follow the label for the timing because some herbicides stay active longer than others.

For questions about herbicide use, and specific herbicide recommendations, contact the Jefferson County Noxious Weed Control Program at 360-379-0470 ext 205, or noxiousweeds@co.jefferson.wa.us.

SUMMARY OF BEST MANAGEMENT PRACTICES

Small Infestations in Desirable Vegetation

- Pull or dig out small clumps, endeavoring to remove all of the root. Dispose of plants carefully—fragments left in or on moist ground will re-root.
- OR apply appropriate herbicide by spot spray to minimize injury to desirable plants.
- Bundle clumps to avoid over-spray on desirable vegetation.
- A layer of cardboard and mulch on the soil surface may inhibit the germination of new seedlings or re-sprouting from root fragments.
- Monitor site throughout growing season and remove any new plants.

Large Infestations\Monocultures

- Mowing before bloom will prevent flowering and seed production—BUT will not eliminate plants.
- Mow, then cover with mulch or landscape fabric,(see the Mechanical section of this BMP). However, covering will affect all vegetation, so this method is not appropriate for areas with desirable vegetation present and it will leave bare ground so re-vegetation after uncovering is essential.
- Large infestations can be controlled with the appropriate herbicides. (See the Chemical section of this BMP). Mowing a few weeks before spraying can minimize the amount of spray used. Also, spraying onto vigorous new growth can make herbicide application more effective, because the herbicide is moved around the plant more quickly. However, it is important to wait until there are at least 8 inches of re-growth, so there is enough surface area to absorb sufficient herbicide. Plants should be sprayed until they are wet.
- Planting dense trees to provide shade can give long-term control. Conifers are best, because they supply year-round shade, but densely planted cottonwood, willow, and red alder have been effective in providing competition and shade.

Riparian and Aquatic Area Control

- Small, newly-established plants can be carefully pulled in moist soil or stream substrate, or dug. All the root should be removed, and plant fragments should not be left on moist ground, because they will re-root.
- Larger areas can be sprayed, using an appropriate herbicide (see the Chemical section of this BMP), or covered (see Mechanical section).
- Prevent or mitigate for soil erosion near riparian areas. When large areas of reed canarygrass are removed, the cleared area should be replanted with native or non-invasive vegetation.
- Flooding has been used as a control mechanism (see Mechanical section).
- Watch for unrooted clumps deposited by flooding that can be removed from water or off soil.
- Planting trees to provide shade can give long-term control and could be incorporated into restoration projects.
- **Any herbicide application over or near water can be done only by a specially-licensed applicator using an approved aquatic formulation, and may require a permit from the Washington State Department of Ecology.**

Road Right-of-Way Control

- Where possible, pull or dig carefully, and dispose of plants where they cannot re-root.
- Clip seed heads if no other method is logistically possible.
- Repeated mowing will prevent flowering and seed production.
- OR apply spot spray with an appropriate herbicide (see above).
- If herbicide spraying leaves patches of bare ground, re-plant or re-seed the area after control is completed.

REFERENCES

King County Noxious Weed Control Program Weed Alert—Reed Canarygrass. Accessed 12/17/12 at <http://your.kingcounty.gov/dnrp/library/water-and-land/weeds/Brochures/Reed-Canarygrass-factsheet.pdf>

The Nature Conservancy. Element Stewardship Abstract for *Phalaris arundinacea* L—Reed Canarygrass.

Tu, Mandy, Reed Canarygrass (*Phalaris arundinacea* L.) Control & Management in the Pacific Northwest. Accessed 12/18/12 at <http://www.invasive.org/gist/moredocs/phaaru01.pdf>

Waggy, Melissa, A. 2010. *Phalaris arundinacea*. Accessed 12/17/12 at <http://www.fs.fed.us/database/feis/plants/graminoid/phaaru/all.html>

Wisconsin Reed Canarygrass Management Working Group. 2009. Reed Canarygrass (*Phalaris arundinacea*) Management Guide: Recommendations for Landowners and Restoration Professionals. Accessed 12/18/12 at ftp://ftp-fc.sc.egov.usda.gov/WA/Tech/RCG_management_0509.pdf

Written Findings of the Washington State Noxious Weed Control Board. Accessed 12/17/12 at http://www.nwcb.wa.gov/siteFiles/Phalaris_arundinacea.pdf

This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement PO-00J08601 to Jefferson County Department of Community Development for the Watershed Stewardship Resource Center (now known as Square One). The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

