

G o r s e

Ulex europaeus

Family: Fabaceae

**Class B Noxious Weed
Control Required**

Legal Status in King County: Gorse is a Class B Noxious Weed (non-native species harmful to environmental and economic resources that landowners may be required to control based on distribution in the county and local priorities) according to Washington State Noxious Weed Law, RCW 17.10. In accordance with state law, the King County Noxious Weed Control Board requires property owners to control gorse on private and public lands throughout the county (control means to prevent all seed production and to prevent the dispersal of all propagative parts capable of forming new plants). In addition, state quarantine laws prohibit transporting, buying, selling, or distributing plants, plant parts or seeds of gorse.



BACKGROUND INFORMATION

Impacts and History

- Displaces native and beneficial plants causing considerable loss of grassland and open forest habitat.
- Extreme fire hazard. The oily foliage and seeds are highly flammable.
- Individual plants develop dense dead matter in their centers, and stands produce extremely high amounts of litter. These characteristics serve to intensify the fire hazard of dense gorse-dominated areas.
- Seeds can be viable for 30 years or more, requiring a long-term management plan for control.
- Quickly spreads by seed or by vegetative growth from stumps after mechanical injury caused by brush clearing or fire.



- Introduced as an ornamental to Oregon when seeds were brought from Ireland, prior to 1894.
- Occurs from California to British Columbia along the West Coast.
- Gorse's thorn-like growth acts as a physical barrier and makes it an unpleasant presence in the landscape.

Description

- Perennial, evergreen shrub ranging from 3 feet to over 10 feet tall.
- A member of the legume family, gorse has bright yellow pea-like flowers, ½ to ¾-inch, at the end of its branches.
- Seedlings are compact, with trifoliate leaves typical of legumes.
- Sharp spiny thorns develop as the plant ages.
- Plants grow increasingly shrub-like with age, sprouting outward from the root crowns and leaving a center of dead vegetation.
- Blooms in late February and March.



Habitat

- Occurs in cool, medium to high rainfall and mid-temperate zones of both the northern and southern hemispheres.
- Can tolerate a range of moisture conditions, though it does best with high levels of soil moisture and adequate drainage.
- Grows well in areas ranging from full sun to moderate shade, and tolerates relatively acidic soils.
- Can fix atmospheric nitrogen and can tolerate a wide range of conditions. It tends to take up nutrients and further degrade soils, and displaces native vegetation.
- Sites are often disturbed areas with poor, infertile soils such as along roadsides and fencerows.



Reproduction and Spread

- Perennial that reproduces primarily by seed but it can also spread vegetatively.
- Typically flowers in late winter to early spring (Feb – Mar), but can flower throughout the year depending on site conditions.
- Seeds are hard and water-impermeable. Seeds remain viable for up to 30 years.
- Can resprout from stumps and root cuttings and can produce flowers 6 months after rooting.

Local Distribution

Gorse is not common in King County. Primarily found in the western areas, but also occasionally found in eastern King County. Sometimes planted but also found escaping into natural areas, possibly spread from seed-contaminated fill or carried on equipment.

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 which 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

- Survey area for weeds, set priorities and select best control method(s) for the site conditions and regulatory compliance issues (**refer to the King County Noxious Weed Regulatory Guidelines**).
- Control practices in critical areas should be selected to minimize soil disturbance or efforts should be taken to mitigate or reduce impacts of disturbance. Any disturbed areas need to be stabilized to control erosion and sediment deposition. Refer to the King County Surface Design Manual for further information about sediment and erosion control practices (call 206-296-6519 or go to <http://kingcounty.gov/wlr/Dss/Manual.htm> for more information). Minimizing disturbance also avoids creating more opportunities for germination of weed seeds.
- From the Pacific Northwest Weed Management Handbook:
Control gorse in two stages. First, control established plants. Second, control new plants emerging from seeds that may last more than 30 years in soil. The most effective control program usually combines herbicides, burning, and cultivation or mowing. Establishing competitive pasture species, forest trees, or other crops helps resist gorse invasion as well as other weeds. A publication on the biology and control of gorse (*Gorse*, PNW 379, revised July 2001) is available from the Extension Service. When using herbicides, it is crucial to thoroughly wet foliage. Best timing is after bloom drop, but applications at other times usually give good control also.
- Small infestations can be effectively dug up. Isolated plants should be carefully removed in order to stop them from infesting a larger area.
- For larger infestations, the strategy will depend on the land use of the site. Specific suggestions are given below.

- Generally work first in least infested areas, moving towards more heavily infested areas.
- Gorse seeds are very long-lived. Minimize disturbance to avoid creating more opportunities for seed germination.
- Whenever possible, control should be done before plants are flowering to prevent seed production.
- Properly dispose of all parts of the plant (see **Disposal Methods** section below).

Early Detection and Prevention

- Look for gorse in disturbed areas with poor, infertile soils such as, vacant lands, roadsides, fencerows and railroad rights-of-way for flowering and pre-flowering plants from about **February to March**.
- Isolated small populations can be dug up, but the site should be monitored for several years for plants growing from root fragments and from the seed bank.
- Prevent plants from spreading from existing populations by washing equipment, vehicles, and boots that have been in infested areas.
- Cover all noxious weed loads when transporting to a landfill.

Manual Control

- Wear tough, thorn-resistant clothing and gloves when working with this plant.
- Seedlings and young plants up to three feet tall can be removed by hand-pulling or with a shovel. Plants are easiest to remove after rain, when the whole root system can be removed.
- Hoeing may effectively be used to uproot seedlings. Larger plants and their roots may be extracted by larger hoes, pulaskis, or claw mattocks.
- Extraction with a weed wrench can successfully remove larger plants. Gorse tends to spread at the base, and effectiveness of this tool may be limited by the size of the trunk system.
- Cutting stems will remove aboveground growth only and is a temporary treatment. The roots remain in the ground and will re-sprout. This method can be appropriate to increase the accessibility to the plants, reduce standing biomass to assist in future control, and to prevent seed-set for a growing season.
- Hand pulling and the use of hand mechanical tools to remove gorse is allowable in all critical areas in unincorporated King County.

Mechanical Control

- Mowing is an option for flat and low to moderate slope areas but is non-selective. Several mowings may be necessary to deplete root reserves. If utilizing only one cut during the season, it is recommended to cut before flower production.
- Cutting is recommended before herbicide application. A cut gorse plant will re-sprout from the crown in greater density without a follow-up herbicide application.
- Mowing may be used as an initial brush removal step when confronting a large infestation, but will need to be combined with other control methods for full effectiveness.

- Tractors using disking or brushing attachments can also be used on large dense infestations. This method is non-selective and should not be used if there are native or desirable vegetation intermixed.
- Follow up control methods will need to be incorporated following initial mechanical control.

Chemical Control

- For control of large infestations herbicide use may be necessary. For gorse, the best time to apply herbicides is after bloom drop, but applications done at other times usually give good control. Infested areas should not be mowed until after the herbicide has had a chance to work and the green vegetation is brown and has died back.
- For effective control, it is important to thoroughly wet all foliage.
- Monitor areas for new plants germinating from the seed bank and re-treat as necessary. In most cases, follow-up will be necessary for many years to control gorse that sprouts from seeds, which can remain viable in the soil for up to 30 years.
- **Precautions:**
 - Herbicides should only be applied at the rates and for the site conditions and/or land usage specified on the label of the product being used. **Follow all label directions.**
 - For herbicide use in critical areas and their buffers, certain restrictions apply depending on the site and jurisdiction. In unincorporated King County, refer to the **King County Noxious Weed Regulatory Guidelines** for a summary of current restrictions and regulatory compliance issues. Elsewhere, check with the local jurisdiction.
 - For your personal safety, at a minimum wear gloves, long sleeves, long pants, closed toe shoes, and appropriate eye protection. Follow label directions for any additional personal protection equipment needed.

Specific Herbicide Information

Glyphosate can effectively control gorse. However, glyphosate will also kill grass, which is desirable in some sites to help suppress germination of gorse seedlings. Treatment with glyphosate needs to be combined with effective re-vegetation of the site to prevent gorse seedlings from re-infesting the area. The addition of a suitable surfactant improves control.

Selective Broadleaf Herbicides are a better choice than glyphosate when gorse is growing in a grassy area. Selective herbicides that are effective on gorse include **triclopyr amine** and **triclopyr ester** formulations (Garlon 3A and Garlon 4), **2,4-D LV ester** (many products), **metsulfuron** (Escort, Cimarron) and **dicamba** (Banvel or Clarity). These chemicals are available in different formulations for pasture, forest, non-crop and other sites. Be sure to use the product appropriate for the site. Follow the label for appropriate rates or see the [Pacific Northwest Weed Management Handbook](#) for recommendations. The most effective time to apply herbicides to gorse is right after bloom drop, but other times may also be effective. Also critical for the success of the application is the need to thoroughly wet the foliage. **NOTE: Certain additional restrictions apply for products containing Triclopyr**

BEE (e. g. Garlon 4, Crossbow). Refer to the King County Noxious Weed Regulatory Guidelines for more details.

Follow all grazing restrictions stated on the herbicide labels. Both dicamba and 2,4-D can injure certain grasses, alfalfa, clover and other legumes. Follow the labels and add the recommended surfactants in order to provide better control.

The mention of a specific product brand name in this document is not, and should not be construed as an endorsement or as a recommendation for the use of that product. Chemical control options may differ for private, commercial and government agency users. **For questions about herbicide use, contact the King County Noxious Weed Control Program at 206-296-0290.**

Biological Control

- Goats may be effective in controlling seedlings or on re- growth less than 4 inches high.
- Chickens are reportedly effective in reducing the seed bank in mature stands. The seeds are digested and destroyed, and chickens grazed back the vegetation in areas of one acre or less.
- The gorse weevil (*Apion ulicis*) was released in Washington in the 1960's. The weevil eats the seeds, spines and flowers. The weevil is only partially successful, as the root reserves enable gorse to recover.

SUMMARY OF BEST MANAGEMENT PRACTICES

Small Infestations in Native and/or Desirable Vegetation

- Be selective in controlling only the gorse; avoid injury to native plants and desirable vegetation.
- Pull plants by hand if soil is wet; the plants may need to be dug up in dry compacted soil. This method is very effective on seedlings
- Replace any turf removed when digging up the plants to lessen the amount of disturbed soil.
- Apply appropriate herbicide with wick wiper or by spot spray to minimize off target injury.
- Monitor site throughout growing season and remove any new plants.
- If using an herbicide in a grassy area, use a selective herbicide to avoid injury to the grass.

Large Infestations in Grassy Areas

- Mowing if conducted multiple times per season for several seasons may control gorse in some sites, but mowing often results in shorter, denser plants.
- Cut gorse plants will re-sprout from the crown in greater density without a follow-up herbicide application.
- Large infestations can be controlled with selective broadleaf herbicides. (See the Chemical section of this BMP). Do not use an herbicide containing glyphosate unless you are able to re-seed the site.

- Suppression of large infestations of gorse with a selective herbicide will greatly increase grass production, which in turn increases the suppression of gorse.
- Lower amounts of herbicide can be used if the plants are first cut. Allow new shoots to emerge before applying herbicides.
- Eradication of gorse with a single herbicide application is difficult. Typically it takes several applications to get an infestation under control.
- Promote healthy grassy areas by seeding and fertilizing. Use a mix of grass and clover species to improve resistance to gorse. Fertilize according to the soil needs.
- If utilizing biological control, area needs to be checked to control all flowering gorse not controlled by the biological control agents (to prevent seed production).
- Infested areas will need to incorporate a management plan lasting for several years to control plants germinating from the seed bank.

Control in Riparian Areas

- Additional permits may be required for control of infestations in riparian areas. See the Noxious Weed Regulatory Guidelines for more information or contact your local jurisdiction.
- In some cases, the cleared area will need to be replanted with native or non-invasive vegetation and stabilized against erosion. See the King County Surface Water Design Manual for further information about sediment and erosion control practices (<http://www.kingcounty.gov/environment/waterandland/stormwater/documents/surface-water-design-manual> or call 206-296-6519).
- Focus on manual removal for small infestations if possible.
- For larger areas where herbicide use is warranted, spray using low pressure and large droplet size to reduce drift. If herbicide could potentially drift into the water or a wetland area, use only approved aquatic herbicides and surfactants after obtaining the necessary permits.
- Target only the gorse, retain all native and beneficial plants.
- If a non-selective herbicide such as glyphosate is used in grassy areas, the area should be re-seeded to prevent reinvasion by weeds.

Control along Road Rights-of-Way

- Dig up small infestations if possible.
- Spray infested areas with a systemic herbicide (see Chemical Section above for recommendations), taking care not to spray beneficial vegetation.
- In grassy areas, use a selective broadleaf herbicide such as triclopyr; if controlled with a non-selective herbicide, such as glyphosate, re-seed after control is completed.

Disposal Methods

- **NOTE:** Gorse is highly flammable so care should be taken not to leave gorse piles where they would create a fire hazard to buildings, forests or other vegetation.
- If the plants are in seed, carefully cut off the stems with seeds and place in a bag without dispersing the seeds.

- Dispose of flowering stems in household garbage or take to a transfer station for disposal. Do not compost or put in yard waste.
- Non-flowering stems can be left on site or burned if appropriate burn permits and rules are followed, and care is taken to contain the fire (remember, gorse is highly flammable).
- Never dump plant material as weeds can spread from yard waste piles.

References

Drililk, T., I. Woo, and S. Swiaddon, Editors. 1998. Integrated vegetation management technical bulletin: gorse. Bio-Integral Resource Center., Berkeley, CA.

DSIR Plant Protection. 1990. Gorse: Alpha Bulletin No. 74. DSIR Publishing, Wellington, New Zealand.

Hill, D. D. 1947. Gorse Control: Circular of Information No. 450. Agricultural Experiment Station, Oregon State University, Corvallis OR.

Hoshovsky, M. 1985. Element stewardship abstract for gorse. Nature Conservancy, Arlington, VA.

Pacific Northwest Weed Management Handbook, <http://pnwhandbooks.org/weed/> (accessed April 19, 2011).

Written Findings. 2002. Washington State Noxious Weed Control Board.