King County
Department of Natural Resources and Parks
Water and Land Resources Division
Noxious Weed Control Program
206-296-0290 TTY Relay: 711

BEST MANAGEMENT PRACTICES

Gorse
(*Ulex europaeus*)
Fabaceae

Class B Noxious Weed

Legal Status in King County: Class B Noxious Weed (non-native species designated for control by State Law RCW 17.10 and by the King County Noxious Weed Control Board). The King County Noxious Weed Control Board requires property owners to control and prevent the spread of gorse on private and public lands throughout the county. Control is defined by state law as the prevention of all seed production. State quarantine laws prohibit transporting, buying, selling or offer gorse for sale or distribute plants, plant parts or seeds.

BACKGROUND INFORMATION

Impact 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

Primarily found in the western areas of King County. Known sites are located in Seattle, Vashon Island, Federal Way, Tukwila and Carnation.

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 Guideline)**.
- 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 in the Best Management section.

- Generally work first in least infested areas, moving towards more heavily infested areas.
- Minimize disturbance to avoid creating more opportunities for seed germination.

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

- Wear protective clothing and gloves when working with this plant.
- Hand pulling may be effective for small infestations, in removing seedlings and young plants up to about three feet tall. Seedlings are easiest to remove after rain, when the whole root system can be removed.
- Hoeing may remove smaller plants, and 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 may 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 manual control, and to prevent seed-set for a growing season.
- Hand pulling and the use of hand mechanical tools are allowable in all critical areas in unincorporated King County.

Mechanical

- 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.

Controlled Burning

- Controlled burning can be effective in controlling dense gorse infestations. This control method is not recommended in King County. Check local regulations for special permits, burn bans, or other restrictions.

Chemical

- Herbicides should only be applied at rates recommended on the label and for the site conditions and land usage specified on the label. **Follow all label directions.**
- Herbicides may be used in accordance with Federal and State Law in critical areas and their buffers with certain restrictions. Refer to the **King County Noxious Weed Regulatory Guideline** for a summary of current restrictions and regulatory compliance issues.
- 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 several years following treatment, monitor areas for new plants germinating from the seed bank.

Specific Herbicide Information

Glyphosate: can effectively control gorse. 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 (such as triclopyr, 2,4-D, metsulfuron and dicamba): most effective when gorse is growing in a grassy area. Follow-up visits over many years is necessary to control any gorse that sprouts from seeds that can remain viable for up to 30 years. Re-treatment is necessary following any disturbance to the soil such as tilling or construction. **NOTE: Certain additional restrictions apply for products containing 2,4-D and Triclopyr BEE (e. g. Garlon 4, Crossbow)**. **Refer to the King County Noxious Weed Regulatory Guidelines for more details**.

Selective herbicides that are effective on gorse include triclopyr-amine and ester formulations (Garlon 3A and Garlon 4), 2,4-D (many products), metsulfuron (Escort, Cimarron) and dicamba (Banvel or Clarity). Herbicides can prove effective during much of the year, however the most effective time to apply herbicides is right after bloom drop. Also critical for the success of the application is the need to thoroughly wet the foliage.

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 which will 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

- 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 mid-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. Method is very effective on seedlings
- Replace any divots created when removing 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 can control gorse.
- 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 herbicides. (See the Chemical section of this BMP).
- Lower amounts of herbicide need to 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.
- Suppression of large infestations of gorse with a selective herbicide will greatly increase grass production, which in turn increases the suppression of gorse.
- 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, areas need to be checked to control (prevent seed production) all flowering gorse not controlled by the biological control agents.

Control in Riparian Areas

- Survey area and document extent of infestation.
- Target only the gorse, retain all native and beneficial plants.
- Focus on manual removal for small infestations if possible.

- Mowing will control gorse if multiple mowings per season are conducted for several years.
- For larger areas where herbicide use is warranted, apply with a wick wiper or spot spray using low pressure and large droplet size.
- When large areas of weeds are removed, the cleared area needs to be replanted with native or non-invasive vegetation and stabilized against erosion.
- If a non-selective herbicide is used in grassy areas, the area should be re-seeded to prevent reinvasion by weeds.
- Infested areas will need to incorporate a management plan lasting for several years to control plants germinating from the seed bank.

Control Along Road Rights-of-Way

- Pull small infestations if possible.
- Spot spray with glyphosate if weeds are in areas with no desirable vegetation.
- If plants are in grassy areas, use a selective broadleaf herbicide; if controlled with a non-selective herbicide, re-seed after control is completed.

References

Drlilk, T., I. Woo, and S. Swiadon, 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.

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

References

- Drlilk, T., I. Woo, and S. Swiadon, 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.
- Written Findings. 2002. Washington State Noxious Weed Control Board.

King County Noxious Weed Control Program
Department of Natural Resources and Parks
Water and Land Resources Division
201 S. Jackson St., Suite 600
Seattle WA 98104
(206) 296-0290
e-mail: noxious.weeds@metrokc.gov
http://dnr.metrokc.gov/weeds