



Gorse

(*Ulex europaeus*)

Description: Gorse is a spiny evergreen shrub, dense and stiff, forming impenetrable thickets. It's erect angular stems have spreading branches ending in thorns. Green leaves take the form of branching spines. Flowers are yellow and shaped like pea blossoms, clustered near the ends of the branches. Fruit pods (legumes) resemble pea pods that burst expelling seeds. Gorse flowers resemble those of Scotch broom, to which it is closely related. Control of gorse is difficult due to its thick stands, and its production of large amounts of seed. Seeds are reported to stay viable in the soil for 40 years or more.



Impacts: Vigorous stands of gorse grow outward, crowding out all other vegetation. It forms a center of dry dead vegetation. This, in combination with the oil content of the plant, presents a major fire hazard. In 1936, the town of Bandon, Oregon, was burned to the ground; 14 people died and only 16 buildings remained unburned. The disaster was fueled by extensive infestations of gorse.

Control Options: Thurston County's Integrated Pest Management emphasizes cultural, biological, and manual control methods to keep pests and vegetation problems low enough to prevent damage. The strategy of Thurston County's IPM policy is to minimize the use of pesticides.

► Cultural / Habitat

Gorse control has two stages. Controlling established plants first and monitoring and controlling new plants that emerge from seeds that may last more than 40 years in the soil. The most effective control programs often include a combination of herbicides, burning, and cultivation or mowing. Establishing competitive pasture species, forest trees, or other crops helps resist gorse invasion as well as other weeds. Wash down equipment after working in known infestation areas and don't remove soil or other materials from the site in order to prevent spreading into un-infested areas.

► Manual / Mechanical

For seedlings or small populations of young plants (6 to 10 or more if easily managed), dig plants and remove as much root as possible so the plants will not re-sprout. This method can be highly labor intensive and to be fully effective all mature plants in the site need to be pulled so that no new seeds are produced. Mechanical control techniques alone, such as mowing or brush cutting, is not effective on gorse as the plants simply re-grow at all times of the year.



► Biological

Biocontrol agents such as *Exapion ulicis* (a seed weevil) and *Tetranychus lintearius* (a spider mite) have been used in Washington with varying degrees of success. However, biocontrols are dependent on fairly heavy densities of host plants (gorse) to survive. Thurston County no longer has enough gorse to support biocontrols for this species.

► Chemical

Spot spraying with **triclopyr** (examples: Lilly Miller's liquid concentrate "Blackberry and Brush Killer" and Ortho's "Brush-B-Gon Poison Ivy Killer Concentrate") is effective in controlling gorse. Triclopyr is a selective herbicide that will not kill grass when used according to label instructions, but may damage or kill other broadleaf plants. Triclopyr products are rated as "moderate in hazard" by Thurston County's pesticide review process because broadcast applications of triclopyr at greater than 2 lbs of active ingredient per acre can result in contaminating the food supply for birds and small animals. Since this prescription recommends only spraying individual plants or small patches, the risk to birds and small animals is greatly reduced.

Thurston County has observed that most ready-to-use, pre-mixed products do not contain sufficient active ingredients to be as effective as concentrated products that are then mixed with water to create a specific finished concentration. The following instructions are for products containing 8% triclopyr (be sure the product you choose lists triclopyr as the only active ingredient) which will be mixed down to a specified dilution rate. Be sure to read your label carefully, and make adjustments to rates accordingly.

Foliar applications of triclopyr:

- Spot application means the herbicide is applied only to the plants and not on the surrounding plants or soil. Spray each plant thoroughly on the stems and leaves enough to be wet but not dripping.
- Triclopyr is a selective, broadleaf weed killer and can injure any plants that it comes in contact with, except for grass. Care should be used to avoid contact with ornamentals and other desirable plants.
- Keep people and pets off treated areas until spray solution has dried.



For selective control of knapweed in agricultural settings (pastures, hayfields, etc.): an herbicide containing the active ingredient **aminopyralid** (example: Milestone™, Milestone VM™, etc.) may be a preferred choice. Aminopyralid products will not harm grass and can be used around livestock (provided all label precautions are followed). **Do not use plant material or hay from treated areas for mulch. Likewise, do not use manure from animals that have grazed or eaten hay from treated areas.**

Aminopyralid is currently sold in agricultural labeled herbicides that are only to be used in areas listed on the label, and are available in farm supply stores. **May not be used in urban lawns or landscapes.** Aminopyralid products are considered "moderate in hazard" by Thurston County's review process for the potential for chemical mobility and persistence.

Timing: Apply either triclopyr or aminopyralid in the spring when plants are actively growing and in the pre-bud to early bud growth stage—the goal is to insure all plants have emerged, but are treated before they reproduce.

Pollinator Protection: To minimize negative impacts to bees and other pollinators, treatment prior to blooming is recommended. Removal of flowers before treatment can be an option in some situations. If treatment must occur during the blooming period, try to spray early or late in the day or on cloudy, cool days when pollinators are least active.

Product/Method	Rates	Mix
Triclopyr Lilly Miller® "Blackberry & Brush Killer" or Ortho® "Brush-B-Gon Poison Ivy Killer Concentrate"	4 oz. (1/2 cup) per 500 ft ²	To determine the amount of mix needed, first measure the area to be treated, then measure the amount of plain water needed to spray the area using a backpack or tank sprayer. Allow sufficient time for the area to dry completely before treatment. Then add 4 oz. (1/2 cup) of product to enough water for each 500 sq. ft of area that needs to be treated. Spray plants until they are wet but not dripping.
Aminopyralid Milestone® Spot/Foliar	1 tsp per 1000 ft ²	To treat a 1,000 sq. ft. area: Using a 2 to 4 gallon backpack or tank sprayer, add half of the water needed to cover all plants with one teaspoon Milestone™, agitate, then add water to reach desired amount (0.5 - 2.5 gallons total volume, depending on quantity and size of plants). Lightly spray all knapweed plants in 1,000 sq. ft. area, then continue lightly spraying the knapweed until the tank is empty and all plants have been thoroughly covered. The addition of a non-ionic surfactant (at least 80% active ingredient) is recommended to enhance herbicide activity.

READ AND FOLLOW ALL LABEL DIRECTIONS AND RESTRICTIONS. Obey all label precautions including site specific and safety measures. Always use personal protective equipment that includes coveralls, chemical resistant gloves, shoes plus socks, and protective eyewear. Use of brand names does not connote endorsement and is for reference only; other formulations of the same herbicides may be available under other names. Information provided is current as of the date of the fact sheet. Pesticide product registration is renewed annually. Product names and formulations may vary from year to year.

REFERENCES:

Written Findings of the Washington State Noxious Weed Control Board, December, 2000: http://www.nwcb.wa.gov/weed_info/written_findings
 2010 Pacific Northwest Weed Management Handbook, http://pnwpest.org/pnw/weeds?33W_PROB.pdf

Biological Control, Jennifer Andreas, Eric M. Coombs, Gary L. Piper, Mark Schwarzländer, and Joseph Milan, 2009.

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