

Scotch Thistle

(*Onopordum acanthium*)

Description: Scotch thistle is an extremely large biennial or winter annual thistle, commonly growing 8-10 feet tall, depending on the amount of available moisture. It is usually well branched with a large amount of soft white hair on the stalks, upper and lower leaf surfaces. Leaf margins and midribs, as well as flower buds, are covered with very sharp, yellow-tipped spines. The stems of Scotch thistle are "winged", having a soft, thin tissue attached like a ribbon along the sides of the stalks. Purple flowers are born either singly or in clusters of 2 to 5 and bloom from June to September. A prolific seed producer, each plant can produce 8,400 to 40,000 seeds.

Impacts: Scotch thistle forms large infestations that can crowd out more desirable forage species, prevent livestock from accessing water, and has the potential to invade extensive acres of pasture land. Individual plants are so large that they shade out surrounding vegetation, using the water and nutrients that would have gone to more desirable species. When a Scotch thistle plant dies, it leaves abundant litter that can smother surrounding plants. While Scotch Thistle is drought tolerant, it thrives with high soil moisture, causing it to be a threat to most areas of Thurston County.

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

Scotch thistle is a native of Europe and Asia. It was introduced into the United States in the late 19th century as an ornamental, and is still occasionally grown as a garden curiosity due to its large size, interesting foliage and flowers. However, seeds commonly escape, creating a nuisance weed even in gardens and landscaping. Do not plant intentionally, and if you recognize this plant as an accidental introduction, remove it and monitor the area for more plants over the next several seasons.

Scotch thistle seed is capable of remaining dormant in the soil for many years. A water-soluble germination inhibitor in the seed coat must be leached away to allow the seed to germinate, one reason why Scotch thistle is so prominent in moist soils, ditches and drainage areas. Revegetating areas with desirable plants where control work has been done can help reduce the amount of Scotch thistle in subsequent years and also prevent other weeds from taking advantage of the disturbed soil.



► Manual / Mechanical

Hand pulling or digging can be effective for isolated plants or small patches (12-20 plants or more if they pull out easily, especially if done in the seedling stage). Larger patches or plants at or near the blooming stage can be difficult to control manually because of the size of the plants and numerous thorns on the leaves, stems and flower heads. Mowing is usually not effective as it simply delays the blooming process. Any plants with flower heads or buds should be disposed of carefully as there is usually enough reserve in the removed plants to produce viable seeds.

► Biological

While bio-control agents are used on Scotch thistle with variable success in other areas of the country, none are particularly suited to Western Washington. Also, because bio-control agents are dependent on large, undisturbed infestations of host plants, it is not an appropriate control

method in Thurston County where the only populations of Scotch Thistle are new introductions.

► **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 Scotch thistle. 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 Scotch thistle 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 farm supply stores as an agricultural herbicide that is only to be used in areas listed on the label and **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. 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. Removal of flowers before treatment can be an option in some situations.

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. Add 4 oz. (1/2 cup) of product to one gallon of water for each 500 sq. ft of area that needs to be treated. Be sure to allow the area to dry thoroughly before treatment. 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 Scotch thistle plants in 1,000 sq. ft. area, then continue lightly spraying the Scotch thistle until the tank is empty and all plants have been thoroughly covered. 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:

- Problem Thistles of Oregon, OR Dept. of Agriculture, EC Bulletin 1288
- Written Findings of the Washington State Noxious Weed Control Board;
- Gilkey’s Weeds Of The PNW;
- Bio-Control Of Weeds In The West Utah State University Extension, Plant Ecology: Scotch Thistle
- Managing Scotch Thistle, University of Nevada, Reno, Extension Fact Sheet FS-02-57

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