



Sulfur Cinquefoil

(Potentilla recta)

Description:

Native to the eastern Mediterranean region, sulfur cinquefoil is a perennial species with a woody rootstock producing several erect stems, which can reach one to three feet in height. The stout, leafy, hairy stems are unbranched up to the flower clusters at the tips. Its distinctive five to seven “fingered” palmately compound leaves and pale, sulfur-yellow rose like flowers make it easily identifiable. Sulfur cinquefoil can be distinguished from the northwest native slender cinquefoil (*P. gracilis*) by its evenly serrated leaves which are pale green on both upper and lower surfaces, compared to the native cinquefoil which is dark green on the upper surface and silvery white underneath.



Impacts:

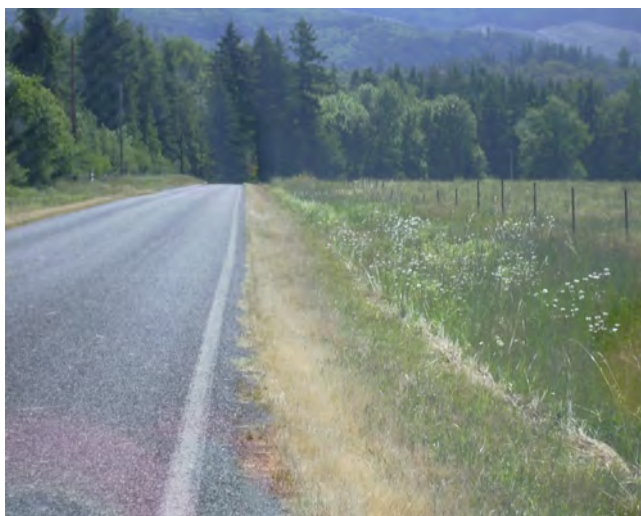
Sulfur cinquefoil can form dense mono-cultures over large areas of rangeland, roadside, waste places and unworked pastures. It is a strong competitor that reduces grass production on many rangeland sites. Livestock and wildlife avoid grazing sulfur cinquefoil because of the high tannin content of the leaves and stems, so infestations reduce livestock carrying capacity as well as wildlife habitat value. Sulfur cinquefoil also displaces native plants in South Sound prairies.

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

The most effective control of sulfur cinquefoil is prevention. In some situations, cultivation combined with re-seeding can be part of an effective management program, but plants can easily regenerate from pieces of roots broken apart by tilling. Above all, prevent plants from going to seed and clean any equipment used in infested areas before taking it off-site. Hay harvested from fields containing sulfur cinquefoil will very likely lead to an increase in infested areas unless fed out on-site.



Sulfur cinquefoil lining a roadside in SE Thurston County

► Manual / Mechanical

Where small populations (for example, 20 plants or fewer) are found growing in sandy or loose soil, careful hand pulling and grubbing should be tried as a first attempt at control. In hard, compacted soil, persistent hand pulling and grubbing that removes the woody base can reduce small-scale populations but complete long-term control is unlikely. Mowing before bloom will reduce seed production, but will not reduce populations. Mowing later has no effect on established plants and will allow seed to be spread into new areas.

► Biological

There are no known biocontrol agents for sulfur cinquefoil, and none are expected to be selected in the near future. Due to the plant's close relationship to native potentilla species and strawberries, finding a host specific biocontrol agent for sulfur cinquefoil is difficult.

► 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") can be effective in reducing populations of sulfur cinquefoil. 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.
- Monitor site in subsequent growing seasons to determine if follow-up treatments are necessary.
- Keep people and pets off treated areas until spray solution has dried.

For selective control of sulfur cinquefoil 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. 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 target plants in 1,000 sq. ft. area, then continue lightly spraying the sulfur cinquefoil 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:

USDA Natural Resources Conservation Service Invasive Species Technical Note No. MT-17, December, 2007

Written Findings of the WA State Noxious Weed Control Board

PNW Extension Publication PNW 376 Sulfur cinquefoil

The Nature Conservancy ESA for Sulfur cinquefoil, May, 2004

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