

SCOTCH BROOM

Cytisus scoparius

Pea Family



Identification Tips

- Scotch broom is a large, multi-branched, perennial shrub.
- Plants can grow up to 12 feet tall, with the oldest trunks measuring as much as 5 inches in diameter.
- Young stems are bright green, with 5 sides and distinctive ridges along the entire length.
- Leaves are small and oval, usually in clusters of 3 close to the stem but borne singly further out.
- Flowers are bright yellow, pea-like, and occasionally have streaks of red.
- Seed pods are typically 1-3 inches long and range in color from green to brown or black as they mature.



C. scoparius flowers

Impacts

- Scotch broom is highly invasive on disturbed soils and out-competes native species. It is difficult to remove once established because of its numerous long-lived seeds.
- Scotch broom leaches chemicals into the soil that kills or disrupts the ectomycorrhizal fungal pathways on which other plants rely.
- Scotch broom is highly flammable and poses a fire risk.
- Dense stands prevent timber regeneration and displace pasture forage for grazing animals. It is also toxic to some livestock.



C. scoparius leaves

Habitat & Distribution

- Scotch broom grows best in full sun and well-drained soils. It's commonly found in clear-cuts or harvested timberlands, along roadsides and rights-of-way, and on other disturbed land.
- While Scotch broom thrives in full sun, seedlings can also establish in partial to full shade.



C. scoparius infestation

Reproduction & Spread

- Scotch broom reproduces by seed. A single plant can produce up to 10,000 seeds per year.
- Seed pods reach maturity in late July and August, then explode audibly, ejecting seeds up to 20 feet.
- Seeds can remain viable in the soil for more than 60 years because of their hard shells. This enables new seedlings to establish in areas where plants were long ago removed.
- Seeds are transported by animals, erosion, water, and human activity, especially roadside maintenance.

CONTROL INFORMATION

Integrated Pest Management

- Integrated Pest Management (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 recreational impacts.
- Use a multifaceted and adaptive approach. Select control methods reflecting 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 for a number of years and should allow flexibility in methods.

Planning Considerations

- Survey the area for weeds, set priorities, and select the best control method(s) for the site.
- Select control practices that minimize soil disturbance. Minimizing disturbance prevents further infestations of weeds.
- Begin work on the perimeter of the infested areas first and move inward to the core of the infestation.
- Monitor the site and continue to treat missed and newly-germinated plants.
- Re-vegetate treatment areas to improve ecosystem function and prevent new infestations.

Early Detection and Prevention

- Minimize soil disturbance from vehicles, machinery, and over-grazing to reduce seed germination.
- Scotch broom is easiest to identify in June or July, when flowers have formed. Conduct a site survey to determine treatment needs (see below).
- Prevent the spread of Scotch broom by thoroughly cleaning tools, boots, and vehicles after working in or traveling through an infested area.

Manual, Mechanical, & Cultural Control

- Manual control of Scotch broom can be combined with other control methods. Small Scotch broom plants can be dug or pulled out by the root before seed-heads begin forming. A plant pulling tool, such as a Weed Wrench, can be useful for uprooting small to fairly large plants. If the entire root cannot be removed, cut the plant below the crown of the root (usually just below soil level). Some digging and cutting can disturb soil and cause seed germination. Be sure to monitor the site closely for regrowth.
- Cutting can be an effective method of controlling Scotch broom. Cut mature plants before seed pods begin developing to reduce seed spread. For larger trunks, a bow saw may be useful; otherwise, loppers can be used. Cutting is thought to be most effective when used on plants with diameters greater than 2 inches, as older plants are less likely to re-sprout from cut stems. Younger plants re-sprout aggressively.
- Mowing is most effective when done in the spring and followed by an autumn herbicide application. Plants should be mowed before seed pods mature to prevent seed spread.
- **Bulldozing isn't recommended** as it spreads the seeds on site, encourages seed germination, and destroys other vegetation that would compete with Scotch broom.
- Avoid soil disturbances and replant disturbed areas to prevent spreading Scotch broom infestations.

Biological Control

Biological control is the deliberate introduction of insects, mammals, or other organisms which adversely affect the target weed species. Biological control is most effective when used in conjunction with other control techniques.

- Three biological control agents, a seed beetle (*Bruchidius villosus*), a seed weevil (*Exapion fuscirostre*), and a twig mining moth (*Leucoptera spartifoliella*), have become widely established in the Pacific Northwest in the past decade, resulting in significant decreases in seed production.
- A gall mite (*Aceria genistae*) was discovered in 2005 and has spread rapidly throughout the Pacific Northwest, causing extensive stem die-back and plant mortality.
- Goats have been employed in the task of Scotch broom control and removal.

Herbicide Control

- Only apply herbicides at proper rates and for the site conditions or land usage specified on the label. **Follow all label directions** and wear recommended personal protective equipment (PPE).
- For control of large infestations, herbicide use may be effective either alone or in combination with mowing.
- Monitor treated areas for missed and newly germinated plants.
- Choose selective herbicides over non-selective herbicides when applying in a grassy area.
- **Minimize impacts to pollinators by controlling weeds before they flower. When possible, make herbicide applications in the morning or evening when bees are least active. Avoid spraying pollinators directly.**

Specific Herbicide Information

Herbicides are described here by the active ingredient. Many commercial formulations are available containing specific active ingredients, but often are not formulated for use near aquatic sites. Always be sure to select an aquatically-approved herbicide and surfactant for use near water. **References to product names are for example only.** Directions for use may vary between brands. As of 2017, 3 formulations of triclopyr were available: 2 water-soluble [choline & amine/salt]; 1 oil-soluble [ester].

- A foliar application of **triclopyr [choline]** (e.g. Vastlan) is a very effective treatment for Scotch broom. Apply when Scotch broom is actively growing, preferably before flowering. Ensure full coverage of the plant to be effective. Fall treatments of Scotch broom are also effective.
- **Aminopyralid** (e.g. Milestone) and the combination of **aminopyralid** and **triclopyr [amine/salt]** (e.g. Capstone) are excellent herbicides for dense stands of Scotch broom. **Aminopyralid** stays active in the soil for several months so it can remain effective on seedlings germinating after the treatment. Do not apply near desirable broadleaf plants. Special regulations govern use near water bodies and may also prevent use of grass and hay treated with aminopyralid.
- A combination of **triclopyr [ester]** and **2,4-D** (e.g. Crossbow) is also effective, but be aware of volatilization, off-target drift, distance to water and amphibian/fish impacts.
- **Glyphosate** (e.g. Roundup) can effectively control Scotch broom when applied to actively growing plants in spring. **Glyphosate** is non-selective and will kill non-target vegetation such as grass. Treatments with glyphosate should be combined with effective revegetation in treated areas.
- Addition of a site-appropriate, non-ionic surfactant to spray mixes will improve results. Foliage must be thoroughly wetted, although not to the point of runoff. Re-treatment will be necessary to control late-germinating plants.
- **Triclopyr [amine/salt or choline]** or **glyphosate** can be used as a cut-stump application. Herbicide is diluted to 50% solution and applied to stumps immediately after cutting.

This BMP does not constitute a formal recommendation. **When using herbicides, always consult the label.**

Resources

- <http://Hortsense.cahnrs.wsu.edu/Home/HortsenseHome.aspx>
- <http://www.co.Jefferson.wa.us/WeedBoard/pdfs/BestManagementPractices/Scotch%20Broom.pdf>
- <http://www.KingCounty.gov/environment/animals-and-plants/noxious-weeds/weed-control-practices/bmp.aspx>
- <http://www.NWCB.wa.gov>
- <https://www.iBiocontrol.org/>