

# Dalmatian Toadflax

(*Linaria dalmatica* ssp. *dalmatica*)

## Description:

Dalmatian toadflax is an erect, short-lived perennial herb growing 3 feet tall or more. The plant is hairless, growing from a woody branching base. Light green waxy leaves are heart shaped and clasp the stem. Flowers are located on the upper leaves and bracts, and are yellow with an orange bearded throat. A mature plant may produce 500,000 seeds per year. Dalmatian toadflax flowers from May to August. Wind and animals disseminate seeds. The plants can also reproduce by creeping rootstocks that are deep and extensive, contributing to the infestation's spread. The root system may be as deep as six feet and may spread laterally as much as ten feet. Prostrate vegetative stems also develop adventitiously from the crown and roots of the seedling. They will persist over winter and then die when flowers begin to develop the following season. Dalmatian toadflax was introduced into the United States as an ornamental species because of its showy snapdragon type flowers.



## Impacts:

Dalmatian toadflax crowds out valuable forage and has no value as forage. Studies indicate that plots without toadflax yield 2.5 times more grass production than plots with toadflax. Toadflax is a concern in pastures and natural areas, where it may out-compete more desirable native species. Although cattle avoid grazing this plant, Dalmatian toadflax contains a poisonous glucoside harmful to cattle if consumed in large quantities.

**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

Preventing the establishment of populations of Dalmatian toadflax is the most time and cost effective way of controlling this species. Farm, rangeland, and outdoor recreation equipment can transport seeds, and should be cleaned thoroughly before moving from infested areas to un-infested areas. Livestock can also transport seeds. Also, be careful using wildflower seed mixtures. Noxious weed seeds are a frequent contaminant.

### ► Manual

Evaluation of Dalmatian toadflax infestation sites indicates a 44.6 percent control effectiveness rate using manual control. This includes digging and removing as much of the root as possible, followed by reseeding disturbed areas and using barrier cloth to prevent germination. Manual control of plants is easiest in the seedling stage, and when found, they should be removed immediately. Pulling or digging small infestations (5 to 10 small plants) before they become established, can be an effective control method, especially if growing in sandy or moist soil.



### ► Biological

While there are effective biocontrol agents that are used in some parts of the country, there are currently no known agents for use in Western Washington.

**Chemical:**

Spot spraying with *imazapyr* (example: Polaris®) is effective in controlling infestations of Dalmatian toadflax. Imazapyr is a non-selective herbicide and may damage or kill any other plants that it contacts. It may also leave persistent bare ground in the treatment area. This can be minimized by using only as directed, spraying at the recommended strength and no more than necessary to wet the surface of the leaves and stems.

**Foliar applications of imazapyr (Polaris®):**

- Using a spot application, spray each plant thoroughly on the stems and leaves, enough to be wet but not to the point of dripping. Spot application means the herbicide is applied only to the Dalmatian toadflax plants, and not on the surrounding plants or soil.
- Add methylated seed oil to the tank mix to allow the herbicide to penetrate the waxy coating on the leaves and stems.
- Products containing the active ingredient imazapyr are considered “moderate in hazard” by Thurston County’s pesticide review process for the potential for chemical mobility and persistence.
- Imazapyr is non-selective, and will injure any plants that it comes in contact with, including grass.
- Keep people and pets off treated areas until spray solution has dried.

**Timing:** Spot applications should be applied at early bloom stage and if necessary, again in

<b>To 1 gallon of water add:</b>	<b>2.6 oz. (5.2 Tablespoons) Polaris® (for a 2% product spray solution)</b> <b>Add 1.28 oz. methylated seed oil (3 Tablespoons)</b>
<b>1 fluid ounce = 2 Tablespoon</b>	



late fall for persistent infestations. In Western Washington, Dalmatian toadflax usually begins blooming in May or June. For most effective treatments, apply before plants produce seed.

**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.

**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, OSU Extension Bulletin, PNW 135, Yellow Toadflax and Dalmatian Toadflax, M.D. Butler and L.C. Burrill  
North Dakota Department of Agriculture Noxious Weed Bulletin, <http://www.agdepartment.com/NoxiousWeeds/pdf/DALMATIANTOADFLAX.pdf>



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