



Dalmatian Toadflax Identification and Management

Background Information

History and Impacts

Dalmatian toadflax is a short-lived, herbaceous perennial that grows up to 4 feet tall. A plant native to central Europe east to central Asia, it was originally introduced into North America as an ornamental plant. Because of its showy snapdragon flowers, it has been cultivated widely as an ornamental. Dalmatian toadflax is capable of forming colonies through adventitious buds from creeping root systems. It can rapidly colonize disturbed or cultivated ground to out compete desirable native plant species and decreases plant species diversity. It can significantly reduce crop yields and stress native communities.

Habitat

Dalmatian toadflax is typically found along disturbed sites, roadsides, clear cuts, railroad right-of-ways, fences, croplands, pastures, and rangelands. It prefers dry sites with coarse, well-drained soils. Infestations can begin in small disturbed sites, and then spread to rangeland or wildlife habitats that are in excellent condition. Dalmatian toadflax is a highly aggressive plant that can adapt to varied environmental conditions.



Identification

Plant:

Dalmatian toadflax has narrow, upright herbaceous floral stems from a stocky, woody base that grow up to 4 feet tall. The plant will often also have short prostrate leafy stems. Seeds can germinate in the spring or fall and can produce prostrate rosettes that survive through the winter. In spring upright floral stalks are produced.

Leaves:

Leaves are waxy and heart-shaped, 1 to 3 inches long with bases that clasp the stem.

Stems:

Stems are waxy although somewhat woody at the base, and frequently branched in the upper portion.

Flowers:

Flowers are bright yellow with orange markings and elongate spurs similar to a snapdragon. Flowering occurs from mid-summer to early fall.

Seeds:

Seed capsules are ½-inch long pods and bear an approximately 140 to 250 small black to brown seeds with wings.

Reproduction and Spread

A single plant produces up to 500,000 seeds which can remain viable for at least 10 years. Seeds are very small and easily dispersed by animals, water, machinery, and mud and soil. Adventitious buds form on perennial roots, forming a large plant with many flowering stalks. Roots may extend 4 to 10 feet deep and up to 10 feet from the parent plant. Vegetative shoots from roots are typically the first to emerge in the spring, before other desirable plant species, and can grow with little water. Spread of established plants can be rapid, and is usually vegetative; however, new populations of Dalmatian toadflax can be established by seeds. Dried floral stalks retaining seed can remain on the plant for up to two years. These stalks can break off and blow across a landscape and disperse seeds.



Control Information

Integrated Pest Management

The preferred approach for weed control is Integrated Pest Management (IPM). IPM involves selecting from a range of manual, mechanical, chemical, cultural and biological control methods to match the management requirements of a specific site. Management will require dedication over a number of years, and allow for flexibility of methods used as appropriate to the current situation. Plan to revisit the site to control plants that have survived or sprout after initial control efforts. Persistence is necessary.

Control practices should be selected to minimize soil disturbance or efforts should be taken to mitigate or reduce impacts of disturbance. Minimizing disturbance also avoids creating more opportunities for germination of weed seeds. Whenever possible, control should be done before plants are flowering to prevent seed production.

Early Detection and Prevention

Controlling dalmatian toadflax is difficult and costly, thus early detection and prevention is the key to control. Prevent plants from spreading away from existing populations by washing tools and boots and cleaning vehicles, equipment and animals that have been in infested areas. Off-road vehicles create disturbances and carry weeds. Clean off-road equipment and avoid driving in infested areas. Communicate weed control needs with neighbors and persons working in infested areas, awareness will increase prevention.

Manual

Grubbing out toadflax can be effective on small infestations and newly established plants that have not developed an extensive root system. Care should be taken to get as much of the root out as possible, as the thin, spreading rhizomes will break easily. Remove all visible plants before seeds develop, if plants have seeds, place bag over stems and then cut them to reduce dispersal of seeds. Ongoing monitoring and repeated plant removal during the growing season is essential if you use this method. Plants will re-sprout until energy reserves are exhausted in roots. Pulling or digging large established plants will be unsuccessful. Cutting flower stalks to prevent seed development will temporarily prevent spread but plants will continue to re-sprout throughout the growing season.

Mechanical

Mowing is not effective except to diminish seed production. Mowing when toadflax is in seed is likely to spread the infestation further because mowers can carry seeds to un-infested areas. Mowing can also increase sprouting from the extensive root system.

Cultural

Seeding with competitive annual or perennial grasses is an effective strategy to reduce survival or further spread of toadflax. Other cultural methods such as fire or targeted grazing are generally ineffective.

Chemical

Chlorsulfuron (Telar), Dicamba (Banvel) and Imazapic (Plateau) are effective herbicides for control of toadflax. Due to the waxy nature of the plant a surfactant is recommended. A good time to spray is in the fall when the plant is storing nutrients in the roots and the herbicide is most likely to be translocated to the same location.

Precautions: Herbicides should only be applied at the rates and for the site conditions and/or land usage specified on the label of the product being used. Follow all label directions, the label is the law. For your personal safety, at a minimum wear gloves, long sleeves, long pants, closed toe shoes, and appropriate eye protection. Follow label directions for any additional personal protection equipment needed.

Biological

Biocontrol agents are available to use against toadflax. The stem-mining weevil *Mecinus janthinus* has been particularly effective. For control of small problem areas other methods should be used.

Summary of Best Management Practices

- If caught early dalmatian toadflax can be grubbed up, be sure to remove as much of the root as possible
- For established plants or larger infestations use a selective herbicide with a surfactant
- For very large infestations, populations can be effectively reduced with the biological control *Mecinus janthinus*, however this may take several growing seasons.

If you have any questions or need additional assistance, please contact Deschutes County at 541-322-7117 or visit our website at www.deschutes.org/weeds

