

Dalmatian Toadflax



Dalmatian toadflax stems are typically 3 feet tall, with individual plants producing up to 25 stems in the first year of growth. Stems are rough and woody at the base becoming smooth, waxy and herbaceous toward the top. Leaves are also waxy with a bluish green color, ovate to heart shape but sometimes lanceolate, 0.5 to 2.3 inches long, with smooth margins. Leaves are alternate and clasping on the upper portion of the stem. Dalmatian toadflax produces both taproots and creeping roots, with adventitious buds forming new individuals. Roots can grow 4-10 feet deep and can extend 10 feet from the parent plant. Flowers resemble snapdragons with petals ranging from 0.75 to 1.5 inches long. Flowers are two-lipped, yellow with an orange, bearded throat and a long spur. Flowers mature from the lower part of the stem upwards, therefore various stages of flowering and fruiting can be present on an inflorescence. Fruits are two-celled capsules with many irregularly-shaped sharply angular, slightly winged, black seeds. Dalmatian toadflax spreads through both seed production and vegetative reproduction from buds on creeping roots. A single plant can produce 500,000 seeds annually, with seed production occurring from July through October, depending on the plant's location, aspect, and the availability of water.



Seeds are viable in the soil for up to 10 years. Wind dispersal of individual seeds is minimal with most seeds falling below the parent plant. 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. Adventitious buds also form on perennial roots. These buds can appear within 9 weeks after germination, and begin vegetative spread. Vegetative shoots from roots are typically the first to emerge in the spring, before desirable plant species, and can grow with little water. Dalmatian toadflax plants live an average of 3-5 years, and patches can persist for 13 years or more under favorable condition.

Dalmatian Toadflax has shown up in various locations along highways and interstates in Johnson County, but has been for the large part controlled due to the intense treatment program on those right-of-ways. However, it is becoming more widespread in the rough rangeland hills of the Northern end of the County, especially in shale sites.

Controls

- **Bio-control**



BRACHYPTEROLUS PULICARIUS L. Seed feeding beetles are shiny black, elongate to oval, 2.4 x 1.0mm, and sparsely covered with hairs.



MECINUS JANTHINUS GERMAR. Stem mining beetle is black to somewhat blue-colored are elongated in shape, 3.6-4.2mm long, with distinct linear lines along their wing covers. Most common to be released in Wyoming and has been effective in several sites.



RHINUSA ANTIRRHINI (PAYKULL) Seed head feeding beetle adults are oval, black bodied and 5mm long when on Dalmatian toadflax and 3mm long when on narrow-leaved Dalmatian toadflax. The rostrum (nose) is curved and pointed and from the side it appears tapered. All but the tip of the rostrum is covered with pubescence. Their bodies have fine yellow-brown hairs.

- **Pulling** small infestation of Dalmatian toadflax by hand can be an effective way of control, especially if established in a sandy or moist soil. Pulling must continue for 5-6 years to remove all root fragments, and lateral roots should be followed and removed from the soil.
- **Mowing and burning** are ineffective at controlling either toadflax species as they do not affect the root stocks or the buried seeds.
- **Cultivation** can be used to control this plant where feasible. Machinery needs to be cleaned well to prevent the spread of root fragments to un-infested areas.
- **Care** must be taken to not overgraze areas as this has been shown to increase the spread of toadflax infestations. Since animals typically do not graze toadflax species, the plants become more competitive and abundant than the grazed species. However this can vary with animals as preliminary field studies in Montana have shown that sheep can help suppress stands of Dalmatian toadflax and limit seed production.
- **Herbicides** used exclusively and in combination with seeding of competitive species can control Dalmatian toadflax. Most herbicide treatments are recommended at the flowering stage, with seeding of desirable competitive species the following spring. Due to the fact that Dalmatian toadflax has genetic variation within the species, has the ability to grow in a variety of climates, and because of the waxy covering on its leaves and stems, it has proven hardy and difficult to consistently control with herbicides. Please consult the District for recommendations.