

DALMATIAN TOADFLAX: Options for control

Dalmatian Toadflax, a class-B noxious weed in Lincoln County, Washington (*Linaria dalmatica* L.) is of the Figwort family. Also known as Butter-and-eggs, Common toadflax and Wild snapdragon, is native to the Mediterranean region and closely related to Yellow toadflax. Dalmatian toadflax was brought to North America as an ornamental around 1874.

Dalmatian toadflax is a perennial forb which spreads by creeping roots and by seed. Growing erect up to 3 feet tall, toadflax becomes pale green with showy, yellow flowers tinged with orange, each about one inch long. Its broad, heart-shaped waxy leaves clasp its stem.

A single Dalmatian toadflax plant can produce up to 500,000 seeds beginning in late June or early July in northern climates, and continuing until September or early October. In one study, 97% of total seed production occurred in the first five weeks – seeds can remain viable in the soil for up to 10

years. Seed production can begin on lower portions of the stems while upper portions are still in various stages of bloom. Dried floral stalks can remain standing for two years, retaining some seeds but dispersing most during the first year.



The trouble with Toadflax is, it's a prolific seed producer with a deep and extensive root system. Dalmatian toadflax is an aggressive perennial that spreads quickly with devastating economic and environmental impact. It thrives in coarse, well-drained soils and takes root on roadsides and rangelands, in fields, overgrazed pastures, idle cropland, and waste areas.

As with other invasive species, establishment of Dalmatian toadflax is favored by soil disturbances, such as road construction, frequent fires or overgrazing. Once established, the noxious invader completely dominates – crowding out desirable grasses and forbs, modifying native plant communities, and reducing habitat value for wildlife.

A bit of good news concerning Dalmatian toadflax is the biological agent, *Mecinus janthinus*. It has proven to be highly successful in Lincoln County and has been dubbed the “silver bullet” for Dalmatian toadflax. Contact the Weed Board to see if this bio-agent is right for your situation and for ordering information.



Leaves are broad, alternate, and are ovate to lanceolate.



Horizontal roots produce many buds that form new plants.



Leaves are waxy, heart-shaped and clasp the stems.

Key identifying traits

- Leaves are waxy, blue-green and heart shaped.
- Dense alternate lower leaves clasp the stem.
- Bright yellow snapdragon type flowers have long spurs and an orange bearded throat.
- Long slender flower/seed stalks develop throughout season with pea size 2-celled seed capsules.
- Several stems emerge from mature root crown.



Flowers mature from the lower part of the stem upwards, therefore various stages of flowering and fruiting can be present on an inflorescence.



Flowers are two-lipped, yellow with an orange bearded throat and a long spur.

Biology and ecology

- Perennial with extensive root system..
- Grows to 3 feet tall, often in dense patches.
- Reproduces by both roots and seeds.
- Roots penetrate the soil up to 10 ft. deep and lateral roots may extend 10 ft. from the parent plant.
- Flowers mid-summer until early fall.
- Prefers dry sandy or gravelly sites.
- Aggressively invades roadsides and range.
- Contains a **poisonous** glucoside harmful to cattle if consumed in large quantities.



The creeping root system makes this plant very difficult to control.

CONTROL MEASURES:

For this and other publications, see our website at: www.co.lincoln.wa.us/weedboard

Prevention:

- Minimizing soil disturbance and preventing overgrazing is important. **Early detection** is vital to prevent invasion.

Biological:

- Bio-agent *Mecinus janthinus* has been extremely successful in Lincoln County.

Cultural:

- Healthy competitive vegetation helps lessen chance of invasion, but doesn't preclude it.

Mechanical:

- Because of its extensive root system, mechanical control is difficult. Small infestations can be

hand pulled. Be sure to remove as much of the root system as possible.

Chemical:

- Picloram (Tordon 22K) 1-2 qt /acre, flowering or in fall. Chlorsulfuron (Telar) 1.5-2oz/acre, flowering to fall. Dicamba (Banvel, Clarity, Vanquish) 2-4 qt/acre, pre-bloom to flowering stage.
- **Must** use a **surfactant** due to the waxy leaf surface, for adequate herbicide penetration.
- **Re-treatment** for several years will most likely be required.
- Best control occurs when area is **reseeded** with competitive grasses.
- **Read the label** instructions before applying.



The adult weevils feed on the stems and leaves. *Mecinus janthinus* does not eat any other plant.



Mecinus janthinus- a stem boring weevil, has proven to be a huge success in Lincoln County. Adults eat the leaves after emerging from tunnels inside the stalks of old plants each May. When there are sufficient numbers, adult feeding will prevent the noxious weed from flowering and going to seed.

But, the real damage is done by the larvae. They mine out a tunnel inside the stems, causing premature wilting and death of the plant.

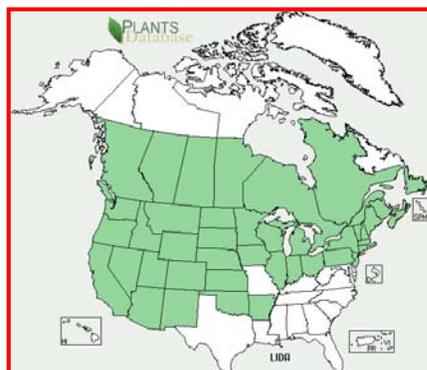
Over a season, one female will lay from 80 to 120 eggs. The eggs hatch seven days later and the larvae continue to eat the inside of the plant for the rest of the year.



The larvae tunnel out the inside of the toadflax stem throughout most of the year.



A typical Dalmatian toadflax infestation.



Photos and references courtesy of: Photos: Rich Old; New Mexico State University; Boulder County land Use Department; Colorado State University extension, Stevens County Weed Board.

Lincoln County Noxious
Weed Control Board
405 Ross St.
Davenport, WA 99122
509-725-3646