

YELLOW- TOADFLAX: Options for control

Yellow Toadflax, a class-C noxious weed in Lincoln County, Washington (*Linaria vulgaris*). Also known as Butter-and-eggs, originated in south-central Eurasia. Yellow toadflax was brought to North America as an ornamental, and was grown to make yellow dye. It has invaded the entire U.S. from east to west. Climate wise, it is very adaptable. Its cousin, Dalmatian toadflax, was introduced a half century later.

Yellow toadflax is a perennial herbaceous plant in the figwort family that grows to a height of 1-2 ft. Plants have multiple smooth stems and grow in clumps from the rootstalks, which closely resembles leafy spurge. Leaves are simple, alternate, grey-green, lance shaped, pointed, 1-2 ½ in. long, and smooth. Flowers resembling snapdragons bloom

contain many seeds. Seeds are winged, disk-shaped, dark brown to black, and viable in soil for up to 8 years. A mature plant can produce up to 30,000 wind- and water-dispersed seeds annually from July to October. Plants reproduce both by seed and creeping rhizomes.



Yellow toadflax prefers moist soil and may become stunted in dry conditions. It occurs in a wide variety of habitats such as roadsides, fields, waste areas, railroad yards, rangeland, pastures, cultivated fields, meadows, forest edges, and gardens. It is a problem in disturbed areas, especially those with sandy, gravelly, or chalky soils. The aggressive nature of this plant and its ability to form large colonies allows it to crowd out other vegetation.



from July to late September. They are yellow with a dull orange center and occur in clusters of 15-20 on each stem. The fruit is an egg-shaped capsule which are two-celled and

Yellow toadflax contains a poisonous glucoside that may be moderately toxic to livestock, although it is also unpalatable, so reports of livestock poisoning are rare.



Key identifying traits

- **Leaves** are pale green, numerous, narrow, pointed at both ends and 2 1/2 in. long.
- Abundant yellow snapdragon type **flowers**, have long spurs and an orange bearded throat.
- **Fruit** is round, 1/4 in. in diameter and brown with 2 cells having many seeds.

As the flower matures, the orange patch on the throat becomes more distinct.



Roots can reach a depth of 6 ft. or more, while rhizomes can extend 10 ft. from the plant.

Biology and ecology

- **Perennial** with extensive root system.
- Grows to 1-2 feet tall, often in dense patches.
- **Reproduces** by both **roots** and **seeds**.
- **Roots** penetrate the soil up to **6 ft. deep** and **lateral roots** may extend **10 ft.** from the parent plant.
- **Root** fragments as small as 1/2 in. long, can produce new plants.
- Prefers **moist soil**, may become stunted in dry conditions.
- Contains **poisonous glycosides** that are reported to be **moderately toxic** to livestock.
- **Resistant** to 2,4-D amine, and MCPA salt.



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



Leaves are pale green, long, narrow, pointed and alternate.



The plant spreads rapidly from buds on creeping root systems, as well as by seed.

CONTROL MEASURES:

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

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 on Dalmatian toadflax and it works on Yellow toadflax as well.

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) 2-3 oz/acre, flowering to fall. Dicamba (Banvel, Clarity, Vanquish) 2-4 qt/acre, flowering or in fall.
- The use of a **surfactant** is **recommended** due to the waxy leaf surface.
- **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.



Above is a leaf comparison: Dalmatian toadflax on the left, and Yellow toadflax on the right.



The plant in fruit.



View of leaves from above.



A devastating example of what Yellow toadflax can do!

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. The adult weevils feed on the stems and leaves.



Mecinus janthinus adults



Photos and references courtesy of: Linda Wilson, University of Idaho, Bugwood.org; Steve Dewey, Utah State University, Bugwood.org; Rich Old, XID Services; USDA Forest Service; North Dakota State University Extension Service; Colorado State University extension; Stevens County Weed Board; New Mexico State University.

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