



**Figure 1. Dalmatian (left) and yellow toadflax (right) plants look similar from a distance.**

# Dalmatian Toadflax and Yellow Toadflax

(*Linaria genistifolia* spp. *dalmatica* and *Linaria vulgaris*)

## Identification and Control

**STOP THE SPREAD**

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**Figure 2. Dalmatian (above) and yellow toadflax (left) flowers are similar. Both are bright yellow with a long throat or spur, but yellow toadflax often has an orange center.**

Both Dalmatian and yellow toadflax are escaped perennial ornamental plants which were introduced in the mid-1800s (Figure 1). Dalmatian toadflax is native to the Mediterranean region while yellow toadflax is from Eurasia. Yellow toadflax was first recorded in North Dakota by H. L. Bolley from a collection made in Fargo. The first record of Dalmatian toadflax is from Walhalla in Pembina County in 1937 by O. A. Stevens. Dalmatian toadflax seedlings are relatively poor competitors with grass species; but once established, the weed can become extremely invasive, especially on dryland sites, disturbed areas, and roadsides. Yellow toadflax is adapted to more moist sites than Dalmatian toadflax, and is often found in pastures, meadows, and ditches. Once an area becomes infested, both species can dramatically reduce forage production and decrease native plant and wildlife habitat.

**How do I identify these plants?** Dalmatian and yellow toadflax are members of the snapdragon family and thus easily recognizable by the bright yellow flowers which have swollen corolla-tubes that flare into two 'lips,' with an orange colored throat (yellow toadflax) and long spur (Figure 2). The flowers are 1 to 1.5 inches long with many flowers on a raceme. Both species have an extensive creeping rhizomatous root system that spreads like leafy spurge. The most distinctive difference between the species is that Dalmatian toadflax has broad, heart-shaped leaves that clasp a woody stem; whereas, yellow toadflax has narrow, linear leaves with a narrow stem (Figure 3).

**What is Dalmatian and yellow toadflax's growth cycle?** The plants begin regrowth from the roots as soon as the soil warms in early spring. Toadflax flowers from late-June through August in North Dakota and single plants may produce over 500,000 seeds which are dispersed by wind, rain, wildlife, and movement of forage and livestock (Figure 4). The seed is disk-shaped 0.08 inch diameter, dark brown to black, and often have



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**Figure 3. Dalmatian toadflax (left) has broad heart-shaped leaves, while yellow toadflax leaves (right) are long and narrow similar to leafy spurge.**



**Figure 4. Toadflax seed are dark and disked shape with wings.**

irregular papery wings. Seed dispersal begins a few weeks after flowering and continues into winter. The roots of a single plant can extend 10 feet and give rise to daughter plants every few inches.

**Why is this plant a concern?** The toadflax species are aggressive and will displace forage in pasture land and native species in wildland. Yellow toadflax can be mildly poisonous to livestock that graze it. Although the toadflaxes may be slow to establish, once plants take root, control is very difficult since most herbicides are ineffective.

**Where in the state is this plant found?** The toadflaxes are most likely to be found along highways, railroad tracks and other transportation or communication lines, or anywhere livestock is brought into the state. Often the origins of an infested area can be traced back to an escape from an ornamental planting. Dalmatian toadflax has only been reported as small patches in a few counties, generally in the western part of North Dakota. However, yellow toadflax has been found in many counties across the state and is on the verge of becoming a major problem for land managers in North Dakota.

**How do I control this plant?** Prevention is the best method to keep Dalmatian and yellow toadflax from invading North Dakota pasture, rangeland, and wildlands. Herbicides can be effective but require repeated treatments at high rates. The most commonly used herbicides are Tordon for both yellow and Dalmatian toadflax, and Plateau or Telar for Dalmatian toadflax control. Consult the latest edition of NDSU Extension Service Circular W-253, the North Dakota Weed Control Guide, for recommended use rates and locations. Biological control with insects or disease organisms is in the research stage with limited releases in progress. However, biological control is not recommended in North Dakota because of the limited toadflax acreage. Also, the use of biological control is likely to be very limited even if successful agents are found because of the close relationship between these weedy species and the ornamental varieties of snapdragon. Proper stocking rates to maintain competitive forage species has helped reduce the spread of toadflax into grazing lands. Burning is not effective because soil temperatures do not get high enough to kill the roots. Burning may even have a detrimental effect and cause an increase in the number of stems due to reduced cover.

**If you find this weed, report it to your local weed officer.**

**HELP STOP THE SPREAD**

Photos 1, 2a, and 4 are courtesy of Dr. Steve Dewey, Utah State University, Logan, UT. Photo 3 is courtesy Celestine Duncan, Weed Management Services, Helena, MT. All other photos by Rodney G. Lym.

**For more information on this and other topics, see: [www.ag.ndsu.nodak.edu](http://www.ag.ndsu.nodak.edu)**



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