



Yellow Toadflax (*Linaria vulgaris*)

SK Provincial Designation: Noxious

Overview:

Brought from Europe over 100 years ago as an ornamental plant, yellow toadflax has escaped and has now become a serious problem to rangeland and mountain meadows all over North America. This perennial plant makes seed, but reproduction is primarily by sprouting from its extensive, creeping root system (rhizomes) – 2-3 week old seedlings can produce creeping roots. The ability of this plant to form large colonies allows it to crowd out other vegetation.

Yellow toadflax is easily confused with leafy spurge before flowering, but toadflax stems do not contain the milky latex that spurge does. Also known as common toadflax, butter-and-eggs, or spurred snapdragon.



Habitat:

Native to nearly all parts of Europe and Asia, toadflax prefers sandy-gravelly soils, but is adapted to a wide range of growing conditions.

Identification:

Stems: Stems are erect, hairless, generally un-branched and can be as short as 15cm or grow to 1 m tall. Mature plants may have 1 to 25 stems.

Leaves: Leaves are soft, lance-shaped, pale green, and very numerous. Leaves are mainly alternate but may appear opposite on the lower stem due to crowding. Leaves can be up to 10 cm long and are attached directly to the stem.

Flowers: Flowers are bright yellow, arranged alternately in dense spikes at the ends of stems and have a long spur extending from the base that is usually as long as the flower itself – in all, 2 to 3.5 cm long. The snapdragon-like flowers can have orange colouring on the throat. They flower at different times depending on site conditions. In high elevations they could flower as late as July. Flowers are identical to Dalmatian toadflax, but leaf shape differs between the two plants.

Seed: The seeds are winged, disk-shaped, and dark brown to black. Despite its prolific seed production (5000 seeds/stem) and long viability (up to 10 years), germination rates are often very low – less than 10%.

LEFT: Yellow toadflax flower (photo uncredited)

TOP: Yellow toadflax infestation (photo by Dave Powell, USDA Forest Service, Bugwood.org)

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Yellow Toadflax *(continued)*

Prevention:

Spurred snapdragon, another common name for this plant, often appears in wildflower seed mixes. Do not purchase seed mixes which don't list their contents.

Control:

Once present, it establishes dense patches that are extremely difficult to control, let alone eradicate. Multiple control methods and several years of commitment provide the best success.

Grazing: Pasture invasions flourish because the plant is not palatable to livestock.

Cultivation: Repeated cultivation can effectively destroy the root system. Equipment should be thoroughly cleaned after.

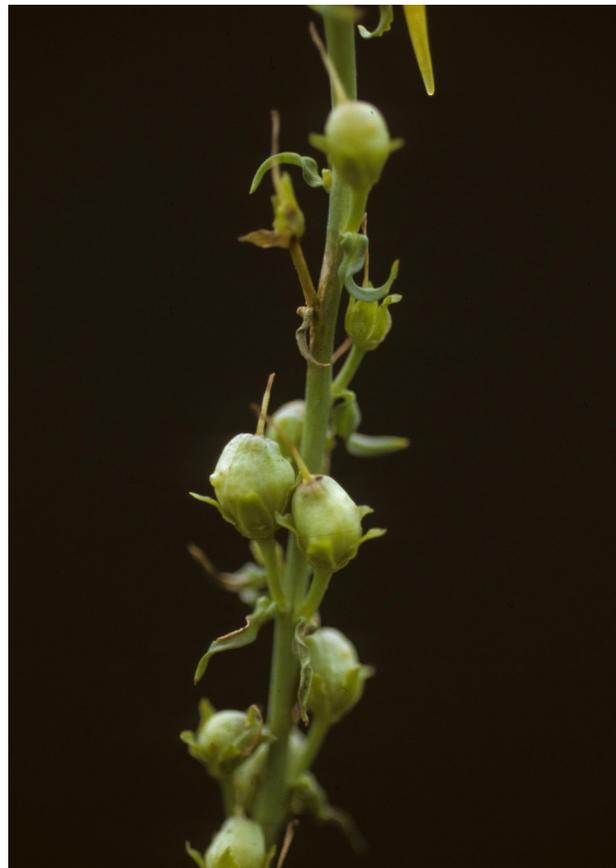
Mechanical: Thorough hand-pulling can be effective in soft soils where the roots can be removed easily. Repetition is required to deplete the seed bank and all root pieces. Mowing can assist by starving the roots.

Chemical:¹ Some herbicides have been helpful in managing this invasive plant, but chemical control alone will not eliminate toadflax. Consult your Regional Forage Specialist, the Agriculture Knowledge Centre at 1-866-457-2377 or the Guide to Crop Protection for more details.

Biological: Several biological control agents have been imported to control Yellow toadflax. So far, climatic factors have limited successful establishment in Saskatchewan.

TOP RIGHT: Yellow toadflax seed head (photo by John Cardina, Ohio State University, Bugwood.org)

BOTTOM RIGHT: Yellow toadflax leaves (photo by Steve Dewey, Utah State University, Bugwood.org)



Always follow the product labels. Pesticides should only be applied by certified pesticide applicators. The use of pesticides in any manner not published on the label or registered under the *Minor Use of Pesticides* regulation constitutes an offence under both the *Federal Pest Control Products Act* and provincial acts in Saskatchewan. For the latest information on pesticides for agricultural use in Saskatchewan, please consult the provincial *Guide To Crop Protection*, produced annually by the Saskatchewan Ministry of Agriculture.