

YELLOW TOADFLAX

Linaria vulgaris P. Miller

Family: *Scrophulariaceae* (Figwort).

Other Scientific Names: None.

Other Common Names: Butter and eggs, wild snapdragon, common toadflax.

Legal Status: Provincial Noxious.



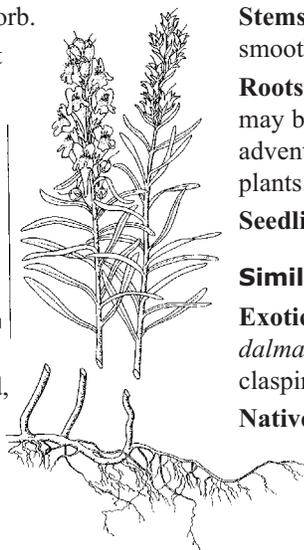
Identification

Growth form: Perennial forb.

Flower: Flowers are bright yellow and resemble snapdragons. Flowers are arranged in a raceme at the ends of the branches.

Seeds/Fruit: Seed capsules are round-ovate, 5–10 mm long, and 2-celled. Seeds are brown or black, circular, and surrounded by a notched wing. 10 cm

Leaves: Leaves are soft, lance-shaped, and pale green. Leaves are mainly alternate, but lower leaves appear to be opposite due to crowding.



Stems: Mature plants are 10–80 cm tall with 1–25 smooth, erect floral stems.

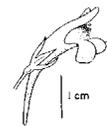
Roots: Taproots may be up to 1 m long. Lateral roots may be several meters long and can develop adventitious buds that may form new plants.

Seedling: No information available.

Similar Species

Exotics: Leaves of Dalmatian toadflax (*Linaria dalmatica*) are shorter, wider, and broad-based, clasping the stem.

Natives: None known.



Impacts

Agricultural: Yellow toadflax contains a glucoside that is mildly poisonous to cattle (Morishita 1991). The plant is considered unpalatable to cattle and poisonings are rare.

Ecological: Yellow toadflax establishes in open areas but is adapted to a wide range of environmental conditions (Saner et al. 1995). The plant spreads

rapidly from adventitious buds on creeping root systems. The plant competes with native grasses and forbs and can alter species diversity on some sites. Dense populations can also reduce forage production for livestock and wildlife.

Human: No information available.

Habitat and Ecology

General requirements: Seems best adapted to sites with well-drained sandy or gravelly soils, dry summers, and open, sparsely vegetated sites (Lajeunesse 1999). In BC it is found in grasslands and open forests and on disturbed sites such as roadsides, railroad tracks, logged forests, cultivated fields, and gravel pits.

Distribution: Occurs in all Canadian provinces and territories and throughout the continental US (Saner et al. 1995). In BC it is locally abundant in the Okanagan, Similkameen, Thompson, Boundary, East Kootenay,

and Cariboo regions (Powell et al. 1994). It is present in all of the province's agricultural reporting regions except the Mainland and Vancouver Island but is not considered a major concern in any region.

Historical: Introduced from Eurasia as an ornamental plant.

Life cycle: Prostrate stems emerge in autumn and are tolerant to freezing. These stems develop into floral stems the following year that begin growth about the same time as new seedlings in mid-April, depending on

geographic location. Plants flower from May through August, and seeds mature from July to October (Saner et al. 1995).

Mode of reproduction: By seed and vegetatively from roots.

Seed production: A mature plant can produce up to 30,000 seeds annually, and a single stem can contain over 5,000 seeds (Saner et al. 1995).

Management

Biocontrol: Five species occur in BC that could be used for yellow toadflax: *Brachypterolus pulicarius* (beetle), *Calophasia lunula* (moth), *Eteobalea intermediella* (moth), *Gymnaetron antirrhini* (weevil), and *Mecinus janthinus* (beetle).

Mechanical: Cutting or mowing removes current-year growth and can also reduce seed production and dispersal. However, they do not kill the plant and are not recommended (Lajeunesse 1999).

Fire: Burning is not recommended because of the plant's large, deep root system (Saner et al. 1995).

Herbicides: Difficult to manage with herbicides. Herbicides should be applied during flowering when carbohydrate reserves in the root are at their lowest. Picloram, dicamba, and picloram with 2,4-D have all been effective in some situations (Sebastian and Beck 1999). Consult the most recent edition of BC Ministry of Agriculture, Food and Fisheries Crop Production Guides for specific recommendations. **Before applying herbicides, read the label for full use and precautionary instructions.**

Cultural/Preventive: Hand-pulling can be effective, especially in coarse-textured soils where roots can be

Seed bank: Seeds can remain dormant for up to 10 years.

Dispersal: Primarily by wind but may also be dispersed by water and ants (Rutledge and McLendon. Undated).

Hybridization: No information available.

pulled easily. Repeated applications may be required until the seed bank and root fragments have been depleted. Seed disturbed areas to perennial grasses and forbs to provide ground cover and competition. Manage for vigorous perennial plant communities.

Integrated Management Summary

Integrated management must combine prevention, cultural control, mechanical control, herbicides, and biocontrol agents. For new and small infestations, hand-pulling and mechanical methods may be appropriate to limit seed production and spread, but repeated applications of treatments are likely. For larger infestations, herbicides may be appropriate. For very large infestations, the only practical solution may be biocontrol. Seeding disturbed areas to perennial grasses and forbs and adjusting management practices to maintain vigorous perennial plant communities all contribute to managing this plant successfully.

References

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