flixweed
Descurainia sophia (L.) Webb ex Prantl

Synonyms: *Hesperis sophia* (Linnaeus) Kuntze, *Sophia parviflora* (Lamarck) Standley, *S. sophia* (L.) Britt., *Sisymbrium parviflorum* Lamarck, *S. sophia* L.
Other common name: flaxweed tansymustard, flixweed tansymustard, herb Sophia, pinnate tansymustard, tansymustard
Family: Brassicaceae

Invasiveness Rank: **41** The invasiveness rank is calculated based on a species' ecological impacts, biological attributes, distribution, and response to control measures. The ranks are scaled from 0 to 100, with 0 representing a plant that poses no threat to native ecosystems and 100 representing a plant that poses a major threat to native ecosystems.

Description
Flixweed is an annual plant that grows up to 91 cm tall. Stems are often branched above. Stems and leaves are covered with stellate (star-shaped) hairs, which give the plant a grayish green color. Leaves are alternate, stalked, 2 ½ to 10 cm long, and divided 2 to 3 times into narrow segments. Pale yellow flowers are arranged in terminal clusters. Pods are narrow and 13 to 38 mm long with long pedicels (Royer and Dickinson 1999, Whitson et al. 2000, eFloras 2008).

Descurainia sophia (L.) Webb ex Prantl. Photo by A. Brousseau.

Similar species: Flixweed can be confused with a number of other pinnately-leaved, yellow-flowered mustards that grow in Alaska. Unlike similar species, flixweed has stellate hairs on the stem rather than glandular hairs. The stellate hairs are visible under 5X to 10X magnification. Unlike the native *Descurainia* species, flixweed has long pedicles and fruits. See appendix for key to *Descurainia* species. *Erysimum* and *Sisymbrium* species appear superficially similar to *Descurainia* species. *Erysimum* species, however, have closely appressed, straight, two- to three-pronged hairs. *Sisymbrium* species have unbranched hairs. See appendix for key to genera of pubescent, yellow mustards of Alaska with terete siliques.

Ecological Impact
Impact on community composition, structure, and interactions: In agricultural fields, flixweed is quite competitive for moisture and nutrients, and it reduces overall crop yields. All parts of the plant are poisonous to large mammals and, when ingested, cause blindness, staggering, and loss of ability to swallow. Flixweed provides food for small mammals, birds, and butterflies (Howard 2003).
Impact on ecosystem processes: Flixweed is a pioneer colonist of disturbed substrates. It facilitates the establishment of other introduced species. It often forms dense stands that dry, increasing the risk of fires. If flixweed stands do not burn, then the dried plants provide litter, which facilitates the establishment of cheatgrass (*Bromus tectorum*) (Howard 2003).

Biology and Invasive Potential
Reproductive potential: Flixweed grows rapidly and reproduces by seeds only. Plants are cross- and self-pollinated. Each plant normally produces between 75 and 650 seeds. Very large plants can produce over 700,000 seeds each (Rutledge and McLendon 1996), which contribute to a large seed bank. Seeds buried in soil in Fairbanks remained viable for at least four years (Conn 1990).
Role of disturbance in establishment: Flixweed establishes in open-canopy, disturbed sites.
Potential for long-distance dispersal: Seeds can be dispersed by wind, water, and animals. The mucilaginous seed coats can stick to feathers or fur

(Howard 2003, WSSA 2003).

Potential to be spread by human activity: Flixweed is known to contaminate cereal and forage seed (Rutledge and McLendon 1996, MAFRI 2004). Seeds can stick to and be transported by vehicles and machinery (Howard 2003).

Growth requirements: Unknown.

Congeneric weeds: Western tansymustard (*Descurainia pinnata*) is considered a nuisance weed in Alberta and mountain tansymustard (*D. incana* ssp. *incana*) is considered a noxious weed in Manitoba (Invaders 2010). Both species, however, are native to North America (ITIS 2010, USDA 2010).

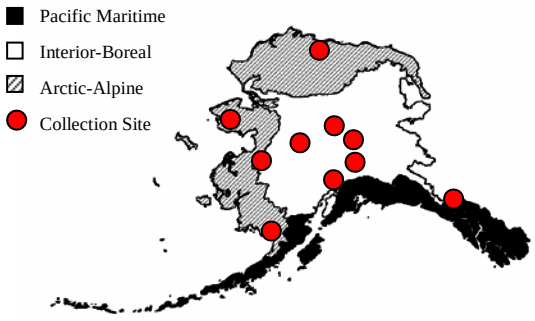
Legal Listings

- ☐ Has not been declared noxious
- ☐ Listed noxious in Alaska
- ☐ Listed noxious by other states
- ☐ Federal noxious weed
- ☒ Listed noxious in Canada or other countries (MB)

Distribution and Abundance

Flixweed was likely introduced to North America in the mid 19th century as a contaminant in crop seed. By the 1920's, it was widespread. This species commonly grows in roadsides, pastures, cultivated areas, and old fields. It also occurs in native sagebrush, pinyon, and juniper communities in Washington, Oregon, Nevada, Utah, and California (Howard 2003).

Native and current distribution: Flixweed is native to southern Europe and northern Africa. Its current distribution includes Scandinavia as far north as 70°N, Siberia, East Asia, South Africa, South America, and New Zealand (Hultén 1968). Flixweed grows in 48 states of the U.S. and throughout most of Canada (USDA 2010). This species has been documented from all three ecogeographic regions of Alaska (Hultén 1968, AKEPIC 2010, UAM 2010).



Distribution of flixweed in Alaska.

Management

Flixweed does not usually persist in late-seral communities, and infestations may not require direct control measures (Densmore et al. 2001). Effective control can be achieved with mechanical and herbicide treatments. Seedlings are sensitive to most herbicides, even at low dosages (Howard 2003). No biological control agents have been reported for flixweed.

Appendix

Key to genera of pubescent, yellow mustards of Alaska with terete siliques (fruits more than three times longer than broad, round in cross section), largely based on Cody's (1996) treatment:

1. Hairs all simple
   2. Lower leaves bi- or tri-pinnate……***Descurainia***
   2'. Lower leaves not bi- or tri-pinnate
      3. Siliques with a stout beak (≥1/4 fruit length)
         4. Beak flat……*Synapis*
         4'. Beak terete……*Brassica*
      3'. Siliques beakless
         6. Stem angular, lower leaves lyrate……*Barbarea*
         6'. Stem terete
            7. Siliques linear, to 10 cm……*Sisymbrium*
            7'. Siliques oblong-elliptic, < 1 cm long……*Rorippa*

1'. Hairs forked, branched, or stellate, sometimes mixed with simple hairs
   8. Stem hairs appressed, 2-3 pronged hairs attached in the middle……*Erysimum*
   8'. Stem hairs not as above……***Descurainia***

Key to *Descurainia* species:

A. Siliques rounded at the apex……*D. pinnata* (N)
A'. Siliques acute at the apex
   B. Developing siliques overtopping the subumbellate inflorescence……*D. sophiodies* (N)
   B'. Developing siliques positioned below the apex of the inflorescence
      C. Siliques 5-10 mm long, straight to slightly curved, stems glandular or eglandular……*D. richardsonii* (N)
      C'. Siliques 10-20 mm long, curved, stems eglandular……***D. sophia* (I)**

(N = Native, I = Introduced)

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