

# ANNUAL SOW THISTLE

*Sonchus oleraceus* L.

**Family:** Asteraceae (Sunflower).

**Other Scientific Names:** None.

**Other Common Names:** Common sow thistle, spiny-leaved sow thistle, spiny annual sow thistle, spiny milk thistle, prickly sow thistle, sharp-fringed sow thistle.

**Legal Status:** Provincial Noxious.



## Identification

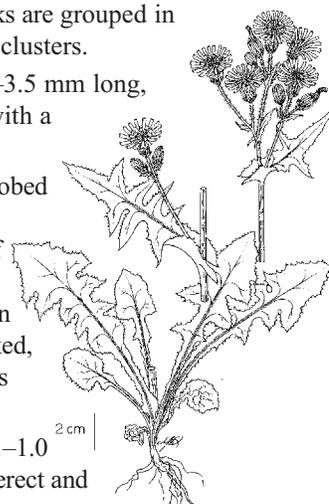
**Growth form:** Annual forb.

**Flower:** Several small (less than 2.5 cm across), yellow dandelion-like flower heads on sometimes glandular stalks are grouped in open, flat- or round-topped clusters.

**Seeds/Fruit:** Seeds are 2.5–3.5 mm long, reddish brown and ribbed with a parachute-like pappus.

**Leaves:** Leaves are deeply lobed and basal leaves end with a large, pointed segment. Leaf margins have small, weak teeth (Frankton and Mulligan 1970). Basal leaves are stalked, but upper leaves are stalkless and clasp the stem.

**Stems:** Mature plants are 0.1–1.0 m tall. The single stems are erect and



branched only near the top. The hollow stems exude a milky juice when cut (Douglas et al. 1998).

**Roots:** A short taproot.

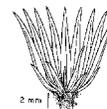
**Seedling:** No information available.



### Similar Species

**Exotics:** Perennial sow thistle (*Sonchus arvensis*) differs from annual sow thistle in its extensive creeping roots and larger flower heads. Prickly annual sow thistle (*Sonchus asper*) has very prickly leaf margins, and its leaves are rarely sharply lobed. Wall lettuce (*Lactuca muralis*) has a fibrous root system, numerous flower heads, and an ivy-like segment on the end of the leaves.

**Natives:** Several native lettuces (*Lactuca* sp.) resemble annual sow thistle, but they tend to have more numerous flower heads and lack the distinctive large, pointed lobe on the end of the basal leaves.



## Impacts

**Agricultural:** A common weed of cultivated crops, grain fields, and orchards. It acts as an alternate host to aphids, several viral diseases, and nematodes (Hutchinson et al. 1984).

**Ecological:** Invades both native plant communities and disturbed sites. Rapid germination and establishment combined with wind dispersal of seeds over great distances allow annual sow thistle to colonize new areas rapidly. They are adapted to a wide range of

environmental conditions but are most competitive in temperate climates with abundant moisture (Zollinger and Parker 1999). They tolerate saline soils but are better adapted to slightly acid to alkaline soils (Hutchinson et al. 1984). This weed tolerates saturated soils and can be a problem in marshes, ponds, and other riparian areas.

**Human:** Sow thistles contain chemical compounds used for industrial and pharmaceutical purposes.

## Habitat and Ecology

**General requirements:** This weed grows in a wide range of environments but does best on fertile, moist soils in full sunlight. In BC, annual sow thistle grows on cultivated fields, gardens, roadsides, riparian areas, and disturbed sites such as gravel pits and logged areas.

**Distribution:** Most frequent in the province's southern coastal regions but present in all agricultural reporting regions. It occurs in all Canadian provinces and throughout the northern US.

**Historical:** Introduced from Europe.

**Life cycle:** Annual sow thistle usually overwinters as seeds, but plants may overwinter as rosettes. Seeds germinate from spring through autumn. Plants form rosettes, then bolt, flower, set seed, and complete their life cycle rapidly. Flowers are produced from June to early October. Sometimes a second generation grows in one growing season.

**Mode of reproduction:** By seed.

**Seed production:** Each plant produces about 6,100 seeds. Seed production is greater when there is adequate moisture.

**Seed bank:** Seeds remain viable for several years in cultivated soil.

**Dispersal:** The tall stalks, lightweight seeds, and parachute-like pappus promote dispersal by wind (Hutchinson et al. 1984). Seeds can also disperse by water, be ingested by birds and animals, and attach to fur or feathers.

**Hybridization:** Leaves of some plants appear to be intermediate between annual sow thistle and spiny-annual sow thistle (*Sonchus asper*), but true hybrids are rare (Hutchinson et al. 1984).

## Management

**Biocontrol:** *Cystiphora sonchi* forms galls on vegetative parts of the plant but has not been approved for release in BC. Sow thistle is palatable for cattle or sheep, and intensive grazing can suppress infestations on some sites by preventing seed-set.

**Mechanical:** Seed production can be prevented by mowing before seed-set, but mowing must be lower than 20 cm to prevent regrowth. In mild climates where the plants overwinter as rosettes, repeated tillage from late August to freeze-up gives excellent management. Tillage during March through May manages spring annuals as they emerge (Hutchinson et al. 1984). Cultivation every three months can stimulate germination and eventually deplete the seed bank.

**Fire:** Fire is unlikely to manage annual sow thistle. Improved fertility following fire, such as on logging slash piles, may make an ideal seedbed for this weed.

**Herbicides:** Annual sow thistles are susceptible to many pre-emergence herbicides such as simazine and atrazine on cropland and dichlobenil on non-cropland. Foliar applications of MCPA, MCPB, 2,4-D, and 2,4-DB obtain good management post-emergence (Hutchinson et al. 1984). Selective herbicides applied before blooming can prevent seed production. 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:** Preventive measures include removal of seedlings by cultural or chemical means before they establish and set seed, managing weeds on field borders, and planting weed-free crop seed. Small infestations can be hand-pulled.

### Integrated Management Summary

On cultivated areas an integrated approach of intensive cultivation, competitive crops, selective herbicides, or a combination of all 3 may be practical. On rangeland and undisturbed areas, seedlings on new infestations can be hand-pulled or herbicides applied. Established populations may be managed with intensive grazing or herbicides. Chemical control may not be possible on the riparian areas where this weed commonly occurs.

## References

Douglas, G. W., G. B. Straley, D. Meidinger, and J. Pojar, eds. 1998. *Illustrated Flora of British Columbia*. Vol. 1: *Gymnosperms and Dicotyledons (Aceraceae through Asteraceae)*. Province of British Columbia.

Frankton, C., and G. A. Mulligan. 1970. *Weeds of Canada*. Publication 948. Ottawa: Canada Department of Agriculture.

Hutchinson, I. J., J. Colosi, and R. A. Lewin. 1984. The biology of Canadian weeds. 63. *Sonchus asper* L. Hill and *S. oleraceus* L. *Canadian Journal of Plant Science* 64: 731–744.

Zolinger, R. K., and R. Parker. 1999. Sowthistles. In R. L. Sheley and J. K. Petroff, eds. *Biology and Management of Noxious Rangeland Weeds*. Corvallis: Oregon State University Press.

