Perennial sow thistle

Sonchus arvensis L.

Family: *Asteraceae* (Sunflower).

Other Scientific Names: *Sonchus uliginosus.*

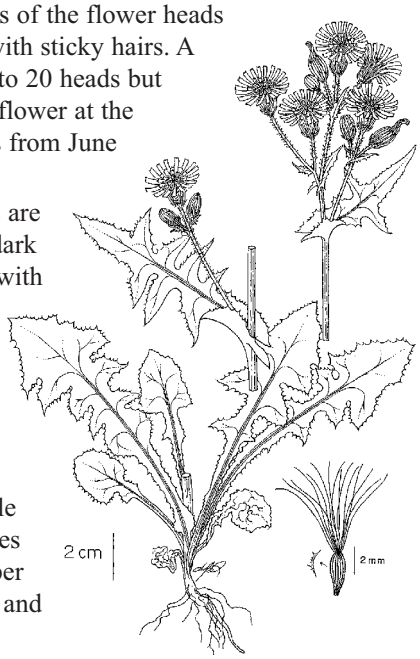
Other Common Names: Creeping sow thistle, field sow thistle, field milk thistle, gutweed, swine thistle, marsh sow thistle.

Legal Status: Provincial Noxious.

Identification

Growth form: Perennial forb.

Flower: Small, yellow, dandelion-like flower heads are grouped in loose clusters up to 5 cm across. The clusters are borne on glandular stalks and the bracts of the flower heads are often covered with sticky hairs. A plant may have up to 20 heads but usually only a few flower at the same time. Flowers from June to September.



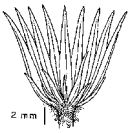
Seeds/Fruit: Seeds are 2.5–3.5 mm long, dark brown, and ribbed with a parachute-like pappus (Douglas et al. 1998).

Leaves: Leaves are alternate with weakly prickled margins and variable shapes. Lower leaves are stalked, but upper leaves are stalkless and clasp the stem.

Stems: Mature plants are 0.4–2.0 m tall. The single stems are erect and branched only near the top. The stems exude a milky juice when cut.

Roots: Perennial sow thistle has a vigorous root system with a deep vertical root as well as fleshy, spreading, horizontal roots.

Seedling: The first leaves are spatula-shaped and have irregular teeth that point downward and have a prickle on the tip (Royer and Dickinson 1999).



Similar Species

Exotics: Perennial sow thistle differs from annual sow thistle (*Sonchus oleraceus*) by its extensive creeping roots and larger flower heads. Prickly lettuce (*Lactuca serriola*) has smaller flowers, but its leaves are prickly on the underside midrib (Frankton and Mulligan 1970).

Natives: Several native lettuces (*Lactuca* sp.) resemble perennial sow thistle, but they either lack the extensive, creeping root system, or, in the case of blue lettuce (*Lactuca tatarica*), the flowers are blue.

Impacts

Agricultural: An aggressive, creeping weed that can severely reduce yields in cultivated fields and grain fields. It is not easily managed with chemicals or cultivation (Alberta Environmental Centre 1983). This weed is an alternate host for several viral diseases.

Ecological: Sow thistle is able to invade both natural habitats and disturbed sites, where it competes for light, nutrients, light, and space. It can establish and become a serious problem on marshes, ponds, and other riparian areas. Chemicals from the roots and decaying residue from old growth inhibit seed germination of other species.

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

Habitat and Ecology

General requirements: Adapted to a wide range of environmental conditions but is most competitive in temperate climates with abundant moisture. Does best on sites in fertile, moist soils in full sunlight (Zollinger and Parker 1999). Grows on dry to moderately dry roadsides, disturbed areas, cultivated fields, and riparian areas.

Distribution: Present in all agricultural regions of BC and a major concern in the Peace River region. It occurs in all Canadian provinces and throughout the northern US and is especially troublesome in the Prairie provinces (Zollinger and Parker 1999).

Historical: Introduced from Europe, likely in seed crops.

Life cycle: Perennial sow thistle spreads by creeping horizontal roots and seed. The above-ground portion of the plant dies over winter, and new shoots emerge from buds on the roots in spring. Plants flower from July to September, depending on geographic location. Seeds are dispersed in the autumn and can germinate to overwinter as rosettes or germinate in spring.

Mode of reproduction: By seed and vegetatively from roots.

Seed production: Seed production is highly variable, depending on weather conditions, and ranges from 1,400 to 35,000 seeds/m^2 (Zollinger and Parker 1999).

Seed bank: Seeds are relatively short-lived, with viability decreased by nearly half after 2 years.

Dispersal: Mainly by wind, but some birds feed on the seeds.

Hybridization: No information available.

Management

Biocontrol: Two insects have been approved for release in Canada, but neither are currently available in BC. *Tephritis dilacerata* (fly) attacks the seed heads, while *Cystiphora sonchi* forms galls on vegetative parts of the plant. Several pathogens are being tested in Canada and the US. Sow thistle is palatable to cattle and sheep, and heavy grazing can manage some populations.

Mechanical: Intensive cultivation (every 3–4 weeks) over a long period can kill sow thistle by exhausting root reserves, but intermittent tillage simply spreads the roots and increases distribution. Mowing prior to flowering can prevent seed production, but several mowings are required because of perennial sow thistle's long flowering period (Zollinger and Parker 1999).

Fire: No information available.

Herbicides: Sow thistles are relatively resistant to herbicides, and high rates are required to kill the extensive root system. Sub-lethal concentrations may increase root shoot growth (Zollinger and Parker 1999). Clopyralid, dicamba, 2,4-D, picloram, and glyphosate have been effective when plants are at the pre-bud or bud stage. Glyphosate is non-selective and is used to prepare a seedbed for re-vegetation. Sow thistles have waxy leaves, so the spray solutions must have good wetting ability. 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: New populations can be prevented by hand-pulling or cultivation before their extensive root systems establish. Seed disturbed areas to perennial grasses and forbs to provide ground cover and competition against this weed.

Integrated Management Summary

Perennial sow thistle management on cultivated areas involves an integrated approach of intensive cultivation, competitive crops, selective herbicides, or a combination of all 3. On rangeland and undisturbed areas, seedlings from new infestations can be removed by hand-pulling or herbicides, while 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

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