

perennial sowthistle

Sonchus arvensis L.

Synonyms: *Sonchus arvensis* var. *glabrescens* Guenth., Grab.& Wimmer, *S. uliginosus* Bieb.

Other common name: field sowthistle, marsh sowthistle, moist sowthistle, perennial sowthistle, sowthistle

Family: Asteraceae

Invasiveness Rank: 65 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 ecosystem.

Description

Perennial sowthistle is a succulent, rhizomatous, perennial plant that grows up to 122 cm tall with extensive root systems that grow down to 3 m deep. All parts of the plant contain a white, milky juice. Leaves are alternate, lanceolate, and 6.5 to 40.5 cm long with clasping bases and soft-prickly margins that vary from deeply toothed to nearly entire. Flower heads are bright yellow and 2.5 to 5 cm wide. Involucral bracts and flower stalks may be hairless or with yellow gland-tipped hairs depending on the subspecies. Seeds are dark brown, prominently ridged, and wrinkled with tufts of soft, white bristles (Royer and Dickinson 1999, Whitson et al. 2000).



Perennial sowthistle (*Sonchus arvensis* L.)

Similar species: The two subspecies *Sonchus arvensis* ssp. *uliginosus* and *S. arvensis* spp.

arvensis are often mistaken for one another. The main difference is that *S. arvensis* ssp. *arvensis* has glandular hairs on the involucral bracts and flower stalks, while *S. arvensis* ssp. *uliginosus* floral bracts are hairless and green with white margins (Royer and Dickinson 1999, Whitson et al. 2000).



Involucral bracts of *Sonchus arvensis*.

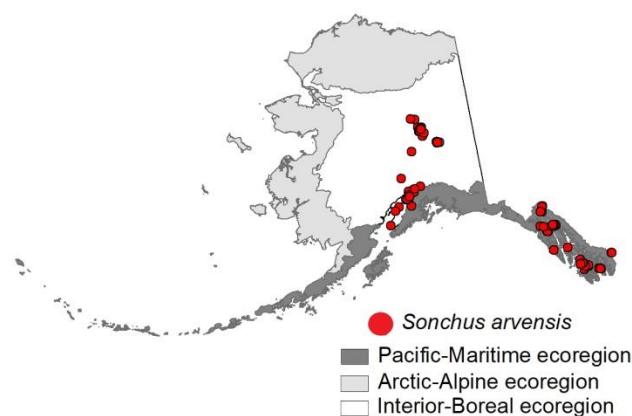
Distribution and Abundance

General information about distribution/range: Perennial sowthistle is common on disturbed soils, and is found in gardens, cultivated areas, roadsides, and fertile waste areas (Rutledge and McLendon 1996, Whitson et al. 2000). It can also grow in disturbed sites in prairies, woods, meadows, lawns, stream banks, and lake shores (Gubanov et al. 1995, Butterfield et al. 1996, Noxious Weed Control Board 2003). Perennial sowthistle is a facultative upland (FACU) species in Alaska and most of the U.S., meaning it usually occurs in non-wetlands but may occur in wetland habitats (USDA, NRCS 2018).

Native and current distribution: Perennial sowthistle is native to Europe, western Asia, and Iceland. It has spread widely throughout North America and is found in 43 U.S. states and all Canadian provinces except Nunavut (USDA, NRCS 2018). It is also established in South America, northern Africa, Australia, and New

Zealand (Noxious Weed Control Board 2003, GBIF 2018). *Sonchus arvensis* has been documented from the Pacific Maritime and Interior-Boreal ecogeographic regions of Alaska (AKEPIC 2018).

AKEPIC database link and information regarding Alaska's non-native plant species is available online: <http://accs.uaa.alaska.edu/invasive-species/non-native-plants>



Distribution of perennial sowthistle (*Sonchus arvensis* L.) in Alaska.

Legal Listings

- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states (AZ, CO, CT, HI, IA, ID, IL, IN, MA, ME, MI, SD, VA, VT, WA, WY)
- Federal noxious weed
- Listed noxious in Canada or other countries (AB, BC, MB, QC, SK)

Ecological Impact

Impact on community composition, structure, and interactions: Perennial sowthistle is a strong competitor with agricultural and horticulture crops in cultivated fields, and is known to inhibit seed germination of native species (Weeds BC 2004, CABI 2018). At high densities, perennial sowthistle drastically reduces water resources. It can be a vigorous competitor for soil minerals and potentially decrease the number of plant species in communities (Lemna and Messersmith 1990, Zollinger and Kells 1993). It is a known host for a number of plant pests. Perennial sowthistle is acceptable feed for rabbits and other foraging animals (Lemna and Messersmith 1990).

Impact on ecosystem processes: Perennial sowthistle may modify or retard the successional establishment of native species (Butterfield et al. 1996).

Biology and Invasive Potential

Reproductive potential: Perennial sowthistle reproduces sexually by seeds and vegetatively from rhizomes. Each plant can produce 4,000 to 13,000 seeds (Stevens 1957, Rutledge and McLendon 1996, Royer and Dickinson 1999). Seeds can remain dormant in the soil for up to six years, however, less than 40% of the seeds are viable (Rutledge and McLendon 1996, Royer and Dickinson 1999). Most seeds germinate within the first year (Robert and Neilson 1981). Perennial sowthistle can produce new plants from rhizome buds at depths of down to 61 cm. Spreading rootstocks are the primary means of invasion into new areas (Rutledge and McLendon 1996, Royer and Dickinson 1999).



Flower head of *Sonchus arvensis*.

Role of disturbance in establishment: Perennial sowthistle generally requires disturbances to establish (Butterfield et al. 1996), however it has been recorded to have a moderate impact on natural communities in Pipestone National Monument in Minnesota, and has been found in mid-successional sites that were disturbed within the last 11 to 50 years (Butterfield et al. 1996). It has also been found in Rocky Mountain National Park of

Colorado (Rutledge and McLendon 1996).

Potential for long-distance dispersal: Each seed has a pappus and can be spread by wind (Rutledge and McLendon 1996, Royer and Dickinson 1999). Seeds can also become attached to animals (Butterfield et al. 1996).

Potential to be spread by human activity: Seeds can be moved on vehicles and farm equipment. They have been documented as contaminants in commercial seeds and hay (Lemna and Messersmith 1990, Butterfield et al. 1996).

Germination requirements: Seedlings require a continual water supply for germination. Seedlings emerged from less than one inch seeding depth have higher rate of survival and establishment (Hakansson and Wallgren 1972). The optimal temperature for germination is between 25°C and 30°C. Vegetation cover and litter promote germination (Butterfield et al. 1996, Rutledge and McLendon 1996, Royer and Dickinson 1999).

Growth requirements: Although perennial sowthistle is adapted to a variety of soils, it grows best on rich, non- compacted, moist, fine-textured soils with pH between 5.2 and 7.2. Perennial

sowthistle can survive temperatures as low as -16°C (Butterfield et al. 1996, Rutledge and McLendon 1996).

Congeneric weeds: Spiny sowthistle (*Sonchus asper*) and common sowthistle (*S. oleraceus*) are non-native weeds known to occur in Alaska (AKEPIC 2018). All *Sonchus* species are considered noxious weeds in Ontario. Common sowthistle is considered a noxious weed in Alberta, British Columbia, Manitoba, Quebec, and Saskatchewan (Whitson et al. 2000, Invaders 2010).

Management

Biological, chemical, and mechanical control methods have been used on perennial sowthistle. Mechanical treatments must be repeated several times per growing season for multiple, consecutive years to reduce seed production and root reserves. Perennial sowthistle is relatively resistant to many common broadleaf herbicides (Butterfield et al. 1996, Rutledge and McLendon 1996). Mowing and tillage have been effective at controlling perennial sowthistle, and a combination of mechanical and chemical methods is recommended (Lemna and Messersmith 1990).

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