

annual sowthistle

Sonchus oleraceus L.

Synonyms: none

Other common name: common sowthistle

Family: Asteraceae

Invasiveness Rank: 46 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

Annual sowthistle is an annual or biennial that grows up to 1.4 m tall from a short, pale taproot. The plant is glabrous and excretes a milky juice when broken. Stems are erect, single, and branched above. Stem bases are thick and hollow. Leaves are oblong to obovate or lanceolate and have lobes that are pinnate or runcinate. Leaves are 6 to 35 cm long, 1 to 15 cm wide, and alternate. Stem leaves lack stalks and have straight or slightly downward-curved, acute basal lobes. Leaf margins may be weakly or scarcely prickly and are soft to touch. Three whorls of involucre bracts surround the flower heads. These involucre bracts are 9 to 13 mm long and lanceolate, narrowing to slender tips. Flower heads consist of 25 to 150 ligulate, yellow ray florets. Each flower head is 1.5 to 2.3 cm in diameter. Seeds are brown and flattened with two to four lengthwise ribs and a white pappus (Hutchinson et al. 1984, Hyatt 2006, DiTomaso and Healy 2007, Klinkenberg 2010, NatureGate 2010).



Sonchus oleraceus L. Photo by C. Evans

Similar species: Perennial sowthistle (*Sonchus arvensis*) and spiny sowthistle (*Sonchus asper*), are similar, non-native weeds that grow in Alaska. Perennial sowthistle can be distinguished by its creeping roots and involucre bracts that are 15 to 22 mm long, whereas spiny sowthistle can be distinguished by its rounded, strongly downward-curved basal lobes on its upper leaves. Also, the leaves of spiny sowthistle are toothed or, rarely, less deeply lobed than the leaves of annual sowthistle. Unlike annual sowthistle, the leaf margins of spiny sowthistle are more prickly and prickly to the touch (Hultén 1968, DiTomaso and Healy 2007, NatureGate 2010).

Ecological Impact

Impact on community composition, structure, and interactions: Annual sowthistle may increase the density of vegetation and decrease the population sizes of native species in disturbed areas. It is a host for several nematode and aphid species and supports several major plant viruses (Hutchinson et al. 1984). The plant is edible and may be grazed by herbivores (Lewin 1948). Because annual sowthistle is insect pollinated, its presence could alter plant-pollinator interactions (DiTomaso and Healy 2007).

Impact on ecosystem processes: Annual sowthistle may delay natural successional processes or impede the establishment of native species in disturbed areas, but it is unlikely to significantly alter any ecosystem processes.

Biology and Invasive Potential

Reproductive potential: Annual sowthistle reproduces by seed only (DiTomaso and Healy 2007) with each plant producing between 5,200 and 6,800 seeds (Hutchinson et al. 1984). Seeds can remain viable for 10 years in soil and possibly longer (Lewin 1948).

Role of disturbance in establishment: Annual sowthistle only germinates in disturbed areas (Hutchinson et al. 1997), and infestations have only been observed in disturbed areas in Alaska (AKEPIC 2010).

Potential for long-distance dispersal: Each seed has a pappus. Seeds are primarily dispersed by wind but can also be carried by water or spread after ingestion by

birds or small mammals (Hutchinson et al. 1984, DiTomaso and Healy 2007).

Potential to be spread by human activity: The pappus becomes sticky when wet. Seeds can be transported by animals on feathers and fur and by humans on clothing, shoes, vehicles, and machinery. Annual sowthistle has been documented as a contaminant in some commercial grass seed (Hutchinson et al. 1984, DiTomaso and Healy 2007). Some seeds remain viable after passing through the digestive systems of livestock (Lewin 1948).

Germination requirements: Annual sowthistle can germinate on compacted or uncompacted soil. Temperature stratification between 43°F and 77°F, moisture, and light stimulate germination. Germination rates decrease as the burial depths of seeds increase; only 5% of seeds germinate when buried underneath 3 cm of soil. Most seedlings emerge in the late spring but some emerge in the fall (Lewin 1948, Hutchinson et al. 1984, DiTomaso and Healy 2007).

Growth requirements: Annual sowthistle can grow in most soil conditions, including clay and loamy or sandy soils. It grows best on well-drained, nutrient-rich soils with pH levels between 6.5 and 9. It grows well during temperate summers or tropic winters. Annual sowthistle is tolerant of saline soil and can tolerate calcium carbonate (CaCO₃) content up to 55%. Plants that germinate in the fall overwinter as rosettes (Lewin 1948, Hutchinson et al. 1984).

Congeneric weeds: Perennial sowthistle (*Sonchus arvensis*) and spiny sowthistle (*Sonchus asper*) are known to occur as invasive species in Alaska (AKEPIC 2010). Perennial sowthistle is listed as a noxious weed in AK, AZ, CA, CO, HI, IA, ID, IL, MI, MN, NV, SD, WA, and WY. Slender sowthistle (*Sonchus tenerrimus*) is known to occur as a non-native weed in California, Alabama, and New York. Marsh sowthistle (*Sonchus palustris*) is known to occur as a non-native weed in Ontario (USDA 2010).

Legal Listings

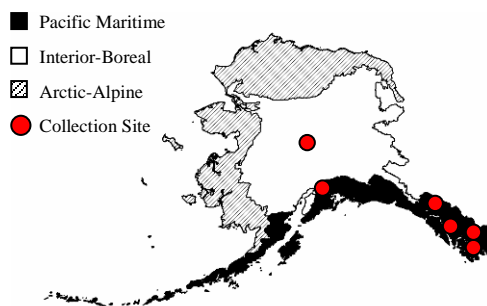
- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states

- Federal noxious weed
- Listed noxious in Canada or other countries (BC, MB, ON, QC, SK)

Distribution and Abundance

Annual sowthistle is a colonizer of waste places, disturbed sites, roadsides, and cultivated areas. It can also grow in riparian and coastal habitats and areas that have been naturally disturbed by grazing, digging, or fire. It is a common annual weed in agricultural fields in Canada and Europe (Lewin 1948, Fenner 1978, Hutchinson et al. 1984, AKEPIC 2010).

Native and current distribution: Annual sowthistle is native to Europe. The plant has been introduced to North America, South America, Asia, Africa, Australia, and New Zealand (Hyatt 2006). It has been collected from subarctic Norway and from a single location in arctic Norway (Vascular Plant Herbarium Oslo 2010). Annual sowthistle grows in the Pacific Maritime and Interior-Boreal ecogeographic regions of Alaska (Hultén 1968, AKEPIC 2010).



Distribution of annual sowthistle in Alaska

Management

Manually removing plants before they release seeds is an effective control measure for annual sowthistle (DiTomaso and Healy 2007). The plant is susceptible to a broad selection of herbicides, although some biotypes may be resistant to herbicides (Hutchinson et al. 1984, Fraga and Tasende 2003).

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