Sonchus oleraceus 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Asterales	Asteraceae

Common name common sow-thistle (English), thalaak (English), sow thistle (English), laiteron potager (French), common sowthistle (English), leita ruga (Portuguese), pualele (English), soft thistle (English), annual sowthistle (English), colewort (English), sow-thistle (English), serralha branca (Portuguese), smooth sow thistle (English), serralha macia (Portuguese), laiteron commun (French), lastron (French), common Milk Sow-thistle (English), hare's lettuce (English), hare's colewort (English), swinies (English), milk thistle (English), milky tassel (English), laiteron maraîcher (French)

Synonym

Similar species *Sonchus asper*

Summary Sonchus oleraceus is an annual herb native to Eurasia and northern Africa. It has been introduced to a wide range of countries around the world. It is a common weed in disturbed areas and is a major problem in agricultural systems mainly due to its role in harbouring diseases and pests. It produces large numbers of seeds that are dispersed by wind.

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Species Description

Sonchus oleraceus is a dicotyledonous winter annual plant in the family Asteraceae. It has a rosette morphology that produces all its leaves, followed by a terminal flowering bud. It has two types of mature leaves: rosette leaves grow in circles from a common centre close to the ground; cauline leaves grow on the upper part of the stem (Holm *et al*., 1977 in Cici *et al*., 2009). Leaves are thin and soft, measuring up to 35cm long and 12cm wide. Leaves are lanceolate to oblanceolate in shape, hairless and dark green in colour with pale white to purple veins (Pethybridge, 2005; Department of Primary Industries, 2010). Stems are five angled and hollow and dark-green in colour (sometimes have a reddish-purple tinge), and emit a milky sap when cut (Virginia Tech, Undated). Plants can grow to 1m or greater in height (Cici *et al*., 2009).\r\n\r\n
Flowers are inflorescences (capitula), and are yellow and 5-6mm in diameter. Capitula are borne on stalks at the end of branches. Flowers open from 6am to 11am. The fruit is an achene that is 2.5-4mm long and 1mm wide, compressed and obovoid in shape (Pethybridge, 2005). Achenes have 3-5 ribs and are rugose in texture. Mature seeds have a white feathery pappus (5-8mm long), that collectively form a white puff ball similar to dandelion (Virginia Tech, Undated). A single plant can produce over 8,000 seeds (Chauhan *et al*., 2005) that are wind dispersed.

Lifecycle Stages

Sonchus oleraceus produces prolific seeds, up to 8,000 per plant (Chauhan *et al*., 2006) which are capable of germinating all year round, particularly after rainfall (CSIRO, 2007). Field tests in Australia showed that *S. oleraceus* seeds can maintain viability for 8 months or more if they remain in the top 2cm of soil, while seeds buried deeper can remain viable for 30 months or more (Chauhan *et al*., 2006). *S. oleraceus* germinates from February to June in California. Seeds that germinate in Autumn overwinter in a vegetative phase as rosettes (Hutchinson *et al*., 1984).

Uses
Sonchus oleraceus may have been used as a food source in the Mediterranean (Leonti et al. 2006). It is also eaten in Africa, both cooked and raw. It is also used to treat a wide variety of infections, diseases and other medicinal uses. A few examples include use as a sedative, a diuretic and to treat salmonella infection, anaemia, wars, eye problems, liver infections, and as a cure for opium addiction (Grubben & Denton, 2004).\r\n\r\n Other uses include food for poultry, rabbits and fodder for cattle (Grubben & Denton, 2004). It has potential to be used as a trap crop for control of insect populations (Grubben & Denton, 2004).

Habitat Description
Sonchus oleraceus can grow on most soil types. It prefers disturbed areas such as fields, pastures, gardens, roadsides, edges of yards, construction sites, waste areas (Pethybridge, 2005), farmland and recently burned fields (Grubben & Denton, 2004). It grows at altitudes of up to 2650m (Grubben & Denton, 2004). On Inaccessible Island *S. oleraceus* is recorded to occur on footpaths, landslides, depressions left by shifting boulders, old settlements/cultivations and rivers (Dean *et al*., 1994).

Reproduction
Sonchus oleraceus reproduces only by seed. The seeds (achenes) are primarily wind dispersed, although have been found attached to clothing (Ridley, 1930 in Guertin, 2003) and in feathers and fur of birds and animals (Zollinger & Parker, 1999 in Guertin, 2003). The height of the plant affects potential dispersal distance (Hutchinson *et al*., 1984). *Sonchus* spp. seeds may also be dispersed by animals being passed through the digestive tract. Flowers are insect pollinated by solitary bees and fly species (Lewin, 1948 in Hutchison *et al*., 1984). Flowers are also self compatible and seeds are produced through self pollination and fertilization (Hutchinson *et al*., 1984).

Nutrition
Seed germination experiments carried out in Australia found that *Sonchus oleraceus* germination can occur over a broad range of temperatures (Chauhan *et al*., 2006; Widderick *et al*., 2010). Seed germination was highest in conditions with light, but some germination occurred in dark as well. While low-level salinity was favoured by seeds, some seeds germinated at high salt concentrations. Germination was inhibited at high osmotic stress levels. This suggests that *S. oleraceus* has some capacity to germinate under conditions of water stress. The pH range for germination was broad, with 90% germination occurring between pH 5 to 8. Germination declined to 77% or greater at pH 8 to 10 (Chauhan *et al*., 2006). Seedling emergence was greatest in seeds placed on the soil surface; no seedlings emerged from seeds placed at 5cm (Chauhan *et al*., 2006) or below 2cm (Widderick *et al*., 2010).

General Impacts
Annual sowthistle (*Sonchus oleraceus*) is a major problem as invaders of many crops, particularly of open vegetable fields. It is particularly problematic in winter crops and in tillage systems throughout southern Australia, South-East Queensland and Northern New South Wales. It uses valuable stored soil moisture during fallow periods, which reduces the yield of future crops (Widderick *et al*., 1999 in Widderick *et al*., 2010).\r\n\r\n *S. oleraceus* is also an important alternative host of pests and diseases of crops (CSIRO, 2007). It is a known host of a wide range of viral diseases including watermelon mosaic virus (WMV), pepino mosaic virus (PepMV), tomato spotted wilt virus (TSWV) and alfalfa mosaic virus (AMV). It is the host for the economically significant castor whitefly (*Trialeurodes ricini*), *Bemisia* whiteflies, cotton bollworm (*Helicoverpa armigera* and the nematode *Radopholus similis* (Grubben & Denton, 2004). It is also likely to be an important host for downy mildew (*Bremia lactucae*), one of the worst diseases of lettuce which is an important vegetable crop worldwide (Vieira & Barreto, 2006).

Management Info
Physical Control: Small or isolated populations of *Sonchus oleraceus* may be manually removed while plants are young, prior to seed set. The taproot must be removed, as resprouting can occur if left in the soil (Elkhorn Slough National Estuarine Research Reserve, 2000 in Guertin, 2003). Slashing is often ineffective as flowers continue to be produced (FloraBase, 2010). Minimal tillage of crops is recommended as this will maintain most of the seed bank close to the soil surface, which favours seed germination, enhances emergence and promotes seed decay and predation. If the seedlings are controlled effectively for a 6-12 month period, this type of control should greatly reduce the seed bank (Widderick *et al*., 2010). Mulching and soil sterilisation methods can complement other management efforts (Elkhorn Slough National Estuarine Research Reserve, 2000 in Guertin, 2003).\r\n
Grazing: Grazing of *Sonchus* spp. by cattle and sheep effectively suppresses infestations in pastures, and weakens plants allowing other control methods to be more effectively used (Zollinger & Parker, 1999 in Guertin, 2003). They also make excellent feed for livestock.\r\n
Chemical Control: For control of Sonchus spp. (asper and oleraceus), a pre-emergent herbicide containing isoxaben can be used, herbicidal soaps when the plants are young, or glyphosate when plants are mature. Zollinger and Parker (1999 in Guertin, 2003) recommend 2,4-D, clopyralid, dicamba, glyphosate, and picloram for control of *Sonchus* spp., while Rice (1992 in Guertin, 2003) 2,4-D, DCPA, diethatyl-ethyl, MCPA, amitrole, atrazine, bromoxynil, chlorsulfuron, dicamba, dichlorprop & 2,4-D, diuron, glyphosate, isoxaben (Snapshot), norflurazon, oryzalin, oxyfluorfen, paraquat, Ornamental Herbicide II, napropamide, simazine and tebuthiuron.\r\n
Sonchus oleraceus has developed resistance to chlorsulfuron in southern Queensland and northern New South Wales (Adkins et al. 1997 in Chauhan et al. 2006) atrazine (CSIRO, 2007), and all lettuce (*Lactuca sativa*) herbicides (University of California Riverside, Undated in Guertin, 2003). A recent study carried out in California also found methyl bromide and alternative fumigants to be ineffective against *S. oleraceus* (Shrestha *et al*., 2009). Apparently spot spraying of Lontrel® 10ml/10L with a wetting agent can be used to control the plant, preferably at the rosette stage (FloraBase, 2010).\r\n
Biological Control: Biological agents are currently being researched as a possibility for managing *S. oleraceus* and other *Sonchus* species in Australia (CSIRO, 2007). *Sonchus* species have previously been the target of biological control in Canada (Peschekn, 1984 in CSIRO, 2007). Preliminary surveys for biological control agents have been made in southern France and northern Europe (Scott & Jourdan, 2005; Peschken, 1984). Currently the rust fungus *Miyagia pseudosphaeria* and an unidentified eriophyid mite species are two widespread organisms in Australia with potential for control. The CSIRO project will focus on determining the impact of these potential control agents on related native Australian species (*Sonchus hydrophilus* and *Actites megalocarp* and on weedy *S. oleraceus* and *S. asper* (CSIRO, 2007).

Pathway

Principal source:

Compiler: IUCN/SSC Invasive Species Specialist Group (ISSG) with support from the EU-funded South Atlantic Invasive Species project, coordinated by the Royal Society for the Protection of Birds (RSPB)
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[1] AUSTRALIA
[11] CANADA
[1] BRAZIL
[1] FALKLAND ISLANDS (MALVINAS)

[2] FRENCH SOUTHERN TERRITORIES
[1] NEW ZEALAND
[5] SAINT HELENA
[1] UNITED KINGDOM
[1] VIRGIN ISLANDS, U.S.

[1] GREENLAND
[1] PUERTO RICO
[1] SAINT PIERRE AND MIQUELON
[51] UNITED STATES

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Summary: Available from: http://sdrsnet.srnr.arizona.edu/data/sdrs/ww/docs/sonc_spp.pdf [Accessed 30 July, 2010]

IUCN/SSC Invasive Species Specialist Group (ISSG)., 2010. A Compilation of Information Sources for Conservation Managers.
Summary: This compilation of information sources can be sorted on keywords for example: Baits & Lures, Non Target Species, Eradication, Monitoring, Risk Assessment, Weeds, Herbicides etc. This compilation is at present in Excel format, this will be web-enabled as a searchable database shortly. This version of the database has been developed by the IUCN SSC ISSG as part of an Overseas Territories Environmental Programme funded project XOT603 in partnership with the Cayman Islands Government - Department of Environment. The compilation is a work under progress, the ISSG will manage, maintain and enhance the database with current and newly published information, reports, journal articles etc.

Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.
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