Senecio jacobaea 简体中文 正體中文

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Asterales	Asteraceae

Common name

Synonym *Jacobaea vulgaris* , Gaertn

Similar species *Senecio aquaticus, Tanacetum vulgare, Senecio sylvaticus*

Summary Senecio jacobaea is a highly invasive, noxious weed which is known to invade pastoral land. It has detrimental impacts on livestock, due its highly toxic alkaloid content.

view this species on IUCN Red List

Species Description

Senecio jacobaea is categorised as a biennial plant. However, several studies have found it to demonstrate annual and perennial properties depending on environmental factors (Wardle, 1987). In the first year of its biennial stage, *S. jacobaea* is in the rosette stage. It has dark green, basal leaves which are typically 5-20cm in length and 4-6cm in width with whitish, slightly hairy underside. The blunt toothed lobes of the leaves contribute to the ruffled appearance of the rosette. Seeds of outer (ray) florets are hairless and are normally 2mm long, while those from the inner (disc) florets have fine bristles up to 5mm in length. In the second year, flowering takes place with one or several stems, growing up to 1.2m. Leaves on the flowering stems are sessile, occurring in an alternating pattern. The flower head itself has a daisy-like appearance, consisting of disc florets as well as ray florets and is usually 2.5cm across in diameter. One of the more notable characteristics of the ray flowers is its 11-15 yellow petals, each being 5 – 10mm long. *S. jacobaea* has a fibrous taproot and is typically associated with a large rootstock (NWCB, 2008).

Lifecycle Stages

The production of the seed is typically followed by the death of the individual plant (Sharrow , 1988). The majority of the seeds germinate in autumn, though delayed germination in spring can occur (Harper and Wood, 1957). Under favourable conditions, ragwort seeds are capable of a lengthy dormancy period of up to 8 years. Even after this period, the seed viability remains considerably high, especially when it is buried at lower depths (Wardle, 1987). It is likely that *S. jacobaea* utilises at least two distinct strategies for germination. This follows from the fact that disc achenes demonstrated greater dispersal in space than ray achenes. In addition, the disc achenes were more successful in germination compared to ray achenes under the same conditions (Warlde, 1987).

Uses

The juice of the plant is cool and astringent and is traditionally used as a wash for burns, sores, cancerous ulcers and eye inflammations (Grieve, 1987). Additionally, green and yellow dyes can be made from the leaves and the flowers of the plant respectively.

Habitat Description
Senecio jacobaea invades disturbed sites including roadsides, pastures and forest clearings (Macdonal & Russo, 1989). Records show that the distribution of the species is unlikely to be affected by extreme weather, although some cases have noted that a decrease in its population may be correlated with dry summers (Harper and Wood, 1957). Additionally, *S. jacobaea* distribution may be influenced by soil moisture, but not by soil acidity or texture (Sharrow *et al*, 1988).

Reproduction
Senecio jacobaea is known to be highly variable with regards to its reproductivity. For example, one study in Ruakura, New Zealand, showed that plants produced 1,000 to 2,500 capitula per season, with each capitulum containing 55 seeds. Whereas in the United Kingdom, *S. jacobaea* produced between 68 to 2,489 capitula per year and 70 seeds per capitulum (Wardle, 1987). Additionally, *S. jacobaea* is capable of reproducing vegetatively. The underlying mechanism is thought to be by basal branching, whereby the root connection with the parent plant decays, allowing each stem to form a new plant (Wardle, 1987).

Nutrition
Research indicates that *Senecio jacobaea* seeds requires light for germination, while maximum germination (92.5%) occurs during 15°C and 29% soil moisture content (Wardle, 1987).

General Impacts
In most introduced regions, *Senecio jacobaea* is considered to be an agricultural pest. It contains a highly potent pyrrolizidine alkaloid which is severely toxic to livestock, especially cattle and horses and to a lesser extent, sheep (Wardle, 1987). Also, *S. jacobaea* is known to invade disturbed native forests and woodlands, where it threatens biodiversity (DPI, 2007). Its high mortality rate after flowering leaves open bare patches on the pasture, allowing invasion of other noxious weeds which may further disrupt the ecological balance (DPIW, 2008).

Management Info
Management of *Senecio jacobaea* is tackled *via* an integrated approach, whereby a number of different preventative and control measures are used in conjunction with one another.
The Ragwort Control Guide outlines all the Do's and Don'ts of ragwort control, including all the control and management options. The Herbicides for Ragwort control page lists all the herbicides that can be used for ragwort control, including application methods and concentrations.
Preventative measures: A wide range of preventative measures can be utilised to control further spread of ragwort. For example, ensuring that seed for planting is not contaminated with the seeds of *S. jacobaea*; using thoroughly cleaned vehicles, machinery and equipment; quarantine of heavily infested areas and careful disposal of plant seeds or flowers (DPI, 2007).
Physical: The most commonly adopted method is handpulling or grubbing, with the primary objective being preventing the plant from producing seed. Due to the plant's regenerative properties, manual control must ensure that the entire crown and roots of the plants are removed. Cultivation of the soil should be carried out systematically to reduce regrowth. For example, the soil should be cultivated to a depth of at least 15cm in spring, with timed seasonal cropping programmes coupled with pasture improving regimes (DPI, 2007). Additionally, in Australia DPI (2007) suggests that afforestation with radiata pine or eucalyptus plantation can effectively suppress the spread of *S. jacobaea via* competition as well as acting as a windbreak and limiting seed dispersal (DPI, 2007).
Chemical: The best time for application is during the active growth phase of the plant, such that the pesticide is taken up by the crown and the root which is situated deep beneath the surface. A programme requires re-application and should primarily be targeted at the seedlings and rosettes during autumn and spring. It may be more effective to use herbicides that are selective for broadleaf weeds, so that other vegetation is left to compete with remaining ragwort. *S. jacobaea* can be chemically controlled *via* the use of 2,4-D and/or dicamba. In order for this method to be effective, the herbicides should be applied during certain developmental stages. For example, 2,4-D nets the best results when applied to seedlings and first year rosettes. A combination of 2,4-D and dicamba is shown to be successful just after the bolting phase (Macdonal & Russo, 1989).
Biological: Sheep appear to be less susceptible to the alkaloid toxicity and thus, heavy grazing can be an effective form of prevention, although it has been shown that even after extensive grazing, regrowth can rapidly occur after the removal of the stock. Thus animal grazing should be used as supplementary scheme only. In its native range, *S. jacobaea* has a number of natural predators, namely the cinnabar moth (*Tyria jacobaeae*), tansy ragwort seed fly (*Pegohylemyia seneciella*) and tansy ragwort flea beetle (*Longitarsus jacobaea*). The absence of these insects in the introduced range is thought to be directly responsible for its establishment in the respective regions. As a result, the introduction of these natural predators has shown to be an effective means of keeping the population of ragwort in balance (Macdonal & Russo, 1989).

Principal source:

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ALIEN RANGE

[2] AUSTRALIA
[1] FALKLAND ISLANDS (MALVINAS)
[2] UNITED STATES
[1] CANADA
[6] NEW ZEALAND

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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.
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