Senecio tasmanicus

Tasmanian fireweed

TASMANIAN THREATENED SPECIES LISTING STATEMENT

(specimen from the Tasmanian Herbarium)

Scientific name: ***Senecio tasmanicus*** I.Thomps., *Muelleria* 19: 158 (2004)
Common name: tasmanian fireweed
Group: vascular plant, dicotyledon, family **Asteraceae**

Status: *Threatened Species Protection Act 1995*: **Presumed extinct**
Environment Protection and Biodiversity Conservation Act 1999: **Not listed**

Distribution: Biogeographic origin: **endemic to Tasmania**
Tasmanian Natural Resource Management regions: **(North)**
Tasmanian IBRA Bioregions (V6): **(Northern Midlands)**

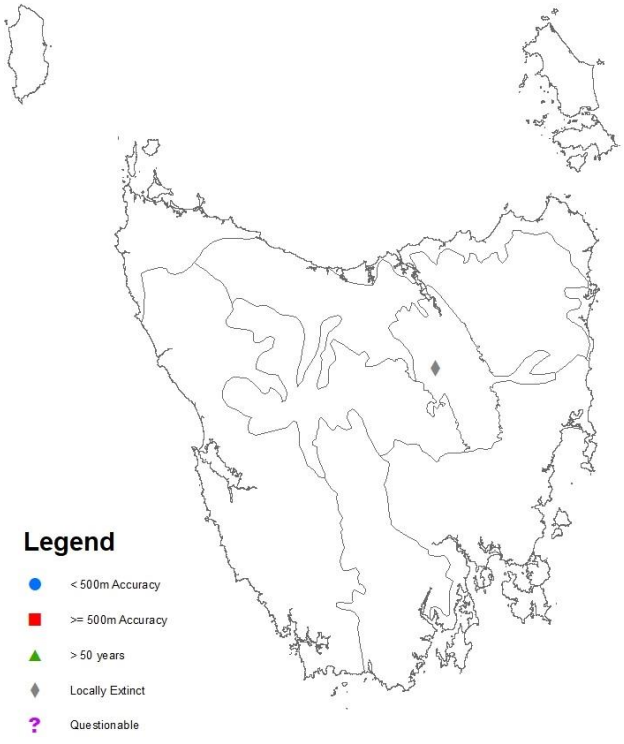

Figure 1. Distribution of *Senecio tasmanicus*, showing IBRA bioregions (V6)

Plate 1. *Senecio tasmanicus*
(specimen from the Tasmanian Herbarium)

SUMMARY: *Senecio tasmanicus* (Tasmanian fireweed) is a perennial herb known only from Tasmania where it is now presumed extinct. The species was collected from the northern Midlands at an unspecified location in the 1800s. The presumed habitat was lowland plains near swamps. Historical land clearing may explain the presumed extinct status of the species in Tasmania. Re-discovery of the species remains a possibility.

IDENTIFICATION AND ECOLOGY

Species of *Senecio* are usually annual to short-lived perennial herbs known as fireweeds or groundsels. They are categorised by the form of the capitulum (the compound flowerhead). Radiate capitula can be seen in the typical garden daisy, with a heart of tubular florets (disk florets) surrounded by ray florets with their radiating ligules. Non-radiate capitula do not have ray florets. They are categorised as disciform if the central florets are bisexual and the outer florets are female and, in Australian *Senecio*, the outer florets have a more slender and fewer-lobed corolla; or discoid if all florets are bisexual. *Senecio tasmanicus* is one of 17 disciform species in Tasmania, one of 38 *Senecio* taxa native to Tasmania (de Salas & Baker 2019), five of which are currently listed as threatened. There are 226 native taxa in the Asteraceae family (de Salas & Baker 2019).

Species of *Senecio* reproduce by seed (referred to as achenes), which are usually produced in high numbers on each plant and are wind-dispersed as most species have seeds with a long pappus (a ring of very fine bristles or hairs at the tip of the body of the achene) that aid in dispersal. As such, species of *Senecio* are often one of the first colonisers of bare and disturbed ground and can produce locally and temporarily dense occurrences that are short-lived and decrease as competition with other plants progresses. As *Senecio tasmanicus* may occur on river verges in flood-prone habitats it is likely that seed is also spread by flood waters, with flood-scoured areas providing recruitment niches. It is not known whether the species germinates from soil-stored seed.

Survey techniques

The peak flowering period of most species of *Senecio* is spring through summer and into autumn, but the detection window is likely to be much wider, although confirmation of identification usually requires mature achenes (Wapstra et al. 2008). The collection from near Cressy was dated 11 April 1844.

Description

Senecio tasmanicus is an erect perennial herb, to 0.40 m tall, with an inconspicuous taproot and fleshy secondary roots to about 1.5 mm diameter. The stems are sparsely appressed-cottony or nearly glabrous.

The leaves in the middle third of the stems become distinctly wider-spaced and narrower upwards, and are oblanceolate to very narrow-elliptic and 3 to 8 cm long with a length:width ratio of about 6:15. The leaves are either not dissected or coarse-dentate with 2 to 4 segments per side in middle third and spreading and triangular with an attenuate leaf base and margins with scattered denticulations or teeth. The upper surface is sparsely scabridulous or nearly glabrous and the lower surface is green with scattered short coarse hairs, often with a cobwebby overlay. The uppermost leaves are narrow-linear with a length:width ratio of about 15:30 and not dissected, the base sometimes with very small and entire auricles and surfaces sparsely cobwebby or glabrous.

The unit inflorescence is of several capitula. The total number of capitula per stem about 8 to 20 with overtopping not marked. The mature lateral peduncles are mostly 20 to 50 mm long. There are 3 to 6 calycular bracteoles, each 2 to 4 mm long. The peduncle and margins of the bracteoles are glabrous or nearly so at anthesis. The involucre is 9 to 11 mm long and 2 to 4 mm in diameter. There are 12 to 16 green or partially purple phyllaries that are minutely black at the tip and sometimes purple in a zone about 1 mm long immediately below the tip. The phyllaries are glabrous with an erect apex and more or less flat stereomes (in dried specimens).

There are 40 to 60 florets of which about 75% are female. The corolla lobes are more or less triangular and hardly thickened apically.

The corolla of the bisexual florets is 6.5 to 8 mm long and 4- or 5-lobed. The female florets have 3 or 4 corolla lobes about 0.1 mm long. The achenes are lageniform, 5 to 7 mm long with the neck 2 to 3 mm long, and are light brown with papillose hairs scattered in lines, the length:width ratio of hair about 1:2. The pappus is about. 7 mm long.

[description based on Thompson 2004; for terminology refer to Wapstra et al. (2008)]

Confusing species

Senecio tasmanicus is similar to *Senecio macrocarpus* (presumed extinct in Tasmania) in capitulum length (but not width) and in having inflorescences of few capitula (Thompson 2004). *Senecio tasmanicus* has similarities with some mainland species for which detection in Tasmania remains a possibility, namely *Senecio longicollaris,* the similarities being in terms of achene morphology in particular but also in leaf and stem indumentum, and *Senecio dolicocephalus,* in habit and capitular dimensions (Thompson 2004).

Senecio tasmanicus is part of a small suite of superficially similar and uncommon species that can occupy broadly similar poorly-drained habitats in Tasmania (e.g. *Senecio campylocarpus, Senecio longipilus*, *Senecio macrocarpus*, *Senecio psilocarpus*), though the very long slender capitula and very long lageniform achenes of *Senecio tasmanicus* are distinctive. Wapstra et al. (2008) provides a key to Tasmanian species of *Senecio*, but the descriptions in Thompson (2004) should be used in conjunction with this key to confirm the identification given the possibility of finding new species for Tasmania. However, confirmation of suspected specimens of *Senecio tasmanicus* by specialists familiar with the species-group should be sought. As with most *Senecio* material, roots, lower stems, as well as lower, middle and upper stem leaves are usually required to correctly identify a species.

DISTRIBUTION AND HABITAT

Senecio tasmanicus is endemic to Tasmania (Figure 1) but has not been recorded since the 1800s. The species is considered most likely to grow in lowland plains near swamps (Thompson 2004, 2015).

POPULATION PARAMETERS

Senecio tasmanicus is no longer thought to be extant given that the species has not been recorded or collected since the 1800s. There are only two confirmed collections of *Senecio tasmanicus,* one from a property near Cressy (Table 1) and the other from an unspecified location in Tasmania. Based on the collection history of the collectors, it is possible that both collections were from the same location, if not the same subpopulation (Stillwell 1969, Buchanan 1988). There is no information available on population size or abundance for either collection.

Wapstra et al. (2008) considered listing the species on the basis of only two collections to be premature, especially as the species had only been described a few years earlier (Thompson 2004). However, since that time, field workers have become much more familiar with the revised taxonomy of the genus and extensive areas of potential habitat have been surveyed, mainly in relation to major irrigation schemes, with no novel sites detected. The presumed potential habitat (i.e. poorly-drained habitats such as flood-prone pastures, grasslands and river banks) is still relatively common. Therefore, the possibility of re-discovering the species must not be discounted, considering several recent re-discoveries of plant species in Tasmania, including species of *Senecio* (e.g. Wapstra et al. 2006), and the wider collection of some species of *Senecio* with increasing familiarity, e.g. *Senecio campylocarpus* (Wapstra 2010) and *Senecio psilocarpus* (Wapstra 2011).

Table 1. Population summary for *Senecio tasmanicus*

Location	Subpopulation	Tenure	NRM region	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of individuals
1	1. Near Cressy	unknown	North	unknown	11/04/1844	unknown	unknown

RESERVATION STATUS

Senecio tasmanicus is unreserved.

CONSERVATION ASSESSMENT

Senecio tasmanicus qualifies as presumed extinct on Schedule 3 of the Tasmanian *Threatened Species Protection Act 1995* because there has not been a confirmed collection for more than 50 years.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

The understanding of threats to potential habitat for *Senecio tasmanicus* below are somewhat based on the presumed habitat of lowland plains in swampy areas. An understanding of management issues will, however, require monitoring of occurrences, particularly in response to disturbance, if and when the species is rediscovered. While the impetus to survey for the species is somewhat lessened by the fact that the species is considered to be extinct, the revised taxonomy (Thompson 2004) and field key (Wapstra et al. 2008) has facilitated the rediscovery of some species of *Senecio* and new occurrences for the less common species in recent years, improving the likelihood of rediscovery of *Senecio tasmanicus*.

Land clearing: Thompson (2004) stated that it was likely that the habitat of *Senecio tasmanicus* had been destroyed by land clearing since the time of collection in the 1880s. Collections of other species listed as extinct in Tasmania had been made from the same property near Cressy, namely *Myriophyllum glomeratum* (the only known Tasmanian site), and *Prostanthera cuneata* (probably having been washed down from higher altitude sites), noting that both species are still extant on mainland Australia. Land clearing, particularly for agricultural purposes, remains a potential threat for as yet undetected sites, exacerbated by the likely small size of occurrences if found.

Climate change: It is possible that even minor shifts in average seasonal conditions, particularly the changes in rainfall patterns associated with climate change in Tasmania, may have an adverse impact on as yet undetected sites for this species.

Given its likely preference for damper sites in relatively dry lowland areas, the risk to the species is exacerbated, particularly given the expected small size of occurrences. In particular, the change in rainfall patterns has increased pressure for new and expanded irrigation schemes that tend to focus on the presumed preferred habitat of the species.

MANAGEMENT STRATEGY

Management objectives

The main objectives for the recovery of *Senecio tasmanicus* are to relocate the species through survey, and determine threats to the species and management issues.

What has been done?

While no specific actions have been undertaken for *Senecio tasmanicus*, the revised taxonomy (Thompson 2004) and field key for Tasmanian *Senecio* species (Wapstra et al. 2008) will facilitate rediscovery efforts.

What is needed?

Agencies, groups or individuals may assist with some or all of the following recovery actions (coordinated efforts may achieve the best and most efficient results):

- provide information and extension support to relevant Natural Resource Management committees, local councils, government agencies, the local community and development proponents on the locality, significance and management of known subpopulations and potential habitat;
- undertake extension surveys of potential habitat, radiating out from the known site, using topographic and vegetation maps as a basis of targeting flood plains of major river systems of the Midlands including along the Elizabeth, Macquarie, Lake, Meander, South Esk and North Esk rivers;
- if rediscovered, monitor to determine management needs;
- if rediscovered, collect seed for long-term conservation storage at the Tasmanian Seed Conservation Centre based at the Royal Tasmanian Botanical Gardens.

REFERENCES

Buchanan, A.M. (1988). *The Tasmanian Collecting Localities of Ronald Gunn & Joseph Milligan*. Tasmanian Herbarium Occasional Publication No. 1. Tasmanian Herbarium, Hobart.

de Salas, M.F. & Baker, M.L. (2019). *A Census of the Vascular Plants of Tasmania, including Macquarie Island*. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery. Hobart).

Stillwell, G.T. (1969). Archer, William (1820–1874). IN: Australian Dictionary of Biography. National Centre of Biography, Australian National University. http://adb.anu.edu.au/biography/archer-william-1460/text4151, published first in hardcopy 1969, accessed online 17 April 2017.

Thompson, I.R. (2004). Taxonomic studies of Australian *Senecio* (Asteraceae): 1. the disciform species. *Muelleria* 19: 101–214.

Thompson, I.R. (2015). *Senecio*. IN: *Flora of Australia* (Ed. A.J.G. Wilson): 37: 209-211.

Wapstra, M. (2010). Collection history of *Senecio psilocarpus* (swamp fireweed) in Tasmania. *The Tasmanian Naturalist* 132: 2−8.

Wapstra, M. (2011). Collecting history, distribution, habitat and conservation status of *Senecio campylocarpus* (bulging fireweed) in Tasmania. *The Tasmanian Naturalist* 133: 68–73.

Wapstra, M., Duncan, F., Buchanan, A. & Schahinger, R. (2006). Finding a botanical Lazarus: tales of Tasmanian plant species 'risen from the dead'. *The Tasmanian Naturalist* 128: 61–85.

Wapstra, M., Thompson, I.R. & Buchanan, A.M. (2008). An illustrated and annotated key to the Tasmanian species of *Senecio* and allied taxa (Asteraceae). *Kanunnah* 3: 49–90.

Wapstra, H., Wapstra, A., Wapstra, M. & Gilfedder, L. (2005). *The Little Book of Common Names for Tasmanian Plants*. Department of Primary Industries, Water and Environment, Hobart.

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