

Senecio longipilus

longhair fireweed

TASMANIAN THREATENED SPECIES NOTESHEET



(image by Mark Wapstra)

Scientific name: *Senecio longipilus* I.Thomps., *Muelleria* 19: 193 (2004)

Common name: longhair fireweed

Group: vascular plant, dicotyledon, family **Asteraceae**

Status: *Threatened Species Protection Act 1995*: listing as **endangered or vulnerable under consideration**
Environment Protection and Biodiversity Conservation Act 1999: **Not Listed**

Distribution: Biogeographic status: **not endemic to Tasmania**
Tasmanian Natural Resource Management regions: **South, (North)**
Tasmanian IBRA Bioregions (V6): **Central Highlands, (Northern Midlands), (South East)**

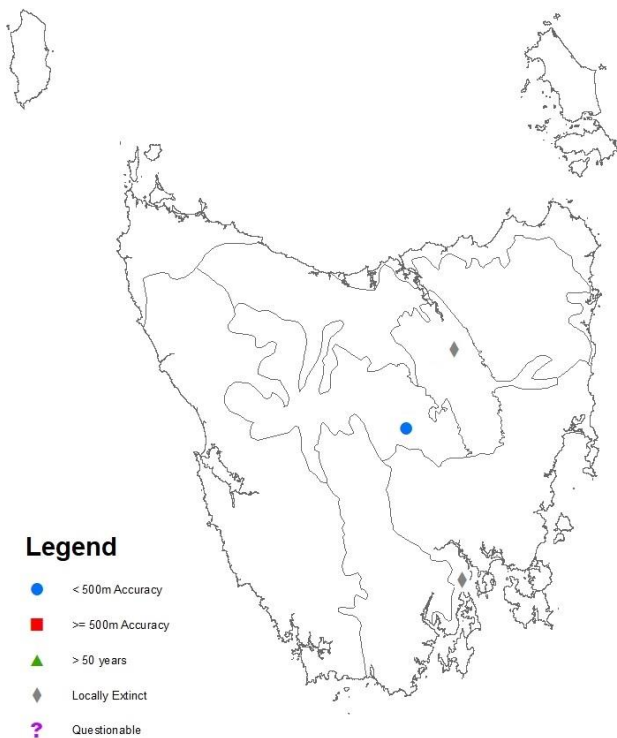


Figure 1. Distribution of *Senecio longipilus* in Tasmania, showing IBRA bioregions (V6)



Plate 1. *Senecio longipilus*
(image by Mark Wapstra)

SUMMARY: *Senecio longipilus* (longhair fireweed) is a perennial herb that was presumed to be extinct in Tasmania until it was re-discovered in late 2019 at St Patricks Plains. On mainland Australia the species occurs in grassland, herbfields, shrubland and woodland, mostly at elevations over 1,000 m but sometimes in lowland areas. In Tasmania, the two presumed extinct sites are in lowland locations and the St Patricks Plains site occurs in herb-rich *Poa*-dominated native grassland on basalt at an elevation of 870 m. The single known extant subpopulation occupies approximately 35 ha, with an estimated 330 to 570 mature individuals recorded to date, the small size of the population placing the species at risk from chance events. Appropriate management of the known occurrence, extension surveys to detect novel occurrences and monitoring to better understand threats and management needs are considered the key management objectives.

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 longipilus* is one of 17 disciform species and 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, but

can produce locally and temporarily dense occurrences that are short-lived and decrease as competition with other plants progresses. As *Senecio longipilus* 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). Thompson (2004) suggested *Senecio longipilus* flowers in summer. While fertile material is present on the collection from Kingston in October 1929, observations in early January 2020 from St Patricks Plains suggest flowering may peak in late January (M. Wapstra & G. Daniels pers. obs.).



Plate 2. Root system of, showing the obscure taproot and fleshy secondary roots and ascending branches (image by Mark Wapstra)

Description

Senecio longipilus is an erect or ascending to erect perennial herb, to 0.5 m tall, with an obscure taproot and fleshy secondary roots about 0.5 to 2 mm in diameter (Plate 2). The plant is strongly fragrant but not malodourous. The stems are densely coarse-hairy, sometimes with a cottony underlay, the density reducing upwards and predominantly appressed-cobwebby near summit. The leaves in the middle third of the stems are more or less

evenly spaced and sized or becoming wider spaced and narrow upwards, and are oblanceolate to narrow-elliptic and 7 to 15 cm long, with a length:width ratio of about 5:8. The leaves are either not dissected or coarse-dentate to lobate with 3 to 6 segments per side largely in the distal half, antrorse and triangular. The leaf base is attenuate or cuneate, the margins entire or with scattered denticulations distally, the upper surface coarse-hairy with hairs rather long (to 2 mm), the lower surface green, and the leaves are glabrous except for coarse-hairy midrib. The uppermost leaves are narrow to very narrow-linear with a length:width ratio of about 5:8, an attenuate base, and a coarse-hairy indumentum that persists especially on margin and is present on the margin of bracts also. The unit inflorescence consists of several to many capitula, the total number of capitula per stem often 20 to 60 with variable overtopping. The mature lateral peduncles are mostly 10 to 30 mm long, with rather long peduncular bracteoles. There are 6 to 8 calycular bracteoles, each 3 to 5 mm long. The peduncle is sparsely cobwebby or glabrous but the margin of the bracteoles is ciliate at anthesis. The involucre is 5 to 8 mm long and 2.8 to 3.5 mm diameter. There are 12 to 15 (up to 18) phyllaries which are glabrous or sparsely cobwebby with an erect apex and thickened stereomes (in dried specimens). They phyllaries are flat, green and sometimes tinged purple, with a relatively large black mark at the tip. The post-fructescence receptacle is 4 to 5 mm in diameter. There are 40 to 60 florets which are about 80% female. The corolla lobes are oblong and much thickened apically. The corolla of bisexual florets is 6.5 to 8 mm long, and 5-lobed. Female florets have 4 or 5 corolla lobes that are about 0.3 mm long. The achenes are narrow oblong-ellipsoid or slightly lageniform, 2.5 to 3 mm long and red-brown or dark brown, with papillose hairs scattered in dense bands, the length:width ratio of hairs about 3:4. The pappus is 6 to 8 mm long.

[description based on Thompson 2004; M. Wapstra & G. Daniels pers. obs.; for terminology refer to Wapstra et al. (2008)]

Confusing species

Senecio longipilus is distinguished from other species with broad capitula by the relatively long (1 to 2 mm) coarse hairs on stems, leaves and bracts, and the relatively long bracts and peduncular bracteoles. Phyllaries are fewer than in *Senecio macrocarpus* (presumed extinct in Tasmania) and usually fewer than in *Senecio squarrosus* (widespread in Tasmania). The apex of the phyllaries is typically strongly black-marked, a characteristic it shares with *Senecio nigrapicus* and *Senecio oldfieldii* (both mainland Australian species). The pappus is usually relatively densely bristled and relatively long, and it commonly exceed the florets by about 1 mm, obscuring them at anthesis. Pappus bristles are more scabrid-barbellate than in other related species. Compared to *Senecio squarrosus*, the stereomes of the phyllaries are broader and this distinction is most evident in the distalmost 1.5 mm of the phyllary (Thompson 2004).

Senecio longipilus is part of a small suite of superficially similar and uncommon species (e.g. *Senecio macrocarpus*, *Senecio squarrosus*) so confirmation of suspected specimens by specialists familiar with the species-group should be sought. Wapstra et al. (2008) provides a key to Tasmanian species of *Senecio*, but the key and descriptions in Thompson (2004) should be used to confirm the identification. 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.



Figure 2. Mainland Australian distribution of *Senecio longipilus*

[source: *Atlas of Living Australia*, 26 Dec. 2019]

Table 1. Population summary for *Senecio longipilus* in Tasmania

Location	Subpopulation	Tenure	NRM region	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of individuals
1	1. St Patricks Plains	private property	South	Wihareja	2020 (2019)	~ 35 ha	450+/-120
2	2. South Esk River near Perth	unknown	North	Longford	1800s	presumed extinct	
3	3. Kingston	unknown	South	unknown	1929	presumed extinct	



Plate 2. Overview of the native grassland on basalt in which *Senecio longipilus* occurs (image by Mark Wapstra)



Plate 3. *Senecio longipilus* (circled) associated with localised basalt outcrops (image by Mark Wapstra)

DISTRIBUTION AND HABITAT

Senecio longipilus has a disjunct distribution, occurring in New South Wales (including the Australian Capital Territory) and Tasmania (Figures 1 & 2).

In New South Wales, the species has been recorded from sand or loam soils in grassland, herbfields, shrubland and woodland, mostly at elevations over 1,000 m but sometimes

lowland (Thompson 2004, 2015; Wilson 2019). In Tasmania, the St Patricks Plains site occurs at an elevation of about 870 m in a herb-rich patch of *Poa* species-dominated native grassland on Tertiary basalt (Plate 2), with extensive regolith (unconsolidated material over bedrock) and small outcrops of basalt, with which the species appears to be locally associated (Plate 3). The historic collections from near Perth and Kingston are strongly suggestive of a lowland occurrence, possibly from poorly-drained sites associated with the larger river systems.

POPULATION PARAMETERS

Number of locations 3 (1 extant)

Number of subpopulations 3 (1 extant)

Linear extent of occurrence 150 km (4.3 km extant)

Extent of occurrence ~3,000 km² (~8 km² extant)

Area of occupancy ~35 ha

Area of occupancy (as per IUCN criteria) 24 km² (16 km² extant)

No. of mature individuals ~450+/-120

Available information suggests that the Tasmanian extent of occurrence of *Senecio longipilus* has declined severely since the first collections were made in the 1800s (Figure 1, Table 1). Only discovered late in 2019, the single known extant occurrence (at St Patricks Plains), appears to be localised, the metapopulation in patches scattered over an area of about 8 km², occupying about 35 ha in total, and supporting about 330 to 570 individuals (G. Daniels pers. obs.).

The possibility of finding further occurrences of *Senecio longipilus* must not be discounted, considering several recent re-discoveries of plant species in Tasmania, including species of *Senecio* (e.g. Wapstra et al. 2006). However,

while the species has been formally described only relatively recently (Thompson 2004), additional subpopulations have not been detected despite the wider detection of other *Senecio* species with increasing familiarity following the availability of a field key (Wapstra et al. 2008), for example, *Senecio campylocarpus* (Wapstra 2010) and *Senecio psilocarpus* (Wapstra 2011). Potential habitat for *Senecio longipilus* is widespread across much of the Tasmanian Central Highlands though extensive surveys in parts of the possible range have not resulted in the detection of additional occurrences (e.g. surveys for development proposals such as wind farms but also in reserves such as the Vale of Belvoir, Five Rivers Reserve, Skullbone Plains and parts of the World Heritage Area, and for longer-term monitoring of subalpine vegetation by University of Tasmania researchers).

RESERVATION STATUS

Senecio longipilus is unreserved.

CONSERVATION ASSESSMENT

Senecio longipilus is under consideration for listing on Schedules of the Tasmanian *Threatened Species Protection Act 1995* having been nominated for listing as endangered. However, more recent information suggests that the species qualifies for listing as vulnerable, meeting the following criterion:

D: Total population very small or area of occupancy restricted and,

1. total population estimated to number fewer than 1,000 mature individuals.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

The threats to *Senecio longipilus* are poorly understood, limited by lack of knowledge about the species in Tasmania.

Land clearing: Some potential habitat of *Senecio longipilus* may have been historically cleared but this is unlikely to be a contemporary threat, except at a highly localised scale. A wind farm is proposed for the area which contains the extant occurrence,

though micro-siting of infrastructure should allow impacts to be avoided or minimised.

Inappropriate disturbance: Species of *Senecio* generally respond positively to most forms of disturbance and many species are primary colonisers of post-disturbed land. The recently confirmed extant subpopulation occurs on either side of a well-established and long-used farm track in native grassland long-used for “rough grazing” (i.e. not intensively cultivated, fertilised or sown but subject to various levels of stock and native/introduced mammal browsing). It is likely that rough grazing would continue should the wind farm development proceed.

Lack of secure tenure: The only extant site is on private land, and consequently marginally at risk from a range of unregulated activities.

Stochastic events: While stochastic events are by definition unpredictable, in this case, such events are most likely to be associated with events such as unintended fires (e.g. arson, lightning strikes). The sites supporting *Senecio longipilus* are not frequently visited by people so deliberate or inadvertent (e.g. for the purpose of identification) picking of flowers is a low risk because most visits will be for the purposes of demographic monitoring.

Climate change: It is possible that even minor shifts in average seasonal conditions may have an adverse impact on locally restricted species such as *Senecio longipilus*, especially if other ecological factors are absent (e.g. an appropriate fire/disturbance regimes).

MANAGEMENT STRATEGY

Management objectives

The main objectives for the recovery of *Senecio longipilus* are to appropriately manage the extant occurrence, gain a better understanding of the extent of the species, to increase the number of known subpopulations through survey, and determine threats to the species and management issues.

What has been done?

The species was re-discovered in late 2019 during the assessment of impacts of a proposed development on natural values (G. Daniels & R. White pers. comm.).

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;
- monitor known subpopulations with respect to extent, abundance, condition of supporting habitat, threats and response to disturbance;
- undertake extension surveys of potential habitat, radiating out from the known extant site, or other sites if discovered, using topographic and vegetation maps as a basis of targeting putatively suitable habitat;
- undertake extension surveys of potential habitat in the vicinity of historical sites using topographic and vegetation maps as a basis of targeting native grasslands on basalt rises associated with the major river systems of the Midlands including the Elizabeth, Macquarie, Lake, Meander, South Esk and North Esk rivers;
- collect seed for long-term conservation storage at the Tasmanian Seed Conservation Centre based at the Royal Tasmanian Botanical Gardens).

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