Image by Richard Schahinger

Zieria veronicea subsp. *veronicea*

pink zieria

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name: ***Zieria veronicea* subsp. *veronicea*** (F.Muell.) Benth., *Fl. Austral.* 1: 305 (1863)

Common name: pink zieria (Wapstra et al. 2005)

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

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

Distribution: Endemic status: **Not endemic to Tasmania**
Tasmanian NRM Region: **North, South**

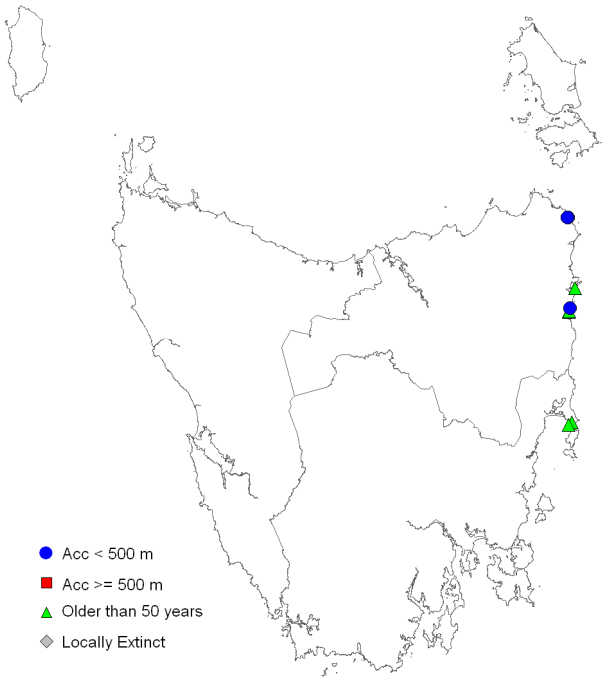

Figure 1. Distribution of *Zieria veronicea* in Tasmania

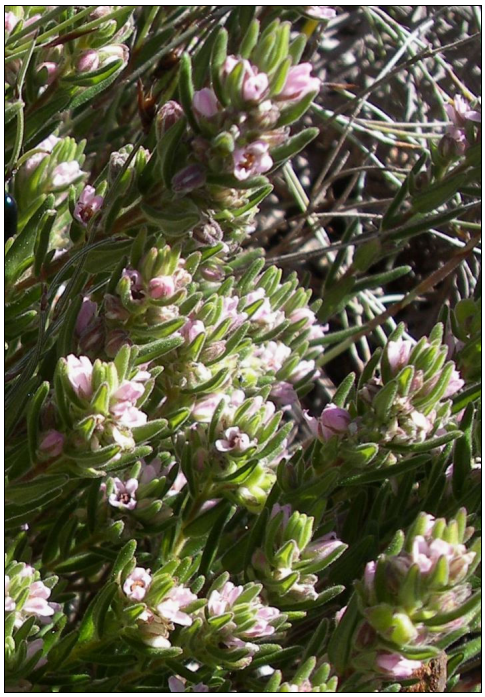

Plate 1. *Zieria veronicea*: flower and foliage detail (image by Richard Schahinger)

Zieria veronicea subsp. *veronicea* is a small shrub now known in Tasmania from two small near-coastal sites in the northeast where it grows in heathland and heathy woodland. Fewer than 200 mature individuals are known, all but 8 in one subpopulation. This and the small size of plants place the species at risk of loss from unforseen human activities and chance events. The main threats are frequent low intensity burns that kill post-fire recruits before they set seed and sufficiently replenish the soil seed bank, or the prolonged absence of fire due to mortality and depletion of the soil seed store. Infection with the root rot pathogen *Phytophthora cinnamomi* represents a possible, albeit low threat.

IDENTIFICATION AND ECOLOGY

Zieria veronicea subsp. *veronicea* flowers in October to November. Flies are the most likely pollination vector (A. Hingston, pers. comm.). Recruitment may occur following fire from a soil-stored seed bank, with limited recruitment also occurring in the absence of fire. The species does not resprout following fire. The longevity of the seed bank and presence of dormancy mechanisms are unknown. The species has been observed to recruit from a soil-stored seed bank and flower within eighteen months of fire. However, the time required to establish a significant seed bank is likely be at least several years.

Survey techniques

Surveys for *Zieria veronicea* subsp. *veronicea* are best undertaken during the flowering period, in October to November. Areas of heathy woodland habitat that have been burnt in the previous two or three years should be targeted preferentially. The species may be difficult to detect in long unburnt vegetation due to its diminutive nature, so if surveys of such habitat are required, then more open conditions should be targeted, such as along the margins of existing tracks and walking trails.

Description

Zieria veronicea subsp. *veronicea* is a small shrub, 15 to 60 cm high. It is lemon-scented and densely stellate-velvety throughout. Leaves are simple, oblong to ovate, 5 to 18 mm long, 1 to 5.5 mm wide and obtuse. The upper surface is light green, the lower surface grey-green, with the margins entire and recurved to revolute. The inflorescence is axillary, 1 to 3 flowered and generally does not exceed the leaves (Plate 1). The 4 sepals are narrowly lanceolate, 2 to 5.5 mm long, acute, densely stellate-hairy and smooth. The 4 petals are 2.3 to 7 mm long, pink or occasionally white, and imbricate. The ovary is stellate-pubescent. The 4 stamens are opposite the sepals and have hairy filaments. The fruit has a dense stellate indumentum and, being dry and dehiscent, is a follicle. Seeds are 3 to 3.5 mm long, mottled black and rugulose to striated.

[description based on Curtis & Morris 1975, Walsh & Entwisle 1999]

Confusing species

Zieria veronicea subsp. *veronicea* has simple leaves whereas the two other *Zieria* taxa in Tasmania, *Zieria arborescens* subsp. *arborescens* and *Zieria littoralis* (Baker & Duretto 2011) have trifoliate leaves.

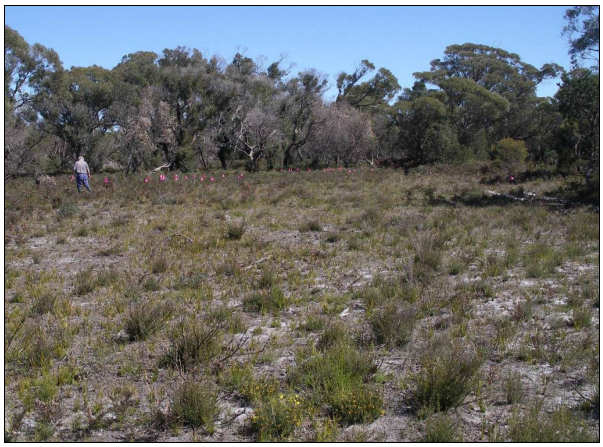

Plate 2. *Zieria veronicea* habitat at Coblers Rocks, Mt William National Park, October 2011 (image by Richard Schahinger)

DISTRIBUTION AND HABITAT

Zieria veronicea subsp. *veronicea* occurs in South Australia, Victoria and Tasmania. In Tasmania the species is known to be extant at Mt William National Park and Scamander, with historic records from Georges Bay and Coles Bay (Figure 1, Table 1).

Table 1. Population summary for *Zieria veronicea* subsp. *veronicea* in Tasmania

	Subpopulation	Tenure	NRM Region	1:25000 Mapsheet	Year last (first) seen	Area occupied (ha)	Number of mature plants
1	**Coblers Rocks**	Mt William National Park	North	Naturaliste	2011 (1976)	0.7	c. 170
2	**Wrinklers Lagoon, Scamander**	Scamander Conservation Area	North	Beaumaris	2011 (2009)*	0.05	8
3	**Ruby Claim, Georges Bay**	unknown	North	Pyengana?	1879 (1879)	status unknown	
4	**Coles Bay**	unknown	North	Coles Bay	1945 (1945)	status unknown	

NRM Region = Natural Resource Management Region;
* specimens first collected in the Scamander area in 1880

Zieria veronicea subsp. *veronicea* grows on well-drained sandy soils in heath or heathy woodland dominated by *Eucalyptus amygdalina* (black peppermint). Associated species include *Aotus ericoides* (golden pea), *Banksia marginata* (silver banksia), *Hibbertia procumbens* (spreading guineaflower), *Monotoca elliptica* (tree broom-heath), *Lepidosperma concavum* (sand swordsedge), *Xanthorrhoea australis* (southern grasstree) and *Pteridium esculentum* (bracken). The annual rainfall at the known sites is about 750 mm, and the elevation less than 15 m above sea level.

POPULATION PARAMETERS

Zieria veronicea subsp. *veronicea* has been recorded from four locations in Tasmania (Table 1, Figure 1), though only two of those are known to be extant. The linear range of the extant sites in Tasmania is 61 km, the extent of occurrence about 9 km^2, and area of occupancy less than 1 ha. The extant subpopulations consist of about 250 plants, with 180 of those mature (as at October 2011).

There is no shortage of apparently suitable habitat for the species in the coastal strip between Freycinet Peninsula and further north than Mt William. However, the level of survey in the coastal strip in this area has been significant (e.g. Kirkpatrick 1977, Schahinger et al. 2003), and the lack of sightings suggests that any additional subpopulations, if detected, are likely to be very localised and the result of opportunistic rather than targeted surveys.

RESERVATION STATUS

Zieria veronicea subsp. *veronicea* is reserved in Mt William National Park and Scamander Conservation Area.

CONSERVATION ASSESSMENT

Zieria veronicea subsp. *veronicea* was listed as rare on the original schedules of the Tasmanian *Threatened Species Protection Act 1995*. In 2007 it was uplisted to endangered, qualifying under criteria B, C and D.

B. Area of occupancy less than 10 ha and:

- known to exist at no more than five locations;
- continuing decline inferred in area of occupancy, number of locations and number of mature individuals.

C. Total population estimated to number fewer than 2,500 mature individuals and:

- continuing decline inferred in the number of mature individuals and all individuals in a single population.

D. total population estimated to number fewer than 250 mature individuals.

At the time of up-listing to endangered the only known extant site was near Mt William. A small subpopulation was discovered near Scamander in 2009 (Table 1), though the species continues to meet the above criteria.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Threats to *Zieria veronicea* subsp. *veronicea* in Tasmania include land clearance, inappropriate burning and, given the small number and size of subpopulations, a stochastic risk of extinction. *Phytophthora cinnamomi* may also be a threat to the species, though to date no signs of infection have been recorded.

Land clearance: The species' preferred near-coastal habitat is likely to have been impacted from urban and agricultural development since European settlement, with the loss of an unknown number of plants. Clearance of potential habitat remains a threat to as yet undetected subpopulations on private land.

Inappropriate fire regimes: As *Zieria veronicea* subsp. *veronicea* does not resprout following fire and may take several years to replenish the soil seed bank following fire, significant losses of post-fire recruits may occur if drought conditions should follow fire. Repeated low intensity burns, say less than five years apart, are likely to eliminate the species, while the prolonged absence of fire for 15 to 20 years may lead to plant senescence and the eventual depletion of any soil-stored seed bank. The Mt William site is believed to have been partly burnt in May 1997 and again in May 2010. The Scamander site appears to be long unburnt.

***Phytophthora cinnamomi*:** Several taxa in the Rutaceae family in Tasmania are known to be susceptible to *Phytophthora cinnamomi* (Podger et al. 1990), though the status of *Zieria veronicea* subsp. *veronicea* has yet to be determined. The area at Mt William that supports the species is known to have been infected with the pathogen since at least the mid-1970s, so the species' persistence suggests it is likely to be resistant to disease expression. However, as a precautionary measure and to avoid further spread of disease that may impact on the quality of habitat, it is important that appropriate hygiene measures be implemented during any management activities in areas supporting the species.

Stochastic risk: The Scamander subpopulation consists of fewer than 10 plants, all at the margins of a publicly-accessible unsealed vehicle track, and is in consequence at risk of extinction due to unforeseen human activities or chance events.

MANAGEMENT STRATEGY

What has been done?

- The Mt William site has been identified with the land managers (Parks and Wildlife Service) as requiring specific fire and hygiene measures.
- Seed was collected from the Mt William site in 2006 and 2008, and lodged for long-term conservation storage at the Tasmanian Seed Conservation Centre at the Royal Tasmanian Botanical Gardens, with germination and viability trials underway (Wood 2011).
- Surveys of the Mt William and Scamander sites were undertaken in October 2011, and the species' response to the fire of May 2010 documented.

Management objectives

The main objectives for the recovery of *Zieria veronicea* subsp. *veronicea* are to maintain the viability of the known subpopulations and, if possible, increase the number of subpopulations through survey.

What is needed?

- provide information and extension support to relevant Natural Resource Management committees, local councils, Government agencies, development proponents and the local community on the location, significance and management of known subpopulations and areas of potential habitat;
- ensure that known sites are subject to an appropriate burning regime, with any burns at least 5 to 6 years apart, individual subpopulations burnt if possible in autumn in a mosaic pattern, and burning not undertaken in an El Nino year;
- ensure that appropriate *Phytophthora cinnamomi* hygiene measures are implemented for any management actions

undertaken in the vicinity of the known sites;

- monitor known sites at least once every 3 to 5 years to determine population trend and the need for management intervention;
- update reserve management and fire management plans to benefit the species;
- survey potential habitat within the species' historic extent of occurrence.

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View:
www.dpipwe.tas.gov.au/threatenedspecieslists

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Permit: It is an offence to collect, disturb, damage or destroy this species unless under permit.