

Pimelea sp. Tunbridge

grassland riceflower

TASMANIAN THREATENED SPECIES NOTSHEET



Image by Richard Schahinger

Scientific name: *Pimelea* sp. Tunbridge (A.Moscal 9026) Tas Herbarium

Common name: grassland riceflower

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

Status: *Threatened Species Protection Act 1995*: **endangered**

Environment Protection and Biodiversity Conservation Act 1999: **Not listed**

Distribution: Endemic status: **not endemic**

Tasmanian NRM Region(s): **North, South**

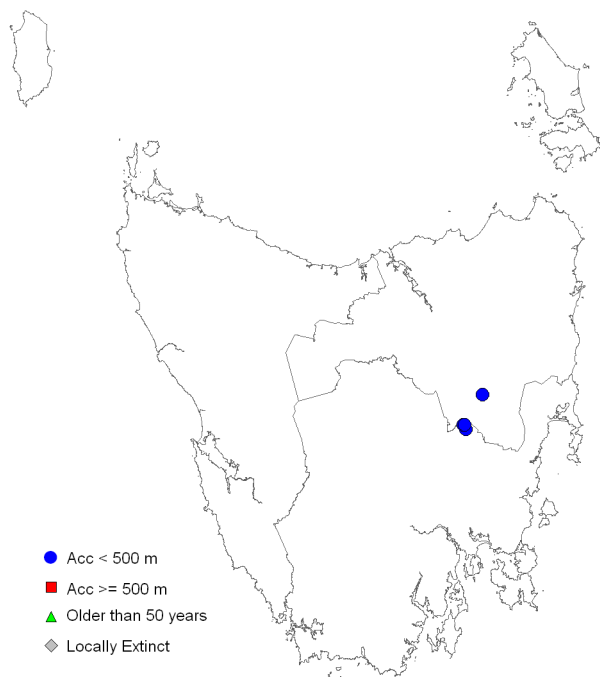


Figure 1. Distribution of *Pimelea* sp. Tunbridge in Tasmania, showing Natural Resource Management regions



Plate 1. Flowers and leaves of *Pimelea* sp. Tunbridge (image by Grant Daniels)

SUMMARY: *Pimelea* sp. Tunbridge (grassland riceflower) is a small shrub. In Tasmania, the species is limited to the Northern Midlands where it grows in native grasslands and grassy woodlands on fertile substrates. Only three sites have been recorded in Tasmania, with fewer than 600 mature plants occupying about 0.2 ha in total, putting the species at high risk of local extinctions due to the small size of sites. Two of the sites have suffered recent declines due to habitat destruction. The species is at risk from land clearance, stock grazing, weed invasion, inappropriate roadside maintenance and a lack of disturbance. Known occurrences would benefit from weed control and the management of biomass levels.

IDENTIFICATION AND ECOLOGY

Pimelea sp. Tunbridge is a small shrub with numerous erect stems, small grey-green hairy leaves, and clusters of yellowish tubular flowers. Flowering occurs from late October to December and fruiting from November to January. Possible pollinators include butterflies, nocturnal moths, long-tongued flies or exotic bees. Based on the experience with other *Pimelea* species in Tasmania, recruitment from a seed-bank is considered likely. The species has been observed to resprout following physical disturbance. Seed dispersal is likely to be limited. A number of *Pimelea* species are known to be toxic to stock, including the closely-allied *Pimelea curviflora*, though the status of *Pimelea* sp. Tunbridge is unclear.

With another 18 native species in the *Pimelea* genus and 19 in the family Thymelaeaceae (Baker & de Salas 2014), *Pimelea* sp. Tunbridge represents a relatively low proportion of its genetic lineage in Tasmania.

Survey techniques

Surveys for *Pimelea* sp. Tunbridge are best undertaken during its flowering period, late October to December, noting that the flowering peak may vary considerably from year-to-year, and that the growth of native grasses such as *Themeda triandra* may obscure plants later in the season.

Description

Pimelea sp. Tunbridge is a densely branched shrub, 15 to 40 cm high. The branches are wiry, more or less erect and not dichotomous. The younger stems are densely white-hairy, with older stems becoming glabrescent (hairless). The leaves are sub-opposite, tending to alternate distally, with very short petioles. The leaf lamina is 6 to 15 mm long, 2 to 5 mm wide, elliptic to narrow elliptic (to narrow oblanceolate), relatively thin and more or less flat, with an acute apex and both surfaces silky-pubescent (especially when young) and concolorous grey-green. The venation is obscured except for the midrib on the lower surface. The inflorescence consists of compact heads of up to 16 flowers, the heads axillary or terminating short branchlets. The butter-yellow flowers lack petals. The floral tube (hypanthium) is 4.5 to 7 mm long, slender, densely pubescent externally and glabrous internally. The 4 sepals are spreading and 2 to 3 mm long and 0.7 mm wide. The 2 stamens are inserted opposite the outer sepals and are subsessile in the throat of floral tube, and the style is enclosed. The ovary is 1-locular at maturity, with 1 ovule. The dry, nut-like fruit is enclosed in the persistent lower part of the floral tube and is ovoid and about 3 mm long, tapering more or less evenly to the end. The seed is black, ovoid and 2.5 mm long.

[description based on collections held at the Tasmanian Herbarium, and Gilfedder et al. 2003]

Confusing species

Pimelea curviflora, on mainland Tasmania at least, is a much taller shrub with leaves that are more-or-less glabrous on the upper surface. *Pimelea micrantha*, which is known in Tasmania from a single collection from Flinders Island (de Salas 2014 pers. comm.), has smaller floral parts, creamy-white rather than butter-yellow flowers, and a dichotomous branching habit.



Plate 2. Branching habit of *Pimelea* sp. Tunbridge
(image by Richard Schahinger)

Taxonomic issues

The collections from Tasmania's Midlands referable to *Pimelea* sp. Tunbridge were considered initially to be *Pimelea micrantha* (Buchanan 2002 & 2005), though it was recognised at the time that their floral characters were closer to *Pimelea curviflora* (Schahinger pers. obs.). Further collections of *Pimelea* sp. Tunbridge are required to better define the taxon and enable a clearer distinction to be made with *Pimelea micrantha* and *Pimelea curviflora* (Curtis 1967, Rye 1990, Walsh & Entwisle 1996).

DISTRIBUTION AND HABITAT

Pimelea sp. Tunbridge occurs in Tasmania and Victoria (de Salas pers. comm.). In Tasmania the species occurs in the Northern Midlands near Tunbridge and Campbell Town, where it grows in *Themeda*-dominated native grassland and what would have originally been *Eucalyptus pauciflora* grassy woodland (Plate 3). Associated native species include *Themeda triandra*, *Poa labillardierei*, *Rytidosperma* species, *Chrysocephalum* species, *Bossiaea riparia* and, along Tunbridge Tier Road, *Eucalyptus pauciflora* and the endangered low shrub *Cryptandra amara*. The substrate includes Tertiary basalt and Jurassic

dolerite, the altitude range is 220 to 230 metres above sea level, and the annual mean rainfall is 450 to 550 mm.



Plate 3. Tunbridge Tier Road site, September 2014
(image by Richard Schahinger)



Plate 4. Lake Leake Road site, September 2014
(image by Richard Schahinger)



Plate 5. Midland Highway site, December 2014
(image by Richard Schahinger)

Table 1. Population summary for *Pimelea* sp. Tunbridge in Tasmania

	Subpopulation	Tenure	NRM Region	1:25000 Mapsheet	Year last (first) seen	Area occupied (ha)	Number of mature plants
1	Lake Leake Road	Northern Midlands Council (& private land)	North	Campbell Town	2014 2003 (2001)	0.0002	5 1 'numerous'
2	Tunbridge Tier Road	Northern Midlands Council	North	Tunbridge	2014 (1984)	0.2	450 to 500 'small localised population'
3	Midland Highway (1 km S of Tunbridge)	private land	South	Tunbridge	2014 (2013)	0.03	100±5

POPULATION PARAMETERS

Pimelea sp. Tunbridge is known in Tasmania from three sites with fewer than 600 mature plants (Table 1). The linear range of the species is 26 km, the extent of occurrence 2,140 km², and the area of occupancy about 0.2 ha (Table 1).

The area occupied by the species is believed to have declined at two of the three sites since their initial discovery. The Lake Leake Road site was found in December 2001 within *Themeda* grassland at the top of a basalt road-cutting, with plants extending into adjacent native pasture. The latter component of the colony was subsequently ploughed and the pasture improved, with only 5 plants remaining by 2014 in what is now a weed-infested road reserve (Plate 4). The site just south of Tunbridge was discovered in November 2013 persisting on the edge of a shallow depression close to the Midland Highway, with land further east regularly ploughed, and now consists of a thin sliver of degraded native grassland (Plate 5). The third site, Tunbridge Tier Road, was discovered in 1984 and relocated in September 2014, plants occurring in an area of about 240 by 10 metres.

Suitable habitat for the species in the Northern Midlands has been subjected to numerous surveys over the past thirty years (e.g. Kirkpatrick et al. 1988), the paucity of collections suggesting that *Pimelea* sp. Tunbridge is extremely rare. It is considered likely that additional sites will emerge given a targeted survey effort at the appropriate time of year, though experience suggests that any such occurrences will be highly localised.

RESERVATION STATUS

Pimelea sp. Tunbridge is not known from any formal reserve.

CONSERVATION ASSESSMENT

Pimelea sp. Tunbridge was listed as endangered under the Tasmanian *Threatened Species Protection Act 1995* in April 2016, meeting the following criteria:

(B) Extent of occurrence estimated to be less than 500 km² or occupancy less than 10 hectares, and:

1. severely fragmented or known to exist at no more than five locations;
2. continuing decline observed in the area, extent and/or quality of habitat.

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

2. total population with an area of occupancy less than one hectare, and in five or fewer locations that provide an uncertain future due to the effects of human activities or stochastic events, and thus capable of becoming extinct within a very short time period.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

The long-term future of *Pimelea* sp. Tunbridge in Tasmania will be reliant upon ensuring that suitable management regimes are in place to promote recruitment. The linear nature of its roadside sites contributes to fragmentation with significant edge effects. Specific threats are detailed below.

Loss of habitat: Tasmania's Northern Midlands have been substantially modified

since European settlement, with the presumed loss of habitat for species such as *Pimelea* sp. Tunbridge. Fensham (1989) noted that ‘... 83% of the area of the vegetation of the Midlands has been replaced after 170 years of agricultural exploitation’. The vegetation that does remain is highly fragmented, meaning that the species’ chances of dispersal are increasingly unlikely. The trend to isolation has accelerated with the advent of large pivot irrigators and has the potential to increase further with the anticipated expansion of irrigation schemes. As noted above, two of the three known sites have suffered recent losses due to part of their habitat being ploughed.

Stock grazing: Heavy stock grazing of the species’ native grassland habitat is likely to have led to the decline or elimination of the species in some areas, as may be inferred by its absence from grazed native pasture adjacent to the Tunbridge Tier Road site (Plate 3). However, it is considered highly likely that the habitat of *Pimelea* sp. Tunbridge, as for *Stackhousia subterranea* (Gilfedder & Kirkpatrick 1998), may require at least some periodic stock grazing (or burning) to maintain bare ground suitable for recruitment.

Roadside maintenance and widening: Plants at roadside sites are potentially at risk from maintenance activities such as scraping, slashing and mechanical damage, as well as off-target damage during weed treatment. The Lake Leake Road site is in very poor condition as a consequence of such activities, with the exotic grass *Dactylis glomerata* (cocksfoot) dominant (Plate 4). There is little opportunity for recovery at this site. Roadworks are a threat to the remaining plants at the Tunbridge site (Plate 5).

Lack of disturbance: The Tunbridge Tier Road site occurs in a narrow strip of native grassland, part of the historic Tunbridge — Interlaken stock route (Kirkpatrick et al. 1988), some of which was listed on the Register of the National Estate in October 1998. Ten-metre wide belts of native grassland and grassy woodland of varying quality occur on either side of the road stretching from the Midland Highway to the west. The stock route has seen little use since the mid-1990s (Gilfedder pers. comm.), the consequence being a diminution of

inter-tussock spaces and a reduction in recruitment opportunities for a range of species (e.g. the endangered *Leucobrysum albicans* and *Stackhousia subterranea*). This is despite some slashing and the very occasional burn. The impact on *Pimelea* sp. Tunbridge is likely to have been deleterious, though quantitative data is not available. The linear nature of the roadside vegetation also means that its integrity is at risk if adjacent paddocks were to be ploughed and fertilised, a process already in place in the 1980s (Kirkpatrick et al. 1988), and one that has accelerated in recent years.

Woody weed invasion: Gorse (*Ulex europaeus*) is widespread in the species’ grassland habitat in the Northern Midlands. It is present at two of the three sites (Lake Leake Road being the exception), and poses an imminent threat to *Pimelea* sp. Tunbridge if not treated. Briar rose (*Rosa rubiginosa*) is also present at the Midland Highway site (Plate 5).

Stochastic risk: The known sites occupy very small areas, putting them at high risk from chance events.

Climate change: Climatic trends for the 21st century in areas in Tasmania supporting *Pimelea* sp. Tunbridge are predicted to include warmer temperatures and more extreme events (Grose et al. 2010), possibly leading to a drying out of its habitat. It is possible that this may affect the species’ ability to colonise new sites or recolonise sites from which it has been lost.

MANAGEMENT STRATEGY

Management objectives

The main objectives for the recovery of *Pimelea* sp. Tunbridge are to prevent the loss or degradation of known subpopulations, promote conditions for the species’ successful recruitment, increase the number of known subpopulations through survey, and to improve the species’ reservation status.

What has been done?

Surveys: Targeted surveys of the known sites were undertaken in September, November and December 2014, with intensive surveys of potential habitat along Tunbridge Tiers Road

stock route and an adjoining public reserve (formerly a stock resting reserve).

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;
- ensure that the native grasslands and grassy woodlands along Tunbridge Tier Road are subject to an appropriate disturbance regime;
- control weeds at known sites;
- conduct extension surveys of potential habitat in the Northern Midlands, focusing in the first instance on areas of public land and areas of private land covered by conservation covenants under the *Tasmanian Nature Conservation Act 2002*;
- investigate the recruitment strategy of the species by monitoring selected subpopulations for longevity, recruitment, condition and response to disturbance;
- encourage private landowners to consider protection and management of the species' habitat through perpetual covenants under the *Tasmanian Nature Conservation Act 2002*;
- clarify and formalise the taxonomic status of *Pimelea* sp. Tunbridge, *Pimelea micrantha* and *Pimelea curviflora* in Tasmania;
- collect seed for long-term conservation storage at the Tasmanian Seed Conservation Centre based at the Royal Tasmanian Botanical Gardens.

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