



Calandrinia granulifera

pygmy purslane

TASMANIAN THREATENED SPECIES NOTESHEET

Image by Tim Rudman

- Scientific name:** *Calandrinia granulifera* Benth., *Fl. Austral.* 1: 176 (1863)
- Common name:** pygmy purslane (Wapstra et al. 2005)
- Group:** vascular plant, dicotyledon, family **Portulacaceae**
- Name history:** *Calandrinia neesiana*
- Status:** *Threatened Species Protection Act 1995:* **rare**
Environment Protection and Biodiversity Conservation Act 1999: **Not listed**
- Distribution:** Endemic status: **not endemic to Tasmania**
Tasmanian NRM regions: **North**

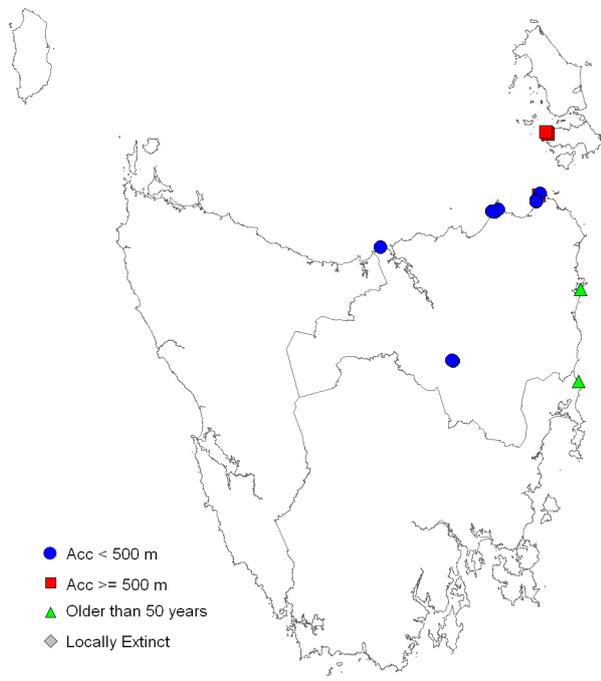


Figure 1. Distribution of *Calandrinia granulifera* in Tasmania, showing NRM regions



Plate 1. *Calandrinia granulifera*: habit (image by Richard Schahinger)

SUMMARY: *Calandrinia granulifera* (small purslane) is a small succulent annual herb that occurs on a variety of substrates in Tasmania, mostly in near-coastal areas in the northeast, with an outlying occurrence in the Northern Midlands. Available information suggests that subpopulations are small and relatively localised; the total population is estimated to be in the low thousands, though numbers are likely to vary greatly from year to year depending upon rainfall and disturbance events. The species' localised character puts it at some risk from chance events. Monitoring of known sites is required to inform management, and further survey is also needed.

IDENTIFICATION AND ECOLOGY

Calandrinia granulifera is an annual species, and hence its persistence at a particular site will be dependent upon its preferred open habitat being maintained and the presence of soil-stored seed. Germination of seed, growth and subsequent flowering is likely to be reliant on the timing and intensity of autumn and winter rains, as well as the availability of bare ground, with the length of flowering dependent upon prevailing weather conditions.

The species' flowering and fruiting periods are cited as September to November, and October to November, respectively (Morris & Duretto 2009), though fruiting is considered likely to continue into at least December.

There are currently six taxa in the family Portulacaceae native to Tasmania, with *Calandrinia granulifera* being one of the three native *Calandrinia* taxa (de Salas & Baker 2016).

Survey techniques

Calandrinia granulifera is easiest to detect and identify when flowers or fruit are present, bearing in mind that plant numbers may vary from year to year depending on climatic conditions.

Description

Calandrinia granulifera is a small annual herb, branching from the base; its branches are decumbent, ascending or erect, 1 to 5 cm long. Leaves basal and on flowering stems, narrowly

obovoid to almost globular, the largest up to 10 mm long and 5 mm wide. Flowers up to 10 per branch; pedicels 1 to 2 mm long, stout, erect in fruit. Sepals 2, broad-ovate to orbicular, very thick, usually 1.5 to 3 mm long, not persistent in fruit. Petals 5 to 7, free, pink fading to white, 2.5 to 4 mm long, broad-oblong to oblanceolate (to lanceolate to elliptic). Stamens 5 to 11, style trifold to base. Capsule blackish, shining, broad-ovoid to sub-globose, 1.5 to 3 mm long, opening by 3 short valves in the upper third. Seeds 20 to 35, red-brown, shining, c. 0.5 mm long, their surfaces with low rounded protuberances in several dorsal lines (Plates 2 & 3).

[description based on Curtis & Morris 1975, Walsh & Entwisle 1996, Morris & Duretto 2009]



Plate 2. *Calandrinia granulifera*: scanned image of HO 1104447 (part only) showing the species' distinctive shining black capsules (Tasmanian Herbarium, Tasmanian Museum and Art Gallery)

Confusing species

In the vegetative stage *Calandrinia granulifera* might be confused with depauperate forms of *Calandrinia calypttrata*. The latter has leaves that are narrowly obovate to oblong to semi-terete (and typically reddish), sepals that persist into the fruiting stage, light brown capsules that open by valves to their base, and seed that is virtually smooth (Plate 3).

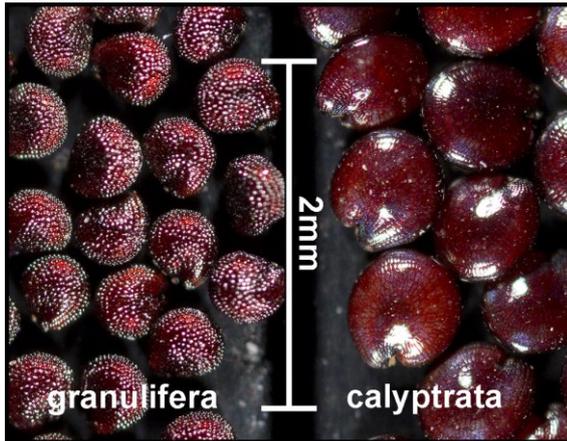


Plate 3. Seed of *Calandrinia granulifera* and *Calandrinia calyptрата* (images by James Wood)

DISTRIBUTION AND HABITAT

On mainland Australia *Calandrinia granulifera* occurs in New South Wales, South Australia, Victoria and Western Australia (Walsh & Entwisle 1996). In Tasmania it has been recorded from coastal situations in the northeast (including Cape Barren Island), with an ‘outlying’ occurrence in the Northern Midlands.

In Tasmania *Calandrinia granulifera* grows in gravelly and sandy pockets in rocky outcrops in coastal situations (typically within the spray zone), and also on shallow rock-plate soils in the Midlands (Plate 3), substrates including Jurassic dolerite, Devonian granite and Tertiary basalt. The near-coastal sites occur up to 70 m above sea level, with the Midlands occurrences in the altitude range 200 to 210 metres.



Plate 3. *Calandrinia granulifera*: dolerite rock pavement habitat at Tom Gibson Nature Reserve (image by Richard Schahinger)

POPULATION PARAMETERS

Calandrinia granulifera is known from seven locations in Tasmania, though its status at three of these — Georges Bay, Bicheno and Cape Barren Island — is uncertain, having not been seen since first recorded in 1892, 1942 and 1973, respectively (Table 1). The size of subpopulations is poorly known, none having greater than 1,000 individuals recorded, though the total population is likely to number in at least the low thousands. Plant numbers may fluctuate significantly from year to year in response to variations in rainfall.

The species has a linear range of 170 km and an extent of occurrence of 14,000 km² (which includes areas of sea and unsuitable habitat); a reliable estimate for the total area of occupancy is not available, but it is considered unlikely to be more than 10 hectares.

Calandrinia granulifera has been recorded at three additional locations in Tasmania since its listing as rare on the TSP Act in 1995, extending its known range to the north, west and southwest, with some infilling of potential habitat in the Waterhouse and Cape Portland areas (Table 1). Rock pavements in Tasmania have been the subject of formal and informal surveys over recent decades (Gilfedder et al. (1997), Threatened Species Section surveys 2008–2015), the species’ collection history suggesting that there is a low to medium likelihood of additional subpopulations being found given a well-resourced and targeted survey effort.

RESERVATION STATUS

Calandrinia granulifera is known from Cape Portland Conservation Area, Narawntapu National Park, Tom Gibson Nature Reserve and Waterhouse Conservation Area, and possibly Humbug Point Nature Recreation Area near St Helens (Table 1). It has also been recorded from near Cape Portland on private land classed as a Private Sanctuary under the Tasmanian *Nature Conservation Act 2002*.

Table 1. Population summary for *Calandrinia granulifera* in Tasmania

	Subpopulation	Tenure	NRM region	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of individuals
1	Cape Barren Island	Unknown	North	Unknown	1973 *	unknown	unknown
2a	Lanoma Point	Musselroe Bay Conservation Area	North	Lyme Regis	1983	unknown	unknown
2b	Cape Portland	Private land ^	North	Lyme Regis	1983	unknown	unknown
2c	Petal Point (north)	Cape Portland Conservation Area & Boobyalla Conservation Area	North	Lyme Regis	2011 (2008)	0.1+	100 to 1000
2d	Petal Point (south)	Boobyalla Conservation Area	North	Lyme Regis	2011	3 sites in 200 m	'Localised'
3a	Blizzards Landing	Waterhouse Conservation Area	North	Waterhouse	2001	unknown	unknown
3b	Road to Croppies point	Waterhouse Conservation Area	North	Waterhouse	1983	unknown	unknown
3c	1km NE of Croppies Point	Waterhouse Conservation Area	North	Waterhouse	1983	unknown	unknown
3d	Croppies Point	Waterhouse Conservation Area	North	Waterhouse	2011 (2007)	0.1	100 to 200
4	West Head	Narawntapu National Park	North	Greens Beach	2013		25
5	Georges Bay	Humbug Point Nature Recreation Area?	North	Binalong?	1892 **	unknown	unknown
6a	Epping Forest (north)	Tom Gibson Nature Reserve	North	Cleveland	2012	0.1	100s
6b	Epping Forest (south)	Tom Gibson Nature Reserve	North	Cleveland	2010 (2009)	0.05	10s
7	Bicheno	Public Reserve?	South	Bicheno	1942	unknown	unknown

* Collections held at Melbourne Herbarium ... presence only recognised after species listed on TSP Act in 1995.

** Location recorded as 'Pleasant Boat Harbour, near Georges Bay';

^ = Private Sanctuary under the *Tasmanian Nature Conservation Act 2002*.

CONSERVATION ASSESSMENT

Calandrinia granulifera was listed as rare in the original schedules of the *Tasmanian Threatened Species Protection Act 1995*.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

The Tasmanian distribution of *Calandrinia granulifera* is an edge-of-range occurrence, being the southernmost in Australia. The main threats to the species in Tasmania are due to the localised and ephemeral nature of its occurrences, with stock grazing a possible risk at one site at least.

Stochastic risk: The apparent localised distribution of *Calandrinia granulifera*, combined with low abundance, exposes the species to local extinctions via chance events. The

species' ephemeral nature means that plants may not emerge or only emerge in low numbers in unfavourable years, hampering detection during impact assessment surveys of known or potential habitat.

Stock grazing: Stock were noted as being present at the more inland Cape Portland site in 1983, though their impact upon the species is unknown. The area has since been developed as a wind farm and it is unclear if grazing continues in the area or, indeed, if the species is still present.

MANAGEMENT STRATEGY

Management objectives

The main objectives for the recovery of *Calandrinia granulifera* are to prevent the loss or

degradation of known subpopulations, and to increase the number of subpopulations through survey.

What has been done?

Seed from the Waterhouse and Petal Point (north) subpopulations was collected in 2007 and 2008 for long-term conservation storage at the Tasmanian Seed Conservation Centre (based at the Royal Tasmanian Botanical Gardens, Hobart) (Wood 2014).

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.

- determine the size and full extent of subpopulations lacking such data;
- determine the impact of stock grazing at known sites (where applicable) and mitigate where deemed appropriate;
- conduct surveys for the species in suitable habitat from September to early December in years of 'good' rainfall, radiating out from known and suspected sites;
- 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 demographic monitoring of one or two of the known subpopulations to better inform future management needs.

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View:

www.dpipwe.tas.gov.au/threatenedspecieslists
www.threatenedspecieslink.tas.gov.au/

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