



Image by Richard Schahinger

Wurmbea latifolia subsp. *vanessae*

broadleaf early nancy

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name: *Wurmbea latifolia* subsp. *vanessae* R.J.Bates, *J. Adelaide Bot. Gard.* 16: 48 (1995)

Common name: broadleaf early nancy (Wapstra et al. 2005)

Group: vascular plant, monocotyledon, family **Liliaceae** (now Colchicaceae)

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: **Cradle Coast**

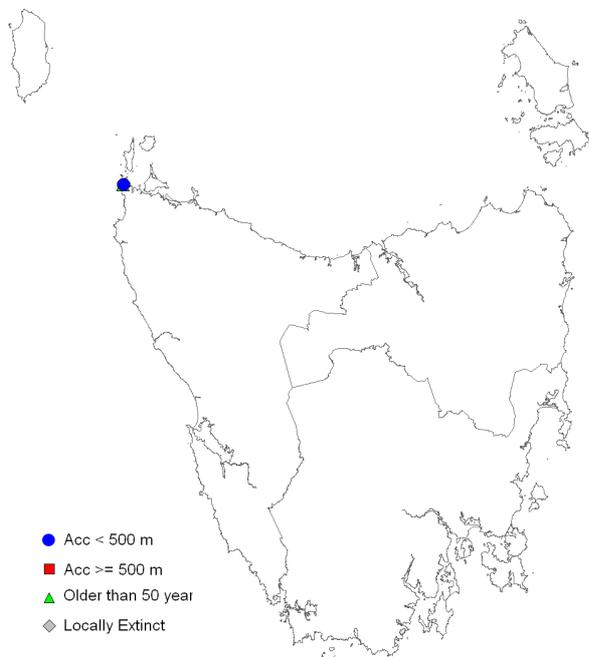


Figure 1. Distribution of *Wurmbea latifolia* subsp. *vanessae* in Tasmania



Plate 1. *Wurmbea latifolia* subsp. *vanessae*: female plants with developing fruit (image by Richard Schahinger)

IDENTIFICATION AND ECOLOGY

Wurmbea latifolia subsp. *vanessae*, known in Tasmania from a single population in the far northwest near Cape Grim, is a dioecious species (male and female flowers occur on separate plants). It is dormant over summer, shooting from a bulbous rootstock in response to early winter rains, with flowering in July and August. Pollination is likely to be achieved by unspecialised pollinators, including nectar-foraging flies, and recruitment is from seed. Seed may be shaken from dry capsules by wind or animals in late October or November, but are generally dispersed close to their maternal parent (Macfarlane 1980), with subsequent dispersal by ants a possibility.

Some species of *Wurmbea* are known to respond positively to fire (Barrett & Case 2006), though the response of *Wurmbea latifolia* subsp. *vanessae* is unknown.

Survey techniques

Surveys for *Wurmbea latifolia* subsp. *vanessae* should be undertaken during its peak flowering period, July and August.

Description

Wurmbea latifolia subsp. *vanessae* is a hairless perennial herb up to 15 cm high that grows from a bulb-like fleshy stem known as a corm. It has three leaves. The lower two are similar, close together or separated by up to 2 cm, broadly linear and 5 to 30 cm long and 1.5 to 8 mm broad. The lowest leaf is basal and not dilated, the middle leaf is slightly more erect and sometimes dilated basally and the upper leaf is smaller with an inflated base and short acuminate apex. The leaf margins are cartilaginous, usually with small irregular protuberances. Plants are dioecious, though male flowers may have a reduced pistil and female flowers may have vestigial filaments. The spike-like inflorescence of 2 to 9 star-shaped flowers is generally open and held well above the basal leaves. Each flower has 6 white segments (tepals), 5 to 11 mm long and about 1.5 mm wide, with a white or faint violet nectary situated in the lower third of each tepal. Male flowers (Plate 2), which tend to be slightly

larger than female flowers, have 6 stamens that are from one-third to half as long as the tepals, with purple anthers 1 to 1.5 mm long. The ovary is superior, 3-locular and the styles are free (Plate 1). The flowers purportedly have a strong and sweet fragrance. The fruit is an ovoid-shaped capsule up to 1.5 cm long. The seeds are spherical, smooth and brown in colour, about 1.5 mm in diameter, with several in each locule.

[description based on Macfarlane 1987, Bates 1995, and an examination of collections held by the Adelaide and Melbourne Herbaria in October]



Plate 2. *Wurmbea latifolia* subsp. *vanessae* male plant (image by Richard Schahinger)

Confusing species

There are three other *Wurmbea* taxa in Tasmania: *Wurmbea biglandulosa* subsp. *biglandulosa*, *Wurmbea dioica* subsp. *dioica* and *Wurmbea uniflora* (Buchanan 2009). *Wurmbea latifolia* subsp. *vanessae* can be distinguished from these three taxa due to a combination of characters, including its dioecious nature, paired basal leaves and white nectaries.

Wurmbea uniflora usually has a single flower and is monoecious, while *Wurmbea dioica* subsp. *dioica* has prominent purple nectaries and leaves that are finely tapered (Macfarlane 1980). *Wurmbea biglandulosa* subsp. *biglandulosa* is known in Tasmania from collections in the Furneaux Group in the 1970s. It has pink nectaries and at least some bisexual flowers.

Taxonomic issues

Two subspecies of *Wurmbea latifolia sensu* Macfarlane (1980) have been described. *Wurmbea latifolia* subsp. *latifolia*, which is restricted to South Australia, growing in heavy soils in the northern Mt Lofty Ranges and adjacent Flinders Ranges and *Wurmbea latifolia* subsp. *vanessae*, a variable taxon known from Victoria and South Australia (Bates 1995). The Tasmanian Herbarium has attributed Tasmanian plants to the latter subspecies

DISTRIBUTION AND HABITAT

Wurmbea latifolia subsp. *vanessae* occurs in South Australia, Victoria and Tasmania (Bates 1995). Until 2010 the taxon had been known in Tasmania from a single collection by Ronald Gunn in July 1836, the cited locality being ‘Woolnorth, sand hills on sea side’ (Macfarlane 1980). It was recorded in ostensibly the same location (Figure 1) in 2010, growing in short grassland dominated by *Poa rodwayi* (velvet tussockgrass) on stabilised near-coastal calcareous dunes (Plate 3).

Associated species within the grasslands include *Ficinia nodosa* (knobby clubsedge), *Hibbertia sericea* (silky guineaflower), *Acrotriche affinis* (ridged groundberry), *Chrysocephalum apiculatum* (common everlasting), *Dichondra repens* (kidney weed), a range of small native and introduced herbs, and mosses.

Plants have been recorded from west to northwesterly-facing slopes within 300 m of the coast in the altitude range 40 to 70 m above sea level. The annual mean rainfall at nearby Cape Grim is about 750 mm with a winter maximum, and strong westerly winds are the norm. The species has a linear range of 200 to 250 m, an extent of occurrence of about 0.01 km², and an area of occupancy of less than 1 ha.

The species’ native grassland habitat is thought to represent the remains of a once more widespread community that occupied near-coastal dunes between the Pieman River and Woolnorth Point (Stockton 1982, Schahinger 2002), part of the Temma land system (Richley 1978). The grasslands have been impacted since

European settlement through cattle grazing and over-firing, leading to wholesale dune destabilisation, followed by the planting of the introduced *Ammophila arenaria* (marram grass) (reportedly in the 1950s or 1960s for the Woolnorth area).

The dune system at the extant *Wurmbea latifolia* subsp. *vanessae* site extends over about 80 ha in a valley between bluffs of Tertiary basalt, one of which forms Cape Grim. Native grassland dominated by *Poa rodwayi* occupies about 3 ha of this area, though two-thirds of this is in relatively poor condition. Only those grasslands on the steeper seaward-facing slopes retain their species diversity, and even there it is quite low compared with analogous sites to the south of Arthur River (Schahinger 2002). Other areas are mostly covered by marram grass, with some small patches supporting native species such as *Lepidosperma gladiatum* (coast swordgrass) and *Poa poiiformis* var. *poiiformis* (coastal tussockgrass).

The near-coastal grasslands in Tasmania dominated by *Poa rodwayi* are a recognised facies of the vegetation community ‘Lowland *Themeda triandra* grassland’ (Harris & Kitchener 2005). They are also part of the ecological community ‘Lowland Native Grasslands of Tasmania’ that is listed as Critically Endangered on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.



Plate 3. *Wurmbea latifolia* subsp. *vanessae* habitat at Woolnorth (image by Richard Schahinger)

Table 1. Population summary for *Wurmbea latifolia* subsp. *vanessae* in Tasmania

	Subpopulation	Tenure	NRM Region	1:25000 Mapsheet	Year last (first) seen	Area occupied (ha)	Number of mature plants
1	Valley Bay, Cape Grim	private land	Cradle Coast	Grim	2010 (1836)	< 1	500–800

NRM region = Natural Resource Management region

POPULATION ESTIMATE

Wurmbea latifolia subsp. *vanessae* is known from a single subpopulation in Tasmania, with about 500 to 800 plants in an area of less than 1 ha (Table 1). It is likely that additional plants will be uncovered in the immediate area of the known occurrence given further survey effort. However, surveys of near-coastal remnant native grasslands in the region between the Pieman River and Studland Bay failed to locate the species (Schahinger 2002 & 2005). Targeted surveys between Arthur River and Possum Banks (Temma) in August 2010 were also unsuccessful, and the chances of additional subpopulations being found in those areas are considered to be low. Any small pockets of *Poa rodwayi* grassland between Studland Bay and the Cape Grim site may support the species, but further surveys are required.

RESERVATION STATUS

The species is not known from any formal reserve.

CONSERVATION ASSESSMENT

Under the name *Wurmbea latifolia*, the taxon was listed as rare on the Tasmanian *Threatened Species Protection Act 1995* in 1995 and up-listed to presumed extinct in 2008. Given its re-discovery at Woolnorth, the species was downlisted to endangered, qualifying under criterion B:

Extent of occurrence estimated to be less than 500 km² or area of occupancy less than 10 ha, and:

1. known to exist at no more than five locations;
2. continuing decline inferred in extent and quality of habitat.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Threats to *Wurmbea latifolia* subsp. *vanessae* include weed invasion, inappropriate stocking levels, habitat fragmentation and dune destabilisation.

Weed invasion: The species' native grassland habitat occurs as small patches within a veritable sea of the introduced marram grass (Plate 3), with the risk of further encroachment. The woody weed *Ulex europaeus* (gorse) also occurs in the immediate area, mainly as small patches or isolated plants, but it poses a potential risk to the species if left unchecked.

Stock: Cattle have had access to the area supporting the species for many years, possibly for as long as the site has been managed as a farm (since the 1830s). Stock pose a direct threat to plants via browsing, trampling and deposition of dung, though the species and its habitat has persisted in this one area for over 170 years. The physical disturbance caused by stock may lead to erosion of the sandy substrate, with the subsequent loss of habitat for the species through either destabilisation or invasion by marram grass.

Habitat fragmentation: The fragmented nature of the species' remaining habitat means that the opportunities for population expansion are limited. There may also be an impact on pollinator visitation, with consequences for the long-term viability of the subpopulation.

Stochastic risk: The species is known from a single very small population on private land, and is in consequence at risk of extinction due to unforeseen human activities or chance events.

MANAGEMENT STRATEGY

What has been done?

Survey: General surveys of potential habitat between the Pieman River and Studland Bay were undertaken in the period 2001 to 2004 (Schahinger 2002 & 2005) and targeted surveys of sites between Arthur River and Temma were undertaken in August 2010.

Management objectives

The main objectives for the recovery of *Wurmbea latifolia* subsp. *vanessae* in Tasmania are to maintain the viability of the existing subpopulation, promote conditions for the species' successful recruitment at the known site, extend the species' range to adjacent areas of degraded native grassland through the implementation of land management practices conducive to the species' survival and, if possible, increase the number of subpopulations through survey.

What is needed?

- undertake extension surveys of potential habitat between Woolnorth Point and Studland Bay;
- encourage the landholders of the known subpopulation to consider protection of the species' habitat through a vegetation management agreement or conservation covenant under the *Tasmanian Nature Conservation Act 2002*;
- develop and implement a management plan for the known site that addresses weed incursions, stock management practices and fire;
- in order to inform management prescriptions, undertake demographic monitoring to determine the species' response to browsing and grazing, fire, rainfall and competition;
- undertake a trial burn of marram grass infested habitat in the vicinity of the subpopulation to encourage germination and emergence and flowering of any remaining bulbs;
- collect seed for long-term storage at the Tasmanian Seed Conservation Centre at the Royal Tasmanian Botanical Gardens;
- provide information and extension support to the Cradle Coast Natural Resource Management Committee, local councils, government agencies, development proponents and the local community on the location, significance and management of known subpopulations and areas of potential habitat.

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www.dpipwe.tas.gov.au/threatenedspecieslists

Contact details: Threatened Species Section, Department of Primary Industries, Parks, Water & Environment, GPO Box 44 Hobart Tasmania, Australia, 7001. Ph (03) 6233 6556; fax (03) 6233 3477.

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