

Ranunculus prasinus

midlands buttercup

TASMANIAN THREATENED FLORA LISTING STATEMENT



Image by Mark Wapstra

Scientific name: *Ranunculus prasinus* Menadue, *Brunonia* 8: 375 (1985)

Common name: midlands buttercup (Wapstra et al. 2005)

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

Name history: tunbridge buttercup

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

Environment Protection and Biodiversity Conservation Act 1999: **Endangered**

Distribution: Endemic status: **Endemic to Tasmania**

Tasmanian NRM Region: **North**

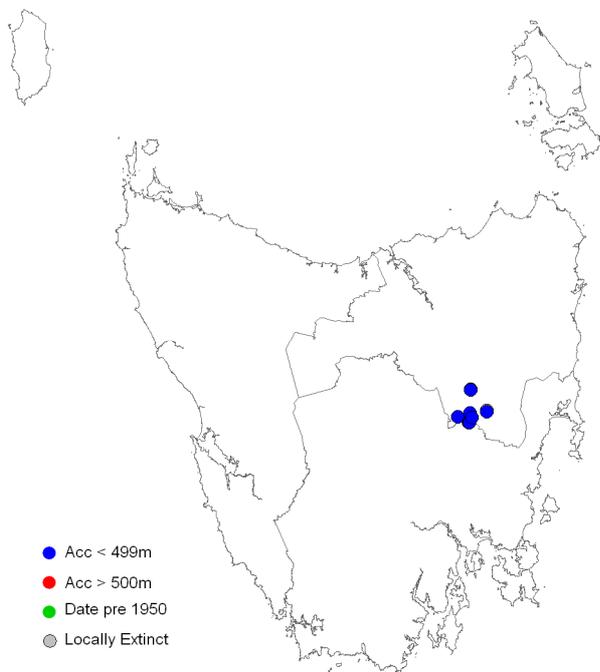


Figure 1. Distribution of *Ranunculus prasinus*



Plate 1. *Ranunculus prasinus*
(image by Mark Wapstra)

IDENTIFICATION AND ECOLOGY

Ranunculus prasinus is a small perennial mat-forming herb with small dissected leaves and conspicuous golden-yellow flowers on tall stalks (Plate 1). It is known from a few sites in Tasmania's Midlands, where it is generally found on the margins of brackish wetlands (Gilfedder et al. 1997).

Recruitment is primarily from underground stolons, though the species does set viable seed (Menadue & Crowden 1985). Its germination requirements are unknown. The seed has a relatively large achene that is beaked, possibly aiding dispersal by birds or animals. The presence of a nectary at the base of the petals and the bright yellow colour of flowers indicate that the species is likely to be pollinated by insects. The family Ranunculaceae is one of the few families known in which pollination by rain can occur, although this is not reported for *Ranunculus prasinus*.

Recruitment may be aided by soil disturbance, as the species has been observed to become dominant on small tracks formed by stock and irregular use of farm vehicles. Its spread into vegetation dominated by grasses is limited, a reflection of competition for resources, especially moisture, and it may benefit from the preferential grazing of species such as *Poa labillardierei* (silver tussockgrass).

Surveys for *Ranunculus prasinus* can be conducted anytime of the year as identifiable organs (e.g. rosettes of leaves) are likely to be present at all times, although it is noted that survey is significantly easier when the species is flowering (September to March). Any survey effort should be focused on potential habitat (i.e. wetlands and native grasslands bordering on wetlands). Identification by a specialist is recommended, though the combination of characters combined with habitat is usually sufficient to confidently identify the species.

Description

Ranunculus prasinus is a perennial herb with radical leaves arising from a short stout rhizome bearing fibrous roots. The rosettes of leaves are connected by slender underground

stolons. The leaves are grass-green and have a sparse covering of long soft hairs. The leaf stalks are generally 15 to 30 mm long and sparsely hairy, though if growing in wetlands can be up to 160 mm. Lamina are 6 to 20 mm long, ternate or ternately lobed to entire, with a few marginal hairs (description from Menadue & Crowden 1985 and 1989).

The solitary flowers are 10 to 12 mm in diameter on a stalk longer than the leaves, generally 25 to 35 mm long, or up to 90 mm long if growing in wetlands. The flowers are composed of 5 to 6 elliptic or ovate pale-yellow sepals 3.5 to 4 mm long, and 5 to 8 elliptic to obovate golden-yellow petals, 7 to 8 mm long, which narrow at the base forming a claw. The nectary, located above the claw, is shaped like a shallow pocket, with its width greater than or equal to its depth. There are 20 to 32 stamens. The 10 to 14 achenes (dry fruits) form globular heads 4 to 5 mm in diameter. Each achene is 1.8 to 2 mm long, hairless, semi-rounded in outline and beaked.

Confusing Species

Ranunculus prasinus can be distinguished from other *Ranunculus* species using a combination of several characters, including its pale yellow hairless sepals and relatively thin grass-green leaves. Other similar species, such as *R. collinus* and *R. glabrifolius*, have a covering of coarse hairs on the sepals and fleshier, glossy, dark green leaves (Menadue & Crowden 1985).

DISTRIBUTION AND HABITAT

Ranunculus prasinus is endemic to Tasmania's central Midlands, extending from Tunbridge in the south to Campbell Town in the north, a region that has some of the lowest average annual rainfall figures for Tasmania (c. 500 mm). The linear range of the species is 22 km, extent of occurrence 230 km², and area of occupancy less than 5 ha.

Table 1. Population summary for *Ranunculus prasinus*

	Subpopulation	Tenure	NRM Region	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of mature plants
1	Gavins Tier	Private *	North	Tunbridge	2010 (2005)	0.25–0.5	> 10,000
2	Tunbridge Tier Road	Private	North	Tunbridge	2000 (2000)	0.001	> 14,400
3	White Lagoon	Private *	North	Tunbridge	2010 (1982)	0.05	c. 5000 #
4	Near Lagoon	Private *	North	Ellinthorp	2010 (1984)	0.00002 (2)	18 # (5,000)
5	Stoyles Valley/Downs Creek	Private %	North	Ross	2004 (1993)	0.01	c. 10,000
6	Maclains Plain (east)	Private %	North	Jacobs	2010 (1991–1992)	0.33	1 to 2,000
7	Maclains Plain (west)	Private %	North	Jacobs	2004 (1991–1992)	2	> 10,000

*/% = land covered by conservation covenant (or vegetation management agreement) under the Tasmanian *Nature Conservation Act 2002*; **Data source:** unpublished data held by the Threatened Species Section, Department of Primary Industries, Parks, Water and Environment, Hobart; # = partial survey only

Ranunculus prasinus occurs on the margins of brackish wetlands where herbfields merge into grasslands dominated by silver tussockgrass (Plate 2). When the wetlands dry, the species may expand onto the wetland floor. All sites are flat or gently sloping and occur at altitudes of 190 to 260 metres above sea level. Soils are generally heavy clays and tend to be alkaline, the pH varying from 7.0 to 8.5 (Gilfedder et al. 1997).



Plate 2. *Ranunculus prasinus* habitat at Near Lagoon (image by Janet Smith)

Associated native mat-forming species include *Wilsonia rotundifolia* (roundleaf wilsonia), *Calocephalus lacteus* (milky beautyheads) and *Selliera radicans* (shiny swampmat), while co-occurring introduced rosette herbs include *Plantago coronopus* (buckshorn plantain), *Leontodon taraxacoides* (hairy hawkbit) and *Cirsium vulgare* (spear thistle) (Gilfedder et al. 1997).

POPULATION ESTIMATE

Ranunculus prasinus is thought to be extant at seven subpopulations (Table 1). Plant numbers may fluctuate from year to year depending on wetland levels but is estimated to be around 50,000, with several of the sites supporting more than 10,000 plants. The estimation of plant numbers is based on the number of rosettes, and does not take into account plants that may be joined by underground stolons. For species like *Ranunculus prasinus* that form dense colonies through vegetative reproduction, the area occupied by the species may be a better indicator of risk than the actual number of plants.

Four of the seven extant subpopulations have been discovered since the species' was listed on the schedules of the Tasmanian *Threatened*

Species Protection Act 1995, indicating that there is a reasonable likelihood of additional sites being found given a well-resourced and targeted survey effort.

RESERVATION STATUS

Not known from any formal reserve. Six of the seven extant subpopulations occur on land that is covered by either a conservation covenant or vegetation management agreement under the *Tasmanian Nature Conservation Act 2002* (Table 1).

CONSERVATION ASSESSMENT

Ranunculus prasinus was listed as endangered on the schedules of the *Tasmanian Threatened Species Protection Act 1995* in 1995, at that time satisfying criterion B:

- it is severely restricted, extending over an area of less than 500 km² and occupying less than 10 hectares;
- it occurs in 5 or less locations;
- there is a continuing decline.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Land clearance & heavy grazing: All subpopulations are on private land managed for sheep grazing. A large amount of grassland habitat has been lost in the past due to pasture improvement or cropping, and — prior to the establishment of covenants and vegetation management agreements for the majority of sites — changes in land use posed a threat to known sites (Table 1). Potential habitat in the Midlands continues to be threatened by land clearance and pasture improvement. It is noted that the species' preferred habitat (wetlands and grassland fringes of wetlands) is 'protected' by government policy through the listing of these vegetation types on the schedules of the *Tasmanian Nature Conservation Act 2002*.

Ranunculus prasinus tolerates light grazing (Gilfedder et al. 1997), but under heavy stocking rates it may be grazed back to the rootstock and could be eliminated from a site if heavy grazing were continued.

Hydrological changes: As the species occurs on the edge of wetlands, water relations are also important. Seasonal inundation is not considered to be a problem, though the risk of permanent flooding or draining is a major threat to all subpopulations, especially as the region is subject to low rainfall and landowners may wish to store water to better cope with drought. Changes in the water catchment of areas in which the species occurs represent a potential threat.

Climate change: While *Ranunculus prasinus* occurs in a region of naturally low rainfall, climatic warming has the potential to further exacerbate the precarious position of the species, particularly if the rainfall pattern changes.

Stochastic risk: *Ranunculus prasinus* is known from only seven extant subpopulations, essentially five locations as two properties each support two subpopulations. Plants at individual sites can number in the tens of thousands, but the area occupied by the species is generally very small and thus prone to being destroyed by chance events.

MANAGEMENT STRATEGY

What has been done?

- a recovery plan for *Ranunculus prasinus* was prepared in 1991 and partially implemented (Gilfedder 1991). The species has a current recovery plan (Threatened Species Section 2006);
- dedicated surveys of the species' habitat have been undertaken (Gilfedder 1991);
- plants propagated from three of the wild sites were planted at Township Lagoon Nature Reserve near Tunbridge in 1997 in an attempt to establish the species in a secure reserve (Gilfedder et al. 1997) — all plants have since died as a result of drought;
- conservation covenants or vegetation management agreement under the *Tasmanian Nature Conservation Act 2002* have been negotiated for private land supporting six of the seven extant sites, with associated management plans in place.

The agreements were realised by DPIPW's Private Land Conservation Program (PLCP) in the period 2009–2010;

- four of the extant sites were assessed by PLCP personnel in early 2010 (Table 1).

Management Objectives

The main objectives for the recovery of *Ranunculus prasinus* are to:

- maintain the viability of the known subpopulations and promote conditions for the species' successful recruitment;
- identify new subpopulations;
- increase the information and data available on the location, size and condition of known subpopulations;
- improve the understanding of the species' ecological requirements, especially in relation to disturbance regimes (e.g. stock grazing) and climatic conditions;
- improve the species' reservation status and/or develop management agreements with private landowners to minimise the loss or degradation of subpopulations.

What is needed?

- implement the current Recovery Plan;
- undertake demographic monitoring of the species at selected subpopulations;
- monitor covenant and vegetation management agreement compliance and review management prescriptions to maintain suitable habitat for the species;
- undertake extension surveys of suitable habitat in Tasmania's central Midlands;
- support the Private Land Conservation Program with the establishment of conservation covenants for private land supporting *Ranunculus prasinus*, and ensure that current priorities for the species are incorporated into the program's reservation strategies;
- provide information and extension support to relevant Natural Resource Management committees, local councils, Government agencies and the local community on the

location, significance and management of known subpopulations and areas of potential habitat;

- collect seed for long-term storage as part of the Millennium Seedbank (SeedSafe) Conservation Project, a joint project between Kew Gardens, the Royal Tasmanian Botanical Gardens, the Tasmanian Herbarium and the Department of Primary Industries, Parks, Water and Environment.

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Prepared in 2001 under the provisions of the Tasmanian *Threatened Species Protection Act 1995*.
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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.