Image by Adam Smith

Rytidosperma popinensis

blue wallabygrass

TASMANIAN FLORA SPECIES NOTESHEET

Scientific name: ***Rytidosperma popinensis*** (D.I.Morris) A.M.Humphreys & H.P.Linder, *Ann. Missouri Bot. Gard.* 97: 359-360 (2010)

Common name: blue wallabygrass (Wapstra et al. 2005)

Group: vascular plant, monocotyledon, family **Poaceae**

Name history: *Austrodanthonia popinensis, Danthonia popinensis* (**now** *Rytidosperma fulvum*)

Status: *Threatened Species Protection Act 1995*: **delisted April 2016**

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

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

Tasmanian NRM Region: **North, South**

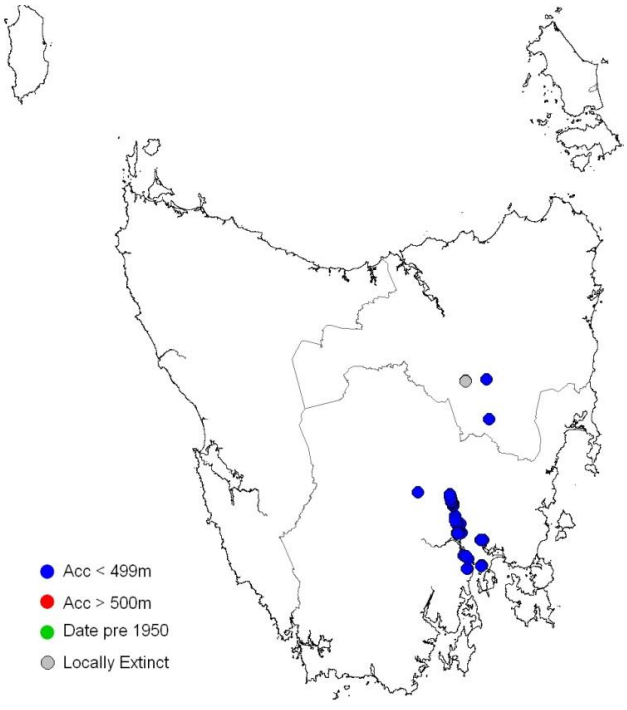

Figure 1. The distribution of *Rytidosperma popinensis*

Plate 1. *Rytidosperma popinensis:* habit (image by Louise Gilfedder)

IDENTIFICATION AND ECOLOGY

Rytidosperma popinensis is a tufted glabrous perennial grass in the Poaceae family that grows up to 45 cm high (Morris 1990, Curtis & Morris 1994). It is endemic to Tasmania's Midlands and lower Derwent Valley (Figure 1), growing for the most part along roadside verges.

The species is characterised by its bluish foliage (Plate 1), though identification is best made during the flowering period, December to March. Seed ripens by late autumn. Open conditions with gaps of bare ground are required for successful recruitment from seed. The species is also capable of vegetative spread (Gilfedder & Kirkpatrick 1997). Historically, fire and grazing are likely to have maintained open conditions suitable for the species.

Description

The lower leaves of *Rytidosperma popinensis* are pale, broad, flat and up to 15 cm long and 2 mm wide, while its upper leaves are finer with in-rolled margins. The flowering stems are smooth and finely ribbed with purple nodes. The flower head consists of numerous 5 to 6 flowered spikelets that are clustered towards the ends of branches in panicles up to 10 cm long. The lemma of each floret (the flower unit that encloses the seed) has two distinct rows of hairs and the area between has scattered hairs to 2 mm long. The lemma is distinctly lobed, with a central awn about 12 mm long arising from the sinus between two awned lobes that are about 7 mm long (Curtis & Morris 1994).

Confusing species

Rytidosperma popinensis may be confused with *Rytidosperma tenuius*. The latter species has panicles up to 20 cm long, and the area between the upper and lower rows of hairs on the lemma is glabrous or has only a few scattered hairs (Curtis & Morris 1994).

DISTRIBUTION AND HABITAT

Rytidosperma popinensis is endemic to Tasmania. It was first collected in 1985 from a grassy roadside verge at Kempton, and was subsequently described by Morris (1990). The majority of subpopulations occur on roadside verges in the Southern and Northern Midlands. These sites are generally on flat or gently sloping ground, on rock-free soils with a sandy loam or sandy clay loam topsoil (Gilfedder & Kirkpatrick 1997). The underlying substrate includes Jurassic dolerite, Triassic sandstone and Quaternary wind-blown sands. Elevation ranges from 15 to 200 m above sea level.

The original habitat for *Rytidosperma popinensis* is likely to have been grassy open woodlands dominated by eucalypts such as *Eucalyptus pauciflora* (cabbage gum) and *Eucalyptus viminalis* (white gum) (Leigh & Briggs 1992).

Rytidosperma popinensis has a linear range of 128 km, an extent of occurrence of 3400 km^2, and an estimated area of occupancy of about 15 hectares (Table 1).

POPULATION ESTIMATE

Twenty-one subpopulations of *Rytidosperma popinensis* have been recorded. At least one of these subpopulations is presumed to be extinct as a result of roadworks (Gilfedder & Kirkpatrick 1997). The confirmation of the identity of another has yet to be confirmed (Table 1). The total number of plants is thought to be in excess of 200,000, with the largest known subpopulation estimated to contain at least 127,000 plants (North 2001).

Several new subpopulations have been found in recent years, though most number in the thousands and have not significantly increased the total population size (Table 1). There is a reasonable likelihood that additional sites will be discovered given a well resourced and targeted survey effort.

RESERVATION STATUS

Rytidosperma popinensis is not known from any formal reserve. A number of subpopulations occur in informal road reserves managed by the Tasmanian Department of Infrastructure, Energy and Resources (DIER), while one subpopulation occurs in a council reserve on Hobart's Queens Domain (AVK Environmental Management 2007).

Table 1. Population summary for *Rytidosperma popinensis*

	Subpopulation	Tenure	NRM Region	1:25 000 mapsheet	Year last (first) seen	Area of occupancy (ha)	Number of plants
1	Hinsby Beach, Taroona	Council or Crown	South	Taroona	2008^ (2008)		
2	Oberon Court, Sandy Bay	Private	South	Taroona	2000 (2000)		> 200
3	Queens Domain	Council	South	Hobart	2007 (2007)		1000 (several sites)
4	Cornelian Bay	Public Reserve	South	Hobart	2008 (2002)	0.5	1000–1500
5	Lutana	Private	South	Hobart	2001 (2001)		Common?
6	Goodwood	DIER	South	Hobart	2004 (2004)	0.4	> 200
7	Rokeby	Private	South	Hobart	2008 (2005)		3600–9000
8	Parkholm	DIER	South	New Norfolk	2008^ (2008)		200
9	Richmond Road	Private	South	Richmond	2004 (2004)	1.8	>40 000
10	Church Road & Commercial Road	Road Reserve, Private	South	Richmond	2004 (2004)		100–150
11	Brighton	Private	South	Broadmarsh	2004	5	1000–1500
12	Brighton Army Barracks	Private	South	Tea Tree	2001 (2000)	7.2	127 000 (= minimum; max 520 000)
13	Tea Tree Road	Road Reserve, Private	South	Tea Tree	2002	0.5	10000–30000
14	Middle Tea Tree Road	Road Reserve	South	Tea Tree	1997^		230
15	Mangalore	DIER	South	Tea Tree & Broadmarsh	2002 1999	1.185	8800–15 050 > 7500
16	Ballyhooly Road	Private	South	Tea Tree	1999		
17	Midland Highway, (Bagdad)	DIER, Cemetery, Department of Education	South	Elderslie	1999		Small sub-population
	(north of Bagdad)	Road Reserve	South	Elderslie	1999		

	Subpopulation	Tenure	NRM Region	1:25 000 mapsheet	Year last (first) seen	Area of occupancy (ha)	Number of plants
18	Midland Highway (south of Kempton)	DIER, Private	South	Elderslie & Kempton	2002 1999	0.0004 > 0.0001	50 > 6
	(Quoin Road, Kempton)	DIER	South	Kempton	2002 1999	0.18 0.03	< 1000 1000
	(Kempton)	DIER	South	Kempton	2002 1999	0.085 0.028	470–830 2200
	(Kempton – Melton Mowbray)	DIER, Private	South	Kempton	2002 1999	0.11 0.12	1000–2250 2630
	(south of Melton Mowbray)	DIER, Private	South	Kempton	2002 1999	0.22 0.34	750–1200 7400
	(Melton Mowbray)	Road Reserve	South	Kempton	1999	0.0025	100
19	Hollow Tree Road	Road Reserve	South	Montacute	2002		Local
20	Ross	Road Reserve, Private	North	Ellinthorp	2002 2000	0.055	130–240 > 1000
21	Vaucluse	Private	North	Cleveland	1990s		ID to be confirmed
22	Valleyfield Road	Road Reserve	North	Cleveland	1996 (1986)		Extinct

* = covered by a Part 5 Agreement under the Tasmanian *Land Use Planning and Approvals Act 1993*;
DIER = Tasmanian Department of Infrastructure, Energy and Resources; ^ = A. North (2008, pers. comm.)

CONSERVATION ASSESSMENT

Rytidosperma popinensis was listed as endangered on the original schedules of the Tasmanian *Threatened Species Protection Act 1995* (under the name *Danthonia popinensis)*. It was downlisted to rare in September 2012, qualifying under criterion A:

- A taxon of limited distribution or numbers, threatened by existing on-going processes occurring over sufficient of their range to suggest that they would satisfy the indicative criteria for vulnerable unless the threatening process was abated based on:
  2. the area of occupancy is not more than 50 hectares.

However, Lorimer (2014) has attributed the species to *Rytidosperma fulvum,* a species that is widespread and common on the southeastern mainland of Australia, and presented strong evidence to support the species being introduced in Tasmania and spreading along the road network. As a consequence, *Rytidosperma popinensis* was delisted in April 2016.

The species was delisted from the Commonwealth Environment Protection and biodiversity Conservation Act 1999 in September 2015.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

The primary threat to *Rytidosperma popinensis* is clearance of its grassy woodland habitat for agricultural and urban development. Additional threats include inappropriate management of roadside occurrences, overgrazing, competition from exotic plants and the stochastic risk of extinction (for smaller occurrences).

Rytidosperma popinensis tends to be associated with disturbed open sites rather than 'intact' native grasslands (AVK Environmental Management 2007), with the majority of known sites limited to roadside verges. The open conditions favoured by the species may be provided by either fire or slashing/mowing after seed has dispersed. However, the increase in bare ground associated with such disturbance may also encourage competition from exotic

species (Gilfedder & Kirkpatrick 1997).

Habitat clearance: Clearance for housing, agriculture and transport corridors pose a direct threat to the species. Clearance of native woodlands in areas susceptible to salinisation may result in the degradation of surrounding native grasslands.

Inappropriate roadside management: Many subpopulations occur along roadside margins. Activities such as ill-timed slashing, and future road upgrades may pose a threat to the species if not managed appropriately.

Overgrazing: Grazing throughout the year can prevent new seed from forming and dispersing and therefore new plants from germinating. Persistent overgrazing is thus a threat to the species, as evidenced by the decline in the private land portion of the Tea Tree Road/Pontville subpopulation since its discovery in 2002 (Schahinger, pers. comm.). The chances of the species spreading into private land from adjoining road reserve sites are low due to the likelihood of overgrazing.

Weeds: Many of the species' roadside occurrences are threatened with competition from exotic species, including grasses, african boxthorn, briar rose, pines and elm suckers.

Stochastic risk: The small size of some of the subpopulations exposes them to the risk of extinction through stochastic events.

MANAGEMENT STRATEGY

What has been done?

Roadside management: National roadsides in Tasmania are monitored and managed by the Tasmanian Department of Infrastructure, Energy and Resources (DIER). Maintenance schedules of roadsides along the Midland Highway have been documented in DIER management plans. These plans include maps that detail locations of rare, vulnerable and endangered plants occurring along the roadside and their required management (North 2000). Provided that these management plans are kept up to date and the prescribed maintenance is sustainable and carried out as planned, the risk of subpopulations being lost is reduced.

A management agreement between DIER and the Department of Primary Industries, Parks, Water & Environment includes prescriptions for five *Rytidosperma popinensis* sites along the Midland Highway (DIER 2005). Site markers have been erected to ensure that roadside maintenance operators can easily identify sites and manage them accordingly. Prescriptions include the control of exotic grasses and woody weeds, and the slashing of vegetation outside the species' main flowering period (November to January inclusive).

Conservation covenants: One of the largest known *Rytidosperma popinensis* subpopulations occurs on the old Army Barracks site between Brighton and Pontville (North 2001). The land is covered by a Part 5 Agreement under the Tasmanian *Land Use Planning and Approvals Act 1993*, with an associated Nature Conservation Plan that includes prescriptions to ensure the species' ongoing protection and management (dated September 2002). The agreement obliges the landowner to establish permanent sampling transects to be monitored by qualified persons, with the results of the monitoring to be reported to Brighton Council every four years.

Management objective

The main objective for the recovery of *Rytidosperma popinensis* is to prevent the inadvertent destruction of subpopulations, maintain the viability of existing subpopulations, and promote conditions for the species' successful recruitment through habitat management.

What is needed?

Note that the following actions no longer apply as the species has been deemed to be introduced to Tasmania and was delisted in April 2016.

- 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;
- assess known subpopulations to determine

their current status and management requirements;

- undertake extension surveys of suitable habitat;
- prioritise more natural sites for recovery actions;
- implement DIER roadside management plans, evaluate the efficacy of management to date (DIER 2005) and modify management prescriptions as required;
- implement the Part 5 Agreement and the associated Nature Conservation Plan for the Brighton Army Camp subpopulation, reviewing and modifying management prescriptions as required;
- pursue increased security and improved management of subpopulations on private land through private land conservation programs;
- consider the establishment of an *ex situ* subpopulation at a secure and ecologically suitable site (Gilfedder and Kirkpatrick 1997);
- collect seed for long-term conservation storage at the Tasmanian Seed Conservation Centre;
- monitor key sites at two-yearly intervals to determine the level of recruitment and/or plant loss and to better inform management prescriptions.

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Prepared in 2009 under the provisions of the Tasmanian *Threatened Species Protection Act 1995*. First approved by the Secretary and published as a Listing Statement in July 2010 (name and conservation status updated in October 2012 and November 2015 and converted to a notesheet in May 2016 following delisting).

Cite as: Threatened Species Section (2016) *Notesheet for* Rytidosperma popinensis *(blue wallabygrass)*, Department of Primary Industries, Parks, Water and Environment, Tasmania.

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