All images by Richard Schahinger

Ozothamnus reflexifolius

reflexed everlastingbush

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name: ***Ozothamnus reflexifolius*** K.Leeson & Rozefelds, *Aust. Syst. Bot.* 16(3): 319 (2003)

Common name: reflexed everlastingbush (Wapstra et al. 2005)

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

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

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

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

Tasmanian NRM Region: **South**

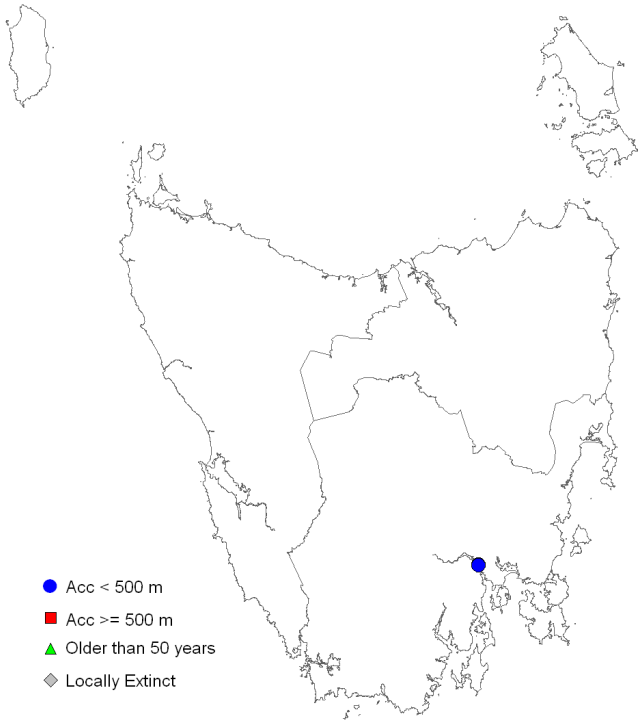

Figure 1. Distribution of *Ozothamnus reflexifolius*

Plate 1. *Ozothamnus reflexifolius*

IDENTIFICATION AND ECOLOGY

Ozothamnus reflexifolius is a woody shrub in the Asteraceae (daisy) family. The species is an obligate seeder, with the only known population displaying signs of continuous recruitment. Seed remains viable for a relatively short period, and plants take 5 to 6 years to reach maturity (Leeson & Kirkpatrick 2004a).

The species displays a sympodial branching pattern, plants producing a new set of branches each year, with a strong relationship between the age of plants and plant height (Leeson & Kirkpatrick 2004a). Observed pollinators include hover flies (*Syrphidae* spp.).

Ozothamnus reflexifolius flowers from November to March, but the species may be identified at any time of year due to its distinctive foliage (Plate 1).

Description

Ozothamnus reflexifolius is a woody shrub with slender spreading branches, typically 0.5 to 1.3 m high. Mature leaves are closely spaced and arranged alternately along the stem. They are sessile, with the lower third fused to the stem, and are bright green and viscid. The distal portions of the leaves are strongly reflexed, almost at right angles to the stem in younger growth and parallel to the stem in older growth. The reflexed portions of the leaves are broadly ovate to orbicular, 0.7 to 1.2 mm long and 1 to 1.4 mm wide. The cream to yellowish flowers are arranged together in terminal clusters of 5 to 8, and lateral branches arise immediately below the flower heads. The small, dry fruit (achene) is covered in tiny protrusions, and the bristles of the pappus (a ring of hairs found on top of fruit) are barbed and slightly thickened at the tips. [description from Leeson & Rozefelds (2003)]

Confusing Species

Ozothamnus reflexifolius may be distinguished from the closely related Tasmanian endemics *Ozothamnus lycopodioides* and *Ozothamnus selaginoides* by its strongly reflexed leaves (Leeson & Rozefelds 2003).

DISTRIBUTION AND HABITAT

Ozothamnus reflexifolius is endemic to Tasmania. It is known from a single site in the Meehan Range in the State's southeast (Leeson & Rozefelds 2003). The subpopulation is centred on a large dolerite rock plate, with plants occurring in either *Allocasuarina verticillata* (drooping sheoak) woodland (Plate 2), open heath or in crevices in sheer dolerite (Leeson & Kirkpatrick 2004a & b). Co-occurring heath species include the endemic shrubs *Epacris tasmanica* and *Spyridium obovatum* var. *velutinum*, and the resurrection fern *Cheilanthes austrotenuifolia*.

Altitude at the site varies from 180 to 350 m above sea level, aspect from northwesterly through to southwesterly, slopes from gentle to sheer, and annual rainfall in the area is less than 600 mm.

The species has a linear range of 300 m, an extent of occurrence of 4.8 ha, and an area of occupancy of about 2 ha (Table 1).

Plate 2. Sheoak woodland with *Ozothamnus reflexifolius* dominating the shrub layer

Table 1. Population summary for *Ozothamnus reflexifolius*

	Subpopulation	Tenure	NRM region *	1:25 000 mapsheet	Year last (first) seen	Area of occupancy (ha)	Number of mature plants
1	Meehan Range	Nature Recreation Area	South	Richmond	2013 (2000)	1.5–2	4000–5000

* NRM region = Natural Resource Management region

POPULATION PARAMETERS

Ozothamnus reflexifolius consists of a single subpopulation of about 4000 to 5000 mature individuals (Table 1).

The Meehan Range site was discovered in 2000, with the species being described formally in 2003 (Leeson & Rozefelds 2003). Extensive surveys of rockplate environments in Tasmania in the 1990s failed to locate the species (Gilfedder et al. 1997), while more recent targeted surveys of seemingly suitable habitat in southeastern Tasmania have also been unsuccessful. The likelihood of additional subpopulations being discovered is considered to be low.

RESERVATION STATUS

Ozothamnus reflexifolius occurs within Meehan Range Nature Recreation Area.

CONSERVATION ASSESSMENT

Ozothamnus reflexifolius was listed on the schedules of the Tasmanian *Threatened Species Protection Act 1995* in 2004 as vulnerable. It satisfies criterion D:

- total population with an area of occupancy less than 5 hectares 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 endangered in a very short time period.

THREATS, LIMITING FACTORS & MANAGEMENT ISSUE

The Meehan Range subpopulation has natural topographic and vegetative barriers to anthropogenic disturbance, and the foliage of the species does not appear to be browsed by either native or introduced animals (though there is evidence of wallabies chewing the bark of older plants). In addition, the core of the subpopulation, an open rockplate heath with a west to southwesterly aspect, occupies what may be considered a fire-protected area.

Leeson & Kirkpatrick (2004a) have conjectured that *Ozothamnus reflexifolius* is a relictual species, its extremely localised distribution being a consequence of past fire regimes in which the species has been eliminated from nearby rockplates that do not possess the same variability in terms of aspect.

The main threats to the species are detailed below.

Fire: Leeson & Kirkpatrick (2004a) noted that a fire frequency of less than six years had the capacity to eliminate the species, but acknowledged that the rocky nature of the site and the range of aspects meant that such a scenario was unlikely to be realised. Conversely, the prolonged absence of fire may result in local declines in areas currently dominated by drooping sheoak, with the build up of needles impeding recruitment.

Drought: Southern Tasmania experienced a severe drought in the mid 2000s, leading to a 10–20% reduction in mature individuals of *Ozothamnus reflexifolius* in the period 2000 to 2008. Drought also impacted on recruitment levels, though there has been good recovery since 2009. Comparatively speaking the species is highly drought tolerant, and has fared better than other plant species in the immediate area, e.g. *Epacris tasmanica*, *Spyridium obovatum* var. *velutinum, Eucalyptus globulus* and *Allocasuarina verticillata* (the tree shown in Plate 2 having died and been uprooted by strong winds).

Climate change: Projections for the Brighton Municipality in the 21st century include a rise in average air temperatures and a change in the frequency, intensity and duration of hot and cold extremes (Grose et al. 2010). These

changes will impact upon the habitat of *Ozothamnus reflexifolius*, though the mechanisms for the impact and the degree of threat to the species have not been quantified.

Stochastic events: The localised distribution of *Ozothamnus reflexifolius* exposes it to a stochastic risk of extinction.

MANAGEMENT STRATEGY

What has been done?

- Studies of the population's ecology have been undertaken as part of an Honours project at the University of Tasmania (Leeson & Kirkpatrick 2004a & b).
- Extension surveys have been conducted of the wider Meehan Range area by personnel with the Threatened Species Section, the Tasmanian Herbarium and the Tasmanian Parks and Wildlife Service
- Seed has been collected for long-term storage at the Tasmanian Seed Conservation Centre (Royal Tasmanian Botanical Gardens, Hobart).
- *Ex situ* stock plants have been cultivated at the Royal Tasmanian Botanical Gardens.
- A monitoring transect was set up at the Meehan Range site by DPIPWE personnel in April 2013 to allow the species' response to a proposed burn of the area by the Tasmanian Parks & Wildlife Service to be determined: the results indicated that the species is an obligate seeder.

Management objectives

The main objective for the recovery of *Ozothamnus reflexifolius* is to prevent the inadvertent destruction of the known subpopulation, protect the known site from direct physical disturbance and promote conditions for the species' successful recruitment.

What is needed?

- provide information and extension support to Natural Resource Management committees, local councils and government agencies on the significance and management of the known *Ozothamnus reflexifolius* subpopulation and areas of potential habitat;
- incorporate (and implement) measures for the protection of the species and its habitat in the Management Plan for the Meehan Range Nature Recreation Area;
- monitor the known subpopulation biennially to determine the level of recruitment and/or plant loss, and to identify and address any threatening processes;
- conduct extension surveys of suitable habitat in southeastern Tasmania.

BIBLIOGRAPHY

Gilfedder, L., Kirkpatrick, J.B. & Ziegeler, D. (1997). *Characteristics and Conservation Status of Rock Pavement Vegetation in Lowland Perihumid and Subhumid Tasmania*. A report to the Australian Heritage Commission from the University of Tasmania.

Grose, M.R., Barnes-Keoghan, I., Corney, S.P., White, C.J., Holz, G.K., Bennett, J.B., Gaynor, S.M. & Bindoff NL (2010). *Climate Futures for Tasmania: general climate impacts technical report*, Antarctic Climate & Ecosystems Cooperative Research Centre, Hobart, Tasmania.

Leeson, K.E. & Kirkpatrick, J.B. (2004a). Ecological and physiological explanations for the restriction of a Tasmanian species of *Ozothamnus* to a single population. *Australian Journal of Botany* 52: 39–45.

Leeson, K.E. & Kirkpatrick, J.B. (2004b). Vegetation patterns associated with a large rock plate in the Meehan Range, Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 138: 47–52.

Leeson, K.E. & Rozefelds, A.C. (2003). A new endemic *Ozothamnus* species (Asteraceae) from Tasmania, Australia. *Australian Systematic Botany* 16: 317–322.

Wapstra, H., Wapstra, A., Wapstra, M. & Gilfedder, L. (2005). *The Little Book of Common Names for Tasmanian Plants*.

Department of Primary Industries, Water and Environment, Hobart.

Prepared in 2009 under the provisions of the Tasmanian *Threatened Species Protection Act 1995*. Approved by the Secretary and published in January 2010; revised October 2013.

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View:
www.dpipwe.tas.gov.au/threatenedspecieslists

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