

Alternanthera denticulata

lesser joyweed



Image by Richard Schahinger

TASMANIAN THREATENED SPECIES LISTING STATEMENT

Scientific name: *Alternanthera denticulata* R.Br., *Prodr.* 417 (1810)

Common name: lesser joyweed (Wapstra et al. 2005)

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

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

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

Distribution: Endemic: **Not endemic to Tasmania**

Tasmanian NRM Region: **North**

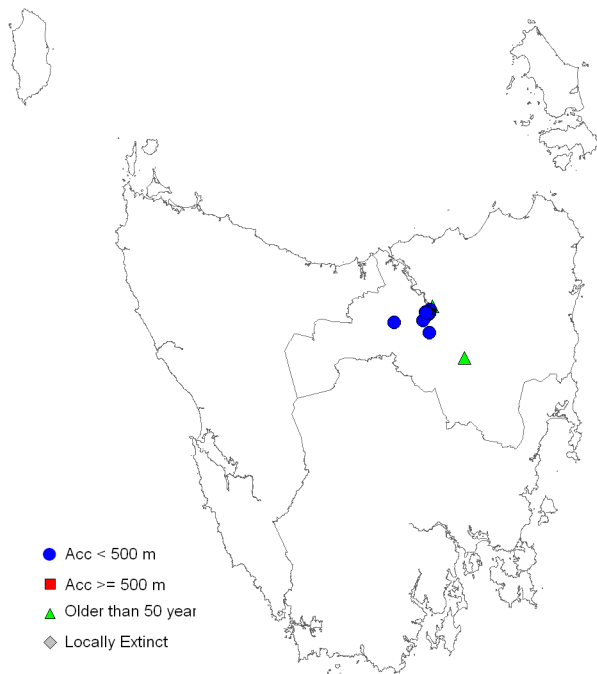


Figure 1. Distribution of *Alternanthera denticulata* in Tasmania



Plate 1. *Alternanthera denticulata* showing sprawling habit amongst dolerite boulders at Cataract Gorge (image by Richard Schahinger)

IDENTIFICATION AND ECOLOGY

Alternanthera denticulata is a low scrambling, annual or perennial herb in the Amaranthaceae family. The species is known in Tasmania from a few riparian sites in the State's central north. It is capable of spreading vegetatively through rooting at the nodes, though recruitment is believed to primarily from seed.

Survey techniques

The main flowering period for the species is from October to February, but flowers may occur most of the year. The species' distinctive flowers and foliage makes identification possible at any time of year (Plate 1).

Description

Alternanthera denticulata is a trailing to weakly ascending herb, with stems to 50 cm long or sometimes longer. Its leaves are oblong or narrowly elliptic, 25 to 70 cm long and 2 to 8 mm wide, almost hairless, and have bluntly pointed tips. The flowers occur in the leaf axils in spherical to ovoid spikes that are 4 to 8 mm long. The bracts surrounding the flowers are 2 to 3.5 mm long and less than 1 mm wide and are papery, white or pinkish and hairless. The fruit is indehiscent (does not open to release seeds), flattened, broadly heart-shaped and about 1 mm long and 1.5 mm wide.

[description based on Curtis (1967), Walsh & Entwisle 1996]

Confusing species

There are no confusing species in Tasmania.

DISTRIBUTION AND HABITAT

Alternanthera denticulata occurs in all Australian States, the Northern Territory and the ACT (Walsh & Entwisle 1996).

The species' current stronghold in Tasmania is the South Esk River downstream of Trevallyn Dam (including Cataract Gorge). The first collection of the species in Tasmania dates to 1877 from the middle reaches of the South Esk River (Clyne Vale near Epping Forest), with contemporary records from the same river at Longford and Hadsphen, and also along the

West Tamar about 800 m downstream of the mouth of the South Esk River. In the past few years it has also been recorded from two sites near Westbury: beside a recently constructed bridge over Quamby Brook (a tributary of the South Esk), and nearby at the margins of an artificial dam. The species was first recorded at Cataract Gorge in 1993 despite botanists being active in the area since at least the 1860s. It has been suggested that the species may have colonised the area after the construction of the Trevallyn Dam in the 1950s (North Barker & Associates 2001).

Alternanthera denticulata displays a preference for rocky (dolerite) river margins (Plates 1 & 2), but has also been recorded from disturbed *Melaleuca ericifolia* (paperbark) swamp forest and damp riparian grasslands. Co-occurring threatened species include *Centipeda cunninghamii* (erect sneezeweed), *Mentha australis* (river mint), *Persicaria decipiens* (slender waterpepper) and *Persicaria subsessilis* (bristly waterpepper).

The linear range of extant sites in Tasmania is 26 km, with an extent of occurrence 190 km², and an area of occupancy of 5 to 10 ha.



Plate 2. Habitat of *Alternanthera denticulata* along the South Esk River downstream of Second Basin (with willows in the left foreground) (image by Richard Schahinger)

POPULATION ESTIMATE

There are five extant subpopulations of *Alternanthera denticulata* in Tasmania supporting a total of about 2500 plants, and a further two historic records (Table 1).

Table 1. Population summary for *Alternanthera denticulata* in Tasmania

	Subpopulation	Tenure	NRM region	1:25000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of plants
1	Trevallyn Dam – First Basin (South Esk River)	Trevallyn Nature Recreation Area, Crown land* & Launceston City Council	North	Prospect, Launceston	2010 (1993)	5–10 (extends over a 6 km stretch of river)	1500+
2	West Tamar	Launceston City Council	North	Launceston	2010 (2002)	0.4	c. 1000
3	Hadspen (South Esk River)	Crown land**	North	Prospect	2010 *	0.0001	2
4a	Westbury	Private land	North	Westbury	2006	0.001	5
4b	Westbury (Quamby Brook)	Crown land**	North	Westbury	2010	0.1	50
5	Longford (South Esk River)	Conservation Area	North	Longford	2000	unknown	unknown
6	Launceston swamp	Private land?	North	Launceston	1905	presumed extinct	
7	Clyne Vale (South Esk River)	Private land	North	Cleveland	1878 (1877)	presumed extinct	

NRM region = Natural Resource Management region;

* recommended for Conservation Area status under the *Nature Conservation Act 2002* (CLAC Project Team 2006a);

** recommended for Public Reserve status under the *Crown Lands Act 1976* (CLAC Project Team 2006b)

The results of surveys undertaken by Threatened Species Section staff in 2010 suggest that there is a reasonable likelihood of additional plants being located along the South Esk and its tributaries. However, given the sparse nature of known stands upstream of Trevallyn Dam and the willow-infested nature of the river system, it is considered unlikely that total plant numbers would vary by an order of magnitude.

RESERVATION STATUS

Reserved within Trevallyn Nature Recreation Area and an unnamed Conservation Area near Longford.

CONSERVATION ASSESSMENT

Alternanthera denticulata was listed as endangered on the schedules of the *Tasmanian Threatened Species Protection Act 1995* when the Act came into being. It qualifies for listing under the following 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. a continuing decline observed or projected in the area, extent and/or quality of habitat.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Inundation and regulated flow regimes: The species' main subpopulation occurs along the South Esk River downstream of Trevallyn Dam. The dam was constructed in the 1950s and the species only came to light in the area in the early 1990s. It is now a ubiquitous, albeit scattered, presence over a 6 km stretch of river from just below the dam to downstream of First Basin. The current regulated flow regime would appear to favour *Alternanthera denticulata* (as well as the endangered species, *Mentha australis* and *Persicaria subsessilis*), though in most areas it is at risk from a range of weeds

encouraged by the same flow regime, and its long-term survival remains problematic. Any changes to the current regulated flows have the potential to impact profoundly on the species (North Barker & Associates 2001).

Weed invasion: The species' habitat along the South Esk River downstream of Trevallyn Dam has been invaded by a diverse range of weeds, a consequence of a catchment that encompasses large tracts of agricultural land, the river's regulated flow regime and an adjacent urban environment. Willow (*Salix* spp.), gorse (*Ulex europaeus*), and blackberry (*Rubus* spp.) are all prominent (North Barker & Associates 2001). Herbaceous weeds of note include red valerian (*Centranthus ruber*) and birdsfoot-trefoil (*Lotus corniculatus*). Umbrella sedge (*Cyperus eragrostis*) is also conspicuous. Upstream of Trevallyn Dam the South Esk River is characterised by long stretches of willow, limiting recruitment opportunities for *Alternanthera denticulata*. The small West Tamar site is also badly weed-infested, with species such as ivy (*Hedera helix*), japanese honeysuckle (*Lonicera japonica*), wandering creeper (*Tradescantia albiflora*) and willow all prolific.

Stochastic risks: Three of the five known subpopulations support fewer than 100 mature plants (Table 1). The species is in consequence considered to be at risk from local extinctions due to unforeseen human activities or chance events.

MANAGEMENT STRATEGY

What has been done?

Surveys: Surveys of the species' riparian habitat along the lower South Esk River between Trevallyn Dam and the First Basin were undertaken in 2001 by North Barker & Associates (2001), and again in 2010 by Threatened Species Section personnel who also conducted extension surveys further upstream at Hadspen and Westbury.

Weed management: Limited weed control has been undertaken along the lower reaches of the South Esk River, with willow being targeted in the area between Duck Reach and Second Basin (North Barker & Associates 2001, PWS 2008), and Launceston City Council have been

active in the Cataract Gorge Reserve and the West Tamar site.

Seed banking: Seed has been collected from the West Tamar subpopulation for long-term storage at the Tasmanian Seed Conservation Centre.

Management objectives

The main objectives for the recovery of *Alternanthera denticulata* are to minimise the probability of extinction of the wild population by ensuring habitat protection, and to secure all key subpopulations under effective management regimes within the next five years.

What is needed?

- formally reserve areas of Crown land that support the species (CLAC 2006a & b);
- prepare and implement a weed management plan for the Trevallyn Nature Recreation Area and the Launceston City Council's Cataract Gorge Reserve to ensure that works along the South Esk River downstream of Trevallyn Dam are undertaken in a strategic manner;
- conduct extension surveys to determine the species' full extent along the South Esk River and its major tributaries, and identify relevant management issues;
- liaise with Hydro Tasmania to ensure that any changes to the current flow regime along the South Esk River downstream of Trevallyn Dam are documented and their impact on the species monitored;
- establish permanent plots for the species at key sites and monitor at two-yearly intervals to determine trends and any new threats;
- provide information and extension support to the Northern Natural Resource Management committee, local councils, government agencies, development proponents and the local community on the locality, significance and management of known subpopulations and areas of potential habitat.

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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.