



Limonium australe var. *baudinii*

tasmanian sea-lavender

TASMANIAN THREATENED FLORA LISTING STATEMENT

Image by Tim Rudman

Scientific name: *Limonium australe* (R.Br.) Kuntze var. *baudinii* (Lincz.) A.M.Gray, *Kanunnah* 4: 117 (2011)

Name history: *Limonium baudinii*

Common names: tasmanian sea-lavender (Wapstra et al. 2005), Baudins sea lavender

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

Status: *Threatened Species Protection Act 1995*: **vulnerable**
Environment Protection and Biodiversity Conservation Act 1999: **Vulnerable**

Distribution: Endemic: **Tasmanian endemic**
Tasmanian NRM Regions: **South**

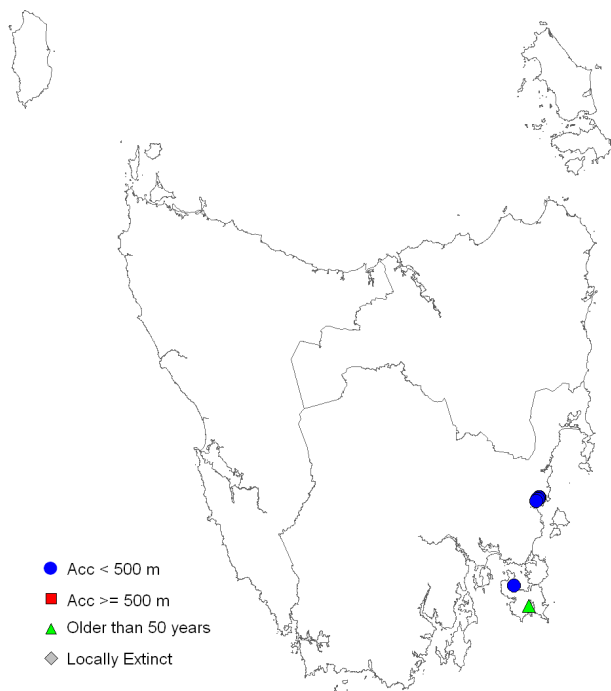


Figure 1. Distribution of *Limonium australe* var. *baudinii*, showing NRM regions



Plate 1. *Limonium australe* var. *baudinii* in flower (image by Tim Rudman)

SUMMARY: *Limonium australe* var. *baudinii* is a short-lived perennial herb in the Plumbaginaceae (leadwort) family. It is endemic to saltmarshes in southeastern Tasmania. The total population consists of fewer than 1500 mature plants. The species' habitat is at risk from drainage and land reclamation, eutrophication, mechanical disturbance and, in the longer term, rising sea levels associated with climate change.

IDENTIFICATION AND ECOLOGY

Members of the Plumbaginaceae family have leaves with chalk-glands that allow them to cope with extremely saline conditions. The glands excrete calcareous salts that are dissolved in the water of the plant's tissues ... excretion moves the salts out of the plant where they may crystallise and be washed away (University of California 2003). *Limonium australe* var. *baudinii* recruits from seed.

Survey techniques

Limonium australe var. *baudinii* can be identified to species level from its foliage, but flowering material is required to identify it to varietal level. Flowering occurs from January to April, with material adequate for identification purposes being retained on the plant for at least a further month or two.

Description

Limonium australe var. *baudinii* is a glabrous short-lived perennial herb with a stout, erect, woody rootstock. The leaves form a basal rosette, are oblanceolate to spatulate in shape and 5 to 15 cm long by 8 to 25 mm wide. The leaf margins are entire but often undulate. Flowering stems are erect, 20 to 45 cm high, green and angular, much-branched and forming corymbose panicles that bear numerous subsessile spikelets towards the end of the branches. The white to pink calyx is 6 to 8 mm long, with a 5-ridged glabrous tube 4 to 5 mm long. The petals are slightly longer than the calyx, the small lobes being oblong and yellow. The fruit is a dehiscent 5-angled capsule, with a solitary flattened-fusiform brown seed 3 to 3.5 mm long. [The above description is adapted from Curtis 1967, Linczevski 1986, Walsh & Entwisle 1996, Gray & Duretto 2011.]

Confusing Species

The allied taxon *Limonium australe* var. *australe* is morphologically similar to *Limonium australe* var. *baudinii*, the former's distinguishing feature being the presence of a row of short inclined hairs along the calyx's tube ridges (Linczevski 1986, Gray & Duretto 2011).

An additional saltmarsh species, the malvaceous *Lawrenzia spicata*, also has a basal rosette of leaves. However, its leaves have crenate margins and very distinct petioles, and the species has, as its name suggests, erect flowering spikes rather than a multi-branched panicle.



Plate 2. Leaves of *Limonium australe* (image by Adam Smith).

Taxonomic Issues

Limonium australe var. *baudinii* was described as *Limonium baudinii* in 1986 by a Russian botanist using material collected during Nicolas Baudin's expedition to Tasmania in 1802 (Linczevski 1986). It had previously been considered to be synonymous with *Limonium australe* (now known as *Limonium australe* var. *australe*), a taxon known from saltmarshes along Tasmania's north coast and near Hobart. The study of Schahinger (2004) found that the calyx character that distinguishes *Limonium australe* var. *australe* from *Limonium australe* var. *baudinii* was consistent, and that there was no overlap in the distribution of the two taxa. The taxon was reduced to varietal status by Gray & Duretto (2011).

DISTRIBUTION AND HABITAT

Limonium australe var. *baudinii* is endemic to Tasmania (de Salas & Baker 2017). It is known to be extant in the Triabunna area in the central east and near the mouth of the Saltwater River on the Tasman Peninsula. There is also an historic record from the latter region at Port Arthur, though the site's precise location and current status are unknown.



Plate 3. Habitat at Double Creek
(image by Tim Rudman)

The taxon grows in succulent or graminoid saltmarsh close to the high water mark, typically near small brackish streams (Plate 3). The dominant species within its saltmarsh habitat are *Sarcocornia* species, the grass *Austrostipa stipoides* and the sedge *Gabnia filum*, other species

including *Suaeda australis*, *Tecticornia arbuscula* and *Distichlis distichophylla* (Schahinger 2004), with *Lawrenzia spicata* prominent at the Saltwater River and Maclaines Creek sites.

The linear range of the extant sites is 61 km, the extent of occurrence 38 km², and area of occupancy less than 2 hectares (Table 1).

POPULATION PARAMETERS

There are four known subpopulations of *Limonium australe* var. *baudinii* in Tasmania, with a total of about 1500 mature plants (Table 1). The number of plants may fluctuate considerably from year to year in response to climatic conditions, with numbers in drought years affected by an increase in browsing levels by native animals.

The species' rarity is evidenced by the lack of past collections, despite its distinctive appearance and the level of botanical activity in areas of potential habitat (e.g., Curtis & Somerville 1947, Bowden & Kirkpatrick 1974, Kirkpatrick & Glasby 1981, Schahinger 2004). Prahald & Saunders (2013) noted the presence of a *Limonium* sp. near the mouth of the Saltwater River on the Tasman Peninsula, since confirmed as *Limonium australe* var. *baudinii*, indicating that additional surveys of saltmarshes on the Tasman and Forestier Peninsulas may prove fruitful.

Table 1. Population summary for *Limonium australe* var. *baudinii*

	Subpopulation	Tenure	NRM region	1:25 000 mapsheet	Year last (first) seen	Area of occupancy (ha)	Number of mature plants *
1	Vicarys Rivulet	Private & Crown	South	Triabunna	2018 2013 (2004)	1.2	400
2	Maclaines Creek	Private & Crown	South	Triabunna	2018 2013 (1802?)	0.4	200
3	Double Creek	Private, Crown & Council	South	Triabunna	2018 2013 (2004)	0.06	800
4	Saltwater River	Norfolk Bay Conservation Area	South	Communication	2014 (2013)	< 0.5	23
5	Port Arthur	Unknown	South	Port Arthur?	1893	Precise location & status unknown	

* Schahinger (2004 & 2018) and data held by DPIPWE's Threatened Species Section

RESERVATION STATUS

Limonium australe var. *baudinii* occurs in Norfolk Bay Conservation Area (Table 1). Areas of Crown land that support part of the Vicarys Rivulet subpopulation were recommended for Conservation Area status under the Tasmanian *Nature Conservation Act 2002* (CLAC Project Team 2006).

CONSERVATION ASSESSMENT

Limonium australe var. *baudinii* was listed as vulnerable on the Tasmanian *Threatened Species Protection Act 1995* in 2004 (under the name *Limonium baudinii*), qualifying at that time under criterion D:

- total population estimated to number fewer than 1,000 mature individuals.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

Threats to saltmarshes in southeastern Tasmania are manifold (Kirkpatrick & Glasby 1981, Schahinger 2004, Prahalad & Pearson 2013), the most pertinent being:

- drainage and land reclamation;
- removal of buffering vegetation;
- stock grazing and trampling;
- physical disturbance by vehicles;;
- rising sea levels associated with climate change.

Urban & agricultural pressures: The combined pressures of urban, semi-industrial and agricultural developments in the Triabunna area have served to fragment the taxon's saltmarsh habitat, with at least some areas subject to past in-fill (most recently in 2006). Stock had impacted parts of the Vicarys Creek subpopulation prior to 2008, while the presence of algal mats at this site indicates eutrophication associated with nearby agricultural activities (Pralhad & Pearson 2013); parts of the same site were subject to illegal entry by heavy machinery in 2012, with physical damage to the saltmarsh and the loss of at least some *Limonium* plants. In addition, the inter-tidal nature of the species' saltmarsh habitat exposes it to any oil and chemical spillages in the immediate area.

Climate change: Rising sea levels associated with climate change have the potential to impact on the species' saltmarsh habitat, especially if the hinterland does not allow for migration inland (Pralhad & Pearson 2013).

Lack of secure tenure: *Limonium australe* var. *baudinii* is poorly reserved, and consequently its habitat is under potential threat from the range of activities noted above.

Stochastic events: The localised nature of the *Limonium australe* var. *baudinii* sites exposes the taxon to a high risk from stochastic events.

MANAGEMENT STRATEGY

The main objective for the recovery of *Limonium australe* var. *baudinii* is to prevent the inadvertent destruction of subpopulations, maintain the viability of existing subpopulations, and promote conditions for its successful recruitment.

What has been done?

On-ground actions. Stock-proof fencing was erected at the Vicarys Rivulet site in July 2008 to allow degraded saltmarsh habitat to recover and encourage recruitment. The fencing was undertaken by the Threatened Species Section as part of a 'Threatened Flora Recovery Actions' project funded by the Southern NRM Region. Bollards were erected at the Double Creek site by the Glamorgan/Spring Bay Council in 2012 to prevent the accidental slashing/mowing of flowering plants. Plant numbers at both sites have increased in the decade since (Schahinger 2018).

Seed collection. Seed has been collected from the Triabunna subpopulations for long-term storage at the Tasmanian Seed Conservation Centre (Royal Tasmanian Botanical Gardens, Hobart).

Monitoring. The subpopulations at Triabunna were monitored by the Threatened Species Section in 2007 and 2008 to gain a better understanding of the species' life history, and a census was undertaken in March 2018.

Habitat listing. In August 2013 the ecological community 'Subtropical and Temperate Coastal Saltmarsh' was listed as Vulnerable on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

What is needed?

Recovery actions necessary to decrease the extinction risk to *Limonium australe* var. *baudinii* include:

- provide information and extension support to relevant Natural Resource Management committees, local councils, government agencies, the local community and development proponents on the locality, significance and management of known subpopulations;
- formal reservation of areas of Crown land supporting part of the Vicarys Rivulet subpopulation;
- survey for additional subpopulations in southeastern Tasmania, focusing in particular on the Tasman and Forestier Peninsulas; and
- monitor the known subpopulations to determine the level of recruitment and/or plant loss.

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Prepared in 2008 under the provisions of the Tasmanian Threatened Species Protection Act 1995. Revised in October 2013 and March 2018.

Cite as: Threatened Species Section (2018). *Listing Statement for Limonium australe* var. *baudinii* (tasmanian sea-lavender), Department of Primary Industries, Parks, Water & Environment, Tasmania.

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