



## FILE NOTE

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### *Limonium australe* var. *baudinii* (tasmanian sea-lavender)

#### Census of Spring Bay sites, 10 March 2018

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**Background:** *Limonium australe* var. *baudinii* is currently listed as vulnerable on both the Tasmanian *Threatened Species Protection Act 1995* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, the listings dating to 2004 and 2005, respectively. The taxon grows in the upper intertidal areas of saltmarshes in Tasmania's southeast, being known from three sites in Spring Bay near Triabunna with c. 500 mature plants (Schahinger 2004; Figure 1), and a site at Saltwater Creek on the Tasman Peninsula with c. 25 mature plants (pers. obs.).

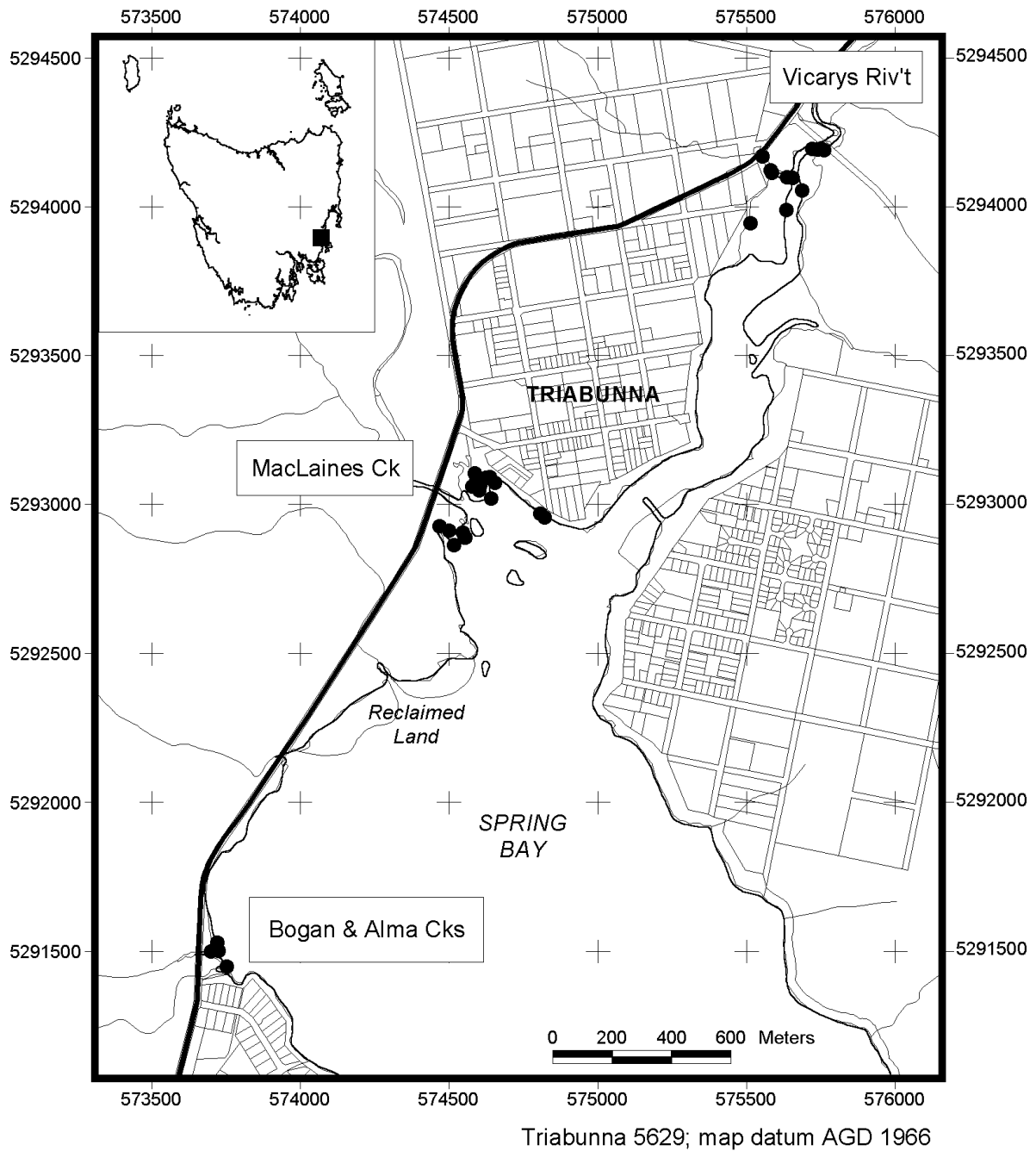
This report summarises a census of the Spring Bay sites undertaken on 10 March 2018 by the author and two members of the Wildcare group Threatened Plants Tasmania: Joe Quarmby (trip coordinator) and Natasha Szybinski. Prior to the trip each of the three sites was subdivided into smaller target areas to allow variations in the species' distribution to be better understood, the subdivision being based upon the findings of earlier surveys (Figures 2–4). Each site was systematically slow-walked, with the number of flowering and non-flowering plants recorded (the taxon being an essentially biennial species), along with notes on the condition of the sites and the presence of threatening processes.

**Results:** The number of flowering and vegetative plants at the three sites is shown in Table 1, along with those from 2004/2006 (Schahinger 2004 & 2006), with the figures from the 2018 census presented in more detail in Table 2. Plant numbers at each of the three sites in 2018 were found to be about double those recorded in the mid-2000s, though the areas with the highest plant densities in 2018 remained consistent with those recorded in the mid-2000s (Table 2). It is beyond the scope of the current study to provide a reason for the increase in plant numbers, though climatic conditions are likely to be one of a number of determining factors (along with more eyes on the ground!). Flood and tide events since the mid-2000s had led to the erosion of habitat at the Vicarys Rivulet and Double Creek sites, with the loss of at least some plants (Table 2), but this was more than offset by an increase in plant numbers elsewhere.

**Table 1.** *Limonium australe* var. *baudinii*: Spring Bay sites

Site	2004		2018	
	Flowering	Vegetative	Flowering	Vegetative
Vicarys Rivulet	172	200+	406	833
Maclaines Creek	120	240+	209	1090
Double Creek	194 *	300+	794	1594
<b>Total</b>	486	740+	1409	3517

\* 170 mature plants were found just south of Double Creek in December 2006 (at the 'bollards' site)

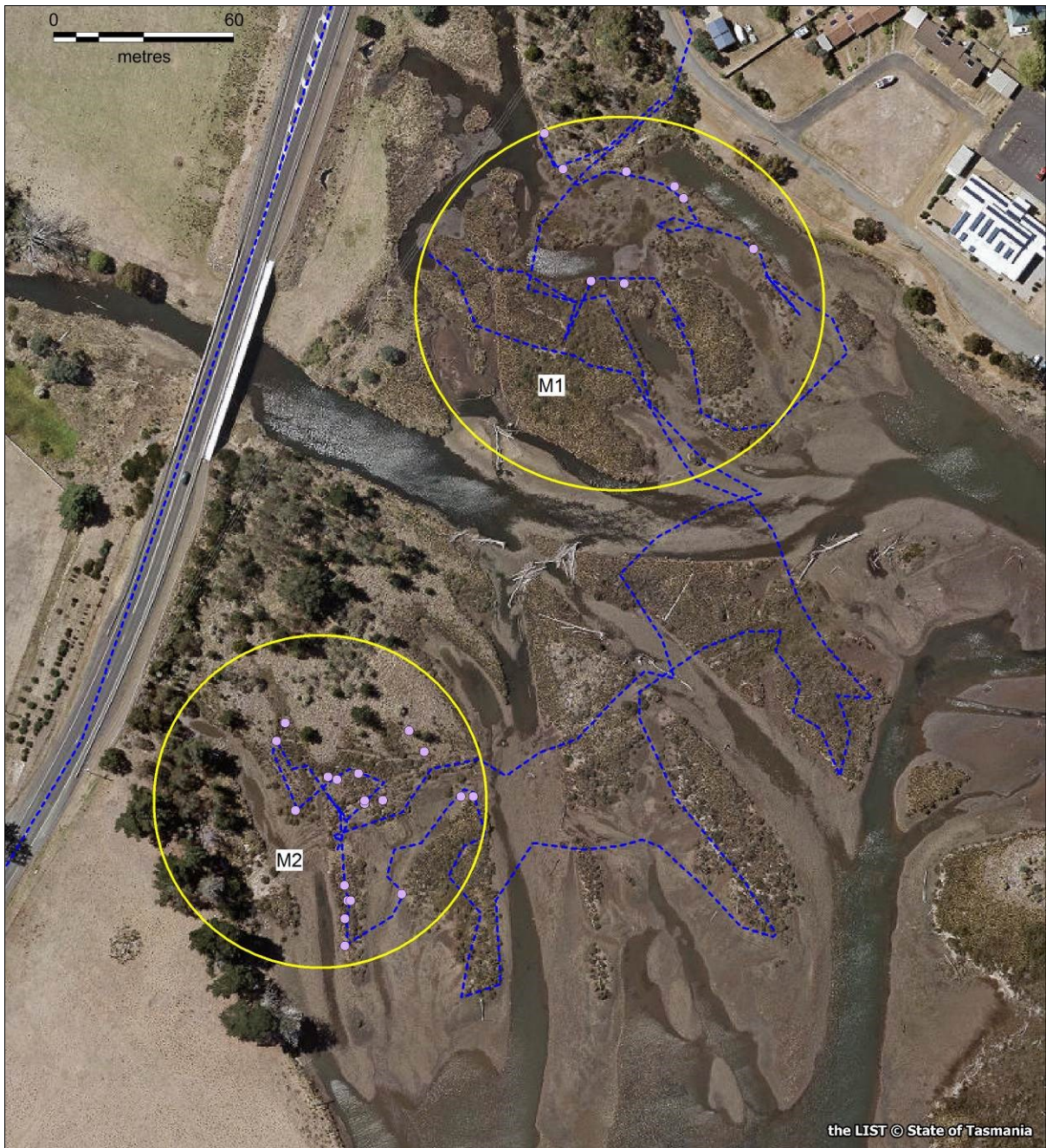


**Figure 1.** *Limonium australe* var. *baudinii* in the Spring Bay area (●) (from Schahinger 2004)  
 (Note: 'Bogan & Alma Cks' = Double Creek)



**Figure 2.** Vicarys Rivulet: target areas, 10 March 2018 (& the author's GPS track log & some indicative waypts)





**Figure 3.** Maclaines Creek: target areas, 10 March 2018 (& author's GPS track log & some indicative waypoints)





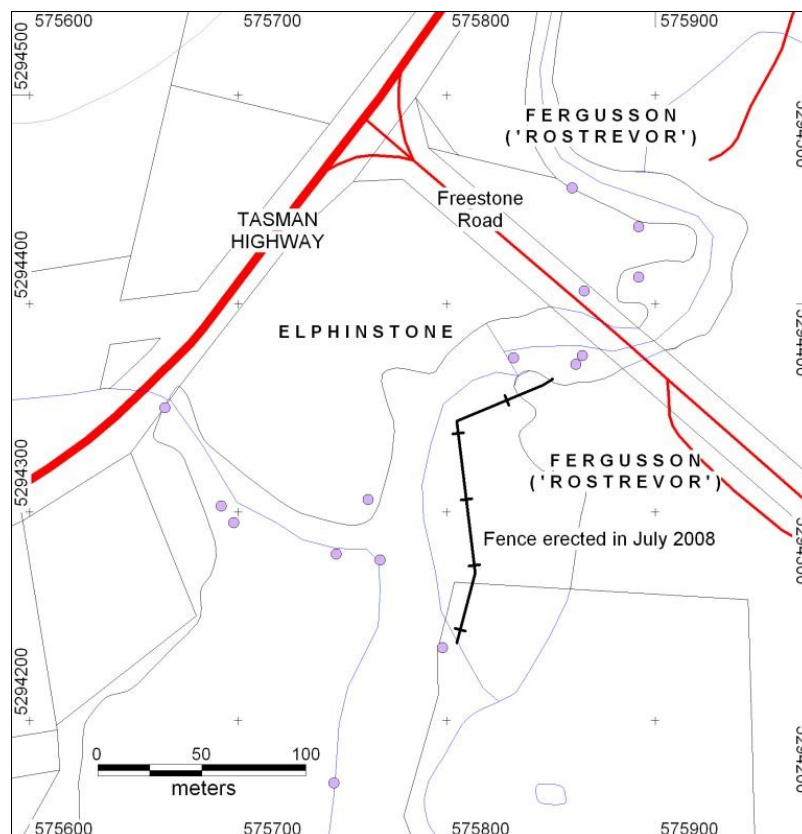
**Figure 4.** Double Creek: target areas, 10 March 2018 (& author's GPS track log & some indicative waypoints)  
(D4 = the 'bollards' site)

**Table 2.** *Limonium australe* var. *baudinii* in Spring Bay: Census, 10 March 2018 (refer to Figures 1–4 for area & site locations)

Area	Site	Code	Flowering	Vegetative	Area (m <sup>2</sup> )	Notes
<b>Vicarys Rivulet</b>	Vicarys Rivulet (west; immediately downstream of bridge)	V1	9	12	20	Partial loss of saltmarsh habitat due to infill in 2004/2006, with local disturbance by Telstra in mid-2007; blackberry & pine wilding immediately upslope. <b>Numbers down</b> from 75 flowering plants & 100 vegetative plants in 2004.
	Vicarys Rivulet (east)	V2	37	168	1100	Area open to stock until fenced by TSS in 2008 (only 10 flowering & 10 vegetative plants seen in 2004); pine wildlings to 4 m high on landward side. Algal mats present (Plate 2), suggestive of eutrophication. [Scouring of bank on opposite side of rivulet since 2010, with <b>loss of <i>Limonium</i> plants</b> & habitat.]
	Bresnehans Creek (north)	V3	197	201	380	<b>Dense patch of plants</b> in narrow patch of succulent saltmarsh to immediate south of Graeme Elphinstone' house
	Bresnehans Creek (south)	V4	23	172	240	
	Vicarys Rivulet (south)	V5	140	280	c. 10,000	Crown land: area needs to be formally reserved under the Tasmanian <i>Nature Conservation Act 2002</i> to reflect the significance of the succulent saltmarsh (3.4 hectares). Only about 10 <i>Limonium</i> recorded previously (Schahinger 2004); unclear if increase in numbers is real or simply a survey artefact; now mostly in far southeast of polygon in Figure 2.
<b>Subtotal</b>			<b>406</b>	<b>833</b>	<b>11,700</b>	
<b>Maclaines Creek</b>	North	M1	11	33	3000	
	South	M2	198	1057	1000	<b>Dense patch of plants</b> (at western waypoints in Figure 3); numerous pine wildlings to west
<b>Subtotal</b>			<b>209</b>	<b>1090</b>	<b>4000</b>	
<b>Double Creek</b>	North	D1	490	600	200	<b>Dense patch of plants</b> (eastern waypoints in Figure 4; numbers approximate only); briar rose to north
	Middle	D2	18	91	15	Edge of spit showing signs of erosion (flood & big tides?). <b>Numbers down</b> from 45 flowering & 50 vegetative plants in 2004.
	Creek	D3	4	23	50	Scoured by floods; only a few ratty plants present
	Bollards	D4	282	880	300	<b>Dense patch</b> (= entire polygon in Figure 4); bollards erected in 2012, effective in delimiting Council mowing
<b>Subtotal</b>			<b>794</b>	<b>1594</b>	<b>565</b>	
<b>TOTAL</b>			<b>1409</b>	<b>3517</b>	<b>12,265</b>	<b>Total number of flowering plants <u>double</u> that of previous estimates (Schahinger 2004, Threatened Species Section 2013)</b>

## Past management actions

**(1) Stock-proof fencing** was erected on the eastern side of Vicarys Rivulet in July 2008 by Threatened Species Section personnel with the permission and assistance of the then owners of 'Rostrevor' (the Fergusson family; Figure 5). The decade since has seen a dramatic change in the vegetation in the fenced-off area, with the succulent shrub *Tecticornia arbuscula* emerging as a prominent component and grass tussocks also coming to the fore (Plates 1–4). The *Limonium* was found to be a scattered presence through the saltmarsh in March 2018 (that is, site V2), with 37 flowering plants and 169 vegetative plants (Table 2). Only 10 flowering plants and 10 vegetative plants had been recorded in the area prior to the exclusion of stock (Schahinger 2004), so a very encouraging result, one which bodes well for the species' future in the immediate area provided that the fence is maintained.



**Figure 5.** Fence erected in July 2008 to protect the saltmarsh habitat of *Limonium* (GRs in gda94, zone 55G)

**(2) Bollards** were erected on land south of Double Creek by Glamorgan/Spring Bay Council in 2012 to prevent the inadvertent mowing of a dense patch of *Limonium*. The bollards have proven to be effective, with close to 300 flowering plants recorded during the surveys of 10 March 2018, along with 900 vegetative plants (Table 2 & Plate 5).

## Future management actions

**(1) Pine wildlings** were present at or close to a number of the sites (listed below), with the potential to impact on the *Limonium* (and other species) through competition and shading. Ideally they should be removed as soon as practicable.

- Vicarys Rivulet: east and west side
- Bresnehans Creek
- Maclaines creek (south of the bridge over the Tasman Highway)

Removal of the pine wildlings will require the approval of the respective landowners: Ian & Janice Weeding (Rostrevor), Graeme Elphinstone and John Salmon (Woodstock).

**(2) Flood debris:** The saltmarshes in the upper reaches of Vicarys Rivulet were found to be littered with all sorts of man-made debris. The marshes on the western side of Vicarys Rivulet occupy an area of 3.4 hectares ('V5' in Figure 2), being dominated by a mix of *Sarcocornia quinqueflora* and *Tecticornia arbuscula*, and are in otherwise good condition (aside from past infill on its western margins and some eutrophication). Removal of the debris would be a very rewarding exercise, and well suited to a local community group and/or the Wildcare group Threatened Plants Tasmania. In terms of logistics, a vehicle with a trailer could gain access to the northern parts of the saltmarsh via the gated Crown land property that abuts the Tasman Highway immediately south of Bresnehan Creek. Permission would be required from Crown Land Services (Hobart).

### Final thoughts

The significance of saltmarshes to the health of the Spring Bay ecosystem cannot be overstated (Prahald & Pearson 2013), as recognised more generally in the listing of the ecological community 'Subtropical and Temperate Coastal Saltmarsh' as Vulnerable on the EPBC Act in August 2013. The saltmarshes that support *Limonium australe* var. *baudinii* in the Spring Bay area tend to lack buffering vegetation, with little room to move in the event of rising sea levels.

The 2018 census indicates that the *Limonium* is ticking along quite happily, with recovery actions undertaken during the period 2008–2012 proving to have been highly successful. However, it should be stressed that due to the species' localised distribution there is still a relatively high risk of local extinctions, with the majority of plants in just four or five discrete patches (Table 2), so there is little room for complacency.

It is recommended that the populations at Spring Bay be monitored every 4 to 5 years (a much more frequent monitoring regime would be required to unravel the reasons behind variations in plant numbers at the site level). The species is easy to identify during the flowering period (January to April), thus lending itself to monitoring by a local community group (the only confusing species being *Lawrenzia spicata*, a species that has a flower spike rather than an open inflorescence), with numbers of flowering and vegetative plants to be scored at the sites noted in Figures 2–4 and Table 2. & of course, timing any surveys to coincide with the low tide.





**Plate 1.** Vicarys Rivulet (east side): 14 August 2008 (stock-proof fence erected in July 2008)



**Plate 2.** Vicarys Rivulet (east side): 10 March 2018 (note the algal mats in the foreground)



**Plate 3.** Vicarys Rivulet (east side): 10 March 2018





**Plate 4.** Vicarys Rivulet (east side): pine wildlings, 10 March 2018



**Plate 5.** Double Creek; 'bollards' site, 10 March 2018

## References

- de Salas, M.F. and Baker, M.L. (2017). *A Census of the Vascular Plants of Tasmania, including Macquarie Island*. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery, Hobart) [www.tmag.tas.gov.au](http://www.tmag.tas.gov.au)
- Prahalad, V. & Pearson, J. (2013). Southern Tasmanian Coastal Saltmarsh futures: A Preliminary Strategic Assessment. A report to NRM South.
- Schahinger, R. (2004). The taxonomic status of Baudin's sea lavender (*Limonium baudinii* Lincz.) (with notes on its distribution and conservation status). A report to the Threatened Species Section, Department of Primary Industries, Parks, Water and Environment, Hobart.
- Schahinger, R. (2006). *Limonium baudinii*: Extension Surveys at Triabunna, 20 December 2006. Internal Report, Threatened Species Section, Department of Primary Industries, Parks, Water and Environment, Hobart.
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