

Weed plan for sea lavender
(Limonium companyonis)

CCCEC0 04/11
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Introduction

Sea lavender is newly established in New Zealand salt marsh, where it is showing weedy characteristics. Eradication is believed possible at this stage and is being pursued by the Christchurch City Council.

Taxonomy

Species name: *Limonium companyonis* (Gren.& Billot) Kuntze (1891)

Common names: sea lavender,

Riviera sea lavender

Family: Plumbaginaceae (statice).

Native to: Europe

Biostatus: Casual Exotic (Allan Herbarium, 2000)

A sample was sent (via Landcare) to the Botanic Gardens at Kew, who provided the identification. A sample is deposited in the Allan Herbarium at Landcare Research, Lincoln (CHR 518531). The naturalisation of sea lavender was formally reported in the New Zealand Journal of Botany in 1999 (Heenan *et. al.*).

Description of plant

- Leathery leaves, in rosettes.
- Small purple-pink flowers arranged on a sparsely branched flowering stalk that extends above the leaves
- Robust tap root system
- Growing in salt marsh

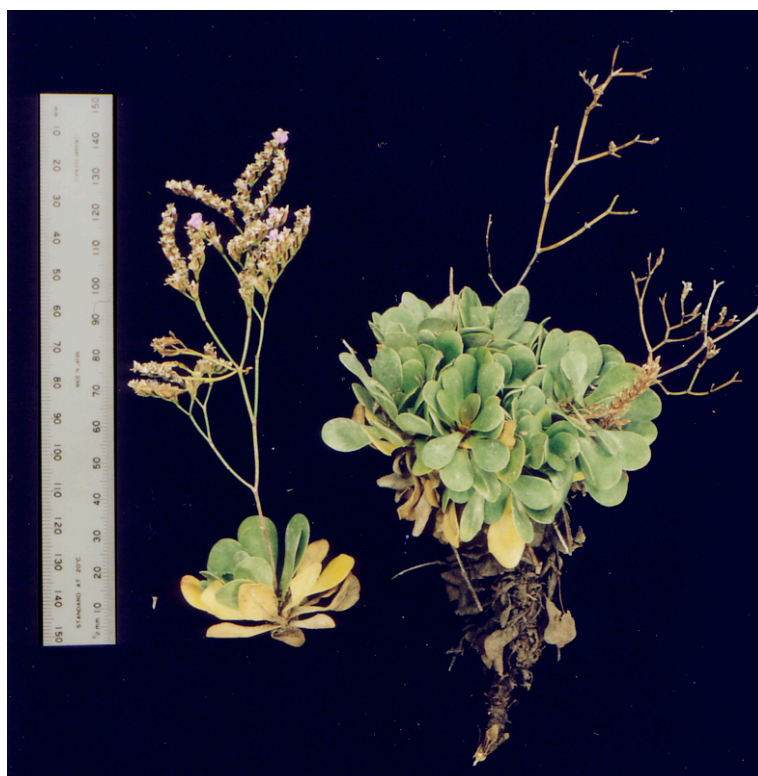


Figure 1. Sea lavender (ruler in mm).

Description of impact

The earliest record is from salt marsh near the Ferrymead Historic Park in 1993 (McC, field data). Since then, the area covered has greatly increased, at the expense of other salt marsh plants. In some locations it occurs as occasional clumps, while in other areas it is the dominant species present.

The sea lavender has probably spread from two islands in the lower Heathcote, radiating out from these to its current extent. The estuary margins and small islands with salt meadow are now affected. Spread may be facilitated by birds, which make use of Stilt Island for roosting (Partridge 2004).

Sea lavender is known to be naturalised in Australia and has been noted as weedy in salt marsh areas (Carr *et al.*, 1992; Delta Environmental Consulting; Hussey *et al.*, 1997).

Associated species

Associated plants observed in the Lower Heathcote salt marsh are glasswort (*Sarcocornia quinqueflora*), buck's horn plantain (*Plantago coronopus*), remuremu (*Selliera radicans*), maakoako (*Samolus repens*) and jointed wire rush (*Leptocarpus similis*).

Pest status

Sea lavender has no formal pest status - it is not listed as an unwanted organism or in either of the Regional Pest Management Strategies. It is recommended that this species be included as a surveillance plant pest in the next review of the Regional Pest Management Strategy.



Figure 2. Sea lavender amongst glasswort.

Survey of locations

The location of most patches of plants was recorded with a GPS¹ on 14 May 2004. The area where plants were found is shown in Figure 3. The details are recorded in Appendix 1 and there is a detailed map in Appendix 2.

On 14 May 2004 both sides of the Lower Heathcote River were searched, from about Devil's Elbow wetland downstream to the Ferry Road bridge. Recent inspection of other nearby wetlands, although focusing on a search for spartina (*Spartina anglica*), failed to find plants further away in Calders Green, McCormacks Bay or Charlesworth Wetland.



Figure 3. Map of areas searched and where plants were found.

¹ The GPS used was a hand-held Garmin ETrex.

Site	Present	Date	Comment
Tunnel Rd Reserve (true-right)	?		Not yet checked
Between Devils elbow & Tunnel Rd Reserve	Yes		Scattered plants reported by Partridge (2004)
Devils elbow saltmarsh (true-right)	?		Possible scattered plants
Opposite devils elbow (true-left)	Yes	14-May-04	Around bird-hide
Stilt Islands (true-right)	Yes	14-May-04	Main infestation
Settlers Reserve (true-left)	Yes	14-May-04	
Adjacent to Ferrymead Historic Park (true-right)	No	14-May-04	At time of survey it was high tide so not all of the site was checked
Truscott Wetland	No	~ Dec 2003	Checked recently by T. Partridge; not checked during this survey because of high tide
Charlesworth Wetland	No	17-Mar-04	
McCormacks Bay	No	26-May-04	Islands not checked

Control

The objective of control for sea lavender is eradication.

Plants can be easily pulled out, although some of the roots break off. It is not yet known whether plants will regenerate from root fragments in this situation. A trial is underway of some different control methods, in co-operation with the Council nursery and CityCare.

Control so far has been:

Date	Herbicide rate	Amount of herbicide	Time (hours)
14-Jan-03	Roundup G2 @ 200 ml/15 l	200 ml	7
18-Feb-04	Roundup 450 @ 200 ml/15 l & Organo-silicon @ 30 ml/15 l	900 ml Roundup 90 ml Organo-silicon	12.5
18-Mar-04	Roundup 450 @ 200 ml/15 l & Organo-silicon @ 30 ml/15 l	200 mls Roundup 30 ml Organo-silicon	5

It is not yet established whether the addition of Organo-silicon penetrant improved the herbicide effectiveness.

Monitoring

The main flowering period is November-February, and this is the easiest time to find plants. However some flowering plants were still found in May. Low-tide enables searching of the mud flats below the estuary margins, and is required for access to some of the islands.

Schedule

The specific tasks required to implement this plan are presented in a schedule below, including the production of some identification and educational material.

	Staff	Timing
Web page included in the online Canterbury Weed Guide ²		Completed
Inclusion of sea lavender on the (informal) Regional Surveillance List		Completed
Scheduled to be the “Weed of the Month” for November 2004 (information will be sent to City Council, Environment Canterbury, Department of Conservation and Ngai Tahu staff)	K McCombs, Jenny Williams, Anna Paltridge	Nov 2004
Information requesting reports of sightings circulated to the Avon-Heathcote Estuary Ihutai Trust and the Bexley Wetland Trust	K McCombs	Nov 2004
Article to Canterbury Botanical Society	K McCombs	
Article to New Zealand Botanical Society Newsletter	K McCombs	
Preliminary trial of control options	Brian Keown, Joe Cartman	Jul 2004
2004/05 control work	Rodney Chambers	Nov 2004
2004/05 monitoring	K McCombs	Nov 2004
Review plan	K McCombs	Jul 2006

Conclusion

It is expected that the sea lavender in the lower Heathcote River can be eradicated because the area where it is established is still relatively small. Education of interested groups will help to ensure additional plants are found.

The control work that has started should continue and be extended to include some investigation into effective control methods. Monitoring will be required for several years after eradication appears to have been successful.

Contacts

Current contacts at the Christchurch City Council are Kate McCombs (Botanist) and Rodney Chambers (Area Head Ranger, Coastal Parks).

Review Date

This plan should be updated in July 2006.

Acknowledgements

Thanks especially to Dr Trevor Partridge for assistance in the field and for useful comments and discussion about this species. Thanks also to Rodney Chambers for organising the control work so far and for Arthur Harrison (WaiOra) for providing details on the control work undertaken to date.

² www.ccc.govt.nz/parks/TheEnvironment/weedguide/LimoniumCompanyonis.asp

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Appendix 1. Location of patches of plants.

Co-ordinates are in New Zealand Map Grid.

Point	Comment	Date	Easting	Northing
105	4 small plant + 2 plants with seed heads	14-May-04	2,485,852	5,738,262
106	1 plant (2 rosettes) with seed head	14-May-04	2,485,842	5,738,268
107	Sprayed, dead plants, but infestation ongoing all over island. Size of infestation app. 500 m ² . Plants scattered in salt meadow + app. 100m ² monospecific stand. This island and island 107/108 may be the centre of the <i>Limonium</i> infestation.	14-May-04	2,485,825	5,738,345
108	App. opposite end of island starting with waypoint 107	14-May-04	2,485,820	5,738,373
109	Adjacent island to 107/108. Scattered <i>Limonium</i> clumps mainly around the edge of the island	14-May-04	2,485,837	5,738,394
110	Part of 109 island. Some sprayed or possibly senescent plants with seed heads. Some clumps >1m ² . Some plants found in between jointed wire rush.	14-May-04	2,485,859	5,738,430
111	Part of 109 island. One monospecific patch app. 120m ² .	14-May-04	2,485,834	5,738,436
112	Small island, 3 plants with seed heads, 2 small plants.	14-May-04	2,485,768	5,738,306
113	1 big plant (3 rosettes) + seed heads on riverbank.	14-May-04	2,485,764	5,738,310
114	3 big, dying plants + seed heads, 1 almost falling into water, due to bank erosion.	14-May-04	2,485,766	5,738,313
115	1 late flowering plant (1 rosette), still in buds, 1 dead plant with seed heads.	14-May-04	2,485,747	5,738,322
116	3 clumps with seed heads, 1 of which is nearly falling into the water, due to bank erosion.	14-May-04	2,485,751	5,738,316
117	1 plant weeded by hand from bank.	14-May-04	2,485,736	5,738,357
118	1 big plant (~6 rosettes) + seed heads, 2 small plants.	14-May-04	2,485,725	5,738,400
119	1 big plant (~8 rosettes) + seed heads, 2 small plants (hand weeded)	14-May-04	2,485,749	5,738,457
120	2 big plants (3-11 rosettes) + seed heads, 3 small plants, a few meters further upstream 2 small clumps along the estuary edge.	14-May-04	2,485,757	5,738,466
121	Several scattered clumps over app. 20m ² .	14-May-04	2,485,765	5,738,482
122	2 small plants (one of them about to flower) + 1 big plant (2 rosettes) hand weeded. Approximate end of infestation on true right, but should be searched a bit further upstream.	14-May-04	2,485,774	5,738,513
123	1 big dead clump, 1 small plant (hand weeded).	14-May-04	2,485,858	5,738,813
124	Near new bird hide at river mouth, 1 big plant + seed head, 2 small plants, 6 seedlings on mud bank (hand weeded).	14-May-04	2,485,852	5,738,806
125	1 big plant (~15 rosettes) between <i>P. divaricatus</i> , just about to flower (hand weeded). No more plants beyond waypoint 125 upriver.	14-May-04	2,485,810	5,738,794
126	1 big + seed heads (hand weeded).	14-May-04	2,485,886	5,738,808
127	1 plant (5 rosettes) (hand weeded)	14-May-04	2,485,908	5,738,794
128	1 plant (11 rosettes) (hand weeded)	14-May-04	2,485,951	5,738,773
129	1 plant (~27 rosettes) + 5 small (hand weeded).	14-May-04	2,485,926	5,738,798
130	1 dying plant (>20 rosettes) (hand weeded)	14-May-04	2,485,951	5,738,766
131	Several small plants, some with seed heads, between creek and river on riverbank.	14-May-04	2,485,958	5,738,696
132	Start of salt meadow (walking down river), app. 500 m ² in size, with patches of varying coverage of between 10-50%.	14-May-04	2,485,934	5,738,625
133	End of salt meadow 132, no plants on adjacent island with old bird hide.	14-May-04	2,485,971	5,738,614
134	2 big plants + seed heads, 2 small plants on gravel.	14-May-04	2,486,296	5,738,521
135	Several big plants + seed heads + small plants over ~2m ² and further downstream scattered plants up to waypoint 137.	14-May-04	2,486,353	5,738,517
136	1 big +1 small isolated plants, last before Ferrymead Bridge.	14-May-04	2,486,396	5,738,525
137	scattered plants from 133 to 137	14-May-04	2,486,080	5,738,562

