

Atriplex rhagodioides Silver Saltbush

Taxonomy

Atriplex rhagodioides F. Muell.

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988*. (SAC 2014.)

Categorised as Vulnerable in the 2014 Advisory list of rare or threatened flora (DEPI 2014).

Proposed conservation status

Endangered in Victoria

Criteria B1ab(iii)+2ab(iii)

Species Information

Description and Life History

The taxon is a rounded shrub to c. 2.5 m high, mostly dioecious. Leaves cordate to deltoid, 15-40 mm long, 10-30 mm wide, margins entire or shallowly toothed, surfaces uniformly grey-green or bluish. Male flowers in usually distant, globose clusters in terminal spikes or panicles. Female flowers clustered in leafless panicles, in upper axils or sometimes a few subtending male flowers. Fruiting bracteoles sessile, broadly rhombic or ellipsoid, free above the widest part, united below, pale greyish or straw-coloured, thickened and corky all over at maturity, entire, 2-5 mm long and wide, often slightly wider than long, dorsal appendages absent. The taxon fruits in March and October (2 records) (VicFlora 2019).

Generation Length

The generation length of *Atriplex rhagodioides* is estimated to be 10 to 30 years. The taxon is a long-lived perennial shrub, with longevity of up to perhaps 40 years. Seed germinates and seedlings are able to establish after substantial flood events which are estimated to occur around every 10 years. This disturbance does not kill adult plants, so in any given stand the average age is likely to be between 10-30 years.

Distribution

In Victoria, the taxon is apparently confined to the Murray River floodplain in the far north-west and recorded only from Natya area (between Swan Hill and Robinvale), Red Cliffs and Cowra. It was previously thought to occur in NSW, but plants have recently been redetermined as *A. nummularia*. The taxon also occurs in South Australia (VicFlora 2019).

Habitat

The taxon occurs in Blackbox woodland with chenopod dominated understorey, on heavy alluvial soils (VicFlora 2019).

Threats

The taxon is threatened by extended drought periods, which are likely to have an impact on germination and the survival of the progeny. Grazing by goats and Western Grey and Red Kangaroos might pose additional pressures to the taxon during droughts.

IUCN Criteria

Criterion A. Population size reduction. Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%
<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.</p> <p>A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [(a) cannot be used for A3]</p> <p>A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.</p>			
<p>based on any of the following:</p> <ul style="list-style-type: none"> (a) direct observation [except A3] (b) an index of abundance appropriate to the taxon (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat (d) actual or potential levels of exploitation (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites 			

Evidence:

Ineligible under Criterion A

There is insufficient evidence to determine whether there has been or will be a reduction in population sufficient to meet any threshold for Criterion A.

Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (area of occupancy)			
	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

Evidence:

Eligible under Criterion B1 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 2,308 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is estimated to have 1 location. It has a continuing decline in (iii) above. It is not possible to determine if there is a continuing decline in habitat quality based on hydrological change to flood regime but, combined with more erratic rainfall patterns and weed invasion as evidenced by quadrat data and collections notes, it appears that a continuing decline in habitat quality is plausible.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 97 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, the taxon is estimated to have 1 location and has a continuing decline in (iii) above.

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Criterion C. Small Population size and decline				
		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		< 250	< 2,500	< 10,000
AND at least one of C1 or C2				
C1	An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
C2	An observed, estimated, projected or inferred continuing decline AND least 1 of the following 3 conditions:			
(a)	(i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
	(ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b)	Extreme fluctuations in the number of mature individuals			

Evidence:

Ineligible under Criterion C

It is estimated that there are 3,000 to 6,000 mature individuals, but other thresholds under this criterion have not been met.

The current population estimate is based on herbarium notes which indicate that stands generally consist of only 100-200 plants, with a much larger population at Merbein Common. It is therefore estimated there are between 3,000-6,000 plants.

Criterion D. Very small or restricted populations				
		Critically Endangered	Endangered	Vulnerable
Number of mature individuals (observed or estimated)		< 50	< 250	< 1,000
D2. Only applies to the VU category Restricted area of occupancy or number of locations with a plausible future threat that could drive the species to critically endangered or Extinct in a very short time.		-	-	D2. Typically: AoO < 20 km ² or number of locations ≤ 5

Evidence:

Ineligible under Criterion D

It is estimated that there are 3,000 to 6,000 mature individuals.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

DEPI (2014). *Advisory list of rare or threatened plants in Victoria - 2014*. Department of Environment and Primary Industries, Melbourne.



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SAC (2014). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 638 *Atriplex rhagodioides*.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Atriplex rhagodioides*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/4a95bcaa-c50a-4c95-bd1b-52e1357e64ce>