Threatened Species Assessment

Atriplex nummularia subsp. *omissa*
Dwarf Old-man Saltbush

Taxonomy

Atriplex nummularia subsp. *omissa* Aellen

Current conservation status

Categorised as Rare 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 an erect perennial shrub to c. 3 m high, mostly dioecious. Leaves ovate, broadly elliptic or rhombic, 15-40 mm long and wide, margins entire, sinuate or coarsely toothed, often undulate, surfaces uniformly grey-green. Male flowers in globose clusters commonly crowded along simple or branched spikes. Female flowers clustered in leafless panicles, in upper axils or sometimes a few subtending male flowers. Fruiting bracteoles sessile, orbicular to rhombic, fused below widest part near base, mealy grey, thickened and corky for the greater part, but thin near apical margin, entire or finely toothed in the upper part, rounded at apex, mostly 6-10 mm long and wide, dorsal appendages absent. The taxon fruits from October to November (VicFlora 2019).

Generation Length

The generation length of *Atriplex nummularia* subsp. *omissa* is estimated to be 10 to 30 years. The taxon is a long-lived perennial shrub, with longevity perhaps to 40 years. The frequency of good germination events/seasons is around 8-10 years, therefore, the youngest reproductive individuals are 8-10 years old. Consequently, the average age of the parents of newborn individuals within the population are somewhere in the range between 10-30 years.

Distribution

In Victoria, the taxon is apparently confined to extreme north-west Victoria (e.g. Neds Corner Station, Walpolla and Lindsay Islands) (VicFlora 2019).

Habitat

At Neds Corner Station, the taxon grows in *Eucalyptus largiflorens* open woodland, on grey clay, and is associated with *Atriplex nummularia* subsp. *nummularia, Disphyma crassifolium* subsp. *clavellatum, Enchylaena tomentosa, Rhagodia spinescens*, and *Tecticornia triandra*.

Near Walpolla Island, the taxon grows in a chenopod dominated plain, on red brown sandy loam, and is associated with *Atriplex lindleyi, Atriplex nummularia, Mesembryanthemum nodiflorum, Nitraria billardierei, Osteocarpum* sp., *Sclerochlamys brachyptera, Sclerolaena intricata, Sclerolaena patenticuspis, Sclerolaena ventricosa, Schismus barbatus*, and *Tecticornia triandra*.

Threats

The taxon is threatened by hydrological changes to flood regimes, combined with more erratic rainfall patterns and weed invasion, as evidenced by quadrat data and collections notes. Climate change, severe weather and droughts are likely to have a high impact on the taxon. Grazing by goats and Western Grey and Red Kangaroos might pose additional pressures 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%

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

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.

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*]

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.

based on any of the following:

(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 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
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 1,194 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

It is inferred to have 1 location. It has a continuing decline in (iii) above, based on the current and projected impact of the identified threats, including hydrological changes to the flood regime, combined with more erratic rainfall patterns and weed invasion.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 20 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, the taxon is inferred to have 1 location and a continuing decline in (iii) above.

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 4,000 to 10,000 mature individuals, but other thresholds under this criterion have not been met.

The taxon is dominant in certain areas, with certainly several thousand mature individuals. There is a large proportion of records that are unassigned to a subspecies, which suggests that subsp. *omissa* records may be underestimated in their extent.

Criterion D. Very small or restricted population			
	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 km2 or number of locations ≤ 5

Evidence:

Ineligible under Criterion D

It is estimated that there are 4,000 to 10,000 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. Retrieved from: https://www.environment.vic.gov.au/__data/assets/pdf_file/0021/50448/Advisory-List-of-Rare-or-Threatened-Plants-in-Victoria-2014.pdf

VicFlora (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Atriplex nummularia* subsp. *omissa*. Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/d4fb3488-1942-403c-8d8c-9b257cb4cafe