Threatened Species Assessment

Lawrencia spicata
Salt Lawrencia

Taxonomy

Lawrencia spicata Hook.

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criterion B2ab(ii,iii,v)c(iv)

Species Information

Description and Life History

Salt Lawrencia is a slender, erect, glabrous, sub-fleshy herb to c. 120 cm high, 1-few-stemmed from base. Leaves and stems bright yellow-green; basal leaves ± rosetted, long-petiolate, lamina elliptic, 2-5 cm long, 1-2 cm wide, longitudinally 3-5-veined, margins crenate to serrate; lower stem leaves resembling basal leaves, floral leaves smaller (often below 1 cm) and sessile, with prominent stipules and less-toothed to entire margins. Inflorescence an erect spike, occupying c. one-third of the (usually simple) stem. Flowers bisexual, sessile or subsessile, solitary or paired in axils of floral leaves; calyx c. 5 mm long, 5-angled, 5-lobed from midway or below; petals free, oblong or narrowly ovate, equal to or slightly exceeding sepals, pale yellow; anthers 10-20; styles 5. Fruit c. trigonous-ovoid, 3 mm long; mericarps indehiscent, pointed at apex. The taxon flowers between January and April (VicFlora 2019).

Generation Length

The generation length of *Lawrencia spicata* is estimated to be two to five years. It is a herb of rarely inundated upper or dry saltmarsh communities. The taxon is biennial, typically flowering in its second season, and always dies after flowering. Continuous recruitment occurs with autumn rains. Populations are not subject to extreme seasonal fluctuation due to variable germination and juvenile mortality rates. On this basis, a generation length of 2-5 years is proposed to cover poorer seasons as well as usual conditions.

Distribution

The taxon is widespread in southern and western Victoria. For example, it can be found growing in saline soils at Polkommet near Horsham, in the Harrow district, near Camperdown and at Lake Corangamite.

Habitat

The taxon is an occasional component of coastal saltmarshes. It is rare in saline depressions and around salt lakes further inland.

Threats

Threats to the taxon include weed invasion and residential development *Lophopyrum ponticum* (Tall Wheat-grass), which threatens all coastal saltmarsh is a significant threat across the taxon's habitat, as is *Bromus hordeaceus, B. diandrus* and *B. catharticus*, which invade in long interval between flooding. Other threats variously include climate change (decreased rainfall, especially in inland sites), sea-level rise (drowning of saltmarsh and coastal erosion),

mechanical damage to plants by people trampling them, pugging of wetlands by cattle and other stock, and potentially genetic issues associated with small population sizes.

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 B2 as Endangered

The Area of Occupancy across the taxon's range is estimated to be 276 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is inferred to be severely fragmented, as it is restricted to localised occurrences in suitable habitat within a highly fragmented distribution

It is inferred to have three locations. It has a continuing decline in (ii), (iii) and (v) due to the identified threats, and has extreme fluctuations in (iv) above, as variable recruitment conditions could vary considerably from cycle to cycle.

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 as Data Deficient

Relevant population data are unavailable. In 2008, there were thought to be tens of thousands of plants near Point Lonsdale. All other populations were less than 20 to 100 plants.

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:

Eligible under criterion D2 as Vulnerable

The taxon is estimated to be very restricted.

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.

VicFlora (2019) Flora of Victoria, Royal Botanic Gardens Victoria: *Lawrencia spicata.* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/b514fa11-bd8a-4eaa-8e56-60f4fd648f37