

Eremophila divaricata subsp. *divaricata* Spreading Emu-bush

Taxonomy

Eremophila divaricata subsp. *divaricata* (F. Muell.) F. Muell.

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criterion A2bce+3ce

Species Information

Description and Life History

The taxon is a divaricate shrub to c. 1.5 m high, mostly glabrous except for a band of stellate hairs above leaf attachment; branches often spinescent, non-tuberculate. Leaves alternate, linear-lanceolate to -oblanceolate, mostly 5-15 mm long and 1-4 mm wide, glabrous or obscurely pubescent, obtuse, often mucronate, margins entire. Inflorescences 1-flowered. Flowers zygomorphic, sessile; sepals usually 4, lanceolate, 2.5-6.5 mm long, acuminate, imbricate, glabrous or pubescent, green; corolla usually 9-20 mm long, densely stellate-pubescent outside, pubescent inside, mauve to pinkish-lilac, spotted, upper lip 2-lobed; stamens 4, included, anthers reniform; ovary glabrous, style pilose with branched and unbranched hairs. Fruit ovoid to conical, 5-9 mm long, 2-4.5 mm diam., dry, splitting at apex, glabrous. The taxon flowers mostly from November to April (VicFlora 2014).

Generation Length

The generation length of *Eremophila divaricata* subsp. *divaricata* is suspected to be 20 to 30 years. This small to medium-sized shrub appears to be relatively long-lived. While some taxa of this genus can spread by suckering, no record of this taxon doing so was located. A longevity of 30-50 years seems reasonably likely, and the plants are presumed to reach reproductive maturity within five years. On this basis, a generation time of 20-30 years is suspected.

Distribution

In Victoria, the taxon is confined to the floodplain of the Murray River system north-west from Kerang (VicFlora 2014).

Habitat

The taxon occurs on woodland on riverine floodplains, typically in association with *Eucalyptus largiflorens* and less commonly with *E. camaldulensis* (VicFlora 2014).

Threats

Threats to this taxon include the impacts of climate change such as decreased rainfall, extreme temperatures, and reduced flooding, and potentially increased frequency and intensity of fire. It is also locally vulnerable to grazing, including of seedlings, by domestic stock (cattle, sheep) and feral animals (goats and rabbits). Smaller stands may be vulnerable to decreased viability due to the effects of reduced genetic diversity.

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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><i>based on any of the following:</i></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:

Eligible under Criterion A2 as Vulnerable

The population reduction over the past 60 to 90 years is suspected to be 20 to 40%, based on (b), (c) and (e) above.

The taxon is rare to absent over extensive areas of potential habitat, but can be locally common in relatively undisturbed sites. The proposed range of past reduction is of low confidence as information on prior population densities is lacking.

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 60 to 90 years is suspected to be 10 to 30%, based on (c) and (e) above.

The taxon is rare to absent over extensive areas of potential habitat, but can be locally common in relatively undisturbed sites. The proposed range of past reduction is of low confidence as information on prior population densities is lacking.

The potential impact of future threats is unclear and the triggers for germination are not understood. Due to the dispersal means of propagules and delayed germination, it is difficult to determine whether isolated specimens represent colonization or the last residues of a stand. Recruitment may be episodic under favourable conditions, but browsing by rabbits may severely limit survival of young plants. While some future decline seems likely, prediction of the extent is little better than guesswork.

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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:

ineligible under Criterion B

The Extent of Occurrence across the taxon's range is estimated to be 10,016 km², and the Area of Occupancy is estimated to be 222 km², but other thresholds under this criterion have not been met.

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 <u>C1</u> or <u>C2</u>				
<u>C1</u>	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)
<u>C2</u>	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

No relevant population data are available for the taxon.

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Criterion D - Very small or restricted population ^α			
^α	Critically Endangered ^α	Endangered ^α	Vulnerable ^α
Number of mature individuals (observed or estimated) ^α	<50 ^α	<250 ^α	<1,000 ^α
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. ^α	- ^α	- ^α	D2: Typically: [¶] AoO < 20 km ² or number of locations ≤ 5 ^α

Evidence:

Ineligible under Criterion D

There is insufficient evidence to determine the number of 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.

VicFlora (2014) Flora of Victoria, Royal Botanic Gardens Victoria: *Eremophila divaricata* subsp. *divaricata*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/e93fe7bd-b882-43d3-a8a9-ff942c0ea898>

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Cymbonotus lawsonianus*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/cf65886b-3d98-4c7c-a489-0df7354983ac>