

Sclerolaena uniflora Two-spined Copperburr

Taxonomy

Sclerolaena uniflora R. Br.

The taxon is very close to *S. diacantha* with which it may intergrade in some areas (VicFlora 2018).

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 A2ce+3ce+4ce; B2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a decumbent to erect or spreading, greyish sub-shrub, to c. 40 cm high, branches densely covered with white or rusty, short-woolly hairs. Leaves rather crowded, often curved upwards, linear to narrowly oblanceolate, 6-13 mm long, densely covered with short-woolly to semi-appressed hairs. Tube of fruiting perianth 2-2.5 mm long and as wide or wider, densely tomentose, attached centrally at base or slightly obliquely, attachment circular, deeply hollowed, with thin radial septa within; limb not exerted above spine-bases; spines 2, virtually erect, 0.2-1 mm long, pubescent below, one with a short blunt tubercle at its base. The taxon fruits mostly from October to June (VicFlora 2018).

Generation Length

The generation length of *Sclerolaena uniflora* is estimated to be 25 to 50 years. This is based on congeners, the inference that it has a long-lived seedbank surviving for more than 50 years, that it shows partial germination after fire, that it does not resprout after fire, and that it requires 2 years to reach reproductive maturity (DELWP 2015).

Distribution

In Victoria the taxon is confined to the far north-west and is rather rare in the Raak Plain near Nowingi, Hattah-Kulkyne National Park, and the Boundary Bend area (VicFlora 2018).

Habitat

The taxon occurs on loamy, subsaline soils, often rich in limestone or gypsum rubble (VicFlora 2018).

Threats

Whilst few threats can be identified which apply consistently across the Victorian range of the taxon, a range of threats can be identified which operate locally at a proportion of occupied sites. The taxon has undoubtedly suffered historic decline through habitat loss to agriculture and habitat degradation through agricultural activity in most districts, since a majority of records are for highly fragmented settled districts or unreserved public land subject to a range of exploitative activities. Most occurrences are at least moderately weedy, and the taxon may be

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threatened by competition of both annual and perennial exotic weeds during early stages of recruitment, although this threat is unlikely to contribute to adult mortality.

Many occurrences are associated with moderately saline sites including samphire shrublands on salt lake margins. These occurrences may be threatened by hydrological modification resulting in fluctuating water tables and increasing salinity. Some occurrences on the Raak Plain are likely to have been threatened historically by gypsum mining and the impact of this threat may persist into the future. Some occurrences, notably those in highly fragmented agricultural landscapes, may also be threatened by targeted browsing by cattle, sheep, or kangaroos and, during early stages of recruitment, by rabbits. The taxon is potentially threatened by climatic warming and drying which increase the risk of recruitment failure due to extreme and prolonged drought stress.

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 style="text-align: center;">} 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:

Eligible under Criterion A2 as Endangered

The population reduction over the past 75 to 150 years is estimated to be 30 to 75% (midpoint 50%), based on (c) and (e) above.

Although it is difficult to quantify with any confidence, an estimate of historic decline is based largely on the impact of habitat loss to agriculture and habitat degradation through associated agricultural and extractive activities.

The causes of the reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A3 as Endangered

The population reduction over the next 75 to 100 years is projected to be 30 to 75% (midpoint 50%), based on (c) and (e) above.

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An estimate of future decline is based on the plausible impact of the identified threats.

Eligible under Criterion A4 as Endangered

The population reduction over any 75 to 150 year period, including both past and future (up to 100 years in the future), is estimated to be 30 to 85% (midpoint 55%), based on (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

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 Vulnerable

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 17,036 km², based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented naturally and anthropogenically at the sub-regional to landscape scales. The taxon is likely to be dispersed by mammals at the kilometre scale.

It is estimated to have 3 locations, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above based on the current and projected impact of the identified threats, notably habitat loss and degradation through agricultural activity, competition by both annual and perennial exotic weeds, hydrological modification, targeted browsing by herbivores, and climatic warming and drying.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 76 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is severely fragmented, has 3 locations, and has a continuing decline in (i), (ii), (iii), (iv) and (v) 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 as Data Deficient

There is no available estimate of population size for the taxon in Victoria, although quadrat data suggests population density is typically low with projective foliage cover less than 5% at the quadrat scale.

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:

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

DELWP (2015). *Victorian Flora Vital Attributes dataset*. Department of Environment, Land, Water and Planning, Victoria.



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

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Sclerolaena uniflora*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/67a86059-3306-46bf-98fa-7cc03d4b3b1b>