

## *Austrostipa rudis* subsp. *australis* Veined Spear-grass

### Taxonomy

*Austrostipa rudis* subsp. *australis* (J. Everett & S.W.L. Jacobs) S.W.L. Jaco

### 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)

### Species Information

#### Description and Life History

Glumes broadly obtuse with 1-2 mm of delicately membranous, often erose tip, upper glume 11-14.5 mm long; lemma 8.6-11.5 mm long, the hairs sparse or absent toward the apex; callus 0.8-1.7 mm long, usually <20% the length of the lemma; awn 60-90 mm long, column 32-45 mm long. The taxon flowers mostly from November to January (VicFlora, 2017).

#### Generation Length

The generation length of *Austrostipa rudis* subsp. *australis* is inferred to be 5 to 10 years based on its longevity and effective reproductive maturity. The longevity of the tussocks is potentially variable according to climatic conditions and fire-regimes. While potentially resilient, plants of *Austrostipa* spp. can be killed by fire, especially in colder conditions or when drought stressed. It is suspected that tussocks plants may have an average potential longevity of 15-20 years. The taxon's effective reproductive maturity is reached within the two years of growth.

#### Distribution

The taxon is uncommon with scattered distribution, usually at moderate altitude and mostly in cool areas of southern Victoria (VicFlora, 2017).

#### Habitat

The taxon occurs in open-forest on sandy or sandstone-derived soils (VicFlora, 2017).

#### Threats

Threats to this taxon include weed invasion (notably perennial grasses), land clearing for urban/agricultural use, progressive degradation of isolated remnants, prescribed burning at inappropriate times (e.g., when plants are stressed or during winter) and possibly in the longer term the impacts of climate change (decreased rainfall).

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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>based on any of the following:</p>	<p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>
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### 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.

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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 <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
B2. Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>
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 (AoO) across the taxon's range is estimated to be 212 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The VBA records are generally widely dispersed, suggesting that the taxon could arguably be severely fragmented. It has been suggested that most stands of the taxon are smaller than 0.1 hectare, but some are more extensive. It is not clear whether the concentration of records to the near east of Melbourne is due to intensity of sampling and hence recording, or a true indication of the prior stronghold of the taxon.

It could be argued that based on land-use there are three locations, represented by largely intact habitat, relatively secure remnant vegetation distant from urban growth, and populations in the larger metropolitan area. On a geographic basis, there are arguably four locations, these being respectively East Gippsland, central to southern Gippsland, the Port Phillip Basin and the Otways to southwest Victoria, which roughly equate to combinations of threats related to degree of fragmentation, land-use patterns and climate.

It has a continuing decline in (ii), (iii) 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
<b>AND at least one of C1 or C2</b>				
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.

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 <sup>2</sup> or number of locations ≤ 5

## Evidence:

### Ineligible under Criterion D as Data Deficient

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. 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](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: *Austrostipa rudis* subsp. *australis*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/b206a1a4-cb46-446c-9bf2-0b3e3bb9e177>