

Austrostipa tenuifolia Long-awn Spear-grass

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Taxonomy

Austrostipa tenuifolia (Steud.) S.W.L. Jacobs & J. Everett

Current conservation status

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

Proposed conservation status

Endangered in Victoria

Criteria B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a tufted perennial, culms erect, to 1 m high, glabrous; nodes often hidden within sheaths. Leaves smooth to scabrous, occasionally with scattered, short, stiff hairs; sheaths often purplish; blade loosely to tightly inrolled, to 25 cm long, to 1.5 mm diam.; ligule ciliate to woolly, 0.8-2.5 mm long. Inflorescence a sparse, slender panicle to 35 cm long, its base sometimes enclosed by uppermost leaf-sheath. Glumes 13-20 mm long, usually purplish initially, acuminate or acute, subequal or the lower up to 5 mm longer than upper; lemma 7-9 mm long, brown at maturity, granular for the most part, shortly tuberculate, with moderately dense short white to pale tan hairs, usually sparser toward the apex; coma sparse (if developed), to c. 1 mm long; callus 2-3 mm long; awn falcate, 70-100 mm long, the straight part 10-15 mm long, shortly pubescent to villous; palea slightly shorter than lemma, with a sparse line of hairs down the centre. The taxon flowers from October to November (VicFlora 2017)

Generation Length

The generation length of *Austrostipa tenuifolia* is estimated to be 5 to 10 years. This is based on a plausible longevity of 5-10 years and recruitment that is likely to be more or less continuous in response to small scale disturbance, as well as likely episodic recruitment in response to wet conditions.

Distribution

The taxon is known from only two collections in the north-central part of the state (Quambatook and Terrick Terrick). The Victorian collections are significantly disjunct from the nearest occurrences in South Australia near the Victorian border (VicFlora 2017).

Habitat

The taxon is found on dry grassy *Calltris glaucophylla* dominated woodlands of north central Victoria.

Threats

The threats are not clear, given that the taxon was only collected and confirmed in relatively recent times. The taxon is assumed to have declined, given its presence in highly fragmented landscapes where land clearing and habitat degradation is ongoing. It is unclear how the taxon will be impacted by climate change.

Austrostipa tenuifolia

Long-awn Spear-grass

Future threats include habitat loss, timber harvesting, weed invasion, rabbits and climate change.

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;"><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:

Ineligible under Criterion A

The past population reduction does not meet the threshold for eligibility under criterion A2, and the future population reduction does not meet the threshold for eligibility under criterion A3.

Austrostipa tenuifolia

Long-awn Spear-grass

| 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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 551 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to be severely fragmented, as it has no capacity for long-distance dispersal and therefore no realistic capacity for recolonisation in the event of local extinction.

It is estimated to have 2 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.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 24 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA. As above, the taxon is estimated to be severely fragmented, has 2 locations and a continuing decline in (i), (ii), (iii), (iv) and (v) above.

Austrostipa tenuifolia

Long-awn Spear-grass

| 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:

Eligible under Criterion C1 as Vulnerable

It is estimated that there are 2,300 to 5,500 mature individuals, based on all estimates of the subpopulation numbers.

A continuing decline of 25% is estimated to occur within three generations.

| 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: AaO < 20 km ² or number of locations ≤ 5 |

Evidence:

Eligible under criterion D 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. 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



Austrostipa tenuifolia
Long-awn Spear-grass

VicFlora (2017). Flora of Victoria, Royal Botanic Gardens Victoria: *Austrostipa tenuifolia*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/1bd8c01d-d9b3-467a-9a87-caecbb6575df>