



Poa billardierei Coast Fescue

Taxonomy

Poa billardierei (Spreng.) St.-Yves

Previously known as *Austrofestuca littoralis* and *Festuca littoralis*.

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(i,ii,iii,iv,v)

Species Information

Description and Life History

The taxon is a glabrous, coastal perennial to 60 cm high, forming tussocks but with an erect, branching rhizome. Leaf-blades closely folded, subterete, to 50 cm long and c. 1 mm diam., smooth on the outer surface, densely scabrous, pubescent within, pungently pointed at the apex; sheaths smooth, closely sheathing stem; ligules thinly membranous, to 6 mm long. Panicle dense, lanceolate or spike-like, to 10 cm long, overtopped by leaves. Spikelets 3-5-flowered, 12-16 mm long, pale straw-coloured; glumes subequal, 9-12 mm long, strongly keeled, scabrous along the keels, rarely shortly pubescent; lemmas narrow-lanceolate, 7-11 mm long, 5-7-nerved, strongly keeled, acute, unawned, smooth to minutely scabrous-pubescent; callus virtually glabrous but rachilla segments with copious white silky hairs; palea subequal to lemma. Flowers mainly September-October (Vic Flora 2019).

Generation Length

The generation length of *Poa billardierei* is estimated to be 8 to 30 years. Plants are potentially very long-lived, forming increasingly expanding patches in suitable situations. Plant death is more likely due to competition or disruption of the foredune than an inherent mortality of the taxon.

Distribution

The taxon occurs patchily along the entire Victorian coast, chiefly along ocean beaches, but 2 pre-1900 records exist for Port Phillip Bay (near Geelong and Brighton). Historically it is likely to have been more continuous, but local extinctions probably occurred through, *inter alia*, the expansion of *Marram*, *Ammophila arenaria*, and more recently, the spread of *Euphorbia paralias*. It also occurs in Western Australia, South Australia, New South Wales, Tasmania, and New Zealand.

Habitat

The taxon occurs on stable or semi-stable foredunes, mainly along high-energy ocean beaches, occasionally occurring away from the shore in areas with extensive sand 'blowouts' (e.g., parts of Croajingalong NP). It is commonly associated with *Senecio spathulatus*, *Acacia longifolia* subsp. *sophorae*, *Actites megacarpa*, *Spinifex sericeus* and exotics such as *Cakile maritima*, *Ammophila arenaria*, and *Euphorbia paralias*.

Threats

The taxon is threatened by general anthropogenic degradation of foreshores as well as invasive alien taxa, particularly, *Ammophila arenaria* and *Euphorbia paralias*.

In the longer term, sea level rise may become a threat in situations where the hinterland has been modified to such an extent that 'migration' of the taxon inland is not possible. A projection of sea-level rise of around 0.5 m by 2070 has been made for South-west Victoria (SWCCP 2019).

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:

Eligible under Criterion A2 as Vulnerable

The population reduction over the past 24 to 90 years is inferred to be 30%, based on (c) and (e) above.

Marram was deliberately planted along the Victorian coast as early as 1890 (Anon. 1893) and is probably still spreading, although it is not actively planted anymore, and *Euphorbia paralias* is still expanding its range eastwards through the state (N. Walsh, pers. obs.). Both taxa are competitors with *P. billardierei*.

An estimated 30% of the range of is inferred to have been lost, largely through the incursion of these two taxa (but also through anthropogenic disturbance) in the past 90 years.

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

Eligible under Criterion A3 as Vulnerable

The population reduction over the next 24 to 90 years is projected to be 10 to 30%, based on (c) and (e) above.

This is based on continued expansion of competitors (particularly *Euphorbia paralias*), continued anthropogenic deterioration of coastal dunes, and rising sea level.

Eligible under Criterion A4 as Vulnerable

The population reduction over any 24 to 90 year period, including both past and future, is projected to be 10 to 30%, based on (c) and (e) above.

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 B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 208 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

It is estimated to have 1 location as all key identified threats apply across its range, albeit to greater and lesser extents depending on e.g., remoteness, effort of weed eradication and/or revegetation etc.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above based on the current and projected impact of the identified threats, such as the degradation of foreshores, invasive alien taxa, and sea level rise.

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

No credible estimate of population is possible given the expanse of 'unexplored' potential habitat and lack of subpopulation estimates at any of the known sites for the taxon.

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:

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

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