



## *Stylidium laricifolium* Giant Triggerplant

### Taxonomy

*Stylidium laricifolium* Rich.

### Current conservation status

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

### Proposed conservation status

Endangered in Victoria

Criterion A2ce+3ce+4ce; B1ab(iii,v)+2ab(iii,v)

### Species Information

#### Description and Life History

Few-branched, perennial subshrub, 30-150 cm high. Leaves numerous, alternate and c. crowded along stem, linear, 2-8 cm long, c. 2 mm wide, glabrous, margins often revolute. Flowering stems 15-45 cm high, nearly smooth; flowers in 1 main panicle and several lesser racemes. Calyx narrowly lanceolate, 1.5-2 mm long, lobes blunt, shorter than tube; corolla 10-15 mm across, white to pale pink, sometimes spotted darker pink, lobes c. equal, paired horizontally, oblong, with glandular hairs scattered on the abaxial surface, labellum blunt with two short appendages and glandular hairs below, throat appendages absent; column 6-7 mm long; stigma cushion-like. Capsule c. oblong, 8-12 mm long; seeds fusiform, c. 1.5 mm long, dark brown, grooved, papillate. The taxon flowers from September to December (VicFlora 2015).

#### Generation Length

The generation length of *Stylidium laricifolium* is estimated to be 10 to 25 years. Other *Stylidium* taxa, which are much smaller, are known to live for several years in cultivation. Given *Stylidium laricifolium* can grow to 1.5 metres tall, to be able to reach this size it is expected to be one of the longer-lived taxa.

#### Distribution

In Victoria, the taxon is confined to near coastal areas between Thurra River and Wingan Inlet in the far east. It also occurs in Queensland, New South Wales and the Australian Capital Territory. The taxon is particularly frequent around the Wingan Inlet camping area and nearby roads and tracks.

#### Habitat

In Victoria, *Stylidium laricifolium* occurs in moist coastal forest with a heathy understorey on coarse granitic soils, and in riparian shrubland.

#### Threats

Inappropriate fire regimes, particularly more frequent, intense fires as may be expected in the future due to climate change, may be significant threats. Cohorts exposed to initial fires may be killed by a subsequent fire before they reach reproductive maturity. Combined with drought, recruitment failure is likely. Feral pigs and Sambar Deer (*Rusa unicolor*) can damage soils and plants through activities such as trampling and wallowing. Vehicle and people movement, including collection, may contribute to the decline of the taxon.

# Stylidium laricifolium Giant Triggerplant

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

## Evidence:

### Eligible under Criterion A2 as Endangered

The population reduction over the past 30 to 75 years is suspected to be 20 to 50%, based on (c) and (e) above.

At Wingan Inlet there are likely to have been losses due to land use. Much of the habitat was burnt in the 2020 fires, and much of the fires were high severity. These may have caused significant impacts but these are yet to be determined.

### Eligible under Criterion A3 as Endangered

The population reduction over the next 30 to 75 years is projected to be 20 to 70% (midpoint 50%), based on (c) and (e) above.

Declines are based on intense browsing, trampling and digging by feral herbivores, summer droughts, drying and repeat fires. Post fire impacts of recovery works and the impacts of feral herbivores may contribute to a higher future decline.

### Eligible under Criterion A4 as Endangered

The population reduction over any 30 to 75 year period, including both past and future (up to 100 years in the future), is estimated to be 30 to 50%, based on (c) and (e) above.

# *Stylidium laricifolium* Giant Triggerplant

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 B1 and B2 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 105 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas.

The Area of Occupancy (AoO) across the taxon's range is estimated to be 28 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the Victorian Biodiversity Atlas.

The taxon is estimated to be severely fragmented. *Stylidium* seed is primarily dispersed by gravity (Hufford *et al.* 2012) and so the distances generally separating subpopulations (over 3 km) would render them isolated from other subpopulations. If any subpopulation went extinct, it is extremely unlikely that the species would recolonise naturally.

It is estimated to have one location, as all records in Victoria are within a 23 km span, making it possible that a single fire could affect all individuals of this species in Victoria simultaneously.

It has a continuing decline in (iii) and (v) above.

# Stylidium laricifolium

## Giant Triggerplant

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

It is suspected that there are 100 to 2,000 (midpoint 1,000) mature individuals, but other thresholds under this criterion have not been met.

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:

#### 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

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)



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Hufford K.M., Krauss S.L. and Veneklaas E.J. (2012) Inbreeding and outbreeding depression in *Stylidium hispidum*: implications for mixing seed sources for ecological restoration. *Ecology and Evolution* 2:9 2262-2273.

VicFlora (2015). Flora of Victoria, Royal Botanic Gardens Victoria. *Stylidium laricifolium*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/a201fa12-681f-4ab4-a216-248c23823491>