Threatened Species Assessment

Apium insulare
Island Celery

Taxonomy

Apium insulare P.S. Short

Current conservation status

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

Proposed conservation status

Vulnerable in Victoria

Criteria A3ce; D1+2

Species Information

Description and Life History

Erect biennial to c. 20 cm high, stems ribbed, 8–10 mm wide. Leaves 1–2-pinnate, upper leaves much smaller than lower, lamina to 15(–30) cm long; leaflets 5–15(–23), elliptic to obovate, 2–8.5 cm long, each variously lobed or toothed; petiole usually shorter than lamina. Umbels 5–8 cm diam., thickly pedunculate, peduncle 4–8.5 cm long; rays 10–25, c. equal, to 5 cm long; umbellules c. 15–25-flowered; pedicels to 7 mm long. Petals c. 1 mm long, white, sometimes with a yellow midrib. Fruit broad-ovoid, c. 1.5–2.5 mm long; mericarps almost covered by the 5 corky, yellow ribs. Flowers Oct.–Feb. VicFlora (2020).

The taxon produces abundant seed each year. The seed is moderately recalcitrant after ripening and once released.

Generation Length

The generation length of *Apium insulare* is estimated to be 4 to 15 (midpoint 8) years. This is based on the observation that the taxon is a vigorous perennial, well capable of resprouting from the large root stock. It is potentially long-lived, but it is situated in a very changeable habitat, therefore it is suggested that it is not usually long-lived. The taxon lives in the wild for approximately five years, and exceptionally up to approximately ten years.

Distribution

In Victoria, the taxon is restricted to granitic islands around Wilsons Promontory, and occasionally on mainland Wilsons Promontory. The taxon can be reasonably expected on other granitic coasts of eastern Victoria e.g. Gabo Island.

Habitat

The taxon is restricted to growing in the supra-littoral zone, where it is on granitic sandy beaches or amongst granite boulders, in relatively cool, moderate to high rainfall areas. The taxon often grows amongst flotsam, and in sites with high salt input. It never occurs under a shrub or tree canopy.

Threats

The taxon is highly palatable to browsing animals, notably rabbits and goats, although goats are rarely present in this habitat, and its rarity from suitable sites on the mainland may reflect its palatability to rabbits. The taxon is not

suspected to be threatened by sea level rise as it appears that it is able to establish in suitable habitat near extant plants.

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%

A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.

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.

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*]

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.

based on any of the following:

(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 A3 as Vulnerable

The population reduction over the next 12 to 45 years is suspected to be 10 to 40%, based on (c) and (e) above.

The current abundance may depend on the vigour and effectiveness of rabbit control.

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 km²	< 5,000 km²	< 20,000 km²
B2. Area of occupancy (AOO)	< 10 km²	< 500 km²	< 2,000 km²
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:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 16 km² and the Area of Occupancy (AoO) is estimated to be 16 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas, but other thresholds under this criterion have not been met.

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 estimated that there are 200 to 850 (midpoint 650) mature individuals, but other thresholds under this criterion have not been met.

Criterion D. Very small or restricted population	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 km2 or number of locations ≤ 5

Evidence:

Eligible under Criterion D as Vulnerable

The taxon is estimated to have 200 to 850 (midpoint 650) mature individuals and 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.

Harris, S., Buchanan, A., & Connolly, A. (2001). *One Hundred Islands: The Flora of the Outer Furneaux*, Government of Tasmania.

VicFlora (2020). Flora of Victoria, Royal Botanic Gardens Victoria: *Apium insulare* Retrieved from: https://vicflora.rbg.vic.gov.au/flora/taxon/2c1e8987-9c53-4cd5-9f76-661a3211764a