

## *Nicotiana suaveolens* Austral Tobacco

### Taxonomy

*Nicotiana suaveolens* Lehm.

### Current conservation status

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

### Proposed conservation status

Endangered in Victoria

Criteria A3ce; B2ab(i,ii,iii,iv,v)c(iv)

### Species Information

#### Description and Life History

*Nicotiana suaveolens* is an erect herb to 1.5 m high; branches usually glabrous, occasionally sparsely hairy on lower stems. Leaves usually radical and cauline, ovate or elliptic, to 20(-30) cm long, to 4(-8) cm wide, apex acute or obtuse, base attenuate, usually glabrous, sometimes pubescent; petiole to 7(-16) cm long, usually narrowly winged; upper cauline leaves lanceolate to linear, usually sessile. Inflorescences terminal, panicle-like, usually few-branched, pubescent with glandular hairs. Flowers on pedicels to c. 25 mm long; calyx tubular, 6-13(-26) mm long, pubescent, intersepal membranes usually conspicuous; corolla white, tube 20-55 mm long, mostly 3-5 mm wide at apex of calyx, pubescent, limb 14-35 mm diam., lobes obtuse or notched; stamens unequal, upper 4 filaments to 3 mm long, lower filament 11-16 mm long. Capsule ovoid to ovoid-ellipsoid, 7-12 mm long; seeds mostly reniform or angled, 0.6-1.2 mm long, honeycombed or wrinkled. Flowers mainly spring and summer (VicFlora 2018).

The taxon has toxic alkaloids that render it effectively immune from mammalian herbivory, though some insect larvae can be observed eating the leaves. The taxon is likely to be fire killed in grassland and grassy woodland, but it is suspected to resprout well following light fires. This is based on observations of the taxon resprouting very successfully following drought in the early 2000s in the You Yangs.

#### Generation Length

The generation length of *Nicotiana suaveolens* is inferred to be 15 to 25 years. The taxon's longevity may range from 10-30 years, but note some occurrences behave almost as annuals. Recruitment appears tied to good rains following drought, evidenced by frequent association with sites of low competition, mass recruitment, and resprouting in 2008 following an 8-10 year drought. There is partial turnover every 10-20 years, but there may be more frequent recruitment events in some drought-stressed habitats, which experience effective drought that is not recognisable as a major climatic drought event.

#### Distribution

The taxon is widespread in Victoria, particularly in drier inland areas, and often in rocky places. The taxon is found mainly around Melbourne to the north and west, but also in Yarra Bend Park and in north-east Gippsland. There are a few scattered records on the Bellarine and Mornington Peninsulas, but the status of these is unclear.

The taxon is also found in NSW (VicFlora 2018).

### Habitat

The taxon's primary habitats are rockfaces and dry rocky slopes.

### Threats

Current threats to the taxon include woody weeds such as Boneseed, Box-thorn, *Ehrharta*, rhizomatous grasses like *Cynodon*, and *Tradescantia* at Yarra Bend where it is engulfing the lower end of a *Nicotiana* stand.

### 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 last 45 to 75 years is inferred to be 30 to 40%, based on (c) and (e) above.

Past decline is based on a combination of direct clearing, habitat damage, and weed invasion.

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

#### Eligible under Criterion A3 as Endangered

The population reduction over the next 45 to 75 years is projected to be 10 to 50%, based on (c) and (e) above.

Future decline is based on further weed invasion, and the risk of loss of very small populations from fire, drought, or stochastic events.

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 300 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 naturally at the landscape scale. It has a patchy distribution with most occurrences isolated from other occurrences at separations exceeding the dispersal range of the taxon which has no specialised mechanism for long-distance dispersal.

It has a continuing decline in (i), (ii), (iii), (iv) and (v) above, based on the impacts of the identified threats, notably weed invasion, fire, and drought.

It is inferred to have extreme fluctuations in (iv) above, as it was subject to extreme fluctuation in population size under pre-settlement conditions with a boom-bust cycle associated with drought events.

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

There is insufficient evidence to determine the number of mature individuals.

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 km <sup>2</sup> 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

DEPI (2014). *Advisory list of rare or threatened plants in Victoria - 2014*. Department of Environment and Primary Industries, Melbourne.

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Nicotiana suaveolens*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/e2c50ae5-b995-4d00-945a-ac715ce2077f>