

## *Acacia uncifolia* Coast Wirilda

### Taxonomy

*Acacia uncifolia* (J.M. Black) O'Leary

### 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 B1ab(i,ii,iii,v)+2ab(i,ii,iii,v)

### Species Information

#### Description and Life History

The taxon is a bushy shrub or tree, 5-10 m high, often spreading by suckers and coppicing to form dense groves; bark smooth, becoming fissured, grey to brown; branchlets angular at apices, glabrous, reddish. Phyllodes oblanceolate to narrowly oblanceolate, 3-6.5 cm long, 3-10 mm wide, glabrous, green, rather abruptly narrowed at the uncinuate to subuncinate apices, mucro distinct and delicate; veins pinnate, obscure except for midrib; gland not prominent, 0-8 mm above pulvinus. Raceme with rachis 2-4(-5) cm long, glabrous; peduncles 2-5 mm long, slender, glabrous; heads globular, (16-)18-30-flowered, cream to pale yellow. Flowers 5-merous; sepal united. Pods linear, to 16 cm long, 5-7 mm wide, firmly chartaceous, glabrous; seeds longitudinal, oblong to oblong-elliptic, 4-6 mm long, dull to slightly shiny, dark brown to black; funicle three-quarters or more encircling seed, red-brown to blackish, aril clavate. The taxon flowers year-round, mostly from Oct.-Nov. (VicFlora 2018).

#### Generation Length

The generation length of *Acacia uncifolia* is estimated to be 10 to 80 years. This is inferred from likely post-fire episodic recruitment at pre-settlement frequencies of 10 - 80 years, with some continuous recruitment in response to small-scale localised disturbances, especially via suckering. *Acacia* species are perennial and have varying generation lengths, from long-lived to short-lived. In this species, the longevity is plausibly 10 - 80 years and recruitment is typically cued by fires at mean pre-settlement frequencies ranging from 10 - 100 years, depending on rainfall and landscape context.

#### Distribution

The taxon occurs on the Bellarine Peninsula near Geelong, the Mornington Peninsula and extends to Wilsons Promontory. It also occurs in SA and Tas (VicFlora 2018).

#### Habitat

This taxon is found mainly on coastal dunes or near saltmarsh, chiefly on calcareous sand and sandy loam soils (VicFlora 2018).

#### Threats

This taxon is potentially threatened by inappropriate fire regimes with a lack of recruitment possible if the fires are too infrequent, thereby not allowing fire promoting dormant soil-stored seeds to germinate. Tolsma et al. (2012)

note that this taxon may be sensitive to frequent burning. The taxon prefers longer fire intervals since too frequent fires potential prevent plants from reproducing via seed and building up a seedbank that allows for recruitment after disturbance. The latter threat is potentially more likely due to climate change and climatic warming and drying, thereby increasing the frequency and severity of fires. This taxon occurs in coastal low-lying habitats and therefore is threatened with sea-level rise and storm surge associated with a changing climate. The taxon is found in coastal areas which are also under threat from land-clearing and altered soil profiles, weed invasion and altered nutrient regimes, caused by urbanisation and industrialisation of suitable habitat, especially in the Bellarine and Mornington Peninsula areas. Extreme weather events may become more severe in the future due to climate change and this may threaten this taxon in the habitat it occurs in. An assessment by DELWP staff notes that colonisation by mistletoe, *Amyema preissii*, may cause crown mortality in the Geelong region. Tolsma et al. (2012) noted grazing by Hog Deer is a threatening process at Wilsons Promontory.

## 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;">based on any of the following:</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 Vulnerable

The population reduction over the past 30 to 240 years is estimated to be 25 to 40%, based on (c) above.

Past decline is based on an assumption that approximately 50% of the habitat has been lost (as outlined in an assessment by DELWP staff) for approximately 66% of the taxon's historical range (i.e. the western subpopulation). This has resulted in a reduction of about 33% of the taxon's overall distribution.

### Eligible under Criterion A3 as Vulnerable

The population reduction over the next 30 to 100 years is suspected to be 10 to 30%, based on (c) above.

It is likely that a decline will occur in the western subpopulation as land use changes impact this taxon. In the eastern subpopulation, most of the recorded distribution is in reserves and has experienced recruitment after fires in 2008 (Tolsma et al. 2012), which to some extent may mitigate the number of individuals lost.

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 as Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 3,861 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon can be considered to occur in one location because it occurs in a geographically or ecologically distinct area in which a single threatening event can rapidly affect all individuals of the taxon present.

It has a continuing decline in (i), (ii), (iii) and (v) above, based on the current and projected impact of the identified threats. These include urbanisation, weed invasion, inappropriate fire regimes, and the increasing frequency and intensity of wildfires in a warming and drying climate.

### Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 224 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA, as well as records in NatureKit and NatureMap, and in consultation with National Herbarium of Victoria records. A 1990 record from near Point Cook has been excluded.

As above, the taxon has 1 location and has a continuing decline in (i), (ii), (iii) and (v) above.

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 10,000 to 20,000 mature individuals, which exceeds the thresholds for criterion C.

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 D as Vulnerable**

It is estimated that there are 10,000 to 20,000 individuals, and 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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Tolsma, A., Sutter, G., and Coates, F. (2012). *Recovery of Victorian rare or threatened plant species after the 2009 bushfires* - Natural values fire recovery program. Department of Sustainability and Environment, Heidelberg, Victoria.

VicFlora (2018). Flora of Victoria, Royal Botanic Gardens Victoria: *Acacia uncifolia*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/820b727a-dfe1-4df5-b805-61983db3d6b1>

World Wide Wattle (2018). *Acacia uncifolia*. <http://worldwidewattle.com/speciesgallery/species-intro.php?id=30626>