

## *Acronychia oblongifolia* Yellow-wood

### Taxonomy

*Acronychia oblongifolia* (A. Cunn. ex Hook.) Endl. ex Heynh.

### Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 2007).

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

### Proposed conservation status

Critically Endangered in Victoria

Criteria A3ce+4bce

### Species Information

#### Description and Life History

The taxon is a glabrous shrub to medium-sized tree to c. 15 m high. Leaves usually 1-foliolate, occasionally trifoliolate, sometimes lemon-scented; lamina of unifoliolate leaves and terminal leaflets obovate or narrow- to oblong-elliptic, (3-)4-12 cm long, 1.4-4.5 cm wide, apex obtuse to bluntly acute, usually notched, oil dots numerous and obvious; lateral leaflets smaller than terminal leaflets, 2.5-6 cm long, c. 1-2 cm wide; petiole (3-)7-30 mm long. Inflorescence few-many-flowered, 2-6 cm long. Sepals 0.-1.5 mm long; petals 5- mm long, creamy white, spreading. Fruit globose to depressed-globose, 8-2 mm diam., with apical tuft of hairs, mostly 4-lobed, white. The taxon flowers summer and autumn (VicFlora 2019).

#### Generation Length

The generation length of *Acronychia oblongifolia* is estimated to be 150 to 200 years. The taxon is a long-lived tree that occurs in areas of rainforest that are seldom subject to large-scale disturbance (i.e. fire).

#### Distribution

In Victoria, the taxon is restricted to areas of rainforest between Mitchell and Bemm Rivers in East Gippsland. It also occurs in Qld and NSW (VicFlora 2019).

#### Habitat

The taxon is restricted to Warm Temperate Rainforest Dry Rainforest and Littoral Rainforest at low elevations, usually near watercourses or on rocky slopes (Bilney 2013; VicFlora 2019).

#### Threats

The taxon is seriously threatened by antler rubbing by Sambar Deer (*Rusa unicolor*). Deer appear to target this taxon as a rubbing tree, causing mortality or vastly reducing reproductive output (Bilney 2013). The taxon is potentially threatened by imposed anthropogenic fire regimes and climatic warming and drying which, synergistically, increase the risk of recruitment failure in response to repeat fire events and extreme drought stress.

### IUCN Criteria

| Criterion A. Population size reduction.<br>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 Vulnerable

The population reduction over the past 450 to 600 years is estimated to be 20 to 30%, based on (b) and (c) above. This is based on a reduction of habitat due to land clearing.

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

#### Eligible under Criterion A3 as Critically Endangered

The population reduction over the next 100 years is projected to be 80 to 90%, based on (c) and (e) above.

This is based on the high expected rates of mortality or failure to reproduce, due to deer, and also the risk of increasing fire frequency and intensity.

#### Eligible under Criterion A4 as Endangered

The population reduction over any 450 to 600 year period, including both past and future (up to 100 years in the future), is estimated to be 70 to 80%, based on (b), (c) and (e) above. The causes of reduction may not have ceased, be understood or be reversible.

| Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (area of occupancy)   |  |                          |                          |
|---|--|--------------------------|--------------------------|
|   | Critically Endangered<br>Very restricted | Endangered<br>Restricted | Vulnerable<br>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 B as Endangered

The Extent of Occurrence (EoO) is estimated to be 4,323 km<sup>2</sup>, based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA).

The Area of Occupancy (AoO) is estimated to be 172 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

Any two of (a), (b) or (c) above are also satisfied.

Continuing decline is based on the current and projected impact of the identified threats.

| 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 <u>C1</u> or <u>C2</u>                   |   |  |   |  |
| <u>C1</u>  | 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) |
| <u>C2</u>  | 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 |   |  |   |  |

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### Evidence:

#### Ineligible under Criterion C

It is estimated that there are 20,000 to 40,000 mature individuals, which exceeds the thresholds for criterion C.

| Criterion D - Very small or restricted population <sup>Ⓜ</sup>  |                                    |                         |   |
|---|------------------------------------|-------------------------|---|
| <sup>Ⓜ</sup>  | Critically-Endangered <sup>Ⓜ</sup> | Endangered <sup>Ⓜ</sup> | Vulnerable <sup>Ⓜ</sup>   |
| Number of mature individuals (observed or estimated) <sup>Ⓜ</sup>   | <50 <sup>Ⓜ</sup>                   | <250 <sup>Ⓜ</sup>       | <1,000 <sup>Ⓜ</sup>   |
| D2 - Only applies to the VU category <sup>Ⓜ</sup><br>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. <sup>Ⓜ</sup> | - <sup>Ⓜ</sup>                     | - <sup>Ⓜ</sup>          | D2 - Typically: <sup>Ⓜ</sup><br>AoO < 20 km <sup>2</sup> or<br>number of locations ≤ 5 <sup>Ⓜ</sup> |

### Evidence:

#### Eligible under criterion D 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

Bilney, R. (2013) Antler rubbing of Yellow-wood by Sambar in East Gippsland, Victoria. *Victorian Naturalist* 130: 68-74.

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

SAC (2007). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 764 *Acronychia oblongifolia*.

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Acronychia oblongifolia*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/87920647-ed5d-4b58-aca3-acba723a6a0b>