



## *Philotheca myoporoides* subsp. *petraea* Mt Stewart Wax-flower

### Taxonomy

*Philotheca myoporoides* subsp. *petraea* Rozefelds

### Current conservation status

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

### Proposed conservation status

Critically Endangered in Australia

Criteria B1ab(iii)+2ab(iii)

### Species Information

#### Description and Life History

The taxon is a shrub to c. 1 m high. Leaves obovate, 8-16 mm long, 4-7 mm wide, slightly to distinctly V-shaped in cross-section, midrib indistinct on lower surface, apex obtuse. Inflorescences 1-4-flowered; peduncles 2-3 mm long. The taxon flowers in November (1 record) (VicFlora 2016).

#### Generation Length

The generation length of *Philotheca myoporoides* subsp. *petraea* is inferred to be 25 to 90 years. This is based on a plausible longevity in the range of 25-80 years, and a plausible pre-settlement fire frequency in the range of 35-90 years.

#### Distribution

The taxon is known only from the summit area of Mt Stewart, west of Gelantipy (VicFlora 2016).

#### Habitat

The taxon occurs in a rocky shrubland at c. 800 m altitude (VicFlora 2016).

#### Threats

The taxon is plausibly at increasing risk of seed bank depletion from fires at frequencies below its tolerable fire interval. Other plausible threats include recruitment failure in response to extreme drought stress and the possible impact of deer browsing of young plants.

# Philothea myoporoides subsp. petraea

## Mt Stewart Wax-flower

### 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>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> |
|--|---------------------------------------|---|

### Evidence:

#### Ineligible under Criterion A

There is insufficient evidence to determine whether there has been or will be a reduction in population sufficient to meet any threshold for Criterion A.

# *Philothea myoporoides* subsp. *petraea* Mt Stewart Wax-flower

| 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 B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA). The EoO has been made equal to the Area of Occupancy (AoO) to ensure consistency with the definition of AoO as an area within EoO.

The taxon is estimated to have one location as it is known by a single subpopulation on Mt Stewart in far East Gippsland.

It has a continuing decline in (iii) above based on the current and projected impact of the identified threats, such as extreme drought stress and fires at frequencies below its tolerable fire interval.

### Eligible under Criterion B2 as Critically Endangered

The AoO across the taxon's range is estimated to be 4 km<sup>2</sup>, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon is estimated to have 1 location and has a continuing decline in (iii) above.

# Philothea myoporoides subsp. petraea

## Mt Stewart Wax-flower

| 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 220 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<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. |  | -                     | -          | D2. Typically:<br>AoO < 20 km <sup>2</sup> or number of locations ≤ 5 |

### Evidence:

#### Eligible under Criterion D as Endangered

It is estimated that there are 220 mature individuals, based on a count in 2001 by James Turner. It is unclear at what point the identified threats are likely to result in significant decline in population size or other demographic parameters.

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:



*Philotheca myoporoides* subsp. *petraea*  
Mt Stewart Wax-flower

[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)

Rozefelds, A.C. (2001). Notes on the *Philotheca myoporoides* complex (Rutaceae) in Victoria. *Muelleria*, 15, 15-18.

VicFlora (2016). Flora of Victoria, Royal Botanic Gardens Victoria: *Philotheca myoporoides* subsp. *petraea*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/3ed4237d-d197-4c0c-b972-4161b4123945>