



## *Correa aemula* Hairy Correa

### Taxonomy

*Correa aemula* (Lindl.) F. Muell.

*C. aemula* in Victoria is comprised of two subspecies: the Black Range entity, and the Grampians entity, which will be described as a new subspecies (Carr unpubl. data). It hybridises in the wild with *C. reflexa* var. *scabridula* and *C. reflexa* var. *reflexa* sens lat.

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

### Species Information

#### Description and Life History

Erect to spreading shrub to 2.5 m high; branches sparsely to densely tomentose. Leaves papery, broadly subcordate, 1–6 cm long, 0.5–3.5 cm wide, apex acute to slightly rounded, surfaces sparsely to moderately stellate-pubescent; petiole 4–6 mm long. Flowers solitary or rarely 2 together, axillary or terminal to short shoots, pendent; pedicels 5–30 mm long; bracts small, medial to distal, persistent; calyx hemispherical to cup-shaped, with 4 prominent lanceolate lobes, 4–8 mm long, green, glabrous or sparsely stellate hairy; corolla cylindric, 15–30 mm long green or grey-green, darkening to mauve-purple with age, petals fused in bud but free after anthesis and then surrounding stamens; filaments subequal to corolla or slightly exerted. Flowers spring and summer (VicFlora 2019).

The taxon is a shrub of up to 2.5 m high, typically killed by moderate to severe fire. Recruitment is only by seed, and is continuous as well as episodic after fire from a presumably long-lived soil-stored seedbank. It is pollinated by honeyeaters and is apparently obligatorily outcrossing. Seeds are explosively shed from the fruits to several metres, with secondary dispersal by ants up to several tens of metres which eat the elaiosome and then bury the seeds.

#### Generation Length

The generation length of *Correa aemula* is suspected to be 30 to 40 years. This is based on the longevity of the plants, as well as the frequency of fire in this fire-sensitive taxon, coupled with continuous recruitment.

#### Distribution

The taxon's distribution is widespread in the Grampians, with outlying populations in the Mt Langi Ghiran area, the Black Range, and Mt Dundas (c. 25 km NW of Cavendish).

#### Habitat

The taxon occurs in heathy and shrubby woodland on well-drained soils derived from sandstone and granite. Sites are usually rocky, often with exposure of boulders and cliffs.

### Threats

The threats to the taxon include effects of climate change such as decreasing rainfall, increased evaporation, and extreme temperatures, altered fire regimes including increased frequency and intensity, inappropriate timing of prescribed fire in winter-spring, the impacts of fire-control activities, elevated fuel loads of invasive woody taxon, largely *Acacia longifolia* subsp. *sophorae* which causes soil sterilisation and destruction of seedbank when burnt, soil loss on bare post-fire substrates, weed invasion, nectar-robbing and pollen-robbing by introduced honeybees, browsing by wallabies and deer as it is highly palatable, Cinnamon Root-rot Fungus, and decreased pollination as the honeyeater guild declines because of reduced flowering in co-occurring floral resources.

### 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> <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 A3 as Vulnerable

The population reduction over the next 90 to 100 years is projected to be 30%, based on (c) above.

| 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 Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4,840 km<sup>2</sup>, based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is inferred to be severely fragmented, as most of the individuals are in small and isolated patches widely spread in the landscape over c. 120 km west to east, with negligible chance of gene exchange between the majority.

It is estimated to have 1 location, and has a continuing decline in (i), (ii), (iii), (iv) and (v) above due to the identified threats, particularly climate change, altered fire regimes, and weed invasion.

#### Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 368 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 severely fragmented, has 1 location, and has a continuing decline in (i), (ii), (iii), (iv) 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 as Data Deficient**

No reliable estimate of the total population size for the taxon is available.

| 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 D2 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**

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

VicFlora (2019). Flora of Victoria, Royal Botanic Gardens Victoria: *Correa aemula*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/a99a0dee-317d-4b2c-8d5c-84c6a935ae67>



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Whiffin, T. (1977) Volatile oils and the study of natural hybridization between *Correa aemula* and *C. reflexa* (Rutaceae). *Australian Journal of Botany* 25 (3) 291 - 298