

Eremophila bignoniiflora Bignonia Emu-bush

Taxonomy

Eremophila bignoniiflora (Benth.) F. Muell.

Current conservation status

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1992).

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

Proposed conservation status

Endangered in Victoria

Criteria A2cde+3c+4c; B1ab(i,ii,iii,v)+2ab(i,ii,iii,v)

Species Information

Description and Life History

Shrub or small tree to c. 7 m high, much-branched, glabrous, resinous; branches non-tuberculate. Leaves alternate, linear to linear-lanceolate, mostly 7–20 cm long and 4.5–14 mm wide, viscid when mature, acuminate, margins entire or rarely toothed towards apex. Inflorescences mostly 1-flowered; pedicels 5–24 mm long, curved. Flowers zygomorphic; sepals ovate, 5–10.5 mm long, acuminate, imbricate, green; corolla 20–30 mm long, glabrous outside, pubescent inside tube and on lower lobe, usually creamy-white, spotted, upper lip 2-lobed; stamens 4, shortly exserted, anthers reniform; ovary glabrous, style glabrous. Fruit ovoid, 15–20 mm long, 10–15 mm diam., dry, splitting near apex, glabrous, greenish. Flowers mainly Jun.–Nov (VicFlora 2019).

The taxon is probably dispersed in sporadic floods by buoyant fruit, has very long-lived adults, and weakly regenerates by root suckers.

Generation Length

The generation length of *Eremophila bignoniiflora* is inferred to be 5 to 100 years (midpoint 15 years). The taxon blooms and sets seed within a few years (3-5) of germination, but maximal reproduction is probably not before 25 years. The establishment of germinants is dependent on high floods.

Distribution

The taxon is very scattered, and apparently much suitable habitat is unoccupied. It occurs at the edge of its range in Victoria, and is dubiously separate from its occurrences in NSW and SA, which is a distribution not consistent with a single sub-population.

Habitat

The taxon occupies fine-grained alluvial clay loams in sites only very rarely flooded, such as intermittent drainage lines in the arid zone, or the topmost flooded zones of inland-flowing rivers in far north-west Victoria (i.e. the Murray system). There is no evidence of fire susceptibility, nor even bushfire in this habitat.

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Threats

A major threat to the taxon is river regulation preventing the highest floods that occurred prior to the 1920-30s. All sites have not been flooded since the 1956 extensive flooding, thus climate change is a contributory and compounding threat.

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

Eligible under Criterion A2 as Endangered

The population reduction over the past 15 to 300 years is suspected to be 30 to 85% (midpoint 50%), based on (c), (d) and (e) above.

Past decline is inferred from habitat suitability and extent, plus loss of peak floods following river regulation, and assessment of the impacts (particularly in the 1800s) of harvesting for firewood from riverine forests.

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

Eligible under Criterion A3 as Endangered

The population reduction over the next 15 to 100 years is projected to be 20 to 80% (midpoint 45%), based on (c) above.

Future decline is based on the loss of peak floods following river regulation, and climate change.

Eligible under Criterion A4 as Endangered

The population reduction over any 15 to 300-year period, including both past and future (up to 100 years in the future), is inferred to be 70%, based on (c) above. The causes of the reduction may not have ceased, be understood or be reversible.

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| 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 ² | < 5,000 km ² | < 20,000 km ² |
| B2. Area of occupancy (AOO) | < 10 km ² | < 500 km ² | < 2,000 km ² |
| 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 2,218 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is inferred to be severely fragmented, as peak floods no longer occur and thus there are no means of distributing the flood-borne seed away from the extant stands.

It is inferred to have 1 location, and has a continuing decline in (i), (ii), (iii) and (v) above, based on the loss of peak floods.

Eligible under Criterion B2 as Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 61 km², 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) and (v) above.

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| 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 inferred that there are 30 to 300 (midpoint 100) mature individuals, but this qualifier is too weak.

| Criterion D. Very small or restricted population ^α | | Critically Endangered ^α | Endangered ^α | Vulnerable ^α |
|--|--|------------------------------------|-------------------------|--|
| Number of mature individuals (observed or estimated) ^α | | < 50 ^α | < 250 ^α | < 1,000 ^α |
| 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. ^α | | - ^α | - ^α | D2. Typically: [¶] AoO < 20 km ² or number of locations ≤ 5 ^α |

Evidence:

Eligible under criterion D2 as Vulnerable

The taxon is inferred 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.

SAC (1992). Flora and Fauna Guarantee Scientific Advisory Committee: Final Recommendation on a Nomination for Listing. Nomination No. 187 *Eremophila bignoniiflora*.

VicFlora (2019) Flora of Victoria, Royal Botanic Gardens Victoria: *Eremophila bignoniiflora*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/f4f196ed-9247-4f8e-b1bd-686195abcd2a>