

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Minister's delegate approved this Conservation Advice on 01/04/2016.

Conservation Advice

Boronia galbraithiae

aniseed boronia

Conservation Status

Boronia galbraithiae (aniseed boronia) is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The species is eligible for listing as prior to the commencement of the EPBC Act, it was listed as Vulnerable under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth).

The main factor that is the cause of the species being eligible for listing in the Vulnerable category is that its limited geographic distribution is precarious for its survival. This precariousness is due to the species occurring at few locations and being projected as having a continuing population decline.

The aniseed boronia is also listed as Threatened in Victoria under the *Flora and Fauna Guarantee Act 1988* and has been assessed as Vulnerable in the *Advisory List of Rare or Threatened Plants in Victoria* (DEPI, 2014).

Description

The aniseed boronia is a fennel-scented shrub that grows to 1 m tall (and rarely to 2 m tall) (Albrecht and Walsh, 1993, cited in Carter and Walsh, 2006). Its leaves are hairless, opposite and divided into 5-11 elliptic leaflets that grow to 8 mm long and 3 mm wide (DNRE, 2001, cited in Carter and Walsh, 2006). The leaf margins are finely toothed. Its flowers are white to deep pink, up to 15 mm wide and appear in the leaf axils (the upper angle between the leaf stalk and branch). Flowering occurs in spring (Walsh and Entwisle, 1999, cited in Carter and Walsh, 2006).

The aniseed boronia can be distinguished from the widespread, co-occurring *Boronia muelleri* by its smaller stature and its leaflets that are: shorter (less than 10 mm long), elliptic (compared to oblanceolate) and have toothed leaf margins (rather than smooth). Also, *B. muelleri* tends to prefer moister and more sheltered habitat (Albrecht and Walsh, 1993, cited in Carter and Walsh, 2006).

Distribution

The aniseed boronia is a Victorian endemic and is only known from Briagolong State Forest, 200 km east of Melbourne, in the South East Coastal Plain IBRA bioregion (ALA, 2015). Carter and Walsh (2006) identify a total population of 3000 plants in three populations. These populations are at Insolvent Track (southern population) (300-500 plants); Insolvent Track (northern population) (2000 plants); and Howards Road (400 plants) (Carter and Walsh, 2006).

There is little information on the former distribution of the aniseed boronia, nor is it known if the species has suffered a decline in range or abundance (Carter and Walsh, 2006). The species extent of occurrence is 100 km² and its area of occupancy is 40 km² (includes unverified records) (ALA, 2015).

Relevant Biology/Ecology

The aniseed boronia occurs in tall open sclerophyll forest at altitudes of 210-540 m above sea level. The largest subpopulation occurs on a dry ridgetop on skeletal soils, while the other two subpopulations occur in subriparian and moist forest habitat (Carter and Walsh, 2006). The forest where it occurs is usually dominated by *Eucalyptus sieberi* (silvertop ash), with the co-

dominants *E. muelleriana* (yellow stringybark), *E. cypellocarpa* (mountain grey gum), *E. polyanthemos* (red box) and/or *E. dives* (broad-leaved peppermint). Associated substrata species typically include, but are not restricted to, *Acacia obliquinervia* (mountain hickory wattle), *Dampiera stricta*, *Daviesia latifolia* (hop bitter-pea), *Hibbertia riparia* (stream Guinea-flower), *Joycea pallida* (red anther wallaby grass) and *Pultenaea scabra* (rough bush-pea). Many other shrubs and herbaceous plants are also usually present (Carter and Walsh, 2006).

Following fire, aniseed boronia regenerates from rootstock and germinates from seed (Carter and Walsh, 2006).

Threats

Table 1 – threats impacting the aniseed boronia in approximate order of severity of risk, based on available evidence (Carter and Walsh, 2006)

Threat factor	Threat type	Threat status	Evidence base
Fire			
Fire frequency	potential	future	Too frequent fire that doesn't allow plants to sexually mature (and replenish the seed bank) may cause local extinction, however, there is no referenced study to confirm this or demonstrate the impact. Too infrequent fire may not trigger germination events and cause local extinction, however, there is no referenced study to confirm this or demonstrate the impact.
Fire intensity	potential	future	Too intense fire may destroy seed, reducing regeneration success following fire, however, there is no referenced study to confirm this or demonstrate the impact.
Habitat loss, disturbance and modification			
Road maintenance	potential	future	Populations adjacent to roads/tracks may be at risk of mortality due to road maintenance activity, however, there is no referenced study to confirm this or demonstrate the impact.
Forestry operations	potential	future	There is no evidence of logging where populations occur, however, populations may be at risk without proper safeguards.

Conservation Actions

Conservation and Management priorities

Fire

- The aniseed boronia is a post-fire resprouter and/or seeder (i.e. fire or disturbance stimulates germination), that is potentially impacted by inappropriate fire frequencies and intensities. The fire management regime should therefore aim to prevent wildfire from impacting the habitat. Determine a preferred fire frequency for the species and apply this knowledge to intervals between prescribed fire events (if such events are deemed necessary).
- Fire management should be accompanied by a carefully planned weed management strategy to control weeds that are encouraged by burning, and post-fire monitoring should occur.

- Provide maps of known occurrences to local and state fire management authorities and seek inclusion of mitigation measures in bush fire risk management plan/s, risk register and/or operation maps.

Habitat loss disturbance and modifications

- Ensure land managers of Briagolong State Forest are aware of the species' occurrence and provide protection measures against key and potential threats. Install signs at Insolvent Track and Howards Road sites to limit the potential for accidental damage to occur (Carter and Walsh, 2006).
- Protect populations on public land – continue to negotiate Special Protection Zones in state forest at the Insolvent Track (northern and southern subpopulations) and Howards Road sites (Carter and Walsh, 2006).
- If seed germination requirements are determined (see *Information and research priorities*), implement a management strategy to maintain, enhance or restore processes fundamental to reproduction and survival (Carter and Walsh, 2006).

Stakeholder Engagement

- Identify opportunities for community involvement in the conservation of aniseed boronia by presentations to community nature conservation groups (Carter and Walsh, 2006).
- Inform road works contractors and local timber industry authorities of management requirements of aniseed boronia (Carter and Walsh, 2006).
- Prepare a management strategy with the input of local experts.

Breeding, propagation and other ex situ recovery action

- Establish cultivated plants ex situ for inclusion in living collections to safeguard against any unforeseen destruction of wild populations (Carter and Walsh, 2006).
- Maintain the seed stored in the Victorian Conservation Seedbank.
- Select and evaluate suitable translocation sites that are ecologically and biologically suitable, have secure land tenure and are managed appropriately. Prepare sites to achieve maximum survival of translocated plants (Carter and Walsh, 2006). Relevant policies should be referred to for guidance for undertaking translocations (e.g. Vallee et al., 2004).

Survey and Monitoring priorities

- Acquire baseline population data to help determine the eligibility of this species to listing and to better inform management decisions that may impact the species. Baseline population data that could be acquired by using field and desktop surveys include (Carter and Walsh, 2006):
 - identifying the area and extent of subpopulations
 - estimating the number, size and structure of subpopulations
 - estimating population change
 - mapping of target subpopulations.
- Accurately survey known habitat and collect floristic and environmental information describing community ecology and condition (Carter and Walsh, 2006).
- Identify and survey potential habitat, using ecological and bioclimatic information indicating habitat preference (Carter and Walsh, 2006).

Information and research priorities

- Evaluate reproductive/regenerative status and seed bank status of subpopulations by determining longevity, fecundity and recruitment levels (Carter and Walsh, 2006).
- Determine seed germination requirements by conducting laboratory and field trials aimed to identify key stimuli and determine stimuli for vegetative regeneration (Carter and Walsh, 2006).
- Collate, analyse and report on census data and compare with management histories (Carter and Walsh, 2006).

References cited in the advice

ALA (Atlas of Living Australia) (2015). Atlas of Living Australia.

Carter, O., and Walsh, N. 2006. National Recovery Plan for the Aniseed Boronia *Boronia galbraithiae*. Department of Sustainability and Environment, Melbourne

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

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Vallee, L., Hogbin, T., Monks, L., Makinson, B., Matthes, B., and Rossetto, M. (2004). Guidelines for the translocation of threatened plants in Australia - Second Edition. Canberra, ACT: Australian Network for Plant Conservation.