

**Approved Conservation Advice for
Bertya tasmanica subsp. *tasmanica* (Tasmanian Bertya)**

(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

This Conservation Advice has been developed based on the best available information at the time this Conservation Advice was approved; this includes existing plans, records or management prescriptions for this species.

Description

Bertya tasmanica subsp. *tasmanica*, Family Euphorbiaceae, also known as the Tasmanian Bertya, is a monoecious (separate male and female flowers on the same plant), or sometimes dioecious (separate male and female plants), multi-branched, shrub that grows to 2.5 m tall. New or young growth is tomentose (woolly coated) with hairs being stellate (star-shaped). Golden, bell-shaped flowers appear from spring to summer. Male flowers contain numerous stamens united in a central column. Female flowers have a trilocular (three-chambered) ovary with one ovule in each locule, and three branched styles. The ovary is stellate-tomentose (TSS, 2008). Narrow-linear leaves are alternate, sessile (growing directly from the stem) or subsessile, 8–20 mm long, with margins coiled strongly downwards. The upper leaf surface is usually glabrous (smooth or without hairs), while the lower surface is white-tomentose. Recruitment is from seed, which is hard coated, suggesting that it may survive in the soil for some time. Fruits are densely hairy, ovoid-oblong and 6–8 mm long (TSS, 2008).

The Tasmanian Bertya can be distinguished from the mainland subspecies *Bertya tasmanica* subsp. *vestita* by the presence of glabrous calyx (group of sepals) lobes on the female flowers. The latter subspecies has sparsely to densely stellate-pubescent calyx lobes (Halford and Henderson, 2002).

The Tasmanian Bertya has been confused with the introduced plant *Erica scoparia*. However, *E. scoparia* has shorter leaves and abundant flowers that readily fall off dried samples (TSS, 2008).

Conservation Status

The Tasmanian Bertya is listed as **endangered**. This species is eligible for listing as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as it has ongoing threats, a population of 1500 mature individuals and an area of occupancy of less than 1 hectare (TSSC, 2005). The species is also listed as endangered under the *Threatened Species Protection Act 1995* (Tasmania).

Distribution and Habitat

The Tasmanian Bertya is known to survive at nine sites in north-east Tasmania. The total estimated number of mature Tasmanian Bertya plants is now thought to be approximately 700-800, less than the original estimate of 1500 (TSSC, 2005). Current population locations and estimated individuals are (TSS, 2010):

- Apsley River, the old bridge site on Coles Bay Road (300 to 400 mature plants) ;
- Swanwick, north of Hepburn Point in the Coles Bay area (200 to 250 mature plants);
- Macquarie River (20 to 30 mature plants);
- St Pauls River at the old causeway (18 mature plants);
- St Pauls at Brookstead (7 mature plants);
- St Pauls River Rosemount Flat (20 mature plants)

- St Pauls River at Dickies Ridge (140 mature plants);
- South Esk River near Hanleth (1 mature plant); and
- Swan River (3+ mature plants).

Populations at two sites are considered extinct:

- Douglas River;
- Nile River.

The Tasmanian *Bertya* has a restricted and fragmented distribution with an extent of occurrence of approximately 1900 km² and an area of occupancy of less than one hectare (0.01 km²) (TSS, 2010).

The Tasmanian *Bertya* occurs mainly on Quaternary alluvial soils deposited by periodic flooding (sands or sandy loams). The altitude range is 0–10 m above sea level for the Apsley and Douglas River occurrences, and 180–260 m above sea level for the occurrences along the Macquarie, St Pauls and South Esk Rivers.

There has been a historical decline in the number of Tasmanian *Bertya* populations. Hooker (1860) described the species as being ‘abundant on the Nile Rivulet and South Esk River, about 16 miles from Launceston’, as well as at ‘Great Swanport’. However, there have been no records from the Nile Rivulet since. Eleven populations have been recorded historically, though only nine are thought to be extant (TSS, 2010) and five represent the remains of a riparian meta-population (St Pauls and South Esk stands). It is not possible to determine the magnitude of this historical decline, as the number of plants lost is not known. However, the total Tasmanian *Bertya* population is likely to continue to decline, as all known populations are under threat, and six of the nine populations consist of fewer than 20 plants (TSS, 2010).

The majority of plants occur in either formal or private reserves. The bulk of the Swanwick population occurs within the Coles Bay Conservation Area, and the Apsley River and Brookstead populations are on land covenanted under the Tasmanian *Nature Conservation Act 2002*. The Swan River population is located in a river reserve.

This species occurs within the Tasmanian South East Bioregion and the North and South Tasmanian Natural Resource Management Regions.

Parts of the distribution of the Tasmanian *Bertya* are associated with the ‘*Eucalyptus ovata*–*Callitris oblonga* forest’ EPBC Act-listed threatened ecological community. Associated native species include *Leptospermum lanigerum*, *Allocasuarina littoralis*, and *E. viminalis*. The Macquarie River population is associated with dense riparian vegetation and includes *L. lanigerum*, *Acacia mucronata*, *Pomaderris phyllicifolia* and *Spyridium ulicinum*. The Swanwick site is atypical in that it occurs within near-coastal vegetation dominated by *Al. verticillata* (Schahinger, 2004).

Threats

The main identified threats to the Tasmanian *Bertya* are land clearance and habitat fragmentation, residential development, competition from weeds (especially Gorse *Ulex europaeus*), inappropriate fire regimes, impoundment construction and altered flow regimes, agricultural activities and browsing and trampling by stock (TSS, 2010).

Historically, land clearance has had a major impact on the distribution of Tasmanian *Bertya* (Zacharek, 2000). The discontinuous nature of extant stands is apparent along the South Esk, St Pauls and Apsley Rivers, where clearing has reduced a once continuous vegetation community to scattered remnants. This is still considered to be a threat to this species as there is some risk that limited habitat clearance may occur, particularly for small stands.

The majority of stands have been invaded by weed species, or are vulnerable to invasion by such species, especially Gorse (*Ulex europaeus*) and Willow (*Salix* spp.). These weeds have the ability to invade habitat to the exclusion of native species. Willow infestation alters river hydrology causing waterlogging, sediment build up and problems for the dispersal of native species.

Inappropriate fire regimes are a potential threat to Tasmanian *Bertya*, though this species' response to fire is poorly known. The threat of fire to Tasmanian *Bertya* is of most relevance to stands on private property that are infested with invasive woody weeds, where their presence means that landowners are already using fire as a management tool.

Impoundment construction and altered flow regimes are considered potential threats to this species. One stand is the subject of a current proposal for construction of an impoundment, but many stands on private property are within sites potentially suitable for such an activity. Impoundment construction and altered flow regimes are regarded as potential future threats to all stands in riparian situations.

Stock grazing and trampling constitutes a direct physical threat to seedlings and new plants, as well as to other components of the species' habitat. This threat applies mainly to stands on private property not subject to conservation covenant.

Invasion of populations and habitat of the Tasmanian *Bertya* by the exotic plant, Gorse (*Ulex europaeus*) is seen as the biggest threat to the subspecies (Kirkpatrick and Gilfedder, 1999 in DPIWE, 2004). The population at Hepburn Point Swanwick is also at risk from edge effects associated with vegetation clearing and development, as part of the population occurs on private land, and the rest of the population is close to residential housing (DPIWE, 2004; TSS 2010).

Research Priorities

Research priorities that would inform future regional and local priority actions include:

- Design and implement a monitoring program or, if appropriate, support and enhance existing programs.
- More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes, such as grazing pressure and response to fire.
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment.

Regional Priority Actions

The following regional priority recovery and threat abatement actions can be done to support the recovery of the Tasmanian *Bertya*.

Habitat Loss, Disturbance and Modification

- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Identify populations of high conservation priority.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible.
- Manage any other known, potential or emerging threats.

Invasive Weeds

- Develop and implement a management plan for the control of Gorse and Willow in the region.
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on the Tasmanian *Bertya*.

Fire

- Where appropriate, provide maps of known occurrences to local and state Rural Fire Services and seek inclusion of mitigative measures in bush fire risk management plan(s), risk register and/or operation maps.

Conservation Information

- Raise awareness of the Tasmanian *Bertya* within the local community.
- Frequently engage with private landholders and land managers responsible for the land on which populations occur and encourage these key stakeholders to contribute to the implementation of conservation management actions.

Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed collection and storage.
- Investigate options for linking, enhancing or establishing additional populations.
- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible.

Local Priority Actions

The following local priority recovery and threat abatement actions can be done to support the recovery of the Tasmanian *Bertya*.

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Control access routes to suitably constrain public access to known sites on public land.
- Suitably control and manage access on private land and other land tenure.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.
- Minimise adverse impacts from land use at known sites.
- Manage any changes to hydrology that may result in changes to water table levels and/or increased run-off, salinity, algal blooms, sedimentation or pollution.
- Manage any disruptions to water flows.

Invasive Weeds

- Identify and remove weeds in the local area that could become a threat to the Tasmanian *Bertya*, using appropriate methods.
- Manage sites to prevent introduction of invasive weeds that could become a threat to the Tasmanian *Bertya*, using appropriate methods.

Trampling, Browsing or Grazing

- If livestock grazing occurs in the area, ensure land owners/managers use an appropriate management regime and density that does not detrimentally affect this species.
- Where appropriate, manage total grazing pressure at important/significant sites through exclusion fencing or other barriers.

Fire

- Implement an appropriate fire management regime for local populations.

This list does not necessarily encompass all actions that may be of benefit to the Tasmanian *Bertya*, but highlights those that are considered to be of highest priority at the time of preparing the Conservation Advice.

Existing Plans/Management Prescriptions that are Relevant to the Species

- Draft *Flora Recovery Plan: Eucalyptus ovata - Callitris oblonga Community*, Threatened Species Section, Department of Primary Industries, Water and Environment, Hobart, 2010.
- Draft *Greater Freycinet Region Threatened Species Recovery Plan 2006 – 2010*. Threatened Species Section, Department of Primary Industries, Water and Environment, Hobart, 2006.

These prescriptions were current at the time of publishing; please refer to the relevant agency's website for any updated versions.

Information Sources:

Department of Primary Industries, Water and Environment Tasmania (DPIWE) (2004). Threatened Flora of Tasmania

<http://www.gisparks.tas.gov.au/ThreatenedFloraCD/Bertya%20tasmanica%20ssp.%20tasmanica.pdf>

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Hooker JD. (1860). *The Antarctic Voyage of H.M. Discovery Ships Erebus and Terror, in the years 1839–1843. Part III. Flora Tasmaniae*. Lovell Reeve, London.

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Schahinger R (2004). Status of *Bertya tasmanica* near Hepburn Point (*Coles Bay*), Unpublished report to the Threatened Species Unit, Department of Primary Industries, Water and Environment.

Threatened Species Section (2006). Draft *Greater Freycinet Region Threatened Species Recovery Plan 2006 – 2010*. Threatened Species Section, Department of Primary Industries, Water and Environment, Hobart.

Threatened Species Section (TSS) (2010). Draft *Flora Recovery Plan: Eucalyptus ovata - Callitris oblonga Community*. Threatened Species Section, Department of Primary Industries, Parks, Water and Environment, Hobart.

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Threatened Species Scientific Committee (TSSC) (2005). *Bertya tasmanica* subsp. *tasmanica* (Tasmanian Bertya) Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on Amendments to the list of Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). <http://www.environment.gov.au/biodiversity/threatened/species/tasmanian-bertya.html>

Threatened Species Unit (TSU) (2004). Draft listing statement Tasmanian Bertya, *Bertya tasmanica* subsp. *tasmanica*. Department of Primary Industries, Water and Environment, Tasmania.