



tasmanian bertya

Bertya tasmanica subsp. *tasmanica*

TASMANIAN THREATENED FLORA LISTING STATEMENT

Image by Richard Schahinger

Scientific name: *Bertya tasmanica* subsp. *tasmanica* (Sond. & F.Muell.) Müll.Arg., *Linnaea* 34: 63 (1865)

Common name: tasmanian bertya (Wapstra *et al.* 2005)

Group: vascular plant, dicotyledon, family **Euphorbiaceae**

Status: *Threatened Species Protection Act 1995*: **endangered**
Environment Protection and Biodiversity Conservation Act 1999:
Endangered

Distribution Endemic: **Tasmanian endemic**
Tasmanian NRM Regions: **North and South**

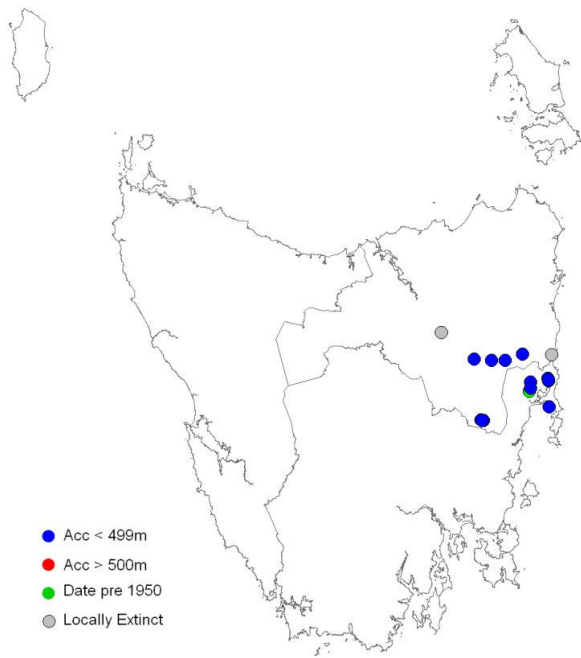


Figure 1. Distribution of *Bertya tasmanica* subsp. *tasmanica*



Plate 1. Habit of *Bertya tasmanica* subsp. *tasmanica*
(Image by Tim Rudman)

IDENTIFICATION AND ECOLOGY

Bertya tasmanica subsp. *tasmanica* is a monoecious (or sometimes dioecious) shrub in the Euphorbiaceae family (Plate 1), known from mostly riparian sites in Tasmania's Northern Midlands and East Coast regions.

The species flowers from spring to summer. It may be identified at any time of year due its distinctive 'rosemary-like' foliage. The ecology of the species is unknown, though anecdotal reports suggest that recruitment is solely from seed.

Description

Bertya tasmanica subsp. *tasmanica* is a much-branched woody shrub to 2.5 m high. Leaves are alternate, sessile or subsessile, narrow-linear, 8 to 20 mm long and with strongly revolute margins. The upper leaf surface is usually glabrous, while the lower surface is white-tomentose. Flowers are golden and bell-shaped, axillary, solitary or a few together on very short pedicels that bear 5 to 6 small tomentose bracts. The perianth consists of a whorl of 5 petaloid segments, each about 3 mm long. Staminate flowers contain numerous stamens united in a central column. Pistillate flowers have three branched styles and a trilocular ovary, with one ovule in each locule; the ovary is stellate-tomentose. Fruits are densely hairy, ovoid-oblong and 6 to 8 mm long. The seeds are dark with a hard covering. (Curtis 1967, Halford & Henderson 2002)

Confusing Species

None in Tasmania.

DISTRIBUTION AND HABITAT

Bertya tasmanica subsp. *tasmanica* survives in Tasmania at four key locations: the Apsley River close to the Coles Bay Road; the coastal strip between Swanwick and Hepburn Point (Coles Bay); the upper reaches of the St Pauls River near Rosemount Flat; and the mid-reaches of the Macquarie River. Smaller patches of plants have also been recorded over the past 30 years from the middle reaches of the St Pauls River, the South Esk River, and the Swan River, with specimens also collected from the Douglas River.

The species has a linear range of 62 km, an extent of occurrence of about 1900 km², and an area of occupancy of less than 1 ha.

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' — there have been no records from the Nile River since.

The extant *Bertya tasmanica* subsp. *tasmanica* sites on the Apsley, St Pauls and South Esk Rivers are partly associated with the EPBC Act listed *Eucalyptus ovata*–*Callitris oblonga* Forest community. Associated native species include *Leptospermum lanigerum* (woolly teatree), *Allocasuarina littoralis* (black sheoak) and *Eucalyptus viminalis* (white gum). Other stands along the St Pauls River occur within shrubby *Eucalyptus rodwayi* (swamp peppermint) woodland/forest. The Macquarie River subpopulation is associated with dense riparian vegetation, with *Leptospermum lanigerum*, *Acacia mucronata* (caterpillar wattle), *Pomaderris phyllifolia* (narrowleaf dogwood) and *Spyridium ulicinum* (scented dustymiller). The Swanwick site is atypical, in that plants occur within near-coastal vegetation dominated by *Allocasuarina verticillata* (drooping sheoak).

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

POPULATION ESTIMATE

There are estimated to be 700 to 800 mature individuals in Tasmania, with about half of these at the Apsley River site (Table 1).

While there have been extensive surveys of potential riparian habitat in Tasmania in the past (e.g., Askey-Doran 1993), the discovery of new sites in 2003 and 2004 suggests that additional subpopulations may be found with an intensive survey effort, particularly on private land.

Table 1. Population summary for *Bertya tasmanica* subsp. *tasmanica*

	Subpopulation	Tenure	NRM region	1:25 000 mapsheet	Year last (first) seen	Area of occupancy (ha)	Number of mature plants
1	South Esk River (Hanleth)	Private land	North	Hanleth 5437	1991 (1991)	0.001	1
2	St Pauls River (causeway)	Private land	North	St Pauls Dome 5637	2006 (1975)	0.025	18
3	St Pauls River (Brookstead)	Private land *	North	Roys 5636	2006 (2003)	0.005	7
4	St Pauls River (Rosemount Flat)	Private land	North	St John 5837	2007 (1996)	0.023	20
5	St Pauls River (Dickies Ridge)	Dickies Ridge Forest Reserve	North	St John 5837	2007 (1996)	0.056	140
6	Apsley River	Private land *	South	Apslawn 5835	2010 1996 (1983)	0.3 0.4	300–400 c. 1200
7	Swan River	River Reserve	South	Apslawn 5835	2004 (1868)	0.001	3+
8	Swanwick	Coles Bay Conservation Area & private land	South	Coles Bay 6033	2010 (2004)	0.15	200–250
9	Macquarie River	Private land	North	Fadden 5432	2003 (2003)	c. 0.1	20+ (6 sites over 2.4 km)
10	Douglas River	Private land	North	Seymour 6037	1962	Probably extinct	–
11	Nile River	Private land	North	Nile 5638	1840s	Presumed extinct	–

Subpopulations are considered to be occurrences separated by at least one km; NRM region = Natural Resource Management region; * = covenant under the Tasmanian *Nature Conservation Act 2002*.

RESERVATION STATUS

Reserved within Coles Bay Conservation Area and Dickies Ridge Forest Reserve. The Apsley River and Brookstead subpopulations are on land covenanted under the Tasmanian *Nature Conservation Act 2002*.

CONSERVATION ASSESSMENT

Bertya tasmanica subsp. *tasmanica* was listed as vulnerable on the Tasmanian *Threatened Species Protection Act 1995* in 1995, and up-listed to endangered in early 2008 as part of the Act's 5-year review. The species qualifies for endangered under criterion B:

- area of occupancy is estimated to be less than 0.1 km² (10 hectares);
- severely fragmented;
- continuing decline is inferred in the area, extent and/or quality of habitat.

Bertya tasmanica subsp. *tasmanica* was listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* in July 2005.

THREATS, LIMITING FACTORS & MANAGEMENT ISSUES

The species' habitat along the South Esk, St Pauls and Apsley Rivers has been subjected to a combination of agricultural pressures and adverse, human-mediated fire regimes since European settlement, leading to a fragmented and weed-infested habitat (Zacharek 2000). Present threats to the species include:

Weed competition: Woody weed infestations, especially *Ulex europaeus* (gorse), but also *Salix* spp. (willow) and *Crataegus monogyna* (hawthorn), have degraded the species' riparian habitat — their control will require considerable resources

over many years, especially as areas upstream of many of the known sites are also badly infested.

Inappropriate fire regimes: The precise response of *Bertya tasmanica* subsp. *tasmanica* to fire is unknown. However, the species is closely associated with *Eucalyptus ovata*–*Callitris oblonga* Forest; the community’s characteristic species, *Callitris oblonga*, is susceptible to elimination if intervals between fires are insufficient to allow an adequate replenishment of seed stores of canopy species, say less than 10 years (Zacharek 2000). Frequent firing can also worsen existing gorse infestations, reducing the species capacity to recolonise existing and potential habitat.

Dam construction: A proposed dam on the upper reaches of the St Pauls River threatens the Dickies Ridge subpopulation and plants further downstream (Table 1). Inundation of land for in-stream dams will destroy all terrestrial vegetation, and downstream impacts may include alteration to sediment and flow regimes. Such alterations may impact upon *Bertya tasmanica* through the removal of regeneration triggers associated with disturbance caused by flood flows, the removal of regeneration microsites associated with sediment scouring and deposition, and disruption to episodic dispersal of propagules.

Land clearance & edge effects: A number of subpopulations on private property continue to be at risk from land clearance, though at least some are notionally protected as their habitat — riparian scrub or *Eucalyptus ovata* forest — is listed as threatened under the Tasmanian *Nature Conservation Act 2002*. The Swanwick subpopulation occurs partly within the Coles Bay Conservation Area and partly on private land recently cleared for housing, with an unknown number of plants destroyed in the process. The subpopulation will require active management in the future to safeguard the core stand from residential activities upslope.

Stochastic risks: Several of the known sites occupy very small areas and support just a few plants, exposing the species to a stochastic risk of extinction.

MANAGEMENT STRATEGY

What has been done?

Bertya tasmanica subsp. *tasmanica* is listed as a priority species requiring consideration in the development of the private land component of the Tasmanian reserve system (DPIWE 1998; under the name *Bertya rosmarinifolia*).

The Apsley River and St Pauls causeway sites have both been part of a weed management program instigated through the *Eucalyptus ovata*–*Callitris oblonga* forest community Recovery Plan (Zacharek 2000). Weeds, including gorse, were treated at the Apsley River site in 1998, 1999, 2002 and 2007, with follow-up works planned for 2010 as part of an NRM South project. Willows were removed from the St Pauls River upstream of the causeway site in 2008–2009 as part of an NRM North project.

The Apsley River site is owned by the Australian Bush Heritage Fund and is managed primarily for conservation purposes (Bush Heritage Fund 2001). The site is covered by a conservation covenant under the *Nature Conservation Act 2002*, as is the small subpopulation on the St Pauls River at Brookstead.

Management Objectives

The main objectives for recovery of *Bertya tasmanica* subsp. *tasmanica* are to prevent the inadvertent destruction of subpopulations, maintain the viability of subpopulations, and promote conditions for successful recruitment.

What is needed?

- provide information and extension support to Natural Resource Management committees, local councils, government agencies and the local community on the locality, significance and management of known *Bertya tasmanica* subpopulations and areas of potential habitat;
- control weeds at all sites in conjunction with actions required under the draft *Eucalyptus ovata*–*Callitris oblonga* Forest community Recovery Plan (Threatened Species Section 2010);

- reassess those sites that have not been surveyed in the past 5 years (Table 1);
- develop protective mechanisms with private landholders such as vegetation management agreements. These plans should outline the management objectives and actions needed to ensure that the species persists on each property;
- determine the species' recruitment requirements and monitor its response to perturbations such as fire and grazing to allow improved management prescriptions to be developed;
- undertake surveys for the species in areas of suitable habitat along the Macquarie, South Esk, St Pauls, Apsley, Swan, Cygnet and Douglas Rivers;
- monitor known subpopulations biennially to determine trends and new threats.

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Permit: It is an offence to collect, disturb, damage or destroy this species unless under permit.