tree blanketleaf

Bedfordia arborescens

TASMANIAN THREATENED FLORA LISTING STATEMENT

Photos: Eve Lazarus

Scientific name: ***Bedfordia arborescens*** Hochr., *Candollea* 5: 332 (1934)

Family: Asteraceae

Common Name: tree blanketfern (Wapstra *et al.* 2005)

Status: *Threatened Species Protection Act 1995*: **vulnerable**

Environment Protection and Biodiversity Conservation Act 1999: **Not listed**

Tasmanian NRM Region: **North**

Regional Forest Agreement: **Priority species**

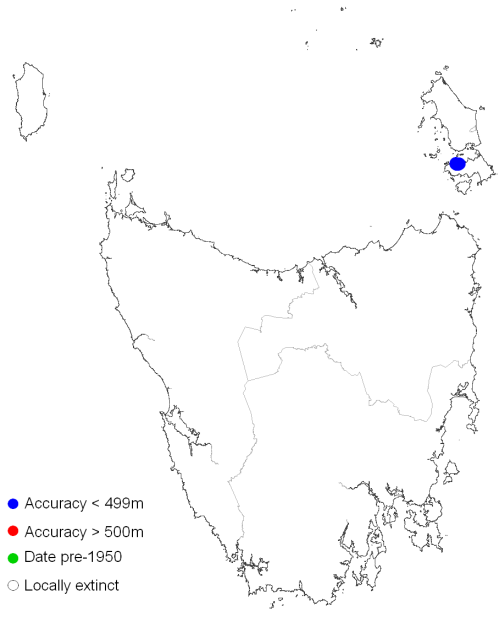
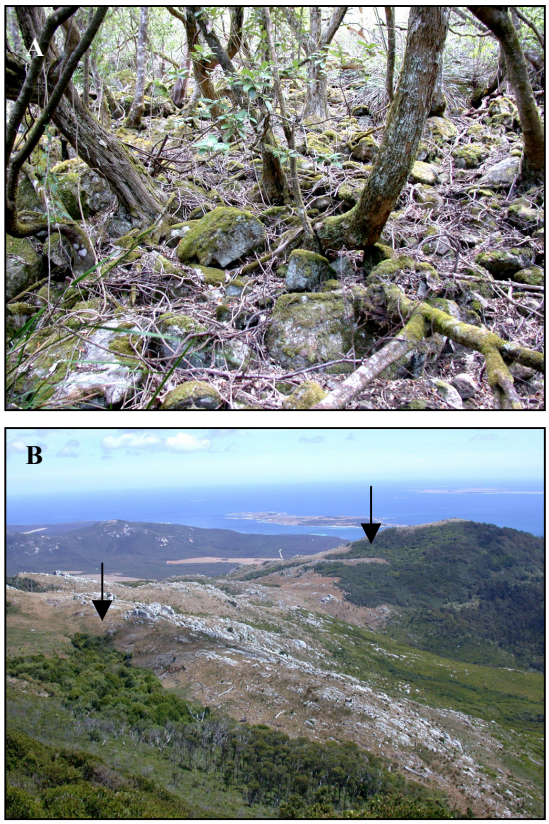


Figure 1. Distribution of *Bedfordia arborescens* in Tasmania.



Photographs: *Bedfordia arborescens* – (A) habit, and (B) cloud forest mosaic.

Tasmania

DESCRIPTION

Bedfordia arborescens is a robust tree, 6 to 8 metres tall. It flowers from November to January. Recruitment is primarily from short-lived, wind-dispersed seed following disturbance such as fire. *Bedfordia arborescens* is generally killed by fire but may resprout after physical damage (refer to photograph C).

Identification

Bedfordia arborescens can be readily identified when not in flower. The following description from is adapted from Harden (1992).

Leaves: The leaves are 15 to 25 cm long and 3 to 6 cm wide, dark green and clustered at the tips of the branches. They are arranged alternately along the stem. Leaf margins are curved in towards the lower leaf surface. The upper leaf surface is dark green, hairless and finely wrinkled. The lower leaf surface is densely covered in fine, white, woolly hairs.

Flowers: The flowers form a dense head, 7 to 15 cm long, in the upper leaf axils. The individual yellow flowers are 5 to 10 mm long with cylindrical heads that sit on short and woolly stalks. Collectively, there are between 8 to 15 individual florets that are all tube-shaped and yellow-orange in colour.

Fruit: The fruit is cylindrical and approximately 2 mm long with fine, barbed, white bristles representing the pappus (ring of scales or hairs found on top of fruit), which is up to 5mm long. The seed is wind-borne.

Confusing species

There are three *Bedfordia* species in Tasmania, *Bedfordia arborescens*, *Bedfordia salicina* and *Bedfordia linearis*. The leaf hairs on the under side of the leaves in *Bedfordia arborescens* occur in two distinct layers in contrast to a single layer in *Bedfordia salicina*. Also, in *Bedfordia arborescens* the hairs on the outer layer are cottony and thickened at the base, whereas the hairs on *Bedfordia salicina* are quite matted and not thickened at the base (Orchard 2004).

In old growth specimens of *Bedfordia arborescens*, the bark is distinctively grooved and spongy. *Bedfordia linearis* differs from both other species by its strongly linear leaf-shape.

Photograph (C). Vegetative regeneration following disturbance.

DISTRIBUTION AND HABITAT

In Tasmania, *Bedfordia arborescens* is restricted to Mt Munro on Cape Barren Island. *Bedfordia arborescens* also occurs in southeastern Australia, from Braidwood in New South Wales to southern coastal Victoria. Habitat includes wet eucalypt forest, mixed forest, warm temperate rainforest and dry rainforest (Costermans 1983).

In Tasmania, *Bedfordia arborescens* is associated with cloud forest, a term referring to the vegetation that strips moisture from mist and cloud enveloping mountains for many days of the year (Harris & Lazarus 2006). This vegetation type begins at approximately 280 metres above sea level on the slopes of Mt Munro. The species occupies approximately 10 hectares within a total area of about 1.2 square kilometres.

The geology of Mt Munro is granite with predominantly acid sandy loam soils, underlain by clay in gully sites.

Table 1. Populations of *Bedfordia arborescens* in Tasmania.

Pop.	Location Tenure	NRM region	1:25 000 mapsheet	Year last seen	Area of extent (ha)	Number of mature plants	Specific threats
1	**Mt Munro** – ~5 sites Aboriginal land	North	Anderson	2004	10	~ 2000	Frequent fire, stochastic risk.

RESERVATION STATUS

Bedfordia arborescens occurs on Aboriginal land. It is not currently contained in a private reserve or subject to any management agreement.

POPULATION ESTIMATE

It is likely that *Bedfordia arborescens* occurs in all the cloud forest patches across Mt Munro. This vegetation type is clearly visible on aerial photos of Mt Munro, and equates to approximately 322 hectares of potential habitat in total. The density of *Bedfordia arborescens* varies between sites, however there are less than 2,000 individuals estimated to occur on the mountain, occupying approximately 10 hectares in total.

The population on Mt Munro is represented by a range of even-aged stands, with no evidence of recruitment observed during 2004 surveys.

It is unlikely that *Bedfordia arborescens* will be located anywhere else in Tasmania, particularly as it is a distinctive tree that is readily identified. Several searches of potential habitat on the nearby Strzelecki Range on Flinders Island have failed to locate the species.

CONSERVATION ASSESSMENT

Bedfordia arborescens was listed as rare on the TSP Act in 1995, and up-listed to **vulnerable** in early 2008 as part of the Act's 5-year review. The species qualifies for vulnerable under criterion C:

- there is less than 10,000 mature individuals;
- no population with over 1,000 individuals;
- there is a continuing decline due to frequent fire.

THREATS

Bedfordia arborescens is at risk in Tasmania because of its restricted distribution, coupled with a small area of available suitable habitat on Cape Barren Island. The species is threatened by an inappropriate fire regime and stochastic risks such as landslide and drought stress. Understanding the recruitment requirements of *Bedfordia arborescens* is critical for the conservation of the species in order to manage populations appropriately

Inappropriate fire regimes: The Mt Munro cloud forest is a relictual plant community that was once more widespread across the mountain (Harris & Lazarus 2006). Human occupation of Cape Barren Island and the subsequent altered fire regime has lead to a decline in cloud forest habitat. This vegetation type is now restricted to gullies and slopes on Mt Munro and abuts *Poa* grassland. The boundary between the forest and grassland is incredibly distinct (refer to photograph B), reinforced by the high fire frequency over the previous 100 years.

Bedfordia arborescens is fire sensitive, requiring adequate time intervals between fire events and reproductive maturity to ensure seed production and subsequent regeneration. Therefore, fires in quick succession will lead to decline of cloud forest habitat.

Stands of *Bedfordia arborescens* are even-aged and no recruitment has been observed in recent years, suggesting that recruitment events may be triggered by fire.

The fire regime necessary for the long-term maintenance of cloud forest on Mt Munro is unknown, but is likely to be in the order of every 100 to 200 years. Successful establishment would also depend on suitable conditions such as adequate shade and moisture.

Fire regimes necessary for the maintenance of abutting *Poa* grassland are by contrast very frequent, in the order of once every 5 to 10 years. The extent to which the *Poa* grassland may develop into cloud forest in the absence of fire is not known. *Poa* grassland will accumulate higher fuel loads with infrequent fire, hence there is an increased risk of fire spreading into the adjacent cloud forest. The sharp structural boundary that currently exists between grassland and cloud forest acts to buffer against fire moving between the two communities.

Browsing: Preferential browsing of seedlings of *Bedfordia arborescens* has been observed, suggesting that palatability may limit recruitment.

Stochastic risk: *Bedfordia arborescens* has a restricted distribution and small population size putting it at risk from stochastic events. Wildfire, drought, flood or landslide may lead to decline or local extinction. *Bedfordia arborescens* may be at risk from severe drought due to increased fire risk and reduced water availability. Purported climatic trends of warmer temperatures and lower annual rainfall potentially threaten the survival of cloud forest on Mt Munro.

MANAGEMENT STRATEGIES

The main objective for **recovery** of *Bedfordia arborescens* is to maintain or increase the overall number of individuals on Mt Munro through scientific research and active management.

What has been done?

Surveys targeting *Bedfordia arborescens* were conducted on Mt Munro in 2004. Extension surveys for the species on the nearby Strzelecki Range on Flinders Island were conducted but no *Bedfordia arborescens* was found.

Attempts to germinate seed of *Bedfordia arborescens* from Mt. Munro have been met with little success. However, germination trials using seed from Victorian *Bedfordia arborescens* have been successful.

What is needed?

The following **actions** are proposed for the recovery and management of *Bedfordia arborescens* in Tasmania:

- Develop a fire management plan for Mt Munro in collaboration with the Aboriginal community on Cape Barren Island.
- Assist the Aboriginal community to manage cloud forest and adjacent vegetation.
- Investigate formal reservation of *Bedfordia arborescens* habitat on Mt Munro.
- Investigate disturbance requirements and recruitment needs, specifically in relation to fire.
- Collect and store seed as part of the Millennium Seedbank Project (Seed Safe) to ensure viable *ex-situ* seed conservation, and investigate germination requirements.
- Determine whether the Tasmanian occurrence is genetically different from mainland populations.
- Surveys for new populations in suitable habitat.

ADVICE FOR LANDOWNERS/MANAGERS

Note that appropriate management actions will vary from site to site. The following are general prescriptions only:

- Ensure that adequate surveys are undertaken prior to any proposed vegetation clearance or landscape modification.
- Retain native vegetation including trees, shrubs, ground cover, fallen branches and rocks.
- Search for new populations in potential habitat.
- Consider options for long-term protection, e.g., Private Nature Reserve, management agreement, or covenant.

BIBLIOGRAPHY

Costermans, L. 1983. *Native Trees And Shrubs Of South-Eastern Australia*, Rigby.

Curtis, W.M. 1963. *The Student's Flora Of Tasmania*, *Part 2*. Government Printer, Hobart.

Harden, G.J. (ed) 1992. *Flora of New South Wales, Volume 3*. Royal Botanic Gardens and Domain Trust, Sydney.

Harris, S. & Lazarus, E. 2006. Ecological observations on a remote montane occurrence of *Bedfordia arborescens* (Asteraceae), Cape Barren Island, Tasmania. *Papers and Proceedings of the Royal Society of Tasmania* 140: 35–48.

Orchard, A.E. 2004. A revision of *Bedfordia* DC. (Asteraceae) *Muelleria*. 19: 81–94.

Wapstra, H., Wapstra, A., Wapstra, M., and Gilfedder, L. (2005). *The Little Book of Common Names for Tasmanian Plants*. Department of Primary Industries, Water and Environment, Hobart.

Prepared in 2006 under the provisions of the Tasmanian Threatened Species Protection Act 1995. Reviewed in 2008.

Cite as: Threatened Species Section 2008. *Bedfordia arborescens* (tree blanketleaf) Listing Statement, Department of Primary Industries and Water, Tasmania.

View:
http://www.dpiw.tas.gov.au/threatenedspecieslists

Contact details: Threatened Species Section, Department of Primary Industries and Water, GPO Box 44 Hobart Tasmania Australia 7001. Ph (03) 6233 6556 fax (03) 6233 3477.

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