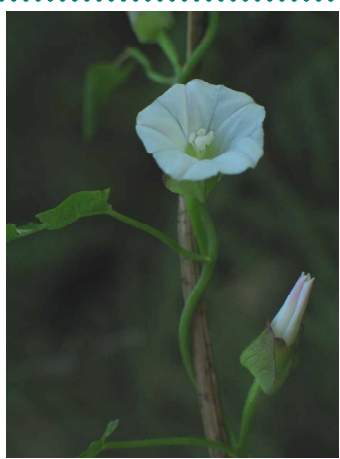


forest bindweed

Calystegia marginata

TASMANIAN THREATENED FLORA LISTING STATEMENT



Images by Jackie Miles and Max Campbell

Scientific name: *Calystegia marginata* R.Br., *Prodr.* 483 (1810)

Family: Convolvulaceae

Common Name: forest bindweed (Wapstra *et al.* 2005)

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

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

Tasmanian Regional Forest Agreement 1997: **Priority species**

Distribution: Endemic status: **Restricted to Australia and New Zealand**

Tasmanian NRM Region: **North**

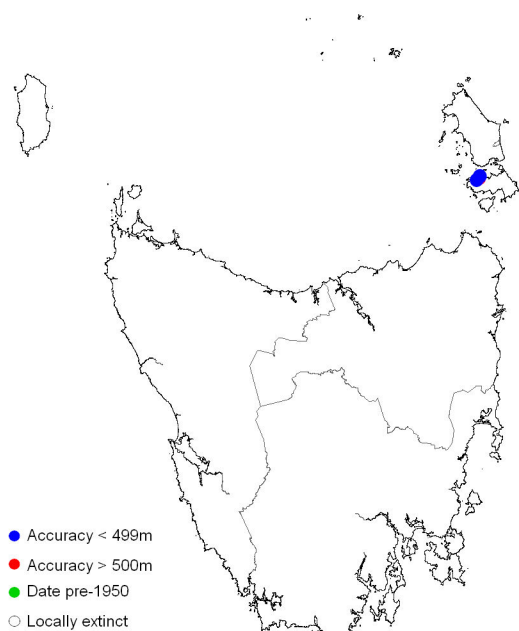


Figure 1. Distribution of *Calystegia marginata* in Tasmania.



Plate 1. *Calystegia marginata*

Top: Seed image by James Wood

Bottom: Plant image by Jackie Miles and Max Campbell

IDENTIFICATION AND ECOLOGY

Calystegia marginata is a perennial twining or prostrate vine, belonging to the family Convolvulaceae. Within Tasmania, this plant has been observed climbing native vegetation to heights of up to 5.4 m (Whinray, pers. comm.). Flowers are present on the plant all year, with peak flowering occurring over spring and summer (NSW Flora Online 2008; NZ Plant Conservation Network 2008).

It is thought that habitat openness may trigger germination from soil-stored seed, whether it is caused through fire, vegetation clearing or other mechanisms (Ough 2001). Lesser regeneration from sites which have been burnt in comparison with those which have been clear-felled, suggests that fire may have a negative effect on the germination potential of the soil-stored seed bank (Ough 2001). However, Whinray (pers. comm.) has observed that the creeper is well adapted to growing after fires as it strikes where any node touches the ground.

Calystegia marginata is relatively conspicuous and hence surveys for it can be undertaken at any time of year. However, surveys for the species would be best conducted following fire or other disturbance likely to trigger emergence.

Description

The following description is adapted from NSW Flora Online (2008) and NZ Plant Conservation Network (2008).

Calystegia marginata is a glabrous perennial vine with a creeping rhizome and slender twining or prostrate stems. When prostrate, stems root freely at the nodes. Leaves are a vibrant green and are arrow shaped (sagittate to triangular), the lamina up to 25 to 80 mm long and 15 to 45 mm wide on a slender petiole, 10 to 55 mm long and 0.5 to 1 mm wide. The leaf apex is acute to acuminate with basal lobes acute and usually distinctly toothed or shallowly lobed. The basal sinus is broad and rounded.

Flowers are white to pale mauve in colour and are generally solitary on 10 to 25 mm long narrowly winged peduncles. Bracteoles are 6 to 12 mm long, equal to or longer than calyx and

are ovate to circular, with a more or less mucronulate rounded apex. The sepals are broad ovate. The corolla is campanulate and 15 to 20 mm long and 12 mm wide. Capsules are globose, measuring 5 to 7 mm. Seeds are black and reticulately ribbed with protruberant ribs.

Confusing Species

Calystegia marginata is readily distinguished from *Calystegia sepium* and the introduced *Calystegia sylvatica* by its bright green narrowly sagittate leaves (Plate 1), smaller flowers borne on conspicuously winged peduncles and seed with distinctive protuberances. It is possible that people chancing upon *Calystegia marginata* may at first mistake it for a weedy *Convolvulus* species.

DISTRIBUTION AND HABITAT

Calystegia marginata also occurs in Victoria, New South Wales and Queensland. In Tasmania, the species is known from three occurrences on Cape Barren Island, in the Furneaux Group (Figure 1). One site is on Big Hill Run, a second is nearby on Centre Creek and the third site is near Bull Scrub Creek. The area of occupancy is estimated at less than a hectare. The linear range is 4 km, and the extent of occurrence is approximately 1 km².

The species has been observed growing along creeks in granite gullies, within an altitude range of approximately 10 to 100 m above sea level, and rainfall of 600 to 750 mm per annum.

Calystegia marginata occurs within areas of native vegetation dominated by blue gum (*Eucalyptus globulus*), with an understorey of *Melaleuca ericifolia*, *Leptospermum laevigatum*, *Pomaderris apetala*, *Acacia verticillata* and *Olearia lirata* (Whinray, pers. comm.). On Big Hill, it is listed as being found within 'dry scrub', and at Bull Scrub Creek,

Co-occurring plants listed on the Tasmanian *Threatened Species Protection Act 1995* include the vascular plants *Gynatrix pulchella*, *Pterostylis sanguinea* and *Caladenia patersonii*. The uncommon species *Sigesbeckia orientalis* also co-occurs with *Calystegia marginata*.

Table 1. Population summary for *Calystegia marginata* in Tasmania.

Site **	Location	Tenure	NRM Region *	1:25000 mapsheet	Year last (first) seen	Area occupied	Mature plants
BH1	Big Hill Run	Aboriginal Land	North	Anderson 5853	1974 (1973)	Possibly extinct	5 (0 seen in 2006)
BH2	Centre Creek	Aboriginal Land	North	Anderson 5853	2007 (2007)	1.044 linear km	164
BSC	Near Bull Scrub Creek	Aboriginal Land	North	Anderson 5853	2006 (2006)	0.0016 ha	8–10

* NRM Region =Natural Resource Management Region

** The two subpopulations are represented by sites BH (Big Hill), and near Bull Scrub Creek (BSC), respectively.

POPULATION ESTIMATE

The total population size is estimated to be approximately 175 individuals, with 164 counted in the largest extant population (Table 1).

Calystegia marginata occurs in two subpopulations (Big Hill and near Bull Scrub Creek), defined here as occurrences of plants separated by discontinuities of at least 1 km (Keith 2000). All subpopulations are considered important for the species' long-term survival and recovery.

Given the species' ease of recognition and the considerable botanical survey effort in the region, it is considered unlikely that the species will prove to be much more widespread in Tasmania. The above population estimate is based on information provided by John Whinray who has conducted numerous surveys in the area from 1964 to 2007. Targeted surveys were conducted for the species following the 2006 wildfire in the knowledge that the fire may have stimulated germination of seed held in the soil seedbank. This resulted in the discovery of the Centre Creek site.

RESERVATION STATUS

The species is not formally reserved. All occurrences occur on Aboriginal Land on Cape Barren Island.

CONSERVATION ASSESSMENT

Calystegia marginata was listed as **endangered** on schedules of the Tasmanian *Threatened Species Protection Act 1995* in 2008. The species meets the following criteria:

B. The extent of occurrence is estimated to be less than 500 km² and the area of occupancy less than 10ha and

1. It is known to exist at no more than five locations.
2. There is a continuing decline as evidenced by local extinction at one site and risk of decline from successive fires at short intervals.
3. There are extreme fluctuations in numbers of individuals and occurrences.

D. The total population is estimated to number fewer than 250 mature individuals.

THREATS AND LIMITING FACTORS

Calystegia marginata is under threat from fire, accidental removal, and stochastic events.

Inappropriate fire: It appears that the Big Hill population may have been destroyed by a wildfire that passed through the area. No plants have been observed at this site since 1974, and it is possible that the fire was sufficiently intense to destroy any soil-stored seed. Given the reported adverse impact of fire on the germination of soil-stored seed (Ough 2001), small groups of plants may be at risk from

repeated firing should the interval between fires be too short to replenish the soil seed bank. The species is at risk from the predicted increase in the intensity and frequency of wildfire as a result of climate change.

As germination of the species appears to be triggered by openness created by varying forms of disturbance (Ough 2001), it is possible that plants would not persist above ground should the vegetation become too dense.

Accidental removal: Because of its weedy appearance *Calystegia marginata* could be removed accidentally during weed control work. Such accidental damage to threatened plant populations is reasonably common, and could pose a threat to populations of *Calystegia marginata*.

Stochastic events: The small size of occurrences exposes the species to unforeseen stochastic events.

MANAGEMENT STRATEGY

The first step towards planning for the recovery of *Calystegia marginata* must be to establish through targeted surveys the true extent of this species. Once this has been completed, management strategies should be developed to ensure there is no decline in any of the subpopulations.

What has been done?

Targeted surveys were conducted within the range of this species following the late 2006 fires (Whinray pers. comm.).

Seeds collected from the occurrence near Bull Scrub Creek were bulked for long-term conservation storage at the Tasmanian Seed Conservation Centre at the Royal Tasmanian Botanical Gardens.

What is needed?

Recovery actions necessary to decrease the extinction risk to *Calystegia marginata* include:

- Extension surveys targeting suitable habitat within the species' known range particularly following fire.

- Monitoring to better understand the population dynamics of the species.
- Preparation and implementation of a management plan for the land containing known populations.
- Preparation of a fire management plan to address the risk of population loss through wildfire.
- Increase the genetic diversity of seed stock held by the Tasmanian Seed Conservation Centre.

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View:

<http://www.dpiw.tas.gov.au/threatenedspecieslists>

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