

tall cheeseberry

Cyathodes platystoma

TASMANIAN THREATENED FLORA LISTING STATEMENT



Images by Adam Pennington

Scientific name: *Cyathodes platystoma* C.M.Weiller, *Aust. Syst. Bot.* 9(4): 502 (1996)

Family: Epacridaceae

Common Name: tall Cheeseberry (Wapstra *et al.* 2005)

Status: *Threatened Species Protection Act 1995:* **rare**
Environment Protection and Biodiversity Conservation Act 1999: **Not Listed**
Tasmanian Regional Forest Agreement 1997: **Proposed priority species**

Distribution: Endemic status: **Endemic to Tasmania**
Tasmanian NRM Region: **South**

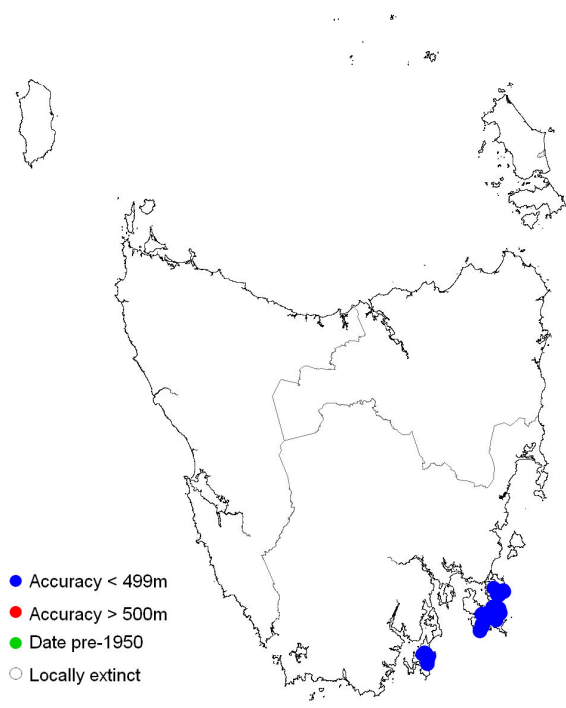


Figure 1. Distribution of *Cyathodes platystoma* within Tasmania.

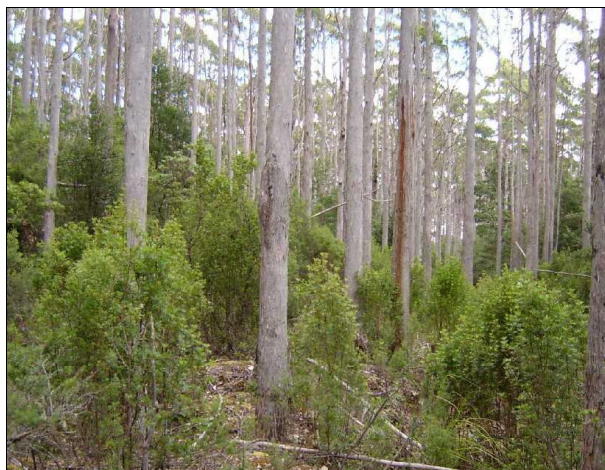


Plate 1. *Cyathodes platystoma* habitat.

IDENTIFICATION AND ECOLOGY

Cyathodes platystoma of the Epacridaceae family is a compact shrub or small tree 2 to 5 m tall (Pennington, pers. obs.). Flowering time is from November to January. While the species can be identified when not flowering over most of its range, the species may intergrade with *Cyathodes glauca* at the edge of its range and identification can only be confirmed when in flower. *Cyathodes platystoma* was only described as distinct from *Cyathodes glauca* in 1996. It has been speculated that *Cyathodes platystoma* represents a divergence from *Cyathodes glauca* in response to its high rainfall, high fertility and high-energy near-coastal environment (Pennington 2005).

Cyathodes platystoma is capable of regenerating from various disturbances. Pennington (2004) studied the response of the species to fire and a variety of native forest silvicultural practices (clearfell and various selective harvesting techniques). It was found that logging had a transitory impact. Silvicultural systems had a significant impact on the cover of *Cyathodes platystoma* 8 years after logging, but cover had returned to pre-logging levels 16 years after harvesting. The ability of *Cyathodes platystoma* to recover from disturbance by native forest silviculture was largely attributed to bird-dispersal of seeds (Pennington, 2005), though the species is also capable of resprouting from the base if the aerial portions of the plant are damaged or destroyed (Plate 2).

Pennington (2004) found *Cyathodes platystoma* recolonised areas after fires of moderate and higher intensity from bird-dispersed and possibly soil-stored seed. The species was also found to survive moderately intense fires through vegetative resprouting from a protected meristematic centre at the base of the plant.

Cyathodes platystoma is not reliant on disturbance for its persistence. Pennington (2004) found *Cyathodes platystoma* to be a continuously recruiting species. It is likely this continuous recruitment is facilitated by bird-dispersal of seed.



Plate 2. Coppice regrowth.

Description

Cyathodes platystoma has long, thin leaves clustered in false whorls at the ends of the branches and of each year's growth. Leaves are obovate to ovate through the whorl and are 36 to 62 mm long and 5.6 to 8.2 mm wide with a broadly acute to obtuse, scarious apex and apiculate to mucronate tip. The upper leaf surface is usually glabrous or puberulent near the base with raised veins (Weiller 1996).

Flowers occur in clusters at the ends of the branches. Petals are fused to form a U-shaped corolla tube, which is short and broad and 6 to 6.3 mm long and 2.5 to 3.5 mm wide and is unconstricted at the throat. The corolla lobes are sparsely hairy internally with shorter, denser hairs at the apex and longer denser hairs near the throat, but sparse or absent between. Fruit is a drupe and is usually purple but sometimes white (Weiller 1996).

Confusing Species

Cyathodes platystoma may be confused with *Cyathodes glauca* in some areas due to an overlap in leaf morphology, particularly on the edge of the range of *Cyathodes platystoma* where the two species may intergrade. The two species are most readily differentiated by floral characters. Flowers of *Cyathodes platystoma* are unconstricted at the mouth of the U-shaped corolla tube and filaments are erect whereas flowers of *Cyathodes glauca* are sub-urceolate and constricted at the throat, with spreading filaments.

In the absence of flowers, *Cyathodes platystoma* may be distinguished from *Cyathodes glauca* by the generally larger, broader leaves compared to the smaller, narrower leaves of *Cyathodes glauca*.

DISTRIBUTION AND HABITAT

Cyathodes platystoma is endemic to southeast Tasmania (Figure 1). It occurs on dolerite in wet eucalypt forests of the high rainfall, high fertility, high-energy coastal environments of the Tasman and Forestier Peninsulas and South Bruny Island (Pennington 2004, 2005). The species occupies moderate to well-drained sites from sea-level to about 600 m. While the

species extends over approximately 750 square kilometres, Pennington (2005) estimated the area of potential habitat for *Cyathodes platystoma* to be 19, 656 ha based on vegetation type and broad environmental variables. He found that the area actually occupied by the species would be much less as surveys indicated that not all of the habitat included in the above estimate supported the species due to variation in aspect, drainage and disturbance history. For example, *Cyathodes platystoma* was seldom found on the drier north-facing slopes within its range.

Table 1. Population summary for *Cyathodes platystoma*.

	Subpopulation	Tenure	NRM Region *	1:25000 mapsheet	Year last seen	No. of mature plants
1	NE of Fazackerleys Range, Forestier Peninsula	Tasman National Park	South	Murdunna	2004	A few 100
2	Fazackerleys Range, Forestier Peninsula	Tasman National Park	South	Murdunna	2004	~1000
3	North of Yellow Bluff Creek, Forestier Peninsula	Tasman National Park	South	Murdunna	2004	<100
4	West of High Yellow Bluff, Forestier Peninsula	State Forest	South	Murdunna	2004	<100
5	Near Tatnells Hill, upper Simmonds Creek to Tatnells Creek, NE Tasman Peninsula	Tasman National Park	South	Taranna	2004	>1000
6	Waterfall Bay area, Tasman Peninsula	Tasman National Park	South	Taranna	1973	<100
7	Mt Arthur, Tasman Peninsula	Private Land	South	Port Arthur	1999	Unknown
8	Mt Koonya, Tasman Peninsula	State Forest	South	Port Arthur	2004	<1000
9	Denmans Creek, Tasman Peninsula	Tasman National Park	South	Hippolyte	2004	Unknown
10	Snake Hill, Tasman Peninsula	Tasman National Park	South	Hippolyte	1998	One Individual
11	Mt Fortescue, Tasman Peninsula	Tasman National Park	South	Hippolyte	2004	A few 100
12	Northwest of Cape Raoul, Tasman Peninsula	Tasman National Park	South	Raoul	2004	A few 100
13	Corruption Gully, Cape Pillar, Tasman Peninsula	Tasman National Park	South	Tasman	2004	<10
14	Mt Mangana, South Bruny Range	Mt Mangana Forest Reserve	South	Fluted Cape	2004	A few 100
15	Mt Cook to Mt Banks, South Bruny Range	State Forest	South	Fluted Cape	2004	>1000

* NRM region = Natural Resource Management region.

POPULATION ESTIMATE

The population size is estimated to be greater than 5,700 mature individuals in 15 subpopulations, with 90% of mature individuals in only 4 subpopulations (Table 1). The largest subpopulations are estimated to contain over 1,000 mature individuals and are found on South Bruny Island, the southern-most end of the Forestier Peninsula and the Tasman Peninsula (Table 1). The remaining occurrences appear to be satellite populations occupying smaller pockets of suitable habitat. Targeted surveys were conducted in 2004 (Pennington 2004) and while further survey may improve the estimate of population size, it is unlikely that the species will be found outside of its currently known range.

RESERVATION STATUS

Cyathodes platystoma is reserved in the Tasman National Park, South Bruny National Park, Waterfall Creek State Reserve, Mt Bruny Forest Reserve, Mt Mangana Forest Reserve and Mt Midway Forest Reserve. Approximately 32% of potential habitat estimated for the species is found in these reserves.

CONSERVATION ASSESSMENT

Cyathodes platystoma was listed as rare in 2008 on the schedules of the Tasmanian *Threatened Species Protection Act 1995* because of a restricted extent of occurrence, low numbers with 90% of mature individuals in few subpopulations, and a perceived risk associated with the limited distribution of *Cyathodes platystoma* due to the high likelihood that this species is susceptible to the plant pathogen *Phytophthora cinnamomi*. The species is also at risk of decline should recolonisation potential not be managed appropriately during forestry operations.

THREATS AND LIMITING FACTORS

The main threats to *Cyathodes platystoma* are the high likelihood of susceptibility to the root-rot pathogen *Phytophthora cinnamomi* (Pennington 2004, 2005) and the need to consider recolonisation potential when logging. In light of these potential threats, the species is subject to stochastic risk of extinction exacerbated by a

restricted distribution and occurrence of most mature individuals in four populations.

***Phytophthora cinnamomi*:** The susceptibility of *Cyathodes platystoma* to *Phytophthora cinnamomi* is inferred by the known susceptibility of the closely related *Cyathodes glauca* and the location of a dead *Cyathodes platystoma* individual in an area known to be infected with *Phytophthora cinnamomi* (Pennington 2005).

The distribution and climatic range of *Phytophthora cinnamomi* encompasses the entire known range of *Cyathodes platystoma* (Schahinger *et al.* 2003, Pennington 2005). Although habitat typically occupied by *Cyathodes platystoma* (wet eucalypt forests) maintains soil temperatures thought to be unfavourable for *Phytophthora cinnamomi*, disturbance of the canopy can increase soil temperatures, thereby increasing the spread of *Phytophthora cinnamomi* (Schahinger *et al.* 2003). Climate change may also be more conducive to the spread and impact of *Phytophthora cinnamomi* with the predicted warming and drying of the eastern half of Tasmania.

Forestry activities and conversion of habitat: Approximately 65 % of the area covered by *Cyathodes platystoma* occurs in State Forest. Although native forest silviculture (and until recently conversion of State Forest to plantation) occurs throughout the range of *Cyathodes platystoma*, it is unlikely that these practices will be deleterious to the species (Pennington 2004). Care will need to be taken to retain sufficient undisturbed mature occurrences within the dispersal distance of harvested areas to allow recolonisation through dispersal of seed by birds. Pennington (2004) argues that recolonisation potential is likely to be sufficient given retention of wildlife habitat clumps and strips and streamside reserves (as required under the Forest Practices Code 2000), and areas difficult to harvest, coupled with the public land reserve system.

Approximately 3% of the potential habitat for the species occurs on private land and some of this area is at risk of conversion for plantation forestry or other uses. However, Pennington (2004) found that *Cyathodes platystoma* seedlings

established in 4-year-old eucalypt plantations in greater numbers than in regenerating native forest of the same age.

MANAGEMENT STRATEGY

The objective for the recovery of *Cyathodes platystoma* is to manage populations to ensure that they do not decline in the long term.

What has been done?

The reservation of relatively large populations of *Cyathodes platystoma* in the Tasman National Park and other secure reserves, as well as provisions for the maintenance of biodiversity in the *Forest Practices Code 2000* (e.g. wildlife habitat clump retention, streamside reserves) should retain viable populations of the species throughout its range. From these populations, *Cyathodes platystoma* should be able to recolonise areas in production forests throughout its range. The listing of the species as rare will ensure consideration of the recolonisation potential for production forests.

The Strategic Regional Plan developed by Schahinger *et al.* (2003) to manage Tasmanian plant species and communities threatened by *Phytophthora cinnamomi* encompasses the requirements of *Cyathodes platystoma*.

Three *Phytophthora cinnamomi* Management Areas have been implemented within and around the range of *Cyathodes platystoma* (Schahinger *et al.* 2003):

- Cape Pillar & Tasman Island;
- Cape Raoul to Shipstern Bluff;
- Tunnel Bay to Curio Bay.

These management areas principally aim to reduce the spread of *Phytophthora cinnamomi* by walkers through wash down stations, track-hardening and interpretive warning signs. Annual soil sampling is carried out in these management areas to monitor the presence and spread of *Phytophthora cinnamomi*.

What is needed?

Recovery actions necessary to decrease the extinction risk to *Cyathodes platystoma* include:

- Consideration of the recolonisation potential in the vicinity of planned logging coupes.
- Monitoring of recruitment and disease in production forests.
- Extension surveys of potential habitat on both public and private land. Surveys in wet conditions should be avoided to minimise the risk of spreading *Phytophthora cinnamomi*.
- Provision of adequate information and extension services to relevant Natural Resource Management Committees, Local Councils, Government Agencies and the local community on the locality, significance and management of known populations and potential habitat.
- Collect seed for conservation storage as part of the Tasmanian Seed Safe project set up under the Millennium Seed Bank project being conducted under the auspices of the Royal Botanic Gardens Kew (joint partners in Tasmania include DPIW, the Royal Tasmanian Botanical Gardens and the Tasmanian Herbarium).

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Weiller, C. (1996). Reassessment of *Cyathodes* (Epacridaceae). *Australian Systematic Botany* 9: 491-507.

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