Thryptomene micrantha

ribbed heathmyrtle

TASMANIAN THREATENED FLORA LISTING STATEMENT

All images by Richard Schahinger

Scientific name: ***Thryptomene micrantha*** Hook.f., *J. Bot. Kew Gard.* (Hooker) 5: 299, t.8 (1853)

Common Name: ribbed heathmyrtle (Wapstra et al. 2005)

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

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

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

Distribution: Endemic status: **Not endemic to Tasmania**

Tasmanian NRM Region: **South**

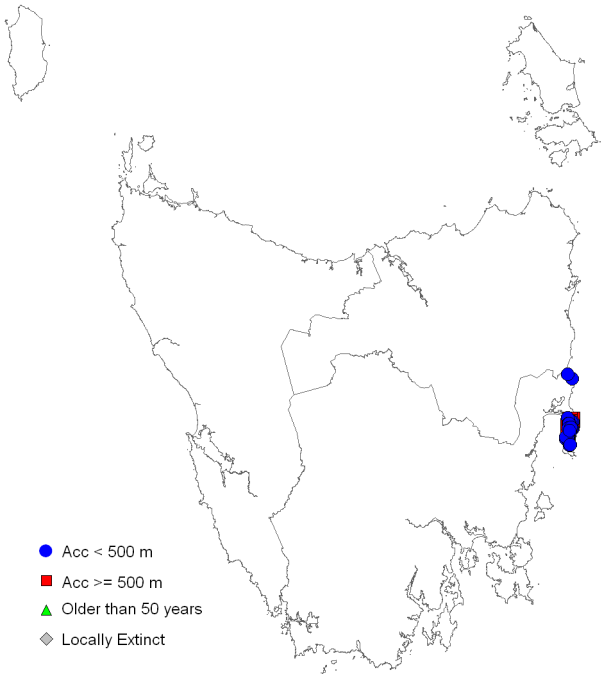

Figure 1. Distribution of *Thryptomene micrantha* in Tasmania

Plate 1. *Thryptomene micrantha* in flower

IDENTIFICATION & ECOLOGY

Thryptomene micrantha is a small shrub in the Myrtaceae family (Curtis & Morris 1975), known in Tasmania from the central east where it grows in near-coastal heathy woodlands on granite-derived sands. Flowering may occur from mid winter through to early summer.

Beardsell et al. (1993a & b) noted that *Thryptomene* species tend to shed their fruit each year within 6 to 18 weeks of flowering, with at least two years ageing and weathering required before a seed's initial dormancy is broken. Dormancy was found to be due largely to the action of the seed coat acting as a barrier to water uptake, with the surrounding fruit having a smaller inhibitory effect. Profuse flower and fruit production mean that the soil beneath *Thryptomene* plants may be littered with fruit from several seasons in various stages of dormancy, giving rise to prolific germination after fire or soil disturbance. Plants do not resprout following fire.

Survey techniques

Surveys for *Thryptomene micrantha* may be undertaken at any time of year due to its distinctive foliage (Plates 1 & 2).

Description

Thryptomene micrantha is a woody shrub 0.3 to 1.5 m high, with slender spreading branches. Leaves are opposite and decussate, crowded, narrow-obovate, 4 to 6 mm long with a blunt apex, aromatic with oil gland dots visible beneath. Flowers occur singly or in clusters of 2 to 3 in the leaf axils of the current year's growth, forming profuse sprays, and are 4 to 5 mm across. The calyx-tube is cylindrical and 10-ribbed. The sepals (5) and petals (5) are similar in appearance, usually glistening white though sometimes pinkish in bud, the sepals being broadly oblong and about 1.5 mm long, the petals orbicular and slightly shorter. Stamens (5) are opposite the sepals and have filaments that are very short and incurved. The fruit is small, dry and indehiscent, and contains a single seed (Curtis & Morris 1975, Costermans 1994, Walsh & Entwisle 1996).

Plate 2. *Thryptomene micrantha:* habit

Confusing Species

None. The only other species of *Thryptomene* in southeastern Australia is *T. calycina*, a taxon endemic to The Grampians in western Victoria.

DISTRIBUTION AND HABITAT

Thryptomene micrantha occurs in widely disjunct populations in South Australia, Victoria and Tasmania (Walsh & Entwisle 1996). In Victoria the species occurs on sandy soils, mostly in heath or heathy woodland near the Gippsland Lakes. In Tasmania it occurs in near-coastal areas at Freycinet Peninsula, mostly between Cape Geographe at the peninsula's southern tip and the township of Coles Bay, with two small sites about 30 km to the north near Bicheno (Figure 1).

The species has a linear range in Tasmania of 48 km, an extent of occurrence of 185 km^2 and an area of occupancy of about 40 ha (Table 1). It generally occurs close to sea level, but has been recorded at elevations up to 100 m. The annual mean rainfall is in the range 650 to 750 mm.

Table 1. Population summary for *Thryptomene micrantha* in Tasmania

	Location	Tenure	NRM region	1:25 000 mapsheet	Year last (first) seen	Area of occupancy (ha)	Number of mature plants
1	Freycinet Peninsula	Freycinet National Park (9 sites) & private land	South	Coles Bay 6033 Graham 6032 Schouten 6031	2010 (1906)	c. 40 (patches spread over c. 18 km)	> 100 000
2	Bicheno	Lookout Rock State Reserve	South	Bicheno 6036	2011 (1933?)	0.00001	1
3	Bicheno (4 km NW)	Private	South	Bicheno 6036	2011 (2009)	0.25	150–200

NRM region = Natural Resource Management region

Thryptomene micrantha may form locally dense thickets on sands derived from Devonian granite, typically in *Eucalyptus amygdalina* heathy woodland or forest on gently undulating lower slopes or flats. Associated species include the tall shrubs *Banksia marginata* and *Allocasuarina littoralis,* the shrubs *Philotheca virgata, Hibbertia riparia, Calytrix tetragona, Leucopogon ericoides, Xanthorrhoea australis, Acacia suaveolens, Aotus ericoides, Epacris impressa, Dillwynia glaberrima, Bossiaea cinerea, Allocasuarina monilifera, Leptospermum scoparium,* as well as *Pteridium esculentum* and the sedges *Lepidosperma concavum* and *Hypolaena fastigiata*.

There are unconfirmed reports of *Thryptomene micrantha* from Castle Cary in the Fingal Valley, Mt Stronach near Scottsdale, and Grants Point near St Helens (from 1982, 1990 and 1993, respectively, all by the same recorder). Targeted surveys of each site have failed to locate the species, and the original records are believed to be inadvertent misidentifications of *Kunzea ambigua*. However, the Castle Cary area does support rare plants typical of *Thryptomene's* east coast habitat, including *Conospermum hookeri* and *Spyridium vexilliferum*, so there is a possibility that the species is present in low numbers at what would be an atypical inland site.

The Tasmanian Herbarium holds collections of *Thryptomene micrantha* from 'Paradise Gorge, Orford' and 'between Runnymede and Buckland'. These are assumed to represent location transcription errors, as the habitat in the two cited areas is unsuitable for the species and, moreover, the same recorders also purportedly collected *Thryptomene* from Coles Bay on the same day in 1946, a highly unlikely scenario given the transport system at the time.

POPULATION ESTIMATE

The number of *Thryptomene micrantha* plants in Tasmania is likely to exceed 100 000, with large stands known from several sites in Freycinet National Park, viz., Sleepy Bay, east of Freycinet Lodge, Fisheries–Hazards Beach walking track area, northern end of Hazards Beach, Hazards Beach–Cooks Beach, Cooks Beach–Bryans Beach, southeast of Wineglass Bay, south of Passage Beach, and west of the track linking Cooks Beach and Bryans Beach. A small number of plants occur on private land around the Fisheries and to the northwest of Bicheno (Table 1).

There is a reasonable chance of additional colonies being found at Freycinet Peninsula within the species' known range. However, given the known threats to the species any such discovery is unlikely to trigger a change in its conservation status.

RESERVATION STATUS

Reserved within Freycinet National Park and Lookout Rock State Reserve.

CONSERVATION ASSESSMENT

Thryptomene micrantha was listed as rare on the original schedules of the Tasmanian *Threatened Species Protection Act 1995* and up-listed to vulnerable in early 2008 as part of the Act's five-year review. The species qualifies for vulnerable under criterion B:

- extent of occurrence less than 2,000 km^2;
- area of occupancy less than 50 ha;
- known to exist at no more than ten locations;
- a continuing decline projected in area and quality of habitat and the number of mature individuals.

THREATS, LIMITING FACTORS AND MANAGEMENT ISSUES

The principal threat to *Thryptomene micrantha* in Tasmania is the introduced soil-borne plant pathogen *Phytophthora cinnamomi*. Other threats include inappropriate fire frequencies, land clearance, competition from weeds and chance events. Potential threats include myrtle rust and climate change.

Phytophthora cinnamomi: *Thryptomene micrantha* is highly susceptible to infection by this exotic pathogen. Unfortunately, the pathogen is widespread throughout the species' range, with only one of the colonies within Freycinet National Park considered to be manageable in the medium-term (Schahinger et al. 2003).

Inappropriate fire: *Thryptomene micrantha* recovers from fire solely by seed, and is thus in danger of local extinction if a second fire happened to occur within the time required for plants to reach reproductive maturity and produce viable seeds (c. 5 years based on field observation). Conversely, in the prolonged absence of fire plants will naturally senesce and seed production will cease, meaning that future recruitment will depend wholly upon the species' soil-stored seedbank (the longevity of which is unknown).

Land clearance: An unknown number of plants are likely to have been lost since European settlement during the establishment of towns at Coles Bay and Bicheno. A small number of plants on private property remain at risk from land clearance in the Fisheries area to the south of Coles Bay and also to the northwest of Bicheno.

Weeds: The Lookout Rock site at Bicheno has dense infestations of the environmental weeds *Billardiera heterophylla* (bluebell creeper) and *Pittosporum undulatum* (sweet pittosporum), the former posing a direct threat to the remaining *Thryptomene* plants.

Stochastic risk: The localised nature of some colonies means that it at a high risk of local extinction due to chance events, the Lookout Rock site being especially vulnerable due to its low numbers.

Myrtle rust is a disease caused by the rust fungus *Uredo rangelii*. Infestations in Australia are currently limited to New South Wales and Queensland, its detection in Australia dating to April 2010, and the risk to species in the Myrtaceae family in Tasmania's cooler climate is as yet unknown.

Climate change: A warmer climate and longer periods of drought may impact adversely on the habitat of *Thryptomene micrantha* through effects such as an increased frequency and intensity of fire events.

MANAGEMENT STRATEGY

The main objective for recovery of *Thryptomene micrantha* is to prevent the inadvertent destruction of subpopulations, maintain the viability of standing populations, and promote conditions for the species' successful recruitment. Management of the species' habitat with respect to *Phytophthora cinnamomi* and fire are high priorities.

What has been done?

Phytophthora cinnamomi: A *Phytophthora* management zone designed specifically for the protection of *Thryptomene micrantha* is in place within Freycinet National Park (Schahinger et al. 2003). Any development or activity proposed in this area requires the submission of a formal project proposal and must be endorsed by DPIPWE's Biodiversity Conservation Branch. Specific management prescriptions may be prescribed depending on the nature of the proposed activity.

A pamphlet dealing with *Phytophthora* issues is available to park visitors to Freycinet National Park, and an interpretation panel focusing on the link between the pathogen and the death of *Thryptomene micrantha* (and other species) has been installed along the Fisheries to Hazards Beach walking track (Plate 3).

Plate 3. *Phytophthora cinnamomi* interpretation panel, Freycinet National Park.

Fire: A number of ecological burns have been conducted within Freycinet National Park in the past decade in line with the aims of the fire management plan (Parks and Wildlife Service 2002), that is, to maintain the Park's biodiversity, including the heathy woodlands that support *Thryptomene micrantha*. The prescribed burning interval for such vegetation is 8 to 30 years, with no consecutive intervals less than 15 years, and no more than two consecutive intervals of 15 to 30 years.

Myrtle rust: Since July 2010 the importation of plant material in the Myrtaceae family from outside Tasmania has been restricted under the *Plant Quarantine Act 1997*.

What is needed?

Recovery actions necessary to decrease the extinction risk to *Thryptomene micrantha* include:

- continue to ensure that users of Freycinet National Park are made aware of and respect any hygiene precautions prescribed for *Phytophthora* management;
- undertake regular *Phytophthora* surveys in Freycinet National Park to ensure the disease-free status of the designated management area is maintained;
- undertake ecological burns within Freycinet National Park to maintain suitable habitat for the species across its range;
- collect seed from across the species' range for storage at the Tasmanian Seed Conservation Centre at Hobart's Royal Tasmanian Botanical Gardens;
- provide information and extension support to relevant Natural Resource Management committees, local councils, government agencies, the local community and development proponents on the locality, significance and management of known sites and potential habitat.

BIBLIOGRAPHY

Beardsell, D.V., Knox, R.B. & Williams, E.G. (1993a). Fruit and seed structure of *Thryptomene calycina* (Myrtaceae). *Australian Journal of Botany* 41:183–193.

Beardsell, D.V., Knox, R.B. & Williams, E.G. (1993b). Germination of seeds from the fruits of *Thryptomene calycina* (Myrtaceae). *Australian Journal of Botany* 41:263–273.

Costermans, L. (1994). *Native trees and shrubs of south-eastern Australia*. Lansdowne Publishing, Sydney.

Curtis, W.M. & Morris, D.I. (1975). *The Students Flora of Tasmania, Part 1. Second edition*. Government Printer, Hobart.

Parks and Wildlife Service (1995). *Freycinet National Park Management Plan*. Department of Environment and Land Management, Hobart.

Parks and Wildlife Service (2002). *Freycinet Reserves Fire Management Plan*. Department of Primary Industries, Water and Environment, Hobart.

Schahinger, R., Rudman, T. & Wardlaw, T. (2003). *Conservation of Tasmanian Plant Species & Communities threatened by Phytophthora cinnamomi. Strategic Regional Plan for Tasmania*. Technical Report 03/03, Nature Conservation Branch, Department of Primary Industries, Water and Environment, Hobart.

Walsh, N.G. & Entwisle, T.J. (eds) (1996). *Flora of Victoria. Volume 3. Dicotyledons: Winteraceae to Myrtaceae*. Inkata Press, Melbourne.

Wapstra, H., Wapstra, A., Wapstra, M. & Gilfedder, L. (2005). *The Little Book of Common Names for Tasmanian Plants*.

Department of Primary Industries, Water and Environment, Hobart.

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