Image by Richard Schahinger

Cryptandra amara

pretty pearlflower

TASMANIAN THREATENED FLORA LISTING STATEMENT

Scientific name: ***Cryptandra amara*** Smith in Rees, *Cycl.* 10: no.2 (1808)
Common name: pretty pearlflower (Wapstra et al. 2005)
Group: vascular plant, dicotyledon, family **Rhamnaceae**

Status: *Threatened Species Protection Act 1995*: **endangered**
Environment Protection and Biodiversity Conservation Act 1999: **Not listed**

Distribution: Tasmanian NRM Regions: **North and South**
Endemic status: **Not endemic to Tasmania**

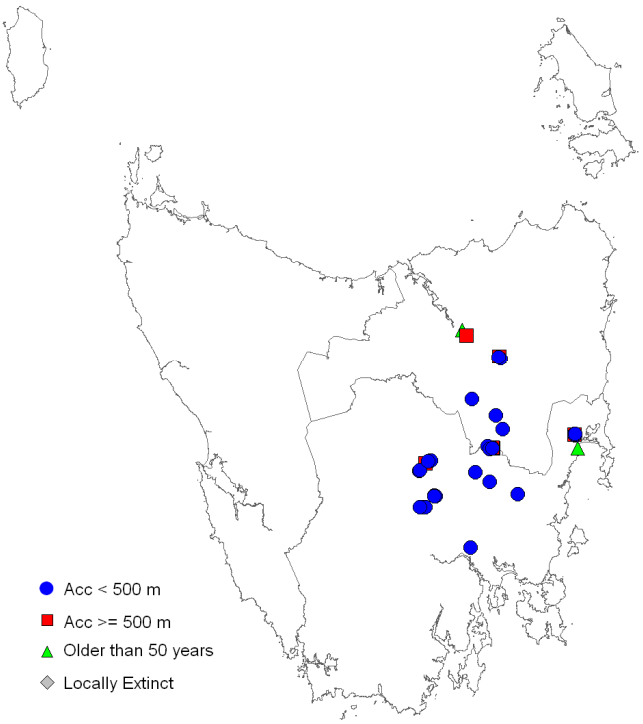

Figure 1. Distribution of *Cryptandra amara* in Tasmania

Plate 1. *Cryptandra amara* in flower (image by H&A Wapstra)

IDENTIFICATION AND ECOLOGY

Cryptandra amara is a small wiry shrub in the Rhamnaceae family (Curtis & Morris 1976, Baker & Duretto 2011). The species grows in some of the driest areas in Tasmania and is typically associated with fertile rocky substrates, habitat ranging from near-riparian rockplates to grasslands or grassy woodlands.

The species produces abundant flowers, buds emerging in April and flowering from May to December, with a peak from August to October. Pollinators are likely to include a range of native insects. As with other members of the Rhamnaceae, poor seed-dispersal mechanisms and physical dormancy may prevent the species invading into nearby undisturbed vegetation (Coates 1991). *Cryptandra amara* is capable of recovering after fire by resprouting and also from soil-stored seed.

Survey Techniques

Cryptandra amara is most readily recognised when in flower, though its distinctive habit and foliage means that it can be identified at any time of year.

Description

Cryptandra amara is a small woody shrub, often intricately branched, up to 0.5 m high. Its branches tend to be rigid, are covered in tiny, star-shaped hairs, and often end in a fine spine (Plate 1). Leaves are arranged alternately on the stem; they are 2 to 6 mm long, roughly oblong in shape, thin with recurved margins and a blunt apex, and are mostly hairless. Leaves are sometimes clustered due to the development of short axillary shoots. White tubular flowers 3 to 4 mm long occur singly or in clusters of two to three, and are arranged in succession along the stem with the oldest flowers at the base. The fruit is a capsule that separates into single-seeded fruitlets; seed are reddish-brown and have a short aril (Curtis & Morris 1975, Walsh & Entwisle 1999).

DISTRIBUTION AND HABITAT

Cryptandra amara occurs in Queensland, New South Wales, South Australia, Victoria and Tasmania (Walsh & Entwisle 1999). In Tasmania its centre of distribution is the Southern Midlands, with outlying populations on the central East Coast, upper Derwent Valley and Northern Midlands (Figure 1).

Cryptandra amara grows in a range of rocky habitats, including riverine rock plates, native grasslands dominated by *Themeda triandra* (kangaroo grass), *Bursaria spinosa* (prickly box) shrublands, grassy *Eucalyptus rubida* (candlebark) woodlands at higher altitudes, and heathy *Eucalyptus amygdalina* (black peppermint) forests (east coast only). The underlying geology is usually dolerite or basalt, though occurrences on mudstone and laterite deposits have also been recorded. The mean annual rainfall is in the range 450 to 750 mm, and the altitude of recorded sites is 20 to 650 m above sea level.

The species has a linear range in Tasmania of 140 km and an extent of occurrence of about 7200 km^2; reliable estimates for the total area of occupancy are unavailable (Table 1).

Plate 2. *Cryptandra amara*: rocky grassland habitat at Pontville (image by Richard Schahinger)

Table 1. Population summary for *Cryptandra amara* in Tasmania

	Subpopulation	Tenure	NRM region	1:25 000 mapsheet	Year last (first) seen	Area occupied (ha)	Number of mature plants
1	Pontville (Jordan River)	Crown land	South	Tea Tree	2011 (1999)	0.3	c. 100
2	Hermitage (Shannon River)	Private	South	Hermitage	1994 (1994)	unknown	unknown
3	Glovers Spur	Private	South	Hermitage	2006 (1984)	unknown	c. 50
4	Langdons Creek (Bothwell)	Private	South	Montacute	2006 (2006)	> 10?	340+
5	Falls of Clyde (Clyde River)	Private	South	Cawood	2007 (1991)	unknown	10–20
6	Interlaken Road	Private	South	Vincents	1995 (1994)	unknown	unknown
7	Oatlands	Private	South	Oatlands	1990s	unknown	unknown
8	Little Swanport River	Private	South	Whitefoord	2010 (2009)	1.2	800–900
9	Plains Creek (Tasman Highway)	DIER Private *	South	Cranbrook	2009 (1990) 2006 (1990)	0.05 unknown	11 10
10	Swansea	Private	South	Swansea	1890s?	location & status unknown	
11	Blackman River (Tunbridge)	Private	South	Tunbridge	1990s	unknown	unknown
12	Tunbridge Tier Road	Southern Midlands Council	North	Tunbridge	1984 (1984)	unknown	'Common'
13	Midland Highway (Tunbridge)	DIER	North	Tunbridge	2009 (1992)	0.05	15
14	Stony Gully Road (Ross)	Private	North	Ross	1994 (1985)	unknown	unknown
15	Maclains Plain	Private *	North	Jacobs	2010 (2010)	0.0001	3
16	Isis	Private	North	Conara	2006 (2006)	0.05	3
17	Deddington	Private *	North	Stacks	2006 (1990)	0.4	30–35
18	Corra Linn (North Esk River)	Private	North	Prospect	1972 (1972)	unknown	unknown
19	St Leonards (Launceston)	Private	North	Launceston	1898 (1898)	location & status unknown	

* = Covered by a conservation covenant or vegetation management agreement under the Tasmanian *Nature Conservation Act 2002*; DIER = Tasmanian Department of Infrastructure, Energy & Resources.

POPULATION ESTIMATE

There are limited quantitative data available for the species, with plant number estimates for only ten of the nineteen recorded sites (Table 1). Most subpopulations are believed to contain fewer than 50 mature individuals, with a total population in the order of 1500 to 2000 plants.

Knowledge of the species' distribution in Tasmania has advanced considerably since the late 1980s, as only two extant sites were known at that time (Kirkpatrick et al. 1988). Surveys undertaken in the past five years as part of the Tasmanian Irrigation Development Board dam assessment process have led to the discovery of relatively large subpopulations on private land near Bothwell and Little Swanport River (though the full extent of each remains to be determined), while two small subpopulations were uncovered opportunistically in the Macquarie River area in the same period. Given

a well-resourced and targeted survey effort the likelihood of additional sites being found in Tasmania is reasonably high, bearing in mind that most potential habitat is on private land.

RESERVATION STATUS

Cryptandra amara is not known from any formal reserve, although the Pontville site has been recommended to become a Nature Reserve under the Tasmanian *Nature Conservation Act 2002* (CLAC Project Team 2006). Three small subpopulations occur on private land covered by either conservation covenants or vegetation management agreements under the Tasmanian *Nature Conservation Act 2002*.

CONSERVATION ASSESSMENT

Cryptandra amara was listed as endangered on the original schedules of the Tasmanian *Threatened Species Protection Act 1995*.

Given the discovery of several sites since the species' listing in 1995, a reassessment of its conservation status is warranted. However, in the first instance surveys are required to determine the status of recorded sites (Table 1), including plant numbers, the area of occupancy and the identification of threats.

THREATS. LIMITING FACTORS & MANAGEMENT ISSUES

Major identified threats to *Cryptandra amara* are described below:

Land clearance and browsing by stock: Considerable areas of habitat and an unknown number of plants are likely to have been lost through land clearance since European settlement, the species surviving for the most part in areas too rocky to be developed. In a similar vein, browsing by stock is likely to have eliminated the species from more arable areas, the species persisting for the most part in roadside remnants or rocky refuges within paddocks (Gilfedder, pers comm.).

The consequent fragmentation of the species' habitat, as illustrated by the three recorded sites in the Tunbridge area, may increase the risk of local extinctions. Land clearance and high stocking levels remain a potential threat to the species at many of the known sites.

Woody weeds: *Cryptandra amara* is threatened by woody weeds such as sweet briar (*Rosa rubiginosa*), gorse (*Ulex europaeus*), willow (*Salix* spp.) and hawthorn (*Crataegus monogyna*). Gorse is the most widespread and pervasive of these weeds and has the greatest potential to exclude *Cryptandra amara* from its habitat given its ability to resprout from fire and produce closed thickets. Gorse is especially prevalent at the two largest subpopulations, Langdons Creek and Little Swanport River, where it appears to afford the species some protection from grazing by stock.

Dam construction: The species' preference for riparian rockplates places it at risk from dam construction and subsequent inundation. Dam construction has emerged as a threat to the species at three sites in the past five years, though in one case the location of the dam site was modified to avoid any direct impact to the species. The dam assessment process in Tasmania involves the development of 'offsets' if significant losses to listed species are likely to be incurred, potential offsets ranging from securing the species elsewhere on the property under vegetation management agreements to the development and implementation of weed and stock management plans.

Roadside maintenance: Plants at roadside sites are potentially at risk from maintenance activities such as scraping and slashing, as well as off-target damage during weed treatment. Sites at risk include the Midland Highway at Tunbridge and the Tasman Highway at Plains Creek.

Inappropriate fire regimes: *Cryptandra amara* is capable of recovering from fire by resprouting or from seed. However, too frequent fires have the potential to eliminate recruits from the soil seedbank before they reach maturity and may also reduce the likelihood that individuals resprout.

Local studies are required to determine the species' response to fires of varying intensity and frequency over a range of habitats; the results of such studies should inform the management of key sites in Tasmania.

Stochastic events: The small size of some subpopulations exposes them to a risk of local extinction due to chance events.

What has been done?

- The Pontville site has been subject to woody weed control by the Threatened Species Network and the volunteer group Threatened Plants Tasmania over the period 2006–2011. The 3.6 ha Crown land parcel that supports the species has been fenced to control access, and an ecological burn of part of the block was undertaken by the Tasmanian Parks and Wildlife Service in the autumn of 2010 (with pre and post-fire monitoring of *Cryptandra amara* and other threatened flora species). The site is destined to be proclaimed a Nature Reserve under the Tasmanian *Nature Conservation Act 2002* (CLAC Project Team 2006).
- The Deddington site is on land covered by a conservation covenant under the Tasmanian *Nature Conservation Act 2002* (August 2010), with an associated vegetation management plan that includes fencing to exclude stock and control of gorse infestations;
- The private property component of the Plains Creek subpopulation is covered by a conservation covenant — management of the site includes control of gorse and light sheep grazing;
- Roadside vegetation remnants known to support the species at Tunbridge and the Tasman Highway at Plains Creek have been managed by the Tasmanian Department of Infrastructure, Energy and Resources since 2005 under an agreement with DPIPWE. Management actions at the two sites have consisted mostly of weed control (Corbett 2010);
- Seed was collected from the Clyde Falls subpopulation in 2007 and lodged for long-term conservation storage at the Tasmanian Seed Conservation Centre (Royal Tasmanian Botanical Gardens).

Management objectives

The main objectives for the recovery of *Cryptandra amara* are to maintain the viability of existing subpopulations, promote conditions for the species' successful recruitment, and increase the number of subpopulations through survey.

What is needed?

Recovery actions necessary to decrease the extinction risk to *Cryptandra amara* include:

- surveys of each subpopulation to accurately determine the number of individuals and area occupied, threats and management actions required;
- encourage owners of private land supporting the species to enter into formal land management agreements that incorporate longer-term habitat maintenance objectives and actions as a high priority;
- monitor compliance for existing covenants and adjust management prescriptions as appropriate;
- control of weeds at key subpopulations;
- determine the suitability of ecological burns at key subpopulations;
- extension surveys of potential habitat, especially along the Little Swanport River and comparable rivers and streams to the north and south;
- provide information and extension support to relevant Natural Resource Management Committees, local councils, government agencies and the local community on the locality, significance and management of the known subpopulations and potential habitat.

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View:
www.dpipwe.tas.gov.au/threatenedspecieslists

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