

western tridentbush

Micrantheum serpentinum

TASMANIAN THREATENED FLORA LISTING STATEMENT



Scientific name: *Micrantheum serpentinum* Orchard in Banks *et al.*, *Aspects Tasm. Bot.* 60 (1991).

Family: Euphorbiaceae

Common Name: western tridentbush (Wapstra *et al.* 2005)

Status: *Threatened Species Protection Act 1995:* rare
Environment Protection and Biodiversity Conservation Act 1999: **Not listed**
Regional Forest Agreement: **Priority species**

Distribution: Endemic: **Tasmanian endemic**
Tasmanian NRM Region: **Cradle Coast**

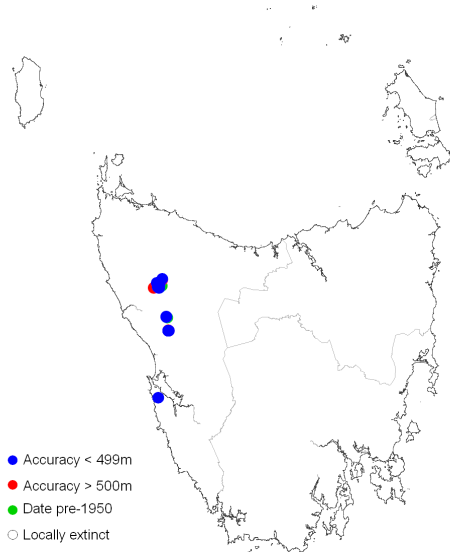


Figure 1. Distribution of *Micrantheum serpentinum* in Tasmania.



Plate 1. *Micrantheum serpentinum*, herbarium specimen (Image: Paul Black).

DESCRIPTION

Micrantheum serpentinum of the Euphorbiaceae, is a Tasmanian endemic shrub restricted to serpentine outcrops in the State's west.

Identification

Micrantheum serpentinum is a much-branched, heath-like woody shrub that grows up to 3 m tall. Flowers appear from September to November, however the species can be identified without flowers. The following taxonomic description is adapted from Orchard (1991).

Leaves: Oblong, narrowly ovate or narrowly obovate, arising from short stalks at alternately arranged nodes in groups of three. Leaves are typically 5 to 9 mm long and 1.5 to 3.3 mm wide. They are leathery with smooth margins.

Flowers: Plants are monoecious (i.e. having separate male and female flowers on the same plant) with male flowers usually above the female flowers on the plant. The yellowish to greenish coloured flowers arise from the base of the leaves and are solitary or in small clusters.

Fruit: The oval shaped fruit is between 3 to 3.3 mm long and 2.3 to 2.7 mm wide. It is yellow-brownish in colour and has purplish-black protrusions at the top. The fruits split at maturity in January.

Confusing Species

The closely related *Micrantheum hexandrum* occurs in the northeast of Tasmania, mostly within riverine habitats (as opposed to rocky serpentine habitat of *Micrantheum serpentinum*). The leaves of *M. hexandrum* are generally longer (mostly 6 to 16 mm) and narrower (mostly 1.5 to 2 mm) than those of *M. serpentinum*.

DISTRIBUTION AND HABITAT

Micrantheum serpentinum is endemic to western Tasmania, where it is known from an estimated 8 to 9 populations. Populations occur from near Queenstown in the south to near Waratah in the north. The area of extent of this species

is approximately 245 km² and area of occupancy is estimated to be approximately 50 ha (Schahinger 2004).

Micrantheum serpentinum is apparently restricted to Cambrian serpentinite substrate, typically on rocky hillsides at approximately 170 to 480 m above sea level. Habitat includes heathy shrubland, shrubby *Eucalyptus nitida* (Smithton peppermint) woodland, and moist, shaded gullies or creek banks (TPLUC 1996, Schahinger 2004).

RESERVATION STATUS

Micrantheum serpentinum is protected in the Heazlewood Hill and Southwest Conservation Areas. Some protection is afforded to populations in the Savage River and Meredith Range Regional Reserves, however mining exploration and activity are permitted in these reserves, which may be a threat to this species.

POPULATION ESTIMATE

There are 8 to 9 apparently distinct recorded populations of *Micrantheum serpentinum* (see Table 1) comprising an estimated 30 000 to 70 000 mature individuals (based on estimates in Schahinger 2004). The species is locally abundant but apparently, highly geographically restricted, due to its substrate requirement (Orchard 1991).

Schahinger (2004) estimated that approximately 10 000 mature plants occur in the Tunnel-Serpentine Hill population (based on a 'conservative' density of 1 plant per 10m² across an area of 10 to 15 ha), where plants dominated the shrub layer of the southern and western slopes of Serpentine Hill (Schahinger 2004). The abundance of plants at other sites is not known.

CONSERVATION ASSESSMENT

Micrantheum serpentinum was listed as rare on the TSP Act in 1995, up-listed to vulnerable in 2002, and down-listed to **rare** in early 2008 as part of the Act's 5-year review. The species qualifies for rare under criterion B:

- extent of occurrence is < 2 000 km²;
- area of occupancy is < 50 ha;
- most individuals occur in <10 populations.

Table 1. Populations of *Micrantheum serpentinum* in Tasmania.

| Popn. | Population | Sub-populations ('sites') | Tenure | NRM region | 1:25 000 mapsheet | Year last seen | Area occupied (ha) | Number of mature plants |
|-------|---|---|-------------------|--------------|-------------------|----------------|--------------------|---|
| 1a | Serpentine Hill | Murchison Highway, north of Melba Flats | State Forest | Cradle Coast | Dundas | 2004 | 10 to 15 | c. 10 000 (Schahinger 2004) |
| 1b | Serpentine Hill | West of Emu Bay Railway | Public land | Cradle Coast | Dundas | 2001 | | |
| 2 | Serpentine Ridge, at Reece Dam Road | | State Forest | Cradle Coast | Roseberry | 1997 | | |
| 3 | Serpentine Ridge, at Stringers Creek | | State Forest | Cradle Coast | Parsons | 1988 | | |
| 4a | Heazlewood River area, at north-west slopes of Burgess Hill | | State Forest | Cradle Coast | Savage River | 1998 | | 'Widespread on serpentine' (North <i>et al.</i> 1998) |
| 5 | Heazlewood River area, at Duffs Hill | | Conservation Area | Cradle Coast | Savage River | 1989 | | |
| 6 | Heazlewood River area, at Brassey Hill | | State Forest | Cradle Coast | Savage River | 1990 | | |
| 7a | Heazlewood River area | Bridge on Savage River Road | State Forest | Cradle Coast | Savage River | 1990 | | |
| 7b | Heazlewood River area | Tributary creek of Heazlewood River | State Forest | Cradle Coast | Savage River | 1996 | | |
| 8 | Head of Nineteen Mile Creek | | Regional Reserve | Cradle Coast | Donaldson | 1990 | | |
| 9 | Meredith Range Regional Reserve | | Regional Reserve | Cradle Coast | Savage River | ? | | |

THREATS

Micrantheum serpentinum is at risk of decline as a result of the following:

Inappropriate Disturbance: *Micrantheum serpentinum* recruits from seed after fire, but no other information is available with which to determine optimal fire regimes for the species.

Disturbance associated with road construction is likely to have adverse effects (TPLUC 1996) through increased risk of spread of weeds and plant disease.

Mining activities potentially threaten this species, as there has been recent interest in mining areas of serpentinite in Tasmania.

Phytophthora cinnamomi: As with most Euphorbiaceae, *Micrantheum serpentinum* does not express effects of the plant pathogen *Phytophthora cinnamomi*. However associated plant species such as the threatened *Epacris glabella* are known to be susceptible (e.g., at Serpentine Hills, see Schahinger 2004). As a result, habitat may become degraded as the pathogen spreads, where plant community structure and processes are altered.

Weeds: Introduced weeds, notably *Ulex europaeus* (Gorse), *Cytisus scoparius* (English broom) and *Rubus fruticosus* (Blackberry) threaten the Serpentine Hills population.

Stochastic Events: *Micrantheum serpentinum* occupies a small area (approximately 50 ha) and is therefore at risk of stochastic disturbances (e.g., two wildfires in quick succession).

MANAGEMENT STRATEGY

The main objective for recovery of *Micrantheum serpentinum* is to prevent inadvertent destruction of populations, maintain viability of standing populations, and promote conditions for successful recruitment.

What has been done?

As a Regional Forest Agreement (1996) priority species *Micrantheum serpentinum* was considered during the process of recommending areas for protection in Tasmania (North *et al.* 1998). The Heazlewood Hill Conservation Area, which

contains *Micrantheum serpentinum*, was reserved during that process.

Otherwise, there have been no targeted efforts to conserve this species.

What is needed?

Recovery actions necessary to decrease the extinction risk to *Micrantheum serpentinum* include:

- Conduct surveys of known sites to determine habitat, demographics, abundance, and area of occupancy,
- Research fire (or other disturbance) requirements that may be necessary for population persistence,
- Prepare and implement fire management plans for important populations,
- Liaison between land managers to improve management of populations with respect to weeds, disease, fire and physical protection, and
- Improve the reservation status of important sites.

ADVICE FOR LANDOWNERS/MANAGERS

The following actions will assist to conserve *Micrantheum serpentinum* in Tasmania:

- Ensure that adequate surveys are undertaken prior to any proposed vegetation clearance or landscape modification.
- Search for new populations in potential habitat (i.e., areas of serpentinite soils).
- Consider options for long-term protection through reservation.

It is important to remember that there may be site specific management requirements. Please contact the Threatened Species Section for further advice.

BIBLIOGRAPHY

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- Orchard, A.E. (1991) A New Species of *Micrantheum* (Euphorbiaceae) from Tasmania, in: Banks, M.R. *et al.* (eds.), *Aspects of Tasmanian Botany – A Tribute to Winifred Curtis*, The Royal Society of Tasmania, Hobart, pp 59–64.
- Schahinger, R. (2004) *Botanical values of the Tunnel Hill Quarry*, private consultants report, South Hobart, Tasmania.
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Prepared in 2006 under the provisions of the Tasmanian *Threatened Species Protection Act 1995*. Reviewed in 2008.

Cite as: Threatened Species Section (2008) *Listing Statement for western tridentbush (Micrantheum serpentinum)*, Department of Primary Industries & Water, Tasmania.

View:

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

Contact details: Threatened Species Section, Department of Primary Industries & 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.