

Threatened Species of the Northern Territory

Macrothelypteris torresiana

Conservation status

Australia: Not listed

Northern Territory: Endangered

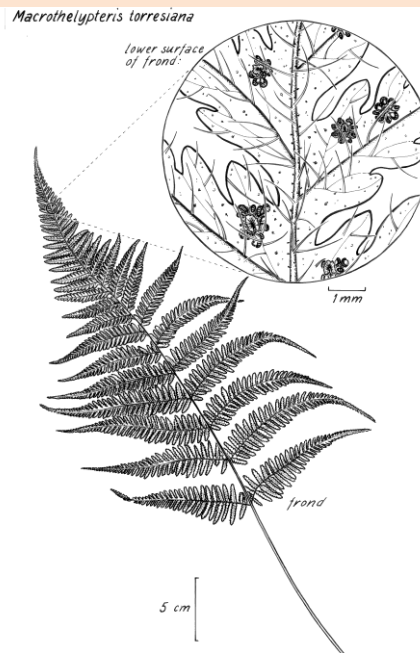


Illustration: M. Osterkamp

Description

Macrothelypteris torresiana is a robust fern with a short creeping rhizome. Fronds are three-pinnate, deeply divided, to 1.2 m long, with a stalk 0.5 m. Sori are circular but not terminal on the veins.

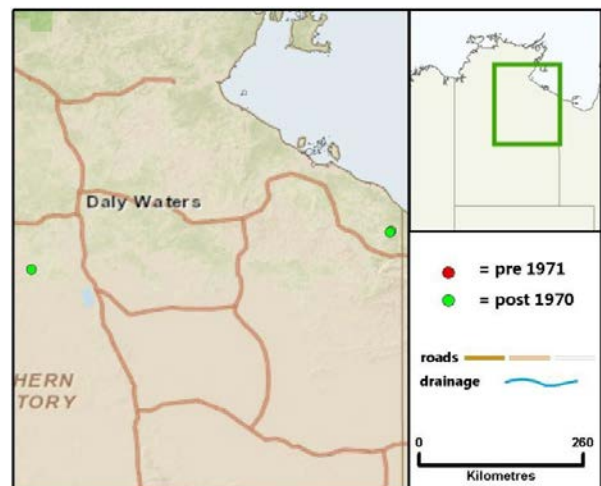
Fertile: September.

Distribution

Known from two locations on Wollongorang Station in the Gulf region of the Northern Territory (NT). The species is also known from northern Western Australia, eastern Queensland and north-eastern New South Wales and outside Australia occurs naturally from the Mascarene Island to the Pacific where it grows in open places usually near water (Bostock 1998).

Conservation reserves where reported:

None.



Known location of *Macrothelypteris torresiana*

Ecology

Occurs in sheltered, moist sandstone gorges where associated with springs and cliff line seepages.

Conservation assessment

The extent of occurrence is estimated at 370 km². Area of occupancy is estimated to be only a few hectares. At Camel Creek "restricted to around a small spring and cliff

line seepage along a few hundred metres of gorge” (C. Trainor *in sched.*). In 2008, it was reported that feral pigs and stock were severely impacting this population (K. Brennan *in sched.*). The second subpopulation appears to be of similar size and extent but nothing is known of threats at that location.

While there is a small possibility that additional subpopulations may occur in the same area, the extent of suitable habitat is very limited. There are substantial areas of potentially suitable habitat in Western Arnhem Land that are poorly surveyed at the scale and intensity necessary to exclude the possibility that more subpopulations exist. However, this habitat is strongly disjunct from the known population and the chance of finding additional subpopulations in that area appears relatively low. Even if additional small populations were located, this species would still qualify for Vulnerable under criterion D1.

It is evident that many fern species in wet rainforest or gorge habitats in NT exhibit a pattern of highly disjunct distributions with small subpopulations and short geographic ranges. Long distance dispersal events are considered disproportionately important in determining the distribution pattern of ferns. A single fern plant can produce millions of dust like spores with dispersal of some spores over thousands of kilometres being possible but rare (Kessler 2010). However, in applying guidelines for regional application of IUCN criteria such dispersal events (or immigration) may be rare and too infrequent to downgrade the category (IUCN 2003; Kessler 2010). It is also possible that current highly disjunct distributions are a product of vicariance, by which an original contiguous population has been fragmented through long term climate change or geological processes.

This species qualifies as **Endangered** in the NT (under criteria B1ab(iii)+2ab(iii)), based on:

- the extent of occurrence is approximately 370 km² and the area of occupancy is a few hectares;
- subpopulations (<5 locations) are severely fragmented; and
- there is continuing decline in the number of mature individuals, area of occupancy and quality of habitat of this species.

Threatening processes

The Camel Creek population was revisited in 2008 and feral pigs and domestic cattle livestock were observed to be having a severe impact at that population (K. Brennan pers. comm.).

Conservation objectives and management

Fencing to exclude cattle and pigs is a high priority. Management of any weeds may then be needed.

Complied by

Ian Cowie
John Westaway
[updated December 2012]

References

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- IUCN (2003). *Guidelines for application of IUCN Red List Criteria at Regional Levels; Version 3.0*. IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK. 26 pp.
- Kessler, M. (2010). Biogeography of Ferns. pp 22–60 In Mehltreter, K., L.R. Walker & J. Sharpe (eds) *Fern Ecology*. Cambridge University Press, Cambridge.
- Short, P.S. (2003). A review of ferns and fern allies of the Northern Territory. *The Beagle, Records of the Museums and Art Galleries of the Northern Territory* **19**, 7–80.