

# Threatened Species of the Northern Territory

## Boronia quadrilata

### Conservation status

Australia: Vulnerable

Northern Territory: Vulnerable



Photo: K. Brennan

### Description

*Boronia quadrilata* is an erect slender shrub or bushy multi-stemmed shrub 1.5 to 3 m tall. The stems are distinctly 4-angled with small wings undulating longitudinally along the stem. The leaves can be upright and appressed against stem or as in the photograph. *Boronia quadrilata* is very distinctive, with bright green new growth becoming blue/green and waxy with age.

### Distribution

This species is endemic to the NT, and known only from the type locality at upper Magela Creek on the Arnhem Land plateau to the east of Kakadu National Park.

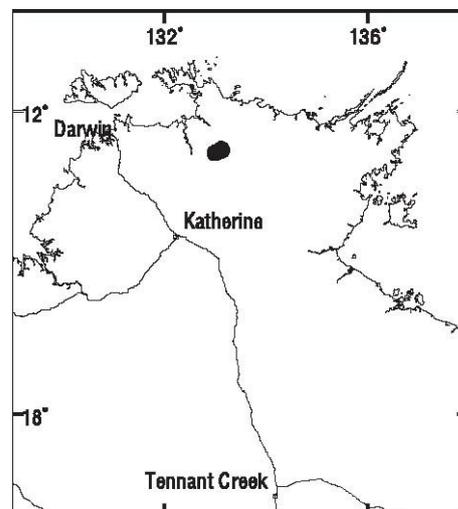
*Conservation reserves where reported:*  
None.

### Ecology

Very little is known about the ecology of this species. Plants grow in pockets of sand amongst sandstone outcrops, in crevices amongst dissected sandstone and on rocky scree slopes. The species is absent from flatter sandstone country and from massive sandstone outcrops. The dominant vegetation

in this country is characteristic of much of the region, that is *Corymbia arnhemensis* open woodland to shrubland with *Triodia microstachya* and a variable shrub layer.

*Boronia quadrilata* was observed to resprout after fire with strong and vigorous new growth in a 2003 survey. The majority of resprouting individuals were flowering/fruitlet in this population. Unburnt individuals were large and spindly with foliage only present distally on stem.



Known location of *Boronia quadrilata*.

## Conservation assessment

This species is known from only one locality, where it was collected in 1991 and revisited in 2003 and 2004. Due to inaccurate geocode data, previous search efforts had failed to relocate this species.

Re-survey in 2004 extended the known range of the species by c. 1 km, giving a combined area of occupancy of 23 ha, when data from the 2003 survey are included. The total extent of occurrence after the two surveys was estimated at 94 ha. The combined population estimates from the two surveys comprise more than 2644 plants. The total extent of the population is still not known as potentially suitable habitat to the south and south west of the known population remains to be surveyed. However, given the extensive survey effort (10 300 points in a 1 degree grid cell) in this area, current data are believed to largely reflect the very restricted distribution of this species.

A permanent monitoring plot established in March 2003 was reassessed in August 2004. There had been an increase of 24 individuals in the plot since March 2003, primarily in the juvenile class. The most plausible interpretation of the data was that some of the 2003 juveniles had moved into the adult class while others have remained as juveniles, with significant recruitment of juveniles over the 2003/04 wet season. This indicates a maximum growth rate for seedlings in excess of 50 cm in their first year, with the data suggesting that some plants may reach (limited) reproductive maturity in their second year (Cowie 2005).

It has a status of **Vulnerable** (under criteria D2 and B1 biii, 2 biii) based on:

- an area of occupancy << 20km<sup>2</sup>;
- a projected decline in quality of habitat.

## Threatening processes

Although individuals have been observed to respond vigorously to fire, the impact of frequent burning on the fate of individuals and their perennial root stocks is unknown. The extremely restricted distribution of this species suggests the population is at best static and not recruiting. Although sporadic/random recruitment events may be enough to maintain this population, this species is in a fire prone habitat and the factors behind its restricted distribution and abundance are not clear.

## Conservation objectives and management

A recovery plan for this species was implemented from 2006 (Liddle and Gibbons 2006).

Actions described in that plan, and currently being implemented, include to:

- i. conduct further searches and establish a monitoring program;
- ii. develop and implement a fire management program;
- iii. involve landholders and the broader community; and
- iv. where appropriate, develop an ex- situ population.

## Complied by

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## References

Cowie, I.D. (2005). *Kakadu Threatened Flora Report (Vol 3.). Results of a threatened flora survey.* Unpublished report to Parks Australian North (NT Department of Infrastructure Planning and Environment, Darwin.)

- Duretto, M.F. (1999). Systematics of *Boronia* section *Valvatae sensu lato* (Rutaceae). *Muelleria* 12, 1-132.
- Kerrigan, R. (2003). *Kakadu Threatened Flora Report. Results of a threatened flora survey 2003.* (NT Department of Infrastructure Planning and Environment, Darwin.)
- Liddle, D.T., and Gibbons, A. (2006). *Recovery plan for Boronia quadrilata and Boronia viridiflora in the Northern Territory of Australia, 2006 to 2010.* (NT Department of Natural Resources Environment and the Arts, Darwin.)