

# Threatened Species of the Northern Territory

## Acacia sp. Graveside Gorge

### Conservation status

Australia: Critically Endangered

Northern Territory: Critically Endangered



Photos: K. Brennan

### Description

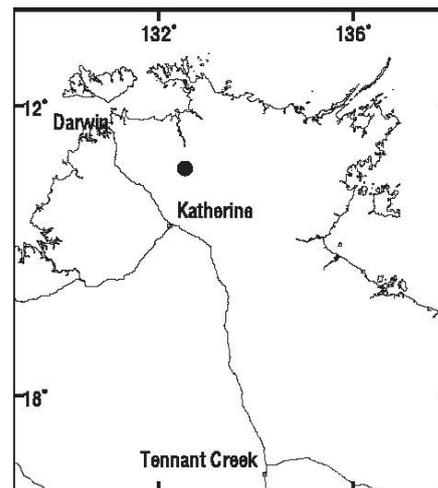
*Acacia* sp. Graveside Gorge is a very distinctive, grey-green shrub immediately obvious in the field although vegetatively similar to *Drummondita calida*. Leaves are narrow and needle like, 10-15 mm long, hairy and arranged in whorls around the stem. The inflorescence is globular and the pods short. It is closely related to *A. hippuroides*, a Kimberley (WA) species.



### Distribution

Apparently endemic to the NT, it is known from recent (post 2004) collections from Graveside Gorge, Kakadu NP. An additional collection from Kakadu National Park dating from 1981 lacks a georeference.

Conservation reserves where reported:  
Kakadu National Park.



Known location of *Acacia* sp. Graveside Gorge.

### Ecology

Very little is known about the ecology of this species, although evidence suggests it is an obligate seeder. Collection notes record it growing on W to SW facing rocky sandstone slopes and ledges at the tops of sheer cliff lines.

### Conservation assessment

In 2004, only a single adult plant was found at Graveside Gorge although there were also about 30 dead stems (burnt the previous season) and 20 small seedlings (around 10 cm tall) within 20 m. No other plants of this species were seen in the area (Kerrigan 2004).

Follow-up surveys were undertaken in 2005 and 2006. On the first, the death of the single adult plant of 2004 and the presence of more seedlings was noted. Following maturation of seedlings and the discovery of new plants, in 2006 this population stood at around 150 individuals with many flowering and fruiting. Also during this survey a second, more extensive population of some 700 - 800 plants was located in a similar aspect 1 km NE of the first. It also comprised many flowering and fruiting plants.

Although the Arnhem Land and Kakadu escarpment is remote and difficult to access, this species is considered adequately surveyed as a relatively high proportion of herbarium collections come from the Arnhem Land/Kakadu area. The quarter degree grid cell where this taxon was found has 1530 plant records.

From our scant current knowledge, this species qualifies as **Critically Endangered** under criterion B [1a+c(iv) and 2a+c(iv)] based on having:

- an extent of occurrence estimated to be less than 100 km<sup>2</sup>; and
- a known area of occupancy of less than 10 km<sup>2</sup>, in just two isolated populations where the number of mature plants undergoes extreme fluctuations.

Given the highly distinctive nature of this species and the intensive recent and historical survey effort in the Kakadu area, the current data are believed to reflect the very restricted distribution of this species.

### Threatening processes

*Acacia* sp. Graveside Gorge appears to be an obligate seeder currently exposed to unfavourable fire regimes. Russell- Smith *et al.* (1998, 2002) suggested that in some cases current fire regimes are detrimentally

affecting obligate seeders in sandstone heath communities and inappropriate fire regimes are a potential threat to this species.

Unfortunately the generation time for this species has not been assessed and the potential for frequent fire events to kill individuals before reproductive maturity has not been evaluated. Similarly, seed bank stores, seed longevity and germination and establishment requirements are unknown. With such small, restricted populations the species is vulnerable to stochastic events and inappropriate fire regimes.

While a fire in one year may reduce the threat of another fire at a site for one or more years afterwards, there is little doubt that any series of fires that repeatedly destroyed successive generations of seedlings before they matured and set seed would pose a serious threat, especially if the species does not have a resilient or persistent seed bank.

### Conservation objectives and management

Further survey in the Graveside Gorge area is required to locate extra populations. Regular monitoring in the short term to establish the persistence of seedlings and time taken to reproductive maturity is recommended. Research into the role of fire and other ecological processes in the distribution and abundance of the species is required. Collection of propagation material and translocation to botanic gardens may safeguard the species from stochastic events.

### Compiled by

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## References

- Kerrigan, R. (2004). *Kakadu Threatened Flora Report. Volume 2. Results of a threatened flora survey 2004.* (NT Department of Infrastructure Planning and Environment, Darwin.)
- Russell-Smith, J., Ryan, P.G., Klessa, D., Waight, G., and Harwood, R.K. (1998). Fire regimes, fire-sensitive vegetation and fire management of the sandstone Arnhem Plateau, monsoonal northern Australia. *Journal of Applied Ecology* 35, 829-846.
- Russell-Smith, J., Ryan, P.G., and Cheal, D.C. (2002). Fire regimes and the conservation of sandstone heath in monsoonal northern Australia: frequency, interval, patchiness. *Biological Conservation* 104, 91-107.