

# Threatened Species of the Northern Territory

## Hibbertia tricornis

### Conservation status

Australia: Not listed

Northern Territory: Vulnerable

\*there is no known photo of this taxon

### Description

*Hibbertia tricornis* is a low subshrub with wiry branches that grows 0.2 m high. Leaves are broadly elliptic to 15 mm long and 10 mm wide with a dense cover of stellate hairs on both surfaces. Solitary yellow flowers with obovate bilobed petals about 8 mm long occur on thin peduncles in the leaf axils (adapted from Toelken 2010). *Hibbertia tricornis* is in the *H. alopecota* subgroup and resembles *H. auriculiflora* and *H. circularis*.

Flowering: December.

### Distribution

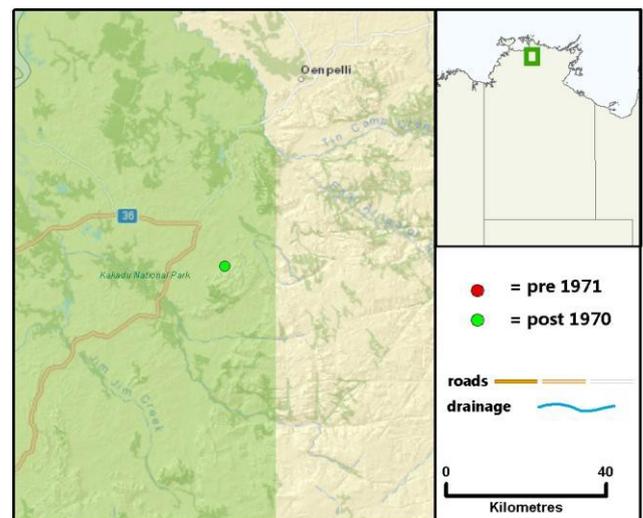
This species is endemic to the Northern Territory (NT). *Hibbertia tricornis* is known only from the Type location at Mount Brockman on the Central Western escarpment of the Arnhem Land plateau. The location is within Kakadu National Park, South of Jabiru township and the Ranger Mine.

*Conservation reserves where reported:*  
Kakadu National Park.

### Ecology

*Hibbertia tricornis* is recorded as growing in sand on scree of the sandstone escarpment. There is no information on the life history of this newly described species, though, like many heath plants of the Arnhem Land

sandstone escarpment, *H. tricornis* may well be an obligate seeder.



Known location of *Hibbertia tricornis*

### Conservation assessment

*Hibbertia tricornis* is an extremely restricted species that is known only from the Type locality and is represented by a single herbarium collection.

The Mount Brockman area of Kakadu National Park is a very well known area botanically but also very complex with 63 individual plant survey points per 100 km<sup>2</sup>, this being the cell with the second highest survey density across the NT. The Mt Brockman outlier has been the subject of several targeted surveys for other threatened species and is home to a number of other

short range endemics. In addition, there is a pattern of short range endemism in the genus and in the sandstone flora of Western Arnhem Land in general (Woinarski et al, 2006; Toelken 2010). Previous survey of potential value in understanding the distribution of this taxon has been hampered by a lack of previous taxonomic recognition and by the morphological complexity of the genus *Hibbertia* in the region. While it is possible that the extent of occurrence and area of occupancy may be larger than is currently known, the high level of general survey in the area suggests that substantial increases are unlikely.

This species qualifies as **Vulnerable** in the NT (under criterion D2), based on:

- restricted to an area of less than 20 km<sup>2</sup>;
- fewer than five known locations; and
- threats from human activities and inappropriate fire regimes.

The species is also listed as a short range endemic in the NT.

### Threatening processes

As *H. tricornis* is confined to a single location it is at risk of unforeseen stochastic events. No impending threats are evident, though expansion of the existing Ranger uranium mine or establishment of another such mine at this location, although unlikely, would impact on *H. tricornis*.

Successive wildfire events or too frequent fires could also potentially threaten the *H. tricornis* population. Fifty per cent of Arnhem Land sandstone heath shrub species are obligate seeders (Russell-Smith et al. 1998). Such plants are particularly susceptible to frequent fires given the developmental time required from post-fire germination to attainment of reproductive maturity and replenishment of seed reserves (Russell-Smith

et al. 2002). The response to fire of *H. tricornis* is unknown but the species is likely to be an obligate seeder and should be regarded as such as a precautionary principle. If young obligate seeder plants are burnt and killed by successive fires, the population can be extirpated. The rocky sandstone habitat of *H. tricornis* however would provide some topographic protection from fire.

### Conservation objectives and management

Research priorities for *Hibbertia tricornis* include investigation of life history parameters such as time to maturity, lifespan and fire response; and assessment of the population extent and number of individuals. Fire management planning and associated activities in this area of Kakadu National Park should be mindful of the presence and significance of the *H. tricornis* population. A key management objective would be to ensure a fire regime that is suitable to this species and such a regime is likely to be characterised by low frequency and long intervals (greater than three years) between fires. Fire management prescriptions can be refined in light of information gathered on the life history attributes of *H. tricornis*.

Given the inherent vulnerability of a single known locality, propagation of plant cuttings and exsitu cultivation, for example at the George Brown Botanic Gardens Darwin, would provide some conservation security. Monitoring should comprise annual assessment of fire occurrence, and counts of plants every three to five years or following fire events.

### Compiled by

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## References

- Russell-Smith, J., Ryan, P.G., Klessa, D., Waight, G., and Harwood, R. (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., P.G. Ryan & D.C. Cheal (2002). Fire regimes and the conservation of sandstone heath in monsoonal northern Australia: frequency, interval, patchiness. *Biological Conservation* **104**, 91-107.
- Toelken, H.R. (2010) Notes on *Hibbertia* (Dilleniaceae) 5. *H. melhanioides* and *H. tomentosa* groups from tropical Australia. *Journal of the Adelaide Botanical Gardens* **23**, 1-117.
- Woinarski, J.C.Z.; Hempel, C.; Cowie, I.; Brennan, K.; Kerrigan, R.; Leach, G.; Russell-Smith, J. (2006). Distributional patterns of plant species endemic to the Northern Territory, Australia. *Australian Journal of Botany* **54**, 627-640.