

# Threatened species of the Northern Territory

## *Hibbertia brennanii*

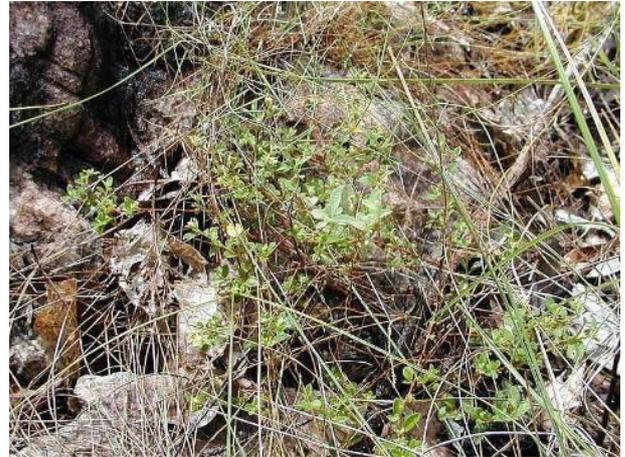
### Conservation status

#### Australia: Not Listed

Environment Protection and Biodiversity Conservation Act 1999

#### Northern Territory: Vulnerable

Territory Parks and Wildlife Conservation Act 1976



Credit: R.A. Kerrigan

### Description

*Hibbertia brennanii* is a subshrub with wiry branches that grows to 0.3 m high, of a low spreading, somewhat delicate habit. The discolourous leaves are elliptic in shape, and about 3–9 mm long by 2–5 mm wide, appressed pubescent above and ciliolate-scaly below. Solitary pale yellow flowers occur with bilobed petals about 4 mm long<sup>1</sup>. It is in the *H. lepidota* subgroup and is closely related to *H. incurvata*.

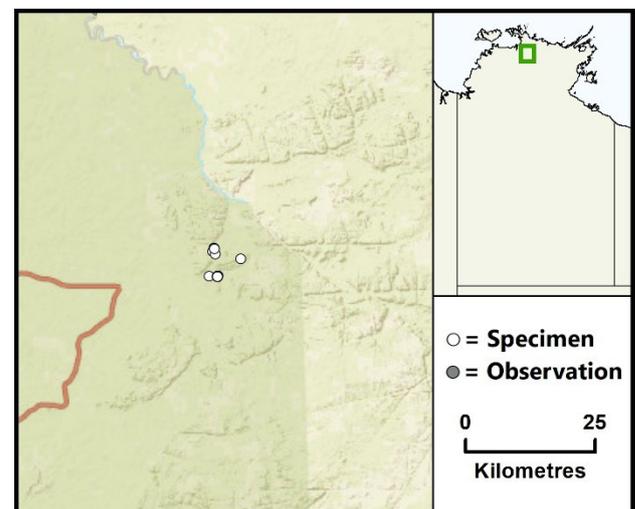
Formerly referred to as *Hibbertia* sp. stellate (J.L. Egan 4812). Now formally described and conventionally accepted as *Hibbertia brennanii*<sup>1</sup>.

Flowering and Fruiting: March–May.

### Distribution

This species is endemic to the Northern Territory (NT), where it is very localised in a small protected area straddling the boundary between Kakadu National Park (KNP) and Arnhem Land. It is known only from a single northern sandstone outlier of the Western Arnhem Land escarpment.

NT conservation reserves where reported:  
Kakadu National Park.



Caption: Known locations of *Hibbertia brennanii* in the NT ([nrmmaps.nt.gov.au](http://nrmmaps.nt.gov.au))

### Ecology

*Hibbertia brennanii* grows in rock crevices in dissected sandstone on top of the escarpment of the Arnhem Plateau. Plants have been recorded growing in cracks or amongst rocks on sandstone pavement or amongst sandstone heath or Spinifex (*Triodia* species) hummock grasses.

## Threatening processes

Fifty per cent of Arnhem Land sandstone heath shrub species are obligate seeders<sup>2</sup>, and therefore sensitive to inappropriate fire regimes such as too frequent fire. Short time intervals between successive fires limit the capacity of post-fire germinants to attain reproductive maturity and replenish soil seed reserves. The precise fire response of *Hibbertia brennanii* is not known but this species is also likely to be an obligate-seeder. Its rocky sandstone habitat however would afford a measure of small-scale topographic protection from fire.

## Conservation assessment

*Hibbertia brennanii* is a highly restricted plant species, known to occur only around one northern outlier of the Western Arnhem Land escarpment. Historically (to 2010) there have been nine collections from within an area of just 18 km<sup>2</sup>. Most records are from within KNP but one collection extends east into adjacent Arnhem Land.

*Hibiscus brennanii* is apparently not uncommon on the one outlying block of sandstone, with plants probably extending between the collection points to more than 1,000 individuals (K. Brennan *pers. comm.* 2010).

This is a very well known area botanically but also very complex with 62 points per 100 km<sup>2</sup> within the immediate half degree (30 by 30 minute) cell, the cell with the second highest survey density in the NT. The locality extends marginally into the adjacent Arnhem Land cell which is also well surveyed with 25 points per 100 km<sup>2</sup>. No additional occurrences have been located on adjacent outliers despite intensive general survey of the area. In addition, there is a pattern of short range endemism in the genus and in the sandstone flora of Western Arnhem Land in general<sup>1,3</sup>.

## Conservation objectives and management

Research priorities include investigation of the extent of the species across the Northern Arnhem Land escarpment outlier and population structure. Establishment of monitoring plots would assist in study of the fire response of the species and allow reassessment following perturbations. Fire management of the sandstone heath in this area of Kakadu National Park should take account of the presence of this species.

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 with results of investigation into the life history attributes of *H. brennanii*.

## References

- <sup>1</sup> 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.
- <sup>2</sup> 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.
- <sup>3</sup> Woinarski, J.C.Z., Hempel, C., Cowie, I., Brennan, R.K., Kerrigan, R., Leach, G. and Russell-Smith, J. 2006. Distributional patterns of plant species endemic to the Northern Territory, Australia. *Australian Journal of Botany* 54, 627-640.