

Threatened species of the Northern Territory

Helicteres macrothrix

Conservation status

Australia: Endangered

Environment Protection and Biodiversity Conservation Act 1999

Northern Territory: Endangered

Territory Parks and Wildlife Conservation Act 1976



Credit: I.D. Cowie

Description

Helicteres macrothrix is a multi-stemmed subshrub to 50 cm high with erect to ascending branches. The aerial parts of the plant are annual, with a perennial root stock. The flowers are pink-purple. The fruits are green and woolly-hairy.

Flowering: January, September–November.

Fruiting: January, March, October–November.

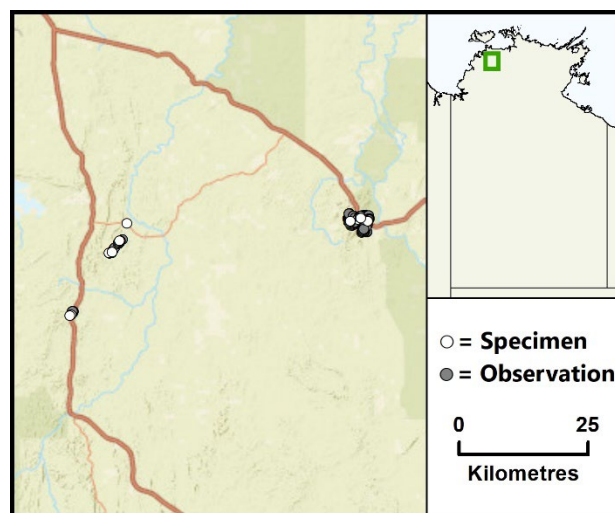


Caption: Flowers of *Helicteres macrothrix* (Credit: I.D. Cowie)

Distribution

The species is endemic to the Northern Territory (NT). It has been recorded from three localities – near Mt Bunday, near Batchelor and in the Lake Bennett area.

NT conservation reserves where reported: Mary River National Park.



Caption: Known locations of *Hernandia nymphaeifolia* in the NT (nrmmaps.nt.gov.au)

Ecology

This species occurs in woodlands dominated by *Eucalyptus tectifica*, *E. tetradonta* or *E. miniata*, on sandy loam on rocky siltstone slopes or granitic rocks. Plants generally occur in mid to foot slope positions in the landscape

No individuals were identified as juveniles in recent surveys of this species, however many individuals were observed to resprout from a perennial root stock, often vigorously, after fire. The Mt Bunday plants have longer inflorescences and may warrant recognition at subspecific level.

Threatening processes

The Glenluckie Creek and Lake Bennett localities of this species are vulnerable to potential clearing for either subdivision¹, maintenance of railway easement or road maintenance. Both of these localities are likely to have already suffered some decline from land clearing and road and railway construction.

At Mt Bunday, part of the site has been lost through building of the Arnhem Highway. Plants are most likely to be affected by ongoing development of access roads and processing areas associated with quarry activities as they occur on flatter areas downslope of rocky outcrops.

The Glenluckie Creek site and some areas at Lake Bennett and Mt Bunday are undergoing invasion by the perennial weed Gamba Grass (*Andropogon gayanus*) and coupled with related changes in fire regimes, soil hydrology and nitrogen availability, this grass is a serious developing threat. *Andropogon* is likely to 'smother' individuals and alter fire intensity and/or frequency and potentially affect recruitment.

Gamba Grass is an introduced perennial grass species producing a high-biomass. It is now well established and abundant in Eucalypt woodland at Glenluckie Creek. Compared with native grasses, Gamba Grass forms taller, denser stands, curing later in the Dry season. This results in substantial changes to savanna fire regimes. It can dramatically increase fuel loads from the 2–4 t/ha typical for native grasses to 11–15

tonnes/ha or sometimes even 30 t/ha resulting in later, more intense fires that can kill or reduce the vigour of tree species^{2,3}.

Gamba Grass may also out-compete native woody species both by grossly altering the availability of nitrogen to native plant species and by using larger amounts of water than native grasses^{4,5}. It is also much taller than *Helicteres macrothrix* and dense stands of Gamba Grass may shade other plants.

A large proportion of rural blocks in the nearby Humpty Doo area contain mission grasses⁶ (*Cenchrus polystachios* and *C. pedicellatus*). These species are also known to invade undisturbed bushland, and is prevalent on disturbed land and along roadsides. Therefore, any further clearing activities in or around the populations of *Helicteres macrothrix* may either directly affect the number of individuals by active removal of plants, or indirectly through competition with invading exotic species or via altered fire regimes as a result of the presence of introduced invasive species.

Conservation objectives and management

Research priorities are to provide a more detailed assessment of its distribution, habitat requirements and population size; and provide an assessment of the factors limiting distribution, and/or threats to its survival.

Further survey may detect additional occurrences. If clearing becomes imminent, habitat protection may be required.

A monitoring program should be established at some representative sites.

References

- ¹ Northern Territory Government 2000. *Coomalie planning concepts and land use objectives 2003*. (Northern Territory Department of Infrastructure, Planning and Environment, Darwin.)
- ² Rossiter, N.A., Setterfield, S.A., Douglas, M.M. and Hutley, L.B. 2003. Testing the grass-fire cycle: exotic grass invasion in the tropical savannas of northern Australia, *Diversity and Distributions* 9: 169–176.

³ Ferdinands, K. Setterfield, S.A., Douglas, M.M. and Barratt, J. 2006. Africanising the tropical woodlands: Canopy loss and tree death following gamba grass *Andropogon gayanus* invasion. In *Proceedings of the 15th Australian Weeds Conference*, Eds. C. Preston, J.H. Watts and N.D. Crossman. Weed Management Society of South Australia, Adelaide, p. 296.

⁴ Rossiter, N.A., Setterfield, S.A., Douglas, M.M., Hutley, L.B. and Cook, G.D. 2004. 'Exotic grass invasion in the tropical savannas of northern Australia: Ecosystem consequences', in *Proceedings of the 14th Australian Weeds Conference*, Eds. B.M. Sindel and S.B. Johnson. Weeds Society of New South Wales, Sydney, pp. 168–171.

⁵ Rossiter-Rachor, N. A., Setterfield S. A., Douglas, M. M., Hutley, L. B., Cook, G. D. and Schmidt, S. 2009. Invasive *Andropogon gayanus* (gamba grass) is an ecosystem transformer of nitrogen relations in Australian savanna. *Ecological Applications* 19(6): 1546-1560.

⁶ Kean, L., and Price, O. 2003. The extent of Mission grasses and Gamba Grass in the Darwin region of Australia's Northern Territory. *Pacific Conservation Biology* 8, 281-290.