

# Threatened species of the Northern Territory

## *Clausena excavata*

### Conservation status

#### Australia: Critically Endangered

Environment Protection and Biodiversity Conservation Act 1999

#### Northern Territory: Critically Endangered

Territory Parks and Wildlife Conservation Act 1976

### Description

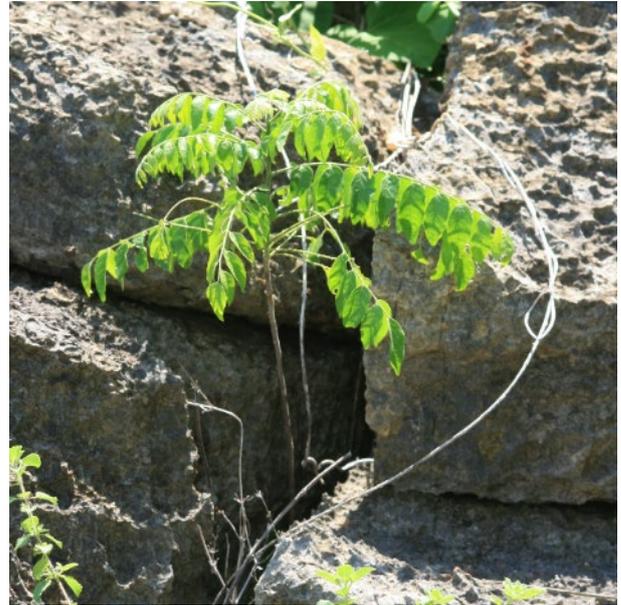
*Clausena excavata* grows as a slender shrub 1-4 m in height. Leaves are compound with approximately 10–30 leaflets. Leaflets ovate 3-6 cm long, ca. 1.5 cm wide, asymmetrical, finely hairy and aromatic with a distinctive aniseed or sarsaparilla smell. Plants can produce a compound inflorescence of pale green or cream coloured flowers in the leaf axils. Fruit are small, hairy, fleshy and are red at maturity.

Flowering: November (in cultivation).

Immature fruit: December.

### Distribution

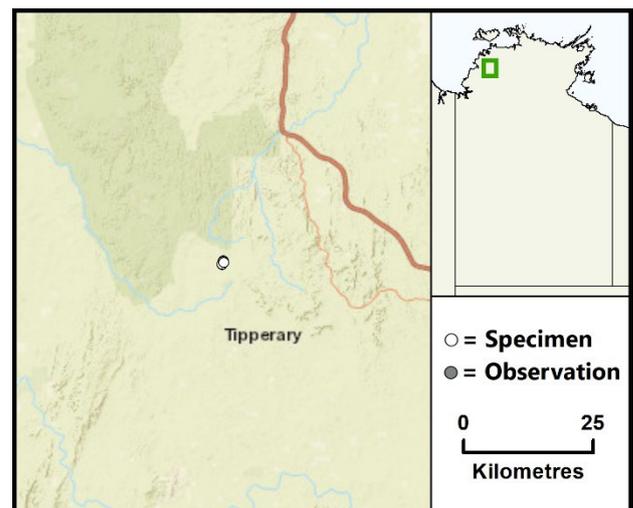
*Clausena excavata* occurs naturally on the Australian mainland with a highly restricted distribution in the NT<sup>1</sup>. The species also occurs on Christmas Island where it is recently derived from plants introduced from Indonesia or Malaysia, is very different in origin to the native NT population and is considered an invasive weed. Outside of Australia, it occurs in Malesia and South East Asia, from the Ganges Delta in eastern India to southern China and Timor.



Credit: I.D. Cowie

Where *C. excavata* occurs in the NT, it is known from a small area located on Tipperary Station, and approximately 4-5 km north-west of Mt. Burrell, in the Daly Basin Bioregion. It has been recorded from only two sites approximately 0.5 km apart. The distribution is associated with the margins of dry vine thickets around limestone.

NT conservation reserves where reported: None.



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

## Ecology

In the NT, *Clausena excavata* has been recorded from the exposed edges of two small monsoon vine thicket patches situated on limestone (karst) geology. One site consists of broken, outcropping limestone and the other is the perimeter of a limestone sinkhole.

In common with several other plants of monsoon vine thickets, this species may be facultatively deciduous during the Dry season to reduce water loss and stress over the long rainless period. The plant is a basal resprouter and has been observed to produce root suckers.

The plant is likely to rely on the protection from fire afforded by the limestone rock outcrops but may also require the higher light levels available at the forest edge.

## Threatening processes

In the NT, *Clausena excavata* is known only from the Daly Basin, a region that is the focus of land-use intensification and agricultural development. This species is known from rocky limestone areas that are unlikely to be directly affected by land clearing in the Daly Basin. However, plants occur on the perimeter of the vine thicket community and as such are susceptible to edge effects, weed invasion, marginal attrition of the vine thicket patch through too frequent or intense fires, and land use activities (e.g. disturbance from stock) in the adjacent woodland vegetation. Physical disturbance to *C. excavata* plants from stock and feral pigs is a threat.

The major threat to *C. excavata* is incursion of Gamba Grass (*Andropogon gayanus*) and Mission grasses (*Cenchrus polystachios* and *C. pedicellatus*) into its ecotonal habitat. Gamba Grass is a high-biomass-producing introduced perennial grass species and is now established and common at the main site. A massive propagule source of Gamba Grass occurs in the large cleared paddocks to the south and satellite sites also occur sporadically in the intervening woodland. 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 local fuel loads from the 2–4 t/ha typical for native grasses to 11–15 t/ha or sometimes even 30 t/ha for Gamba Grass resulting in later, more intense fires that can kill or reduce the vigour of tree species<sup>2,3</sup>. 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<sup>2,4</sup>. The Mission grasses present a similar threat<sup>4</sup>.

## Conservation objectives and management

Survey of other nearby limestone vine thicket vegetation for the presence of *C. excavata* is a priority, as is investigation into the size, extent and status of populations. A monitoring site should be established for this species at one or more of the known sites.

Adequate buffering from land use activities in the adjacent woodland vegetation is required. Judicious fire management is essential. Fire should be prevented from incurring into the limestone vine thicket community and ecotone from adjoining areas. Gamba Grass and other invasive weeds (especially perennial grasses) should be controlled and managed at the known sites to prevent the development of excessive fuel loads that will inevitably result in high intensity fires that pose a threat of loss or decline in the *C. excavata* stands.

## References

- <sup>1</sup> Little, D.T., Russell-Smith, J., Brock, J., Leach, G.J. and Connors, G.T. 1994. Atlas of the vascular rainforest plants of the Northern Territory. Flora of Australia Supplementary Series No. 3. (ABRS, Canberra.)
- <sup>2</sup> 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.
- <sup>3</sup> 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.

<sup>4</sup> 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.