

Threatened Species of the Northern Territory

WADDY-WOOD

Acacia peuce F.Muell.

Conservation status

Australia: Vulnerable

Northern Territory: Endangered



Photo: D. Albrecht

Description

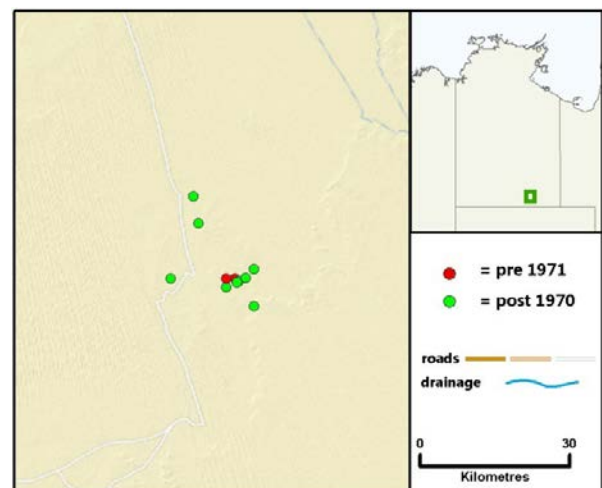
Acacia peuce is a long lived, tall tree to c. 15-18 m with short horizontal branches, pendulous branchlets and Sheoak-like phyllodes (Maslin 2001). The bark is grey-brown and fibrous, and the timber is very dense with dark red heart-wood. The pale yellow flowers are solitary and inconspicuous; and the distinctive pods are large (up to 5x20 cm), papery and flattened. The seeds are flat and large (6–14 mm long, 4–8.5 mm wide). They lack features to enhance dispersal, being dull, dark brown to black and exarillate (Maslin 2001).

Flowering: Any time with rain.

Fruiting: Any time with rain.



Photo: D. Albrecht



Known locations of *Acacia peuce*

Distribution

Acacia peuce is known from three disjunct locations on the western and eastern edges of the Simpson Desert in arid inland Australia: Andado Station (230 km south-east of Alice Springs) in the Northern Territory (NT); and Birdsville and Boulia in Queensland. At Andado and Birdsville, *A. peuce* populations are associated with shallow sand aprons overlaying clayey and gibber slopes and plains. The Boulia population is associated with palaeochannels of the Hamilton and Georgina Rivers (Maslin 2001). The NT population is the smallest of the three, with an extent of occurrence of c. 337 km² (latitudinal range 22 km and longitudinal

range 15 km). The area of occupancy is 3.3 km².

Conservation reserves where reported:
Mac Clark Conservation Reserve.

Ecology

Seedling establishment in *A. peuce* is infrequent and highly pulsed, being confined to extremely rare phases of prolonged, well above-average rainfall (Nano et al. in prep. a). The species does not maintain a persistent seed bank, and seed dispersal is highly localised. Seeds are non-dormant and germination can occur after only small rainfall events leading to failed recruitment and seed bank depletion (Nano et al. in prep. b).

The total NT population (including saplings and subadults) effectively doubled in size between 1980 and 2008 (23 ha⁻¹ versus 52 ha⁻¹) due to the major recruitment event that took place 1979-1983 and to the subsequent high survival of juveniles, saplings and adults (Deveson 1980; Nano et al. in prep. a). However, the small fragment stands have comparatively low density and proportionately lower regeneration compared to the main stand: they are therefore inherently more vulnerable to decline (Nano et al. in prep. a). The adult (>5 m tall) population increased from 6.8 ha⁻¹ in 1980 to 10.7 ha⁻¹ in 2008.

Conservation assessment

Acacia peuce is classified in the NT as **Endangered** (under criterion A3(b)) based on:

- a substantial decline is expected to be met in the future. Demographic modelling (PVA) shows a very high likelihood of population decline to 1980 levels (> 50 per cent of present levels) within 50 years because of climate change.

Threatening processes

Future population reduction is projected for the NT *A. peuce* population because of climate change. Population viability modeling (PVA) shows that the risk of negative population growth is foremost related to an expected substantial reduction in the frequency of seedling recruitment events under both moderate and major climate change scenarios (S. Raghu et al. in prep.).

Fire is a plausible threat to *Acacia peuce*, because the species lacks a persistent seed bank and it does not resprout (Nano et al. in prep. ab). A recent visit to the site (December 2010) confirmed that surrounding ground fuel loads were high and continuous. This population therefore periodically experiences a high fire risk. Site remoteness means that wildfire may go unattended. Stocking rates are highly variable at the site and grazing therefore cannot be relied on as a fire management strategy. One stand was burnt during the late 1970's and it has not recovered.

Past cattle browsing has had a strong negative effect on the demography of *A. peuce*, particularly in relation to sapling growth and seedling establishment phases (Nano et al. in prep. a,b). All NT stands are presently protected from cattle by fencing. However, the fencing arrangement is non-binding and is therefore dependent on the ongoing good-will of the leaseholder. A resumption of cattle exposure would pose a threat to this species.

Other agents of adult mortality, lightning strike, past wood harvesting, cattle and parrot damage, have not strongly affected the demography of the NT population.

Conservation objectives and management

The long-term persistence of *A. peuce* in the NT hinges on maintaining the presently high survival rates of adult and sapling stages, and on minimizing anthropogenic disturbance during rare recruitment phases. This will require continuation of the fencing agreement with the Andado landholder and the development of fuel reduction methods that do not result in seedling loss if the population is recruiting.

A national recovery plan for threatened arid Acacias has been prepared by the Territory Government, together with other state agencies (Nano *et al.* 2007). The plan covers *Acacia peuce*. Actions 3 and 8 of the plan have been implemented for the NT population (Nano *et al.* 2008). A monitoring programme has been established to quantify population and threat-level trends. Indigenous ecological knowledge of this species has been documented. *A. peuce* is extremely important to Lower Arrernte people, and their involvement in the conservation of this species should be facilitated.

Complied by

Catherine Nano

Chris Pavey

Tony Bowland

Raelee Kerrigan

[updated December 2012]

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