

# THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

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The Minister's delegate approved this Conservation Advice on 01/04/2016.

## Conservation Advice

### *Acacia splendens*

splendid wattle

#### Conservation Status

*Acacia splendens* (splendid wattle) is listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The splendid wattle is eligible for listing as prior to the commencement of the EPBC Act, it was listed as Endangered under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth).

The main factors that are the cause of the splendid wattle being eligible for listing in the Endangered category are its low number of mature individuals, restricted extent of occurrence and area of occupancy and small population size (CALM 2004).

#### Description

The splendid wattle is a tall, spindly shrub to 4 m, or rarely a tree to 8 m, with one to four stems arising at ground level. These plants often spread by root suckers. The main stems have smooth light grey bark with a white bloom at first, which becomes rough and dark grey with age. Upper branches can be similar or smooth, and branchlets are thick and slightly angled. The phyllodes are bluish-green and are highly variable in size, shape and curvature, having juvenile, adolescent and adult forms. Juvenile phyllodes are a broad egg-shape, to 9 cm long and 6 cm wide, with a whitish bloom. Adult phyllodes are longer and narrower, to 12 cm long and 3 cm wide. The showy golden densely flowered heads are oblong to globular, up to 12 mm in diameter and are held towards the ends of branchlets. The purple-brown pods are flat but gently rounded over seeds, up to 11 cm long and 8-12 mm wide (Maslin & Elliott 2006).

This species is closely related to *Acacia microbotrya* (Manna wattle) and *Acacia daphnifolia*, from which it differs in its pruinose branchlets and pods (the trunks are also smooth and white-pruinose, at least on young plants), more numerous flowers per head, broader phyllodes (especially the juvenile ones) and narrowly oblong pods. It is further distinguished from *A. microbotrya* by its golden-coloured heads and from *A. daphnifolia* by its smaller seeds (Maslin & Elliott 2006).

#### Distribution

The splendid wattle is currently known from two populations about 60 km apart in the Dandaragan to Mogumber areas of Western Australia. Population 1 is the largest comprising an estimated 900 plants in 2003, and occurs on a road reserve and adjoining private property (CALM 2004). Population 2 also occurs on private property, and consists of less than twenty plants in 1992. There is also a record of a herbarium specimen collected in 1985 from a nature reserve. The existence of the plant is uncertain, as it hasn't been relocated since 1985 (CALM 2004).

At Population 1, the splendid wattle grows in brown gravelly loam on the slopes of a lateritic breakaway, and on the adjoining colluvial slope and alluvial flat below the breakaway. On the lateritic slopes of Population 1, the splendid wattle occurs in a low woodland of *Corymbia calophylla* (Marree) over low scrub with *Xanthorrhoea preissii* (grass tree), *Hakea lissocarpha* (honey bush) and *Hypocalymma angustifolium* (white myrtle). The native understorey in the habitat of Population 1 that contains the majority of plants is practically non-existent. A virtual monoculture of the splendid wattle exists with occasional *Eucalyptus loxophleba* (York gum) trees and prolific weeds. Population 2 occurs on private property along a creekline. The

herbarium specimen, which is recorded as occurring in a nature reserve, growing with, *Eucalyptus tottiana* (Blackbutt) and *Eucalyptus leptophylla* (narrow-leaf red mallee) over low heath on deep sand. This splendid wattle occurs near a creekline at Population 2.

### Relevant Biology/Ecology

The splendid wattle is morphologically highly variable, and is similar to *A. microbotrya* and *A. daphnifolia*. Like both of those species, the splendid wattle is capable of root suckering. This, combined with its prolific seed production (Prescott 1999), means the species is able to regenerate well after fire provided there is a suitable length of time between burns.

In 1999, Prescott observed that the insects he caught on inflorescences at Population 1 were relatively numerous and diverse, and suggests that the insect community visiting the splendid wattle is possibly more intact than those that occur in close association with wheat farms, with their relatively high input of chemicals (Prescott 1999). Population 1 is surrounded by relatively large areas of native bush and cattle pasture. Prescott found that house (family muscidae) and hover (family syrphidea) flies were eating pollen from the surface of inflorescences and were thought to be strong candidates as generalist pollinators. The honey bees (*Apis* sp.) were aggressive and rapid gatherers of pollen that often circled around many neighbouring inflorescences as they foraged (Prescott 1999).

Observations suggest that a moderately intense fire burnt much of Population 1 sometime in the 1990s. Prescott suggests that many of the individuals growing on this property are therefore likely to be the result of post-fire regeneration. In December 1999 many dead plants were reported from Population 1, possibly attributable to senescence. However, there were estimated to be 130 juveniles and 120 remaining adults at that time.

In 2000, Population 1 was calculated to occupy 11.6 ha of a 110.9 ha area of the remnant vegetation (Elliott 2000). In 2000 it was estimated that 25 000 reproductive plants occurred in that population (Elliott 2000). Some of these plants occurred on a wide area of road reserve in reasonable quality habitat, while the majority occurred on private land which has been severely degraded by past grazing. Weeds were extensive, and associated native species had been almost completely removed.

### Threats

Individuals of the splendid wattle are threatened by degraded habitat, inappropriate fire regimes, vehicle traffic, grazing and trampling, and weed invasion. While the species as a whole is threatened by the lack of recruitment of new individuals and the restricted range of populations (CALM, 2004).

Table 1: Threats impacting the splendid wattle.

Threat factor	Threat type	Threat status	Evidence base
Degraded habitat	known	current	Degraded habitat represents a threat to Population 1. The native understorey species, which would provide habitat for pollinators, have been almost completely replaced by weeds (CALM 2004).
Weed invasion and competition	known	current	Weed invasion and competition is intense in Population 1. Weeds suppress plant growth and recruitment by competing for soil moisture, nutrients and light. They also exacerbate grazing pressure and increase the fire hazard due to the easy ignition of high fuel loads, which are produced annually by many grass weed species (CALM 2004).
Grazing	known	past	Grazing by kangaroos ( <i>Macropus</i> sp.) and possibly by cattle is a threat to Population 1. Grazing has left some adult plants stunted, and with minimal foliage. The large area of remnant

			vegetation (ca. 111 ha) is thought to support a resident population of kangaroos, and certainly provides habitat for kangaroos to move through. Generally stock are excluded from this area, but it provides good shelter, particularly after the three dry years experienced in 2001-2004. In addition to the impact on the splendid wattle, ongoing grazing would also interfere with efforts to rehabilitate the habitat at that site.
Fire track and fire break maintenance	known	current	Fire track and fire break maintenance threatens both populations. Threats include clearance, grading, chemical spraying, construction of drainage channels and the mowing of roadside vegetation. Several of these actions also encourage weed invasion (CALM 2004).
Fire frequency	known	current	Too frequent fires may affect the viability of populations. It is likely that occasional fire is beneficial for the reproduction of this species, as seeds of the splendid wattle germinate following fire. However, fire may deplete the soil seed bank and the reserves of adult plants (which regenerate from rootstock), if it recurs before plants can grow to maturity and set new seed. An additional consideration is the role of frequent fire in causing further degradation of the surrounding habitat (CALM 2004).

## **Conservation Actions**

### **Conservation and Management priorities**

Habitat degradation by weed invasion and maintenance of Fire track and Fire breaks

- Implementation of weed control in consultation with land managers. Application of herbicide during the appropriate season to minimise the effect of herbicide on the splendid wattle and the surrounding native vegetation. All applications of weed control to be followed by a report on the method, timing and success of the treatment against weeds, and the effect on the splendid wattle and any associated native plant species to evaluate effectiveness of weed control.
- Ensure that land managers are aware of the known locations of the splendid wattle when conducting fire track maintenance and ensure that activities such as grading, chemical spraying do not effect known populations or encourage weed growth.

Fire

- The splendid wattle is impacted by fire by being a post-fire resprouter, that is the species benefits from fire and is required for germination. Implement fire management regime for protecting key habitat includes ensuring buffers to prevent wildfire or managed fire from impacting the habitat unless prescribed fire is being used following sound scientific evidence of the critical need for such a prescribed fire.
- Critically, any use of prescribed or experimental fires must be very well justified, and is typically an action of last resort. It must have a carefully planned weed management strategy and demonstrated funding to ensure post-fire monitoring and control actions occur (eg weed control based on sound scientific evidence).
- Ensure that prescribed burns do not occur during the flowering period May to June. Noting that late autumn, winter and spring ignitions will have a highly detrimental effect upon the long-term viability and sustainability of the splendid wattle and is likely to have a deleterious impact on other native species that provide the natural community context for the splendid wattle.
- Provide maps of known occurrences to local and state Rural Fire Services and seek inclusion of mitigation measures in bush fire risk management plans, risk register and/or operation maps.

## Stakeholder Engagement

- Liaise with relevant land managers and landowners to ensure that populations are not accidentally damaged or destroyed through fire break and track maintenance, grazing and weed invasion.
- Identify and seek input from any Indigenous groups that have an active interest in areas that are habitat for the splendid wattle.
- Promote awareness of the importance of biodiversity conservation and the need for the long-term protection of wild populations of this species through community engagement.
- Develop formal links with local naturalist groups and interested individuals to aid in monitoring of the species.
- Develop information sheets that include a description of the plant, its habitat, threats conservation actions and photos to aid in awareness of the splendid wattle especially as it known to occur on roadside verges.

## Survey and Monitoring priorities

- Survey the known locations of the splendid wattle and maintain a map of known occurrences, sites and suitable and potential habitat to more precisely assess the population size, ecological requirements and the relative impacts of threatening processes (CALM, 2004).
- Monitoring of post fire regeneration including, plant size and reproductive data (flower and fruit timing and abundance) for known populations (CALM, 2004).
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.

## Information and research priorities

- Undertake survey work in suitable habitat and potential habitat to locate any additional populations of the splendid wattle and develop species distribution models for the splendid wattles' geographical distributions based on the environmental conditions of sites of known occurrences (Phillips et al., 2006).
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment.

## References cited in the advice

- CALM (2004) Interim Recovery Plan No. 188, Splendid Wattle (*Acacia splendens*) Interim Recovery Plan 2004-2009. Department of Conservation and Land Management, Perth, Western Australia.
- Elliott, C. (2000) Genetic Relationships and Population Biology of *Acacia splendens* ms.Honours Dissertation (Conservation Biology). Murdoch University, Western Australia.
- Phillips, S. J., Anderson, R. P., Schapire, R.E.(2006). Maximum entropy modelling of species geographic distributions. *Ecological Modelling* 190(3–4): 231-259.
- Prescott, M.N. (1999) The pollination ecology of three critically endangered *Acacia* species in the Western Australian wheatbelt. A Progress Report. Department of Conservation and Land Management, Western Australia. Maslin, B.R. and Elliott, C.P. (2006) *Acacia splendens* (Leguminosae: Mimosoideae), a new, rare species from near Dandaragan, Western Australia. *Nuytsia* 16 (1):81-86.