

Advice to the Minister for the Environment, Heritage and the Arts from the Threatened Species Scientific Committee (the Committee) on Amendments to the list of Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

1. Scientific name (common name)

Banksia pseudoplumosa (a shrub)

2. Description

Banksia pseudoplumosa is a non-lignotuberous shrub, growing to 1.8 m in height in gravelly soils. The flowering period is from November to December (CALM, 2006). This species occurs in woodland over heath on flat to slightly sloping topography in orange gravelly clay loam over laterite. Associated species include *Eucalyptus tetragona*, *Banksia armata*, *B. seneciifolia*, *B. nervosa*, *Lambertia inermis*, *Hakea cucullata*, *Adenanthos* sp. and sedges (WA Herbarium, 2006).

3. National Context

Banksia pseudoplumosa is endemic to southwestern Western Australia and it is restricted to the region north to northeast of Albany (CALM, 2006). Seven subpopulations are known, two of which are located within the Stirling Range National Park. This species is currently listed in Western Australia under the *Wildlife Conservation Act 1950* as Declared Rare Flora.

4. How judged by the Committee in relation to the EPBC Act criteria

The Committee judges the species to be **eligible** for listing as **endangered** under the EPBC Act. The justification against the criteria is as follows:

Criterion 1. It has undergone, is suspected to have undergone or is likely to undergo in the immediate future a very severe, severe or substantial reduction in numbers

Banksia pseudoplumosa is known from seven subpopulations in the south coast region of Western Australia. The species occurs in a National Park and also in patches of remnant vegetation on road verges and private property in an area that has been cleared for agriculture. Survey efforts have recorded an increase in the number of subpopulations as well as some subpopulation sizes, mainly due to better survey effort locating more plants, rather than recruitment. However, recruitment after fire has been observed in two of the subpopulations.

Banksia pseudoplumosa is subject to a number of potential threats. The species is known to be susceptible to dieback from *Phytophthora cinnamomi* (B. Shearer, per comm.) however, the impact of this disease on the taxon is difficult to determine. The disease is known to be present in one of the subpopulations and is likely to be the reason for the decline in numbers in this subpopulation from approximately 1120 plants in 2000 to approximately 600 plants in 2002. Additionally other subpopulations are at risk of infection from *P. cinnamomi* as they occur on road verges which are subject to regular road maintenance using heavy machinery which have the potential to carry infested soil. Increased fire frequencies are also a threat to the species. Plants are killed by fire but recruitment results from a canopy-stored seed bank which germinates in response to fire. In 1996, the plants in several subpopulations were killed by wildfire in Stirling Range National Park. However, the total subpopulation size increased as a result of recruitment from the seed bank. However, if fires occur too frequently it would most likely result in a substantial reduction in the number or size of subpopulations as the juvenile plants would not have reached maturity and therefore are unable to replenish the seed bank.

A trend in population size for the whole species is difficult to determine based on survey information as some subpopulations are experiencing a decline due to *Phytophthora*, whilst others are increasing in size due to recovery after fire or as a result of survey efforts locating more individuals.

Due to a lack of historical survey information there are no quantitative data available to indicate trends in the population size of the species, nor any current information on the likelihood or rate of future decline. Therefore, there are insufficient data available to assess the species against this criterion.

Criterion 2. Its geographic distribution is precarious for the survival of the species and is very restricted, restricted or limited

The Committee considers that the geographic distribution of this species is restricted, being known from seven subpopulations in the south coast region of Western Australia. The species occurs naturally on a limited number of laterite ridges within the region. The distance between these subpopulations is approximately 65 km. The extent of occurrence of the species is estimated to be approximately 600 km² and the area of occupancy is estimated at approximately 0.15 km² (CALM, 2006).

There are no data available to indicate past decline in extent of occurrence of this species. One subpopulation is infected by *Phytophthora cinnamomi*. Three more subpopulations are currently free of the disease but may be infected in the future. It is likely that there will be a decline in the species' extent of occurrence in the future.

As a result of the restricted distribution, the fragmented nature of the known subpopulations and the potential threats of *Phytophthora cinnamomi* and inappropriate fire regimes, the geographic distribution of this species is precarious for its survival. Therefore, the species is **eligible** for listing as **endangered** under this criterion.

Criterion 3. The estimated total number of mature individuals is limited to a particular degree and:

(a) evidence suggests that the number will continue to decline at a particular rate; or

(b) the number is likely to continue to decline and its geographic distribution is precarious for its survival

The total population of *B. pseudoplumosa* is estimated as 3400 plants. Any trend in population size for the species is difficult to determine based on survey information as some subpopulations are experiencing a decline due to dieback from *Phytophthora cinnamomi*, whilst others are increasing in size due to recovery after fire or survey efforts locating more individuals. During the survey in 2000, a subpopulation in the Stirling Range National Park showed evidence of recruitment from the soil seed bank after a recent fire. This same site has since shown a decline in subpopulation numbers due to the presence of *Phytophthora cinnamomi* (CALM, 2006).

The age at reproductive maturity for *B. pseudoplumosa* is estimated to be six years. Plants are killed by fire but recruitment results from a canopy-stored seed bank (CALM, 2006). It is difficult to determine whether fluctuations in the population size are indicative of longer term trends or simply reflect natural fluctuations. Despite this uncertainty, the total number of mature individuals is limited and its geographic distribution is precarious for its survival in the light of potential threats. Therefore the species is **eligible** for listing as **vulnerable** under this criterion.

Criterion 4. The estimated total number of mature individuals is extremely low, very low or low

The population of *B. pseudoplumosa* has been estimated as 3400. The estimated total number of mature individuals is not low, therefore the species is **not eligible** for listing under this criterion.

Criterion 5. Probability of extinction in the wild

There are insufficient data available to assess the species against this criterion.

5. CONCLUSION

Banksia pseudoplumosa is known to occur as seven subpopulations in the south coast region of Western Australia. The species has an estimated extent of occurrence of 600 km² and an estimated area of occupancy of 0.15 km². The total population is estimated as 3400 plants.

The main threats to the subpopulations of *B. pseudoplumosa* are the impact of *Phytophthora cinnamomi* and an inappropriate fire regime. The extent of these impacts is difficult to assess as subpopulations are small, fragmented and long-term survey information is not available. As a result of its restricted geographic distribution and ongoing threats the species is **eligible** for listing as **endangered** under criterion 2 and **vulnerable** under criterion 3.

Recovery Plan

The Committee considers that there should be a recovery plan for this species. Specific management actions are needed to address the threats to *Banksia pseudoplumosa*. This includes possible translocations to establish new populations in areas free from dieback caused by *Phytophthora cinnamomi*. A recovery plan is considered necessary to implement and manage these actions.

6. Recommendation

- (i) The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **including** in the list in the **endangered** category:

***Banksia pseudoplumosa* (a shrub)**

- (ii) The Committee recommends that there be a recovery plan for this species.

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Chair
Threatened Species Scientific Committee

References cited in the advice

Brian Shearer (personal communication) (2006). Research Officer. Department of Conservation and Land Management.

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Western Australian Herbarium (2006). *FloraBase – The Western Australian Flora*. Department of Conservation and Land Management. <http://florabase.calm.wa.gov.au/>