

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

1. Scientific name (common name)

Beyeria lepidopetala (Small-petalled Beyeria)

2. Reason for Conservation Assessment by the Committee

This advice follows assessment of information gathered through the Commonwealth's Species Information Partnership with Western Australia, which is aimed at systematically reviewing species that are inconsistently listed under the EPBC Act and relevant state legislation/lists.

Small-petalled Beyeria is listed as vulnerable under the Western Australian *Wildlife Conservation Act 1950*. It was originally listed as **endangered** under the EPBC Act's predecessor, the *Endangered Species Protection Act 1992*, and its endangered status was retained when the EPBC Act came into force.

The Committee therefore provides the following assessment of the appropriateness of retaining the species in the **endangered** category in the EPBC Act list of threatened species.

This is the Committee's first consideration of the species under the EPBC Act.

3. Summary of Conclusion

The Committee judges that the species has been demonstrated to have met sufficient elements of Criterion 4 to make it **eligible** for listing as **endangered**.

The highest category for which the species is eligible to be listed is **endangered**.

4. Taxonomy

The species is conventionally accepted as *Beyeria lepidopetala* (Small-petalled Beyeria) (Mueller, 1859).

5. Description

Small-petalled Beyeria is an erect, open shrub, ranging from 0.25–1.7 m in height, with separate male and female flowers. The flowers are green and the flowering period is from July to August. The fruit is a three-celled oval capsule which contains three seeds and is approximately 6 mm long (Patrick, 2001).

6. National Context

Small-petalled Beyeria is endemic to Western Australia where it is known from three specific populations in the Kalbarri–Murchison area, approximately 600 km north of Perth. One population is recorded from within Kalbarri National Park, the remaining two populations occur in a private conservation reserve.

Small-petalled Beyeria is currently listed as **endangered** under the EPBC Act and as vulnerable under the Western Australian *Wildlife Conservation Act 1950*.

7. Relevant Biology/Ecology

Small-petalled *Beyeria* has been found growing in varied habitats such as yellow sandy clay in a gully in low heath, in turn situated in an area of open mallee woodland regenerating after fire, and low regenerating heath on a limestone ridge above a gully (Patrick, 2001). The most northerly population grows in shallow sand over sandstone (WA Herbarium, 2006).

The flowering period for this species is July to August (WA Herbarium, 2006). Little is known about the levels of flower and fruit production of this species. However, its floral structure suggests that it is insect pollinated. There are no data on seed viability.

While fire and changed fire regimes are considered a potential threat to Small-petalled *Beyeria*, it is considered likely that occasional fires are needed for recruitment, as this species regenerates after fire (Patrick, 2001). Brown et al. (1998) consider it is probably a relatively short-lived disturbance opportunist, appearing after a fire and then declining in number over the next few years. *Beyeria* species as a group are characteristically fire/disturbance responsive and decline in the absence of suitable disturbance. As fire regimes in particular have changed since European settlement of the area, the occurrence of this species has been affected due to the change in fire frequency and intensity.

8. Description of Threats

Track and firebreak maintenance

As Small-petalled *Beyeria* occurs on tracks and firebreaks, it is potentially susceptible to accidental damage from maintenance activities such as grading and widening. Track and firebreak maintenance is ongoing within the National Park and conservation reserves where Small-petalled *Beyeria* occurs. This maintenance will impact on the species, however the level of impact is being managed through a Western Australian government process, with approval and a permit required to “take” (damage or destroy) Declared Rare Flora.

Inappropriate fire regimes

Inappropriate fire regimes may potentially threaten the species, as seeds of Small-petalled *Beyeria* probably germinate following fire. Under an inappropriate fire regime, the soil seed bank is likely to be depleted by recurrent fires before regenerating plants have reached maturity and have replenished the soil seed bank (CALM, 2006b). However, occasional fires are almost certainly needed for recruitment of this species (Brown et al., 1998; Patrick, 2001).

9. Public Consultation

For SIPs species, the Department will undertake public consultation on the Committee’s behalf. If no comments are received, the Department will submit the Committee’s listing advice to the Minister. If comments are received, the Department will submit those along with revised listing advice to the Committee. Appropriate text from the following options will be used in the final listing advice

The information used in this assessment was made available for public exhibition and comment for 30 business days. No comments were received.

10. How judged by the Committee in relation to the criteria of the EPBC Act and Regulations

The Committee judges that the species is **eligible** for listing as **endangered** under the EPBC Act. The assessment 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

The first recorded population of Small-petalled *Beyeria* was discovered in 1994 in Kalbarri National Park and recorded as 'locally common'. Subsequent surveys in 1995, 1996, 1998 and 2003 by CALM (Western Australian Department of Conservation and Land Management; now Department of Environment and Conservation (DEC)) failed to locate the species at this site. However, while the generation length of the species is unknown, it is suspected that it may be a relatively short-lived disturbance opportunist and may naturally experience large population fluctuations. These traits have been observed in other *Beyeria* species. Two subsequent populations were discovered in a private conservation reserve in 2004, in effect providing a net increase in total population numbers. In 2005 there were a total of 220 mature individuals in these two populations. Due to the increase in known populations, and a lack of knowledge on population fluctuations and ecology in Small-petalled *Beyeria*, the Committee considers that the species has not been demonstrated to have met any of the elements of Criterion 1, and is therefore **not eligible** for listing in any category under this criterion.

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

The extent of occurrence for Small-petalled *Beyeria* has been estimated to be 95 km² (CALM, 2006a), which is considered to be a restricted geographic distribution. The two extant populations of the species are 55 km apart, and may be subject to potential threats of track and firebreak maintenance and inappropriate fire regimes. However, these potential threats are poorly understood and may be compensated for by the species' ability to opportunistically exploit disturbance events, and therefore its geographic distribution is not considered precarious for the survival of the species. Therefore, the species has not been demonstrated to have met sufficient elements of Criterion 2, and is therefore **not eligible** for listing in any category under this criterion.

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

- (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 original Kalbarri National Park population of Small-petalled *Beyeria* has yielded no specimens subsequent to its discovery in 1994. The two populations discovered in 2004 contained a total of 220 mature individuals when surveyed in 2005. The Committee considers this total number of mature individuals is low. However, potential threats to the species are poorly understood and may be compensated for by the species' ability to opportunistically exploit disturbance events. There is insufficient evidence to suggest that the number will decline. As discussed under Criterion 2, the species' geographic distribution is not considered to be precarious for its survival. Therefore, the species has not been demonstrated to have met sufficient elements of Criterion 3, and is therefore **not eligible** for listing in any category under this criterion.

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

The total number of mature individuals contained in the two extant populations surveyed in 2005 was 220. The Committee considers that this total number of mature individuals is very low for the purposes of Criterion 4. However, it is suspected that this species may experience large population fluctuations, which have been observed in other *Beyeria* species. Considering these likely ecological attributes, the Committee judges that the species has been demonstrated to have met sufficient elements of Criterion 4 to make it **eligible** for listing as **endangered**.

Criterion 5: Probability of extinction in the wild that is at least:

- a) **50% in the immediate future; or**
- b) **20% in the near future; or**
- c) **10% in the medium-term future.**

No quantitative (statistical) analyses have been carried out to estimate a probability of extinction of the species in the wild over a relevant timeframe. Therefore, as the species has not been demonstrated to have met the required elements of Criterion 5, it is **not eligible** for listing in any category under this criterion.

11. CONCLUSION

Conservation Status

This advice follows assessment of information gathered through the Commonwealth's Species Information Partnership with Western Australia, which is aimed at systematically reviewing species that are inconsistently listed under the EPBC Act and relevant state legislation.

The Committee accepts that the potential threats to Small-petalled *Beyeria* are poorly understood and may be compensated for by the species' ability to opportunistically exploit disturbance events, as has been observed in other *Beyeria* species. The Committee judges the total number of 220 mature individual plants is very low for a shrub surviving in two disjunct populations. Therefore, the species has been demonstrated to have met sufficient elements of Criterion 4 to make it **eligible** for listing as **endangered**.

The highest category for which the species is eligible to be listed is **endangered**.

Recovery Plan

The Minister has decided that there should be a Recovery Plan for this species. A recovery plan for the Small-petalled *Beyeria* is in preparation. The Committee recommends no change to the Minister's initial recovery plan decision.

12. Recommendations

- (i) The Committee recommends that the list referred to in section 178 of the EPBC Act **should not** be amended by transferring from the **endangered** category to any other category the following species:

***Beyeria lepidopetala* (Small-petalled *Beyeria*)**

- (ii) The Committee recommends no change to the Minister's initial recovery plan decision (to have a recovery plan for the species).

Associate Professor Robert J.S. Beeton

Chair

Threatened Species Scientific Committee

13. References cited in the advice

Brown A, Marchant N and Thomson-Dans C (1998). Western Australia's Threatened Flora. Western Australian Department of Conservation and Land Management.

CALM (2006a). Records held in CALM's Declared Flora Database and rare flora files. Western Australian Department of Conservation and Land Management.

CALM (2006b). Unpublished draft. Short petalled *Beyeria* (*Beyeria lepidopetala*) Interim Recovery Plan 2006–2011. Western Australian Department of Conservation and Land Management.

Mueller F (1859). *Fragmenta Phytographiae Australiae* 1: 230

Patrick S (2001). Declared Rare and Poorly Known Flora in the Geraldton District. Wildlife Management Program No. 26. Western Australian Department of Conservation and Land Management.

Western Australian Herbarium (2006). FloraBase – The Western Australian Flora. Western Australian Department of Conservation and Land Management.
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