

**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)**

*Commersonia rosea* (a shrub)

**2. Reason for Conservation Assessment by the Committee**

This advice follows assessment of information provided by a public nomination to list the *Commersonia rosea*.

This is the Committee's second 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 2 to make it **eligible** for listing as **endangered**.

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

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

**4. Taxonomy**

The species is conventionally accepted as *Commersonia rosea*. The species was described as a new species in 2004 (Bell and Copeland 2004).

**5. Description**

*Commersonia rosea* is a perennial prostrate shrub in the family Sterculiaceae which grows from 0.1 to 0.3 m high. The plant has trailing branches up to 60 cm long. The younger branches and leaves are hairy and the plant produces pink flowers with five petals.

**6. National Context**

*Commersonia rosea* is currently known from a restricted area in the upper Hunter Valley, New South Wales. Before 2004 the species was known only from four populations in the vicinity of Sandy Hollow. Two new populations were located, one at [REDACTED], near Denham, in 2004 and the other within the Goulburn River National Park in 2006. The species is endemic to New South Wales and its current geographic distribution falls within the Hunter-Central Rivers Catchment Management Authority. The first four populations discovered (Pikes Gap, Giants Creek, Peberdys Road and Boodles Creek) are located within an eight kilometre radius of Sandy Hollow. The [REDACTED] population lies several kilometres to the south-east of Sandy Hollow but the latest discovery, the population within the Goulburn River National Park, is located approximately 80 km to the west.

The total population size for *Commersonia rosea* was originally estimated to be less than 200 individuals. A recent revision, however, based on additional survey work at the [REDACTED] site (10 plants) and at Goulburn River National Park (50–100 plants) has increased the total population estimate to about 300 individuals (L. Copeland 2006, pers. comm.). No information is available referencing the number of mature or juvenile individuals.

The extent of occurrence of this species is estimated in the nomination to be less than 100 km<sup>2</sup> and the area of occupancy less than 10 km<sup>2</sup>. This figure can be considered to be an underestimate in the light of the subsequent discovery of populations at [REDACTED] and Goulburn River National Park. The extent of occurrence and area of occupancy would, however, be classified as restricted and the population is severely fragmented.

*Commersonia rosea* was gazetted as endangered under the NSW *Threatened Species Conservation Act 1995* on 12 November 2002.

## **7. Relevant Biology/Ecology**

*Commersonia rosea* occurs on skeletal soils in scrub or heath vegetation with occasional emergents of *Eucalyptus crebra*, *Callitris endlicheri* or *Eucalyptus caleyi* subsp. *caleyi*. The species appears to rely on a suitable fire regime for it to germinate and produce flowers and seed. (S. Bell 2006, pers. comm.) and has thus been called a fire-ephemeral. The species has been observed flowering in August, November, January and February (NSW Scientific Committee 2004). As a fire-ephemeral species it exhibits naturally high fluctuations in population numbers. Recruitment may depend on the existence of a soil seed bank. Further research on the ecology of this species is required to determine plant longevity, seed longevity and the frequency and intensity of fire required to ensure recruitment.

## **8. Description of Threats**

The restricted geographic distribution and low population numbers of *Commersonia rosea* predispose the species to a number of threats including vegetation clearance, inappropriate fire regimes, changes to land use, disturbance associated with road/track maintenance, stock grazing/trampling and prolonged drought. Impacts associated with a proposed open cut coal mine pose potential threats to the species in the form of native vegetation clearance, pollution and altered hydrology.

## **9. Public Consultation**

The nomination was made available for public exhibition and comment for five months. The Committee has had regard to all public comment that was relevant to the survival of the species.

## **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**

Although the total population of *Commersonia rosea* lies in the low to very low range the species undergoes extreme fluctuations in numbers due to the relationship of its breeding biology to fire. Spontaneous germination takes place after suitable fire conditions and, in some cases, quite large populations have been recorded. The plants appear to be short-lived (two to three years) with flowering, followed by seed dispersal, contributing to the soil seed bank. Based on this life history it is difficult to determine actual population changes and no data are available to quantify whether there has been a reduction in numbers. Such determinations could only be made after repeated surveys of the populations after fire events and the development of techniques to establish seed viability and measure the presence of viable seed in the soil seed bank.

The species is suspected to have undergone a reduction in numbers, however, there are insufficient data available to judge whether the reduction would be very severe, severe or substantial. Therefore, the species is 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 geographical distribution of *Commersonia rosea* is restricted. As five populations are located within a radius of 10 km of Sandy Hollow, and a sixth population is located about 80 km to the west of Sandy Hollow the extent of occurrence for this species is restricted (about 2 000 km<sup>2</sup> using the convex polygon method). The area of occupancy is restricted (see Section 6).

Surveys conducted within the past two years have failed to locate living plants at three locations — Peberbys Road, Pikes Gap and Goulburn River National Park (L. Copeland 2006, pers. comm.). The prolonged drought over the last two years is likely to have caused the demise of mature plants (about 250 mature plants at the Peberdys Road site and 50–100 plants at the Goulburn River National Park site). Nevertheless the species is believed to undergo extreme fluctuations in population size in response to fire. The survival of the species appears to be dependent on fire of the appropriate intensity and frequency to ensure maintenance of a viable soil seed bank.

It would appear that low population numbers and the limited number of populations, as well as fragmentation of the geographical distribution, are precarious for this species. Precariousness may lie in the apparent dependence of this species on fire for the generation of recruits to the population and, ultimately, to replenish the soil seed bank. The impact of fire at inappropriate intervals on immature plants may cause local population extinctions through lack of contribution to the soil seed bank.

The Committee considers that the species has a restricted geographic distribution, which is precarious for the survival of the species due to potential threat of inappropriate fire regimes, possibly compounded by the impacts of prolonged drought, vehicular traffic and stock grazing and trampling. Therefore, the species has been demonstrated to have met the relevant elements of Criterion 2 to make it **eligible** for listing as **endangered**.

- 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**

Although the estimated total number of individuals is low (approximately 300 individuals (L.Copeland 2006, pers.comm.)) and the geographical distribution is precarious for the survival of the species there is no quantified evidence to determine rate of decline. Therefore, as the species has not been demonstrated to have met the required elements of Criterion 3, it is 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 population estimate of live plants for *Commersonia rosea* in 2006 was approximately 300 individuals at four locations (L.Copeland 2006, pers.comm.). No indication has been given whether these individuals are mature or immature. Earlier population estimates indicated an additional 300–350 live plants at another two locations. Although the total number of live plants varies with fire history, including time since the last burn, the Committee considers the total number of mature plants is likely to be low. Therefore the species has been demonstrated to have met the required element of Criterion 4 to make it **eligible** for listing as **vulnerable**.

- 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.**

There are no data available to estimate 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

*Commersonia rosea* is a species in the family Sterculaceae. As a fire-adapted species there are indications of extreme fluctuations in the number of individuals. The recorded total population estimates have always been <1000 individuals. The species has a restricted geographical distribution. The species exists as six populations, five of which are located within a 10 km radius of Sandy Hollow in the upper Hunter Valley. The five unreserved populations are currently exposed to a range of potential threats to the species' existence. It is believed that the restricted geographical distribution and low population numbers for *Commersonia rosea* are precarious for the survival of the species.

The Committee accepts that this species has a restricted distribution and that this distribution is precarious for the survival of the species. Therefore, the species has been demonstrated to have met sufficient elements of Criterion 2 to make it **eligible** for listing as **endangered**.

The Committee also considers that the species has been demonstrated to meet the required element of Criterion 4 to make it **eligible** for listing as **vulnerable**.

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

## 12. Recommendation

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:

*Commersonia rosea* (a shrub)

## Key references used to assess the nomination

Bell, S. A. J. & Copeland, L. M. (2004) *Commersonia rosea* (Malvaceae sp. l.: Lasiopetaleae): a new, rare fire-ephemeral species from the upper Hunter Valley of New South Wales. *Telopea* **10**: 581–587.

Copeland, L. M. (University of New England). Personal communication. 13 November 2006.

NSW Scientific Committee (2004) *Commersonia rosea* — Endangered Species Listing, Final Determination.

Peake, T. (Umwelt (Australia) Pty Ltd). Personal communication. 10 November 2006.