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. Name

Gastrolobium luteifolium.

The species is commonly known as Yellow-leafed Gastrolobium. It is in the Family Fabaceae.

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 the Western Australian *Wildlife Conservation Act 1950*.

The Yellow-leafed Gastrolobium is listed as declared rare flora under the Western Australian *Wildlife Conservation Act 1950*, and is managed as critically endangered (according to IUCN criteria) by the Western Australian Government. The Committee provides the following assessment of the appropriateness of the species' inclusion 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 2 to make it **eligible** for listing as **critically endangered**.

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

4. Taxonomy

The species is conventionally accepted as *Gastrolobium luteifolium* (Chandler et al., 2002).

Gastrolobium luteifolium was described by Domin in 1923 as *Nemcia luteifolia* (Domin, 1923). In 2002, Chandler and colleagues synonymised *Nemcia* under *Gastrolobium* and as a result changed *Nemcia luteifolia* to *Gastrolobium luteifolium*.

5. Description

The Yellow-leafed Gastrolobium is a tall erect shrub that can grow to 2 m high (Western Australian Herbarium, 2006). The flowers are red, and the flowering period is from September to November (DEC, 2006). The flowers tend to hang down, allowing pollination by honeyeaters, which perch on the stem and probe the flowers for nectar. Seeds of the Yellow-leafed Gastrolobium germinate following fire, and occasional fire is needed for recruitment (DEC, 2006).

The Yellow-leafed Gastrolobium is closely related to *G. vestitum*, but differs in having undulate leaf margins (strongly recurved in *G. vestitum*), midrib of leaves becoming hairless (glabrous) (always with long soft hairs (villous) in *G. vestitum*), and generally larger flowers (Chandler et al., 2002).

6. National Context

The Yellow-leafed Gastrolobium is endemic to Western Australia, and is known from one population within the Stirling Range National Park, approximately 70 km north-north-east of Albany. The extent of occurrence of the species and its area of occupancy are each estimated to be less than 1 km^2 (DEC, 2006).

The species occurs within the Esperance Plains IBRA Bioregions and the South Coast Natural Resource Management region.

7. Relevant Biology/Ecology

The Yellow-leafed Gastrolobium grows in skeletal sandy clay loam soils in shrubland on a mountain slope and summit in the Stirling Range National Park (DEC, 2006; Western Australian Herbarium, 2006).

8. Description of Threats

The main identified threats to the Yellow-leafed Gastrolobium are dieback caused by *Phytophthora cinnamomi* and inappropriate fire regimes (DEC, 2006).

The Yellow-leafed Gastrolobium is known to be susceptible to dieback caused by the root-rot fungus *Phytophthora cinnamomi*. The fungus causes the roots of susceptible plants to rot, and the pathogen has been isolated from dead Yellow-leafed Gastrolobium specimens sampled in 2000 (DEC, 2006).

Inappropriate fire regimes may affect the long-term viability of the Yellow-leafed Gastrolobium. Frequent fire would most likely destroy the population if it occurs before regenerating or juvenile plants reach maturity, produce seed and replenish the soil seed bank. However, occasional or infrequent fires are needed for recruitment, as the species has hard-coated seeds that germinate following fire (DEC, 2006).

9. Public Consultation

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 **critically 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 population size of the Yellow-leafed Gastrolobium is approximately 15 500 mature plants. This figure was calculated using actual counts from population surveys undertaken in 2003, 2005 and 2008 (DEC, 2009).

A number of current threats to the species have been identified, including dieback caused by *P. cinnamomi* and inappropriate fire regimes (DEC, 2006). However, the impact of these threats has not been quantified. The Committee considers that these threats may cause the species to decline in the future, but there are insufficient data to judge whether this decline would be at a particular rate.

There are insufficient quantitative data available to judge whether the species has undergone, is suspected to have undergone or is likely to undergo a reduction in numbers. Therefore, as the species has not been demonstrated to have met any of the elements of Criterion 1, it 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 Committee considers the Yellow-leafed Gastrolobium to have a very restricted geographic distribution. The extent of occurrence of the species is estimated to be less than 1 km^2, and the total area of occupancy is estimated to be less than 1 km^2 (DEC, 2006).

The species is known to occur at a limited location. A number of current threats to the species have been identified, including dieback caused by *P. cinnamomi* and inappropriate fire regimes (DEC, 2006). The Committee considers that these threats may cause the species to decline in the future, but there are insufficient data to judge whether this decline would be at a particular rate.

The single known population of the Yellow-leafed Gastrolobium occurs within the Stirling Range National Park. The National Park is not specifically managed for this species; however, the management plan for the Park has protecting and monitoring populations of threatened flora as one of its objectives (CALM, 1999).

The Committee considers that the Yellow-leafed Gastrolobium has a very restricted geographic distribution, which is precarious for the survival of the species due to a number of current threats. Therefore, the species has been demonstrated to have met the relevant elements of Criterion 2 to make it **eligible** for listing as **critically 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

The population size of the species is approximately 15 500 mature plants (DEC, 2009). The Committee does not consider that the estimated total number of mature individuals of the species is limited to a particular degree for the purpose of this criterion.

A number of current threats to the species have been identified, including dieback caused by *P. cinnamomi* and inappropriate fire regimes (DEC, 2006). The Committee considers that the species may decline in future due to current threats and its geographic distribution is precarious for its survival.

The Committee considers that the estimated total number of mature individuals of the species is not very low, low or limited. Therefore, as the species has not been demonstrated to have

met this required element 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 size of the Yellow-leafed Gastrolobium is approximately 15 500 mature plants (DEC, 2009). The Committee does not consider that the estimated total number of mature individuals of the species is extremely low, very low or low for the purpose of this criterion. Therefore, as the species has not been demonstrated to have met any required element of Criterion 4, it is **not eligible** for listing in any category under this criterion.

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 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 the Western Australian *Wildlife Conservation Act 1950.*

The Committee judges that the Yellow-leafed Gastrolobium has a very restricted geographic distribution, with an extent of occurrence of less than 1 km^2 and an area of occupancy that is estimated to be less than 1 km^2. This geographic distribution is precarious for the survival of the species due to a number of current threats directly impacting the species, including dieback caused by *P. cinnamomi* and inappropriate fire regimes. Therefore, the species has been demonstrated to have met sufficient elements of Criterion 2 to make it **eligible** for listing as **critically endangered.**

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

Recovery Plan

The Committee considers that there should not be a recovery plan for this species. The approved conservation advice for the species now provides sufficient direction to implement priority actions and mitigate against key threats. A recovery plan is not considered to be necessary at this time.

12. Recommendations

(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 **critically endangered** category:

Gastrolobium luteifolium

(ii) The Committee recommends that there should not be a recovery plan for this species.

Associate Professor Robert J.S. Beeton *AM FEIANZ*

Chair

Threatened Species Scientific Committee

13. References cited in the advice

CALM (1999). Stirling Range and Porongurup National Parks Management Plan 1999–2009. Western Australian Department of Environment and Conservation (formerly the Department of Conservation and Land Management), Western Australia. Viewed: 27 January 2009. Available on the Internet at: www.naturebase.net/pdf/nature/management/stirling-porongorup_nps.pdf

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