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)

Stenanthemum pimeleoides (Spreading Stenanthemum)

2. Description

Spreading Stenanthemum is a small matt-forming plant with a woody base and slender branches. It has small rounded leaves that are shining dark green above and slightly hairy underneath, and clusters of stalkless white flowers surrounded by brown bracts and two or three very conspicuous whitish 'floral leaves.'

Spreading Stenanthemum grows in dry sclerophyll forest or woodland with an open shrubby or heathy understorey (Coates 1991a & b); it usually occurs in woodlands dominated by either *Eucalyptus amygdalina* (Black Peppermint) or *Eucalyptus* sp. aff. *pulchella* (colloquially known as 'Half-barked Amygdalina'; Duncan & Brown 1985), with *Allocasuarina littoralis* (Bulloak) and *Eucalyptus viminalis* (White Gum) common co-dominants.

The species shows no particular geological fidelity, being associated with Tertiary gravels, Devonian granite, Jurassic dolerite and Quaternary sands (Coates 1991a), while topography tends to be flat to gently sloping.

3. National Context

Spreading Stenanthemum is endemic to Tasmania, occurring along Tasmania's central East Coast and also in the northern Midlands (Curtis & Morris 1975; Kirkpatrick et al. 1980; Coates 1991a & b). The species has a linear range of 97 km.

This species is listed as vulnerable under the *Tasmanian Threatened Species Protection Act 1995.*

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

The Committee judges the species to be **eligible** for listing as **vulnerable** 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

Spreading Stenanthemum occurs in 22 known extant subpopulations. The population size is estimated to be more than 24,700 mature individuals for 12 subpopulations; there are no quantitative data for the remaining 10 extant subpopulations.

Past declines in mature plant numbers may be inferred from residential and agricultural development throughout the species' range. Known losses include one entire subpopulation at Orford, and part of another subpopulation during the construction of a car park at Freycinet National Park in the 1980s (Coates 1991a). There is, however, insufficient data to quantify the level of decline in the population of the species as a whole.

Future declines in the number of mature plants are likely due to the operation of a number of threats to the species. Those subpopulations on private land (11 of the 22 known extant

subpopulations) may be subject to land clearance, overgrazing by domestic stock or inappropriate fire regimes. The often small subpopulations on public land are also at risk due to a lack of disturbance, grazing pressure from native animals, and human effects or catastrophic events. However, there is insufficient information to quantify the degree to, and rate at, which these threatening processes may reduce the number of mature individuals in the population. There are therefore 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

This species has a limited geographic distribution. Its extent of occurrence is approximately 4050 km^2, and its area of occupancy is approximately 0.32 km^2, based on quantitative estimates of the area of occupancy for 10 of the 22 extant subpopulations; there are no quantitative data for the other 12 subpopulations. However, it is likely that the overall distribution of the species is limited.

The major threats to Spreading Stenanthemum are land clearance, inappropriate fire regimes, and grazing from domestic and native animals (Coates 1991b).

Land clearing is likely to have caused an historical decline in the species' geographic distribution and continues to be a threat to the species. In particular, the five subpopulations occurring in or near areas that have been earmarked for future residential and agricultural development may be at risk in the future. In addition to the likely loss of subpopulations, clearing has also resulted in an increasingly fragmented habitat for Spreading Stenanthemum.

Inappropriate fire regimes are threatening this species. A number of subpopulations, particularly those on private land, are under a regime of frequent low-intensity burning. Coates (1991a) noted that a fire frequency of less than 15 years may eliminate Spreading Stenanthemum from a site. Frequent 'hazard reduction' burns in the Orford area are suspected to have led to the local extinction of at least some subpopulations (Coates 1991a).

In contrast, those subpopulations within formal reserves may be under threat from a lack of fire, with only 2 or 3 subpopulations within areas earmarked for ecological burns in the next decade (R. Schahinger 2005, pers. comm.).

Heavy grazing pressure from both exotic and native species is a further threat to the species. While some grazing or other disturbance may be required to maintain this species in competition with grasses (Kirkpatrick 1991), it is clear that heavy grazing by sheep and cattle is detrimental to the species (Coates 1991a & b). Those subpopulations on private agricultural land not covered by conservation covenants are liable to be affected detrimentally by inappropriate stocking levels.

Heavy grazing by native marsupials may limit the regeneration of the species for those small occurrences within Freycinet National Park and adjacent reserves (Parks & Wildlife Service 2002). One subpopulation of Spreading Stenanthemum has been almost eliminated by high levels of marsupial grazing (Kirkpatrick and Harris 1999). Grazing by native marsupials is less intense on private land due to past and ongoing culling, at least for the Northern Midlands subpopulations.

Finally, some of the subpopulations are very small, supporting 100 or fewer mature plants, which makes them vulnerable to human-induced effects or catastrophic events.

While past and future rates and degrees of decline due to the threats outlined above cannot be quantified (see criterion 1), ongoing declines in the extent of occurrence, area of occupancy, habitat, number of subpopulations and number of individuals are all likely to occur through the operation of the threats discussed above. In addition, the subpopulations of the species are highly fragmented, and occur in a highly fragmented habitat, making the species more vulnerable to threatening processes.

Although quantitative data are not available for all subpopulations, the geographic distribution of this species is limited, and is precarious for its survival given ongoing threats. Therefore, the species is **eligible** for listing as **vulnerable** 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 number of mature individuals of Spreading Stenanthemum is estimated to be more than 24,700 mature individuals for 12 of the 22 subpopulations; there are no quantitative data for the remaining 10 extant subpopulations. The total number of mature individuals of Spreading Stenanthemum is therefore not limited and the species is **not eligible** for listing under this criterion.

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

The number of mature individuals of Spreading Stenanthemum is estimated to be more than 24,700 mature individuals for 12 of the 22 subpopulations; there are no quantitative data for the remaining 10 extant subpopulations. The total number of mature individuals of Spreading Stenanthemum is therefore not low and 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

Spreading Stenanthemum occurs in 22 known extant subpopulations. The population size is estimated to be more than 24,700 mature individuals for 12 subpopulations, which is not limited, even without including the remaining 10 extant subpopulations for which there are no quantitative data. This species has a limited geographic distribution, its extent of occurrence is approximately 4050 km^2, and its area of occupancy is a minimum 0.32 km^2. While past and future rates and degrees of decline due to the threats of grazing, land clearance and fire regimes cannot be quantified, ongoing declines in the extent of occurrence, area of occupancy, habitat, number of subpopulations and number of individuals are likely to continue. In addition, the subpopulations of the species are highly fragmented, and occur in a highly fragmented habitat, making the species more vulnerable to threatening processes. The geographic distribution of this species is limited, and is precarious for its survival given ongoing threats.

The species is **eligible** for listing as **vulnerable** under criterion 2.

6. Recommendation

The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **transferring** from the **endangered** category to the **vulnerable** category, following the discovery of additional subpopulations of the species:

***Stenanthemum pimeleoides* (Spreading Stenanthemum)**

Associate Professor Robert J.S. Beeton

Chair

Threatened Species Scientific Committee

References cited in the advice

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