

**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**

*Conospermum hookeri* (Tasmanian Smoke-bush)

**2. Description**

The Tasmanian Smoke-bush is a shrub in the family Proteaceae. It grows up to two metres high and has many slender branches covered with stiff, narrow leaves (Curtis 1967; Bennett 1995). The dense flower heads occur at the ends of the branches and the individual flowers are creamy-white and tubular.

The Tasmanian Smoke-bush is found in coastal heath or shrubby woodland on granite or sandy, acidic, low nutrient soils, or amongst granite boulders. Associated eucalypts include Black Peppermint (*Eucalyptus amygdalina*) and Silver Peppermint (*E. tenuiramis*). It has an altitudinal range from near sea level to 460 metres (Curtis 1967; Threatened Species Section Tasmanian Department of Primary Industries, Water and Environment (DPIWE) 2004, 2005).

**3. National Context**

The Tasmanian Smoke-bush is endemic to Tasmania. It is known from three geographically distinct regions, with a total of 28 subpopulations currently known:

- Northern region - the Great Northern Plains to Scamander, seventeen subpopulations;
- Central East region - Freycinet Peninsula and Schouten Island, ten subpopulations; and
- Inland region - near Avoca in the Fingal Valley, one subpopulation.

The Tasmanian Smoke-bush is currently listed as a vulnerable species under the Tasmanian *Threatened Species Protection Act 1995*.

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

The TSSC 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.**

The current population size of Tasmanian Smoke-bush is estimated to be 2500-2800 mature individuals. Estimates of past population size are not available. A decline in the number of mature plants, however, can be inferred from the presumed extinction of two subpopulations at Bruny Island and Prosser River. These two subpopulations have not been sighted since their original discoveries in 1929 and 1959, respectively (Threatened Species Section, DPIWE, unpublished data 2005). The number of individual plants lost from these subpopulations is not known.

Ongoing threats to the Tasmanian Smoke-bush include: land clearance, notably clearing for residential development in the north coast subpopulations; infection by *Phytophthora cinnamomi* (Schahinger *et al.* 2003); and inappropriate fire regimes. There is a risk that these threats could cause future reduction in plant numbers. Disease and fire regime could potentially affect all subpopulations but the number of plants likely to be lost to these threats cannot be reliably estimated (Threatened Species Section, DPIWE, unpublished data 2005). Land clearance is most likely to affect those subpopulations on private land facing development pressures. About 400 plants in four of the Northern subpopulations are most at risk from land clearance (Threatened Species Section, DPIWE, unpublished data 2005). In the event that these entire subpopulations disappear, the reduction in numbers is estimated to be about 16%.

There is insufficient evidence to determine the degree to which the Tasmanian Smoke-bush has undergone a reduction in numbers. Due to the threats outlined above, the species is likely to undergo a further decline in the number of individuals in the future, however there is insufficient information to quantify this 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 geographic distribution of the Tasmanian Smoke-bush is restricted. Current estimates of the extent of occurrence and area of occupancy for the Tasmanian Smoke-bush are about 3500 km<sup>2</sup> and 0.15 - 0.25 km<sup>2</sup>, respectively (Threatened Species Section, DPIWE, unpublished data 2005).

Estimates of decline in the extent of occurrence can be inferred from the extinction of the two subpopulations at Bruny Island and Prosser River. With these subpopulations included, the former extent of occurrence is estimated as 6200 km<sup>2</sup>. Their loss, therefore, represents a decline of 43.5% in extent. In addition, the three northernmost subpopulations have not been sighted since the 1970s or early 1980s and their status is uncertain, pending further surveys. If these subpopulations are also extinct, the extent of occurrence is reduced further, to 3000 km<sup>2</sup> (Threatened Species Section, DPIWE, unpublished data 2005), representing a potential decline of 51.6% in extent.

The available information indicates that the survival of the Tasmanian Smoke-bush is not precarious as a result of fragmentation or extreme natural fluctuation. There are 28 known subpopulations and, of these, estimates of numbers are available for 22 subpopulations (Threatened Species Section, DPIWE, unpublished data 2005). Nine subpopulations have 50 or more mature individuals. Extreme fluctuations in numbers or extent are unlikely, as the species is a perennial woody shrub, though fire could cause some fluctuation in numbers by facilitating germination (Parks and Wildlife Service 2002).

While there is evidence that a decline in the extent of occurrence has occurred in the past, there is no indication that the present geographic distribution of the species is precarious for its survival. Therefore, the Tasmanian Smoke-bush is **not eligible** for listing 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 the Tasmanian Smoke-bush is limited. Surveys have estimated the total population to be 2500-2800 mature individuals (Threatened Species Section, DPIWE, unpublished data 2005). As quantitative information is available for only 22 of the 28 known subpopulations, the estimate of total population should be considered a conservative minimum value.

There is no information about the continuing decline in plant numbers in the recent past. However, potential future decline is inferred from the nature of the threats. Land clearing for residential development on north coast sites potentially affects about 400 plants in four subpopulations (Threatened Species Section, DPIWE, unpublished data 2005). This represents a decline of up to 16%, should all four subpopulations be cleared within three generations. Inappropriate fire regime and *Phytophthora* are also likely to contribute to ongoing decline though it is not known to what degree the population would be affected by these threats.

Also, the structure of the population is such that none of the surveyed subpopulations contains more than 1000 mature individuals (Threatened Species Section, DPIWE, unpublished data 2005). The largest subpopulation comprises between 827 to 920 mature individuals.

There is evidence to suggest that the total number of mature individuals, which is presently limited, will continue to decline. In addition, the population structure of the Tasmanian Smoke-bush is not known to have large subpopulations with 1000 or more individuals. Therefore, the Tasmanian Smoke-bush 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 total population size of the Tasmanian Smoke-bush is estimated to be at least 2500-2800 mature individuals which is not low. There are 28 known locations, which is not restricted. Therefore, the Tasmanian Smoke-bush is **not eligible** for listing under this criterion.

**Criterion 5 - Probability of extinction in the wild**

There are no data available to assess the species against this criterion.

## **5. CONCLUSION**

The Tasmanian Smoke-bush is a shrub that occurs on the east coast of Tasmania. It has a restricted distribution with 28 known subpopulations. The estimated total number of individuals for the Tasmanian Smoke-bush is limited and evidence suggests that the number is likely to decline in the future. Its population structure is precarious for survival, given no subpopulations contain more than 1000 individuals. The species is therefore **eligible** for listing as **vulnerable** under criterion 3.

## **6. Recommendation**

TSSC recommends that the list referred to in section 178 of the EPBC Act be amended by **including** in the list in the **vulnerable** category:

*Conospermum hookeri* (**Tasmanian Smoke-bush**)

### **Key publications used to assess nomination**

Bennett, E.M. (1995). *Conospermum*, *Flora of Australia* 16: 224–271 CSIRO Australia, Melbourne.

Curtis, W.M. (1967). *The Student's Flora of Tasmania. Part 3*. Government Printer, Hobart.

Parks and Wildlife Service (2002). *Freycinet Reserves Fire Management Plan*. Tasmanian Department of Primary Industries, Water and Environment, Hobart.

Schahinger, R., Rudman, T. and Wardlaw, T. (2003). *Conservation of Tasmanian Plant Species & Communities threatened by Phytophthora cinnamomi. Strategic Regional Plan for Tasmania*. Technical Report 03/03. Tasmanian Department of Primary Industries, Water and Environment, Hobart.

Threatened Species Section (2004) Draft *Greater Freycinet Region Threatened Species Recovery Plan 2004–2008*. Tasmanian Department of Primary Industries, Water and Environment, Hobart.

Threatened Species Section (2005). *Draft Listing Statement, Conospermum hookeri, Tasmanian smoke-bush*. Tasmanian Department of Primary Industries, Water and Environment, Hobart.

Threatened Species Section (2005). Unpublished survey data for *Conospermum hookeri*. Held by the Tasmanian Department of Primary Industries, Water and Environment, Hobart.