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

1. Scientific name (common name)

Typhonium taylori (a herb)

2. Description

Typhonium taylori is a small tuberous herb. The species flowers in January and is most likely to be pollinated by insects (Mayo et.al. 1997). *T. taylori* occurs in seasonally saturated sandy soil in nutrient poor grass/sedgeland and Melaleuca woodland.

3. National Context

Typhonium taylori is endemic to the Northern Territory. It is known from two localities from the Howard River floodplain (approximately 30km south east of Darwin).

Typhonium taylori is listed as endangered under the Northern Territory *Territory Parks and Wildlife Conservation Act 2000.*

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

TSSC judges the species to be **eligible** for listing as **endangered** 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.

Typhonium taylori is known from two localities from the Howard River floodplain (approximately 30km south east of Darwin). There is no data on the population size of this species, however, figures based on populations of similar species in this genus would suggest the population size may be estimated between 50 and 100 individuals (Brock et. al. 2000). Recent targeted survey for this species did not relocate or uncover any additional populations of this species (Cowie 2002). Although this species is seasonally dormant and cryptic in the landscape it is considered adequately surveyed.

There is insufficient information available to determine whether *Typhonium taylori* has undergone a substantial reduction in numbers. Sand mining, clearing for subdivision and changes to hydrology have been identified as potential threats to the species. However, there is no evidence indicating that they are currently affecting the known populations or that they will affect the populations in the future.

In conclusion, there are insufficient data to determine whether there has been a past decline in the number of individuals of *Typhonium taylori*, and it is not clear if the threats operating on this species are likely to cause a future decline in numbers. Therefore, the species is **not eligible** for listing against this criterion.

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

Typhonium taylori is endemic to the Northern Territory. It is known from two locations on the Howard River floodplain. The extent of occurrence is estimated to be 0.2km^2 and the estimated area of occupancy is 0.02km^2.

There are no data to determine past extent of occurrence or area of occupancy. The geographic distribution of *Typhonium taylori* is restricted, however there is insufficient information available to determine whether the species' geographic distribution is precarious for its survival. Sand mining, clearing for subdivision and changes to hydrology have been identified as potential threat to the species. However, no proposed sand mining sites coincide with where the species occurs. The projected population expansion in Darwin and Litchfield shire is expected to result in increased water demands (Haig et.al 2003), however the impact on hydrology from the expansion of the McMinns Borefield and inferred increase in domestic bores is unknown. The impact of these possible threats is not known (Haig 2003) and needs to be investigated further.

Therefore, there are insufficient data to assess the species' eligibility for listing against this criterion. Hence, the species is **not eligible** for listing against 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 size of *Typhonium taylori* is estimated to be between 50 and 100 plants, however this is a speculative estimate only and is based on populations of a similar species in this genus.

There is insufficient evidence available to determine whether the number of mature individuals will decline or that the species' geographic distribution is precarious for its survival. While sand mining, clearing for subdivision and changes to hydrology have been identified as potential threats to the species, there is no evidence to indicate that they are impacting on the species or that they will impact on the species in the future. Therefore, there is insufficient information available to assess the species' eligibility for listing against this criterion. Hence, the species is **not eligible** for listing against this criterion.

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

The total population size of *Typhonium taylori* is estimated to be between 50 and 100 plants, however this is a speculative estimate only and is based on populations of a similar species in this genus. Even though the population estimate is speculative, it is based on best available information and therefore it is considered that the total number of mature individuals is likely to be very low. Therefore, the species is **eligible** for listing as **endangered** under this criterion.

Criterion 5 - Probability of extinction in the wild

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

5. CONCLUSION

Typhonium taylori is endemic to the Northern Territory and is known from two localities from the Howard River floodplain (approximately 30km south east of Darwin). The species extent of occurrence is estimated to be 0.2km^2 and the estimated area of occupancy is 0.02km^2.

Sand mining, clearing for subdivision and changes to hydrology have been identified as potential threats to the species. The best estimate of the total population size of *Typhonium taylori* is considered to be between 50 and 100 plants. Therefore, the species is eligible for listing as **endangered** under criterion 4.

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 **endangered** category:

***Typhonium taylori* (a herb)**

Associate Professor Robert J.S. Beeton

Chair

Threatened Species Scientific Committee

Publications used to assess the nomination

Cowie, I. D. (2002) Preliminary report on a survey of *Utricularia* (LENTIBULARIACEAE) in the Howard River – Shoal Bay area. . (NT Department of Infrastructure Planning and Environment, Darwin.)

Brock, C., Cowie, I. Harwood, B., Leach, G. Milne, D. Stirrat, S. and Woinarksi J. (2000) Plantation proposal, Melville Island: assessment of biodiversity. Report to N.T. Department of Lands, Planning and Environment, Tiwi Land Council, and Sylvatech Australia Pty Ltd. (Parks and Wildlife Commission of the Northern Territory: Darwin)

Mayo,S J, Bogner,J., Boyce, P,C., (1997). The Genera of Araceae. Royal Botanic Gardens, Kew.

Haig, T. and Townsend (2003) An understanding of the groundwater and surface water hydrology of the Darwin harbour Plan of Management area. Proceedings of the Darwin Harbour Public presentations.