

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 mirabile (a herb)

2. Description

Typhonium mirabile is a small tuberous herb with annual aerial parts. Leaves are blue-green in colour and the aerial part of the species is grey-green in colour. The leaves of the species are produced one to two weeks before flowering in October.

3. National Context

Typhonium mirabile is endemic to the Tiwi Islands in the Northern Territory. The species is found at five locations on the western half of Melville Island. The total number of mature individuals is estimated to be 200.

Typhonium mirabile is currently 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 mirabile is estimated to have a population of 200 plants. However, there are no quantitative data available to indicate past trends in the population size of the species.

Therefore, this species is **not eligible** for listing under this criterion.

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

Typhonium mirabile is known from five locations on the western half of Melville Island. The species extent of occurrence is estimated to be 126km² and the area of occupancy is estimated to be 0.05-0.1km².

Survey effort for this species is considered adequate even though the species is seasonally dormant and is considered cryptic. Specific surveys for the species on the Tiwi Islands in the wet seasons of 2000 and 2001 yielded only one additional population. Hay (1996) notes that search efforts on Bathurst Island failed to uncover any additional populations.

All five locations of *Typhonium mirabile* are located on land owned by Tiwi Land Council, much of which has been designated for intensive forestry activities. The eucalypt forests where the species occurs are also being degraded by feral buffalo, cattle and horses. Increased clearing, road development and activity in the area around known populations may increase

the invasion of exotic plant species. Pigs are present on Bathurst Island and have recently been introduced to Melville Island. Pigs may potentially dig up the tuber of this species.

Typhonium mirabile has a restricted geographic distribution, which is considered precarious for its survival. The species is likely to be impacted by ongoing land clearing and habitat disturbance within its range and is also likely to be impacted by feral animals such as buffalo, cattle, horses and pigs.

Therefore, the species is **eligible** for listing as **endangered** 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.

Typhonium mirabile is estimated to have a population of 200 plants. The extent of occurrence is estimated to be 126 km² and the area of occupancy is estimated to be 0.05-0.1km².

However, there are no quantitative data available to indicate past trends in the population size of the species.

Therefore, this 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 estimated number of mature individuals is estimated to be very low, with the total number of mature plants estimated to be 200. *Typhonium mirabile* is located at five locations on the western half of Melville Island. The eucalypt forests where this species occurs are being degraded by feral buffalo, cattle and horses and feral pigs may potentially dig up the tuber of this species. Increased clearing, road development and activity in the area around known populations may increase the invasion of exotic plants species, which will also cause a further decline in the future.

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 mirabile is endemic to the Tiwi Islands and is known from five locations on the western half of Melville Island. The species has a restricted range, with an extent of occurrence of 126km² and an area of occupancy of 0.05-0.1km². There are a number of threats operating within this range. Feral pigs may potentially dig up the tuber and cause a decline in numbers. Other threats impacting the species are feral buffalo, cattle, horses and increased clearing. Road development and activity in the area around known populations may increase the invasion of exotic plant species, causing further decline in the future. The species is eligible for listing as **endangered** under criteria 2 and 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 mirabile (a herb)

Associate Professor Robert J.S. Beeton

Chair

Threatened Species Scientific Committee

Publications used to assess the nomination

Hay, A. (1996) The genus *Typhonium* (Araceae-Araeae) in Australasia. *Blumea* 37: 345-376.