

Approved Conservation Advice for *Typhonium jonesii*

(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

This Conservation Advice has been developed based on the best available information at the time this Conservation Advice was approved; this includes existing and draft plans, records or management prescriptions for this species.

Description

Typhonium jonesii, family Araceae, is a cormous perennial herb that re-sprouts annually (Kerrigan & Cowie, 2006). The tuber is 2.5 cm in diameter (Hay, 2011). The leaf blade is deeply trilobed with a large central lobe and two smaller lobes extending outwards from the base of the leaf. A pale mauve-cream spathe (leaf-like organ) encloses or spreads from the base of the flower spike, emerging along with new season leaves (Kerrigan & Cowie, 2006). Flowering occurs in December (Hay, 2011).

Conservation Status

Typhonium jonesii is listed as endangered under the name *Typhonium jonesii* (a herb). This species is eligible for listing as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as it has a restricted geographic distribution, with an estimated extent of occurrence of 85 km² and an estimated area of occupancy of 0.03 km², and a very low number of mature individuals of between 150–300. The species' geographic distribution, and the nature of its ongoing threats, is precarious for its survival (TSSC, 2006).

The species is also listed as endangered under the *Territory Parks and Wildlife Conservation Act 2000* (Northern Territory).

Distribution and Habitat

Typhonium jonesii is endemic to the Tiwi Islands in the Northern Territory. In 2006, three populations on Melville Island were known (Kerrigan & Cowie, 2006; TSSC, 2006), although the Atlas of Living Australia indicates that, since 1990, collections may have been made from two locations on Bathurst Island and a fourth location on Melville Island (ALA, 2013). The species has been described as 'locally common' (Hay, 1996, cited in Kerrigan & Cowie, 2006), but the size of individual populations is unknown. Collections have been made in eucalypt woodland and rainforest on rocky hills (TSSC, 2006) and in plantations (Hay, 2011).

The Tiwi Islands have had high survey effort (e.g. Woinarski et al., 2003a) and the species is high profile amongst collectors (Kerrigan & Cowie, 2006). Nevertheless, reproductive material, which is only available in the wet season, is required for identification (Kerrigan & Cowie, 2006) and this may limit the detection of the species.

This species occurs within the Tiwi Cobourg IBRA Bioregion and the Northern Territory Natural Resource Management Region. The distribution of this species is not known to overlap with any EPBC Act-listed threatened ecological community.

Threats

The main potential threats to *Typhonium jonesii* include clearing for forestry (Woinarski et al., 2003a); habitat disturbance by feral animals (water buffalos *Bubalus bubalis*), cattle, horses (*Equus caballus*) and pigs (*Sus scrofa*) (Woinarski et al., 2003a; TSSC, 2006); weed invasion (mission grass *Pennisetum polystachion* and gamba grass *Andropogon gayanus*) (Fensham & Cowie, 1998, cited in Woinarski et al., 2003a); and inappropriate fire regimes (Kerrigan & Cowie, 2006). Twenty-six thousand hectares of land clearing have been

approved for the development of a forestry plantation on the western half of Melville Island (CoA, 2001).

Research Priorities

Research priorities that would inform future local priority actions include:

- Investigate the species ecological requirements and the relative impacts of threatening processes.
- Determine the modes of regeneration occurring in the field (seed and vegetative) and the extent to which management and other threats might be limiting population size.

Local Priority Actions

The following local priority recovery and threat abatement actions can be done to support the recovery of *Typhonium jonesii*:

Habitat Loss, Disturbance and Modification

- Implement forestry exclusion buffers (Hadden, 2000, cited in Kerrigan & Cowie, 2006).
- Monitor the biodiversity impacts of forestry (Woinarski et al., 2003b).
- Control access routes to suitably constrain public access to known sites on public land.
- Undertake survey work in the wet season (Woinarski et al., 2003b) in suitable habitat and potential habitat to locate any additional occurrences.
- Establish the conservation priorities of the species to identify populations of high conservation priority.
- Ensure there is no disturbance in areas where *Typhonium jonesii* occurs, excluding necessary actions to manage the conservation of the species.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate and/or secure inclusion in reserve tenure if possible.

Invasive Weeds

- Developing an appropriate weed management strategy that addresses reducing the current distribution of fire-promoting, introduced grasses, and preventing new introductions.

Fire

- Implement an appropriate fire regime comprising finescale burning in the early to mid dry season, and avoids hot late dry season fires (Woinarski and Baker, 2002), with around 20-33% of every clan estate burnt each year, but with the locations burnt varying from year to year (Woinarski et al., 2003b).

Trampling, Browsing or Grazing

- Develop and implement a management plan for the control and eradication of the water buffalo, the horse and the pig in the region.
- If livestock grazing occurs in the area, ensure land owners/managers use an appropriate management regime and density that does not detrimentally affect this species and maintains habitat quality.
- Where appropriate, manage total grazing pressure at important sites through exclusion fencing or other barriers.

Conservation Information

- Raise awareness of *Typhonium jonesii* within the local community.

- Engage with Tiwi Land Council and partner with the council for the implementation of conservation management actions.
- Investigate options for linking, enhancing or establishing additional populations.
- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible.

This list does not necessarily encompass all actions that may be of benefit to *Typhonium jonesii*, but highlights those that are considered to be of highest priority at the time of preparing the Approved Conservation Advice.

Existing Plans/Management Prescriptions that are Relevant to the Species

- Threat Abatement Plan for feral pigs (DEH, 2005).
- Tiwi Islands forestry strategic plan (Hadden, 2000, cited in Kerrigan & Cowie, 2006).
- Tiwi Islands regional natural resource management strategy (TLC, 2003).

These prescriptions were current at the time of publishing; please refer to the relevant agency's website for any updated versions.

References

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