

**Information to support listing *Typhonium* sp from the East Kimberley as
Priority 1 Flora.**

AN Start¹

Taxon

Typhonium sp (Araceae)

Taxonomic status

Probably one dimorphic species but possibly two species. Undescribed (personal communication from A Hay, Royal Botanic Gardens, Sydney to AN Start).

Conservation status (summary)

Known from two populations (<20 and 8 plants respectively) growing in cracking grey soils that infill a small dendritic paleo-drainage system near Kununurra, East Kimberley. The unusual habitat is limited and both populations are associated with a fern-ally not otherwise known from the East Kimberley.

Threats

The habitat extends over three land tenure titles, a freehold block (King Location 599) on which development has been approved, a grazing lease (King Location 781) which is the subject of a clearing application and a small portion of a pastoral lease (Ivanhoe Station) adjacent to both the former units. The whole area has been (and still is) available for grazing but the impact of cattle is unknown.

Collections

- **ANS 1467** (Broad-leaf form).

<i>Location.</i>	King Location 599, about 5 km northwest of Kununurra
<i>Coordinates</i>	15 ^o 44' 12" S, 128 ^o 40' 46" E. (AGD84)
<i>Date</i>	28/12/2001
<i>Collector</i>	AN Start
<i>Specimen</i>	Currently, SYDNEY; duplicate, KUNUNURRA
<i>Shire</i>	Shire of Wyndham East Kimberley
<i>IBRA</i>	Victoria Bonaparte

- **ANS 1468** (Narrow-leaf form).

<i>Location.</i>	King Location 599, about 5 km northwest of Kununurra
<i>Coordinates</i>	15 ^o 44' 12" S, 128 ^o 40' 46" E. (AGD84)
<i>Date</i>	28/12/2001
<i>Collector</i>	AN Start
<i>Specimen</i>	Currently, SYDNEY; duplicate, KUNUNURRA
<i>Shire</i>	Shire of Wyndham East Kimberley
<i>IBRA</i>	Victoria Bonaparte

¹ CALM Wildlife Research Centre, Woodvale

S.N. (Broad-leaf form).

<i>Location.</i>	About 100 m southeast of ANS 1467/1468
<i>Date</i>	January 2001
<i>Collector</i>	AN Start
<i>Specimens</i>	Two plants sent to Royal Botanic Gardens (Sydney) for cultivation
<i>Shire</i>	Shire of Wyndham East Kimberley
<i>IBRA</i>	Victoria Bonaparte

ANS 1467 & 1468 consist of leaves and fruits. No fresh flowering material is available as yet. Two field-harvested corms were present on the live material sent to Sydney.

Images

Photographs of live plants including washed corms as well as photocopies of specimens held in Kununurra are shown in Handasyde *et al.* 2004.

Habitat

All plants grew in summer-saturated cracking grey clay (Sherrard 1993) commonly called “black soil”. However the situation was unusual. Black soils usually occupy extensive areas that are low in the landscape. In this instance they in-filled a shallow dendritic paleo-drainage system imposed on friable red soils, a pattern that is clearly discernable on aerial photographs (see Handasyde *et al.* 2004 Fig. 10).

Aerial photographs indicate the “system” occupies King Locations 599, 781 and extends onto an adjacent portion of Ivanhoe Pastoral Lease.

Life history

Perennial cormous herbs. Leaves and fruits have been observed during the summer “wet season” when the soil is saturated. Thereafter, leaves die back and plants apparently persist through the winter “dry season” as subterranean corms. There is some evidence that breaking of dormancy may be staggered (Handasyde *et al.* 2004). Late-emerging plants and, in dry years, apparently all plants may regress to corms without reproducing.

Survey

- The original collections (ANS 1467, ANS 1468) were made during a flora survey of King Location 599, undertaken for Kirby Rural Developments by AN Start and C Done, both CALM officers (Start and Done 2002). The survey compiled species lists in 50x50 m quadrats for seven sites, including one other on saturated cracking grey clay, two on fine pale loams of a levee bank and two on the friable red soils over which the clay has been deposited and one on an active drainage line incised into the friable red soils. The survey results are given by Start and Done (2002, and see below). *Typhonium* sp were not present on any of the other sites.

Following Alistair Hay’s assessment of the taxonomic status of the *Typhonium* specimens, the same officers returned in search of flowering material. An area several times that of the quadrat was searched. No flowering material was found but a “satellite population” was located about 100 m from the original collection site. The total population was estimated at <20 plants (Start 2002).

- T. Handasyde obtained a Conservation Visa Card grant to search for further populations in the wet season of 2002-3. John Kirby of Kirby Rural Developments refused permission to access King Locations 599 and 781. She located one additional population comprising eight plants in similar habitat on Ivanhoe Pastoral Lease at AMG 464880, 8258500 (Zone 52, AGD84). Photographs, but no specimens, were taken. All plants that were mature enough to discern form were the broad-leaf form.
- Black soils of the Ord and Keep Rivers floodplains have been surveyed recently during the wet season for preparation of an ERMP for extension of the Ord River Irrigation Area (ORIA Stage 2) by Ecologia (1997). The authors state (P 18) "-- the number of species recorded -- probably represents 70-80% of the flora found there. For some parts of the study area (e.g. Soil Unit 1) the percentage recorded is probably somewhat higher --". (Soil unit 1 is a cracking clay, but note, they identified other soil units as cracking clays).
- Since becoming aware of *Typhonium* in the region, several people have opportunistically searched areas of saturated cracking clay in the vicinity of Kununurra.

Survey conclusions

Two populations are known from similar, connected habitats. The total number of plants seen is less than 30 and the original collection is the only known plant of the narrow-leaf form. (The corm was left *in situ*). However the extent of potential habitat that has been surveyed could not yet be considered comprehensive.

Associated species.

Start and Done (2002) describe the vegetation and list the species present in the quadrat in which *Typhonium* sp occurred on King Location 599. Handasyde *et al.* (2004) indicate a similar community structure and composition for the Ivanhoe PL population. A notable feature is the presence of the fern-ally *Ophioglossum costatum* with both populations of *Typhonium*. This species is not recorded for the East Kimberley by the WA Herbarium (*Florabase*, as at 20/4/04), Ecologia (1997) or, to the best of our knowledge, any other source.

References

- Ecologia 1997. *Ord River Stage 2. M2 development area terrestrial biological assessment*. Unpublished report to Department of Resources Development. Perth.
- Handasyde, T., Start A.N. and Done C. 2004. *Distribution, abundance and taxonomic status of Typhonium species (Araceae) in the east Kimberley*. Unpublished report to the Western Australian Threatened Species and Communities Unit, Department of Conservation and Land Management. Perth.
- Sherrard J.H. 1993. *Land capability study of King Location 369, adjoining Reserve 36951 and freehold Location 599*. Unpublished report by WA Department of Agriculture for the WA Department of Land Administration. Kununurra.
- Start, A.N. 2002. *Typhonium sp. (Araceae) on King Location 599. Supplement to Kirby Report*. Unpublished report to Kirby Rural Developments. Department of Conservation and Land Management Kununurra.

Start A.N and Done C. 2002. *Preliminary assessment of the flora and vegetation on parts of King Location 559 (Revised)*. Unpublished report to Kirby Rural Developments. Department of Conservation and Land Management Kununurra.