

***Borya inopinata* (Anthericaceae), a new species of resurrection plant from north Queensland**

Paul I. Forster & E. John Thompson

Summary

Forster, Paul I. & Thompson, E. John (1997). *Borya inopinata* (Anthericaceae), a new species of resurrection plant from north Queensland. *Austrobaileya* 4(4): 597–600. *Borya inopinata* is described and illustrated. Notes are given on the species' distribution, habitat, affinities and conservation status. A Conservation Coding of rare (R) is recommended. A key to the species of *Borya* in Queensland is provided.

Keywords: Anthericaceae, Liliaceae, *Borya* - Queensland, *Borya inopinata*.

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Introduction

The genus *Borya* Labill. is endemic in Australia and has been monographed by Churchill (1987) who recognised ten species. The genus was classified in the Liliaceae sensu lato in the 'Flora of Australia' but is otherwise included in the Anthericaceae with reservations by Dahlgren et al. (1985). The species of *Borya* are distributed in south-west Western Australia (6 species), northern Western Australia and the Northern Territory (2 species), Victoria (1 species) and north-east Queensland (2 species).

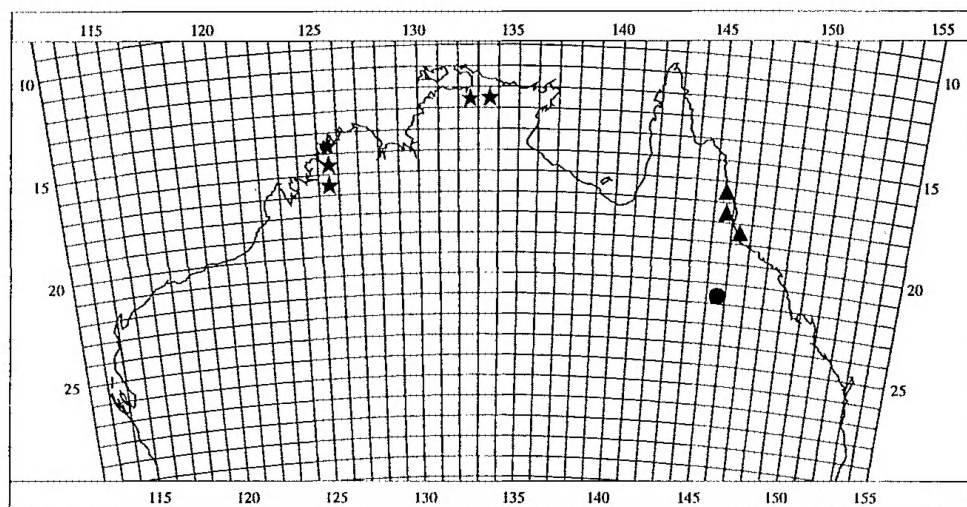
Most species of *Borya* are drought-tolerant 'resurrection plants' where the foliage can rehydrate and recommence photosynthesis after periods of water deficit in the habitat (Gaff 1981). Two species are drought-avoiders (*B. laciniata* Churchill and *B. scirpoidea* Lindley) and shed their foliage during periods of water deficit (Churchill 1987). Most species occur in open areas of bare rock pavements and outcrops where there is little associated vegetation. Some species form small tussock-mounds whereas others could be termed as 'micro stilt plants' where the stems straggle and are partially supported by stilt roots (cf. Pate 1989).

The tussock-mound forming and drought-tolerant *B. septentrionalis* F. Muell. is restricted

to granite rock outcrops in the 'Wet Tropics' region of north-eastern Queensland (**Map 1**). This species is considerably disjunct from others in the genus, although the genus as a whole is characterised by a very fragmented pattern of species distribution. Hence it is of considerable phylogeographic significance that a second species *B. inopinata* has recently been recorded for northern Queensland. *B. inopinata* is also a tussock-mound and drought-tolerant species. The new species was discovered near Charters Towers by E. John Thompson during the Queensland Herbarium's 'Desert Uplands Vegetation Mapping' project, and appears to have a very restricted distribution.

Taxonomy

***Borya inopinata* P.I. Forst. & E.J. Thoms., sp. nov.** affinis *B. septentrionalis* F. Muell. et *B. jabirabela* Churchill sed ab utraque foliis multo brevioribus (14–18 mm longis vice 20–25 mm longis) marginibus minute scabris secus omnem longitudinem (vice laevibus vel ciliatis vel scabris non nisi apicem), scapis multo brevioribus (1.1–1.3 cm longis vice 4–25 cm longis), bracteis floralibus inflexis differt. **Typus:** Queensland. NORTH KENNEDY DISTRICT: Mt Stewart Range, 16 May 1995, P.I. Forster 16583 & S.J. Figg (holo: BRI [1 sheet + spirit]; iso: DNA, K, MEL, NSW, QRS).



Map 1. Distribution of *Borya inopinata* ●, *B. jabirabela* ★ and *B. septentrionalis* ▲.

Small tufted perennial forming tussock mounds up to 1 m across; stems erect or weakly reclining, up to 16 cm high, often with stilt-roots. Leaves rigid, linear, 14–18 mm long, 0.6–0.8 mm wide, persistent during drought, with apex needle-like or acuminate, black-varnished for 2–2.3 mm from tip; margins minutely scabrous with antrorse hairs for entire length; leaf-base margins widening to sheath, pale straw-coloured to medium-brown, glabrous or with scattered hairs, with disarticulating joint near base. Scapes 1.1–1.3 cm long, unjointed, usually persistent; head 4–10 mm long, 5–8 mm diameter, with 10–15 flowers; outer bracts of involucre 3–6, needle-like, 6–9 mm long, 0.8–1 mm wide, smooth, green with a black-varnished tip (straw-coloured on drying); wings entire, cream; inner bracts of involucre 3–6, needle-like, 5–6 mm long, 0.5–0.8 mm wide, smooth, green with a black-varnished tip (straw-coloured on drying). Floral bracts imbricate, lanceolate-ovate, 4.5–5 mm long, 2–2.2 mm wide, white to cream with brown inflexed acute tip. Flowers 11–12 mm long, 10–12 mm diameter, white; tube 7–8 mm long, 1.3–1.5 mm diameter; perianth lobes linear, 5.3–5.8 mm long, 1.4–1.6 mm wide; filaments 3–5 mm long, c. 0.4 mm diameter at base, c. 0.1 mm diameter at tip; anthers oblong, c. 0.9 mm long and 0.5 mm wide, golden; style cylindrical, 5–10 mm long, 0.2–0.3 mm diameter, with apex bluntly capitate. Seeds not seen. Fig. 1.

Additional specimens examined: Queensland. NORTH KENNEDY DISTRICT: Mt Stewart Range, Sep 1991, *Thompson* 327 & *Dillewaard* (BRI); ditto, May 1995, *Forster* 16614 & *Figg* (BRI). **Cultivated.** Cult. at St Johns Wood, Brisbane (ex Mt Stewart Range), Dec 1994, *Thompson* 398 (BRI).

Distribution and habitat: *Borya inopinata* occurs in shallow depressions on rock pavements with shallow gravelly soil derived from granitic rocks on the upper slopes of hilly terrain at altitudes of 780 to 860 m. The vegetation type is mostly open-shrubland to low open-woodland. Other species commonly present there include the shrubs *Callistemon chisholmii* Cheel, *Grevillea sessilis* C.T.White & W.D.Francis, *Kunzea calida* F.Muell., *Thryptomena parviflora* (F.Muell. ex Benth.) Domin, and herbs and grasses such as *Aristida thompsonii* B.K.Simon, *Gonocarpus acanthocarpus* (Brongn.) Orchard, *Plectrachne pungens* (R.Br.) C.E.Hubb., *Trachymene montana* A.E.Holland and *T. hookeri* (Domin) A.E.Holland. Rainfall is c. 500 mm per annum and predominantly in summer, although it is often highly irregular in occurrence. *B. inopinata* apparently occurs in the driest known habitat for any *Borya* species.

Borya septentrionalis occurs in a similar habitat, albeit with a totally dissimilar associated flora and with much higher and more regular rainfall of c. 800 to 2000 mm per annum.

No habitat description was provided for *B. jabirabela* Churchill by either Churchill (1987) or Rye (1992). The habitat of *B. jabirabela*



Fig. 1. *Borya inopinata*. A. habit of flowering plant demonstrating stilt roots $\times 1$. B. stem with flower head $\times 2$. C. lateral view of flower $\times 5$. D. outer involucrate bract $\times 5$. E. inner involucrate bract $\times 5$. F. floral bract $\times 5$. All from live material of E.J. Thompson 398 (BRI). Del. W. Smith.

is described by C.R. Dunlop (pers. comm. 1995) as being on top of sandstone plateaux in lenses of white sand. The vegetation type there is an open shrubland or low open-woodland, usually with spinifex (*Triodia* and/or *Plectrachne* species) and widely spaced shrubs such as species of *Acacia* and *Pityrodia*. Annual rainfall over the distribution of *B. jabirabela* is c. 1000 mm per annum.

Notes: *Borya inopinata* appears to be allied to *B. septentrionalis*, the closest species geographically, and to *B. jabirabela* from Western Australia and the Northern Territory (Churchill 1987; Rye 1992). It will key to *B. jabirabela* in Churchill's (1987) key. *B. inopinata* differs from both of these species by the much shorter leaves (14–18 mm long versus 20–50 mm long) with the edges minutely

scabrous along the entire length (versus smooth, ciliate or scabrous towards the apex only), the much shorter scapes (1.1–1.3 cm long versus 4–24 cm long) and the inflexed floral bracts. It also differs from *B. septentrionalis* in the much longer perianth tube (7–8 mm long versus 3.5–4.5 mm long) and the fewer flowers per head (10–15 versus 18–30). The material of *B. jabirabela* at BRI is insufficient to enable comparison of these latter characters with those of that species.

The most striking of the outlined differences are undoubtedly the much shorter scapes and shorter leaves of *B. inopinata* when compared to the other two species, as these characters impart a distinctive appearance to the plants.

Key to Queensland species of *Borya*

1. Leaves 25–50 mm long, minutely scabrous towards apex; scapes 10–24 cm long; flower heads 18–30-flowered ***B. septentrionalis***
- Leaves 14–18 mm long, minutely scabrous for entire length; scapes 1.1–1.3 cm long; flower heads 10–15-flowered ***B. inopinata***

Conservation status: There are no perceivable threats to *Borya inopinata* at the current time, although it is not known to occur in any conservation reserve. Due to its restricted occurrence a conservation coding of rare (R), as defined by the Queensland *Nature Conservation Act 1992* is recommended.

Etymology: The specific epithet is derived from the Latin *inopinus* (unexpected) and refers to the unexpected discovery of this new species.

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