



Thismia brunneomitra, another new species of *Thismia* (Thismiaceae) from Ulu Temburong, Brunei Darussalam

MICHAL HRONEŠ¹, LUCIE KOBRLOVÁ¹, VOJTĚCH TARAŠKA¹, ONDŘEJ POPELKA¹, RADIM HÉDL^{1,2}, RAHAYU SUKMARIA SUKRI³, FAIZAH METALI³ & MARTIN DANČÁK⁴

¹ Department of Botany, Faculty of Science, Palacký University, Šlechtitelů 27, CZ-78371 Olomouc, Czech Republic;
email: michal.hrones@gmail.com

² Institute of Botany, Czech Academy of Sciences, Lidická 25/27, CZ-60200 Brno, Czech Republic

³ Universiti Brunei Darussalam, Environmental and Life Sciences Programme, Faculty of Science, Jalan Tungku Link, BE1410, Brunei Darussalam

⁴ Department of Ecology and Environmental Sciences, Faculty of Science, Palacký University, Šlechtitelů 27, CZ-78371 Olomouc, Czech Republic

Abstract

A new species of *Thismia* (Thismiaceae) from northwest Borneo is described and illustrated. *Thismia brunneomitra* was discovered in 2015 in lowland mixed dipterocarp forest in the Ulu Temburong National Park, Temburong district of Brunei Darussalam. The new species is characterized by brown to blackish flowers with twelve darker vertical stripes on the perianth tube, inner tepal lobes that are connate to form a mitre with three very short processes at the apex, three-toothed apical margin of the connective and large wing-like appendage of the connective. An updated determination key of *Thismia* species found in Borneo is included.

Key words: mycoheterotrophy, Malesia, mixed dipterocarp forest, *Sarcosiphon*

Introduction

Primary tropical rainforests of Borneo are one of the most species-rich ecosystems in one of the world's biodiversity hotspots (Myers *et al.* 2000). The island harbours some 15,000 vascular plant species in an area of 743,330 km², of which ca. 37% are endemic (Raes *et al.* 2009). The lowland mixed dipterocarp forest represents the dominant natural forest habitat in Borneo (Primack & Corlett 2005). Unfortunately, these forests are threatened by large-scale timber extraction, as they contain several economically important tree species (Bryan *et al.* 2013). Thus, a combination of unique biodiversity and rapid deforestation has highlighted Borneo as a priority for nature conservation.

One of the most intriguing inhabitants of the primary tropical forests of Borneo are small mycoheterotrophic herbs from the genus *Thismia* Griffith (1844: 221; Thismiaceae, or alternatively Burmanniaceae; for discussion see Merckx *et al.* 2006). Species of this genus are achlorophyllous plants with very specific and complex morphology.

Currently, almost 60 species are recognized in the genus (Hroneš 2014, Hunt *et al.* 2014, Mar & Saunders 2015, Chantanaorrapint & Sridith 2015). Species of *Thismia* have scattered distribution through the (sub-)tropical areas of the Asia, Australia, New Zealand and South America (Jonker 1938, Maas *et al.* 1986, Hunt *et al.* 2014). Along with Thailand, Borneo represents one of the species diversity centres of the genus (Dančák *et al.* 2013, Chantanaorrapint *et al.* 2015).

According to Jonker (1938), Bornean species with free perianth lobes and creeping rhizomes are treated as section *Thismia*, while species with connate perianth lobes forming mitre-like flowers and dense coralliform rhizomes are treated as section *Sarcosiphon* (Blume 1850: 65) Jonker (1938: 251). In Borneo, two species from this section are known: *T. episcopalis* (Beccari 1877: 250) F. Mueller (1891: 235) and *T. goodii* Kiew (1999: 179).

During our recent expedition to Ulu Temburong in January and February 2015, we found a species of *Thismia* with fused tepals, which turned out to be another taxonomic novelty. This finding is only the second record of the family Thismiaceae for Brunei Darussalam (see Dančák *et al.* 2013).