



## *Thismia mucronata* (Thismiaceae), a new species from Southern Vietnam

MAXIM S. NURALIEV<sup>1,2</sup>, ANTON S. BEER<sup>2</sup>, ANDREY N. KUZNETSOV<sup>1,3</sup> & SVETLANA P. KUZNETSOVA<sup>1</sup>

<sup>1</sup> Joint Russian-Vietnamese Tropical Scientific and Technological Center, Cau Giay, Hanoi, Vietnam. e-mail: max.nuraliev@gmail.com

<sup>2</sup> Faculty of Biology, M.V. Lomonosov Moscow State University, 1, 12, Leninskie Gory, 119234 Moscow, Russia.

<sup>3</sup> A.N. Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences, Leninsky 33, Moscow, Russia.

### Abstract

*Thismia mucronata*, a new species of Thismiaceae, is described and illustrated. The species was discovered in 2013 during a botanical survey of a forest in the vicinity of Bao Loc town (Lam Dong province, Southern Vietnam). *Thismia mucronata* is characterised by vermiform roots and mitriform inner tepals. It differs from related species mainly by the short and appressed to each other appendages of inner tepals, which together resemble a short mucro, the narrow mitre without foveae, the almost horizontal annulus and the absence of interstaminal glands. A key to Vietnamese species of *Thismia* is provided.

**Keywords:** *Thismia*, taxonomy, key, mycoheterotrophic plants, Southern Vietnam, Bao Loc, flora, biodiversity

### Introduction

*Thismia* Griffith (1844: 221) is a genus of small, terrestrial, achlorophyllous, mycoheterotrophic, herbaceous plants. The genus along with four other genera of similar habit is currently placed in the family Thismiaceae, order Dioscoreales (Stevens 2001, Merckx *et al.* 2013) or less often Burmanniales (Takhtajan 2009). The exact phylogenetic relationships and taxonomic placement of this genus and its allies are still to be evaluated (APG 2009, Delin *et al.* 2010, Merckx *et al.* 2013). The main point of uncertainty is the phylogenetic position of *Tacca* Forster & Forster (1775: 69; Taccaceae), which appeared to be nested within Thismiaceae in some molecular-based phylogenetic reconstructions (Merckx & Bidartondo 2008, Merckx *et al.* 2009, 2010, Merckx & Smets 2014), making the family Thismiaceae paraphyletic. Moreover, the monophyly of *Thismia* itself has not been widely supported by cladistic analyses of molecular and morphological data sets (Merckx *et al.* 2006, 2009, Yokoyama *et al.* 2008, Merckx & Smets 2014).

The genus *Thismia* is the largest within Thismiaceae and includes about two thirds of its species (Govaerts *et al.* 2011, Merckx *et al.* 2013). Merckx & Smets (2014) listed 50 known species of *Thismia*, and at least three more species were described after their review (Li & Bi 2013, Dančák *et al.* 2013, Truong *et al.* 2014). The genus is distributed from subtropical Asia to temperate Australia and in America, mainly in tropical evergreen forests (Maas-Van de Kamer 1998, Li & Bi 2013, Dančák *et al.* 2013, Merckx *et al.* 2013, Merckx & Smets 2014), with the highest species diversity in Borneo and Malay Peninsula (Chantanaorrapint 2012, Tsukaya & Okada 2012).

Recently, many new species of *Thismia* have been discovered, in particular from various Asian countries. For instance, the number of species was estimated as around 35 several years ago (Yang *et al.* 2002, Chantanaorrapint 2008), which means description of ca. 15 species during the past decade. In Asia, new species have been recently reported from Taiwan (Yang *et al.* 2002, Chiang & Hsieh 2011), Yunnan (Li & Bi 2013), Vietnam (Larsen & Averyanov 2007, Truong *et al.* 2014), Thailand (Chantanaorrapint 2008, 2012) and Borneo (Kiew 1999, Tsukaya & Okada 2005, 2012, Dančák *et al.* 2013). Several significant range extensions in Asia have been also published (Chantanaorrapint & Sridith 2007, Chantanaorrapint & Chantanaorrapint 2009, Ho *et al.* 2009). Due to the paucity of collections, a considerable number of *Thismia* species are believed to be extremely rare. On the other hand, certain difficulties in field observations of these plants were pointed out, including their small sizes and ephemerality of above-ground parts (Stone 1980, Yang *et al.* 2002, Larsen & Averyanov 2007, Chantanaorrapint 2012, Tsukaya & Okada 2012, Dančák *et al.* 2013, Merckx & Smets 2014).

Four species of *Thismia* have been ever reported from Vietnam, but only one of them—*T. javanica* J.J. Smith (1910: 32)—is listed in the Flora of Vietnam (Pham Hoang Ho 2000). Two additions—*T. annamensis* K. Larsen & Averyanov (2007: 13) and *T. tentaculata* K. Larsen & Averyanov (2007: 16)—were made by Larsen & Averyanov (2007). The latter

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