

## Two new records of fairy lanterns, *Thismia* (Thismiaceae) for the Flora of Laos

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### ABSTRACT

Two species of the genus *Thismia* (Thismiaceae), *T. angustimitra* and *T. javanica*, from Nam Kading National Protected Area, central Laos, are recorded for Lao flora for the first time. The number of species of *Thismia* in Laos is raised to three, and a key to species of *Thismia* in Laos is provided.

KEYWORDS: Burmanniaceae, Dioscoreales, Indochina, mycoheterotrophic, Nam Kading National Protected Area.

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### INTRODUCTION

The genus *Thismia* Griff., consisting of ca 100 species (POWO, 2023), is a group of mycoheterotrophic herbs found in shaded and humid forest ground layer when covered with thin leaf litter. Due to their very small size and the shortly time span of the above-ground parts, species in the genus are easily overlooked and are thus still poorly known. To date, eight species have been recorded from Indochina (Cambodia, Laos, and Vietnam) (Nuraliev *et al.*, 2020). In Laos, only one species, *T. nigricoronata* Kumar & S.W.Gale, is known from the limestone forests of Vangvieng District in Vientiane Province (Kumar *et al.*, 2017), and other species are probably still waiting to be found in the country.

During a botanical survey in the north-eastern side of Nam Kading National Protected Area in September 2023 (rainy season) (Fig. 1), two interesting species of *Thismia* were found. Specimens

and photos were taken, with the plants preserved in 70% ethanol for further morphological examination. After a review of the relevant *Thismia* literature, especially on related species (e.g. Larsen, 1987; Chantanaorrapint, 2008; Kumar *et al.*, 2017; Siti-Munirah & Dome, 2019; Nuraliev *et al.*, 2020; Siti-Munirah, 2023; Siti-Munirah & Dome, 2023), one species was identified as *T. angustimitra* Chantanaorr. which was previously described from Thailand, based on the dark grey or brownish flowers, the absence of filiform appendages on the inner tepals, and the presence of golden-brownish hairs at the annulus mouth. The other species was identified as *T. javanica* J.J.Sm., distributed in Indonesia, Malaysia, Thailand and Vietnam, based on its orange-coloured stripes on the floral tube and inner tepals with 2–3 cm long appendages, tridentate anthers on the apical margin and hairs on each tooth. Here, we report them as new findings for Laos, together with a key to the three Lao species of *Thismia*.

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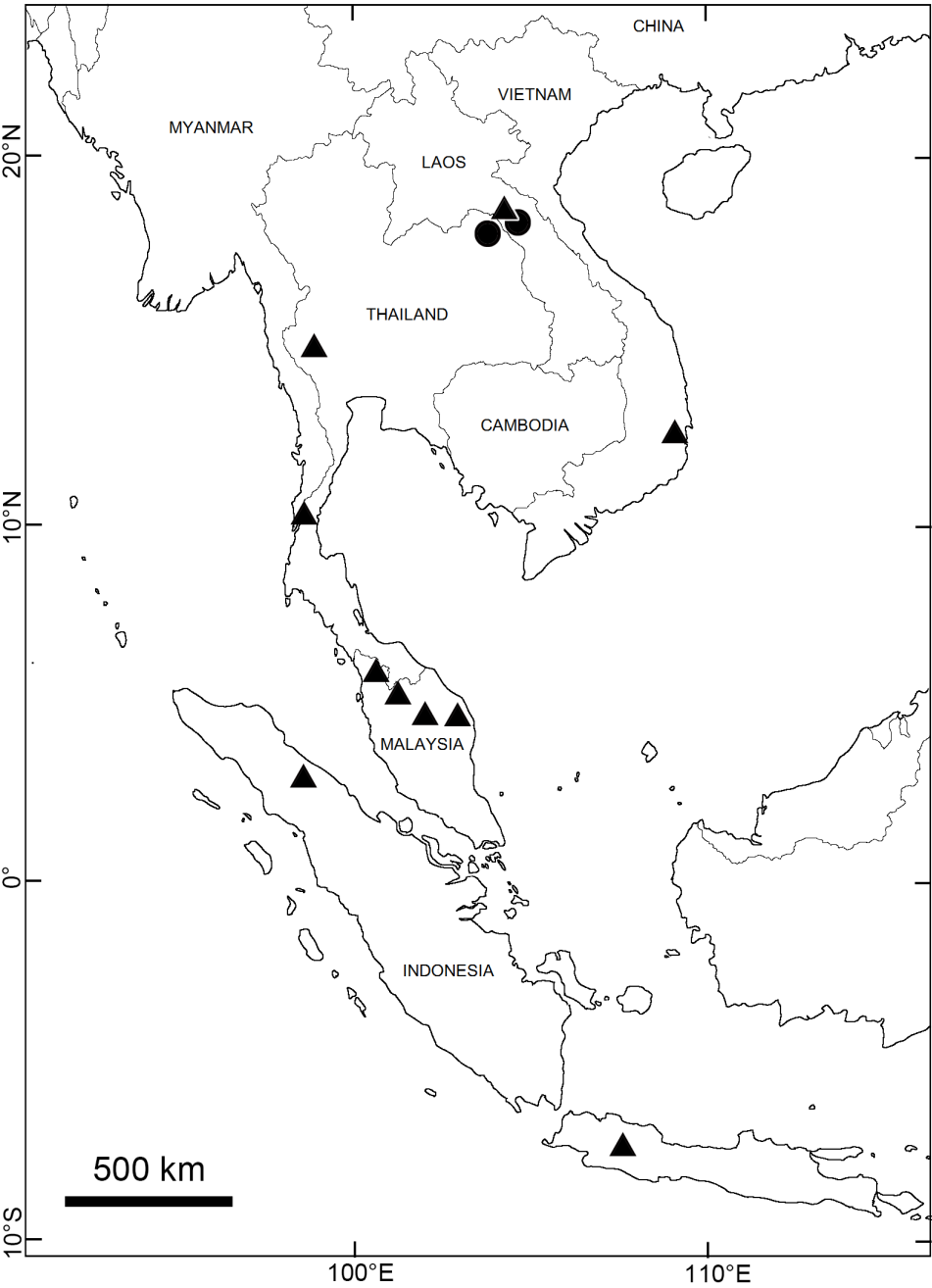


Figure 1. Distribution of *Thismia angustimitra* Chantanaorr. (●) and *T. javanica* J.J.Sm. (▲), with new localities in the Nam Kading National Protected Area in Laos (Larsen, 1987; Chantanaorrappint, 2008; Siti-Munirah & Dome, 2019; Nuraliev *et al.*, 2020; Siti-Munirah, 2023).

## NEW RECORDS

*Thismia* subg. *Thismia* sect. *Sarcosiphon* (Blume) Jonker

***Thismia angustimitra*** Chantanaorr., Blumea 53: 524. 2008; Chantanaorrapint & Sridith, Phytotaxa 217(3): 295, figs 2G–J. 2015; Nuraliev *et al.*, Phytotaxa 234(2): 138. 2015; Kumar *et al.*, Phytotaxa 319(3): 232. 2017. Type: Thailand, Nong Khai Province, Phu Wua Wildlife Sanctuary, ca 200 m alt., 18°09'53"N, 103°59'03"E, 13 Sept. 2004, *Chantanaorrapint* 765 (holotype **PSU**, isotypes **BKF**, **L**). Fig. 2.

Specimens examined.— LAOS: Bolikhamxai Province [Pak Kading District, Nam Aan Village, Nam Kading National Protected Area, 18.346380°N, 104.280777°E, alt. 335 m, 2 Sept. 2023, *Tagane et al.* Z80 (**FOF**, **KAG**, **VNM**, all in spirit)].

Distribution.— Laos (Bolikhamxai Province, Nam Kading National Protected Area) and Thailand (Beung Kan Province (formerly a part of Nong Khai Province): Phu Wua Wildlife Sanctuary) (Fig. 1).

Habitat and Ecology in Laos.— Terrestrial on sandy soil in slightly disturbed primary broad-leaved evergreen forests mixed with bamboo, near the river; at alt. 335 m. Occurs with *Thismia javanica* J.J.Sm. and *Burmannia* sp. (Burmanniaceae). Flowering and fruiting in September.

Vernacular.— Dok khomfai nokjib (ดอกโคมไฟนกกีบ)(suggested here).

Notes.— *Thismia angustimitra* resembles *T. nigricans* Chantanaorr. & Sridith of Thailand in having a brackish floral tube, but is distinguished by the presence of hairy filaments and golden-brownish hairs at the annulus mouth (Fig. 2E & F) (vs. glabrous in *T. nigricans*) (Chantanaorrapint & Sridith, 2015). The species was reported to be endemic to Thailand, but the occurrence in Laos has been expected (Chantanaorrapint, 2008). Our new locality in Laos is exactly opposite the type locality of *T. angustimitra*, separated by the Mekong River. The distance between the two localities is ca 30 km. The flower colour is black to brown (Fig. 2D) but has changed to an orange colour in the spirit collection.

*Thismia* subg. *Thismia* sect. *Thismia* subsect. *Brunonithismia* Jonker

***Thismia javanica*** J.J.Sm., Ann. Jard. Bot. Buitenzorg 23: 32. 1910; Jonker, Fl. Males., Ser. 1, Spermat. 4: 23. 1948; Larsen, Fl. Thailand 5(1): 125. 1987; Kumar *et al.*, Phytotaxa 319(3): 232. 2017; Siti-Munirah & Dome, PhytoKeys 124: 134. 2019; Nuraliev *et al.*, Phytotaxa 441(3): 237. 2020; Siti-Munirah, Proc. FRIM Conf. 26: 128. 2023. Type: “Not preserved, from Java, Res. Batavia, Tjibeureum”, according to Jonker (1938: 246). Fig. 3.

Specimens examined.— LAOS: Bolikhamxai Province [Pak Kading District, Nam Aan Village, Nam Kading National Protected Area, 18.343810°N, 104.280150°E, alt. 329 m, 2 Sept. 2023, *Tagane et al.* Z59 (**FOF**, **KAG**, **VNM**, all in spirit); same locality, 18.346380°N, 104.280777°E, alt. 335 m, 2 Sept. 2023, *Tagane et al.* Z81 (**FOF**, in spirit)].

Distribution.— Laos (Bolikhamxai Province, Nam Kading National Protected Area), Thailand, Vietnam, Malaysia and Indonesia (Fig. 1).

Habitat and ecology in Laos.— Terrestrial among leaf litter on sandy soil, in broad-leaved evergreen forests, mixed with bamboo, near the river; alt. 300–350 m. One population (the specimen *Tagane et al.* Z81) shares the habitat with *T. angustimitra*, and *Burmannia* sp. (Burmanniaceae). Flowering and fruiting in September.

Vernacular.— Dok khomfai khaokhouang (ดอกโคมไฟเขากว้าง)(suggested here).

Notes.— The occurrence of *Thismia javanica* in Laos is not surprising as the species has a large distribution range in South-East Asia including the neighbouring countries of Laos, Thailand, Vietnam, Malaysia (Peninsula) and Indonesia (Java, Sumatra) (Larsen, 1987; Siti-Munirah & Dome, 2019; Nuraliev *et al.*, 2020; Siti-Munirah, 2023) (Fig. 1). Based on our voucher specimens collected from the Nam Kading NPA, we confirm the distribution of the species in Laos.

KEY TO THE *THISMIA* SPECIES IN LAOS

1. Inner tepals free, with spreading appendages 2–3 cm long
1. Inner tepals fused to mitre, with erect appendages 0.7–1.8 cm long or without filiform appendages
  2. Flower dark grey or brownish, without filiform appendage
  2. Flower black-green, with erect appendages

***T. javanica******T. angustimitra******T. nigricoronata***

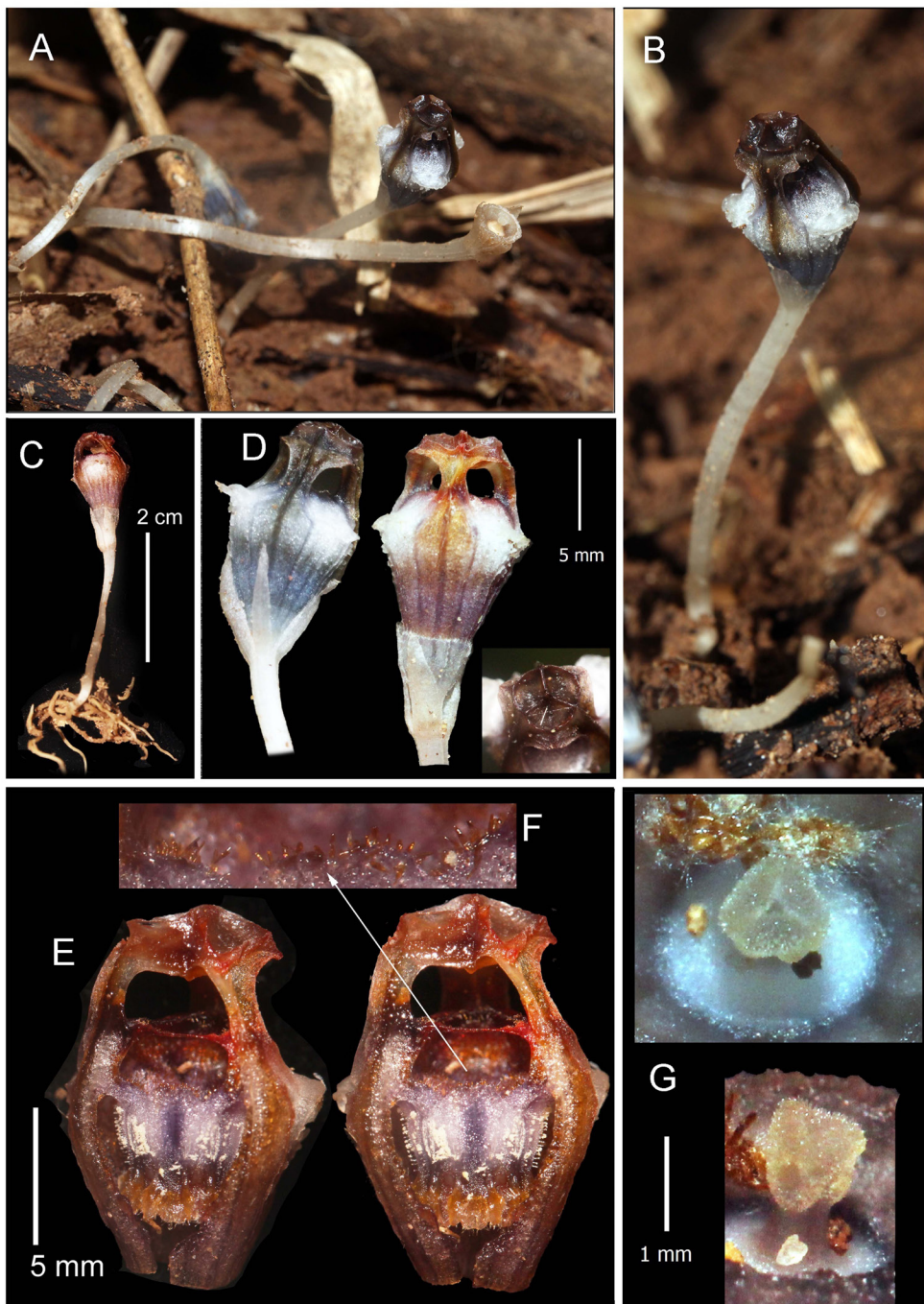


Figure 2. *Thismia angustimitra* Chantanaorr.: A & B. Plants in the habitat; C. Flowering plant; D. Flower from side and above view (mitra); E. Longitudinal section of flower; F. Golden-brownish hairs at the annulus mouth; G. Stigma. All photos from Tagane *et al.* Z80. Photos by T.B. Vuong.



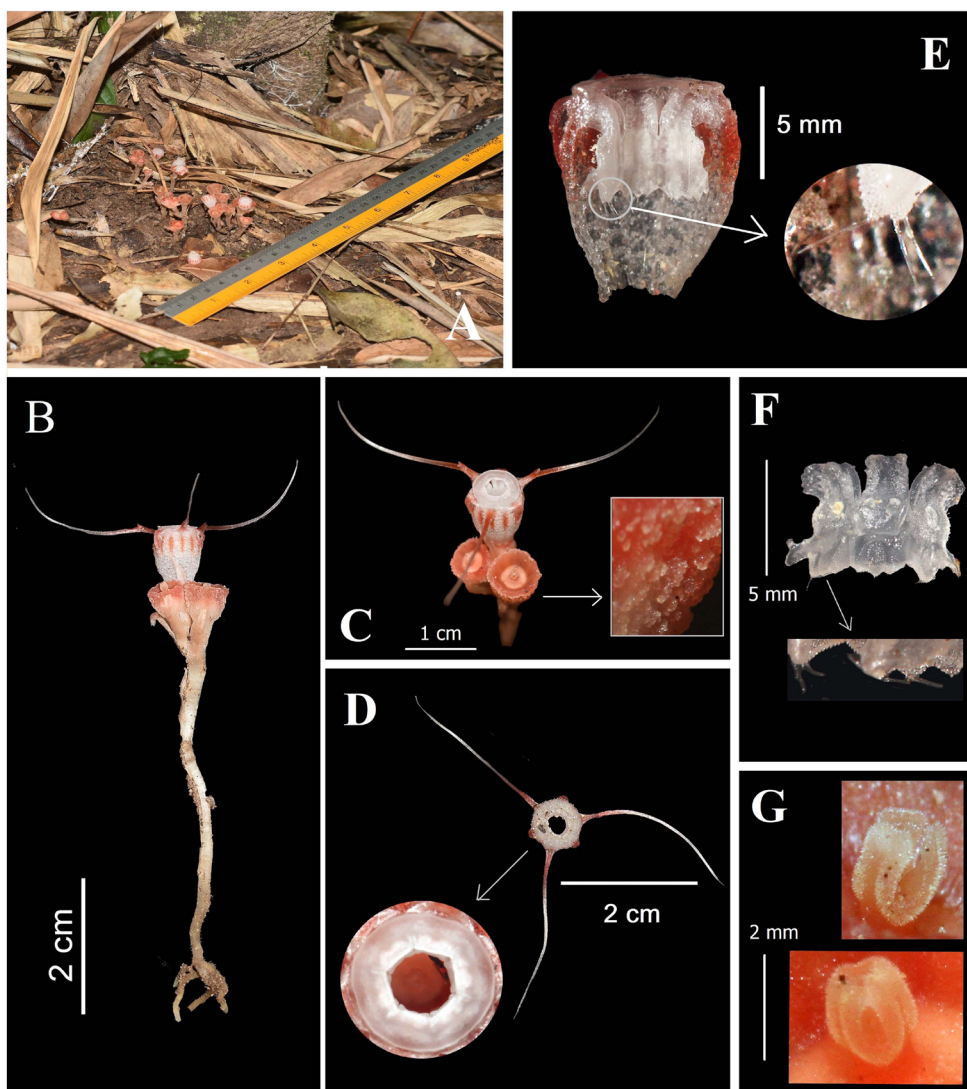


Figure 3. *Thismia javanica* J.J.Sm.: A. Habit; B. Flowering and fruiting plant; C. Oblique view of flower and young fruits, with outer surface of ovary; D. Top view of flower and the hexagonal annulus; E. Longitudinal section of floral tube showing stamens with each stamen has 3-toothed at the apex and each tooth is terminated by a hair; F. Portion of supraconnective showing 3 teeth and hairs on apex; G. Stigma. All photos from Tagane *et al.* Z59. Photos by P. Phonepaseuth (A–D), and T.B. Vuong (E–G).

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