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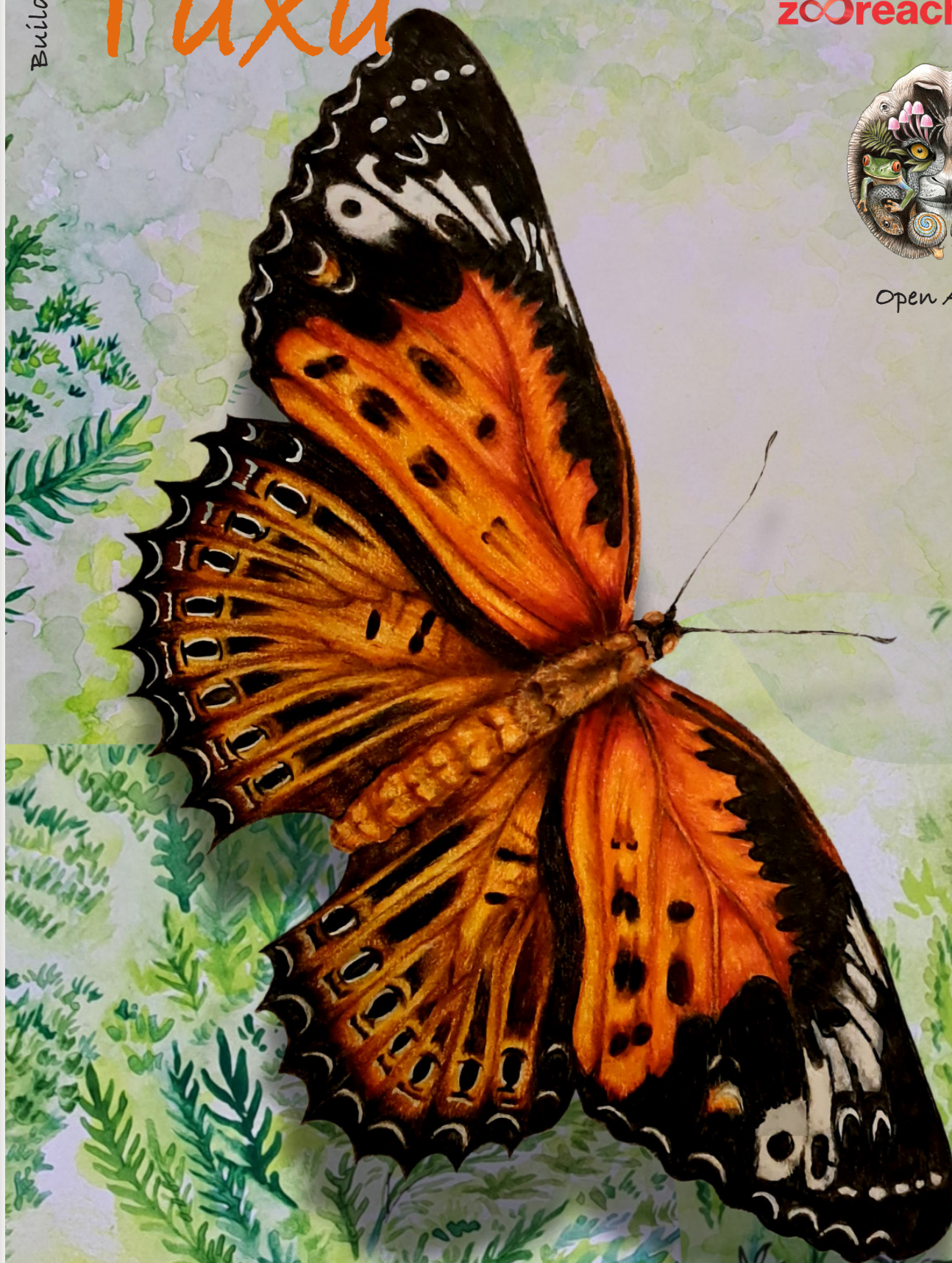
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Cover: Tamil Lacewing *Cethosia nietneri* with colour pencils and watercolours for the background; detailing with fine liners by Elakshi Mahika Molur.



Impatiens damrongii (Balsaminaceae), a new record for the flora of Vietnam

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Abstract: *Impatiens damrongii* Shimizu, previously known as a native species of southern China, northern Laos, and northern Thailand, is found first in Vietnam, in the Nam Dong Conservation Area (Thanh Hoa Province). The voucher herbarium specimens of this species collected in Vietnam are housed in the herbarium of the Vietnam National University of Forestry. A morphological description of this species, accompanied by color photographs, data on ecology and phenology in Vietnam are additionally provided.

Keywords: Limestone flora, new distribution, Nam Dong Conservation Area, plant taxonomy, Thanh Hoa Province.

The genus *Impatiens* L. (Linnaeus 1753), a member of the Balsaminaceae family, is one of the most diverse groups of angiosperms, with 1000–1121 species distributed mainly in the tropical and subtropical Africa and Asia, with the center of diversity and probable origin in southern China (Grey-Wilson 1980; Chen et al. 2007; Mabberley 2017; POWO 2024). In Vietnam, 36 species of this genus were recorded before 2003 (Tardieu 1944; Nguyen & Kiew 2000; Pham 2003). Over the last two decades, seven species were additionally reported, namely: *I. purpureifolia* S.H.Huang & Y.M.Shui (Shui et al. 2011), *I. kamtilongensis* Toppin (Vu et al. 2015), *I. parvisepala* S.X.Yu & Y.T.Hou (Hoang et al.

2015), *I. napoensis* Y.L.Chen (Nguyen et al. 2018), *I. siculifera* Hook.f. (Pham et al. 2019), *I. monticola* Hook.f. (Nguyen et al. 2021), and *I. lobulifera* (Quan et al. 2024). During the botanical fieldwork in limestone areas of the Nam Dong Conservation Area in northern Vietnam in December 2023, the authors collected an unusual species of *Impatiens*. After careful morphological examination of the species and analysis of available literature as well as collections of different herbaria, namely HN, LE, VNF, and VNM (all acronyms following Thiers 2024), this plant was identified as *Impatiens damrongii* Shimizu, which was previously reported from Thailand (Shimizu 1969; Suksathan & Ruchisansakun 2022), Laos (Souvannakhoummane et al. 2021), and southern China (Chen et al. 2023). This is the first record of this species in the flora of Vietnam, the data for which are presented in this communication.

MATERIAL AND METHODS

All collected and studied herbarium specimens of the newly discovered species are submitted and presently stored in the herbarium of the Vietnam National University of Forestry (VNF). Color photographs of plants were taken in natural habitats. Morphological

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observations and measurements were made on living plants, dried specimens, and alcohol-preserved materials. Morphological characters were described using the terminology proposed by Shui et al. (2011) and Ruchisansakun et al. (2018). Provide an insert map if possible.

RESULTS

Taxonomic Treatment

Impatiens damrongii Shimizu, Acta Phytotax. Geobot. 24: 38. 1969); S.E. Asian Stud. 8, 2: 215 (1970); Souvannakhoummane et al., Edinburgh J. Bot. 78: 6 (2021); Suksathan & Ruchisansakun, Impatiens Thailand 128 (2022). – Type: Thailand, Phitsanulok Province, Phu Miang Mountain, Shimizu, T.11634 (holotype KYO!, isotype BKF!).

Description: Herbs perennial, up to 70 cm tall. Stem green to dark green with purple tint, erect or procumbent in basal part, laxly branched at lower nodes, smooth and glabrous. Leaves petiolate, alternate, aggregated near the stem apex; petiole (1.5) 2–4 cm long; lamina chartaceous, oblong-elliptic, 6.5–11 × 2–3.5 cm, lateral veins 3–4(5) pairs. Inflorescences arising from upper axils, 1–2 flowered; peduncle 1–3.5 cm long; rachis short; bracts persistent, ovate, 7–8 × 4–5 mm, apex mucronate, margin entire to serrate, with 2–4 pairs of glands at base. Flowers yellow, 1.7–2.1 cm wide; pedicel 10–13 mm long, glabrous. Lateral sepals 4; outer pair white with a yellow or greenish tint, obliquely orbicular or broadly ovate, 10–12 × 8–10 mm, apex mucronate, margin almost entire to sparsely serrate, with 2–4 pairs of glands at the base, glabrous to sparsely pubescent; inner pair linear to narrowly lanceolate, 18–20 × 2–3 mm. Lower sepal ca. 2.3 cm long, yellow, bucciniform, 1.2–1.4 cm long, apex apiculate, distal part abruptly constricted into a yellow, helicoid spur, spur apex bifid, gray-brown. Dorsal petal light yellow, 1.8–2.0 × 1.2–2.5, deltoid, apex emarginate, midvein adaxially with a thick crest along all its length. Lateral united petal up to 2 cm wide, yellow with red longitudinal lines in basal half, upper petals suborbicular to obovate, 20 × 5–12 mm, apex rounded; lower petals obovate, 24–28 × 10–15 mm, apex emarginate, at the base with oblong auricle. Stamens 5; filaments 7–8 mm long, flat; anthers reddish pink. Ovary fusiform, glabrous. Capsule narrowly oblong, about 2 cm long, abruptly pointed at apex. (Images 1&2).

Flowering and fruiting: October–December.

Distribution: Southern China (Yunnan), northern Laos (Louangphabang), Thailand (Phitsanulok Province), Vietnam (Thanh Hoa Province, Nam Dong Conservation Area).

Habitat: This species has been found in Thailand, China, and Laos, at elevations of 1200–1900 m, in humid evergreen forests often near streams. In Vietnam it was observed in primary and secondary evergreen broad-leaved lowland dry forests, along watershed in association with *Milusa sinensis* Finet & Gagnep., *Garcinia* sp., *Begonia* sp., *Costus tonkinensis* Gagnep., *Dracaena cochinchinensis* (Lour.) S.C.Chen, *Ficus* sp., *Ocimum* sp., and *Diospyros mollis* (Kurz) Gürke at elevations of elevations of 900–950 m.

Specimens examined: Vietnam: Thanh Hoa Province, Nam Dong Conservation Area, on crystalline highly eroded rocky limestone along stream, around point 20.307 N & 104.888 E, at elevation 950 m, 09 December 2023, Nguyen Huu Cuong (VNF: NHC20231209001). Vietnam: Thanh Hoa Province, Nam Dong Conservation Area, dry evergreen broad-leaved secondary forest on cliffs composed by white crystalline marble-like highly eroded limestone along lake shore around point 20.306 N & 104.888 E, at elevation of about 900 m, not common, 10 December 2023, Nguyen Huu Cuong, Nguyen Van Ly (VNF: CL20231210012).

Note: Since *I. damrongii* is somewhat similar to *I.*



Image 1. *Impatiens damrongii* Shimizu. A&B—flowering plants in natural habitat. © Cuong Huu Nguyen

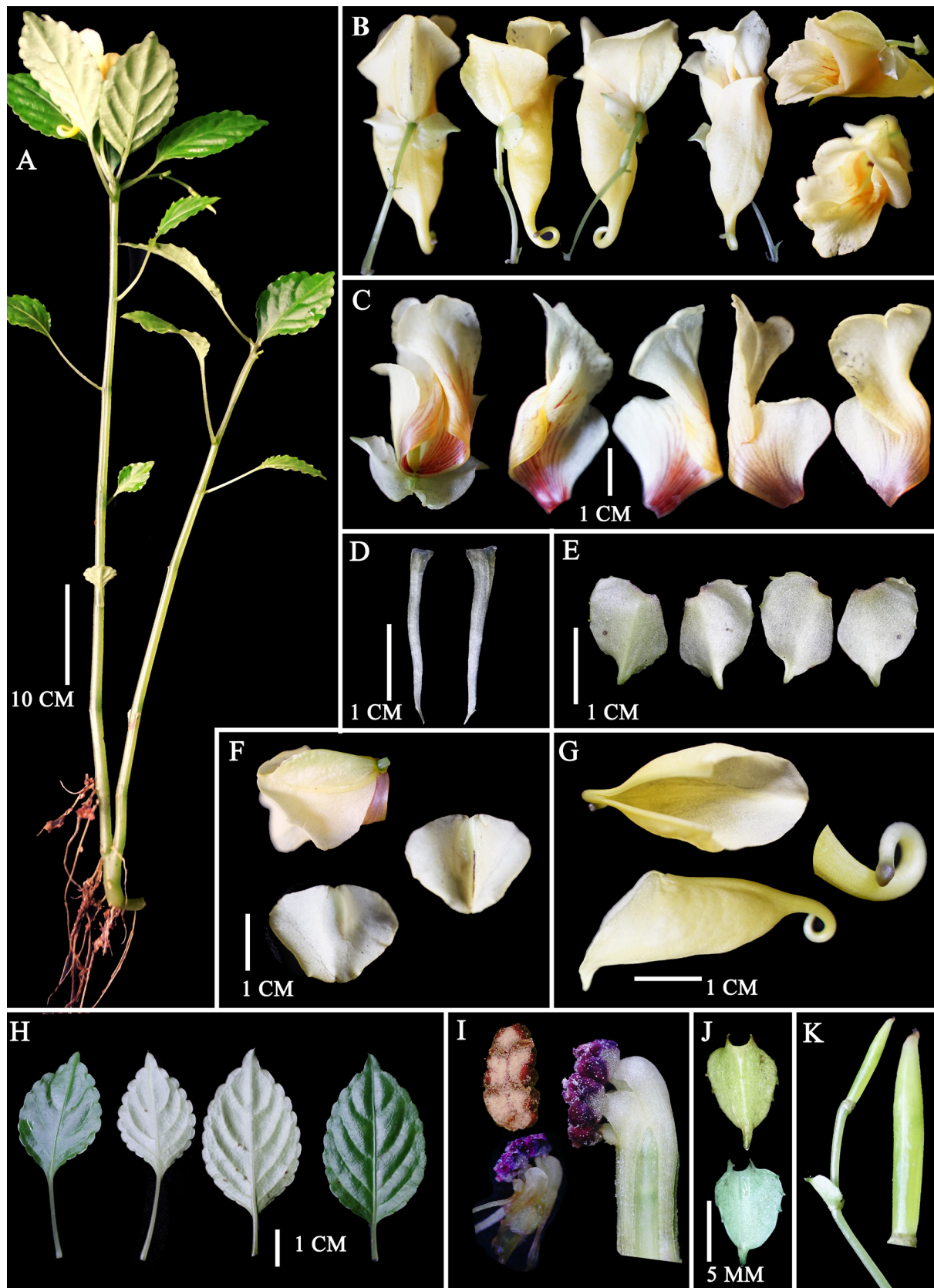


Image 2. *Impatiens damrongii* Shimizu: A—habit | B—flowers, views from different sides | C—lateral united petals, ventral and dorsal side | D—inner lateral sepal | E—outer lateral sepal | F—dorsal petal | G—lower sepal | H—abaxial and adaxial surface of leaf | I—stamens | J—bract | K—capsule. © Cuong Huu Nguyen

linearisepala S.Akiyama, H.Ohba & S.K.Wu (1996) in morphology and distribution range, further molecular study is needed to clarify their relationship. Plants of *I. damrongii* in Vietnam have minor differences from the Thailand, China, and Laos specimens, including gray-brown apex spur (vs. yellow), and habitat in the mountainous area at an altitude of 850–950 m alt. (vs. 1200–1900 m altitude).

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