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Hypericum perryongii (Hypericaceae), a new species from Philippines

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Abstract

Hypericum perryongii, from Mindanao Island, Philippines, is herein described and illustrated. This new taxon closely resembles both *H. geminiflorum* and *H. formosanum* but can be easily distinguished from the former by its larger corolla and calyx lobes and higher number of stamens per fascicle, and from the latter by its terminally 1-flowered inflorescences and the sessile and abaxially glaucous leaves.

Key words: biodiversity, Mount Hamiguitan, section *Takasagoya*, ultramafic forests

Introduction

Hypericum Linnaeus (1753: 783) comprises nearly 500 species distributed, either naturally occurring or introduced, around the world except Antarctica—making it the largest genus in the Hypericaceae (Robson 2012). These species are herbs, shrubs, or rarely trees, with showy yellow or rarely white flowers, and they grow in a wide variety of habitats. Some of the species are cultivated as ornamental plants worldwide. *Hypericum* species often have restricted geographic distributions and they can be found predominantly in the temperate regions of the Northern Hemisphere and mostly in the higher elevations of tropical mountains (Crocket and Robson 2011, Robson 2012, Meseguer *et al.* 2013).

Robson (1972, 1977, 1981, 1985, 1987, 1990, 1996, 2001, 2002, 2003, 2006, 2010a, 2010b, 2016) has provided detailed monographic and molecular phylogenetic assessments of *Hypericum* and has classified the genus into 36 sections. The four *Hypericum* species recorded in the Philippines, all naturally occurring, belong to four sections, *viz.*, section *Takasagoya* (Y. Kimura 1936: 498) N. Robson (1972 publ. 1973: 252) represented by *H. geminiflorum* Hemsley (1895: 144), section *Humifusoidium* R. Keller (1893: 211) represented by *H. pulogense* Merrill (1910: 364), section *Brathys* (Mutis ex Linné 1782: 268) Choisy (1821: 38) represented by *H. japonicum* Thunb. in Murray (1784: 702), and section *Hypericum* *sensu* Robson (2001, 2002, 2006) represented by *H. pseudopetiolum* R. Keller (1897: 638) (Robson 1974). Of these species, only *H. pulogense* is a Philippines endemic.

During June 2019, a team of botanists from the National Museum of the Philippines (NMP), Central Mindanao University (CMU), the Botanical Research Institute of Texas (BRIT), and other institutions collected plants and lichens in the Mount Hamiguitan Range Wildlife Sanctuary (MHRWS), a UNESCO World Heritage Site on the island of Mindanao. During that expedition, a collection was made of *Hypericum* that does not match any other known species. Photographs were taken, and herbarium specimens were collected and deposited at Philippine National Herbarium (PNH), Central Mindanao University Herbarium (CMUH) and the BRIT Herbarium (BRIT). Plant parts were measured in the laboratory and the morphology of this entity was compared with other species within the Malesian region.

The novelty we describe here is the fifth *Hypericum* species occurring natively in the Philippines, and the second endemic. All currently known species of this genus in the country are restricted to the northern parts of the island of Luzon (Pelser *et al.* 2011 onwards). Therefore, this discovery is significant in that it is the first *Hypericum* species in the country found outside Luzon.

Taxonomy

Hypericum perryongii Galindon, *sp. nov.* (Figures 1 & 2)

Diagnosis:—*Hypericum perryongii* closely resembles *H. geminiflorum* based on leaf morphology, completely united styles of 5, and bright yellow petals and anthers. *Hypericum perryongii*, however, is distinguished from *H. geminiflorum* by its always 1-flowered and terminal inflorescences (vs. 2- to 3-flowered and axillary), larger flower diameter (40–45 mm vs. 20–30 mm), larger sepals (6–8 × 3–4 mm vs. 1.5–2.5 × 1–1.5 mm), larger petals (20–22 × 15–17 mm vs. 9–15 × 5–7 mm), higher number of stamens per fascicle (25–30 vs. 6–11), longer styles (13–16 mm vs. 4–7 mm), and ovoid capsules (vs. narrowly cylindrical). It is also similar to the Taiwanese species *H. formosanum* Maximowicz (1881: 428) but *H. formosanum* has terminal inflorescences that are 1–3-flowered and 1–2-flowered on subsidiary branches (vs. strictly terminal and 1-flowered in *H. perryongii*) and sessile and not glaucous leaves (vs. subsessile and abaxially glaucous).

Type:—PHILIPPINES. Mindanao Island: Davao Oriental Province, San Isidro Municipality, La Union Barangay, Mount Hamiguitan Range Wildlife Sanctuary, 1563 m, 6.73728°N, 126.18364°E, Tropical Upper Montane Rain Forest, mossy forest going to peak, 18 June 2019, *Plants and Lichens of the Southern Philippines Survey 1320* (holotype PNH!, isotypes BRIT!, CMUH!).

Description:—Erect shrub, 0.5–1.5 m, stems and branches reddish brown, dark red at tip of young twigs, terete, nodes swollen in mature stems. **Leaves** subsessile, decussate, broadly elliptic-lanceolate, 14–39 × 4–21 mm, thinly coriaceous, glabrous, abaxially glaucous, adaxially dark green, base broadly cuneate to obtuse, margin entire and slightly revolute, apex subacute to obtuse, usually apiculate; midvein and lateral veins keeled abaxially, more or less flat adaxially, with 6–8 lateral veins on each side of midvein, reticulations not persistent, or scarcely branched, either first or second basal vein uniting to the other succeeding lateral veins to form strong intramarginal vein towards apex; laminar gland dots pale, dense. **Inflorescence** always terminal, 1-flowered; pedicel yellowish green, terete, clavate, 4–7 mm long. **Flowers** slightly concave, 40–45 mm in diameter; buds narrowly ovoid. **Sepals** free or slightly connate at base, ascending in buds and fruits, pale green, ovate to oblong-lanceolate, 6–8 × 3–4 mm, surface glands pale, linear, margin entire. **Petals** bright yellow, broadly obovate, 20–22 × 15–17 mm, entire to subundulate, surface glands all pale, linear, apiculus absent. **Stamen fascicles** 5, 7–11 mm long, each with 25–30 stamens; anthers bright yellow, glands not observed. **Ovary** ovoid, 3–5 × 2–3 mm; styles 5, completely united, 13–16 mm long, more than twice as long as the ovary; stigmas completely united, forming rounded mass; placentae 5. **Capsule** 9–12 × 4–7 mm, septa 5, yellowish green when young turning purplish red when mature, ovoid, dehiscent when mature. **Seeds** brown, narrowly cylindrical, usually falcate, 0.5–0.7 × 0.15 mm, with narrow wing-like apical expansions.

Additional specimen examined:—PHILIPPINES. Mindanao Island: Davao Oriental Province, San Isidro Municipality, La Union Barangay, Mount Hamiguitan Range Wildlife Sanctuary, 1563 m, 6°44'14.0"N, 126°11'1.7"E, forest on ultramafic soil, 13 August 2019, *V.B. Amoroso 18826* (BRIT!, CMUH!, PNH!).

Distribution and habitat:—This species is endemic to the Philippines, Mindanao Island, Davao Oriental Province, San Isidro Municipality, in the MHRWS. It was encountered on a narrow and exposed ridge near the mountain summit with an ultramafic substrate at 1563 m a.s.l.

Phenology:—Flowering during June, and possibly until late July; fruiting in August.

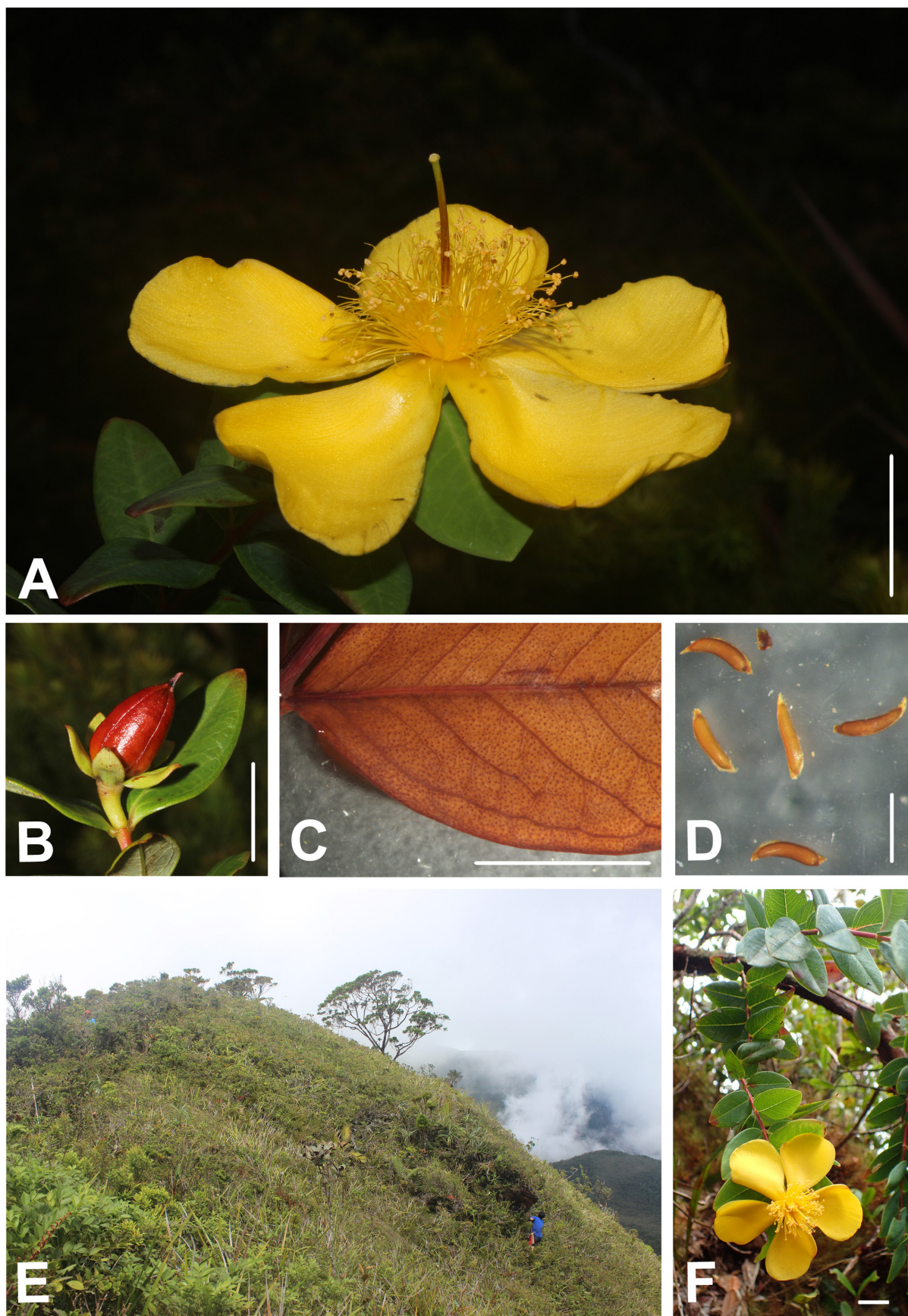


FIGURE 1. *Hypericum perryongii* Galindon *sp. nov.* **A.** Flower. **B.** Fruit. **C.** Abaxial leaf surface of a dried leaf showing dense glandular dots. **D.** Seeds. **E.** Portion of the narrow summit of Mount Hamiguitan where the species was collected. **F.** Habit. Scale bars: 1.0 cm (A, B, C, F); 0.5 mm (D). Photos: A–E by J.M.M. Galindon; F by D.N. Tandang. (A–E from *Plants and Lichens of the Southern Philippines Survey 1320*; F from *V.B. Amoroso 18826*.)

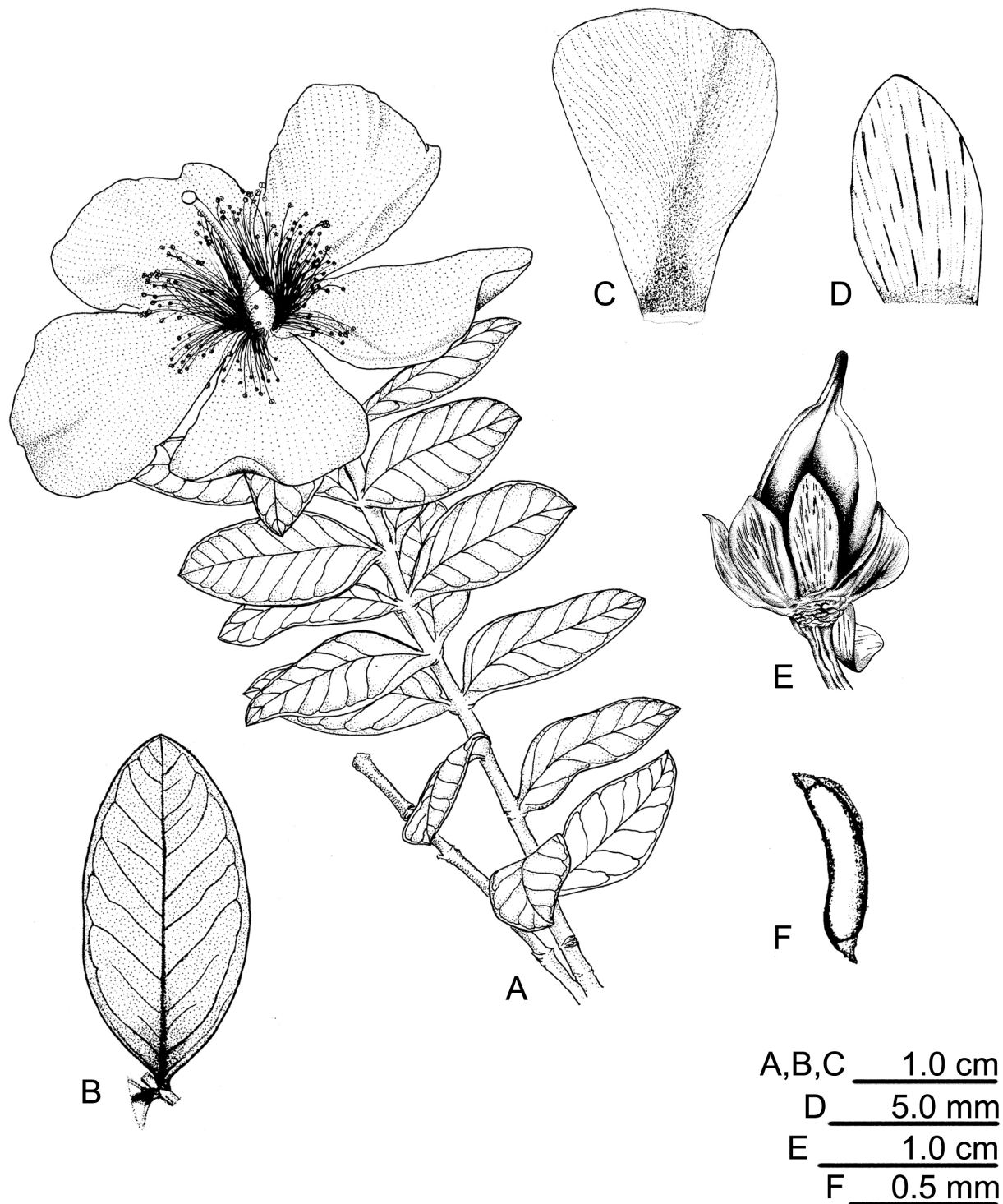


FIGURE 2. *Hypericum perryongii* Galindon *sp. nov.* **A.** Flowering branchlet. **B.** Leaf, abaxial view. **C.** Sepal. **D.** Petal. **E.** Fruit. **F.** Seed. A, D by Samuel Guarino; B, C, E, F by J.M.M. Galindon. (All from *Plants and Lichens of the Southern Philippines Survey 1320.*)

Etymology:—The species is named in honor of Dr. Perry S. Ong (1960–2019), renowned academician, scientist and conservation biologist from the University of the Philippines–Diliman. Throughout his career, Dr. Ong championed the protection and conservation of Philippines biodiversity through science-based policies and the participation of local communities.

Notes:—This species belongs to *Hypericum* section *Takasagoya* as characterized by its completely united styles (Robson 2012). Robson (2012) listed five species under this section, namely; *H. formosanum*, *H. nakamurae* (Masamune 1940: 410) N. Robson (1972 publ. 1973: 253) (\equiv *H. formosanum* var. *nakamurae* (Masam.) S.S.Ying

(1995: 185)), *H. senkakuinsulare* Hatusima (1973: 2), *H. geminiflorum* with a derivative subspecies *H. geminiflorum* subsp. *simplicistylum* (Hayata 1911: 41) N. Robson (1972 publ. 1973: 254) and *H. subalatum* Hayata (1911: 41). These species are only found in Taiwan, except for *H. geminiflorum* which can also be found in Luzon Island, Philippines and *H. senkakuinsulare* which is confined to the Ryukyu Islands, Japan.

The new species resembles both *H. geminiflorum* and *H. formosanum* but is distinct in its always 1-flowered and terminal inflorescence. It can be placed with the long-sepal group of *H. formosanum*, *H. nakamurae* and *H. senkakuinsulare*. However, the abaxially glaucous leaves distinguishes *H. perryongii* from all other species in section *Takasagoya*.

Based on Nickrent *et al.* (2006 onwards), Leonard Co documented a species of *Hypericum* (plant1; DOL nos. 31740 and 31741) in Bukidnon, Mindanao in 2007. This may be the first record of *Hypericum* in the island of Mindanao. On close inspection of the photos of the plant, it is quite distinct from *H. perryongii* and warrants a specimen collection for comparison with the known *Hypericum* species.

Conservation status:—*Hypericum perryongii* is only known from a single individual at the type locality, within the 68.34 km² MHRWS. We estimate that there are < 50 individuals of this species in the area because we were unable to observe additional populations especially at elevations below the summit. Thus, the species may likely warrant the category of Critically Endangered (CR) based on the IUCN Standards and Petitions Subcommittee (2019). However, because our current data are so uncertain and there is still a need to gather more information about its current status and threats, we recommend the category Data Deficient (DD).

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