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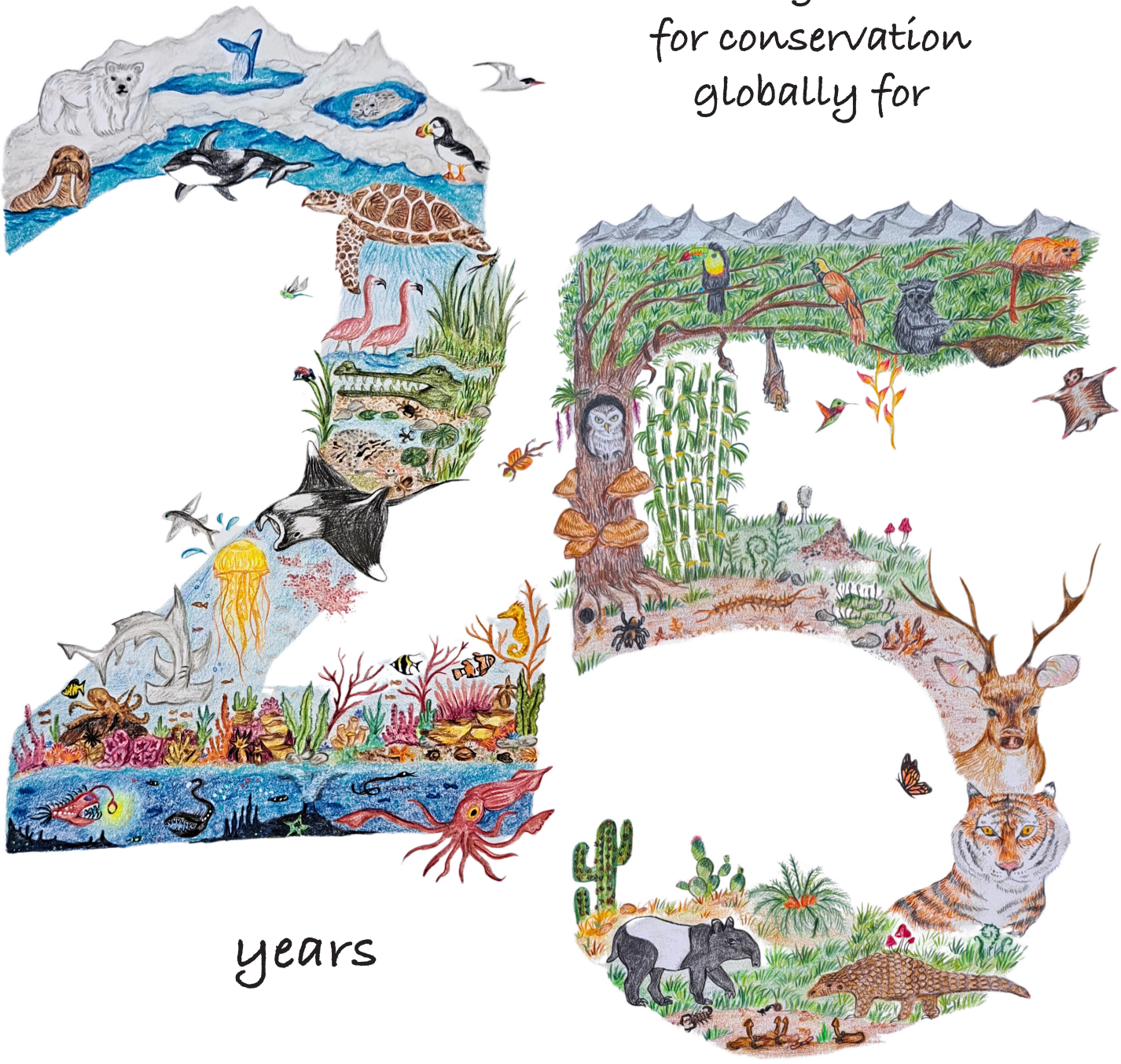

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NOTE

Smilax borneensis A.DC. (Smilacaceae): an addition to the flora of India

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The floristic diversity of the northeastern region of India is not well-documented due to its inaccessibility and difficult terrain. Although a detailed floristic study has already been done on *Smilax* L. from the state of Arunachal Pradesh (Chowdhery et al. 2009) and other parts of eastern Himalaya (Rae 1994; Baruah et al. 2022), however proper documentation of the genus in the northeastern region is yet to be accomplished. Traditionally, the family Smilacaceae comprised of two genera, *Smilax* L. and *Heterosmilax* Kunth, which differ by their connate tepals and the variable number of stamens (3, 6, 9–12) with connate filaments. Qi et al. (2013) merged *Heterosmilax* Kunth with *Smilax* L. based on the molecular phylogeny, by which only one genus *Smilax* exists in the family.

Smilax L. is the type genus of the family Smilacaceae, with 261 species (POWO 2023). These are widely distributed mostly in tropical and subtropical areas, but also found in temperate regions in the Southern and Northern Hemispheres (Chen et al. 2006; Qi et al. 2013). Koyama (1963, 1971, 1975), Noltie (1994), and Baruah et al. (2011, 2017) have reported many species from the eastern Himalayan region. In India, the genus is represented by 33 species, three subspecies and two varieties, which are distributed in almost all parts of India, especially in Uttar Pradesh, Tamil Nadu, Bihar, Uttarakhand, Jammu & Kashmir, northeastern states, West Bengal, and Andaman & Nicobar Islands. Northeastern India hosts 29 species of *Smilax*, of which 13 species and two varieties are reported from Arunachal Pradesh (Murthy & Bhaumik 2020). However, like other monocots of Northeast India, the Smilacaceae is also yet to be properly documented and studied.

During the botanical exploration trips in the Papum Pare district of Arunachal Pradesh, the authors collected specimens belonging to the genus *Smilax*. For preliminary identification, all the detailed morphological characters, i.e., leaves, stems, inflorescence, flowers, and fruits were studied (Image 1). A perusal of relevant literature and herbarium materials housed at various Indian herbaria (e.g., CAL, ASSAM, ARUN, BSIS, BSHC, BLAT) the specimens were identified as *Smilax borneensis* A.DC., a species so far not reported from India. This was further compared and confirmed with the photograph of the type specimen deposited at Kew Herbarium (K) (available at https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:541318-1). A detailed description, ecology, and distribution along with colour photographs are provided for easy identification of the species.

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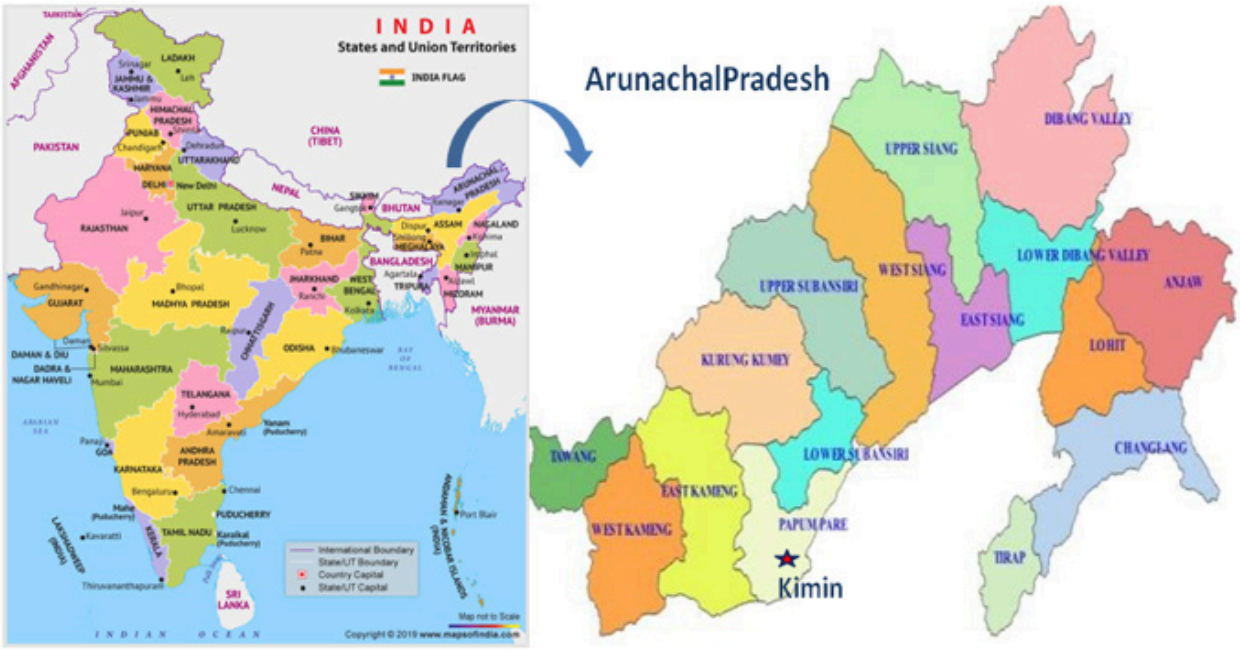

Figure 1. Distribution of *Smilax borneensis* in Arunachal Pradesh.

Measurements and morphological character assessments of the specimens examined based on freshly collected material. Three numbers of specimens were collected with flowers and fruits and it was pressed in blotting papers for drying for about one month. After proper drying the specimens were mounted in herbarium sheets and finally deposited in ASSAM and GUBH herbaria. The data have been compared with published descriptions of morphologically similar species (Candolle & Candolle 1878; Heckroth et al. 2004; Siti & Sulistyaningsih 2019) and type specimens in herbaria (K, FL, CAL). *S. borneensis* is closely similar to *S. gigantea* Merr., a native species of Borneo. Both species develop ovate to acute domatia which encloses the stem from all sides, but *S. borneensis* can be easily differentiated from *S. gigantea* which have larger leaves (about 35 cm long and wide) and long inflorescence (up to 30 cm) (Siti & Sulistyaningsih 2019).

Smilax borneensis A.DC., Monogr. Phan. 1: 202. 1878.

A large, coarse, perennial woody vine, inflorescence-bearing branches terete, with numerous secondary branches, brown, striate, 8–10 mm in diameter, armed with scattered, very stout, narrowly pyramidal spines about 2–3 mm in length. Leaves broadly ovate, 9–18 × 5–10 cm, base broadly rounded and deeply cordate, apex very shortly and abruptly acuminate, coriaceous to subcoriaceous, upper surface smooth, glabrous and shining, lower surface softly and densely pubescent; petioles stout, about 2–3.5 cm long; domatia broadly clasping nodes, ovate to acute, light brown in colour; primary veins 7–9, outer four less prominent, sometimes outermost two barely noticeable. Inflorescence of 1–3 umbels, borne in leaf axil; peduncles 2–4 cm long, straight, slightly compressed; umbel 15–28-flowered. Male flowers slightly greenish, 1.5–2 cm in length, pedicels 1–1.8 cm long; outer tepals broad 4–8 × 1–3 mm; inner tepals thin, 4–6 × 0.2–0.5 mm; stamens 6, 7–12 mm long; anthers white, basifixed. Female flowers pinkish-green, pedicels 1–1.8 cm long; outer tepals broad, 5–9 × 1–3 mm; inner tepals thin, 5–9 × 0.1–1.5 mm; ovary 3-chambered, stigma 3-lobed. Fruits greenish, become red when ripened, fleshy, globose, c. 1 cm in diam., 15 to 28 in each umbel.

Specimens examined: Female plant of Smilax borneensis; India, Arunachal Pradesh, Papum Pare district, Kimin, 27.3229°N & 93.9725°E (Figure 1), 25 August 2021, coll. K. Deka, 2574 (ASSAM), 2575 & 2576 (GUBH).

Flowering May to July, Fruiting August to November.

Habitat & Ecology: Grows in gaps of primary hill forests and scrub jungles, up to 9,000 m. The species is associated with *Calamus inermis, Calamus latifolius, Castanopsis indica, Castanopsis tribuloides*, *Vatica lanceaefolia*, and *Ficus semicordata* in the same ecological community. *Smilax borneensis* is a facultative

Image 1. *Smilax borneensis*: A—Habit | B—Female flower | C—Mature fruit with domatia. © Kishor Deka.

ant-plant that provides both shelter (domatia) and food (extrafloral nectar) for opportunistically nesting ants. The native range of this species is Borneo and here reported for the first time from Arunachal Pradesh, India. There is a possibility of its occurrence in Myanmar and Thailand.

IUCN status: Not assessed.

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