

Extended distribution of endemic species *Argyreia lawii* (Convolvulaceae) from the Western Ghats to the Eastern Ghats ecoregion, India

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Abstract: *Argyreia lawii* C.B.Clarke, an endemic species previously known to have a narrowly restricted distribution within the Western Ghats region, has now been recorded in the Eastern Ghats of India, marking an extended distributional range. During the current study, this species was collected from the Eastern Ghats of Telangana, representing a new record for this ecoregion. Notes on its phenology and distribution status are provided to enhance understanding of this species.

Keywords: Nagarkurnool district, Narrowly endemic, New Record, Telangana

Introduction

Argyreia Lour. (Convolvulaceae) comprises 143 species, and its native range of distribution includes Madagascar, tropical and subtropical Asia (POWO, 2024). In India, the genus is represented by 41 species, 18 of which are endemic (Lawand, 2019; Lawand & Shimpale, 2021). During a recent floristic exploration in the Eastern Ghats of Telangana, we located a unique and interesting population of *Argyreia* growing in the dry deciduous forests of the Achampet forest division in the Nagarkurnool district, Telangana. After a critical study of the specimens, review of the relevant literature (Clarke, 1883; Cooke, 1908; Biju, 1997; Lawand, 2019), and comparison with type specimens (GH, K, P - digital images), the

specimens were identified as *A. lawii* C.B.Clarke. Originally, *A. lawii* was described by Clarke (1883) based on the collections made by J.S. Law from Malabar, Konkan Province, and Baba Budan Hills in Karnataka State. Recently, it was rediscovered from the type location in Karnataka (Baba Budan Hills) and also in Maharashtra (Bhudargad Fort and Patgaon, Kolhapur district) by Lawand *et al.* (2019). With fresh collections and digital images, the understanding and identification of this endemic species have become clearer. As a result, it was recently reported from the Western Ghats part of the Tamil Nadu (Shalini *et al.*, 2018) and Kerala (Rajeswari & Nisha, 2023). Currently, *A. lawii* is considered endemic to the Western Ghats of India, specifically in Karnataka, Kerala, Maharashtra, and Tamil Nadu. However, the present collection from the Nagarkurnool district of Telangana, in the Eastern Ghats, along with a review of relevant literature (Gamble, 1922; Pullaiah *et al.*, 2011; Lawand, 2019; Pullaiah & Sadasivaiah, 2024), indicates that this species has not been previously reported from the Eastern Ghats ecoregion.

This new record represents an extended distribution for the species. The collected specimens have been deposited in TBGH and BSID for future reference. A brief description,

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accompanied by color photographs, is provided here to facilitate further identification and study.

Taxonomic treatment

Argyreia lawii C.B. Clarke in Hook.f., Fl. Brit. India 4: 190. 1883; T. Cooke, Fl. Bombay 2: 257. 1905; Talbot, Forest Fl. Bombay 2: 287. 1911; Gamble, Fl. Madras 2: 908. 1923; B.D. Sharma *et al.*, Fl. Karnataka: analysis 179. 1984; Venkanna & Das in N.P. Singh *et al.*, Fl. Maharashtra, Dicot. 2: 445. 2001; P. Singh *et al.*, Endemic Vasc. Pl. India 144. 2015; Shalini *et al.*, Indian J. Forest. 41(3): 265. 2018; Lawand *et al.*, J. Threat. Taxa 11(14): 14918. 2019; Rajeswari & Nisha, J. Threat. Taxa 15(7): 23627. 2023. *Lectotype* (designated by Lawand & Shimpale, 2017): INDIA, **Karnataka**, Baba Budan Hills, *s.d.*, Law 28 (K [K000830722] image!).

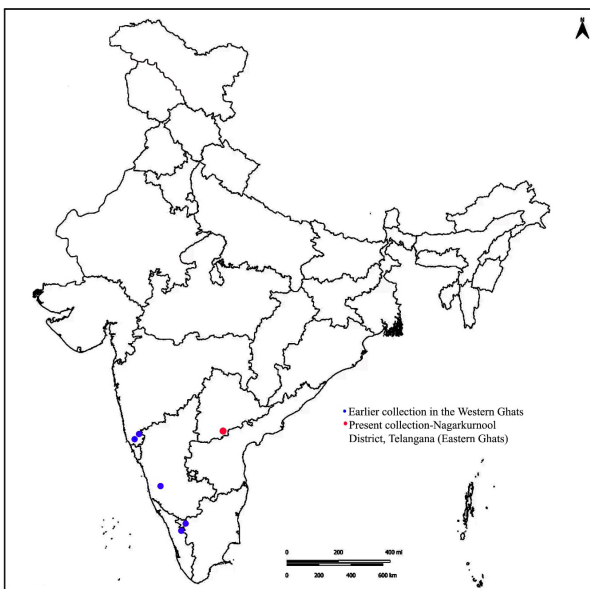
Fig. 1

Perennial climbers. Stems terete, herbaceous towards apex and basal semi-woody, green, strigose-villous, white silky hairy. Leaves simple, alternate; petioles terete, 1.5–3 cm long, strigose-villous, channelled above; lamina ovate or elliptic-ovate, 4.5–13.5 × 2–9 cm, base truncate to rounded, margins entire, apex acute and apiculate, sparsely hirsute above, densely hirsute below, dark green above, white below, secondary

nerves 6–11 pair, veins strongly impressed below. Inflorescence a compact cyme, axillary, 3–5-flowered, dichotomously branched with one central flower or not; peduncle longer than petiole, terete, 4.5–8 cm long, hirsute to strigose-villous. Flowers subsessile; bracts 3, subequal; outer bract lanceolate or oblong-lanceolate, 1.5–2 × 0.5 cm, margins entire, apex acute or mucronate, white hairy, faintly three nerved, wider than the inner ones; inner bracts linear or linear-lanceolate, 1.4–1.8 × 0.2 cm, margins entire and ciliate, apex acute or mucronate, white hairy, faintly three nerved. Sepals 5, subequal; outer two ovate, *c.* 8 × *c.* 4 mm, apex acute, hirsute outside, glabrous inside, purple margined; inner three ovate, *c.* 7 × *c.* 5 mm, apex acute, hirsute outside, glabrous inside, hyaline margins, base with prominent purple tinge. Corolla deep pink or pink-purple, infundibuliform, 6–7 cm long, 5–5.5 across, hairy outer on midpetaline bands, corolla lobes twisted in bud. Stamens 5, inserted in corolla tube, unequal in length, filaments pink, dilated and glandular hairy at base; short filaments 3, 0.6–0.8 cm long; long filaments 2, 1.3–1.5 cm long; anthers basifixed, arrow shaped, 3–4 mm long, pale pink. Ovary conical, pale green, 1–2 mm diameter, encircled by angular disk; style 2.5 cm long, white, glabrous; stigma biglobose, papillate, pink. Fruits not seen.

Flowering & fruiting: Flowering from September to October; fruiting not observed.

Habitat & ecology: Rarely found in dry deciduous forests under shady condition, on red soils with humus, at an altitude of 700–750 m. It grows in association with *Argyreia sericea* Dalzell & A. Gibson, *Apluda mutica* L., *Cynoglossum zeylanicum* (Sw. ex Lehm.) Thunb. ex Brand, *Grewia rothii* DC., *Rhynchosia rothii* Benth. ex Aitch., *Phanera vahlii* (Wight & Arn.) Benth., *Triumfetta rhomboidea* Jacq., *Heteropogon contortus* (L.) P. Beauv. ex Roem. & Schult., *Phoenix loureiroi* Kunth, *Dioscorea bulbifera* L., *Oplismenus compositus* (L.) P. Beauv. etc. Generally, climbing on *Phanera vahlii* and other adjacent species.



Map. 1: Map showing the distribution information of *Argyreia lawii* C.B. Clarke in India.

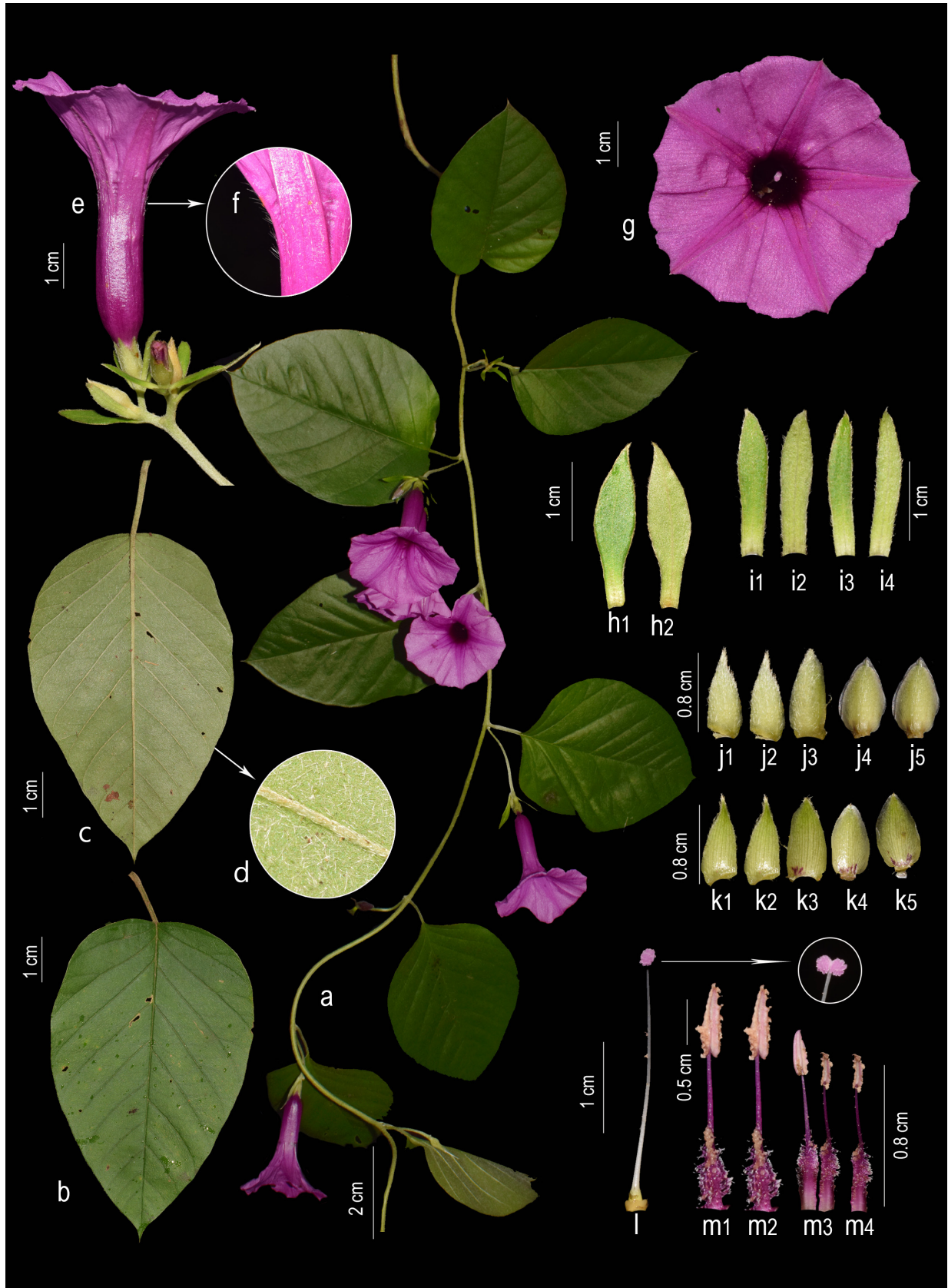


Fig. 1. *Argyreia lawii* C.B.Clarke: **a.** Habit; **b.** Leaf adaxial surface; **c.** Leaf abaxial surface; **d.** Leaf adaxial surface—close up; **e.** Inflorescence; **f.** Hairs on midpetaline line; **g.** Flower—top view; **h.** Outer bracts (h1—adaxial surface; h2—abaxial surface); **i.** Inner bracts (i1 & i2—adaxial surface; i3 & i4—abaxial surface); **j.** Sepals—outer surface; **k.** Sepals—inner surface; **l.** Pistil; **m.** Stamens (m1 & m2—longer stamens; m3 & m4—smaller stamens).

Distribution: Endemic to Peninsular India. Western Ghats: Karnataka (Konkan Province & Baba Budan Hills), Kerala (Thavalam, Palakkad District), Maharashtra (Bhudargad Fort & Patgaon, Kolhapur District), and Tamil Nadu (Nilgiris District, Coonoor Ghat) and Eastern Ghats (Nagarkurnool District, Telangana – present report).

Specimens examined: INDIA, **Telangana**, Nagarkurnool District, Way to Srisailam, 10.10.2024, B. Sadasivaiah, P. Bharath, P. Rahul & K. Prasad 5088 (TBGH! & BSID!).

Conservation status: *Argyreia lawii* is primarily known from the Western Ghats, but the present collection from the Eastern Ghats of peninsular India highlights its status as a narrowly endemic species in this region. At the current collection site, the species has a restricted distribution, with approximately 20 individuals observed in the Achampet Forest Division (on the route to Srisailam) in Nagarkurnool District, Telangana. The species' habitat is currently under significant threat due to seasonal and anthropogenic forest fires, as well as a major biological threat from an unidentified larvae. Based on 'Extent of Occurrence' (Criterion B1: EOO < 100 km²) and 'Area of Occupancy (Criterion B2: AOO < 10 km²), together with the number of locations – 1 (subcriterion 'a') and the projected decline in area, extent and/or quality of habitat (subcriterion 'b(iii)'), *A. lawii* is tentatively assessed here as 'Critically Endangered [CR B1 B2 a, b(iii)]' (IUCN, 2024) in the Eastern Ghats ecoregion. Further exploration across its entire distribution range is needed to ascertain its actual status.

Note: Fruit set was not observed in this species, as the stamens were predominantly predated upon by larvae of an unknown species. Nearly all the stamens were consumed by the larvae, while the pistil remained unaffected. A distinctive feature of this species is the prominent purple tinge at the base of each sepal, a characteristic not observed in any other species of the genus. This unique

trait serves as a key distinguishing feature for this species.

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