

# Three new additions to the Cyperaceous Flora of Nepal

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**Abstract:** Three species of Cyperaceae, *Fimbristylis naikii* Wad.Khan & Lakshmin., *Schoenoplectiella praelongata* (Poir.) Lye and *Scleria psilorrhiza* C.B.Clarke ex Hook.f., are reported from Nepal for the first time from Shuklaphanta National Park in Kanchanpur district. A detailed description, distribution notes and photographs for each species are provided.

**Keywords:** Cyperaceae, Flora, Nepal, New record.

## Introduction

Cyperaceae also called the sedge family, is the third-largest monocot family after Orchidaceae and Poaceae with c. 95 genera and c. 5600 species (Larridon *et al.*, 2021; POWO, 2024). The family shows cosmopolitan distribution and predominantly comprise perennial or annual herbs, (Goetghebeur, 1998; Dai *et al.*, 2010). The species of this family are especially abundant in damp, wet or marshy habitats. Due to the highly reduced floral and fruit structure as well as the considerably uniform morphology of their vegetative organs, the identification of Cyperaceae is usually difficult (Schuyler, 1971). In sedges, the achene or nut morphology shows considerable variation in their color, size, shape, ornamentation and epidermal sculpturing, and therefore provide useful characters for taxonomic delimitation (Patil & Prasad, 2016).

In Nepal, the family Cyperaceae is represented by 19 genera and 224 species (Bhandari *et al.*, 2021;

Shrestha *et al.*, 2022; Ojha *et al.*, 2023) and they have a distribution range from tropical lowland areas of the Himalayan foothills (Tarai) to alpine areas (Shrestha *et al.*, 2018). During a floristic exploration in Shuklaphanta National Park in 2022-2023, the first author collected a few Cyperaceae specimens. Based on their detailed morphological studies, they were identified as *Fimbristylis naikii* Wad.Khan & Lakshmin., *Schoenoplectiella praelongata* (Poir.) Lye and *Scleria psilorrhiza* C.B.Clarke ex Hook.f., that have not been reported so far from Nepal. Therefore, the present study provides a detailed description along with, information on type, phenology, distribution, habitat, and color photo plates for each species.

## Materials & Methods

During fieldwork in Nepal's Western Tarai, plant specimens from the Cyperaceae family were collected and the identity of all these three species has been thoroughly checked consulting relevant literature (Wadoodkhan & Lakshminarasimhan, 2008; Dai *et al.*, 2010; Dey & Prashanna, 2015; Wadoodkhan, 2015) and comparing them with the type and general specimens in The National Herbarium and Plant Laboratories (KATH), The Central National Herbarium (CAL) and various online herbarium databases. All these specimens from field studies have been preserved as herbarium specimens following the standard methods (Forman and Bridson, 1989) and were housed in the herbarium (KATH), for future reference.

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### Taxonomic Treatment

**Fimbristylis naikii** Wad.Khan & Lakshmin., J. Bot. Res. Inst. Texas. 2: 381. 2008. *Type*: INDIA, Maharashtra, Kolhapur-Amboli Road, 18.10.1995, Khan 4341 (holo CAL). **Fig. 1a-d**

Annual, non-rhizomatous, 15–25 cm tall. Root fibrous. Stem slender, c. 1 mm thick. Leaves ligulate, 1–2 mm wide, small and as long as stems, hairy; sheath densely hairy. Inflorescence simple to sub-compound, 2–3 cm long, with 3–5 spikelets, involucre bracts 3, foliaceous and setiform, longest bract overtopping the inflorescence. Spikelets solitary, ovoid, 3–5 × 3–3.5 mm, many flowered. Glumes spiral, ovate, 2–3 × 1–2 mm, distinctly apiculate, reddish-brown with whitish keel portion on back, many nerved. Stamens 2. Style ciliate, stigma 2-fid. Nuts biconvex, 1.4–1.6 × 0.9–1.2 mm, turgid in the center, smoothly sub-trabeculate and with conspicuous tuberculations.

*Flowering and fruiting*: Flowers and fruits were observed during September to October.

*Habitat*: Near roadsides.

*Distribution*: India and Nepal (present record).

*Specimen examined*: NEPAL, **Sudur Paschim Province**, Kanchanpur district, Shuklaphanta National Park, N 28.811730°, E 80.16506°, 200 m, 19.10.2022, Dipa Paneru DP0221 (KATH).

*Notes*: This species is closely related to *Fimbristylis tomentosa*, *F. dichotoma* and *F. albovidis* and these are also found in Nepal. However, it differs with *F. tomentosa* having tuberculate nut surface pattern and broadly obovoid nutlet. It differs with *F. dichotoma* in having many nerved glumes. It varies from *F. albovidis* in having smaller nuts and reddish brown with whitish keel portion on back.

**Schoenoplectiella praelongata** (Poir.) Lye in Lidia. 6: 26. 2003. *Scirpus praelongatus* Poir. in J. Lamarck *et al.*, Encycl. 6(2): 764. 1805. *Type*: INDIA, Herb. Poiret (holo P[P00070842] digital image!).

**Fig. 1e-h**

Tufted annuals, non-rhizomatous, 15–30 cm high. Root fibrous. Stem septate (usually seen when dried), 3–6 mm wide. Leaf sheaths short; blades reduced, tubular, 4–5 cm long. Inflorescence pseudolateral, capitate with 5–13 spikelets; involucre bracts solitary, stem like. Spikelets sessile, broadly ovoid, 3–7 × 3–3.5 mm, many flowered. Glumes ovate, boat shaped, 3.5–4.5 mm long, obtuse at apex. Stamens 3. Style glabrous, stigma 3-fid, glabrous. Nut trigonous, 1.5–1.6 mm long, surface with transverse wavy lines.

*Flowering & fruiting*: Flowers and fruits were observed during October to November.

*Habitat*: Margins of the ponds.

*Distribution*: Australia, India, Pakistan, Philippines, Vietnam and now Nepal (present record).

*Specimen examined*: NEPAL, **Sudur Paschim Province**, Kanchanpur district, Shuklaphanta National Park, N 28.8428°, E 80.3285°, 200 m, 14.11.2022, Dipa Paneru and Ashmita Sapkota SNP0222 (KATH).

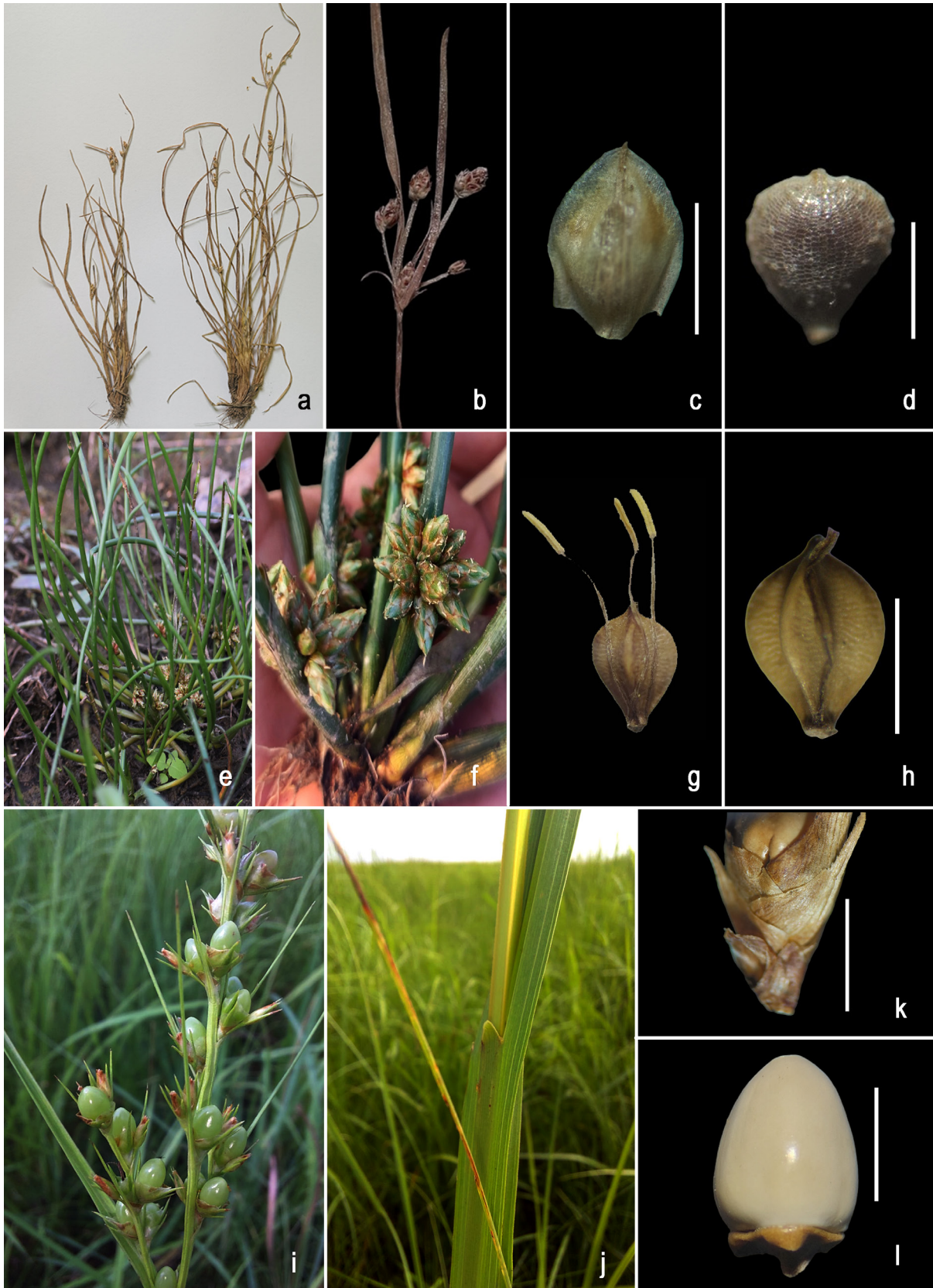
**Scleria psilorrhiza** C.B. Clarke ex Hook.f., Fl. Brit. India 6: 691. 1894. *Type*: “a Calcutta communicata” (holo K [K000357562] digital image!). **Fig. 1i-l**

Perennial with a creeping rhizome; rhizome covered with brown scales. Stems up to 125 cm tall, 4–5 mm wide, sharply 3-angled, leafy throughout, glabrous. Leaf blade linear, 20–26 × 0.5–0.8 cm, glabrous. Inflorescence dense, consisting of a terminal panicle 10–17 cm long. Involucre bracts leaflike, sheathing at base, overtopping the inflorescence. Spikelets 2 or 3 in a cluster, rust-colored, sessile, 3–4 mm. Glumes broadly ovate-lanceolate, apex aristate. Nuts large, 3–4 × 2.5–3 mm, smooth, shiny, glabrous, white.

*Flowering & fruiting*: Flowers and fruits were observed during July to August.

*Habitat*: Grasslands.

*Distribution*: Bangladesh, Cambodia, China South-Central, India, Jawa, Northern Territory, New



**Fig. 1.** a-d. *Fimbristylis naikii* Wad.Khan & Lakshmin. a. Habit; b. Spikelet; c. Glume; d. Nut, e-h. *Schoenoplectiella praelongata* (Poir.) Lyee. Habit; f. Spikelets; g. Nut with stamens; h. Nut, i-l. *Scleria psilorrhiza* C.B.Clarke; i. Spikelets; j. Stem with ligule; k. Glumes; l. Nut. [Scale bar = 1 mm] (images by Dipa Paneru).



Guinea, Philippines, Thailand, Australia, and Nepal (present record).

*Specimen examined:* NEPAL, **Sudur Paschim Province**, Kanchanpur district, Shuklaphanta National Park, N 28.82°, E 80.17°, 201 m, 15.08.2023, *Dipa Paneru* DP0231 (KATH).

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