

Short communication

Arenga westerhoutii Griff. and *Livistona jenkinsiana* Griff., two new species of wild palms for Bangladesh

Md Sharif Hossain Sourav^{1*} and Kabir Bin Anwar²

¹Technische Universität Dresden, 01069 Dresden, Germany

²Isabela Foundation, House 13, Road No 15, Dhaka 1209, Bangladesh

*Corresponding Author: nature.sourav@gmail.com

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INTRODUCTION

The genus *Arenga* Labill and *Livistona* R. Br., are represented by one and two species in Bangladesh respectively (Siddiqui *et al.* 2007, Rahman 2018). In Bangladesh, these genera were known to contain the following three species: *Arenga pinnata* (Wurmb) Merr., *Livistona chinensis* (Jacq.) R.Br. ex Mart. and *Livistona speciosa* Kurz. (Siddiqui *et al.* 2007, Rahman 2018).

Sangu-Matamuhuri Reserve Forest is one of the last strongholds of biodiversity in Bangladesh (Creative Conservation Alliance 2016). Sangu Reserve Forest (SRF hereafter) is located in the south of Boro Modok in Thanchi Upazila of Bandarban District, Bangladesh (Fig. 1). The actual floral diversity of SRF is still unknown. We conducted a field exploration at this remote forest during February 2019. SRF is a part of the Indo-Burma Biodiversity hot spot (Myers *et al.* 2000). SRF is the Sangu Wildlife Sanctuary (SWF), which was declared by the Forest Department of Bangladesh (Creative Conservation Alliance 2016). The climate of the region is tropical, with a mean annual rainfall of 2,666 mm. A dry and cool season occurs in that region from November to March, followed by a hot and sunny pre-monsoon season from April to May, and a warm, cloudy, and wet monsoon season from June to October (Khan 2015).

During vegetation observation inside the forest, we found two species of unusual wild palms that are grown on hill slope sporadically associated with other vegetation and bearing fruits. Further, we reviewed the Siddiqui *et al.* (2007) and Rahman (2018) and confirmed these two palms are not reported from Bangladesh. Then the field photographs were sent to a palm specialist and finally examined as *Arenga westerhoutii* Griff. and *Livistona jenkinsiana* Griff. Hence, we reported these two species as new wild palms for Bangladesh.

Direct observation has been done by a random walk inside the SRF (Fig. 1) and from the boat while moving in Sangu River. The field visit was from 20th to 28th February 2019. Clear photographs have taken for unknown plant species and also for the two unusual wild palms. We failed to collect any plant samples because they are grown on the top hills. Therefore, we took pictures with a telephoto lens. The photos are uploaded on a global database (inaturalist.org). The identification of these palms confirmed through field photographs that were examined by tropical Asian palm specialists.

RESULTS

Species Description

Arenga westerhoutii Griff., Calcutta J. Nat. Hist. 5: 474. 1845.

[Fig. 2]

Stems solitary, evergreen palm growing up to 12 m tall, 40–60 cm in diam. Leaf petioles 1.0–1.8 m; rachis 3–4 m; pinnae 80–150 per side of rachis, linear, with ears at bases, regularly arranged and spreading in the same plane except for the basal few pinnae; middle pinnae to 130 cm, to 9.5 cm wide at mid-point. Inflorescences to 3 m; male rachillae 60–70, to 60 cm; male flowers 20–25 mm; sepals 4–6 mm; petals 20–25 mm; stamens 200–300; female rachillae *ca.* 40, 80–120 cm; female flowers to 10 mm; sepals *ca.* 5 mm; petals *ca.* 10 mm. Fruits greenish-black, globose, to 7 cm in diam (eFloras 2008a).

Habitat: In Bangladesh, it grows on the hill slope of SRF. It grows in the primary rainforest, only rarely in

secondary growth areas, at elevations up to 1,400 m (Tropical Plant Database 2020a). It occurs in the moist or wet forests throughout Thailand from sea level to *ca.* 900 m. In a few cases, reported as growing along streams up to 1,200 m (Pongsattayapipat & Barfod 2009).

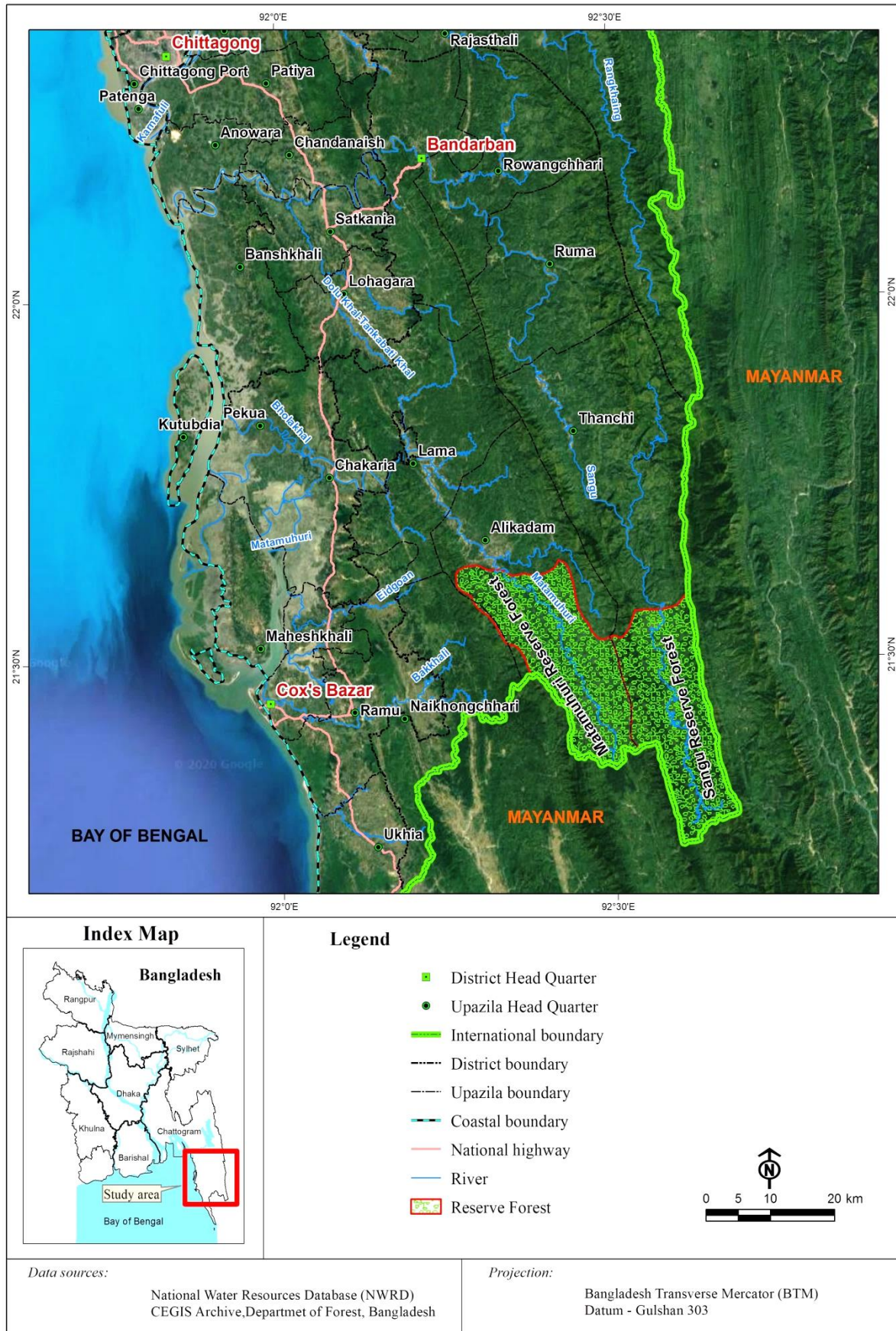


Figure 1. Location map of Sangu Reserve Forest (SRF).

Distribution: It is found in Assam, Cambodia, China, East Himalaya, Laos, Malaya, Vietnam, Malaysia, Myanmar, and Thailand (eFloras 2008a, Henderson 2010, Tropical Plant Database 2020a, Palmpedia 2015a).

Fruiting: Fruiting in February (based on field observation in Bangladesh).

Use: The leaves are used for thatching and wickerwork. The wood is using to make small utensils but not to be durable (eFloras 2008a, Palmpedia 2015a, Tropical Plant Database 2020a).



Figure 2. *Arenga westerhoutii* Griff.: **A**, Mature leaves; **B**, Fruits; **C**, Palm in natural habitat; **D**, Old leaves. [Photographs by: MSH Sourav]

Livistona jenkinsiana Griff., Calcutta J. Nat. Hist. 5: 334. 1845.

[Fig. 3]

Stem solitary to 25 m tall and 30 cm diameter. Leaves green or slightly grayish on lower surface; blades regularly divided into 70–100 leaflets, these shortly split and stiff at the apices. Inflorescences to 2 m long; flowers bisexual, solitary or borne in clusters of 2–6, yellowish, 2.5–4.0 mm; fruits globose to ellipsoid or pear-shaped, to 3.5 cm long and 2.5 cm diameter, bluish (eFloras 2008b).

Habitat: In Bangladesh, it is found on the hill slope of SRF and most of the observed palm grows up to an elevation of 300 to 1000 meter. Other literature (eFloras 2008b) added it grows forest and open place near hill villages at 100–2500 m elevation. It is usually encountered in nature in the tropical evergreen forest and sub-tropical broad-leaved forests.

Distribution: It is found in Bhutan, China (Hainan, Yunnan), India (Arunachal Pradesh, Assam, Nagaland, Sikkim), Myanmar (Bago, Kachin Mon, Sagaing, Tanintharyi), Thailand (East, North, Northeast, Peninsular, Southwest), Malaysia (Peninsular), Vietnam, and probably Laos (eFloras 2008b, Henderson 2010, Palmpedia 2015b, Tropical Plant Database 2020b). However, Singh *et al.* (2010) mention it is endemic to Northeast India and grows up to an elevation of 1100 meter. Several pieces of literature (eFloras 2008b, Henderson 2010, Palmpedia 2015b, Tropical Plant Database 2020b) mention it is distributed in Bangladesh. However, no available national reference yet not supports including the updated publication (Siddiqui *et al.* 2007, Rahman 2018) regarding its occurrence in Bangladesh.

Fruiting: Fruiting in February (based on field observation in Bangladesh).

Use: The leaves are commonly used for thatching and making hats. The seeds are eaten as a substitute for betel nut, and in Hainan, the fruits are used medicinally. Fresh nuts used as masticatory; leaves for thatching & rain hats; stems for hut construction (eFloras 2008b, Henderson 2010, Palmpedia 2015b, Tropical Plant Database 2020b).

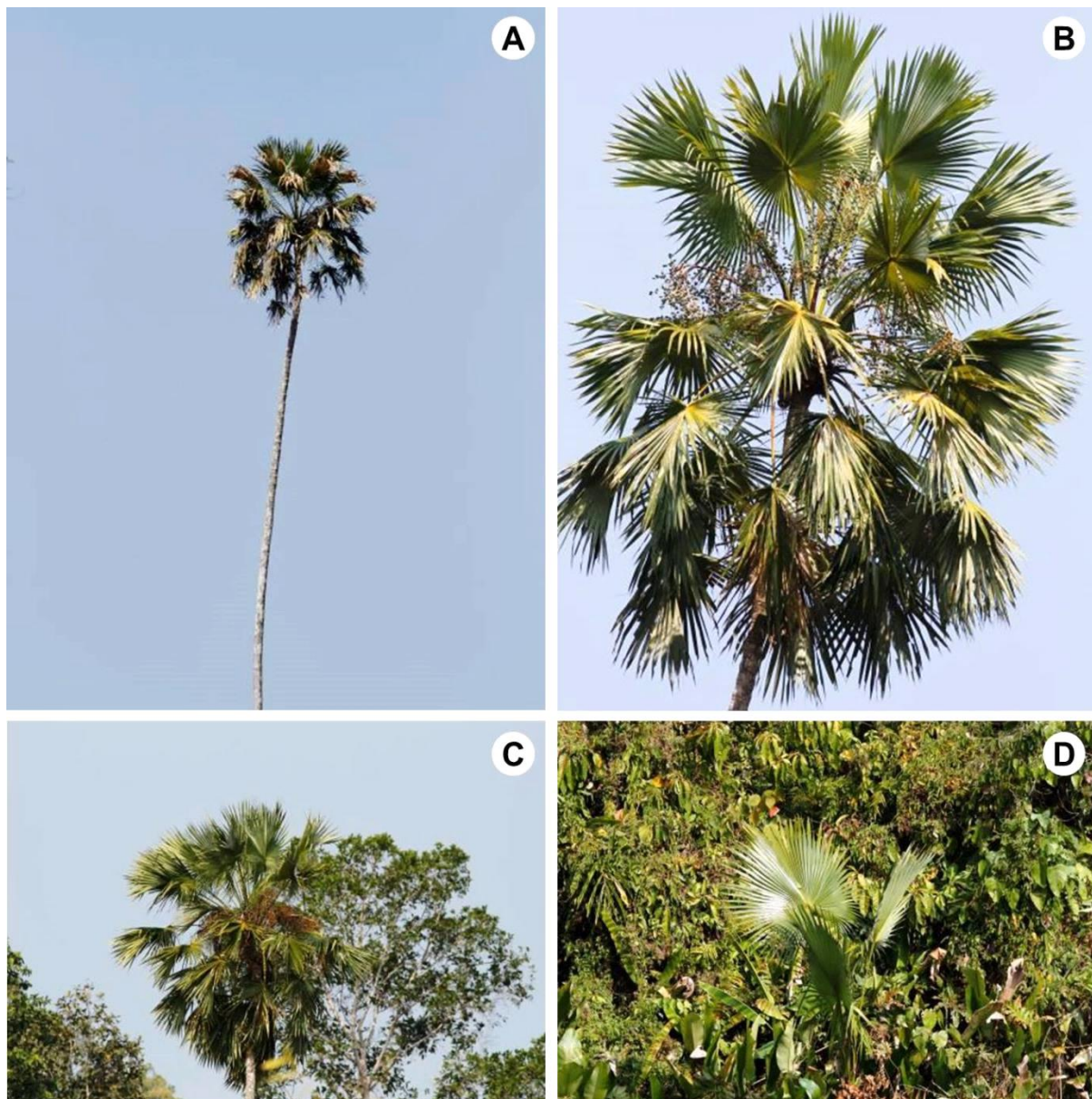


Figure 3. *Livistona jenkinsiana* Griff.: A, A tall palm in natural habitat; B, Close up with fruits; C, Close up with leaves; D, Young palm. [Photographs by: M.S.H. Sourav]

DISCUSSION

No extensive surveys yet to be carried out at its recently found habitat area. But appear to be limited and restricted inside little vegetation patched of SRF of Thanchi. During the nine days of field observation, very few individuals have seen. The populations seem to be decreasing due to forest clearing for paddy cultivation on hill

slope by the indigenous community. It is recommended for further extensive investigation on its recently found habitat area to implement future conservation measures and determine the IUCN conservation status.

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