Arenga micrantha: A Little-Known Eastern Himalayan Palm

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From Bhutan, high in the eastern Himalayan mountains, comes *Arenga micrantha*. It is likely to be the most cold-tolerant member of the genus.

When I visited Bhutan in 1991, I took a rather distant photograph (Fig. 1) of a stemless palm growing on an inaccessible slope. The transparency was shown to John Dransfield who identified it provisionally as *Arenga westerhoutii* Griff., and it was included under this name in the account of the palms in the *Flora of Bhutan* (Noltie, 1994). I was slightly wary of this at the time as *A. westerhoutii* is a much larger palm, which normally develops a trunk and had been, until then, known only from Thailand, Burma and Malaya. A fragmentary vegetative specimen of the same species had been collected in Bhutan by Andrew Grierson and David Long in 1979 (*G & L* 1651, E), who had identified it as the widely cultivated *A. saccharifera* Labill. (= *A. pinnata* (Wurmb) Merrill).

On a recent visit to Bhutan this puzzling palm was found to be not uncommon in warm-temperate, broad-leaved forest throughout the central and southern zones of the country. It grows on steep, highly inaccessible, forested slopes, but all the specimens that could be seen from roadsides appeared to be sterile. However, I was fortunate to be accompanied on the trip by Sherub, who had observed a flowering specimen above Rongthong, near Tashigang in eastern Bhutan in 1996. This specimen was relocated and reached by scaling a small tree and a slippery cliff! Photographs were taken (Figs. 5–7) and a specimen collected (*Noltie, Pradhan, Sherub & Wangdi* 201, E).

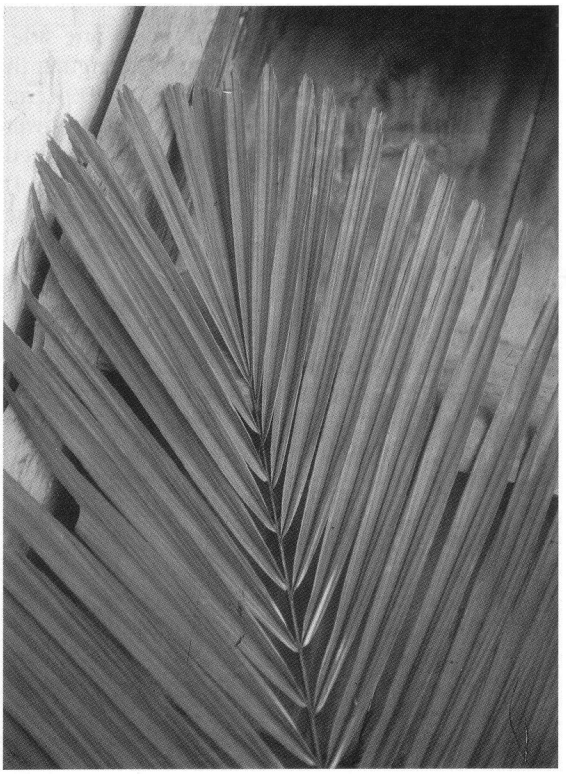
The palm is the little-known *Arenga micrantha* C.F. Wei, a species described recently from SE Tibet, some 400 km NNE of the eastern border of Bhutan (see Map). Whereas the type specimen was male, the single fertile Bhutanese specimen bore only female inflorescences. Although the specimen had been flowering for at least two years, none of the flowers appeared to have set fruit, indicating that the species cannot be agamospermous and requires pollination to set fruit.

The genus *Arenga* is usually monoecious and 'very rarely apparently dioecious' (Uhl & Dransfield, 1987), but from the above evidence this species appears to be truly dioecious. Further observations, however, are required. It is possible, for instance, that the palm could have different sexual phases developmentally. However, this seems unlikely as the fertile specimen seen had a (pseudo-)terminal female inflorescence and all the lateral ones (even those near the base) were also female, so it is difficult to imagine when a male phase could occur. The species is also similar to *Wallichia*, but that genus is characterized by having connate sepals in the male flowers.

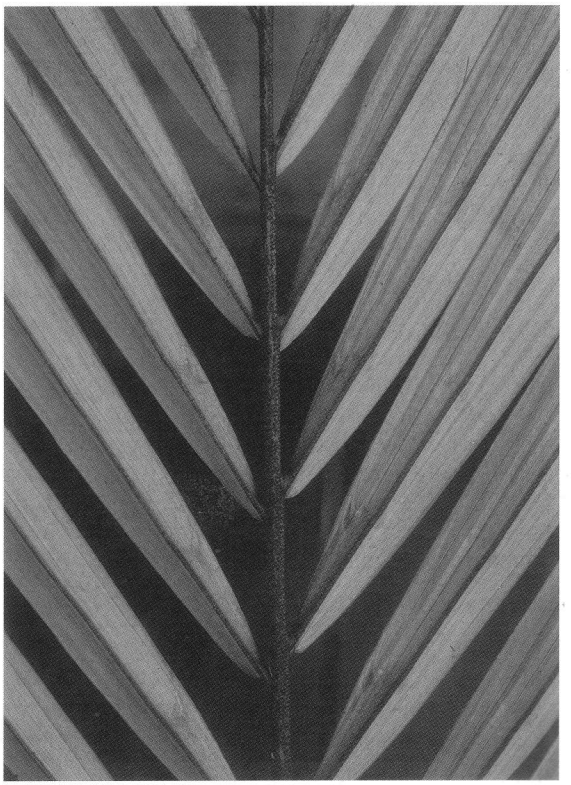
The palm is mysterious in various respects—why does it flower so rarely? Why was it not collected earlier? It seems particularly surprising that William Griffith missed it—he visited Bhutan in 1838, was especially interested in palms, and went through parts of the country where it occurs. Its

1. *Arenga micrantha*: habit.

2. *Arenga micrantha*: whole leaf.



3. *Arenga micrantha*: close up of leaf upper surface.



4. *Arenga micrantha*: close up of leaf lower surface.

5. *Arenga micrantha*: leaf sheaths.

6. *Arenga micrantha*: pseudo-terminal female inflorescence.

distribution is also unusual. Whereas there are several palms that occur in Sikkim/Darjeeling immediately to the west of Bhutan that have not so far been found in Bhutan, this is the first that appears to have a western limit short of the Sikkim/Darjeeling border. If it did occur in the Darjeeling area, it would almost certainly have been collected in the nineteenth century.

Description

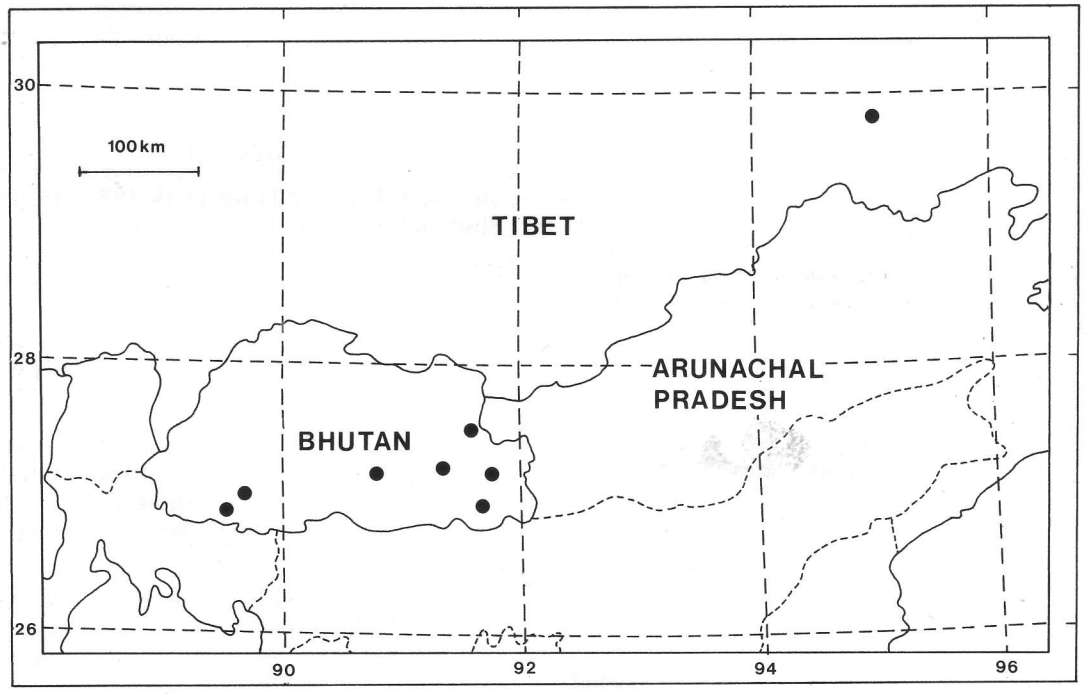
As this palm has only been described in Latin (Wei 1988) and Chinese (Pei & Chen 1991), it seems worthwhile to give a fuller description in English, and to describe the female inflorescence for the first time. It has not been possible to see the type, which could not be found at the herbarium in Beijing (PE), but from the illustration accompanying the protologue, there seems little doubt about its identity with the Bhutanese plant.

Arenga micrantha C.F. Wei, in Acta Phytotax. Sinica 26: 404–405 (1988).

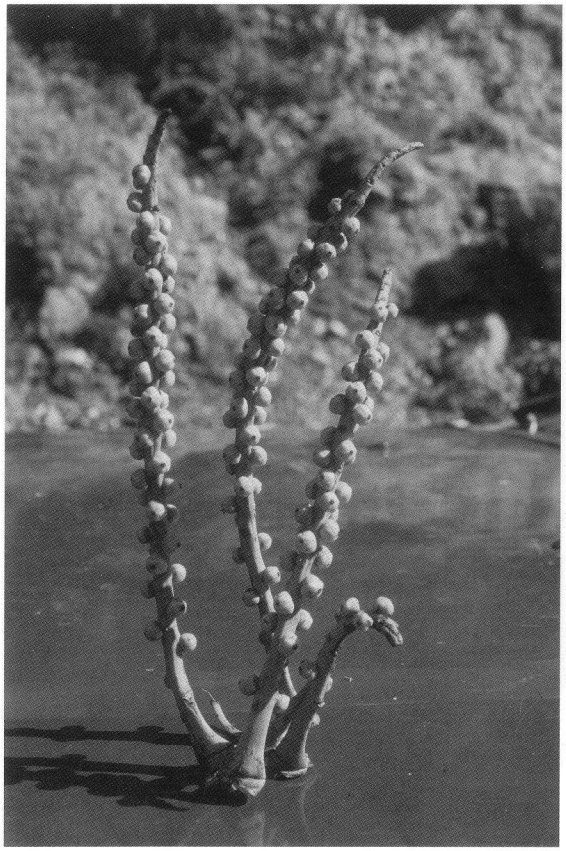
Type: China, Xizang (Tibet), Medog, Gelinpendi, 1600 m, 12 Aug 1980, *W. L. Chen* 14214 (holo. PE, *n.v.*).

Hapaxanthic, dioecious, dwarf, solitary palm. Stems to 2.1 m, to 13 cm in diameter. Leaf sheath fibers blackish-brown. Leaves to 3 m, pinnate, blade 80–180 × up to 65 cm, curved to one side, green above, whitish beneath; rachis triangular in section, brown-scurfy; petiole 35–50(–100) cm, brown-scurfy, upper surface slightly concave, lower side strongly convex; lateral leaflets arranged singly, held in one plane, to (30–)48 × 2.5–3.5(–4) cm, narrowly oblong, narrowed to irregularly erose apex, margins very weakly praemorse; base asymmetric with minute auricle sometimes developed on lower side; terminal leaflet 21–24 × 4–18 cm, narrowly to widely flabellate. Flowering basipetally. Female inflorescences pseudoterminal and lateral, branched to 1 order; primary axis of terminal inflorescence to c. 90 cm, stout, those of lateral ones shorter; branches to 32 cm, stout, flattened at base; bracteoles minute (under 1.5 mm). Flowers c. 10 mm diam; sepals swollen, coriaceous, free, broadly oblong, margins dark brown, c. 3.2 × 5.5 mm; petals pale yellowish, coriaceous, broadly rhombic, subacute, fused in lower half, strongly concave; immature ovaries orange, weakly hexagonal in outline, depressed, with three, weak radial ridges; stigmas 3, very low, dark brown; staminodes 0; locules 3, ovules 1–2, basal. Male inflorescence (after Wei 1988): a narrow panicle, 80–100 cm, branches in 2–4 rows, the lower c. 17 cm, the upper decreasing to c. 5 cm. Flowers 4–5.5 mm, oblong; sepals c. 2 × 2.5–3

7. *Arenga micrantha*: lateral female inflorescence.



Map showing distribution of *Arenga micrantha*.



8. *Arenga micrantha*: close up of part of female inflorescence.

mm, broadly rounded, free; petals yellow, oblanceolate or obovate, coriaceous, slightly unequal; stamens 9–23, filaments short, slightly connate at base; anthers 2.7–3.2 mm, narrowly oblong, acute.

Note: two specimens (from the same locality) are mentioned in the protologue—one is described as a 'shrub of 3 m' and the type as a 'tree of 8 m'. A trunk is not described and no explanation given of how this 'height' is made up (i.e. what proportion of trunk: leaf). If the 8 m is accurate, this seems larger than any of the Bhutanese specimens seen.

Distribution. CHINA. SE Xizang: Medog. BHUTAN. South: Phuntsholing (below Suntlakha), Chukka (Gedu to Sinchula) and Deothang (between Narfong and Deothang) districts; Cental: Mongar (above Lingmethang), Tongsa (5 km SE of Shemgang), and Tashigang (S of Tashi Yangtsi, above Rongthong) districts.

The palm is almost certain to occur in Arunachal Pradesh.

Habitat. Warm broad-leaved forest (sensu Grierson and Long 1983), between 1400 and 2150 m. This is an interesting intermediate forest type, basically a drier form of subtropical forest which occurs at lower altitudes, and composed of a mixture of evergreen and deciduous trees. This forest is also the habitat of *Musa sikkimensis* Kurz, the most temperate member of the genus in the E Himalaya, and the rattan *Plectocomia himalayana* Griff. From the altitude at which *Arenga micrantha* grows, it is likely to be the most cold-tolerant member of the genus, and therefore of considerable interest/potential for growers in warm-temperate countries.

Uses. Near Deothang the leaves were seen being used as the sides of a roadside shelter. The lack of large, flowering specimens suggests, perhaps, that the stems of mature plants might be being harvested for some other use, but no information could be obtained on this.

Acknowledgments

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