

Areca bongayensis Becc. ex Furtado in Feddes Rep. 33: 234 (1933). Type: Borneo, Sabah, Bongaya, Ridley 9090 (holotype SING; isotype K); **synon. nov.**

Areca hewittii Furtado in Feddes Rep. 33: 234 (1933). Type: Borneo, Sarawak, Lingga, Hewitt 25 (holotype SING); **synon. nov.**

Areca hullettii Furtado in Feddes Rep. 33: 235 (1933). Type: Borneo, Sarawak, G. Matang, Hullett s.n. July, 1890 (holotype SING); **synon. nov.**

In my notes on miniature species (Dransfield 1980) I already hinted that Furtado's new species were probably synonymous with *A. minuta*. This I am now able to confirm. *A. minuta* is a widespread Bornean plant, very variable in its leaf dissection. There are numerous collections of this taxon in herbaria; frequently they are hidden under *Pinanga* spp.

14. *Areca rheophytica* J. Dransf. sp. nov. elegantissima, rheophytica, in ripis fluminum rivulorumque per petras serpentinis fluentium crescens, ad sectionem *Arecellam* (sensu Furtado) pertinens, a ceteris speciebus Borneensibus habitatione et foliolis plicarum singularium approximatis compositis, regulatim dispositis bene distincta; staminibus 6 et habitu solitario *A. hutchinsonianae* et *A. vidalianae* insularum Philippinarum affinis et vero a formis *A. vidalianae* quae foliola plicarum singularium composita habent, haud distinguibilis, sed floribus pistillatis angustissimis, caule glabrato, habitatione et aspectu differt. Typus: Borneo, Sabah, Telupid, J. Dransfield et al. JD 5780 (holotypus K; isotypi L, SAN).

Solitary, short-stemmed, rheophytic, undergrowth palm, Stem to c. 2 m tall, usually less, 1–2 cm diam., pale brown except near the crownshaft where green, glabrous, internodes 2–4 cm, the nodal scars conspicuous c. 3–5 mm high. Crownshaft usually swollen, 15–30 × 2–4 cm, pale green. Leaves c. 7–8 in the crown; sheaths to 25 cm, usually less, smooth when fresh, drying ridged, bearing very sparse scattered scales; petiole 8–15 × 0.3–0.5 cm, channelled adaxially, rounded abaxially, bearing very sparse brown scales; leaflets 12–22 on each side of the rachis, dark green, close, regularly arranged, all single-fold except the apical pair and sometimes the basal pair which are 2–3-ribbed, concolorous, bearing very sparse, minute, brown scales scattered on both surfaces. Inflorescence erect at anthesis, to 22 cm, often less; prophyll to 25 × 3.5 cm, conspicuously winged, the wing margins somewhat erose and hairy towards the tip, the prophyll surface striate on drying, bearing scattered brown scales; peduncle 7–15 × 5 mm, winged at the very base; axis branching to 3 orders; rachillae slender, very numerous, to 120 × 1 mm, sometimes with a short bare portion at the base, usually with a basal triad, rarely with several triads, otherwise bearing paired staminate flowers in a single row on one side. Staminate flower narrow-ovoid, trigonous, creamy-white, citrus-scented; sepals 3, free, triangular, keeled, c. 0.8 × 0.4 mm; petals 3, striate, narrow-triangular, c. 2.2 × 0.7 mm; stamens 6, filaments very short, anthers elongate, c. 1.4 × 0.3 mm; pistillode trifold, conspicuous, exceeding the stamens, c. 1.8 × 0.3 mm. Pistillate flower at anthesis narrow, trigonous, c. 11 × 3 mm; sepals 3, free, imbricate, c. 7 × 4 mm; petals 3, exceeding the sepals, c. 10 × 6 mm, imbricate, with short triangular, valvate tips; ovary fusiform, c. 10 × 5 mm, tipped with 3 short stigmas. Fruit fusiform, pale green at first, at maturity, becoming cherry-red, narrow-ellipsoidal, c. 20 × 7 mm; mesocarp becoming c. 2.5 mm thick; seed fusiform, c. 15 × 5 mm (Fig. 7).

HABITAT. Growing as a rheophyte on the banks of fast-flowing rivers and streams in areas of ultrabasic rock, in the lowlands and up to about 400 m above sea level.

BORNEO. SABAH. Telupid, bank of Sg. Mailo, *Dransfield et al.* JD 5780 (holotype K; isotypes L, SAN); Labuk/Sugut, valley of Sg. Tungud, *Dransfield et al.* JD 5751 (BO, K, KEP, L, SAN, SAR); Beluran, Middle Labuk, Sg. Palui, *Meijer* SAN 25410 (K, SAN).

The relationships of the rheophytic *Areca* of Sabah are clearly with hexandrous species of *Arecella* (in Furtado's sense); it seems closest to *A. hutchinsoniana* and *A. vidaliana* of the Philippines. *A. hutchinsoniana* does not have rheomorphic unicostate leaflets and so is easily distinguished. *A. vidaliana* on the other hand is much more difficult to separate, and I had originally thought the Sabah taxon was conspecific with it. Beccari (1907) described two closely related species from Palawan—*A. vidaliana* with broad leaflets, and *A. mammillata* with unicostate leaflets. Later (1919) he sank the latter into the former, having noted how variable is the leaf dissection in *Areca*. Merrill (1922) for no apparent reason cited *A. vidaliana* as a synonym of *A. mammillata* rather than vice versa. In 1979 I had the opportunity to see *A. vidaliana* in the field in Palawan. Near Puerto Princesa it grows in small crown forest rich in bamboo (*Schizostachyum* sp.) developed on serpentine rock, and occurs in a variety of forms ranging from unicostate to broad-costate. In habitat and aspect it is very different from the Sabah rheophyte. It is worth stressing that there was no rheophytic *Areca* sp. in the area I visited, though the habitat was abundant. Although I have found difficulty in separating what are geographically and ecologically distinct taxa, I still believe the Sabah taxon is sufficiently distinct to be accorded specific status. At present, true *A. vidaliana* is known from Malaysian territory only from P. Balembangan between the coast of Sabah and Palawan (see below).

A. rheophytica is a most elegant species. Professor van Steenis wrote to me in relation to the preparation of his book on rheophytes (van Steenis 1981) concerning this taxon. At the time I had not seen it in the field, and as I assumed it to be non-rheophytic *A. vidaliana* the taxon was not included by Professor van Steenis.

15. *Areca subacaulis* (Becc.) J. Dransf., comb. nov.

Gigliolia subacaulis Becc. in *Malesia* 1: 174 (1877). Type: Borneo, Sarawak, G.

Matang near Kuching, *Beccari* P.B. 3647 (holotype FI; isotype K).

Pichisermollia subacaulis (Becc.) H. Monteiro-Neto in *Rodriguésia* 41: 198 (1976) and 54: 9 (1980).

See commentary on p. 1. This species is still known only from the area of the Matang hills and Sempadi Forest Reserve in the 1st Division, Sarawak.

16. *Areca triandra* Roxb. var. *bancana* Scheff. in *Natuurk. Tijdschr. Ned. Ind.* 32: 165 (1873). Type: Bangka, Jibus, *Teijsmann* s.n. (holotype BO).

Ptychosperma polystachya Miq., *Prodromus Fl. Sun.* 590 (1861). Type: as for *A. triandra* var. *bancana*.

Areca polystachya (Miq.) W. A. Wendl. in *Kerchove, Les Palmiers* 232 (1878).

Areca borneensis Becc. in *Malesia* 1: 22 (1877). Type: Borneo, Sarawak, on the banks of the Rejang, *Beccari* P.B. 3923 (holotype FI; isotype K); **synon. nov.**