

Sladen Expedition, New Hebrides. It is from this expedition that the type specimen has been chosen: *Chew Wee-Lek 118*, 3 August 1971, consisting of two parts; (1) a basal leaf section (including petiole), a packet of pistillate flowers and a section of infructescence with fruit and (2) a mid leaf section and a section of infructescence with fruit; this is the most complete and representative collection seen by the author; it is preserved at PVV with a duplicate at K. The only collection to contain staminate flowers is *Schmid 3271*, 29 April 1970, preserved at NOU.

*Derivation of Name.* *Calamus vanuatuensis* is named for Vanuatu, the type locality.

*Discussion.* This species has a relatively widespread occurrence and is variable. Samples collected from higher altitudes and from the northern parts of its range display a smaller overall size. It appears most closely related to *C. vitiensis* Warb. ex Becc., an endemic Fijian species and *C. hollrungii* Becc. from northeast Queensland, New Guinea and the Solomons. *C. vitiensis* has basally aggregated and obliquely arranged spines, a shorter and more robust pistillate inflorescence, smaller fruits which are whitish at maturity, and lacks the often prominent ligule on the adaxial surface at the base of the petiole. *C. hollrungii* has leaflets aggregated into groups (2–5) and which have marginal and rib spines and a leafsheath with a spinous knee.

### Distinguishing Features of Three *Calamus* Species

<i>C. vanuatuensis</i>	<i>C. vitiensis</i>	<i>C. hollrungii</i>
leaflets evenly arranged	leaflets evenly arranged	leaflets unevenly arranged
leaflets unarmed	leaflets unarmed	leaflets armed
sheath spines not in combs	sheath spines in combs	sheath spines not in combs
knee unarmed	knee unarmed	knee armed

	inflorescence long	inflorescence short	inflorescence long
fruit 2 cm long	fruit 1.5 cm long	fruit 1.5 cm long	fruit 1 cm long
fruit cream	fruit white	fruit white	fruit white

*Calamus* L. is the largest genus in the Palmae with about 380 species distributed in tropical Africa (one species), eastern and southern India through Burma, southern China, Philippines, south-east Asia, Malaysia, New Guinea, Solomons, northern and eastern Australia, Fiji and Vanuatu. The greatest concentration of species occurs in Malaysia. The few species occurring in the Solomons, Fiji, Vanuatu and eastern Australia represent outliers; apart from the three species noted above, other outlying species in Australasia/western Pacific appear not to be closely related.

*Calamus vanuatuensis* has appeared as manuscript names as follows:

- Calamus* sp. 'Efate' (Guillaumin 1948)
- Calamus* (Schmid 1965)
- Calamus* (Moore 1966)
- Calamus* (Schmid 1973a)
- Calamus* sp. 'Erromango Sud-Est' (Schmid 1973b)
- Calamus* sp. 'Vaté-Sud' (Schmid 1973b)
- Calamus* sp. (Schmid 1974a)
- Calamus* sp. (Schmid 1974b)
- Calamus* sp. (Hodel 1982)
- C. sp. aff. vitiensis* (Dowe 1989a)
- Calamus* sp. (Cabalion 1989)
- Calamus* sp. (Dowe 1991)

**Cyphosperma voutmelense** Dowe, sp. nov. *C. balansae* (Brongn.) H. Wendl. ex Salomon proxissima a qua statura aliquantum minore, inflorescentia dimidio brevior squamis persistentibus obtecta, bracteis subtendentibus ramos inflorescentiae humilibus rotundatisque, et fructibus multo minoribus distinguitur. TYPUS: Vanuatu. Espiritu Santo: *Morat 6488*, August 1979 (holotypus NOU; isotypus BH).

Stems solitary, to 6 m tall, markedly cylindrical, leaf-scars closely spaced. Leaf

to 1.5 m long; leaf-base smooth, not forming a crownshaft; petiole narrowing abruptly, deeply channelled adaxially, rounded abaxially; leaflets widely spaced on rachis, to 5 cm apart, falcate, acuminate, to  $45 \times 3$  cm, mid-rib prominent; two pronounced lateral ribs, equidistant from mid-rib and leaf margin; mid-rib with brown scales below, only at the base. Inflorescences interfoliar, arching to pendulous, to 92 cm long; prophyll to 30 cm long, open abaxially and not fully encircling peduncle at attachment; peduncular bract, attached 2–2.5 cm above prophyllar attachment, to 55 cm long, becoming fibrous with age; rameal bract to 4 cm long, pointed, attached 12 cm above peduncular attachment; all bracts persistent; peduncle to 35 cm long, to 10 mm wide, adaxially flat, abaxially rounded, covered with persistent brown scales; rachillae, about 13 per inflorescence, to 25 cm long, angled, covered with persistent brown scales, rachillae becoming closer spaced toward inflorescence apex; inflorescence branches subtended by low rounded bracts. Flowers spirally arranged, triads in the basal one-quarter to one-third, paired or solitary staminate flowers distally; staminate flowers symmetrical, larger than pistillate flowers, sepals imbricate to 1 mm long, petals valvate to 3 mm long, stamens 6; pistillate flowers to 2 mm high and wide, sepals imbricate with smooth margins; bracteoles large. Fruit sub-globose  $10 \times 8$  mm, red at maturity, stigmatic remains subapical; endocarp ridged and furrowed. Seed  $6 \times 4$  cm, in shape similar to endocarp.

*Distribution.* Vanuatu, on Espiritu Santo where it is known from a small population on the Cumberland Peninsula on a ridge below Voutmélé Peak (1,535 m) in moist forest on volcanic soils at 900–1,100 m. Endemic.

*Specimens Examined.* VANUATU. ESPIRITU SANTO: Cumberland Peninsula, ridge below Voutmélé Peak in forest on volcanic soils at 1,000 m, *Morat 6488* (5 sheets), 3 August 1979 (holotype NOU; isotype BH).

*Typification.* The only collection of this taxon is *Morat 6488*, 3 August 1979, preserved at NOU and BH. The sample at NOU consists of five sheets of which three comprise a complete leaf, the remaining two are complete inflorescences both with staminate and pistillate flowers. Fruit and a section of inflorescence are preserved at BH.

*Derivation of Name.* *Cyphosperma voutmelense* is named for Voutmélé (also spelt Vutmélé and Vutimélé), a peak above the ridge from where the type specimen was collected.

*Discussion.* *Cyphosperma voutmelense* is most closely related to *C. balansae* from New Caledonia, from which it differs by its much smaller inflorescence, brown, scaly inflorescence branches, rounded and not prominent inflorescence branch bracts and smaller fruit. The two Fijian species are more distinct: *C. tanga* H. E. Moore has undivided or only apically divided leaves and a sparsely branched inflorescence while *C. trichospadix* (Burret) H. E. Moore has a distinct crownshaft, an infrafoliar inflorescence, and large fruit to 2 cm long.

*Cyphosperma voutmelense* has appeared in manuscripts under the following titles:

*Cyphosperma* sp. 'New Hebrides' (Moore & Uhl 1984)

*Cyphosperma* sp. 'Vanuatu' (Dowe 1989b)

*Cyphosperma* cf. *balansae* (Cabalion 1989)

*Cyphosperma* sp. (Dowe 1991)