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New Species of *Calamus* (Palmae) from Lao and Myanmar

Andrew Henderson[1] and Flor Henderson[2]

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ABSTRACT: This paper concerns southern Asian species of *Calamus* from Beccari's Groups V and VI. *Calamus floribundus* var. *depauperatus* is recognized as a distinct species, *C. meghalayensis*; *C. kingianus* is recognized as a distinct species from northeastern India and the Lao population of *C. kingianus* is recognized as a separate species, *C. evansii*; recently collected specimens from northern Myanmar are recognized as two distinct species, *C. hukaungensis* and C. *spicatus*; *C. hypoleucus* is recognized as a distinct species from Myanmar and the Lao population of *C. hypoleucus* is recognized as a distinct species, *C minor.* Nomenclature, descriptions, illustrations, specimens examined, and distribution maps are given for the new species.

KEY WORDS: *Calamus*, Palmae, Arecaceae, Southern Asia, Lao, Myanmar.

INTRODUCTION

Calamus is the largest genus of palms, currently thought to contain 374 species (Govaerts and Dransfield, 2005). The subgeneric classification is in a state of flux (Beccari, 1908; Furtado, 1956; Dransfield, 1979; Kramadibrata, 1992; Evans, 2002; Baker et al., 2000), and Beccari's (1908) system, as modified by Furtado (1956) and Dransfield (1979), is still used pending a modern treatment of the problem. Beccari recognized sixteen informal groups of species - this paper concerns species from his Groups V and VI.

In preparation for the *Field Guide to the Palms of Southern Asia* (A. Henderson, in prep.), specimens of these two groups of *Calamus* from the region have been collected and examined. Comparison of these specimens with the relevant literature (Griffith, 1845, 1850; Hooker, 1894; Kurz, 1874; Beccari, 1908, 1913; Basu, 1992; Evans et al., 2001, 2002) shows the following rearrangements within the two groups are necessary.

Group V occurs throughout the Asian tropics. A subset of closely related species (Beccari's species numbers 31-42) was characterized by its few, broad, lanceolate or elliptic pinnae. Beccari (1908) considered two of these from northeastern India, *C. kingianus* and *C. floribundus,* to be closely related and described a variety of the latter, var. *depauperatus*. Of this, Beccari reported that it "seems almost a different species." These three taxa were accepted by Basu (1992). More recently, Evans et al. (2001, 2002) included specimens from central Lao in *C. kingianus*, thus recognizing a widespread species with two disjunct populations.

After study of specimens of these taxa, the following changes are made. *Calamus floribundus* var. *depauperatus* is raised to rank of species, *C. meghalayensis*; *C. kingianus* is recognized as a distinct species from northeastern India and the Lao population of *C. kingianus* is recognized as a separate species, *C. evansii*; and similar, recently collected specimens from northern Myanmar are recognized as distinct species, *C. hukaungensis* and *C. spicatus*.

Group VI, also widespread in the Asian tropics, differs from Group V by its open versus closed partial inflorescence bracts. Four similar species (numbers 95-98) were recognized by Beccari (1908) from southern Myanmar and Peninsula Thailand; *C. platyspathus, C. myrianthus, C. hypoleucus,* and *C. leucotes*. Evans et al. (2001) included specimens from central Lao in *C. hypoleucus*, thus recognizing a widespread species with two disjunct populations. Following study of specimens of these species, the Lao population of *C. hypoleucus* is recognized as a distinct species, *C minor*.

Nomenclature, descriptions, illustrations, specimens examined, and distribution maps are given for each of the new species, as well as for *Calamus meghalayensis*.

TAXONOMIC TREATMENTS

1. *Calamus evansii* A. Henderson, sp. nov.
Figs. 1A & 2A

1. Institute of Systematic Botany, New York Botanical Garden, Bronx, NY 10458, USA. Tel: 1-718-817-8973; Fax: 1-718-220-1029; Email: ahenderson@nybg.org.
2. Natural Sciences Department, Hostos Community College, City University of New York, 500 Grand Concourse, Bronx, New York 10451, USA. Email: fhenderson@hostos.cuny.edu

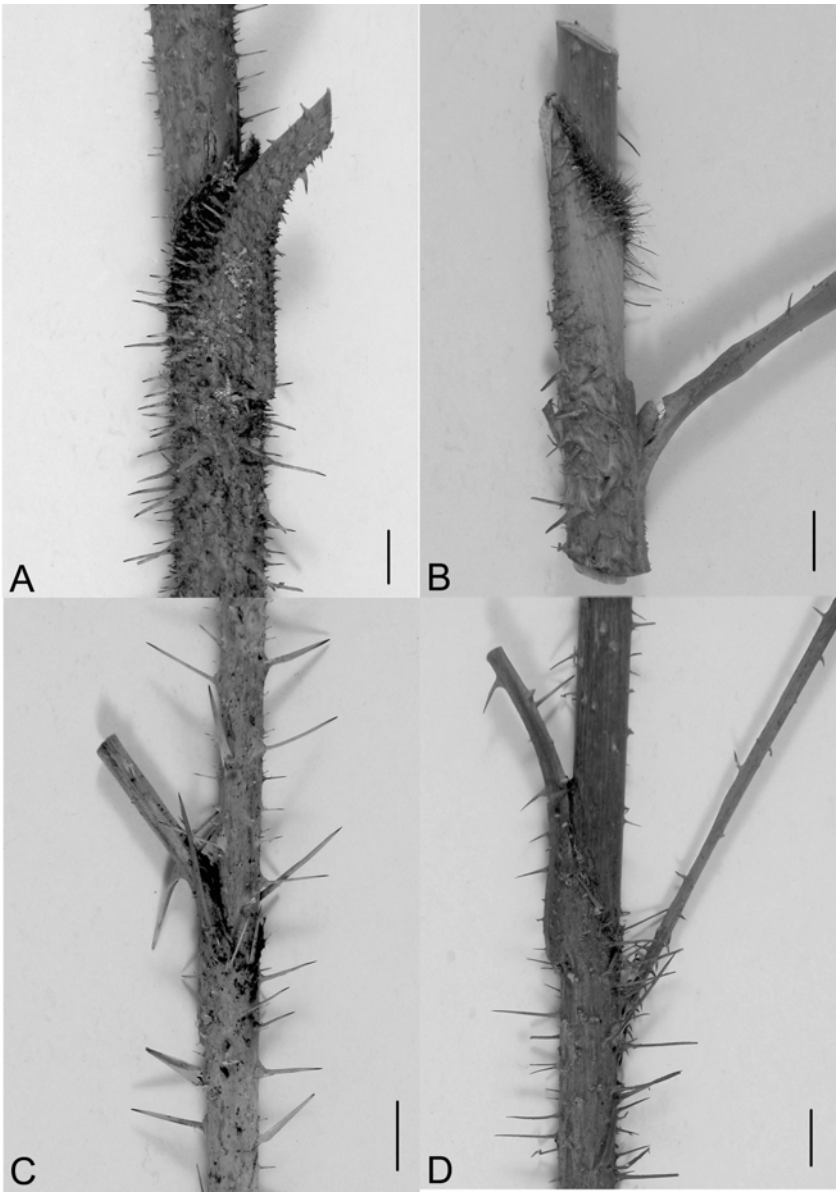

Fig. 1. Leaf sheaths. A: *C. evansii* (from *Khamphone Sengdala et al. 375*). Scale bar = 1 cm. B: *C. hukaungensis* (from *Henderson et al. 3174*). Scale bar = 1 cm. C: *C. minor* (from *Khamphone Sengdala & Evans 319*). Scale bar = 1 cm. D: *C. spicatus* (from *Henderson et al. 3138*). Scale bar = 1 cm.

TYPE: LAO. Khammuane: Nakai District, Ban Malua, Phon Nong Na, 17°40'N, 105°24'E, 520 m, 9 Mar 1999, *Khamphone Sengdala, Banxa Thammavong, Oulathong V. Viengkham, & T. Evans 375* (HOLOTYPE: K!).

A Calamo kingiano differt pinnis longioribus et inflorescentiis bracteis primariis dense spinosis.

Stems clustered, 2.5-7 m long and 0.6-1.3 cm diameter (with leaf sheaths). Leaf sheaths green, with patchy, white tomentum initially, sparsely to densely covered with brown, black-tipped, flattened, horizontally spreading spines to 1 cm long, sometimes with many short spines interspersed; knees present; ocreas present, less than 0.5 cm long, densely covered with short, black bristles; flagella present; petioles 15-21 cm long, sparsely covered laterally and abaxially with recurved spines to 0.5 cm long; rachis 41-43 cm long, laterally and abaxially with few, recurved, solitary spines; pinnae 3-6 per side of rachis, lanceolate, arranged in distant groups or solitary, 30-43 cm long, 2.0-3.5 cm wide, without spines on the margins, minutely spiny at the apex, the apical pair of pinnae free or only briefly joined at their bases; cirri absent. Inflorescences 1.5-3 m long, flagellate; partial inflorescences inserted below the mouth of the partial inflorescence bracts; partial inflorescence bracts closely sheathing the main axis, briefly split at the apex, not bristly at the apex, densely covered with recurved spines; staminate inflorescences branched to three orders, with 5-7

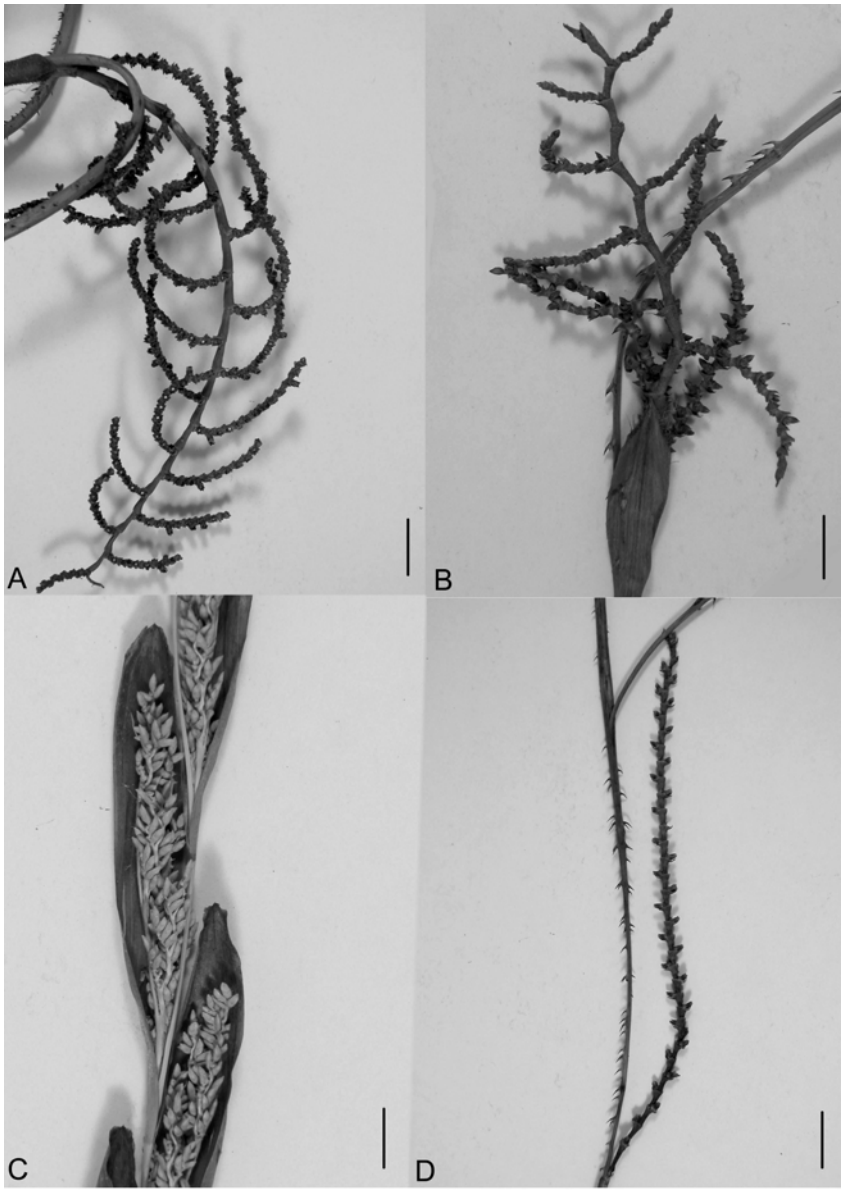

Fig. 2. A: Partial pistillate inflorescence of *C. evansii* (from *Khamphone Sengdala et al. 375*). Scale bar = 1.75 cm. B: Partial pistillate inflorescence of *C. hukaungensis* (from *Henderson et al. 3174*). Scale bar = 1 cm. C: Partial staminate inflorescence of *C. minor* (from *Khamphone Sengdala & Evans 319*). Scale bar = 1 cm. D: Partial pistillate inflorescence of *C. spicatus* (from *Henderson et al. 3138*). Scale bar = 2.1 cm.

partial inflorescences; rachillae 2-3 cm long; rachillae bracts distichously arranged, to 1 mm long, glabrous; floral bracteoles to 0.5 mm long, glabrous; staminate flowers not seen, arranged alternately and distichously along the rachillae; pistillate inflorescences branched to two orders, with 3-10 partial inflorescences, each with up to 19 rachillae; rachillae 3-8 cm long; rachillae bracts distichously arranged, to 2 mm long, glabrous; pistillate flowers to 12 per rachilla, borne alternately and distichously along the rachillae; sepals to 1.5 mm long, connate basally for ca. two-thirds their length, lobed above; petals to 2 mm long, free; fruits not seen.

Local names and uses: leum, wai leum (Lao); the stems are used for handicrafts.

Distribution and habitat*:* Lao (Khammuane) (Fig. 3A); lowland forest, at 520-530 m elevation.

Notes: Lao specimens were included by Evans et al. (2002) in *Calamus kingianus*. However, they are morphologically and geographically distinct. The most noticeable difference is the shorter staminate rachillae of the Lao specimens (2-3 cm, versus 4-9 cm in *C. kingianus*), with the terminal rachilla of a partial inflorescence not longer than the others (versus longer in *C. kingianus*).

Additional specimens examined: LAO. Khammuane: Nakai District, Ban Malua, Phon Nong Na, 17°40'N, 105°24'E, 530 m, 8 Mar 1999, *Khamphone et al. 366* (K); same locality, same date, *Khamphone et al. 367* (K).