

***Pandanus ramromensis* (Pandanaeae), a new species from Peninsular Thailand**

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ABSTRACT. *Pandanus ramromensis* Callm., Y.W.Low & Buerki (Pandanaeae) from the summit of Khao Ram Rome (Nakhon Si Thammarat Province) in Peninsular Thailand is described here. The new species resembles *Pandanus kedahensis* H.St.John in its ecology and habit but differs by the dimensions of its leaves, leaf shape, syncarps and styles. The new species is provided with line drawings and field photographs, and is assigned a preliminary conservation status of Vulnerable (VU) using the IUCN Red List criteria.

Keywords. Endemic, Khao Ram Rome, Nakhon Si Thammarat, Pandanales

Introduction

The family *Pandanaeae* in Thailand was first revised by the Pandan expert Benjamin Stone (1933–1994) who accepted 26 species in the family in the first complete survey for the country (Stone, 1971). Later, Callmander & Buerki (in Chayamarit et al., 2014) accepted 25 species in three genera in the most recent checklist for Thailand: *Benstonea* Callm. & Buerki (four spp.), *Freycinetia* Gaudich. (three spp.), and *Pandanus* Parkinson (18 spp.). Further taxonomic work in herbaria and the field conducted on the family in the context of the Flora of Peninsular Malaysia (Beentje & Callmander, 2023), and the forthcoming treatment for Flora of Thailand revised this estimate. We are therefore providing below a summary of currently accepted species of *Pandanaeae* in Thailand reflecting our ongoing taxonomic work on this family.

Benstonea is represented in Thailand by four species: *B. herbacea* (Martelli) Callm. & Buerki, *B. humilis* (Lour.) Callm. & Buerki, *B. nana* (Martelli) Callm. & Buerki, and *B. ornata* (Kurz) Callm. & Buerki. *Freycinetia* is represented by five species: *F. angustifolia* Blume, *F. imbricata* Blume, *F. javanica* Blume, *F. kamiana* B.C.Stone, and *F. sumatrana* Hemsl. Finally, the definitive number of accepted species in the genus *Pandanus* still needs to be addressed due to the numerous existing names in the taxonomically and phylogenetically challenging *Pandanus* subg. *Rykia* (de Vriese) B.C.Stone (Stone, 1971; Buerki et al., 2012; Callmander & Buerki, 2018). This

subgenus is morphologically characterised by having free carpels (rarely connate) with a sharp acute style that is generally bifurcate or several-toothed (Stone, 1974). St. John (1962, 1963, 1965) described 11 new species in this subgenus from Thailand and six from Vietnam and Cambodia. With the exception of one species described by St. John, all the other species have been accepted by Stone (1982, 1983). Fieldwork organised by the Forest Herbarium of the Department of National Parks, Wildlife and Plant Conservation of Thailand has allowed us to gather 70 new collections for the family between 2012 and 2023. These latter collections aim to strengthen our knowledge of the natural history of the family to deliver a comprehensive taxonomic treatment for the forthcoming *Pandanaceae* volume of the Flora of Thailand. This work has led to the discovery of a new species and the proposal for a new synonym in *Pandanus* subg. *Rykia* (Callmander & Buerki, 2018).

In 2022, during fieldwork in the Nakhon Si Thammarat Mountain Range in Peninsular Thailand, we collected a fruiting *Pandanus* at the summit of Khao Ram Rome (Namtok Yong National Park) in the cloud evergreen rainforest. We were unable to assign this latter collection to any known species described for Thailand and surrounding regions and thus describe it below as a new species: *Pandanus ramromensis* Callm., Y.W.Low & Buerki. The new species is provided with line drawings and field photographs, and a provisional conservation assessment using the IUCN guidelines and criteria (IUCN Standards and Petitions Committee, 2024).

Taxonomy

Pandanus ramromensis Callm., Y.W.Low & Buerki, **sp. nov.**

Pandanus ramromensis is distinguished from *P. kedahensis* H.St.John in having broader leaves (5–8 cm vs 4.4–5 cm in *P. kedahensis*) with marginal prickles proximally 5–10 mm long (vs 1–2 mm long in *P. kedahensis*), and larger syncarps (c. 20 × 12 cm vs 12.5–14 × 10.6–11 cm in *P. kedahensis*) and drupes with styles sharply bifid, slightly curved or straight, bifurcate with two spreading pointed ends c. 3 mm long (vs sharply proximally bent with short arms 1–2 mm long in *P. kedahensis*). – TYPE: Thailand, Nakhon Si Thammarat Province, Namtok Yong National Park, nature trail at the summit of Khao Ram Rome [upper ranger station], 08°14'21"N 99°48'20"E, 965 m, 15 November 2022, fr., *M.W. Callmander, Y.W. Low, M. Poopath, P. Thaotawin, C. Seesawang, N. Suphuntee & S. Sangvirotjanapat 1373* (holotype BKF; isotypes G [G00416948], K, SING). (Figs 1, 2)

Shrub with stem erect or decumbent, up to 3 m tall, few prop roots and branches. **Leaves** 150–300 cm long, 5–8 cm wide in the middle, coriaceous, base amplexicaul, sheath yellow in vivo, 12–13 cm long, c. 7 cm wide at the apex, 11–13 cm large at the base, apex attenuate distally with a cauda up to 6 cm long, with prickles white in vivo; marginal prickles beginning at 13–15 cm above base and extending to the apex, antrorse, 5–10 mm long in the lower third, (5–)10–20(–30) mm apart, stout, to 2–5 mm long in the mid third, (10–)15–20(–25) mm apart, to 2 mm in the apical distal third,

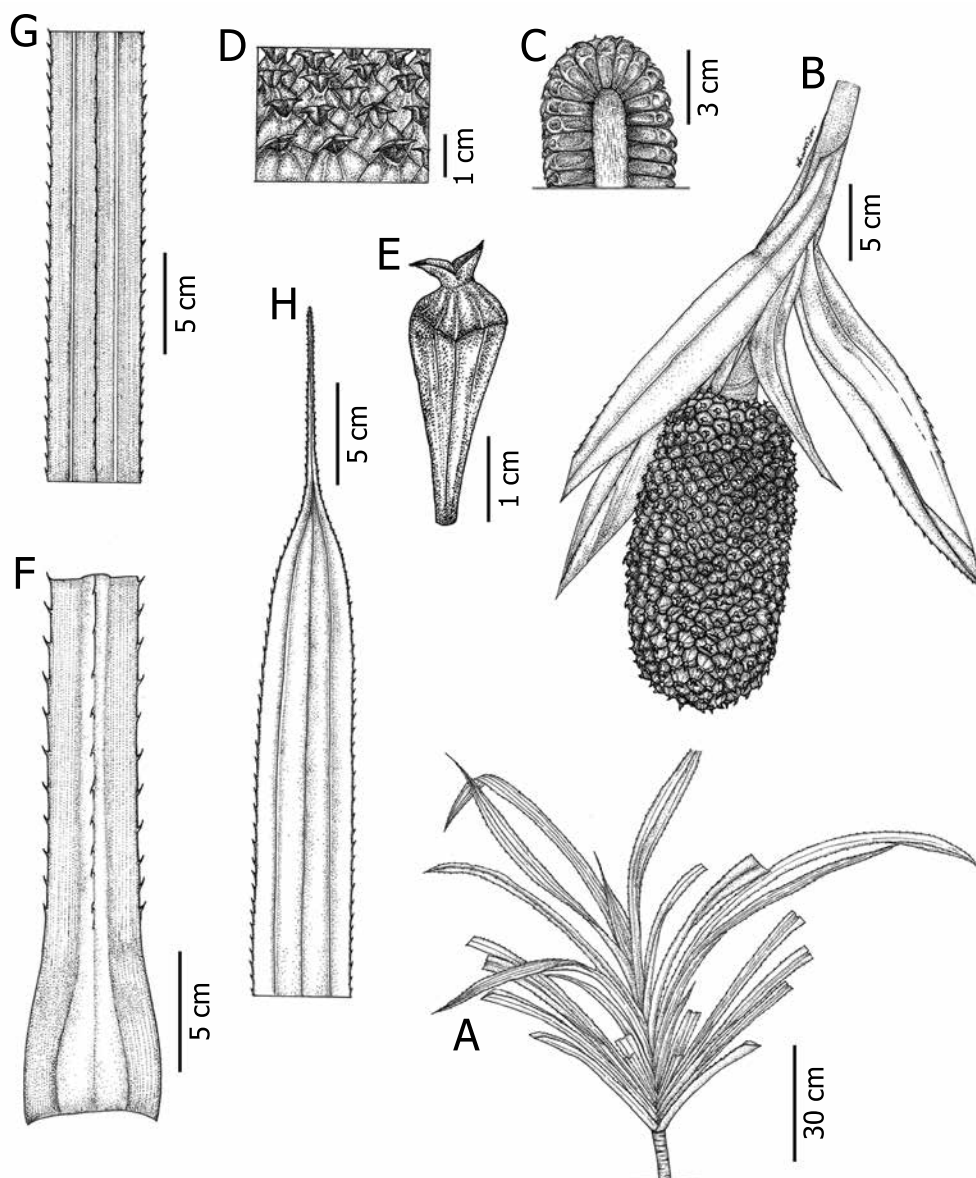


Fig. 1. *Pandanus ramromensis* Callm., Y.W.Low & Buerki. **A.** Habit. **B.**, **C.** Syncarp. **D.** Close-up on styles and stigmas. **E.** Single drupe detached. **F.** Basal part of a leaf. **G.** Median part of a leaf. **H.** Upper part of a leaf. From the type *Callmander et al.* 1373. Drawn by W. Bhuchaisri.

2–5 mm apart; midrib armed at 14–17 cm above base, prickles stout, retrorse in the lower part, 3–5 mm long, sparsely arranged in the mid part, 1–2 mm long, discrete in the distal part, irregularly spaced. **Staminate inflorescences** unknown. **Infrutescences** pendent at maturity, on a curved peduncle (straight when immature), with a single syncarp; peduncle c. 35 cm long, c. 3 cm wide at the apex, trigonous, veins visible,



Fig. 2. *Pandanus ramromensis* Callm., Y.W.Low & Buerki. **A.** Habit. **B, C.** Syncarp. **D.** Close-up on styles and stigmas. From the type *Callmander et al. 1373*. (Photos: M.W. Callmander & Y.W. Low)

first bract borne just below the base of the syncarp, 10 leafy bracts; syncarps c. 20 × 12 cm, oblong or ovoid, brown-purple at maturity. **Drupes** 300–350 per syncarp, 30–35 × 7–11 × 5–8 mm, 6-angled; pileus pyramidal, 6–10 mm long, dark green when mature in vivo. **Style** one per carpel, bony, sharply bifid, 3–5 mm long, slightly curved or straight, bifurcate with two spreading pointed ends c. 3 mm long; stigmatic groove brown, c. 2.5 mm long; endocarp black, narrowly ellipsoid, bony, c. 15 mm long, lateral wall c. 1.5 mm thick; seeds not seen; apical and basal mesocarp fibrous.

Distribution. The new species is hypothesised to be restricted to the summit of Khao Ram Rome, a mountain of the Nakhon Si Thammarat Range in southern Thailand. This mountain is situated within the Namtok Yong National Park, a key biodiversity area forming part of the Khao Luang conservation corridor (CEPF, 2020).

Ecology. *Pandanus ramromensis* occurs at 965 m in cloud evergreen rainforests.

Etymology. The new species is named after the mountain, Khao Ram Rome, where it was collected and is presumed to be restricted to.

Provisional IUCN conservation assessment. *Pandanus ramromensis* is known from a single collection in the Namtok Yong National Park. The new species is nevertheless quite common at the summit of Khao Ram Rome along the nature trail. Based on observation records, it has an estimated extent of occurrence (EOO) of 4 km² and an equal area of occupancy (AOO). No threats were observed at the known locality. However, the new species has a very restricted distribution, and a stochastic event may occur within a short period of time. *Pandanus ramromensis* is therefore assigned a preliminary conservation status of Vulnerable (VU D2) using the IUCN guidelines and criteria (IUCN Standards and Petitions Committee, 2024).

Notes. In Peninsular Thailand, *Pandanus ramromensis* is currently the only species restricted to a single mountain massif. A sterile specimen collected on the summit of Khao Pokyo (Bannang Sta District, Yala Province) (*Callmander et al.* 1422 [BKF, G]) and a fertile specimen with an immature syncarp and young leaves collected in Betong (Yala Province) (*Niyomdham et al.* 6093 [BKF]) may potentially represent previously unidentified new species from montane sites in southern Thailand.

Pandanus ramromensis is not the only species currently restricted to Khao Ram Rome. A freshwater crab and a liverwort have also been described from the summit, respectively *Nakhonsimon ramromensis* Promdam, Nabhitabhata & Ng, 2014 (Potamidae) (Promdam et al., 2014), and *Cololejeunea ramromensis* Pòcs (Lejeuneaceae) (Chantanaorrapint & Pòcs, 2014).

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