

A preliminary checklist to Thai Palms

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ABSTRACT. As part of the work towards a treatment of the palms for Flora of Thailand a checklist is provided with full synonymy, notes on distribution, vernacular names, and uses. The list comprises 161 species classified into 33 genera.

INTRODUCTION

Like most countries in the Southeast Asian region Thailand boasts a flora that is rich in palms. The present checklist, which is a precursor to the palm treatment in Flora of Thailand, accounts for 161 species classified in 33 genera. Several species are known from cultivation only and are listed under exotic palms cultivated in Thailand. Some of these are amongst the most common palms in Thailand such as African Oil Palm, Coconut Palm and Sago Palm.

Recently, Hodel & Vatcharakorn (1998) published a profusely illustrated book on Thai palms, accounting for 36 genera and 164 species. The book has been criticised for being written in haste and introducing numerous superfluous names (Lim 1998; Dransfield, 2000). Although the checklist presented here includes more or less the same number of species, there are major differences in genera such as *Calamus*, *Licuala* and *Iguanura*. Many of the names that Hodel (1997a; 1997b, 1998) published in a series of papers preceding the publication of book are synonymised. Furthermore several newly published species have been added, such as *Calamus griseus*, *C. laosensis*, *C. oligostachys* and *C. solitarius* (Dransfield, 2000; Evans et al., 2000; 2001; Evans, 2002).

Biogeography

The highest concentration of palm species within Thailand is found on the Peninsula, especially near the border with Malaysia. Thirteen species are endemic to the country: *Iguanura divergens*, *I. tenuis*, *I. thalagensis*, *Kerriodoxa elegans*, *Licuala distans*, *Licuala poonsakii*, *Maxburretia furtadoana*, *Pinanga badia*, *P. fractiflexa*, *P. watanaiana*, *Salacca stolonifera*, *Trachycarpus oreophilus*, and *Wallichia marianneae*.

The Thai palm flora is composed of an Indochinese element, a Himalayan element and a Malesian element. Several of the Malesian species occur disjunctly in Borneo,

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which most likely is due to a former continuous distribution across the Pleistocene landmass of Sundaland. This applies to species such as *Licuala triphylla*, *Calamus axillaris*, *C. tomentosus*, *Pinanga simplicifrons* and *Pinanga auriculata*.

Uses

Palms are used for a wide array of purposes based on their structural and nutritional properties. To rural people they often represent an important resource providing both shelter and food. Over the last few years a large cottage industry has developed producing artifacts carved from palm wood (mostly *Borassus flabellifer*) and the sclerified endocarps of coconut. These products are sold at the national level and also exported.

In Thailand, all rattan canes are collected from the wild. Only about a dozen species belonging to the genus *Calamus* are used commercially for production of furniture. Thailand has lost most of its rattan resources as a result of deforestation and over-exploitation. For a while imports of rattan from the neighbouring countries supported the industry, but after a cane export ban imposed by the major producing countries was implemented in 1989, both cane imports and rattan furniture exports have declined considerably. Several rattan plantations have been established in Thailand over the years but mainly on a trial basis.

Other palm species are used locally on a limited scale. A renewed attention to non-timber forest products, agroforestry and integrated product development has increased the interest in palm products worldwide (FAO 1995). In Thailand the local uses of palms are, however, still poorly documented.

Local names

The local names cited in this publication have mainly been extracted from Smitinand (2001 rev. ed.). A few new names have been added that were recorded during fieldwork in the North and on the Peninsula.

Ecology

In the humid tropics all over the world, palms form a characteristic element in forest ecosystems. They range from small rosette plants in the understorey to tall trees towering above the forest canopy. The climbing palms, the rattans, are a particular feature of the Southeast Asian forests, where they can sometimes occur in great abundance.

Some palms range into drier habitat types in northern Thailand. For example, *Phoenix loureiroi* and *Trachycarpus oreophilus* are both distributed on limestone mountains where they are exposed to several months without precipitation every year. Other palm species such as *Cyrtostachys renda*, *Licuala paludosa* and *Eleiodoxa conferta* inhabit marginal habitats such as swamp forests in Peninsular Thailand, while *Phoenix paludosa* and *Calamus erinaceus* occur on the landward fringe of mangrove forest.

Conservation

A detailed analysis of the conservation status of Thai palms will be the subject of a subsequent paper.

1. ARECA

L., Sp. Pl. 1189. 1753.— *Mischophloeus* Scheff., Ann. Jard. Buitenz. 2: 115. 1876.— *Gigliolia* Becc., Malesia 1: 171. 1877.— *Pichisermollia* H. C. Monteiro, Rodriguésia 28: 195. 1976.

Forty-eight species found in Tropical and Subtropical Asia; four species native to Thailand, one (*A. catechu*) very widely cultivated.

1. *Areca laosensis* Becc., Webbia 3: 191. 1910.

NB. Possibly not distinct from *A. triandra*.

Distribution.— Indo-China.

Vernacular name.— Mak lo ka thoen (หมากลอกะเทิน) (Trat).

2. *Areca montana* Ridl., Mat. Fl. Malay. Penins. 2: 136. 1907.— *A. latiloba* Ridl., J. Str. Br. Roy. Asiat. Soc. 86: 310. 1922.— *A. recurvata* Hodel, Palm J. 134: 28. 1997.

Distribution.— Thailand to W Malesia.

Vernacular name.— Mak pa (หมากป่า) (Peninsular).

3. *Areca triandra* Roxb. ex Buch.-Ham., Mem. Wern. Nat. Hist. Soc. 5: 310. 1826.— *A. laxa* Buch.-Ham., Mem. Wern. Nat. Hist. Soc. 5(2): 309. 1826.— *A. nagensis* Griff., Calcutta J. Nat. Hist. 5: 453. 1845.— *Nenga nagensis* (Griff.) Scheff., Ann. Jard. Bot. Buitenzorg 1:120. 1876; Becc. Malesia 1: 25. 1877.— *Ptychosperma polystachyum* Miq., Fl. Ned. Ind., Eerste Bijv. 590. 1861.— *Areca polystachya* (Miq.) H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers: 232. 1878.— *A. triandra* var. *bancana* Scheff., Natuurk. Tijdschr. Ned.-Indië. 32: 165. 1873.— *A. borneensis* Becc., Malesia 1: 22. 1877.— *A. humilis* Blanco ex H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers: 231. 1878.— *A. alicae* W. Hill. ex F. Muell., Gartenflora 28: 199. 1879.

Distribution.— Tropical and Subtropical Asia.

Vernacular name.— Mak cha waek (หมากชะแวก), Mak ling (หมากลิง) (Chanthaburi); Mak nang ling (หมากนางลิง) (Trat); Mak no (หมากหน่อ), Mak iak (หมากเอี้ยก) (Northern); Mak hom (หมากหอม) (Bangkok); Mak khiao (หมากเขี้ยว) (Narathiwat); Krue-do (กรู้อดอ) (Malay-Narathiwat).

4. *Areca tunku* J. Dransf. & C. K. Lim, Principes 36: 81. 1992.— *A. bifaria* Hodel, Palm J. 136: 7. 1997.

Distribution.— Peninsular Thailand to Peninsular Malaysia and Sumatra.

2. ARENGA

Labill. ex DC., Bull. Sci. Soc. Philom. Paris 2: 162. 1800, nom. cons.— *Saguerus* Steck, Sagu: 15. 1757.— *Gomutus* Corrêa, Ann. Mus. Natl. Hist. Nat. 9: 288. 1807.— *Blancoa* Blume, Rumphia 2: 128. 1843. nom. illeg.— *Didymosperma* H. Wendl. & Drude ex Hook.f. in Benth. & Hook.f., Gen. Pl. 3: 917. 1883.

Twenty-three species with three varieties, Tropical and Subtropical Asia to N Australia. Four species in Thailand and one (*A. pinnata*) very widely cultivated.

1. *Arenga caudata* (Lour.) H. E. Moore, Principes 4: 114 (1960).— *Borassus caudatum* Lour., Fl. Cochinch. 2: 760. 1790.— *Wallichia caudata* (Lour.) Mart., Hist. Nat. Palm. 3: 315. 1853.— *Blancoa caudata* (Lour.) Kuntze, Revis. Gen. Pl. 2: 727. 1891.— *Didymosperma caudatum* (Lour.) H. Wendl. & Drude ex B. D. Jacks., Index Kew. 1: 756. 1893.— *D. caudatum* var. *tonkinense* Becc., Webbia 3: 208. 1910.— *D. tonkinense* (Becc.) Becc. ex Gagnep. in Lecomte, Fl. Gen. Indo-Chine 6: 966. 1937.

Distribution.— Hainan to Indo-China and N Peninsular Malaysia.

Vernacular name.— Tan (ตาล) (Central, Chon Buri); Tan kai (ตาลไก่) (Loei); Tan rang (ตาลรัง) (Chanthaburi); Tao rang nu (เต้าร้างหนู) (Chanthaburi, Peninsular).

Use.— Ornamental.

2. *Arenga hookeriana* (Becc.) T. C. Whitm., Principes 14: 124. 1970.— *Didymosperma hookerianum* Becc., Malesia 3: 186. 1889.

Distribution.— Peninsular Thailand to N Peninsular Malaysia.

Vernacular name.— Si sayam (ศรีสยาม), Tao rang si sayam (เต้าร้างศรีสยาม) (Bangkok).

Use.— Ornamental.

3. *Arenga obtusifolia* Mart., Hist. Nat. Palm. 191. 1838.— *Gomutus obtusifolius* Blume, Rumphia 2: 131. 1843, nom. invalid.

Distribution.— Peninsular Thailand, Peninsular Malaysia, Sumatra and Java.

Vernacular name.— Maphro nu (มะพร้าวหนู) (Songkhla).

4. *Arenga westerhoutii* Griff., Calcutta J. Nat. Hist. 5: 474. 1845.— *Saguerus westerhoutii* (Griff.) H. Wendl. & Drude in O. C. E. de Kerchove de Denterghem, Palmiers 256. 1878.

Distribution.— Bhutan to Peninsular Malaysia.

Vernacular name.— Rang kap (รังกำป), Rang khai (รังคำย) (Peninsular); Rang kai (รังไก่) (Central); La-ka (ลากะ) (Malay-Pattani); Lang kap (หลังกัม) (Yala, Pattani); Nao (เนา), I-nao (อิเนา) (Satun).

Use.— Edible young endospems, leaves for thatch.

3. BORASSODENDRON

Becc., Webbia 4: 359. 1914.

Two species, Peninsular Thailand to W Malesia. One species in Thailand.

Borassodendron machadonis (Ridl.) Becc., Webbia 4: 361. 1914.— *B. machadonis* Ridl., J. Str. Br. Roy. Asiat. Soc. 44: 203. 1905.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Chang hai (ช้างไห้) (Pattani); Chang rong hai (ช้างร้องไห้) (Trang).

4. BORASSUS

L., Sp. Pl. 1187. 1753.— *Lontarus* Adans., Fam. Pl. 2: 25. 1763.

Five species in NE Tropical Africa, Madagascar, Tropical Asia and Malesia. One species in Thailand, possibly native, but widely cultivated.

Borassus flabellifer L., Sp. Pl. 1187 (1753).— *B. flabelliformis* L., Syst. Nat. ed. 13, 2: 827. 1770.— *B. tunicatus* Lour., Fl. Cochinch. 2: 618. 1790.— *Pholidocarpus tunicatus* (Lour.) H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers 235. 1878.— *Borassus sundaicus* Becc., Webbia 4: 321. 1914.

Distribution.— Tropical and Subtropical Asia.

Vernacular name.— Tan (ตาล) (General); Ta-not (ตะนอต) (Khmer); Tan tanot (ตาลโตนด), Tan yai (ตาลใหญ่) (Central); Than (ถาด) (Shan-Mae Hong Son); Tho-thu (ทอตู) (Karen-Mae Hong Son); Tha-nao (ทะเนา) (Khmer-Phratabong); Thang (ท้าง) (Karen-Tak, Chiang Mai); Not (โนนด) (Peninsular).

Use.— Handicrafts, palm wine, sugar and construction material.

5. CALAMUS

L., Sp. Pl. 325. 1753.— *Palmijuncus* Rumph. ex Kuntze, Revis. Gen. Pl. 2: 731. 1891. nom illegit.— *Rotanga* Boehm., Defin. Gen. Pl. 395. 1760.— *Rotang* Adans., Fam. Pl. 2: 24. 1763.— *Zalaccella* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 496 (1908).— *Cornera* Furtado, Gard. Bull. Singapore 14: 518. 1955.— *Schizospatha* Furtado, Gard. Bull. Singapore 14: 525. 1955.

Three hundred and sixty-six species, Tropical Africa, Tropical and Subtropical Asia to SW Pacific. Fifty-four species with two subspecies and four varieties in Thailand.

1. Calamus acanthophyllus Becc., Webbia 3: 229. 1910.

Distribution.— E Thailand to Laos.

Vernacular name.— Wai nang (หวายนัง) (Si Sa Ket).

Use.— Handicrafts, edible shoot and root can be used to treat malaria.

2. *Calamus acanthospathus* Griff., Calcutta J. Nat. Hist. 5: 39. 1845.— *Palmijuncus acanthospathus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus montanus* T. Anderson, J. Linn. Soc., Bot. 11: 9. 1871.— *Palmijuncus montanus* (T. Anderson) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus feanus* Becc. in Hook.f., Fl. Brit. India 6: 448. 1892.— *C. feanus* var. *medogensis* S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 137. 1989.— *C. yunnanensis* var. *densiflorus* S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 135. 1989, nom. invalid.— *C. yunnanensis* var. *intermedius* S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 137. 1989, nom. invalid.— *C. yunnanensis* Govaerts, World Checklist Seed Pl. 3(1): 11. 1999.

Distribution.— Central Himalaya to S China and Indo-China.

3. *Calamus arborescens* Griff., Calcutta J. Nat. Hist. 5: 33. 1845.— *Palmijuncus arborescens* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus hostilis* Wall. ex Voigt, Hort. Suburb. Calcutta 639. 1845, nom. nud.

Distribution.— Myanmar to Peninsular Malaysia.

Vernacular name.— Lam phang (ลำปาง) (Nakhon Si Thammarat); Yi-kha-se (ยี่คาเซ่) (Karen-Kanchanburi); Wai ton (หวายตัน) (Kanchanaburi).

4. *Calamus axillaris* Becc. in Hook. f., Fl. Brit. India 6: 456. 1893.— *C. hendersonii* Furtado, Gard. Bull. Singapore 15: 100. 1956.— *C. riparius* Furtado, Gard. Bull. Singapore 15: 103. 1956.

Distribution.— Thailand to Peninsular Malaysia, NW Borneo.

Vernacular name.— Wai ta kha nam (หวายตะค่าน้ำ) (Narathiwat).

5. *Calamus balingensis* Furtado, Gard. Bull. Singapore 15: 240. 1956.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Wai lue bae (หวายลิ้น) (Yala).

6. *Calamus blumei* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 340. 1908.— *C. mawaiensis* Furtado, Gard. Bull. Singapore 15: 75. 1956.— *C. penibukanensis* Furtado, Gard. Bull. Singapore 15: 79. 1956.— *C. slootenii* Furtado, Gard. Bull. Singapore 15: 79. 1956.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Wai khi phueng (หวายขี้ผึ้ง) (Trang).

7. *Calamus bousigonii* Becc., Rec. Bot. Surv. India 2: 209. 1902.

7a. subsp. *bousigonii*

Distribution.—Southeast Thailand to Indo-China.

7b. subsp. *smitinandii* J. Dransf., Kew Bull. 55: 713. 2000.

Distribution.— Peninsular Thailand.

Vernacular name.— Wai sae ma (หวายแซ่มา) (Trang).

8. *Calamus burkillianus* Becc. ex Ridl., Fl. Malay Penins. 5: 56. 1925.—
C. chibehensis Furtado, Gard. Bull. Singapore 15: 244. 1956.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Wai kratat (หวายกระดาด) (Narathiwat); Ro-tae-kri-ya (รอแตกรียะ) (Malay-Narathiwat).

9. *Calamus caesius* Blume, Rumphia 3: 57. 1847.— *Palmijuncus caesius* (Blume) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Rotang caesius* (Blume) Baill., Hist. Pl. 13: 300. 1895.— *Calamus glaucescens* Blume, Rumphia 3: 65. 1847. nom illegit.— *Palmijuncus glaucescens* (Blume) Kuntze, Revis. Gen. Pl. 2: 733. 1891.

Distribution.— Peninsular Thailand to Philippines (Palawan).

Vernacular name.— Wai ta kha thong (หวายตะค้าทอง), Ro-tae-sa-kong (รอแต๊ะสะกอง), Ka-tae-sa-tong (กาแต๊ะสะตอง), Ro-tan-se-ka (โรตันเซคะ), Wa-tae-sa-ko (วาแต๊ะสะกอ) (Malay Peninsular); Wai ta khla thong (หวายตะคล้าทอง).

10. *Calamus castaneus* Griff., Calcutta J. Nat. Hist. 5: 28. 1845.— *C. griffithianus* Mart., Hist. Nat. Palm. 3: 332. 1853.— *Palmijuncus griffithianus* (Mart.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus castaneus* Griff. var. *griffithianus* (Mart.) Furtado, Gard. Bull. Singapore 15: 50. 1956.

Distribution.— Peninsular Thailand, Peninsular Malaysia, Sumatra.

Vernacular name.— Chak khao (จากเข) (Trang); Chak cham (จากจ่า) (Narathiwat).

11. *Calamus concinnus* Mart., Hist. Nat. Palm. 3: 332. 1853.— *Palmijuncus concinnus* (Mart.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Plectocomiopsis ferox* Ridl., Fl. Malay. Penins. 5: 66. 1925.

Distribution.— Myanmar to Peninsular Malaysia.

Vernacular name.— Wai nang (หวายนั่ง) (Peninsular).

12. *Calamus densiflorus* Becc. in Hook. f., Fl. Brit. India 6: 445. 1893.— *C. neglectus* Becc. in Hook. f., Fl. Brit. India 6: 458. 1893.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Wai khi re (หวายขี้เหร่) (Trang).

13. *Calamus diepenhorstii* Miq., Fl. Ned. Ind., Eerste Bijv. 594. 1861.— *Palmijuncus diepenhorstii* (Miq.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus singaporensis* Becc. in Hook.f., Fl. Brit. India 6: 454. 1893.— *C. diepenhorstii* var. *singaporensis* (Becc.) Becc., Ann. Roy. Bot. Gard. (Calcutta) 11: 325. 1908.— *C. pacificus* Ridl., J. Fed. Malay States Mus. 6: 59. 1915.

Distribution.— Thailand to W Malesia.

Vernacular name.— Wai khom (หวายขม) (Trang); Wai khiao (หวายเขียว) (Narathiwat).

14. *Calamus erectus* Roxb., Fl. Ind. ed. 3: 774. 1832.— *Palmijuncus erectus* (Roxb.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus collinus* Griff., Calcutta J. Nat. Hist. 5: 31. 1845.— *Palmijuncus collinus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus erectus* var. *collinus* (Griff.) Becc. in Hook. f., Fl. Brit. India 6: 439. 1892.— *C. schizospathus* Griff., Calcutta J. Nat. Hist. 5: 32. 1845.— *Palmijuncus schizospathus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus erectus* var. *schizospathus* (Griff.) Becc., Ann. Roy. Bot. Gard. (Calcutta) 11: 125. 1908.— *C. macrocarpus* Griff. ex Mart., Hist. Nat. Palm. 3: 333. 1853.— *Palmijuncus macrocarpus* (Griff. ex Mart.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus erectus* var. *macrocarpus* (Griff. ex Mart.) Becc. in Hook.f., Fl. Brit. India 6: 439. 1892.— *C. erectus* var. *birmanicus* Becc., Rec. Bot. Surv. India 2: 197. 1902.

Distribution.— Sikkim to China (Yunnan) and Indo-China.

Vernacular name.— Khi sian (ขี้เทียน) (Trang).

Use.— Edible shoot.

15. *Calamus erinaceus* (Becc.) J. Dransf., Kew Bull. 32: 484. 1978.— *Daemonorops erinacea* Becc., Rec. Bot. Surv. India 2: 225. 1902.— *Calamus aquatilis* Ridl., J. Str. Br. Roy. Asiat. Soc. 41: 43. 1904.

Distribution.— Peninsular Thailand to W Malesia and Philippines (Palawan).

Vernacular name.— Wai phang ka (หวายพังกา) (Trang).

16. *Calamus exilis* Griff., Palms Brit. E. Ind. 51. 1850. *Palmijuncus exilis* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *C. curtisii* Ridl., Mat. Fl. Malay. Penins. 2: 204. 1907.— *C. ciliaris* var. *peninsularis* Furtado, Gard. Bull. Singapore 15: 60. 1956.

Distribution.— Peninsular Thailand to Sumatra.

Vernacular name.— Wai phra ram (หวายพระราม) (Narathiwat); Si-ha-mo (ซีฮามอ) (Malay-Narathiwat).

17. *Calamus flagellum* Griff. ex Mart., Hist. Nat. Palm. 3: 333. 1853.— *Palmijuncus flagellum* (Griff. ex Mart.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus polygamus* Roxb., Fl. Ind. ed. 1832, 3: 780. 1832. synonym. provis.— *Palmijuncus polygamus* (Roxb.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus jenkinsianus* Griff., Palms Brit. E. Ind. 40. 1850, nom. illegit.— *Palmijuncus jenkinsianus* Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus flagellum* var. *karinensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11 (1): 129. 1908.— *C. karinensis* (Becc.) S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 133. 1989.

Distribution.— Sikkim to China (Yunnan) and Indo-China.

Use.— Edible shoot.

18. *Calamus godefroyi* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 267. 1908.

Distribution.— Indo-China.

Vernacular name.— Wai nam (หวายน้ำ) (Nong Khai).

19. *Calamus griseus* J. Dransf., Thai For. Bull., Bot. 28: 157. 2000.

Distribution.— Thailand, Peninsular Malaysia, Sumatra.

20. *Calamus guruba* Buch.-Ham. in C. F. P. von Martius, Hist. Nat. Palm. 3: 211. 1838.— *Daemonorops guruba* (Buch.-Ham.) Mart., Hist. Nat. Palm. 3: 330. 1853.— *Palmijuncus guruba* (Buch.-Ham.) Kuntze, Revis. Gen. Pl. 2: 732. 1891.— *Calamus mastersianus* Griff., Calcutta J. Nat. Hist. 5: 76. 1845.— *C. nitidus* Mart., Hist. Nat. Palm. 3: 334. 1853.— *Palmijuncus nitidus* (Mart.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus multirameus* Ridl., Mat. Fl. Malay. Penins. 2: 202. 1907.— *C. guruba* var. *ellipsoideus* San Y. Chen & K. L. Wang, Acta Bot. Yunnanica 24: 202. 2002.

Distribution.— India (Darjeeling) to Peninsular Malaysia.

Vernacular name.— Wai khi kai (หวายขี้ไก่) (Peninsular).

Use.— Edible shoot.

21. *Calamus henryanus* Becc., Rec. Bot. Surv. India 2: 199. 1902.— *C. balansaeanus* Becc., Webbia 3: 230. 1910.— *C. henryanus* var. *castaneolepis* C. F. Wei, Guihaia 6: 32. 1986.— *C. balansaeanus* var. *castaneolepis* (C. F. Wei) S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 134. 1989.

Distribution.— S China to Indo-China.

Use.— Edible shoot.

22. *Calamus insignis* Griff., Calcutta J. Nat. Hist. 5: 59. 1845.— *Palmijuncus insignis* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus spathulatus* Becc. in Hook. f., Fl. Brit. India 6: 459. 1893.— *C. subspathulatus* Ridl., Mat. Fl. Malay. Penins. 2: 194. 1907.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Wai hin (หวายหิน) (Pattani); Ro-tae-ba-tu (รอเตบาตุ) (Malay-Pattani).

22a. var. longispinosus J. Dransf., Malaysian Forester 41: 342. 1978.

Distribution.— Thailand to N Sumatra.

22b. var. robustus (Becc.) J. Dransf., Malaysian Forester 41: 342. 1978.— *Calamus spathulatus* var. *robustus* Becc. in Hook. f., Fl. Brit. India 6: 459. 1893.

Distribution.— Thailand to Peninsular Malaysia (Perak).

23. Calamus javensis Blume, Rumphia 3: 62. 1847.— *Palmijuncus javensis* (Blume) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus equestris* Blume in J. J. Roemer & J. A. Schultes, Syst. Veg. 7: 1330. 1830, nom. illegit.— *C. tetrastichus* Blume, Rumphia 3: 62. 1847.— *Palmijuncus tetrastichus* (Blume) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus borneensis* Miq., Anal. Bot. Ind. 1: 4. 1850.— *Palmijuncus borneensis* (Miq.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus amplexans* Becc., Malesia 2: 78 (1884).— *Palmijuncus amplexans* (Becc.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *P. penicellatus* (Roxb.) Kuntze, Revis. Gen. Pl. 2: 732. 1891.— *Calamus javensis* subvar. *intermedius* Becc. in Hook. f., Fl. Brit. India 6: 443. 1892.— *C. javensis* subvar. *penangianus* Becc. in Hook. f., Fl. Brit. India 6: 443. 1892.— *C. javensis* subvar. *polyphyllus* Becc. in Hook. f., Fl. Brit. India 6: 443. 1892.— *C. javensis* subvar. *purpurascens* Becc. in Hook. f., Fl. Brit. India 6: 443. 1892.— *C. javensis* subvar. *tenuissimus* Becc. in Hook. f., Fl. Brit. India 6: 443. 1892.— *C. borneensis* Becc., Rec. Bot. Surv. India 2: 205. 1902, nom. illegit.— *C. filiformis* Becc., For. Borneo. 609. 1902.— *C. javensis* var. *acicularis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 185. 1908.— *C. kemamanensis* Furtado, Gard. Bull. Singapore 15: 170. 1956.

Distribution.— Peninsular Thailand to W Malesia, Philippines (Palawan).

Vernacular name.— Wai lek (หวายเล็ก) (Nakhon Si Thammarat); Wai khao san (หวายข้าวสาร) (Narathiwat).

24. Calamus khasianus Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 431. 1908.

Distribution.— Assam to China (Yunnan).

25. Calamus laevigatus Mart., Hist. Nat. Palm. 3: 339. 1853.— *Palmijuncus laevigatus* (Mart.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Ceratolobus laevigatus* (Mart.) Becc. & Hook. f. in Hook. f., Fl. Brit. India 6(2): 477. 1893.— *Calamus pallidulus* Becc. in Hook. f., Fl. Brit. India 6: 457. 1893.— *C. retrophyllus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(App.): 123. 1913.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Wai kri ya (หวายกรียา) (Yala).

26. *Calamus latifolius* Roxb., Fl. Ind. ed. 3: 775. 1832.— *Palmijuncus latifolius* (Roxb.) Kuntze, Revis. Gen. Pl. 2: 732. 1891.— *Calamus humilis* Roxb., Fl. Ind. ed. 3: 773. 1832.— *Palmijuncus humilis* (Roxb.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus inermis* T. Anderson, J. Linn. Soc., Bot. 11: 11. 1871.— *Palmijuncus inermis* (T. Anderson) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus macracanthus* T. Anderson, J. Linn. Soc., Bot. 11: 10. 1871.— *Palmijuncus macracanthus* (T. Anderson) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus latifolius* var. *marmoratus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12: 107. 1918.— *C. inermis* var. *menghaiensis* San Y. Chen, S. J. Pei & K. L. Wang, Acta Bot. Yunnanica 24: 202. 2002.

Distribution.— Nepal to Myanmar.

Vernacular name.— Wai pong (หวายโป่ง) (Central).

27. *Calamus longisetus* Griff., Calcutta J. Nat. Hist. 5: 36. 1845.— *Palmijuncus longisetus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus tigrinus* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 43(2): 211. 1874.— *Palmijuncus tigrinus* (Kurz) Kuntze, Revis. Gen. Pl. 2: 733. 1891.

Distribution.— India (Andamans), Bangladesh, Myanmar, Southeast and Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Wai kam phuan (หวายกำพวน) (Trang).

28. *Calamus luridus* Becc. in Hook.f., Fl. Brit. India 6: 445. 1892.— *C. laxiflorus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(App.): 13. 1913.— *C. distans* Ridl., Fl. Malay Penins. 5: 56. 1925. *C. belumutensis* Furtado, Gard. Bull. Singapore 15: 223. 1956.

Distribution.— Thailand to Peninsular Malaysia.

Vernacular name.— Wai sai (หวายทราย) (Narathiwat).

29. *Calamus manan* Miq., Fl. Ned. Ind., Eerste Bijv. 595. 1861.— *Palmijuncus manan* (Miq.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Rotang manan* (Miq.) Baill., Hist. Pl. 13: 299. 1895.— *Calamus giganteus* Becc. in Hook.f., Fl. Brit. India 6: 460. 1893.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Wai kho dam (หวายข้อดำ) (Central); Ro-tae-ma-nao (รอแตมานา) (Malay-Narathiwat).

30. *Calamus myrianthus* Becc. in Hook.f., Fl. Brit. India 6: 451. 1893.— *C. leucotes* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 309. 1908.

Distribution.— Indo-China.

Vernacular name.— Wai khi kai (หวายขี้ไก่) (Surat Thani).

31. *Calamus nambariensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 433. 1908.— *C. nambariensis* var. *alpinus* S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 141. 1989.— *C. nambariensis* var. *furfuraceus* S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 142. 1989.— *C. nambariensis* var. *menglongensis* S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 141. 1989.— *C. nambariensis* var. *xishuangbannaensis* S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 141. 1989.— *C. nambariensis* var. *yingjiangensis* S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 140. 1989.

Distribution.— Assam to southern central China and Indo-China.

32. *Calamus oligostachys* T. Evans et al., Kew Bull. 56: 242. 2001.— *C. pauciflorus* T. Evans et al., Kew Bull. 55: 935. 2000 (non Ridl., Fl. Malay Penins. 5:57. 1925.).

Distribution.— Northeastern Thailand and Central Laos.

Vernacular name.— Wai kra ting (ห้วยกระติง) (Northern).

33. *Calamus ornatus* Blume in J. J. Roemer & J. A. Schultes, Syst. Veg. 7: 1326. 1830. *Palmijuncus ornatus* (Blume) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Rotang ornatus* (Blume) Baill., Hist. Pl. 13: 299. 1895.— *Calamus ovatus* Reinw. ex Kunth, Enum. Pl. 3: 205. 1841.— *C. aureus* Reinw. ex Mart., Hist. Nat. Palm. 3: 341. 1853.— *Palmijuncus aureus* (Reinw. ex Mart.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus ornatus* var. *horrida* Becc. in Hook.f., Fl. Brit. India 6: 460. 1893.— *C. ornatus* var. *philippinensis* Becc., Webbia 1:346. 1905.

Distribution.— Peninsular Thailand to W and C Malesia.

Vernacular name.— Wai chang (ห้วยช้าง), Wai khao dam (ห้วยเขาดำ) (Peninsular); Wai chang yai (ห้วยช้างใหญ่) (Yala).

34. *Calamus oxleyanus* Teijsm. & Binn. ex Miq., Palm. Archip. Ind. 17. 1868.— *Palmijuncus oxleyanus* (Teijsm. & Binn. ex Miq.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Daemonorops fasciculata* Mart., Hist. Nat. Palm. 3: 330. 1853.— *Calamus fernandezii* H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers 236 (1878).— *Palmijuncus fernandezii* (H. Wendl.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).— *Calamus oxleyanus* var. *obovatus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(App.): 112. 1913.— *C. leiopathus* Bartlett, Papers Mich. Acad. Sci. 25:8. 1939 publ. 1940.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Wai dam (ห้วยดำ) (Trang); Wai lam diao (ห้วยลำเดี้ยว) (Peninsular).

34a. var. *montanus* Furtado, Gard. Bull. Singapore 15: 86. 1956.

Distribution.— Peninsular Malaysia (Terengganu).

35. *Calamus palustris* Griff., Calcutta J. Nat. Hist. 5: 60. 1845.— *Palmijuncus palustris* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus extensus* Roxb., Fl.

Ind. ed. 3: 777. 1832.— *Palmijuncus extensus* (Roxb.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus latifolius* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 43(2): 20. 1874.— *C. palustris* var. *amplissimus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 405. 1908.— *C. palustris* var. *cochinchinensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 405. 1908.— *C. kerrianus* Becc. Ann. Roy. Bot. Gard. (Calcutta) 11(App.). 140. 1913.— *C. palustris* var. *longistachys* S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 138. 1989.— *C. loeiensis* Hodel, Palm J. 139: 54. 1998.

Distribution.— S China to Nicobar Is.

Vernacular name.— Wai khring (หาขริง) (Trang); Wai ling (หาหลิง), Wai pok (หาปอก) (Narathiwat); Sa-kro-ai (สะกรอไ) (Malay-Narathiwat).

Use.— Handicrafts and edible shoot.

35a. var. malaccensis Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 405. 1908.— *Calamus dumetorum* Ridl., Mat. Fl. Malay. Penins. 2: 211. 1907.

Distribution.— Myanmar to Peninsular Malaysia (Perak, Penang).

36. Calamus pandanosmus Furtado, Gard. Bull. Singapore 15: 217. 1956.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Wai toei hom (หาเตยหอม) (General).

37. Calamus peregrinus Furtado, Gard. Bull. Singapore 15: 66. 1956.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Wai nguai (หาขงว) (Peninsular).

38. Calamus poilanei Conrard, Notul. Syst. (Paris) 7: 28. 1938.

Distribution.— Indo-China.

Use.— Handicrafts and edible shoot.

39. Calamus radulosus Becc. in Hook. f., Fl. Brit. India 6: 443. 1892.

Distribution.— Thailand to Peninsular Malaysia (Perak).

Vernacular name.— Wai krae kri ya (หาขเกรกรียา) (Yala).

40. Calamus rudentum Lour., Fl. Cochinch. 209. 1790.— *Palmijuncus rudentum* (Lour.) Kuntze, Revis. Gen. Pl. 2: 732. 1891.— *Rotang rudentum* (Lour.) Baill., Hist. Pl. 13: 299. 1895.

Distribution.— Indo-China.

Vernacular name.— Wai yae (หาเย), Wai pong (หาปอง) (General); Wai khi sian (หาขี้เซียน) (Peninsular).

Use.— Handicrafts, edible shoot and fruits.

41. *Calamus scipionum* Lour., Fl. Cochinch. 210. 1790.— *Palmijuncus scipionum* (Lour.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Rotang scipionum* (Lour.) Baill., Hist. Pl. 13: 299. 1895.

Distribution.— Peninsular Thailand to W Malesia, Philippines (Palawan).

Vernacular name.— Wai mai thao (หวายไม้เท้า) (Peninsular); Wai kam (หวายกำ) (Narathiwat).

42. *Calamus sedens* J. Dransf., Kew Bull. 33: 528. 1979.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

43. *Calamus setulosus* J. Dransf., Malaysian Forester 41: 343. 1978.

Distribution.— Thailand to Peninsular Malaysia (Perak).

44. *Calamus siamensis* Becc., Rec. Bot. Surv. India 2: 203. 1902.— *C. siamensis* var. *malaianus* Furtado, Gard. Bull. Singapore 15: 215. 1956.

Distribution.— Indo-China to Peninsular Malaysia.

Vernacular name.— Wai khom (หวายขม) (General); Krae-batu (แกรบาดู) (Malay-Narathiwat); Wai bun (หวายบัน) (North-eastern).

Use.— Widely cultivated for edible shoot.

45. *Calamus solitarius* T. Evans et al., Kew Bull. 55: 932. 2000.

Distribution.— NE Thailand to Indo-China.

46. *Calamus speciosissimus* Furtado, Gard. Bull. Singapore 15: 198. 1956.

Distribution.— Peninsular Thailand to Sumatra.

Vernacular name.— Wai teng (หวายเต็ง) (Narathiwat).

47. *Calamus spectatissimus* Furtado, Gard. Bull. Singapore 15: 64. 1956.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Wai krae (หวายแกร) (Narathiwat); Krae-ki-ya (แกรกียะ) (Malay-Narathiwat).

48. *Calamus temii* T. Evans, Kew Bull. 57: 85. 2002.

Distribution.— NE Thailand.

49. *Calamus tenuis* Roxb., Fl. Ind. ed. 1832, 3: 780. 1832. *Palmijuncus tenuis* (Roxb.) Kuntze, Revis. Gen. Pl. 2: 734. 1891.— *Calamus amarus* Lour., Fl. Cochinch. 210. 1790. Provisional synonym.— *Palmijuncus amarus* (Lour.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus heliotropium* Buch.-Ham. ex Kunth, Enum. Pl. 3: 210. 1841.— *Palmijuncus heliotropium* (Buch.-Ham. ex Kunth) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus royleanus* Griff., Calcutta J. Nat. Hist. 5: 40. 1845.— *Palmijuncus royleanus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 732. 1891.— *Rotang royleanus* (Griff.) Baill., Hist. Pl. 13: 299. 1895.— *Calamus horrens* Blume, Rumphia 3: 43. 1847.— *Palmijuncus horrens* (Blume) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus stoloniferus* Teijsm. & Binn., Cat. Hort. Bog. 75. 1844.

Distribution.— India (Uttaranchal) and Java to Indo-China.

Vernacular name.— Wai chumphon (หวายชุมพร) (Central).

Use.— Edible shoot.

50. *Calamus tetradactylus* Hance, J. Bot. 13: 289. 1875.— *Palmijuncus tetradactylus* (Hance) Kuntze, Revis. Gen. Pl. 2: 732. 1891.— *Calamus bonianus* Becc., Webbia 3: 231. 1910.— *C. cambojensis* Becc., Webbia 3: 232. 1910.

Distribution.— S China to Indo-China.

Use.— Handicrafts.

51. *Calamus tomentosus* Becc. in Hook.f., Fl. Brit. India 6: 455. 1893.

Distribution.— Peninsular Thailand to Peninsular Malaysia, Borneo.

Vernacular name.— Wai hua diao (หวายหัวเดียว), Wai khi klak (หวายขี้กลาก), Wai tao (หวายเทา) (Peninsular).

52. *Calamus viminalis* Willd., Sp. Pl. 2: 203. 1799.— *Palmijuncus viminalis* (Willd.) Kuntze, Revis. Gen. Pl. 2: 732. 1891.— *Rotang viminalis* (Willd.) Baill., Hist. Pl. 13: 299. 1895.— *Calamus fasciculatus* Roxb., Fl. Ind. ed. 1832, 3: 779. 1832.— *Palmijuncus fasciculatus* (Roxb.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus viminalis* var. *fasciculatus* (Roxb.) Becc. in Hook.f., Fl. Brit. India 6: 444. 1892.— *C. extensus* Mart., Hist. Nat. Palm. 3: 210 t. 116. f. 4. 1838, nom. illegit.— *C. pseudorotang* Mart. ex Kunth, Enum. Pl. 3: 207. 1841.— *Palmijuncus pseudorotang* (Mart. ex Kunth) Kuntze, Revis. Gen. Pl. 2: 732. 1891.— *Calamus litoralis* Blume, Rumphia 3: 43. 1847.— *Palmijuncus litoralis* (Blume) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus viminalis* var. *andamanicus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11 (1): 207. 1908.— *C. viminalis* var. *bengalensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 206. 1908.— *C. viminalis* var. *cochinchinensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 207. 1908.— *C. viminalis* var. *pinangianus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 207. 1908.

Distribution.— NE India to S Central China and Lesser Sunda Is (Bali).

Vernacular name.— Wai khom (หวายขม) (Central, Northern); Ro-tae-sa-po (รอเตสาโป) (Malay-Narathiwat).

Use.— Edible shoot and fruits.

53. *Calamus viridispinus* Becc. in Hook.f., Fl. Brit. India 6: 458. 1893.— *C. brevispadix* Ridl., Mat. Fl. Malay. Penins. 2: 207. 1907.— *C. distichus* Ridl., Mat. Fl. Malay. Penins. 2: 206. 1907.— *C. elegans* Becc. ex Ridl., Mat. Fl. Malay. Penins. 2: 207. 1907.— *C. bubuensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 417. 1908.— *C. benomensis* Furtado, Gard. Bull. Singapore 15: 132. 1956.— *C. distichoideus* Furtado, Gard. Bull. Singapore 15: 122. 1956.— *C. koribanus* Furtado, Gard. Bull. Singapore 15: 128. 1956.— *C. oreophilus* Furtado, Gard. Bull. Singapore 15: 124. 1956.— *C. distichus* var. *shangsiensis* S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 140. 1989.

Distribution.— China (Guangxi), Peninsular Thailand to Peninsular Malaysia.

54. *Calamus wailong* S. J. Pei & S. Y. Chen, Acta Phytotax. Sin. 27: 138. 1989.

Distribution.— China (Yunnan) to Indo-China.

Use.— Edible shoot.

6. CARYOTA

L., Sp. Pl. 1189. 1753.— *Schunda-Pana* Adans., Fam. Pl. 2: 24. 1763.— *Thuessinkia* Korth. ex Miq., Fl. Ned. Ind. 3: 41. 1855, nom. illegit.

Fourteen species, SC China, Tropical Asia, N Australia. Five species in Thailand.

1. *Caryota bacsonensis* Magalon, Contr. Étud. Palmiers Indoch. 128. 1930.

Distribution.— Indo-China.

Vernacular name.— Tao rang (เต่าร้าง) (Central, Peninsular); Khueang luang (เขื่องหลวง) (Northern); Choi (จอย) (Mae Hong Son).

Use.— Ornamental.

2. *Caryota kiriwongensis* Hodel, Palm J. 139: 53. 1998.

Distribution.— Indo-China.

Vernacular name.— Tao rang yak (เต่าร้างยักษ์) (Nakhon Si Thammarat).

3. *Caryota maxima* Blume in C. F. P. von Martius, Hist. Nat. Palm. 3: 195. 1838.— *C. rumphiana* var. *javanica* Becc., Malesia 1: 74. 1877.— *C. furfuracea* var. *caudata*

Blume in C. F. P. von Martius, Hist. Nat. Palm. 3 (ed. 2): 195. 1845.— *C. furfuracea* var. *furcata* Blume in C. F. P. von Martius, Hist. Nat. Palm. 3 (ed. 2): 195. 1845.— *C. ochlandra* Hance, J. Bot. 17: 174. 1879.— *C. obtusa* var. *aequatorialis* Becc. in Hook. f., Fl. Brit. India 6: 423. 1892.— *C. rumphiana* var. *oxyodonta* Becc., Philipp. J. Sci. 14: 337. 1919.— *C. rumphiana* var. *philippinensis* Becc., Philipp. J. Sci. 14: 337. 1919.— *C. aequatorialis* (Becc.) Ridl., Fl. Malay Penins. 5: 20. 1925.— *C. macrantha* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 197. 1940.

Distribution.— S China to Thailand and W Malesia.

Vernacular name.— Khueang luang (เขื่องหลวง), Khueang yai (เขื่องใหญ่) (Northern); Tao rang yak (เต่าร้างยักษ์) (Central, Peninsular).

4. *Caryota mitis* Lour., Fl. Cochinch. : 697. 1790.— *C. furfuracea* Blume in C. F. P. von Martius, Hist. Nat. Palm. 3: 195. 1838.— *C. propinqua* Blume in C. F. P. von Martius, Hist. Nat. Palm. 3: 195. 1838.— *C. sobolifera* Wall. in C. F. P. von Martius, Hist. Nat. Palm. 3: 194. 1838.— *Drymophloeus zippellii* Hassk., Tijdschr. Natuurl. Gesch. Physiol. 9: 170. 1842.— *Thuessinkia speciosa* Korth., Fl. Ind. Bat. 3: 41. 1855.— *Caryota javanica* Zipp. ex Miq., Fl. Ned. Ind. 2: 41. 1856, nom. illegit.— *C. griffithii* Becc., Nuovo Giorn. Bot. Ital. 3: 15. 1871.— *C. griffithii* var. *selebica* Becc., Malesia 1: 75. 1877.— *C. nana* Linden, Ill. Hort. 28: 16. 1881.— *C. speciosa* Linden, Ill. Hort. 28: 16. 1881.

Distribution.— SE China to Indo-China and Malesia.

Vernacular name.— Tao rang daeng (เต่าร้างแดง) (Nakhon Si Thammarat); Ma deng (มะเตี๋ย) (Yala); Ngue-deng (เงือกเตี๋ย) (Malay-Narathiwat).

Use.— Ornamental.

5. *Caryota obtusa* Griff., Calcutta J. Nat. Hist. 5: 480. 1845.— *C. rumphiana* var. *indica* Becc., Malesia 1: 75. 1877.— *C. obtusidentata* Griff., Palms Brit. E. Ind.: t. 236A, B. 1850.— *C. gigas* Hahn ex Hodel, Palm J. 139: 51. 1998, without diagnostic latin descr.

Distribution.— Assam.

Vernacular name.— Tao rang yak (เต่าร้างยักษ์) (North-eastern).

7. CERATOLOBUS

Blume ex Schult. & Schult. f., Syst. Veg. 7: 80. 1830.

Six species, Peninsular Thailand to W Malesia. One species in Thailand.

Ceratolobus subangulatus (Miq.) Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(App.): iii. 1913.— *Calamus subangulatus* Miq., Fl. Ned. Ind., Eerste Bijv.: 594. 1861.— *Palmijuncus subangulatus* (Miq.) Kuntze, Revis. Gen. Pl. 2: 734. 1891.— *Ceratolobus*

laevigatus var. *subangulatus* (Miq.) Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 16. 1918.— *C. laevigatus* var. *angustifolius* Becc. in Hook.f., Fl. Brit. India 6: 477. 1893.— *C. laevigatus* var. *borneensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 16. 1918.— *C. laevigatus* var. *divaricatus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 16. 1918.— *C. laevigatus* var. *major* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 16. 1918.— *C. laevigatus* var. *regularis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 16. 1918.

Distribution.— Peninsular Thailand to W Malesia.

A second species, *Ceratolobus glaucescens* Blume, was recorded by Hodel and Vatcharakorn as occurring in Peninsular Thailand, based on a specimen in cultivation in Nong Nooch Garden, said to have been collected in Thailand. However, this species is otherwise known from a very small area of West Java where it is in danger of extinction. Seed of this species was quite widely distributed from Bogor in Java in the 1970s and it seems more likely to us that the material in cultivation in Thailand originates from Javanese seed.

8. CORYPHA

L., Sp. Pl. 1187. 1753.— *Codda-Pana* Adans., Fam. Pl. 2: 25. 1763, nom illegit.— *Taliera* Mart., Palm. Fam. 10. 1824.— *Gembanga* Blume, Flora 8: 580. 1825.— *Bessia* Raf., Sylva Tellur. 13. 1838.— *Dendrema* Raf., Sylva Tellur. 14. 1838.

Six species, Tropical Asia to Australia. Two species in Thailand.

1. *Corypha lecomtei* Becc. ex Lecomte, Bull. Soc. Bot. France 63: 79. 1917.

Distribution.— Indo-China.

Vernacular name.— Lan (ลาน), Lan pa (ลานป่า) (General).

2. *Corypha utan* Lam., Encycl. 2: 131. 1786.— *Taliera sylvestris* Blume in J. J. Roemer & J. A. Schultes, Syst. Veg. 7: 1307. 1830, nom. illegit.— *Corypha sylvestris* (Blume) Mart., Hist. Nat. Palm. 3: 233. 1838.— *C. elata* Roxb., Fl. Ind. 2: 176. 1824.— *Taliera elata* (Roxb.) Wall., Rep. Calcutta Bot. Gard. to G. A. Bushby. 29. 1840.— *Gembanga rotundifolia* Blume, Flora 8: 580. 1825.— *Taliera gembanga* Blume in J. J. Roemer & J. A. Schultes, Syst. Veg. 7: 1307. 1830, nom. illegit.— *Corypha gembanga* (Blume) Blume, Rumphia 2: 59. 1839.— *C. gebang* Mart., Hist. Nat. Palm. 3: 233. 1838.— *Corypha macropoda* Kurz ex Linden, Cat. Gén. 87. 1871.— *C. macropoda* Linden ex Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 43(2): 197. 1874.— *C. macrophylla* Roster, Bull. Soc. Tosc.ortic. 29: 81. 1904.— *Livistona vidalii* Becc. Webbia 1: 343. 1905.

Distribution.— NE India to N Australia.

Vernacular name.— Lan phru (ลานพรุ), Lan (ลาน) (Peninsular).

9. CYRTOSTACHYS

Blume, Bull. Sci. Phys. Nat. Néerl. 1: 66. 1838.

Eleven species, Peninsular Thailand to Papuasias. One species in Thailand.

Cyrtostachys renda Blume, Bull. Sci. Phys. Nat. Néerl. 1: 66 (1838).— *Bentinckia renda* (Blume) Mart., Hist. Nat. Palm. 3: 316. 1853.— *Areca erythropoda* Miq., J. Bot. Néerl. 1: 6. 1861.— *Pinanga purpurea* Miq., Fl. Ned. Ind., Eerste Bijv. 590. 1861.— *Ptychosperma coccinea* Teijsm. & Binn., Cat. Hort. Bog. 69. 1866.— *Areca erythrocarpa* H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers 231. 1878.— *Cyrtostachys lakka* Becc., Ann. Jard. Bot. Buitenzorg 2: 141. 1885.— *Pinanga rubricaulis* Linden., Cat. Pl. Hort. Contin. 1885: 61, n. 117. 1885.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Mak daeng (หมากแดง) (Bangkok); Kap daeng (กะปแดง), Ka daeng (กะแดง) (Nakhon Si Thammarat); Mak wing (หมากwing) (Pattani).

Use.— Ornamental.

10. DAEMONOROPS

Blume in Roem. & Schult., Syst. Veg. 7: 1333. 1830.

One hundred and ten species, Tropical and Subtropical Asia. Fifteen species in Thailand.

1. Daemonorops angustifolia (Griff.) Mart., Hist. Nat. Palm. 3: 327. 1853.— *Calamus angustifolius* Griff., Calcutta J. Nat. Hist. 5: 89. 1845.— *C. hygrophilus* Griff., Palms Brit. E. Ind.: t. 213 C. 1850.— *Daemonorops hygrophila* (Griff.) Mart., Hist. Nat. Palm. 3: 328. 1853.— *Palmijuncus hygrophilus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Daemonorops carcharodon* Ridl., Mat. Fl. Malay. Penins. 2: 178. 1907.— *D. angustispatha* Furtado, Gard. Bull. Str. Settle. 9: 161. 1937.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Wai nam (หาวน้ำ) (Peninsular); Ro-tan-ta-wa (รอตันตาว่า) (Malay-Peninsular).

2. Daemonorops didymophylla Becc. in Hook.f., Fl. Brit. India 6: 468. 1893.— *Calamus didymophyllus* (Becc.) Ridl., J. Straits Branch Roy. Asiat. Soc. 30: 221. 1897.— *C. cochleatus* Miq., Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk. 11: 29. 1868, nom. nud.— *Palmijuncus cochleatus* (Miq.) Kuntze, Revis. Gen. Pl. 2: 733. 1891, nom. invalid.— *Daemonorops cochleata* Teijsm. & Binn. ex Miq., Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Tweede Sect. 11(5): 29. 1868, nom. nud.— *D. mattanensis* Becc., Nelle Forest. Borneo: 608. 1902.— *D. motleyi* Becc., Rec. Bot. Surv. India 2: 224. 1902.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Wai khi pet (หวายขี้เป็ด) (Nakhon Si Thammarat).

3. *Daemonorops geniculata* (Griff.) Mart., Hist. Nat. Palm. 3: 329. 1853.— *Calamus geniculatus* Griff., Calcutta J. Nat. Hist. 5: 67. 1845.— *Palmijuncus geniculatus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Wai ta no (หวายตานาะ) (Narathiwat).

4. *Daemonorops grandis* (Griff.) Mart., Hist. Nat. Palm. 3: 327. 1853.— *Calamus grandis* Griff., Calcutta J. Nat. Hist. 5: 84. 1845.— *Palmijuncus grandis* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *P. grandis* (Griff.) Kuntze., Revis. Gen. Pl. 2: 733. 1891.— *Calamus intermedius* Griff., Calcutta J. Nat. Hist. 5: 86. 1845.— *Daemonorops intermedia* (Griff.) Mart., Hist. Nat. Palm. 3: 327. 1853.— *Palmijuncus intermedius* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus acanthopis* Griff., Palms Brit. E. Ind.: t. 216. 1850.— *Daemonorops kirtong* Griff., Palms Brit. E. Ind. 102. 1850.— *D. malaccensis* Mart., Hist. Nat. Palm. 3: 327. 1853.— *Palmijuncus malaccensis* (Mart.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Daemonorops grandis* var. *megacarpus* Furtado, Gard. Bull. Singapore 14:67. 1953.— *D. laciniata* Furtado, Gard. Bull. Singapore 14: 75. 1953.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Wai chak (หวายจาก) (Nakhon Si Thammarat).

5. *Daemonorops jenkinsiana* (Griff.) Mart., Hist. Nat. Palm. 3: 327. 1853.— *Calamus jenkinsianus* Griff., Calcutta J. Nat. Hist. 5: 81. 1845.— *Palmijuncus jenkinsianus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Calamus nutantiflorus* Griff., Calcutta J. Nat. Hist. 5: 79. 1845.— *Daemonorops nutantiflora* (Griff.) Mart., Hist. Nat. Palm. 3: 326. 1853.— *Palmijuncus nutantiflorus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 732. 1891.— *Daemonorops pierreana* Becc., Rec. Bot. Surv. India 2: 220. 1902.— *D. schmidtiana* Becc., Bot. Tidsskr. 29: 98. 1909.

Distribution.— E Himalaya to Indo-China.

Vernacular name.— Wai som khao (หวายโสมขาว) (Trat).

Use.— Edible shoot and leaves used as thatch.

6. *Daemonorops kunstleri* Becc. in Hook.f., Fl. Brit. India 6: 469. 1893.— *D. vagans* Becc. in Hook.f., Fl. Brit. India 6: 469. 1893.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Wai nang (หวายนั่ง), Wai din (หวายดิน) (Narathiwat); Wai khi re (หวายขี้เหร่) (Nakhon Si Thammarat); Ta-no-boe-sa (ตานาะเบอซา) (Malay-Narathiwat).

7. *Daemonorops leptopus* (Griff.) Mart., Hist. Nat. Palm. 3: 329. 1853.— *Calamus leptopus* Griff., Calcutta J. Nat. Hist. 5: 73. 1845.— *Palmijuncus leptopus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Daemonorops congesta* Ridl., Mat. Fl. Malay. Penins. 2: 179. 1907.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

8. *Daemonorops lewisiana* (Griff.) Mart., Hist. Nat. Palm. 3: 327. 1853.— *Calamus lewisianus* Griff., Calcutta J. Nat. Hist. 5: 87. 1845.— *Palmijuncus lewisianus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Daemonorops pseudosepal* Becc. in Hook. f., Fl. Brit. India 6: 465. 1893.— *D. tabacina* Becc. in Hook.f., Fl. Brit. India 6: 466. 1893.— *D. bakauensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 220. 1911.— *D. curtisii* Furtado, Gard. Bull. Straits Settlem. 9: 164. 1937.

Distribution.— Thailand to Peninsular Malaysia and Sumatra.

9. *Daemonorops macrophylla* Becc. in Hook. f., Fl. Brit. India 6: 470. 1893.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Wai loe bae lek (หวายเลอบเล็ก) (Narathiwat).

10. *Daemonorops melanochaetes* Blume in Roem. & Schult., Syst. Veg. 7: 1333. 1830.— *Calamus melanochaetes* (Blume) Miq., Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk. 11: 28. 1868.— *Daemonorops javanica* Furtado, Gard. Bull. Straits Settlem. 9: 170. 1937.

Distribution.— Peninsular Thailand to W Malesia.

11. *Daemonorops monticola* (Griff.) Mart., Hist. Nat. Palm. 3: 328. 1853.— *Calamus monticolus* Griff., Calcutta J. Nat. Hist. 5: 90. 1845.— *Palmijuncus monticolus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

12. *Daemonorops propinqua* Becc. in Hook.f., Fl. Brit. India 6: 467. 1893.

Distribution.— Peninsular Thailand to Sumatra.

13. *Daemonorops sabut* Becc. in Hook. f., Fl. Brit. India 6: 469. 1893.— *D. annulata* Becc., Rec. Bot. Surv. India 2: 227. 1902.— *D. pseudomirabilis* Becc., Rec. Bot. Surv. India 2: 226. 1902.— *D. turbinata* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 225. 1911.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Wai phon khon non (หวายพนชนหนอน) (Trang); Loe-bae-boe-sa (เลอบเบอซา) (Malay-Narathiwat).

14. *Daemonorops sepal* Becc. in Hook. f., Fl. Brit. India 6: 465. 1893.— *D. imbellis* Becc., Rec. Bot. Surv. India 2: 220. 1902.— *D. aciculata* Ridl., Mat. Fl. Malay. Penins. 2: 176. 1907.— *D. scortechinii* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 81. 1911.— *D. kiahii* Furtado, Gard. Bull. Singapore 14: 73. 1953.— *D. nurii* Furtado, Gard. Bull. Singapore 14: 85. 1953.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

15. *Daemonorops verticillaris* (Griff.) Mart., Hist. Nat. Palm. 3: 329. 1853.— *Calamus verticillaris* Griff., Calcutta J. Nat. Hist. 5: 63. 1845.— *Palmijuncus verticillaris* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Daemonorops setigera* Ridl., Fl. Malay Penins. 5: 45. 1925.— *D. stipitata* Furtado, Gard. Bull. Singapore 14: 142. 1953.

Distribution.— Peninsular Thailand, Peninsular Malaysia, Sumatra.

Vernacular name.— Wai ta pla (หวายตาปลา) (Narathiwat).

11. ELEIODOXA

(Becc.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 733. 1942.

One species, Peninsular Thailand to W Malesia.

Eleiodoxa conferta (Griff.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 734. 1942.— *Salacca conferta* Griff., Calcutta J. Nat. Hist. 5: 16. 1845.— *S. scortechinii* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(3): 97. 1919.— *Eleiodoxa scortechinii* (Becc.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 735. 1942.— *E. microcarpa* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 735. 1942.— *E. orthoschista* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 734. 1942.— *E. xantholepis* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 735. 1942.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Lumphi (ลุมพื้, หลุมพื้) (Narathiwat, Pattani); Kra-lu-bi (กระลูบี่), Lu-bi (ลูบี่) (Malay-Narathiwat).

Use.— Edible fermented fruits.

12. EUGEISSONA

Griff., Calcutta J. Nat. Hist. 5: 101. 1845.

Six species, in Peninsular Thailand to W Malesia. One species in Thailand.

Eugeissona tristis Griff., Calcutta J. Nat. Hist. 5: 101. 1845.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Chak khao (จากเขา) (Narathiwat); Chak cham (จากจำ) (Yala, Pattani); Sue-dae (ซื่อแด) (Malay-Narathiwat).

Use.— Young endosperm edible.

13. IGUANURA

Blume, Bull. Sci. Phys. Nat. Néerl. 66. 1838.— *Slackia* Griff., Not. Pl. Asiat. 3: 162. 1851.

Thirty-two species from Thailand to W Malesia. Seven species with one variety in Thailand.

1. *Iguanura bicornis* Becc., Malesia 3: 188. 1886.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Mak faet (หมากแฝด) (Peninsular).

Use.— Ornamental.

2. *Iguanura divergens* Hodel, Palm J. 137: 7. 1997.

Distribution.— Peninsular Thailand.

Vernacular name.— Mak tok (หมากตอก) (Peninsular).

Use.— Ornamental.

3. *Iguanura geonomiformis* Mart., Hist. Nat. Palm. 3: 229. 1845.— *Slackia geonomiformis* (Mart.) Griff., Not. Pl. Asiat. 3: 162. 1851.— *Iguanura malaccensis* Becc., Malesia 3:123. 1886.— *I. geonomiformis* var. *malaccensis* (Becc.) Ridl., Mat. Fl. Malay. Penins. 2: 150. 1907.— *I. wallichiana* var. *malaccensis* (Becc.) Kiew, Gard. Bull. Singapore 28: 222. 1976.— *I. geonomiformis* subsp. *malaccensis* (Becc.) Kiew, Gard. Bull. Singapore 28: 222. 1976.— *I. geonomiformis* var. *ramosa* Ridl., Mat. Fl. Malay. Penins. 2:151. 1907.— *I. wallichiana* var. *elatior* Kiew, Gard. Bull. Singapore 28: 224. 1976.

Distribution.— Peninsular Malaysia.

Vernacular name.— Mak pinae (หมากปีแน) (Peninsular); Pi-nae-due-kong (ปีแนดื้อกอง), Pi-nae-bong (ปีแนบอง) (Malay-Narathiwat).

Use.— Ornamental

4. *Iguanura polymorpha* Becc., Malesia 3: 189. 1886.— *I. polymorpha* var. *canina* Becc., Malesia 3: 189. 1886.— *I. brevipes* Hook.f., Fl. Brit. Ind. 6: 416. 1892.— *I. ferruginea* Ridl., J. Straits Branch Roy. Asiat. Soc. 41: 40. 1903. — *I. arakudensis* Furtado, Repert. Spec. Nov. Regni Veg. 35: 273. 1934.— *I. speciosa* Hodel, Palm J. 134: 29. 1997.— *I. polymorpha* var. *integra* C. K. Lim, Principes 42: 112. 1998.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Mak che (หมากเจ) (Nakhon Si Thammarat); Mak khao san (หมากข้าวสาร) (Narathiwat).

Use.— Ornamental.

5. *Iguanura tenuis* Hodel, Palm J. 136: 11. 1997.

Distribution.— Peninsular Thailand.

5a. var. *khaosokensis* C. K. Lim, Principes 42: 112. 1998.

Distribution.— Peninsular Thailand.

6. *Iguanura thalangensis* C. K. Lim, Principes 42: 114. 1998.

Distribution.— Thailand.

7. *Iguanura wallichiana* (Mart.) Becc., Malesia 3: 100. 1886.— *Areca wallichiana* Mart., Hist. Nat. Palm. 3: 178. 1838.— *Slackia insignis* Griff., J. Trav. 2: 187. 1847.— *Iguanura wallichiana* var. *minor* Becc. ex Hook. f., Fl. Brit. India 6: 416. 1892.— *Slackia geonomiformis* (Mart.) Griff., Not. Pl. Asiat. 3: 162. 1954.— *Iguanura multifida* Hodel, Palm J., 136:8. 1997.

Distribution.— Peninsular Thailand to Sumatra.

Vernacular name.— Mak tok bai yai (หมากดอกใบใหญ่) (Peninsular); Mareng (เมรึง) (Trang).

Use.— Ornamental.

14. JOHANNESTEIJSMANNIA

H. E. Moore, Principes 5: 116. 1961.— *Teysmannia* Rchb. fil. & Zoll., Linnaea 28: 657. 1858.

Four species from Peninsular Thailand to W Malesia. One species in Thailand.

Johannesteijsmannia altifrons (Rchb. fil. & Zoll.) H. E. Moore, Principes 5: 116. 1961.— *Teysmannia altifrons* Rchb. f. & Zoll., Linnaea 28: 657. 1858.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Bang sun (บังสุรย์) (Bangkok); Palm khao lam tat (ปาล์มข้าวหลามตัด), Palm bang sun (ปาล์มบังสุรย์) (Peninsular); Li-pae (ลีแป) (Malay-Peninsular); Mak ta khap (หมากตะขาบ) (Narathiwat).

Use.— Ornamental.

15. KERRIODOXA

J. Dransf., Principes 27: 4. 1983.

Endemic to Peninsular Thailand.

Kerriodoxa elegans J. Dransf., Principes 27: 4. 1983.

Distribution.— Peninsular Thailand.

Vernacular name.— Praya thalang (พระชาดกลาง), Chao muang thalang (เจ้าเมืองถลาง) (Central); Ching lang khao (ชิงหลั่งขาว), Tang lang khao (ตังหลั่งขาว) (Phuket).

Use.— Ornamental.

16. KORTHALSIA

Blume, Rumphia 2: 166. 1843.— *Calamosagus* Griff., Calcutta J. Nat. Hist. 5: 22. 1845.

Twenty-seven species, Indo-China to New Guinea. Five species in Thailand.

1. Korthalsia flagellaris Miq., Fl. Ned. Ind., Eerste Bijv. 591. 1861.— *K. rubiginosa* Becc., Malesia 2: 72. 1884.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Wai sadao nam (หว่ายสะเดาน้ำ), Wai dao nam (หว่ายเดาน้ำ) (Narathiwat); Ro-tan-da-nae (รอตันดาแน) (Malay-Narathiwat).

2. Korthalsia laciniosa (Griff.) Mart., Hist. Nat. Palm. 3: 211. 1845.— *Calamosagus laciniosus* Griff., Calcutta J. Nat. Hist. 5: 23. 1845.— *C. wallichiiifolius* Griff., Calcutta J. Nat. Hist. 5: 24. 1845.— *Korthalsia wallichiiifolia* (Griff.) H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers 248. 1878.— *Calamosagus harinifolius* Griff., Palms Brit. E. Ind. 29. 1850.— *Korthalsia teysmannii* Miq., Fl. Ned. Ind., Eerste Bijv. 591. 1861.— *K. scaphigera* Kurz, Forest Fl. Burma 2: 513. 1877, nom. illegit.— *Korthalsia andamanensis* Becc., Malesia 2: 76. 1884.— *Korthalsia grandis* Ridl., Mat. Fl. Malay. Penins. 2: 217. 1907.

Distribution.— Indo-China to Philippines.

Vernacular name.— Wai sadao yai (หว่ายสะเดาใหญ่), Wai dao yai (หว่ายเดาใหญ่) (Peninsular); Da-nae-ka-yo (ดานนกาะยะ) (Malay-Narathiwat); Wai sadao nam (หว่ายสะเดาน้ำ) (Narathiwat).

3. Korthalsia rigida Blume, Rumphia 2: 167. 1843.— *K. polystachya* Mart., Hist. Nat. Palm. 3: 210. 1845.— *Calamosagus polystachys* (Mart.) H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers 235. 1878.— *C. ochriger* Griff., Palms Brit. E. Ind.

31. 1850.— *Korthalsia ferox* var. *malayana* Becc. in Hook. f., Fl. Brit. India 6: 476. 1893.— *K. hallieriana* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 142. 1918.— *K. paludosa* Furtado, Gard. Bull. Singapore 13: 313. 1951.

Distribution.— Peninsular Thailand to Philippines (Palawan).

Vernacular name.— Wai dao nu (หวายเดาหนู) (Trang); Da-nae-ti-ku (ดาเนตตี้) (Malay-Narathiwat).

4. *Korthalsia rostrata* Blume, Rumphia, 2: 168. 1843.— *Ceratolobus rostratus* (Blume) Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 11. 1918.— *Korthalsia scaphigera* Mart., Hist. Nat. Palm. 3 (ed. 2): 211. 1845.— *Calamosagus scaphiger* (Mart.) Griff., Palms Brit. E. Ind. 30. t. 148 a. 1850.— *Korthalsia lobbiana* H. Wendl., Bot. Zeitung (Berlin) 17: 174. 1859.— *K. machadonis* Ridl., Mat. Fl. Malay. Penins. 2: 216. 1907.

Distribution.— Peninsular Thailand to W Malesia.

5. *Korthalsia scortechinii* Becc. in Hook. f., Fl. Brit. Ind. 6: 475. 1893.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Wai kung (หวายกุง), Wai dao lek (หวายเดาเล็ก), Wai sadao lek (หวายสะเดาเล็ก) (Narathiwat); Ro-tae-u-dae (รอเตอูแด) (Malay-Narathiwat).

17. LICUALA

Wurmb, Verh. Batav. Genootsch. Kunsten 2: 469. 1780.— *Pericycla* Blume, Rumphia, 2: 47. 1838.— *Dammera* K. Schum. & Lauterb., Fl. Schutzgeb. Südsee 201. 1900.

One hundred and thirty-four species from Bhutan to Vanuatu. Thirteen species with one variety in Thailand (Barfod & Saw 2002).

1. *Licuala distans* Ridl., J. Fed. Malay States Mus. 10: 123. 1920.

Distribution.— Endemic to Peninsular Thailand.

Vernacular name.— Ka pho si sip (กะพ้อสี่สิบ) (Peninsular); Chiang (จิง) (Trang).

Use.— Ornamental.

2. *Licuala glabra* Griff., Calcutta J. Nat. Hist. 5: 329. 1845.— *L. longipedunculata* Ridl., J. Straits Branch Roy. Asiat. Soc. 41: 42. 1903.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Pa-la (ปาละ) (Malay-Peninsular).

Use.— Ornamental.

3. *Licuala kunstleri* Becc. in Hook. f., Fl. Brit. Ind. 6: 433. 1892.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Tan diao (ตาลเดี่ยว), Ka pho khao (กะพ้อเขา), Ka pho nam man (กะพ้อน้ำมน) (Narathiwat).

4. *Licuala malajana* Becc., Malesia 3: 197. 1889.

Distribution.— Thailand to Peninsular Malaysia.

Vernacular name.— Ka pho khao (กะพ้อเขา) (Narathiwat).

5. *Licuala merguensis* Becc., Webbia 5: 47. 1921.— *L. hirta* Hodel, Palm J. 136: 12. 1997.

Distribution.— S Myanmar to Peninsular Thailand.

6. *Licuala modesta* Becc., Malesia 3: 195. 1889.— *L. wrayi* Becc. ex Ridl., J. Straits Branch Roy. Asiat. Soc. 82: 201. 1920.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

7. *Licuala paludosa* Griff., Calcutta J. Nat. Hist. 5: 323. 1844.— *L. amplifrons* Miq., Fl. Ned. Ind., Eerste Bijv. 591. 1861.— *L. oxleyi* H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers 249. 1878.— *L. paniculata* Ridl., J. Straits Branch Roy. Asiat. Soc. 41: 42. 1903. — *L. aurantiaca* Hodel, Palm J. 134: 30. 1997.

Distribution.— Indo-China to W Malesia.

Vernacular name.— Ka pho (กะพ้อ) (Peninsular); Ka pho daeng (กะพ้อแดง), Pho phru (พ้อพรุ), Khuan (ชวน) (Narathiwat); Ku-wa-mae-ro (กัวแมเราะ) (Malay-Narathiwat).

Use.— Ornamental.

8. *Licuala peltata* Roxb. ex Buch.-Ham., Mem. Wern. Nat. Hist. Soc. 5: 313. 1826.

Distribution.— Bhutan to Peninsular Malaysia.

Vernacular name.— Chao muang trang (เจ้าเมืองตรัง) (Trang); Ka phlo (กะพล้อ) (Phichit); Ka pho (กะพ้อ) (Bangkok); Ching (จิง) (Satun); Ching (ชิง) (Peninsular).

Use.— Ornamental.

8a. var. *sumawongii* Saw, Sandakania 10: 10. 1997.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

9. *Licuala poonsakii* Hodel, Palm J. 134: 32. 1997.

Distribution.— E & SE Thailand.

10. *Licuala pusilla* Becc. Malesia 3: 194. 1889.— *L. tansachana* Hodel, Palm J. 134: 34. 1997.

Distribution.— Peninsular Thailand to western central Peninsular Malaysia.

Vernacular name.— Ka pho nu (กะพ้อหนู) (Pattani); Ka pho nok aen (กะพ้อนกแอ่น), Pa-la-ti-ku (ปาละติกู) (Malay-Pattani).

11. *Licuala scortechinii* Becc., Malesia 3: 192. 1889.— *L. delicata* Hodel, Palm J. 136: 11. 1997.

Distribution.— Peninsular Thailand to NW Peninsular Malaysia.

12. *Licuala spinosa* Thunb., Kongl. Vetensk. Acad. Nya. Handl. 3: 287. 1782.— *Corypha pilearia* Lour., Fl. Cochinch. 213. 1790.— *L. pilearia* (Lour.) Blume, Rumphia 2: 42. 1838.— *L. ramosa* Blume in J. J. Roemer & J. A. Schultes, Syst. Veg. 7: 1303. 1830.— *L. horrida* Blume, Rumphia 2: 39. 1838.— *L. spinosa* var. *brevidens* Becc., Malesia 3: 74. 1886.— *L. spinosa* var. *cochinchinensis* Becc., Malesia 3: 74. 1886.— *L. acutifida* var. *Peninsularis* Becc., Webbia 5:44. 1921.

Distribution.— China (Hainan), Indo-China to Philippines.

Vernacular name.— Ka pho (กะพ้อ), Ka pho nam (กะพ้อหนาม) (Central); Ka pho khiao (กะพ้อเขียว), Pho (พ้อ) (Peninsular); Ku-wa (กูวา) (Malay-Narathiwat).

Use.— Ornamental.

13. *Licuala triphylla* Griff., Calcutta J. Nat. Hist. 5: 332. 1844.— *L. ternata* Griff. ex Mart., Hist. Nat. Palm. 3 (ed. 2): 238. 1849.— *L. triphylla* var. *integrifolia* Ridl., Mat. Fl. Malay. Penins. 2: 164. 1907.— *L. filiformis* Hodel, Palm J. 134: 32. 1997.— *L. stenophylla* Hodel, Palm J. 137: 16. 1997.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Ka pho nu (กะพ้อหนู) (Pattani); Ka pho nok aen (กะพ้อนกแอ่น), Pa-la ti-ku (ปาละติกู) (Malay-Pattani).

Use.— Ornamental.

18. LIVISTONA

R. Rr., Prodr. 267. 1810.— *Saribus* Blume, Rumphia 2: 48. 1838.— *Wissmannia* Burret, Bot. Jahrb. Syst. 73: 182. 1943.

Thirty-three species in NE Tropical Africa, S Yemen, Bangladesh to Japan and Australia. Two species in Thailand (Dowe 2001).

1. *Livistona jenkinsiana* Griff., Calcutta J. Nat. Hist. 5: 334. 1845.— *Saribus jenkinsii* (Griff.) Kuntze, Revis. Gen. Pl. 2: 736. 1891.— *Livistona jenkinsii* Griff. ex Mart., Hist. Nat. Palm. 3 (ed. 2): 242. 1849, orth. — *L. speciosa* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 43(2): 204. 1874. *Saribus speciosus* (Kurz) Kuntze, Revis. Gen. Pl. 2: 736. 1891.

Distribution.— China (Yunnan) and Bhutan to Peninsular Malaysia.

Vernacular name.— Kho (ค้อ) (Northern, Prachuap Khiri Khan); Ko lae (ก้อแล) (Chiang Mai); Tho (ทอ) (Karen-Mae Hong Son); Nang klang chae (นางกลางแจ้), Ma ko suam (มะก้อซัวม), Ma ko daeng (มะก้อแดง) (Northern); Lo-la (โล๊ะละ), Lu-la (หลูล่า) (Karen-Mae Hong Son); Si reng (สีเหรง) (Pattani).

Use.— Leaves for thatch, trunk for house construction.

2. *Livistona saribus* (Lour.) Merr. ex A. Chev., Bull. Écon. Indochine, n. s., 21: 501. 1919.— *Chamaerops cochinchinensis* Lour., Fl. Cochinch. 2:657. 1790.— *Saribus cochinchinensis* (Lour.) Blume, Rumphia 2:48. 1838.— *Rhapis cochinchinensis* (Lour.) Mart., Hist. Nat. Palm. 3: 254. 1838.— *Livistona cochinchinensis* (Lour.) Mart., Hist. Nat. Palm. 3(ed. 2): 242. 1849.— *Corypha saribus* Lour., Fl. Cochinch. 212. 1790.— *Saribus hasseltii* Hassk., Flora 25 (Beibl. 2) 16. 1842.— *Livistona hasseltii* (Hassk.) Hassk. ex Miq., Palm. Archip. Ind. 14. 1868.— *L. spectabilis* Griff., Calcutta J. Nat. Hist. 5: 336. 1845.— *L. diepenhorstii* Hassk., Bonplandia 6:180. 1858.— *Pholidocarpus diepenhorstii* (Hassk.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15:327. 1941.— *Livistona hoogendorpii* Teijsm. & Binn. ex Miq., Palm. Archip. Ind.: 14. 1868.— *Saribus hoogendorpii* (Teijsm. & Binn. ex Miq.) Kuntze, Revis. Gen. Pl. 2: 736. 1891.— *Sabal hoogendorpii* (Teijsm. & Binn. ex Miq.) L. H. Bailey, Standard Cycl. Hort. 6: 3045. 1917.— *Livistona inaequisecta* Becc., Philipp. J. Sci. 4: 616. 1909.— *L. vogamii* Becc., Webbia 5: 22. 1921.— *L. tonkinensis* Magalon, Contrib. Étude Palm. Indochine France. 54. 1930.— *L. fengkaiensis* X. W. Wei & M. Y. Xiao, J. S. China Agric. Coll. 8(1): 22. 1982.

Distribution.— SE China to Indo-China and Philippines.

Vernacular name.— Rok (ร็อก) (Trang); Chathang (จะพัง) (Surat Thani); Kho soi (ค้อสร้อย) (Bangkok).

Use.— Ornamental.

19. MAXBURRETIA

Furtado, Gard. Bull. Straits Settlement. 11: 240. 1941.— *Liberbaileya* Furtado, Gard. Bull. Straits Settlement. 11: 238. 1941.— *Symphyogyne* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 316. 1941. nom. illegit.

Three species, Peninsular Thailand to Peninsular Malaysia. One species in Thailand.

Maxburretia furtadoana J. Dransf., Gentes Herb. 11: 195. 1978.

Distribution.— Peninsular Thailand.

Vernacular name.— Mak phra rahu (หมากพระราหู) (Bangkok); Palm phra rahu (ปาล์มพระราหู) (Surat Thani).

Use.— Ornamental.

20. MYRIALEPIS

Becc. in Hook. f., Fl. Brit India 6: 480. 1893.— *Bejaudia* Gagnep., Notul. Syst. (Paris) 6: 149. 1937.

One species, Indo-China to Sumatra.

Myrialepis paradoxa (Kurz) J. Dransf., Kew Bull. 37: 242. 1982.— *Calamus paradoxus* Kurz, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 43(2): 213. 1874.— *Palmijuncus paradoxus* (Kurz) Kuntze, Revis. Gen. Pl. 2: 733. 1891.— *Plectocomiopsis paradoxus* (Kurz) Becc. in Hook.f., Fl. Brit. Ind. 6: 488. 1893.— *Myrialepis scortechinii* Becc. in Hook.f., Fl. Brit. Ind. 6: 480. 1893.— *Plectocomiopsis scortechinii* (Becc.) Ridl., Mat. Fl. Malay. Penins. 2: 213. 1907.— *P. annulatus* Ridl., Mat. Fl. Malay. Penins. 2: 213. 1907.— *P. floribundus* Becc., Webbia 3: 235. 1910.— *Myrialepis floribunda* (Becc.) Gagnep. in Lecomte, Fl. Gen. Indo-Chine 6: 1003. 1937.— *Bejaudia cambodiensis* Gagnep., Notul. Syst. (Paris) 6: 149. 1937.

Distribution.— Indo-China to Sumatra.

Vernacular name.— Wai kung (หว่ายกุ้ง) (Trang); Wai chang (หว่ายช้าง) (Peninsular); Lae-ka-yo (แลกาเยาะ) (Malay-Narathiwat).

Use.— Edible shoot.

21. NENGA

H. Wendl. & Drude, Linnaea 39: 182. 1875.

Five species, S Indo-China to W Malesia. Two species with one variety in Thailand.

1. Nenga macrocarpa Scort. ex Becc., Malesia 3: 180. 1889.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Mak nga chang thon (หมากงาช้างโตน) (Narathiwat); Pi-nae-due-klong (ปีแนดืออกลง) (Malay-Narathiwat).

Use.— Ornamental.

2. *Nenga pumila* (Blume) H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers 251. 1878.— *Areca nenga* Blume ex Mart., Hist. Nat. Palm. 3:179. 1838.— *Pinanga nenga* (Blume ex Mart.) Blume, Rumphia 2: 77. 1839.— *Ptychosperma nenga* (Blume ex Mart.) Teijsm. & Binn., Cat. Hort. Bot. Bogor. 69. 1866. — *Areca pumila* Blume, Rumphia 2: 71. 1839.— *Pinanga pumila* (Blume) Blume, Rumphia 2: 77. 1839.— *Nenga wendlandiana* Scheff., Ann. Jard. Bot. Buitenzorg 1: 153. 1876.— *Areca wendlandiana* (Scheff.) H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers 332. 1878.

Distribution.— Peninsular Thailand to W Malesia.

2a. var. *pachystachya* (Blume) Fernando, Principes 27: 61. 1983.— *Pinanga nenga* var. *pachystachya* Blume, Rumphia 2: 78. 1839.— *Nenga intermedia* Becc., Ann. Jard. Bot. Buitenzorg 2: 81 1885.— *Nenga schefferiana* Becc., Ann. Jard. Bot. Buitenzorg 2: 81. 1885.— *N. wendlandiana* f. *hexapetala* Becc., Malesia 3: 183. 1889.— *N. wendlandiana* var. *malaccensis* Becc., Malesia 3: 182. 1889.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Mak nga chang (หมากงาช้าง) (Trang); Mak khiao (หมากเขี้ยว) (Narathiwat); Pi-nae-lue-do (ปีแนลือดอ) (Malay-Narathiwat).

Use.— Ornamental.

22. NYPA

Steck, Sagu 15. 1757; cf. H. E. Moore Taxon 11: 164. 1962.— *Nipa* Thunb., Kongl. Vetensk. Acad. Nya Handl. 3: 231. 1782.

One species, Sri Lanka to Nansei-shoto and the Caroline Is.

Nypa fruticans Wurm., Verh. Batav. Genootsch. Kunsten. 1: 349. 1779.— *N. fruticans* (Wurm.) Thunb., Kongl. Vetensk. Acad. Nya Handl. 3: 231. 1782.— *Cocos nypa* Lour., Fl. Cochinch. 567. 1790.— *Nipa litoralis* Blanco, Fl. Filip. ed. I. 662. 1837.— *N. arborescens* Wurm. ex H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers 252. 1878.

Distribution.— Sri Lanka to Nansei-shoto and Caroline Is.

Vernacular name.— Chak (จาก) (General); At-ta (อัดตะ) (Malay-Peninsular).

Use.— Multipurpose.

23. ONCOSPERMA

Blume, Rumphia 2: 96. t. 82, 103. 1843.— *Keppleria* Meisn., Pl. Vasc. Gen. 355. 1842, nom. illegit.

Five species, Sri Lanka to Philippines. Two species in Thailand.

1. *Oncosperma horridum* (Griff.) Scheff., Tijdschr. Ned.-Indië, 32: 191. 1871.—*Areca nibung* Mart., Hist. Nat. Palm. 3:173. 1838.—*A. horrida* Griff., Calcutta J. Nat. Hist. 5: 465. 1845.

Distribution.— Thailand to W Malesia and the Philippines.

Vernacular name.— Lao chaon khao (หลาวชะโอนเขา), Lao chaon pa (หลาวชะโอนป่า), Tanghan (ตังหัน), Tu ngan (ตุหัน) (Pattani); Krarian khao (กระเรียนเขา), Thu rang (ทุรัง) (Peninsular); Ba-ya (บายะห์), Ba-yai (บายไย) (Malay-Yala); Ba yai (บาใหญ่) (Krabi); Bo (บะ) (Yala).

Use.— Trunk for house construction.

2. *Oncosperma tigillarium* (Jack) Ridl., J. Straits Branch Roy. Asiat. Soc. 33: 173. 1864.—*Areca tigillaria* Jack, Malayan Misc. 2(7): 88. 1820.—*Kepleria tigillaria* (Jack) Meisn., Pl. Vasc. Gen. 355. 1842; Comm. 266: 355. 1842.—*Areca spinosa* Hasselt & Kunth, Enum. Pl. 3: 185. 1841.—*Euterpe filamentosa* Kunth, Enum. Pl. 3: 185. 1841.—*Oncosperma filamentosum* (Kunth) Blume, Rumphia 2: 97. 1843.—*O. cambodianum* Hance, J. Bot. 14: 261. 1876.—*Areca nibung* Griff. ex H. Wendl. in O. C. E. de Kerchove de Denterghem Palmiers: 231. 1878.

Distribution.— Peninsular Thailand to W Malesia.

Vernacular name.— Lao chaon (หลาวชะโอน), Chaon (ชะโอน), Lao chaon thung (หลาวชะโอนทุ่ง) (Peninsular); Ni-bong (นิบง) (Malay-Pattani).

Use.— Trunk for house construction.

24. ORANIA

Zipp., Alg. Konst-Lett.-Bode 1: 297. 1829.—*Macrocladus* Griff., Calcutta J. Nat. Hist. 5: 489. 1845.—*Sindroa* Jum., Ann. Inst. Bot.—Géol. Colon. Marseille, V, 1(1): 11. 1933.—*Halmoorea* J. Dransf. & N.W. Uhl, Principes 28: 164. 1984.

Eighteen species from Madagascar, Peninsular Thailand to New Guinea. One species in Thailand.

Orania sylvicola (Griff.) H. E. Moore, Principes 6: 44. 1962.—*Macrocladus sylvicola* Griff., Calcutta J. Nat. Hist. 5: 490. 1845.—*Orania macrocladus* Mart., Hist. Nat. Palm. 3(ed. 2). 186. 1845.

Distribution.— Peninsular Thailand to Sumatra.

Vernacular name.— Mak phon (หมากพน) (Peninsular).

Use.— Ornamental.

25. PHOENIX

L., Sp. Pl. 1188. 1753.— *Elate* L., Sp. Pl. 1189. 1753.— *Palma* Mill., Gard. Dict. Abr. ed. 4. 1754.— *Dachel* Adans., Fam. Pl. 2: 25. 1763.— *Phoniphora* Neck., Elem. Bot. 3: 302. 1790.— *Fulchironia* Lesch. in R. L. Desfontaines, Tabl. École Bot., ed. 3: 29. 1829.— *Zelonops* Raf., Fl. Tellur. 2: 102. 1837.

Fourteen species, Africa, Kriti to W and Central Malesia (Barrow, 1998). Three species with one variety in Thailand.

1. *Phoenix loureiroi* Kunth, Enum. Pl. 3: 257. 1841.— *P. humilis* var. *loureiroi* (Kunth) Becc., Malesia 3: 382. 1890.— *P. pusilla* Lour., Fl. Cochinch. 614. 1790, nom. illegit.— *P. pygmaea* Raeusch., Nomencl. Bot. ed. 3: 375. 1797, nom. invalid.— *P. hanceana* Naudin, J. Bot. 17: 174. 1879.— *P. humilis* var. *hanceana* (Naudin) Becc., Malesia 3: 392. 1890.— *P. humilis* Royle ex Becc., Malesia 3: 373. 1890, nom. illegit.— *P. hanceana* var. *formosana* Becc., Philipp. J. Sci. C 3: 339. 1908.

1a. var. *loureiroi*

Distribution.— Indo-China to S China and Philippines.

Vernacular name.— Palm sipsong panna (ปาล์มสิบสองปันนา) (Bangkok); Peng doi (เป็งค้อย) (Northern).

Use.— Ornamental.

2. *Phoenix paludosa* Roxb., Fl. Ind. ed. 3: 789. 1832.— *P. siamensis* Miq., Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk. 11(5): 14. 1868.— *P. andamanensis* W. Mill., J. sm. & N. Taylor in L. H. Bailey, Stand. Cycl. Hort. 5:2594. 1916, nom. invalid.

Distribution.— Assam to Sumatra and Peninsular Malaysia.

Vernacular name.— Peng thale (เป็งทะเล) (General).

Use.— Leaflet fibere for rope and thatch.

3. *Phoenix roebelenii* O'Brien, Gard. Chron., III, 6: 475. 1889.

Distribution.— China (Yunnan) to Indo-China.

Use.— Ornamental.

26. PHOLIDOCARPUS

Blume in J. J. Roemer & J. A. Schultes, Syst. Veg. 7: 1308. 1830.

Six species, Peninsular Thailand to Malesia. One species in Thailand.

Pholidocarpus macrocarpus Becc., Malesia 3: 92. 1886.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Ka pao (กะปao) (Peninsular).

Use.— Ornamental.

27. PINANGA

Blume, Rumphia 2: 76. 1839.— *Cladosperma* Griff., Not. Pl. Asiat. 3: 165. 1851.— *Ophiria* Becc., Ann. Jard. Buitenzorg 2: 128. 1885.— *Pseudopinanga* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 13: 188. 1936.

One hundred and twenty-eight species, Tropical and Subtropical Asia to NW Pacific. Fourteen species and two varieties found in Thailand.

1. *Pinanga adangensis* Ridl., J. Straits Branch Roy. Asiat. Soc. 61: 62. 1912.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Mak adang (หมากอาดัง) (Trang).

Use.— Ornamental.

2. *Pinanga auriculata* Becc., Malesia 3: 134. 1886.

Distribution.— Myanmar to Borneo.

2a. var. *leucocarpa* C. K. Lim, Gard. Bull. Singapore 50: 93. 1998.— *Pinanga bowiana* Hodel, Palm J. 134: 35. 1997.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Mak bala (หมากบาลา) (Narathiwat).

2b. var. *merguensis* (Becc.) C. K. Lim, Gard. Bull. Singapore 50: 89. 1998.— *Pinanga patula* var. *merguensis* Becc., Atti Soc. Tosc. Sci. Nat. Pisa Processi Verbali 44: 125. 1934.

Distribution.— Myanmar to Peninsular Malaysia.

3. *Pinanga badia* Hodel, Palm J. 136: 16. 1997.

Distribution.— Peninsular Thailand.

Vernacular name.— Mak khao (หมากเข่า) (Narathiwat).

4. *Pinanga disticha* (Roxb.) H. Wendl. in O. C. E. de Kerchove de Denterghem Palmiers 253. 1878.— *Areca disticha* Roxb., Fl. Ind. ed. 3: 620. 1832.— *Seaforthia disticha* (Roxb.) Mart., Hist. Nat. Palm. 3: 184. 1838.— *Ptychosperma distichum* (Roxb.) Miq., Fl. Ned. Ind. 3: 28. 1855.— *Pinanga bifida* Blume, Rumphia 2: 92. 1839.— *Areca curvata* Griff., Ic. Pl. Asiat. 3: t. 248. 1851.— *Pinanga curvata* (Griff.) Becc., Malesia 3: 128. 1886.— *Areca humilis* Roxb. ex H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers 231. 1878.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Mak wing (หมากหวิง) (Pattani, Yala); Ri-a-su (รีอาซู) (Malay-Narathiwat); Mak che (หมากเจ), Che hang pla (เจหางปลา) (Bangkok).

Use.— Ornamental.

5. *Pinanga fractiflexa* Hodel, Palm J. 136: 19. 1997.

Distribution.— Peninsular Thailand.

6. *Pinanga malaiana* (Mart.) Scheff., Tijdschr. Ned. -Indië 32: 175. 1871.— *Seaforthia malaiana* (Griff.) Mart., Hist. Nat. Palm. 3: 184. 1838.— *Areca malaiana* (Mart.) Griff., Calcutta J. Nat. Hist. 5: 457. 1845.— *Ptychosperma malaianum* (Mart.) Miq., Fl. Ned. Ind. 3: 25. 1855.— *Areca haematocarpon* Griff., Not. Pl. Asiat. 3: 165. 1851.

Distribution.— Peninsular Thailand to Sumatra.

Vernacular name.— Mak nga chang yak (หมากงช้างยักษ์), Mak bala (หมากบาลา) (Narathiwat).

7. *Pinanga paradoxa* (Griff.) Scheff., Tijdschr. Ned. -Indië 32: 179. 1871.— *Areca paradoxa* Griff., Calcutta J. Nat. Hist. 5: 463. 1845.— *Kentia paradoxa* (Griff.) Mart., Hist. Nat. Palm. 3: 312. 1849.— *Nengella paradoxa* (Griff.) Becc., Malesia 1: 32. 1877.— *Ophiria paradoxa* (Griff.) Becc., Ann. Jard. Bot. Buitenzorg 2: 128. 1885.— *Areca curvata* Griff., Not. Pl. Asiat. 3: 164. 1851.— *Pinanga curvata* (Griff.) Becc., Malesia 3: 128. 1886.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Mak che daeng (หมากเจแดง) (Nakhon Si Thammarat).

Use.— Ornamental.

8. *Pinanga perakensis* Becc., Malesia 3: 175. 1889.— *P. densifolia* Ridl., J. Fed. Malay States Mus. 4: 85. 1909.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Che lueang (เจเหลื่อง) (Peninsular).

9. *Pinanga polymorpha* Becc., Malesia 3: 172. 1889.— *P. robusta* Becc. in Hook. f. Fl. Brit. India 6: 408. 1892.— *P. brewsteriana* Ridl., J. Fed. Malay States Mus. 6: 188. 1915.— *P. glaucescens* Ridl., J. Straits Branch Roy. Asiat. Soc. 86: 311. 1922.— *P. wrayi* Furtado, Repert. Spec. Nov. Regni Veg. 35: 276. 1934.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Mak chae (หมากแจ้), Che sam hang (เจสามหาง) (Narathiwat).

10. *Pinanga riparia* Ridl., J. Straits Branch Roy. Asiat. Soc. 44: 201. 1905.— *P. patula* var. *riparia* (Ridl.) Becc., Nuovo. Giorn. Bot. Ital., n. s., 42: 71. 1935.

Distribution.— Peninsular Thailand to Sumatra.

Vernacular name.— Mak ling (หมากลิง), Chae (แจ) (Narathiwat); Mu-reng (มูเร้ง) (Malay-Narathiwat).

Use.— Ornamental.

11. *Pinanga scortechinii* Becc., Malesia 3: 170. 1889.— *P. fruticans* Ridl., Fl. Malay. Penins. 5: 9. 1925.

Distribution.— Thailand to Peninsular Malaysia.

Vernacular name.— Mak indonesia (หมากอินโดนีเซีย) (Trang); Mak nga chang khao (หมากงช้างเขา) (Narathiwat).

12. *Pinanga simplicifrons* (Miq.) Becc., Malesia 3: 124. 1885.— *Ptychosperma simplicifrons* Miq., Fl. Ned. Ind., Eerste Bijv. 590. 1861.

Distribution.— Peninsular Thailand to Sumatra.

Vernacular name.— Mak che bala (หมากเจบาลา), Che hang pla bai diao (เจหางปลาใบเดียว) (Narathiwat).

13. *Pinanga sylvestris* (Lour.) Hodel, Palm J. 139: 55. 1998.— *Areca sylvestris* Lour., Fl. Cochinch. 2: 568. 1790.— *Seaforthia sylvestris* (Lour.) Blume ex Mart., Hist. Nat. Palm. 3: 185. 1838.— *Ptychosperma sylvestris* (Lour.) Miq., Fl. Ned. Ind. 3: 22. 1855.— *Pinanga cochinchinensis* Blume, Rumphia 2: 85. 1839.— *Ptychosperma cochinchinense* (Blume) Miq., Fl. Ned. Ind. 3: 23. 1855.

Distribution.— Indo-China.

14. *Pinanga watanaiana* C. K. Lim, Principes 42: 116. 1998.

Distribution.— Thailand.

28. PLECTOCOMIA

Mart. & Blume in J. J. Roemer & J. A. Schultes, Syst. Veg. 7(2): 1333. 1830.

Sixteen species, E Himalaya to Hainan and Malesia. Four species in Thailand.

1. *Plectocomia elongata* Mart. & Blume in J. J. Roemer & J. A. Schultes, Syst. Veg. 7: 1333. 1830.— *Rotang maximus* Baill., Hist. Pl. 13: 300. 1895.— *Calamus maximus* Reinw. ex Schult. f. in J. J. Roemer & J. A. Schultes, Syst. Veg. 7: 1333. 1830.— *Plectocomia sumatrana* Miq., Fl. Ned. Ind., Eerste Bijv. 592. 1861.— *Plectocomia*

ichthyospinus auct., Gard. Chron. 5: 735. 1876.— *P. hystrix* Linden, Ill. Hort. 28: 32. 1881, synonym. provis.— *P. maxima* Kuntze, Revis. Gen. Pl. 2: 734. 1891, nom. nud.— *P. griffithii* Becc. in Hook. f., Fl. Brit. India 6: 478. 1893.— *P. elongata* var. *bangkana* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 26. 1918.— *P. crinita* Gentil ex Chitt., Dict. Gard. 1605. 1956.

Distribution.— Thailand to W Malesia.

Vernacular name.— Wai kam phot (หวายกำพด), Wai tao phro (หวายเต้าพระะ), Wai tong phlong (หวายโด่งโปลัง) (Peninsular); Wai pu chao (หวายปู่เจ้า) (Nakhon Si Thammarat).

2. *Plectocomia himalayana* Griff., Calcutta J. Nat. Hist. 5: 100. 1845.— *P. montana* Griff. ex T. Anderson, J. Linn. Soc., Bot. 11: 12. 1871.— *P. montana* Hook.f. & Thomson, Fl. Brit. India 6: 478. 1893, nom. invalid.

Distribution.— E Himalaya to N Laos.

3. *Plectocomia kerriana* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 41. 1918.

Distribution.— China (S Yunnan) to N Thailand.

4. *Plectocomia pierreana* Becc. Webbia 3: 236. 1910.— *P. cambodiana* Gagnep. ex Humbert, Notul. Syst. (Paris) 6: 157. 1937.— *P. barthiana* Hodel, Palm J. 139: 54. 1998.

Distribution.— Indo-China.

29. PLECTOCOMIOPSIS

Becc. in Hook.f., Fl. Brit. India 6: 479. 1893.

Five species, Indo-China to W Malesia. Two species in Thailand.

1. *Plectocomiopsis geminiflora* (Griff.) Becc. in Hook.f., Fl. Brit. India 6: 479. 1893.— *Calamus geminiflorus* Griff., Palms Brit. E. Ind. 70. 1850.— *Plectocomia geminiflora* (Griff.) H. Wendl. in O. C. E. de Kerchove de Denterghem, Palmiers 254. 1878.— *Calamus turbinatus* Ridl., Mat. Fl. Malay. Penins. 2: 212. 1907.— *Plectocomiopsis geminiflora* var. *billitonensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 51. 1918.— *P. geminiflora* var. *borneensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 53. 1918.

Distribution.— Indo-China to W Malesia.

Vernacular name.— Wai kung nam phrai (หวายกึ่งน้ำพราย) (Trang); Wai khi re (หวายเขียว) (Surat Thani); Wai daeng (หวายแดง) (Peninsular).

2. *Plectocomiopsis wrayi* Becc. in Hook. f., Fl. Brit. India 6: 488. 1893.— *P. dubia* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 56. 1918.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Wai daeng (หวายแดง) (Narathiwat); Lae-mae ka-yo (แลแมกกาเี่ยว) (Malay-Narathiwat).

30. RHAPIS

L. f. in W. Aiton, Hort. Kew. ed. I. 3: 473. 1789.

Eight species, S China to Indo-China. Two species in Thailand.

1. *Rhapis laosensis* Becc., Webbia 3: 225. 1910.

Distribution.— E Thailand to Vietnam.

Vernacular name.— Chang (จิ้ง), Sang (สัง) (North-eastern).

Use.— Ornamental.

2. *Rhapis subtilis* Becc., Webbia 3: 227. 1910.— *R. siamensis* Hodel, Palm J. 136: 19. 1997.

Distribution.— Indo-China.

Vernacular name.— Chang thai (จิ้งไทย), Chang tai (จิ้งใต้) (Central).

Use.— Ornamental.

31. SALACCA

Reinw., Syll. Ratisb. 2: 3. 1828.— *Salakka* Reinw. ex Blume, Catalogus 112. 1823, orth. var.— *Zalacca* Rumph. ex Blume in J. J. Roemer & J. A. Schultes, Syst. Veg. 7: 1333. 1830, orth. var.— *Lophospatha* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 752. 1942.

Twenty species, Assam to S Central China and W Malesia. Four species in Thailand.

1. *Salacca glabrescens* Griff., Calcutta J. Nat. Hist. 5: 14. 1845.

Distribution.— Peninsular Thailand to Peninsular Malaysia.

Vernacular name.— Sala thai (สละไทย), Sala (สละ) (Narathiwat).

2. *Salacca secunda* Griff., Calcutta J. Nat. Hist. 5: 12. 1845.

Distribution.— India (Assam) to S central China.

Vernacular name.— Tong nam (ตองหนาม) (Mae Hong Son); Ko-ho (กะฮ้อ, ก่อเฮาะ) (Karen-Mae Hong Son).

Use.— Edible heart or cabbage.

3. *Salacca stolonifera* Hodel, Palm J. 134: 35. 1997.

Distribution.— Peninsular Thailand.

Vernacular name.— La kam khao (ละกำขาว), Sala khao (สละขาว) (Peninsular).

4. *Salacca wallichiana* Mart., Hist. Nat. Palm. 3: 201. 1838.— *Calamus zalacca* Roxb., Fl. Ind. ed. 3: 773. 1832.— *Salacca macrostachya* Griff., Calcutta J. Nat. Hist. 5: 13. 1845.— *S. beccarii* Hook.f., Fl. Brit. Ind. 6: 474. 1893.

Distribution.— Indo-China to Sumatra.

Vernacular name.— Rakam (ระกำ) (General); Cho-la-ka (เจาะละกำ) (Chong-Trat).

Use.— Edible fruits.

32. TRACHYCARPUS

H. Wendl., Bull. Soc. Bot. France 8: 429. 1861.

Eight species, Himalaya to S central China. One species in Thailand.

Trachycarpus oreophilus Gibbons & Spanner, Principes 41: 205. 1997.

Distribution.— N Thailand (Gibbons & Spanner 1997).

Vernacular name.— Kho doi (ก่อดอย), Kho Chiang Dao (ก่อเชียงดาว) (Chiang Mai).

33. WALLICHIA

Roxb., Pl. Coromandel 3: 91. 1820.— *Harina* Buch.-Ham., Mem. Wern. Nat. Hist. Soc. 5: 317. 1826.— *Wrightea* Roxb., Fl. Ind. ed. 3: 621. 1832.— *Asraoa* J. Joseph, Bull. Bot. Surv. India 14: 144. 1972 publ. 1975.

Nine species, Himalayas to S China. Three species in Thailand.

1. *Wallichia disticha* T. Anderson, J. Linn. Soc., Bot. 11: 6. 1871.— *Didymosperma distichum* (T. Anderson) Hook.f., Kew Rep. 1882: 61. 1884.— *Wallichia yomae* Kurz., Forest Fl. Burma 2: 533. 1877.

Distribution.— E Himalaya to China (Yunnan).

Vernacular name.— Mak na re suan (หมากนเรศวร) (Bangkok); Khueang bai khanang (เขื่องใบขนาง), Khueang phat (เขื่องพัด) (Central).

Use.— Ornamental.

2. *Wallichia marianniae* Hodel, Palm J. 137: 8. 1997.

Distribution.— SW & Peninsular Thailand.

3. *Wallichia siamensis* Becc., Atti Soc. Tosc. Sci. Nat. Pisa Processi Verbali 44: 175. 1934.

Distribution.— China (Yunnan) to N Thailand.

Vernacular name.— Khueang (เขือง) (Chiang Mai); Khi nang (ขี้หนาง) (Northern);

Tao rang nu (เต่าร้างหนู) (Bangkok).

Use.— Ornamental.

EXOTIC PALMS COMMONLY CULTIVATED IN THAILAND

FRUIT TREES AND OIL CROPS

Areca catechu, Betelnut Palm

Arenga pinnata, Sugar Palm

Cocos nucifera, Coconut Palm

Elaeis guineensis, African Oil Palm

Salacca zalacca, Salak Palm

STARCH TREES

Metroxylon sagu, Sago Palm

ORNAMENTALS

Actinorhynchus calapparia

Licuala grandis, Parasol Palm

Livistona rotundifolia, Foot Stool Palm

Livistona chinensis, Chinese Fan Palm

Corypha umbraculifera, Talipot Palm

Rhapis excelsa, Lady Palm

Rhapis humilis

Dypsis lutescens, Golden Cane Palm

Dypsis decaryi, Triangle Palm

Wodyetia bifurcata, Foxtail Palm

Bismarckia nobilis, Bismark Palm

Latania loddigesii, Blue Latan Palm

Acoelorrhaphe wrightii, Paurotis Palm

Sabal spp., Palmetto palms

Adonidia merrillii (syn. *Veitchia merrillii*),

Christmas Palm

Carpentaria acuminata

Ptychosperma macarthurii, Macarthur Palm

Roystonea regia, Cuban Royal Palm

Pritchardia pacifica, Fiji Fan Palm

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