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A revised delimitation of the rattan genus *Calamus* (Arecaceae)

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Abstract

All available phylogenetic evidence indicates that the rattan genus *Calamus*, the largest of all palm (Arecaceae) genera, is non-monophyletic and that the four remaining genera of subtribe Calaminae (Calameae: Calamoideae), *Ceratolobus*, *Daemonorops*, *Pogonotium* and *Retispatha*, are nested within it. This issue has not yet been adequately addressed in palm classifications, with recent authors preferring to wait for further phylogenetic evidence before revising the limits of the genera. Here, an alternative solution is proposed that is both pragmatic and phylogenetically robust. An expanded *Calamus* is recognised into which *Ceratolobus*, *Daemonorops*, *Pogonotium* and *Retispatha* are subsumed. This broad generic concept, which includes ca. 520 species, has practical advantages as it is more clearly defined by morphological and anatomical characters, and resolves potential biases introduced to recent eco-evolutionary research on palms by the non-monophyly of critical genera. Future phylogenetic research may yet provide an alternative means of delimiting these genera, but the broad sense *Calamus* proposed here is a justifiable alternative that can be adopted immediately. Nomenclatural synopses transferring currently accepted species of *Ceratolobus*, *Daemonorops* and *Pogonotium* to *Calamus* are provided, including 70 new combinations and 12 replacement names.

Key words: lianas, nomenclature, Palmae, palms, rattans, South-East Asia, taxonomy

Introduction

The rattan genus *Calamus* Linnaeus (1753: 325) is the largest of all palm genera, including over 400 species distributed in the Asia-Pacific region, with one species in Africa. In the current classification of palms (Dransfield *et al.* 2008), *Calamus* is placed in subtribe Calaminae (Calameae: Calamoideae) along with four other rattan genera, *Ceratolobus* Blume (in Schultes & Schultes 1830: lxxx), *Daemonorops* Blume (in Schultes & Schultes 1830: 1333), *Pogonotium* Dransfield (1980a: 763) and *Retispatha* Dransfield (1980b: 529). Subtribe Calaminae is a strongly supported monophyletic group, whereas all available molecular and morphological phylogenetic evidence indicates that *Calamus* is not, and that the four other genera in the subtribe are variously nested within it (Baker *et al.* 2000a, Baker *et al.* 2000b, c, Baker *et al.* 2009). These studies also indicate that *Daemonorops*, the second largest genus of Calaminae with ca. 110 species, may not be monophyletic. In the current classification of palms, Dransfield *et al.* (2008) highlighted these systematic issues, but followed Baker *et al.* (2000b) in maintaining the prevailing generic limits, while acknowledging that further phylogenetic research would lead to changes in the future.

While published phylogenetic studies lack sufficient sampling, resolution and support within Calaminae to permit the delimitation of multiple, monophyletic genera within the subtribe, an alternative taxonomic solution is available that is both phylogenetically robust and pragmatic for users of palm taxonomy. An expanded genus *Calamus*, within which *Ceratolobus*, *Daemonorops*, *Pogonotium* and *Retispatha* are subsumed, can be recognised and justified by strong support for its monophyly in all published studies (Baker *et al.* 1999, Baker *et al.* 2000a, Baker *et al.* 2000b, c, Baker *et al.* 2009). In fact, steps along this path have already been taken. In preparation for the publication of the current palm classification (Dransfield *et al.* 2005, 2008), Baker and Dransfield (2008) reduced the genus *Calospatha* (1911: 232), which was accepted in the previous classification of palms (Uhl & Dransfield 1987), into *Calamus*. More recently, Henderson and Floda (2015) placed *Retispatha* in synonymy with *Calamus*, based on published research (Baker *et al.* 1999, Baker *et al.* 2000a, Baker *et al.* 2000b, c) and their own unpublished molecular and morphological phylogenetic studies, which they report to be consistent with the works of Baker *et al.* They chose not to make further changes in the Calaminae, preferring to wait until future analyses are completed. However, the phylogenetic topologies published by Baker *et al.* (1999, 2000a, b, c) dictate that if *Retispatha* is reduced into *Calamus*, then the remaining

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genera must be subsumed in the same way. The sinking of one genus, but not the others is an incomplete solution to the *Calamus* problem.

Here, a revised classification is proposed in which *Ceratolobus*, *Daemonorops*, *Pogonotium* and *Retispatha* are placed in synonymy with *Calamus*. This is presented as a stable, alternative and pragmatic taxonomic solution for this problematic group; *Calamus sensu lato* is likely to be robust to new findings and unlikely to require further amendments. Although this solution further enlarges the largest palm genus to ca. 520 species, there is no guarantee that a future phylogenetic classification that recognises more genera will be any more manageable. Indeed, available evidence indicates that while some major clades within Calaminae may be resolved that can be recognised as genera (Baker *et al.* 2000b), a proliferation of genera may be required to account for all lineages and to maintain monophyly of all groups. Far from improving the situation, this could result in a classification of Calaminae that is more complex and difficult to use. In such circumstances, a broader taxonomic solution is preferable, as has been adopted in many similar cases for other plant groups (e.g. Gardiner 2012, Gardiner *et al.* 2013). Importantly, *Calamus* is the subject of ongoing taxonomic monographic work (e.g. Baker & Dransfield 2014, Henderson & Floda 2015) and the revised delimitation of *Calamus* proposed here is a tenable solution that can be adopted now for this purpose. It also resolves issues in recent evolutionary studies in which inherent assumptions of generic monophyly have been violated in the case of the Calaminae (e.g. Couvreur *et al.* 2011, Kissling *et al.* 2012, Baker & Couvreur 2013a, b, Couvreur *et al.* 2014), potentially leading to biased results.

The revised classification of *Calamus* offers practical advantages over the current delimitation. While the five genera recognised by Dransfield *et al.* (2008) have a number of reliable distinguishing morphological features, inexpert users of palm taxonomy may find these difficult to interpret. Moreover, *Calamus sensu* Dransfield *et al.* (2008) is highly polymorphic and lacks unequivocal synapomorphies. In contrast, *Calamus sensu lato* is very well defined and more readily identified, even when sterile. The species are dioecious, pleonanthic rattans which bear a conspicous knee-like swelling on the leaf sheath below the petiole base. The inflorescences are adnate to both the internode and leaf sheath above the axil of origin. Like all Calamoideae, flowers are borne on the rachilla in sympodial pairs (dyads) or derivatives thereof; in pistillate plants, the pair comprises a functional pistillate flower and a sterile staminate flower, whereas in staminate plants the dyad is reduced to a solitary staminate flower. Infrequently, exceptions to these features occur in some species scattered across *Calamus sensu lato*, such as the knee being absent in a number of stemless species and, exceptionally, climbing species (e.g. *Calamus dumetosus* (Beccari) Henderson & Floda [2015: 59]). There is also a small number of hapaxanthic species and some other species present alternative floral cluster arrangements. Taken together, however, these characters allow ready discrimination of *Calamus sensu lato* from the other rattan species in subfamily Calamoideae. The expanded concept of *Calamus* is also consistent with evidence from root (Seubert 1996) and leaf (Tomlinson *et al.* 2011) anatomical studies. Furthermore, *Calamus sensu lato* appears to be unique among climbing palm groups in its stem vascular anatomy, particularly with respect to xylem construction (Tomlinson *et al.* 2001, Fisher *et al.* 2002, Tomlinson & Spangler 2002, Tomlinson *et al.* 2011).

The expanded concept of *Calamus* introduces some redundancy to the hierarchy of palm classification (Dransfield *et al.* 2008) as *Calamus sensu lato* and Calaminae contain equivalent grouping information, though there are precedents for this elsewhere (e.g. Korthalsiinae, Pigafettinae). Future phylogenetic research may yet lead to an alternative classification within the subtribe, although this might be more effectively implemented as an infrageneric classification within *Calamus sensu lato*. By adopting this pragmatic taxonomic solution, rattan researchers will no longer be undermined by systematic problems and will be better placed to further the understanding of rattan diversity, its origins, evolution, properties, conservation and utilisation.

Taxonomic treatment

Generic nomenclature and complete nomenclatural synopses for the transfer of *Daemonorops*, *Ceratolobus* and *Pogonotium* species to *Calamus* are provided below, the transfer of *Retispatha* having already been completed by Henderson and Floda (2015). Species level taxonomy is based on the latest accounts of these genera obtained from the World Checklist of Arecaceae (Govaerts *et al.* 2014), updated as necessary. For the remaining species in *Calamus*, see Govaerts *et al.* (2014).

Calamus L., Sp. Pl.: 325 (1753)

Rotanga Boehm., Defin. Gen. Pl.: 395 (1760).
Rotang Adans., Fam. Pl. 2: 24 (1763).
Daemonorops Blume in J.A.Schultes & J.H.Schultes, Syst. Veg. 7: 1333 (1830), *synon. nov*.
Ceratolobus Blume in J.A.Schultes & J.H.Schultes, Syst. Veg. 7: lxxx (1830), *synon. nov.*
Palmijuncus Rumph. ex Kuntze, Revis. Gen. Pl. 2: 731 (1891), nom. illeg.
Zalaccella Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 496 (1908).
Calospatha Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 232 (1911).
Cornera Furtado, Gard. Bull. Singapore 14: 518 (1955).
Schizospatha Furtado, Gard. Bull. Singapore 14: 525 (1955).
Pogonotium J.Dransf., Kew Bull. 34: 763 (1980), *synon. nov*.
Retispatha J.Dransf., Kew Bull. 34: 529 (1980).

Synopsis of **Daemonorops** *species transferred to* **Calamus**

Calamus acamptostachys (Becc) W.J.Baker, *comb. nov.*
Daemonorops acamptostachys Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 209 (1911).

Calamus acehensis (Rustiami) W.J.Baker, *comb. nov.*
Daemonorops acehensis Rustiami, Gard. Bull. Singapore 54: 202 (2002).

Calamus affinis (Becc.) W.J.Baker, *comb. nov.*
Daemonorops affinis Becc., Leafl. Philipp. Bot. 8: 3042 (1919).

Calamus angustifolius Griff., Calcutta J. Nat. Hist. 5: 89 (1845).
Daemonorops angustifolia (Griff.) Mart., Hist. Nat. Palm. 3: 327 (1853).
Calamus 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).
Daemonorops angustispatha Furtado, Gard. Bull. Straits Settlem. 9: 161 (1937).

Calamus asteracanthus (Becc.) W.J.Baker, *comb. nov.*
Daemonorops asteracantha Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 227 (1911).

Calamus ater (J.Dransf.) W.J.Baker, *comb. nov.*
Daemonorops atra J.Dransf., Bot. J. Linn. Soc. 81: 15 (1980).

Calamus aureus (Renuka & Vijayak) W.J.Baker, *comb. nov.*
Daemonorops aurea Renuka & Vijayak., Rheedea 4: 122 (1994).

Calamus banggiensis (J.Dransf.) W.J.Baker, *comb. nov.*
Daemonorops banggiensis J.Dransf., Kew Bull. 36: 813 (1982).

Calamus beguinii (Burret) W.J.Baker, *comb. nov.*
Daemonorops beguinii Burret, Notizbl. Bot. Gart. Berlin-Dahlem 11: 204 (1931).

Calamus binnendijkii (Becc.) W.J.Baker, *comb. nov.*
Daemonorops binnendijkii Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 67 (1911).

Calamus brachypodus W.J.Baker, *nom. nov*.

Daemonorops brachystachys Furtado, Gard. Bull. Straits Settlem. 8: 344 (1935), non *Calamus brachystachys* Becc., Rec. Bot. Surv. India 2: 215 (1902).

Note:—A replacement name is required as the name *Calamus brachystachys* Becc. has already been used.

Calamus brevicaulis (A.J.Hend. & N.Q.Dung) W.J.Baker, *comb. nov.*
Daemonorops brevicaulis A.J.Hend. & N.Q.Dung, Phytotaxa 8: 28 (2010).

Calamus calapparius Mart., Hist. Nat. Palm. 3: 209 (1838).
Daemonorops calapparia (Mart.) Blume, Rumphia 3: 7 (1847), *Palmijuncus calapparius* (Mart.) Kuntze, Revis. Gen. Pl. 2: 731 (1891).
Calamus amboinensis Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 20 (1868). *Palmijuncus amboinensis* (Miq.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Calamus calicarpus Griff., Calcutta J. Nat. Hist. 5: 92 (1845).
Daemonorops calicarpa (Griff.) Mart., Hist. Nat. Palm. 3: 326 (1853), *Palmijuncus calicarpus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).
Calamus petiolaris Griff., Calcutta J. Nat. Hist. 5: 93 (1845). *Daemonorops petiolaris* (Griff.) Mart., Hist. Nat. Palm. 3: 326 (1853). *Palmijuncus petiolaris* (Griff.) Kuntze, Revis. Gen. Pl. 2: 732 (1891).
Daemonorops microthamnus Becc., Rec. Bot. Surv. India 2: 221 (1902).

Calamus clemensianus (Becc.) W.J.Baker, *comb. nov.*
Daemonorops clemensiana Becc., Philipp. J. Sci., C 4: 636 (1909).

Calamus collariferus (Becc.) W.J.Baker, *comb. nov.*
Daemonorops collarifera Becc., Rec. Bot. Surv. India 2: 227 (1902).
Daemonorops acanthobola Becc., Rec. Bot. Surv. India 2: 228 (1902).

Calamus confusus (Furtado) W.J.Baker, *comb. nov.*
Daemonorops confusa Furtado, Gard. Bull. Straits Settlem. 8: 347 (1935).

Calamus conspectus W.J.Baker, *nom. nov.*
Daemonorops spectabilis Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 228 (1911), non *Calamus spectabilis* Blume, Rumphia 3: 55 (1847).

Note:—A replacement name is required as the name *Calamus spectabilis* Blume has already been used.

Calamus crinitus (Blume) Miq., Nieuwe Verh. Eerste Kl. Kon. Ned. Inst. Wetensch. Amsterdam, ser. 3, 3: 6 (1850).
Daemonorops crinita Blume, Rumphia 2: viii (1838). *Palmijuncus crinitus* (Blume) Kuntze, Revis. Gen. Pl. 2: 733 (1891). *Rotang crinitus* (Blume) Baill., Hist. Pl. 13: 300 (1895).
Calamus manicatus Teijsm. & Binn. ex Miq., Fl. Ned. Ind. 3: 135 (1855). *Palmijuncus manicatus* (Teijsm. & Binn. ex Miq.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Calamus cristatus (Becc.) W.J.Baker, *comb. nov.*
Daemonorops cristata Becc., Nelle Forest. Borneo: 608 (1902).
Daemonorops diversispina Becc., Rec. Bot. Surv. India 2: 229 (1902).

Calamus curranii (Becc.) W.J.Baker, *comb. nov.*
Daemonorops curranii Becc., Philipp. J. Sci., C 2: 238 (1907).

Calamus depressiusculus Miq. ex H.Wendl. in O.C.E.de Kerchove de Denterghem, Palmiers: 236 (1878).
Palmijuncus depressiusculus (Miq. ex H.Wendl.) Kuntze, Revis. Gen. Pl. 2: 733 (1891), *Daemonorops depressiuscula* (Miq. ex H.Wendl.) Becc., Rec. Bot. Surv. India 2: 226 (1902).

Calamus didymophyllus (Becc.) Ridl., J. Straits Branch Roy. Asiat. Soc. 30: 221 (1897).

Daemonorops didymophylla Becc. in J.D.Hooker, Fl. Brit. India 6: 468 (1893).
Calamus cochleatus Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 29 (1868), nom. nud. *Palmijuncus cochleatus* (Miq.) Kuntze, Revis. Gen. Pl. 2: 733 (1891), nom. inval.
Daemonorops cochleata Teijsm. & Binn. ex Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 29 (1868), nom. nud.
Daemonorops mattanensis Becc., Nelle Forest. Borneo: 608 (1902).
Daemonorops motleyi Becc., Rec. Bot. Surv. India 2: 224 (1902).

Calamus draco Willd., Sp. Pl. 2: 203 (1799).
Daemonorops draco (Willd.) Blume, Rumphia 2: viii (1838), *Palmijuncus draco* (Willd.) Kuntze, Revis. Gen. Pl. 2: 732 (1891).
Calamus draconis Oken, Allg. Naturgesch. 3(1): 648 (1841).
Daemonorops propinqua Becc. in J.D.Hooker, Fl. Brit. India 6: 467 (1893).

Calamus dracunculus (Ridl.) W.J.Baker, *comb. nov.*
Daemonorops dracunculus Ridl., Bull. Misc. Inform. Kew 1926: 91 (1926).

Calamus elongatus (Blume) Miq., Nieuwe Verh. Eerste Kl. Kon. Ned. Inst. Wetensch. Amsterdam, ser. 3, 3: 6 (1850).
Daemonorops elongata Blume, Rumphia 2: iii (1838), *Palmijuncus elongatus* (Blume) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Calamus eugenii W.J.Baker, *nom. nov.*
Daemonorops poilanei J.Dransf., Kew Bull. 56: 663 (2001), non *Calamus poilanei* Conrard, Notul. Syst. (Paris) 7: 28 (1938).

Note:—A replacement name is required as the name *Calamus poilanei* Conrard has already been used. Poilane's given name, Eugene, is used in the replacement epithet.

Calamus fissus (Blume) Miq., Nieuwe Verh. Eerste Kl. Kon. Ned. Inst. Wetensch. Amsterdam, ser. 3, 3: 6 (1850).
Daemonorops fissa Blume, Rumphia 3: 17 (1847). *Palmijuncus fissus* (Blume) Kuntze, Revis. Gen. Pl. 2: 733 (1891).
Daemonorops cinnamomea Schaedtler, Hamburger Garten-Blumenzeitung 31: 161 (1875).
Daemonorops fissa var. *cinnamomea* Becc., Rec. Bot. Surv. India 2: 219 (1902), nom. nud.
Daemonorops hallieriana Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 218 (1911).

Calamus fissilis A.J.Hend., N.K.Ban & N.Q.Dung, Palms 52: 192 (2008).
Daemonorops fissilis (A.J.Hend., N.K.Ban & N.Q.Dung) A.J.Hend., Phytotaxa 8: 27 (2010).

Calamus flexilis W.J.Baker, *nom. nov.*
Daemonorops gracilis Becc., Leafl. Philipp. Bot. 8: 3044 (1919), non *Calamus gracilis* Roxb., Fl. Ind. ed. 1832, 3: 781 (1832).

Note:—A replacement name is required as the name *Calamus gracilis* Roxb. has already been used.

Calamus forbesii (Becc.) W.J.Baker, *comb. nov.*
Daemonorops forbesii Becc., Rec. Bot. Surv. India 2: 227 (1902).

Calamus formicarius (Becc.) W.J.Baker, *comb. nov.*
Daemonorops formicaria Becc., Nelle Forest. Borneo: 608 (1902).

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

Calamus gracilipes Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 28 (1868).
Palmijuncus gracilipes (Miq.) Kuntze, Revis. Gen. Pl. 2: 733 (1891). *Daemonorops gracilipes* (Miq.) Becc., Rec. Bot. Surv. India 2: 225 (1902).
Daemonorops accedens var. *brevispatha* Blume, Rumphia 3: 13 (1838).
Daemonorops longipes Miq., Fl. Ned. Ind., Eerste Bijv.: 592 (1861), nom. illeg.

Calamus grandis Griff., Calcutta J. Nat. Hist. 5: 84 (1845).

Daemonorops grandis (Griff.) Mart., Hist. Nat. Palm. 3: 327 (1853). *Palmijuncus 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).

Daemonorops malaccensis Mart., Hist. Nat. Palm. 3: 327 (1853). *Palmijuncus malaccensis* (Mart.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Acanthophoenix grandis André, Rev. Hort. (Paris) 67: 250 (1895).

Daemonorops grandis var. *megacarpus* Furtado, Gard. Bull. Singapore 14: 67 (1953).

Daemonorops laciniata Furtado, Gard. Bull. Singapore 14: 75 (1953).

Calamus hirsutus (Blume) Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 28 (1868).

Daemonorops hirsuta Blume, Rumphia 2: t. 135 (1843). *Palmijuncus hirsutus* (Blume) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Calamus hystrix Griff., Calcutta J. Nat. Hist. 5: 70 (1845). *Daemonorops hystrix* (Griff.) Mart., Hist. Nat. Palm. 3: 328 (1853). *Palmijuncus hystrix* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Daemonorops hystrix var. *exulans* Becc., Rec. Bot. Surv. India 2: 224 (1902).

Daemonorops hystrix var. *minor* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 138 (1911).

Calamus horridus (Burret) W.J.Baker, *comb. nov.*

Daemonorops horrida Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 193 (1940).

Calamus ingens (J.Dransf.) W.J.Baker, *comb. nov.*

Daemonorops ingens J.Dransf., Bot. J. Linn. Soc. 81: 20 (1980).

Calamus jenkinsianus Griff., Calcutta J. Nat. Hist. 5: 81 (1845).

Daemonorops jenkinsiana (Griff.) Mart., Hist. Nat. Palm. 3: 327 (1853), *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).

Calamus margaritae Hance, J. Bot. 12: 266 (1874). *Palmijuncus margaritae* (Hance) Kuntze, Revis. Gen. Pl. 2: 733 (1891). *Daemonorops margaritae* (Hance) Becc., Rec. Bot. Surv. India 2: 220 (1902).

Daemonorops pierreana Becc., Rec. Bot. Surv. India 2: 220 (1902).

Daemonorops schmidtiana Becc., Bot. Tidsskr. 29: 98 (1909).

Daemonorops jenkinsiana var. *tenasserimica* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 44 (1911).

Calamus johndransfieldii W.J.Baker, *nom. nov.*

Daemonorops dransfieldii Rustiami, Gard. Bull. Singapore 54: 199 (2002), non *Calamus dransfieldii* Renuka, Kew Bull. 42: 433 (1987).

Note:—A replacement name is required as the name *Calamus dransfieldii* Renuka has already been used. Dransfield's given name, John, is incorporated into the replacement epithet.

Calamus komsaryi (Maturb., J.Dransf. & Mogea) W.J.Baker, *comb. nov.*

Daemonorops komsaryi Maturb., J.Dransf. & Mogea, Phytotaxa 195: 297 (2015)

Calamus korthalsii (Blume) Miq., Nieuwe Verh. Eerste Kl. Kon. Ned. Inst. Wetensch. Amsterdam, ser. 3, 3: 6 (1850).

Daemonorops korthalsii Blume, Rumphia 3: 23 (1847), *Palmijuncus korthalsii* (Blume) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Calamus kunstleri (Becc.) W.J.Baker, *comb. nov.*

Daemonorops kunstleri Becc. in J.D.Hooker, Fl. Brit. India 6: 469 (1893).

Daemonorops vagans Becc. in J.D.Hooker, Fl. Brit. India 6: 469 (1893).

Calamus kurzianus (Hook.f. ex Becc.) W.J.Baker, *comb. nov.*

Daemonorops kurziana Hook.f. ex Becc. in J.D.Hooker, Fl. Brit. India 6: 463 (1893).

Calamus lamprolepis (Becc.) W.J.Baker, *comb. nov.*

Daemonorops lamprolepis Becc., Rec. Bot. Surv. India 2: 223 (1902).

Calamus leptopus Griff., Calcutta J. Nat. Hist. 5: 73 (1845).

Daemonorops leptopus (Griff.) Mart., Hist. Nat. Palm. 3: 329 (1853), *Palmijuncus leptopus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Daemonorops congesta Ridl., Mat. Fl. Malay. Penins. 2: 179 (1907).

Calamus lewisianus Griff., Calcutta J. Nat. Hist. 5: 87 (1845).

Daemonorops lewisiana (Griff.) Mart., Hist. Nat. Palm. 3: 327 (1853), *Palmijuncus lewisianus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Daemonorops pseudosepal Becc. in J.D.Hooker, Fl. Brit. India 6: 465 (1893).

Daemonorops tabacina Becc. in J.D.Hooker, Fl. Brit. India 6: 466 (1893).

Daemonorops bakauensis Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 220 (1911).

Daemonorops curtisii Furtado, Gard. Bull. Straits Settlem. 9: 164 (1937).

Calamus loherianus (Becc.) W.J.Baker, *comb. nov.*

Daemonorops loheriana Becc., Philipp. J. Sci., C 4: 637 (1909).

Calamus longibracteatus W.J.Baker, *nom. nov.*

Daemonorops longispatha Becc., Rec. Bot. Surv. India 2: 230 (1902), non *Calamus longispathus* Ridl., Mat. Fl. Malay. Penins. 2: 209 (1907).

Note:—A replacement name is required as the name *Calamus longispathus* Ridl. has already been used.

Calamus longipes Griff., Calcutta J. Nat. Hist. 5: 68 (1845).

Daemonorops longipes (Griff.) Mart., Hist. Nat. Palm. 3: 329 (1853), *Rotang longipes* (Griff.) Baill., Hist. Pl. 13: 300 (1895).

Calamus ramosissimus Griff., Calcutta J. Nat. Hist. 5: 78 (1845). *Daemonorops ramosissima* (Griff.) Mart., Hist. Nat. Palm. 3: 330 (1853). *Palmijuncus ramosissimus* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Daemonorops stricta Blume, Rumphia 3: 19 (1847). *Calamus strictus* (Blume) Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 28 (1868).

Daemonorops virescens Becc. in G.H.Perkins & al., Fragm. Fl. Philipp. 1: 47 (1904).

Daemonorops sabensis Becc. ex Gibbs, J. Linn. Soc., Bot. 42: 169 (1914).

Daemonorops calothyrsa Furtado, Gard. Bull. Straits Settlem. 8: 345 (1935).

Daemonorops longipedunculata Furtado, Gard. Bull. Straits Settlem. 8: 353 (1935).

Calamus longispinosus (Burret) W.J.Baker, *comb. nov.*

Daemonorops longispinosa Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 196 (1940).

Calamus longistipes (Burret) W.J.Baker, *comb. nov.*

Daemonorops longistipes Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 798 (1943).

Daemonorops pleioclada Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 797 (1943).

Calamus macrophyllus (Becc.) W.J.Baker, *comb. nov.*

Daemonorops macrophylla Becc. in J.D.Hooker, Fl. Brit. India 6: 470 (1893).

Calamus macropterus Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 19 (1868).

Palmijuncus macropterus (Miq.) Kuntze, Revis. Gen. Pl. 2: 733 (1891), *Daemonorops macroptera* (Miq.) Becc., Rec. Bot. Surv. India 2: 223 (1902).

Calamus maculatus (J.Dransf.) W.J.Baker, *comb. nov.*
Daemonorops maculata J.Dransf., Kew Bull. 45: 76 (1990).

Calamus manii (Becc.) W.J.Baker, *comb. nov.*
Daemonorops manii Becc. in J.D.Hooker, Fl. Brit. India 6: 463 (1893).

Calamus megalocarpus (Burret) W.J.Baker, *comb. nov.*
Daemonorops megalocarpa Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 194 (1940).

Calamus melanochaetes (Blume) Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 28 (1868).
Daemonorops melanochaetes Blume in J.J.Roemer & J.A.Schultes, Syst. Veg. 7: 1333 (1830).
Daemonorops ornata W.Bull, Gard. Chron., n.s., 3: 523 (1875).
Daemonorops melanochaetes var. *depressiglobus* Teijsm. & Binn. ex Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 50 (1911).
Daemonorops melanochaetes var. *macrocarpus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 49 (1911).
Daemonorops melanochaetes var. *macrocymbus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 49 (1911).
Daemonorops melanochaetes var. *microcarpus* Teijsm. & Binn. ex Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 48 (1911).
Daemonorops melanochaetes var. *padangensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 49 (1911).
Daemonorops aruensis Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 50 (1911), *synon. nov*.
Daemonorops javanica Furtado, Gard. Bull. Straits Settlem. 9: 170 (1937).

Note:—*Daemonorops aruensis* Beccari (1911: 50) was described from a collection made by Moseley on the Challenger expedition. The type material at Kew indicates some uncertainty in its origins, stating that it was "apparently" collected in the Aru Islands in 1874. The presence of a species from *Daemonorops* section *Daemonorops* in that area seems unlikely, as other members of this section are largely restricted to the west of Wallace's Line. The material corresponds closely to this more widespread west Malesian species, as acknowledged in the protologue and in annotations on the type by Beccari, and is thus synonymised here.

Calamus micracanthus Griff., Calcutta J. Nat. Hist. 5: 62 (1845).
Palmijuncus micracanthus (Griff.) Kuntze, Revis. Gen. Pl. 2: 733 (1891). *Daemonorops micracantha* (Griff.) Becc. in J.D.Hooker, Fl. Brit. India 6: 467 (1893). *Rotang micracanthus* (Griff.) Baill., Hist. Pl. 13: 299 (1895).
Daemonorops draconcella Becc., Nelle Forest. Borneo: 608 (1902).

Calamus microstachys (Becc.) W.J.Baker, *comb. nov.*
Daemonorops microstachys Becc., Rec. Bot. Surv. India 2: 225 (1902).

Calamus mirabilis Mart., Hist. Nat. Palm. 3: 213 (1838).
Daemonorops mirabilis (Mart.) Mart., Hist. Nat. Palm. 3: 329 (1853). *Palmijuncus mirabilis* (Mart.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Calamus mogeanus (Rustiami) W.J.Baker, *comb. nov.*
Daemonorops mogeana Rustiami, Reinwardtia 13: 25 (2009).

Note:—This new combination should not be confused with *Calamus mogeae* J.Dransf., Kew Bull. 55: 717 (2000).

Calamus mollis Blanco, Fl. Filip.: 264 (1837).
Palmijuncus mollis (Blanco) Kuntze, Revis. Gen. Pl. 2: 733 (1891). *Daemonorops mollis* (Blanco) Merr., Sp. Blancoan.: 86 (1918).
Daemonorops fusca Mart., Hist. Nat. Palm. 3: 331 (1853).
Daemonorops gaudichaudii Mart., Hist. Nat. Palm. 3: 331 (1853). *Calamus gaudichaudii* (Mart.) H.Wendl. in O.C.E.de Kerchove de Denterghem, Palmiers: 236 (1878). *Palmijuncus gaudichaudii* (Mart.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Calamus mollispinus (J.Dransf.) W.J.Baker, *comb. nov.*
Daemonorops mollispina J.Dransf., Kew Bull. 56: 662 (2001).

Calamus monticola Griff., Calcutta J. Nat. Hist. 5: 90 (1845).

Daemonorops monticola (Griff.) Mart., Hist. Nat. Palm. 3: 328 (1853). *Palmijuncus monticola* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Calamus niger Willd., Sp. Pl. 2: 203 (1799).

Daemonorops nigra (Willd.) Blume, Rumphia 3: 5 (1847). *Palmijuncus niger* (Willd.) Kuntze, Revis. Gen. Pl. 2: 732 (1891). *Rotang niger* (Willd.) Baill., Hist. Pl. 13: 299 (1895).

Calamus nuichuaensis A.J.Hend., N.K.Ban & N.Q.Dung, Palms 52: 196 (2008).

Daemonorops nuichuaensis (A.J.Hend., N.K.Ban & N.Q.Dung) A.J.Hend., Phytotaxa 8: 27 (2010).

Calamus oblatus (J.Dransf.) W.J.Baker, *comb. nov.*

Daemonorops oblata J.Dransf., Bot. J. Linn. Soc. 81: 18 (1980).

Calamus oblongus Reinw. ex Blume in J.J.Roemer & J.A.Schultes, Syst. Veg. 7: 1323 (1830).

Daemonorops oblonga (Reinw. ex Blume) Blume, Rumphia 3: 25 (1847).

Calamus platyacanthos Mart., Hist. Nat. Palm. 3: 206 (1838). *Daemonorops platyacanthos* (Mart.) Mart., Hist. Nat. Palm. 3 (ed. 2): 204 (1845). *Palmijuncus platyacanthos* (Mart.) Kuntze, Revis. Gen. Pl. 2: 732 (1891).

Calamus ochrolepis (Becc.) W.J.Baker, *comb. nov.*

Daemonorops ochrolepis Becc. in G.H.Perkins & al., Fragm. Fl. Philipp. 1: 47 (1904).

Calamus ocreatus (A.J.Hend. & N.Q.Dung) W.J.Baker, *comb. nov.*

Daemonorops ocreata A.J.Hend. & N.Q.Dung, Phytotaxa 8: 29 (2010).

Calamus oligolepis (Becc.) W.J.Baker, *comb. nov.*

Daemonorops oligolepis Becc., Leafl. Philipp. Bot. 8: 3035 (1919).

Calamus oligophyllus (Becc.) W.J.Baker, *comb. nov.*

Daemonorops oligophylla Becc. in J.D.Hooker, Fl. Brit. India 6: 467 (1893).

Calamus oxycoccus W.J.Baker, *nom. nov.*

Daemonorops oxycarpa Becc., Nelle Forest. Borneo: 607 (1902), non *Calamus oxycarpus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11 (App.): 138 (1913).

Note:—A replacement name is required as the name *Calamus oxycarpus* Becc. has already been used.

Calamus pachyrostris (Becc.) W.J.Baker, *comb. nov.*

Daemonorops pachyrostris Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 217 (1911).

Calamus palembanicus (Blume) Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 29 (1868).

Daemonorops palembanica Blume, Rumphia 3: 20 (1847). *Palmijuncus palembanicus* (Blume) Kuntze, Revis. Gen. Pl. 2: 732 (1891). *Rotang palembanicus* (Blume) Baill., Hist. Pl. 13: 300 (1895).

Calamus pannosus (Becc.) W.J.Baker, *comb. nov.*

Daemonorops pannosa Becc., Leafl. Philipp. Bot. 8: 3033 (1919).

Calamus parvifructus W.J.Baker, *nom. nov.*

Daemonorops microcarpa Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 195 (1940), non *Calamus microcarpus* Becc., Rec. Bot. Surv. India 2: 213 (1902).

Note:—A replacement name is required as the name *Calamus microcarpus* Becc. has already been used.

Calamus pedicellaris (Becc.) W.J.Baker, *comb. nov.*
Daemonorops pedicellaris Becc., Leafl. Philipp. Bot. 8: 3040 (1919).

Calamus periacanthus (Miq.) Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 28 (1868).
Daemonorops periacantha Miq., Fl. Ned. Ind., Eerste Bijv.: 593 (1861). *Palmijuncus periacanthus* (Miq.) Kuntze, Revis. Gen. Pl. 2: 732 (1891). *Rotang periacanthus* (Miq.) Baill., Hist. Pl. 13: 300 (1895).
Daemonorops dissitophylla Becc., Nelle Forest. Borneo: 608 (1902).
Daemonorops florida Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 230 (1911).

Calamus plagiocyclus (Burret) W.J.Baker, *comb. nov.*
Daemonorops plagiocycla Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 194 (1940).

Calamus politus (Fernando) W.J.Baker, *comb. nov.*
Daemonorops polita Fernando, Gard. Bull. Singapore 41: 56 (1988 publ. 1989).

Calamus pumilus (Van Valk.) W.J.Baker, *comb. nov.*
Daemonorops pumila Van Valk., Blumea 40: 465 (1995).

Calamus rarispinosus (Renuka & Vijayak.) W.J.Baker, *comb. nov.*
Daemonorops rarispinosa Renuka & Vijayak., Rheedea 4: 125 (1994).

Calamus riedelianus Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 18 (1868).
Palmijuncus riedelianus (Miq.) Kuntze, Revis. Gen. Pl. 2: 733 (1891). *Daemonorops riedeliana* (Miq.) Becc., Rec. Bot. Surv. India 2: 226 (1902).

Calamus ruber Reinw. ex Mart., Hist. Nat. Palm. 3: 209 (1838).
Daemonorops rubra (Reinw. ex Mart.) Blume, Rumphia 3: 6 (1847). *Palmijuncus ruber* (Reinw. ex Mart.) Kuntze, Revis. Gen. Pl. 2: 732 (1891).
Daemonorops accedens Blume, Rumphia 2: viii (1838). *Calamus accedens* (Blume) Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 28 (1868). *Palmijuncus accedens* (Blume) Kuntze, Revis. Gen. Pl. 2: 734 (1891). *Rotang accedens* (Blume) Baill., Hist. Pl. 13: 300 (1895).

Calamus ruptilis (Becc.) W.J.Baker, *comb. nov.*
Daemonorops ruptilis Becc., Rec. Bot. Surv. India 2: 230 (1902).

Calamus ruptilis var. ***ruptilis***
Daemonorops ruptilis var. *ruptilis*

Calamus ruptilis var. ***acaulescens*** (J.Dransf.) W.J.Baker, *comb. nov.*
Daemonorops ruptilis var. *acaulescens* J.Dransf., Bot. J. Linn. Soc. 81: 23 (1980).

Calamus sabut (Becc.) W.J.Baker, *comb. nov.*
Daemonorops sabut Becc. in J.D.Hooker, Fl. Brit. India 6: 469 (1893).
Daemonorops annulata Becc., Rec. Bot. Surv. India 2: 227 (1902).
Daemonorops pseudomirabilis Becc., Rec. Bot. Surv. India 2: 226 (1902).
Daemonorops turbinata Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 225 (1911).

Calamus sarasinorum (Warb. ex Becc.) W.J.Baker, *comb. nov.*
Daemonorops sarasinorum Warb. ex Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 100 (1911).

Calamus scapigerus (Becc.) W.J.Baker, *comb. nov.*
Daemonorops scapigera Becc., Rec. Bot. Surv. India 2: 228 (1902).
Daemonorops lasiospatha Furtado, Gard. Bull. Straits Settlem. 8: 351 (1935).
Calamus bifacialis Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 809 (1943).

Calamus schlechteri (Burret) W.J.Baker, *comb. nov.*
Daemonorops schlechteri Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 799 (1943).

Calamus sedisspirituum (Rustiami, J.Dransf. & Fernando) W.J.Baker, *comb. nov.*
Daemonorops sedisspirituum Rustiami, J.Dransf. & Fernando, Kew Bull. 69, 9531: 3

Calamus sekundurensis (Rustiami & Zumaidar) W.J.Baker, *comb. nov.*
Daemonorops sekundurensis Rustiami & Zumaidar, Floribunda 2: 198 (2005).

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

Calamus serpentinus (J.Dransf.) W.J.Baker, *comb. nov.*
Daemonorops serpentina J.Dransf., Kew Bull. 36: 810 (1982).

Calamus siberutensis (Rustiami) W.J.Baker, *comb. nov.*
Daemonorops siberutensis Rustiami, Kew Bull. 57: 729 (2002).

Calamus singalanus (Becc.) W.J.Baker, *comb. nov.*
Daemonorops singalana Becc., Rec. Bot. Surv. India 2: 219 (1902).

Calamus sparsiflorus (Becc.) W.J.Baker, *comb. nov.*
Daemonorops sparsiflora Becc., Rec. Bot. Surv. India 2: 224 (1902).

Calamus stenophyllus (Becc.) W.J.Baker, *comb. nov.*
Daemonorops stenophylla Becc., Rec. Bot. Surv. India 2: 220 (1902).

Calamus takanensis (Rustiami) W.J.Baker, *comb. nov.*
Daemonorops takanensis Rustiami, Reinwardtia 13: 26 (2009).

Calamus treubianus (Becc.) W.J.Baker, *comb. nov.*
Daemonorops treubiana Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 75 (1911).

Calamus trichrous (Miq.) Miq., Verh. Kon. Akad. Wetensch., Afd. Natuurk. 11(5): 28 (1868).
Daemonorops trichroa Miq., Fl. Ned. Ind., Eerste Bijv.: 952 (1861). *Palmijuncus trichrous* (Miq.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Calamus unijugus (J.Dransf.) W.J.Baker, *comb. nov.*
Daemonorops unijuga J.Dransf., Bot. J. Linn. Soc. 81: 24 (1980).

Calamus urdanetanus (Becc.) W.J.Baker, *comb. nov.*
Daemonorops urdanetana Becc., Leafl. Philipp. Bot. 8: 3038 (1919).

Calamus uschdraweitianus (Burret) W.J.Baker, *comb. nov.*
Daemonorops uschdraweitiana Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 191 (1940).

Calamus validus W.J.Baker, *nom. nov.*
Daemonorops robusta Warb. ex Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(1): 101 (1911), non *Calamus robustus* L.Linden & Rodigas, Ill. Hort. 40: 19 (1893).

Note:—A replacement name is required as the name *Calamus robustus* L.Linden & Rodigas has already been used.

Calamus verticillaris Griff., Calcutta J. Nat. Hist. 5: 63 (1845).

Daemonorops verticillaris (Griff.) Mart., Hist. Nat. Palm. 3: 329 (1853). *Palmijuncus verticillaris* (Griff.) Kuntze, Revis. Gen. Pl. 2: 733 (1891).

Daemonorops setigera Ridl., Fl. Malay Penins. 5: 45 (1925).

Daemonorops stipitata Furtado, Gard. Bull. Singapore 14: 142 (1953).

Daemonorops verticillaris var. *straminea* Furtado, Gard. Bull. Singapore 14: 147 (1953).

Calamus wrightmyoensis (Renuka & Vijayak.) W.J.Baker, *comb. nov.*

Daemonorops wrightmyoensis Renuka & Vijayak., Rheedea 4: 125 (1994).

Synopsis of Ceratolobus *species transferred to* Calamus

Calamus ceratolobus W.J.Baker, *nom. nov.*

Ceratolobus discolor Becc., Malesia 3: 63 (1886), non *Calamus discolor* Mart., Hist. Nat. Palm. 3: 212 (1838).

Ceratolobus hallierianus Becc. ex K.Heyne, Nutt. Pl. Ned.-Ind.: 93 (1913).

Note:—A replacement name is required as the name *Calamus discolor* Mart. has already been used.

Calamus concolor (Blume) W.J.Baker, *comb. nov.*

Ceratolobus concolor Blume, Rumphia 2: 165 (1843). *Ceratogynum concolor* Pritz., Icon. Bot. Index: 245 (1854), orth. var.

Calamus georgei W.J.Baker, *nom. nov.*

Ceratolobus kingianus Becc. & Hook.f. in J.D.Hooker, Fl. Brit. India 6: 477 (1893), non *Calamus kingianus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(1): 197 (1908).

Note:—A replacement name is required as the name *Calamus kingianus* Becc. & Hook.f. has already been used. King's given name, George, is used in the replacement epithet.

Calamus glaucescens D.Dietr., Syn. Pl. 2: 1064 (1840).

Ceratolobus glaucescens Blume in J.J.Roemer & J.A.Schultes, Syst. Veg. 7: 1334 (1830), non *Calamus glaucescens* Blume, Rumphia 3: 65 (1847), nom. illeg.

Note:—The name *Calamus glaucescens* Blume is illegitimate as a later homonym of *Calamus glaucescens* D.Dietr. and is a synonym of *Calamus caesius* Blume, Rumphia 3: 57 (1847).

Calamus pseudoconcolor (J.Dransf.) W.J.Baker, *comb. nov.*

Ceratolobus pseudoconcolor J.Dransf., Kew Bull. 34: 19 (1979).

Calamus subangulatus Miq., Fl. Ned. Ind., Eerste Bijv.: 594 (1861).

Palmijuncus subangulatus (Miq.) Kuntze, Revis. Gen. Pl. 2: 734 (1891). *Ceratolobus subangulatus* (Miq.) Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(App.): iii (1913). *Ceratolobus laevigatus* var. *subangulatus* (Miq.) Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 16 (1918).

Ceratolobus laevigatus var. *angustifolius* Becc. in J.D.Hooker, Fl. Brit. India 6: 477 (1893).

Ceratolobus laevigatus var. *borneensis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 16 (1918).

Ceratolobus laevigatus var. *divaricatus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 16 (1918).

Ceratolobus laevigatus var. *major* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 16 (1918).

Ceratolobus laevigatus var. *regularis* Becc., Ann. Roy. Bot. Gard. (Calcutta) 12(2): 16 (1918).

Synopsis of Pogonotium *species transferred to* Calamus

Calamus moorei (J.Dransf.) W.J.Baker, *comb. nov.*
Pogonotium moorei J.Dransf., Principes 26: 174 (1982).

Calamus pogonotium W.J.Baker, *nom. nov.*
Pogonotium divaricatum J.Dransf., Kew Bull. 34: 766 (1980), non *Calamus divaricatus* Becc., Ann. Roy. Bot. Gard. (Calcutta) 11(App.): 10 (1913).

Note:—A replacement name is required as the name *Calamus divaricatus* Becc. has already been used.

Calamus ursinus (Becc.) W.J.Baker, *comb. nov.*
Daemonorops ursina Becc., Rec. Bot. Surv. India 2: 222 (1902). *Pogonotium ursinum* (Becc.) J.Dransf., Kew Bull. 34: 763 (1980).

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