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Unravelling *Pinanga patula* (Palmae) *sensu* Scheffer, Beccari and Ridley *non* Blume.

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Abstract

Preparatory to a revision of the genus *Pinanga* Blume as found in Peninsular Malaysia, three taxa hitherto related to *P. patula* Blume by Scheffer, Beccari, and Ridley are discussed in the light of uncertainties pertaining to Blume's species. The paper presents fresh nomenclatural notes on *P. riparia* Ridley, and describes *P. auriculata* Becc. var. *merguensis* Becc. as a new combination, and a new variety, *P. auriculata* Becc. var *leucocarpa*..

Introduction

In 1838, Blume (*Bull. Neerl.* 1:65) introduced the genus *Pinanga* and described a number of new species, including *P. patula* Blume, based on specimens from the interior mountains of Sumatra collected by his friend Praetorius. The type location of *P. patula* has yet to be identified. From the text and illustration in his subsequent publication (*Rumphia* ii, 86, 87, t.115), the taxon was clearly characterised by having four to seven pairs of leaflets, and inflorescences having two rachillae. The herbarium specimens at Leiden (lectotype: *Herb. Lugd. Bat. 900-182-241*, L; syntype: *900-182-241*, L) display pinnate leaves with up to five pairs of leaflets, "spreading, falcate-lanceolate, acuminate" on laminas small enough to lie comfortably within the dimensions of a herbarium sheet (Plate 1), and are thus smaller than those of the taxa subsequently considered to be conspecific or varieties.

Contemporaneously, Martius held a different view of Blume's genus, and placed the new taxa under *Seaforthia* in his publication *Historia Naturalis Palmarum* (1837-1850). Later, in 1855, Miquel also disregarded *Pinanga* and relisted the lot under *Ptychosperma*, redescribing *Ptycosperma patula* (*Flora van Nederlandsch Indie.**3***:26) presumably using the same original specimens, but in greater detail, indicating that the stem was three to four feet tall. As with Blume, he was silent on whether the taxon was solitary or clustering.

Scheffer, then Director at Hortus Botanicus Buitenzorg (now Kebun Raya Bogor), subsequently revised Miquel's account, reinstating *Pinanga*, including *P. patula* and the other Blume species with further descriptions (*Natuurkundig Tjidschrift voor Ned. Indie.* ***32***, 1871), freshly indicating

that *P. patula* was stoloniferous (as distinct from being caespitose). He, however, appears to have added further cloudiness by reference to other taxa he considered to be conspecific or related, including *P. inaequalis* Blume, *P. minor* Blume, *P. furfuracea* Blume, and *P. junghuhnii* Blume. In 1876, he elaborated further on his *Pinanga* listing, and published photographs of the palms growing at Buitenzorg, including the clump labelled "*P. patula*", which might well be the same still to be seen at present-day Bogor. I believe, however, that it is not the same as the Blume taxon, as will be explained below, and it can be suggested that Scheffer had not been familiar with the original species from the type location, and has misled Beccari and others in this identification.

Beccari made three visits to Bogor, first meeting Scheffer on his way to New Guinea in 1871, and in 1874 when he became acquainted with the Javan flora. During these visits, he had so accepted *P. patula sensu* Scheff. as a distinct and stoloniferous species that during his third trip in 1878, when he travelled to Padang Pajang and Gunung Singalang he did not appear to have tried to find the Blume species. In 1885, after Scheffer's death, he wrote up *Reliquiae Schefferianae,* obviously accepting *P. patula sensu* Scheff., and in *Malesia 3*, reconfirmed his concept of the taxon and its variety, *P. patula* var. *junghuhnii* Scheff., describing the latter as a "mountain form" of the species (citing his own specimen from Lubu-Raja, at 3000–4000 ft altitude).

It would appear that after Praetorius, there had been no subsequent collections over the next 30 years or so; specimens by Korthals at Leiden are undated and without location notes. Collections from locations near Palembang were later made by Grashof (c. 1915), and by Teysmann probably earlier. In 1971–73, Dransfield collected from Gunung Tujuh and G. Kerinci at 1400–1900 m, but labelled his specimens (e.g. *JD2689,* K) tentatively "aff. *P. patula*"; whereas his specimen from Jambi (*JD2555*, BO, K) from a peat swamp were called "*P. patula*", but they resemble more closely *P. patula sensu* Scheff. (as will be discussed later).

In Sarawak, Beccari had begun to find innumerable new species, including the solitary and distinctive *P. auriculata* Becc. (Malesia. **3**, 1886: 134–135), which he clearly considered to be distinct from the clustering *P. patula sensu* Scheff.. Viewing Beccari's own collections in Florence, we can observe interesting but curiously variable determinations of specimens sent to him between 1866 and 1892, and later, with particular reference to the Malayan ones. Several, which he labelled as *P. patula* have to be regarded as incorrect or dubious. He also began to coin new varieties, which were not published, as far as I have been able to discover, e.g. "var. *kalamantanica*", "var. *lianggagangensis*", and "var. *borneensis*". The last-named was presented as *P. patula* Blume forma *borneensis* by Winkler

(1913), together with *P. patula* Blume var. *microcarpa* Becc., also from Borneo.

Following Beccari's wishes, posthumously Martelli published *P. patula* Blume var. *merguensis* Becc. (in Martelli, 1934), and in 1935 relisted: *P. patula* var. *celebica* Scheff. (which he proposed to be synonymous with *P. inaequalis, P. minor*, and *P. furfuracea* - a three-way puzzle to be resolved elsewhere), *P. patula* var. *gracilis* Scheff. (synon. of *P. gracilis* Blume), *P. patula* var. *junghuhnii* Scheff. from Sumatra, and introduced *P. patula* Blume var. *riparia* Becc. in Martelli, the last-named being a reduction of *P. riparia* Ridley – which will be discussed later.

Plate 1. *Pinanga patula* Blume (lectotype: *Praetorius, Herb. Lugd. Bat. 900-182-241*, L). By courtesy of Rijksherbarium, Leiden.

Plate 2. *Pinanga riparia* Ridley, cultivated in Singapore Botanic Gardens, c.1934. By courtesy of Singapore Botanic Gardens.

Plate 3. *Pinanga paradoxa* (Griff.) Scheff., leaves (**H0942*).

Plate 4. *Pinanga riparia* Ridley, leaves.

Significantly, especially in the context of this account, Beccari determined the specimen *Ridley 3158* from Kuala Tenok, Pahang collected in 1891 as *P. patula* Blume, thus "importing" the nomenclature into Peninsular Malaysia. Another specimen collected in 1892 from Ulu Bubong, Perak (*King's Collector 10702,* K, FI and CAL) was similarly cited by Beccari and J.D. Hooker (and propagated as such by a fine drawing in the Bentham Trust) further contributed to the spread of this error. I am positive, however, that this is a specimen of *P. pectinata* Becc. & J.D. Hooker, which is distinct, as will be discussed more fully in my revision (in prep.) of *Pinanga* in Malaya.

Hooker had asked Beccari to collaborate on the palm section of *Flora of British India* but, although identified as precedent co-author, it is believed that Beccari had not responded to the invitation. From the correspondence between the two, it emerges that in 1886, Hooker had wanted Beccari (who was then preoccupied with the third volume of his own *Malesia*) to go to Kew to work on the Scortechini material; in September 1891, he offered Beccari 15 pounds sterling to provide diagnoses and descriptions of the Indian species. In the above-mentioned *Flora* itself, J.D. Hooker published *P. pectinata* based on *King's Collector 4393* together with other *Pinanga* taxa, but called *P. patula* Blume "a doubtful species"!

Ridley, in *Materials for a Flora of the Malay Peninsula* (1907) and *Flora of the Malay Peninsula* (1925) reinstated *P. patula* as a Malayan species, citing his own Kuala Tenok collection, and the Ulu Bubong one mentioned above, thus leaning on Beccari's authority. Here, *sensu* Ridley, three different taxa are being confused. Although his Pahang specimen was of a solitary species, Ridley described the lot as "tufted". He, however, chose to ignore Beccari's efforts to sink his *P. riparia* (1905), but in this paper, *P. patula* var. *riparia* (1935) will revert to being a synonym. This also contradicts Whitmore's taxonomic note (*Principes.* (1970) ***14***:125), where he incorrectly deemed *P. riparia* to be synonymous with *P. pectinata*, but suggested that *P. patula sensu* Ridley was distinct.

It is obviously urgent and desirable to seek out the "real" *P. patula* and to collect fresh herbarium and live specimens (for propagation) from the probable type location in Sumatra, on the mountains. The prominent clumps labelled as this taxon in Kebun Raya Bogor and also those previously in the Singapore Botanic Gardens (Plate 2) - as shown in a photograph c.1934 by a Captain Johnstone, which correspond with herbarium specimens originally labelled "*P. disticha*", but determined by Furtado in 1929 as "*P. patula* var." are indistinguishable from *P. riparia* Ridley, which is a stoloniferous species found in low and wet places, and should now be recognised as such. It appears to adapt well to garden conditions, as evidenced at Bogor, and is indeed a handsome horticultural attraction.

Dransfield (1974) believes that his specimen (*JD 3590,* BO, K, L, SING) from Bengkulu at 500 m altitude matches with the type; his, however, has larger leaves and inflorescences with three or more branches. Another specimen (*JD 2679,* BO, K) collected at 800 m from Kepahiang, Bengkulu (which occupies six sheets), displays various forms of leaf dissection, including one that does seem similar to the Praetorius specimen at Leiden. I would be inclined, however, to defer a definitive verification of *P. patula* Blume until field visits to the "interior mountains of Sumatra" yield more conclusive results. My suspicion is that the elusive palm may prove to be closer in appearance to *P. paradoxa* (Griff.) Scheff. (Plate 3) and *P. salicifolia* Blume, from Peninsular Malaysia and Borneo respectively. The Praetorius specimens have slender stems of similar dimensions to these.

With regard to the species of relevance to Peninsular Malaysia, I propose to address the following three taxa: *P. riparia* (also found in Thailand, and probably once in Singapore), *P. patula* var. *merguensis* (now known to be widespread in South Thailand and in Perlis), and *P. patula sensu* Beccari and Ridley *non* Blume (in Thailand, Peninsular Malaysia and Singapore).

1. Pinanga riparia Ridley. *J. Roy. As. Soc. Str. Br.* ***44*** (1905) 201.
Type: Johor: Sg. Tebrau, 1903, *Ridley 11518* (SING – lectotype here chosen, K iso).

Synon : *P. patula* Blume var. *riparia* Becc. in Martelli. *Nuov. Giorn. Bot. Ital. NS* ***42*** (1935) 71. *Type*: Johor, Kukub, 1909, *Ridley 14170* (FI, SING).

Notes: Viewing the herbarium specimens in Leiden, I became convinced that Ridley's taxon is not related to *P. patula* Blume. Although they may both be clustering species, *P. riparia* is distinctly stoloniferous, and has laminas which are usually larger, have more numerous leaflets, and broader apical ones (Plate 4). From Ridley's accounts and field familiarity, I was also positive that the Bogor clump is *P. riparia* and not Blume's taxon, which, as conjectured above, neither Scheffer nor Beccari had the opportunity of verifying from live specimens.

The error becomes clear from Beccari's account of *P. patula* (*Malesia.* ***3***: 139-140), from which we learn that the Bogor live specimen had been collected from Banka by Teysman (and was similar to Beccari's own find at Sungai Bulu in Padang), both undoubtedly from riverine habitat. Beccari further commented on Teysman's Bornean collections from Kapuas and Sg. Landak, which he felt were varieties or other forms of *P. patula sensu* Scheffer. Presented with Ridley's specimen *14170* collected from Kukup in 1909, he obviously could only treat it as a variety of *P. patula sensu* Scheffer.

John Dransfield (pers. comm.) believes that in Borneo, there may be other swamp-dwelling, stoloniferous taxa which relate with *P. riparia*, and might even be conspecific; indeed, collections of *P. patula* var. *borneensis*, and other specimens from Kalimantan, Brunei and Sarawak have to be reexamined (also in relation to the puzzling *P. furfuracea*) - an interesting prospect for further research in that domain.

P. riparia is easily identifiable after acquaintance in the field; in its natural habitat, it is practically rheophytic. The shiny leaves vary not only in size, but also in number of pinnae, and the petiole and rachis are sometimes glaucous. The stolons arise often at a distance from the main plant, and the nodal sections of the stems are green, light or darker, and "unwoody", often to 4 m in height. The deflexed inflorescence has usually two rachillae distinctively purple (coral red initially), with elliptical light green drupes (Plate 10), turning red to black. Specimens in herbaria have sometimes been mislabelled as *P. singaporensis* Ridley (with which *P. riparia* is often sympatric in Johor), and which in turn has often been misidentified as *P. pectinata.*

Distribution: Thailand: Narathiwat (viz. Phengklai & Niyomdham, 1991); Peninsular Malaysia: Terengganu (Saw Leng Guan pers. comm.), Pahang, Selangor, Negri Sembilan, Johor; Indonesia: S. Sumatra, Banka.

Habitat: peat swamps, river banks; not rare, but endangered by habitat destruction.

Specimens examined: Thailand: Narathiwat, 1974, *Larsen 33092* (K); Peninsular Malaysia: Selangor, Tanjong Karang, 1937, *Nur 34126* (SING); Johor: Sg. Tebrau, 1903, *Ridley 11518* (Type, K, SING), 1906, *Ridley 13235* (K, SING), Kukub, 1909, *Ridley 14170* (Type of *P. patula* var. *riparia* Becc. in Martelli, FI, SING), Sg. Sedili, 1935, *Corner 29239* (K).

2. *Pinanga auriculata* Becc. **var. *merguensis*** (Becc. in Martelli) C.K. Lim **comb. nov.**

Synon.**:** *P. patula* Blume var *merguensis* Becc. in Martelli. *Atti. Soc. Toscana Scienze Naturali Res. Pisa Memorie* ***44*** (1934): 125,126; ("merguiensis": *Nuov. Giorn. Bot. Ital. NS* ***42*** (1935):71)**.**

Type: Myanmar: Mergui, Tarapon, 1911, *Meebold 14380* (two sheets), (WSRL).

Notes: From wider field observations and collections, this taxon is confirmed as widespread from Mergui and along the west coast of Peninsular Thailand – where indeed it had been collected by Kerr, Whitmore and others – and within Perlis, where it was collected in 1995 by L.G. Saw and C.K. Lim (*H1837, H1840* KEP), and noted as a new record for Peninsular Malaysia (Lim, *Principes* **42**: 115). It is a solitary species clearly unrelated to the Sumatran taxon, *P. patula* Blume, as discussed earlier. Observing the striking similarity in habit and habitat of *P. auriculata* Becc. (1886), which Beccari collected at Kuching (holotype *PB589*, FI), I propose to transfer var. *merguensis* to varietal status under it.

Although I had felt an earlier hesitance and reluctance to "cross the Sunda shelf" to relate Peninsular Malaysian and Bornean *Pinanga* species, recent field trips to Sarawak have provided new perceptions. Furthermore, the two taxa display many features in common, and it would seem that *Pinanga* taxa with affinities to *P. auriculata* may be quite widespread in the western Malesian region. The bifid eophyll and juvenile leaves (Plate 6) are quite indistinguishable within the group (and similar also with *P. limosa* Ridley); the prophylls are also similar, and dry into papery tatters. Ligules or auricles subtending from the leafsheath, where the petiole splits away, are often variable even in *P. auriculata* var. *auriculata,* and may not always be prominent.

The leaflets of var. *merguensis* (and of another new variety to be described below) differ from those of *P. auriculata* var. *auriculata*, which are more numerous and longer; in the variety, these are more sigmoidal (Plates 7), with pinnae that may be closely or more distantly spaced. They both have inflorescences usually with four to six rachillae; in var. *merguensis* the infructescence, often profuse and abundant, has drupes which are distinctively shiny and almost translucent, wine-red, (Plate 11) before ripening black. Meebold's fine specimens (Plate 5) has been well curated at Wroclaw (earlier known as Braslav). Beccari, who designated the type in 1913, originally annotated it as "*P. patula* Bl. forma *merguensis* Becc.".

Distribution: Myanmar: Mergui; Thailand: Ranong, Trang, Surat Thani, Phuket, Satun; Peninsular Malaysia: Perlis.

Habitat: hill forests or lowland, riverine; not rare.

Specimens examined: Thailand: Ranong, 1918, *Kerr 16386* (K), 1927, *Kerr 11763* (K), Trang, Khao Chong Nat. Park, 1979, *Dransfield JD 5451* (K). Peninsular Malaysia: Perlis, Mata Ayer F.R., 1995, *C.K. Lim H1837, H1840* (KEP), *1996, C.K. Lim H1942**

Plate 5. *Pinanga auriculata* Becc. var. *merguensis* (Becc. in Martelli) C.K. Lim (holotype: 1911, *Meebold 14380*, WSRL). By courtesy of WSRL.

Plate 6. *Pinanga auriculata* var. *merguensis*, juvenile leaves.

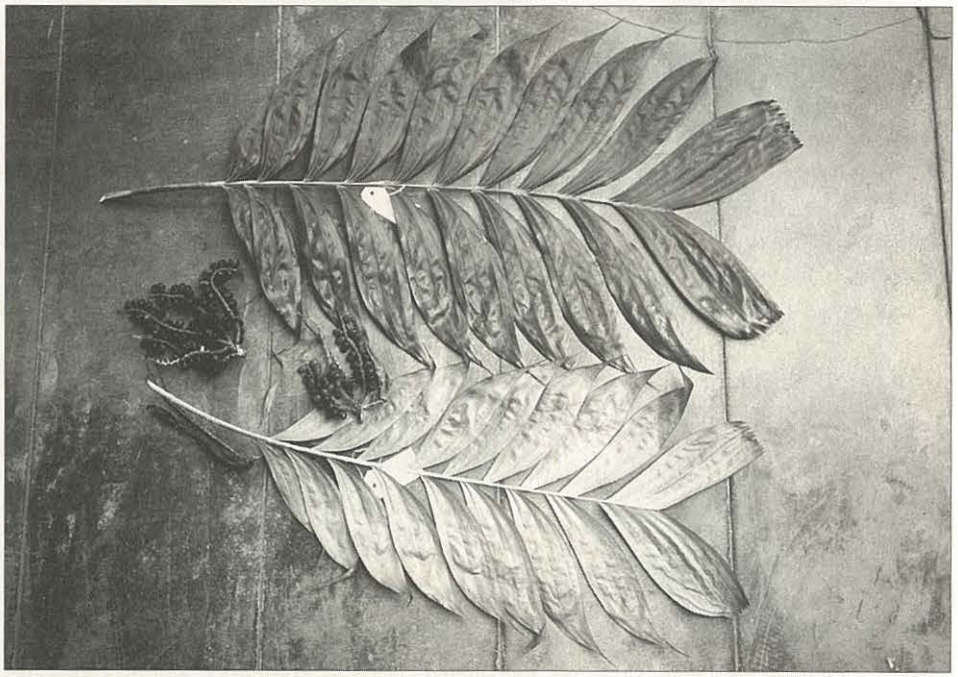

Plate 7. *Pinanga auriculata* var *merguensis*, leaves and fruit (**H1837*).

**Note: Within this account, as in my other taxonomic papers, certain specimens (prefix: H) currently kept in the Palm Search Malaysia collection are cited to supplement herbarium collections examined. Although it is intended eventually to deposit more specimens in the major reference herbaria, many items represent field records of the in situ conservation status, which the PSM project is in the process of monitoring.*

3. *Pinanga auriculata* Becc. **var *leucocarpa*** C.K. Lim **var. nov.**

A varietate typica fructibus albidis in statu immaturo distinguibilis.

Typus: Pahang, Kuala Tenok, 1891, *Ridley 3158* (holotypus, SING; isotypus, FI, K)

Synon nov.**:** ***P. patula*** *sensu* Ridley *non* Blume, Ridley. *Materials for a Flora of the Malay Peninsula.* ***2*** (1907) 143; ***P. bowiana*** Hodel. *The Palm Journal* ***134*** (1997) 35. (Type: Thailand: Narathiwat, 1997, *Hodel & Vatcharakorn 1608*, BK)

Stem, size and habit similar to *P. auriculata* var. *merguensis*; similarly, leaves divided with six to eleven pairs of leaflets, sigmoidal, with four nerves, sometimes bullate, glabrous, light or dark green, lighter on underside; prophyll drying papery; inflorescence infrafoliar, pendent, with two to six rachillae, usually light green; floral pits distichously arranged, flowers not examined; drupes globose, 6 x 8 mm, distinctively creamy white with green tips when immature, ripening red to black.

Geographical range: only along east coast of peninsular Thailand and Peninsular Malaysia, and Singapore.

Notes: As discussed in the Introduction, the specimen from Pahang collected by Ridley was incorrectly determined by Beccari, who may not have known that the Malayan taxon was distinctively solitary. Ridley had later described it as "tufted" or with "several" stems, and also confused it with *P. pectinata*. Whitmore (1973: 92) was obviously aware that Ridley's descriptions of *P. patula* were faulty, and from his field observations pointed out that it was a solitary species (Plate 8). In habit and leaf form, which are pronouncedly sigmoidal (Plate 9), it could sometimes be confused with *P. auriculata* var. *merguensis*, which it closely resembles, but can be distinguished by the fruit, which are more globose and creamy white (with green tips) when immature, or nearly mature (Plate 12) – hence the varietal epithet. The fruit is also reminiscent of those of *P. limosa*, which is a diminutive species

Plate 8. *Pinanga auriculata* Becc. var. *leucocarp*a C.K.Lim, at Merapoh, Pahang.

Plate 9. *Pinanga auriculata* var. *leucocarpa*, leaves and inflorescence (**H0583*).

Plate 10. *Pinanga riparia*, inflorescence and fruit (**H0509*).

Plate 11. *Pinanga auriculata* var. *merguensis*, inflorescence and fruit (**H1837*).

Plate 12. *Pinanga auriculata* var. *leucocarpa*, inflorescence and fruit (**H1259*).

with spicate inflorescences. It should be noted that when dried, drupes tend to look quite similar to those of *P. limosa* but are more elliptical or fusiform, and no longer globose.

Both varieties of *P. auriculata* are quite variable in robustness and size – seen fruiting at heights varying from 2 to 4 m. In the inflorescence of var. *leucocarpa*, the rachillae are usually light green, but coral red variants have been observed, with immature drupes not the usual creamy colour, but red; this rare variation has also been noticed in *P. limosa*.

In an earlier paper (Lim, 1998), I determined that *P. bowiana* Hodel was conspecific with "*P. patula* Blume" – more correctly, with *P. patula sensu* Ridley *non* Blume. In the light of further research on the basionym, both will now be reduced to synonymity under *P. auriculata* var. *leucocarpa,*. In his account, Hodel did not seem aware of the many herbarium collections of the Malayan taxon, or of those collected previously in the Narathiwat area. His description also lacked the essential mention of the fruit and diagnostic colour of the drupes, but from familiarity with his collection sites, I feel sure that his specimen is of this particular variety.

The Ridley specimen from Pahang is for Malesian taxonomy important and historical, and has drawn with it numerous other collections designated similarly. For this reason, it continues to serve as the type for the new variety. The many herbarium specimens hitherto labelled *P. patula* by Ridley and others, however, may now have to be redesignated, and sorted out to differentiate var. *leucocarpa* from var. *merguensis,* the convenient initial guide being the collection site, and better, from clear evidence of the inflorescence and fruit.

As a result of more extensive field monitoring, territoriality becomes a useful indicator where it can be reasonably sure that certain taxa are localised. In geographical range, var. *leucocarpa* is widespread along the east coast of Peninsular Malaysia from Singapore and Johor to Kelantan, and in the Narathiwat area of Southern Thailand, but has so far not been found in the western side of the Peninsula where var. *merguensis* is common, from Perlis northwards.

Distribution: Thailand: Narathiwat; Peninsular Malaysia: Kelantan, Terengganu, Pahang, Johor; Singapore.

Habitat: hill forests or lowland, swamp; not rare in Peninsular Malaysia.

Specimens examined: Thailand: Narathiwat, 1997, *Hodel & Vatcharakorn 1608,* BK (Holotype of *P. bowiana* Hodel); Peninsular Malaysia: Terengganu, Kemaman, 1935, *Corner30165* (K, SING), Ulu Setiu, 1977, *J. Dransfield JD5175* (K), G. Padang, 1969, *T.C. Whitmore FRI 12749* (KEP), Sg. Kerbat, 1971, *T.C. Whitmore FRI 20222* (KEP), Kelantan, Bukit Batu

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ERRATA

Gardens' Bulletin Singapore 48 (1996)

Lim, C.K. Unravelling *Iguanura* Bl. (Palmae) in Peninsular Malaysia

Page 62: **Acknowledgements:** Third paragraph, lines 9 & 10:-
"Mr S. Nadarajah" should read "Mr D. Nadarajah"
"Ahmad Ismail" should read " Ismail Ahmad"
"Mohamad Noor Jamalulail" should read "Mohd Nor Jamalulail"

Lim, C.K. Palms in the Farquhar Collection of Natural History Drawings

Page 70: Item 7, line 2: "tunngal" should read "tunggal"
Page 72: Second paragraph, line 21: "Rottl." should read "Rottb"
line 25: "Findlaysonis" should read "Findlayson's"
Page 72: Fourth paragraph, line 11: after "mystery" insert: "had been"
Page 73: Plate 6: The illustration is erroneously that of "Nipah: *Nipa fruiticans*"