
Checklist

A preliminary checklist of the pteridophytes of Sabah**Idris M. SAID**

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ABSTRACT. A total of 804 species (874 taxa) of pteridophytes (ferns and fern allies) have been recorded for Sabah, occurring in 148 genera and 34 families. These were based on literature survey as well as herbarium study, using Parris & Latiff (1997) as baseline information. Specimens for target taxa were also collected and studied. Taxon names are checked for accuracy, based on published materials and reliable identified herbarium materials, and other reliable sources of information. Taxa are arranged in alphabetical order, but circumscription of families and genera is based on Brummitt (1992). An additional 68 species are included and indicated. Three additional families, Marsileaceae, Osmundaceae and Salviniaceae, are included. *Azolla* has so far not been observed in Sabah. An additional genus included is *Acrostichum* (Pteridaceae). Future studies will be pursued on the pteridophytes of Sabah with the main objective of preparing a floristic account.

INTRODUCTION

On record, scientific collections and documentation of the pteridophytes of Sabah began towards the end of the 19th century, as evident from the publication by Stapf (1894) who provided an account of the flora of Mount Kinabalu, including the pteridophytes. This was

followed by Gibbs (1914) who studied the flora of Mount Kinabalu and the surrounding accessible highlands of British North Borneo. Christensen & Holttum (1934) studied the ferns of Mount Kinabalu. Holttum (1978, 1996) contributed further on the documentation of the pteridophytes of Mount Kinabalu. Studies on Bornean pteridophytes including those of Sabah were undertaken by Iwatsuki (1965a, 1965b), Tagawa (1965, 1967, 1972, 1974, 1975), and Tagawa & Iwatsuki (1966). The teams from Universiti Kebangsaan Malaysia (Sabah Campus) produced some noteworthy papers on the pteridophytes of Sabah, e.g. Bidin *et al.* (1988), Bidin & Jaman (1989, 1995) and Jaman & Latiff (1995). Other records include those of Price (1987), Piggot (1988), Parris *et al.* (1992), Parris (1997a, 1997b, 1997c, 1997d) and Parris & Latiff (1997), the latter became the basis of the current checklist. The teams from Universiti Malaysia Sabah recorded some pteridophyte taxa during several scientific expeditions in 1990s and early in this decade, i.e. Sukup (1998), Suzuki & Magintan (1999), Rimi *et al.* (2002), Gisil *et al.* (2003) and Kjeldsen (2003). Apart from these, researchers at the Forestry Research Centre in Sandakan had also published several papers on pteridophytes in *Sandakanian*, i.e. Shim (1992, 1993), and also Wong *et al.* (1999). More recently, Maideen *et al.* (2003) published an account on the Malaysian *Marattia* which reported a new record (species) for Sabah – *M. pellucida* C.Presl. In addition, the author has also referred to some other literature

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materials pertaining to the flora of Sabah, e.g. Hazebroek *et al.* (2004).

Technically, the first account on the pteridophytes of Sabah was that of Parris & Latiff (1997). It is a provisional checklist of the pteridophytes for Malaysia (Peninsular Malaysia, Sabah & Sarawak). Parris & Latiff (1997) included 750 species for Sabah. In this paper, additions to the previous provisional checklist are thus made and indicated (by an asterisk at the end of the taxon name – see checklist below). The current (preliminary) checklist includes three families, namely Marsileaceae (*Marsilea*), Osmundaceae (*Osmunda*) and Salviniaceae (*Salvinia*), which were not included in the previous checklist of Parris & Latiff (1997).

METHODS

This preliminary checklist was prepared through the following steps:-

1. Constructing a working list using two quite recent works, namely Parris *et al.* (1992) and Parris & Latiff (1997).
2. Literature survey for other sources of information which are divided into the pre-1997 period using Parris & Latiff (1997) as the dividing line, and the "1997 & post-1997" period, noting the fact that B.S. Parris has published several papers in *Sandakania* in 1997.
3. Checking for name changes for the taxa involved based on published literature or other reliable information sources, including Internet sources, particularly www.ipni.org.
4. Herbarium study, chiefly at the Sandakan Herbarium (SAN). Materials at the Kinabalu Park Herbarium were also examined (noting that these have been well studied by other botanists).

5. Specimen collections for target taxa, with more emphasis on those which will be added to the preliminary checklist (e.g. *Marsilea*, *Osmunda* etc.) – i.e. those taxa not included in the provisional checklist of Parris & Latiff (1997)
6. Preparation of the final list of taxa based on the above.

The arrangement of taxa in this checklist is alphabetical, i.e. at family, genus and species levels. However, the circumscription of the families and genera follows the scheme adopted by Parris & Latiff (1997), which is essentially based on Brummitt (1992). The scheme starts with the fern allies, which are arranged alphabetically, and followed by ferns which are also arranged alphabetically. The genus *Acrostichum*, which is included in this checklist, it is placed under Pteridaceae instead of Adiantaceae. The family Cyatheaceae follows Parris & Latiff (1997) scheme, and the genus *Cyathea* is hereby used. Tryon (1970) had divided *Cyathea* into other genera, and on some of the specimen labels at the Kinabalu Park Herbarium, two generic names appear for *Cyathea*, namely *Alsophila* and *Sphaeropteris*. These changes have not been adopted in the current checklist.

During the course of preparing the checklist, it was realized that quite a number of taxon names posed some difficulties, especially so for the earlier literature. Several names of taxa are excluded at this stage, but these will be considered in any future updated checklist or pteridophyte flora. This checklist relies mainly on the updated taxon names appearing in Parris *et al.* (1992) and Parris & Latiff (1997), but the author has also relied on other literature materials including Holttum (1954, 1959a, 1959b, 1963, 1978, 1981), Kramer (1971), and Hovenkamp (1998a, 1998b). The International Plant Name Index website (www.ipni.org) was also consulted.

THE SABAH PTERIDOPHYTE FLORA

Table 1 summarizes the number of pteridophyte taxa recorded in the present list.

The current checklist lists 34 families of Sabah pteridophytes (Table 1). These contain 148 genera and 804 species (874 taxa). Three families, namely Marsileaceae, Osmundaceae and Salviniaceae, are additions to the provisional checklist of Parris & Latiff (1997), i.e. referring only to those taxa occurring in Sabah. Interestingly, *Marsilea* cf. *crenata* C. Presl was recently rediscovered from the very same locality described by Gibbs (1914), i.e. at Kg Mengkabong, near Tuaran. Specimens of *Osmunda* were also collected from Sabah, one species positively identified as *O. vachelli* Hook., while the other, *O. javanica* Blume, was tentatively identified (R. Jaman & G. Gunsalam, pers. comm.). *Salvinia molesta* D.S. Mitchel was collected from one locality in the Kota Kinabalu area, and it is believed to be more widespread in Sabah.

The genus *Acrostichum* is hereby included, with two species, *Acrostichum aureum* L. and *A. speciosum* Willd.. Pigot (1988) stated that the aquatic ferns *Azolla*, *Salvinia*, *Marsilea* and *Ceratopteris* were widespread in rice fields in Malaysia before the introduction of modern agricultural practice. It has been observed that only *Ceratopteris* is widespread in rice fields all over Sabah, but not *Salvinia* and *Marsilea*. On the other hand, *Azolla* has so far not been observed in the rice field areas in Sabah, but its occurrence in Sabah is highly likely. From this observation, it may appear that *Azolla* may have been severely affected by modern agricultural practice.

Polypodiaceae is the largest family in terms of species, with 82 species. Other large families of Sabah pteridophytes include Grammitidaceae (80 species), Dryopteridaceae (71 species), Thelypteridaceae (68 species), Hymenophyllaceae (61 species) and Woodsiaceae (50 species). In terms of genera, Polypodiaceae has the highest

number of genera (19), and this is followed by Dryopteridaceae (16), Hymenophyllaceae (16) and Thelypteridaceae (14). Thus, Polypodiaceae is by far the largest family of Sabah pteridophytes in terms of both genera and species.

Table 1. Size of Pteridophyte Taxa in Sabah in this Checklist

	FAMILY	NO. OF GENERA	NO. OF SPECIES
A	FERN ALLIES		
1	EQUISETACEAE	1	1
2	LYCOPODIACEAE	3	19
3	PSILOTAECAE	1	2
4	SELAGINELLACEAE	1	42
B	FERNS		
5	ADIANTACEAE	7	22
6	ASPENIACEAE	1	42
7	BLECHNACEAE	2	14
8	CHEIROPLEURACEAE	1	1
9	CYATHEACEAE	1	27
10	DAVALLIACEAE	6	20
11	DENNSTAEDTIACEAE	10	50
12	DICKSONIACEAE	4	5
13	DIPTERIDACEAE	1	3
14	DRYOPTERIDACEAE	16	71
15	GLEICHENIACEAE	4	17
16	GRAMMITIDACEAE	7	80
17	HYMENOPHYLLACEAE	16	61
18	LOMAROPSIDACEAE	6	22
19	MARATTIACEAE	3	10
20	MARSILEACEAE #	1	1
21	MATONIACEAE	1	1
22	NEPHROLEPIDACEAE	1	9
23	OLEANDRACEAE	2	6
24	OPHIOGLOSSACEAE	3	6
25	OSMUNDACEAE #	1	2
26	PARKERIACEAE	1	1
27	PLAGIOGYRACEAE	1	4
28	POLYPODIACEAE	19	82
29	PTERIDACEAE	2	26
30	SALVINIACEAE #	1	1
31	SCHIZAEACEAE	2	11
32	THELYPTERIDACEAE	14	68
33	VITTARIACEAE	4	27
34	WOODSIACEAE	6	50
	TOTAL	148	804

Families not previously reported from Sabah by Parris & Latiff (1997)

In terms of species, there are 68 species (marked * in the current checklist) which are additions to the provisional checklist of Parris & Latiff (1997). Based on 750 species previously reported for Sabah by Parris & Latiff (1997),

the present checklist has shown a sizeable increase in taxa in terms of species, i.e. from 750 to 804 (an increase of 54 species). However, the present checklist has recorded an addition of 68 species instead of 54. This can be explained from the fact that Parris & Latiff (1997) included some species which were reported from "Borneo", but in this checklist only those species occurring in Sabah are included. In addition, this can also be the result of nomenclatural changes.

FUTURE OF THE PTERIDOPHYTE STUDY IN SABAH

For vascular plants of Sabah, the pteridophytes are not as well collected and studied compared to the angiosperms (flowering plants). However, there has been a steady progress in the documentation of Sabah pteridophytes for some time until the present. More is known of the pteridophytes of Mount Kinabalu since the area has been well collected and studied by several botanists/pteridologists since the end of the 19th century, and onwards. Outside Mount Kinabalu, or the Kinabalu Park area, documentation of pteridophytes is not as active. Sabah Parks has established excellent living collections of pteridophytes at both Kinabalu Park and Crocker Range Park. Apart from these, the Forestry Research Centre at Sandakan is also establishing an *ex-situ* area for various plant groups including the pteridophytes.

At the Institute for Tropical Biology and Conservation (ITBC), Universiti Malaysia Sabah, a new interest on the pteridophytes is only just beginning. For the plant collections, ITBC is currently focusing mainly on the lower plants as part of its Borneensis collections. For this, ITBC has established a herbarium now known as Borneensis Herbarium (BORH), which caters mainly for the lower plants. Apart from the lower plants, the only other plant group (not taxonomic group) that ITBC is currently focusing on is the medicinal plants.

As for the pteridophytes, there is already a small herbarium collection at BORH at the moment. To build the pteridophyte herbarium collections, a few research projects on pteridophytes are now being proposed in order to activate pteridophyte research at ITBC.

In the future, it looks more likely that research on the pteridophytes of Sabah will be stepped up at ITBC. In doing so, ITBC would attempt the following tasks:-

- To check the status of those species names not currently included in the checklist, especially those names appearing in the earlier literature, as well as those names appearing on some herbarium specimens which need to be verified
- To work closely with pteridophyte experts of various herbaria worldwide
To continue studying herbarium specimens at the various herbaria, including (i.e. regional) Sandakan Herbarium (SAN), the Sabah Parks Herbarium at Kinabalu Park, the UMS Herbarium (BORH), Herbarium of the Forest Research Institute at Kepong (FRI), UKM Herbarium at Bangi (UKMB), and if possible also (outside the region), other major herbaria e.g. Kew, Leiden and others
- To incorporate the name changes of taxa based on up-to-date information

To achieve the above tasks, ITBC would need to organize a team of able researchers (both local and foreign), as well as providing the necessary research facilities. These seem to be rather challenging tasks, but at the moment it is foreseen that pteridophyte research will make a head start sometime in late 2004.

RECOMMENDATIONS

Based on the above, it is thus recommended that actual specimen collections be made in various

parts of Sabah in the near future in order to make available more study materials for a future pteridophyte flora project. At the same time, what is immediately needed is a proper pteridophyte checklist for Sabah. It is also recommended that a pteridophyte database should be established to store all relevant information pertaining to the pteridophytes of Sabah, including field notes and digital photographs of specimens. A statewide project specific for pteridophyte study should be proposed as an important research project at the Institute for Tropical Biology and Conservation of Universiti Malaysia Sabah. Herbarium collections on the pteridophytes should also be well established at BORH which would serve as an important reference centre for pteridophytes in Borneo. Last but not least, it is recommended that ITBC should pursue its efforts to establish a fern garden (fernarium) or pteridophyte garden within or near the Institute for educational and research purposes.

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THE CHECKLIST

[Note: numbers in square brackets correspond to the (numbered) references;
new additions to the previous checklist are marked by *]

A. FERNALLIES

1. EUISETACEAE

1.1 *Equisetum*

- 1.1.1 *Equisetum ramosissimum* Desf. subsp.
debile (Roxb.) Hauke [28,29],
syn. *E. debile* Roxb. [8]

2. LYCOPODIACEAE

2.1 *Huperzia*

- 2.1.1 *Huperzia australiana* (Herter) Holub
[28,29]
2.1.2 *Huperzia carinata* (Desv. Ex Poir. Trevis
[29]
2.1.3 *Huperzia hippuris* (Desv. Ex Poir.) Trevis
* - as syn. *Lycopodium*
hippuris Desv., see [8]
2.1.4 *Huperzia horizontalis* (Herter ex Nessel)
Holub [27,29]
2.1.5 *Huperzia laxa* (C. Presl) Travis * - J.B.
Sugau SIP-B100 (SAN)
2.1.6 *Huperzia nummulariifolia* (Blume)
T.C. Chambers, Jermy & Crabbe
[5,10,24,29]
2.1.7 *Huperzia phlegmaria* (L.) Rothm.
[5,21,24,27,28,29], syn.
Lycopodium phlegmaria L. [4]
2.1.8 *Huperzia phyllantha* (Hook. & Arnold)
Holub [28,29]
2.1.9 *Huperzia pinifolia* Trevis [29]
2.1.10 *Huperzia serrata* (Thunb. ex Murray)
Trevis [21,27,29], syn.
Lycopodium serratum Thunb. [36]
2.1.11 *Huperzia squarrosa* (G. Forst.) Trevis
[21,24,29], syn. *Lycopodium*
squarrosum Forst. [4]
2.1.12 *Huperzia verticillata* (L.f.) Trevis [29]

2.2 *Lycopodiella*

- 2.2.1 *Lycopodiella cernua* (L.) Pic.Serm.
[5,21,24,27,28,29], syn.
Lycopodium cernuum L. [4,37]

2.3 *Lycopodium*

- 2.3.1 *Lycopodium casuarinoides* Spring
[8,27,28,29,36]
2.3.2 *Lycopodium clavatum* L. [27,28,29,36]
2.3.3 *Lycopodium platyrrhizoma* Wilce [28,29]
2.3.4 *Lycopodium scariosum* G. Forst. [8,28,29]
2.3.5 *Lycopodium volubile* G. Forst. [8,28,29,36]
2.3.6 *Lycopodium wightianum* Wall. ex Grev.
[28,29,36]

3. PSILOTACEAE

3.1 *Psilotum*

- 3.1.1 *Psilotum complanatum* Sw. [29]
3.1.2 *Psilotum nudum* (L.) P.Beauv. [28,29]

4. SELAGINELLACEAE

4.1 *Selaginella*

- 4.1.1 *Selaginella ascendens* Alderw. [29]
4.1.2 *Selaginella biformis* A. Braun ex Kuhn
[28,29]
4.1.3 *Selaginella bluuensis* Alderw. [28,29]
4.1.4 *Selaginella boschai* Hieron. [10,24,27,28,29]
4.1.5 *Selaginella brachyblepharis* Alderw.
[25,29]
4.1.6 *Selaginella brevipes* A. Braun
[24,27,28,29]
4.1.7 *Selaginella brooksii* Hieron. [27,29]
4.1.8 *Selaginella calcicola* Hieron. [29]
4.1.9 *Selaginella caulescens* (Wall. Ex Hook. &
Grev.) Spring * [36], Dewol *et al.*
No.San 74969 det. Leiden Oct. 1975;
also mentioned in [10]
4.1.10 *Selaginella cesatii* Hieron. [29]
4.1.11 *Selaginella ciliaris* (Retz) Spring [29]
4.1.12 *Selaginella conferta* T. Moore [10,28,29]
4.1.13 *Selaginella cupressina* (Willd) Spring
[10,24,29]
4.1.14 *Selaginella delicatula* (Desv.) Alston
[24,28,29]
4.1.15 *Selaginella dielsii* Hieron [28,29]
4.1.16 *Selaginella furcillifolia* Hieron. [28,29]
4.1.17 *Selaginella hewittii* Hieron. [28,29]
4.1.18 *Selaginella ingens* Alston [27,28,29]
4.1.19 *Selaginella intermedia* (Blume) Spring var.
intermedia [28,27,29], without var.
[4,10]
4.1.20 *Selaginella involvens* (Sw.) Spring
[24,28,29]
4.1.21 *Selaginella lobbii* Veitch [27,29]
4.1.22 *Selaginella longiaristata* Hieron. [27,29]
4.1.23 *Selaginella longirostris* Alderw. [25,29]
4.1.24 *Selaginella maxima* Alderw. [29]
4.1.25 *Selaginella monospora* Spring [29]
4.1.26 *Selaginella ornata* (Hook. & Grev.) Spring
[10,27,28,29]
4.1.27 *Selaginella padangensis* Hieron.* - Kadir
A2026 (SAN); Kadir A2597 (SAN)
- for further verification
4.1.28 *Selaginella paxii* Hieron. [28,29]
4.1.29 *Selaginella plana* (Desv.) Hieron.* - G Shea
No. San 74646 (SAN) det. Leiden
Oct. 1975
4.1.30 *Selaginella rugulosa* Ces. [27,28,29]
4.1.31 *Selaginella subcalcarata* Alderw.
* - Edwards 2025 (SAN)
4.1.32 *Selaginella tamariscina* (Beauv.) Spring *
[45]

- 4.1.33 *Selaginella wallichii* (Hook. & Grev.) Spring [8,29]
- 4.1.34 *Selaginella willdenovii* (Desv.) Baker * [5,8,21,36], note: several specimens at SAN have been identified as *S. willdenovii* (name often misspelt as *S. willdenowii*)
- 4.1.35 *Selaginella* sp.1 aff. *alutacea* [24,29]
- 4.1.36 *Selaginella* sp.2 aff. *involuta* [24,29]
- 4.1.37 *Selaginella* sp.4 aff. *lobbii* [27,29]
- 4.1.38 *Selaginella* sp.5 aff. *paxii* [29]
- 4.1.39 *Selaginella* sp.8 [29]
- 4.1.40 *Selaginella* sp.9 [29]
- 4.1.41 *Selaginella* sp. * Edwards 2027 [24]
- 4.1.42 *Selaginella* sp. * Edwards 2084 [24]

B. FERNS

5. ADIANTACEAE

- 5.1 *Adiantum*
 - 5.1.1 *Adiantum caudatum* L. [29]
 - 5.1.2 *Adiantum diaphanum* Blume [28,29]
 - 5.1.3 *Adiantum hosei* Baker [28,29]
 - 5.1.4 *Adiantum lamrianum* Bidin & Jaman [3,29]
 - 5.1.5 *Adiantum malesianum* Ghatak [29]
 - 5.1.6 *Adiantum opacum* Copel. [28,29]
 - 5.1.7 *Adiantum stenochlamys* Baker [29]
- 5.2 *Cheilanthes*
 - 5.2.1 *Cheilanthes tenuifolia* (N.L.Burm.) Sw. [8,28,29]
 - 5.2.2 *Cheilanthes nudiuscula* (R.Br.) T. Moore * [45]
- 5.3 *Coniogramme*
 - 5.3.1 *Coniogramme fraxinea* (D. Don) Diels [28,29]
 - 5.3.2 *Coniogramme macrophylla* (Blume) Hieron [21,28,29]
- 5.4 *Monachosorum*
 - 5.4.1 *Monachosorum subdigitatum* (Blume) Kuhn [8,28,29]
- 5.5 *Pityrogramma*
 - 5.5.1 *Pityrogramma calomelanos* (L.) Link. [4,5,10,21,24,28,29]
- 5.6 *Syngamma*
 - 5.6.1 *Syngamma alismifolia* (C. Presl) J.Sm. [5,10,21,24,28,29]
 - 5.6.2 *Syngamma borneense* (Hook.) J. Smith * [21]
 - 5.6.3 *Syngamma cartilaginea* (Baker) Diels * - Meijer SAN 53481 (SAN)
 - 5.6.4 *Syngamma coriacea* (Copel.) Holttum [24,29]
 - 5.6.5 *Syngamma wallichii* (Hook.) Bedd. * [37]

5.7 Taenitis

- 5.7.1 *Taenitis blechnoides* (Willd.) Sw. [4,5,8,9,10,24,27,28,29,37]
- 5.7.2 *Taenitis cordata* (Gaudich.) Holttum [29]
- 5.7.3 *Taenitis flabellivenia* (Baker) Holttum [29]
- 5.7.4 *Taenitis hookeri* (C. Chr.) Holttum [28,29]

6. ASPLENIACEAE

6.1 Asplenium

- 6.1.1 *Asplenium affine* Sw. [4,21,28,29]
- 6.1.2 *Asplenium allenae* Parris [28,29]
- 6.1.3 *Asplenium amboinense* Willd. [28,29]
- 6.1.4 *Asplenium anisodontum* Presl * - A Kanis SAN no. 49313 (SAN) - det. Leiden, Sept. 2003
- 6.1.5 *Asplenium batuense* Alderw. [9,28,29]
- 6.1.6 *Asplenium borneense* Hook. [24,28,29]
- 6.1.7 *Asplenium caudatum* G. Forst. [21,28,29]
- 6.1.8 *Asplenium cheilosorum* Kunze [21,28,29]
- 6.1.9 *Asplenium cymbifolium* H. Christ. forma *cymbifolium* [29], without forma [27,28]
- 6.1.10 *Asplenium dichotomum* Hook. [8,28,29,36]
- 6.1.11 *Asplenium elmeri* H. Christ. [28,29]
- 6.1.12 *Asplenium filipes* Copel. [28,29]
- 6.1.13 *Asplenium horizontale* Baker [28,29]
- 6.1.14 *Asplenium kinabaluense* Holttum [28,29]
- 6.1.15 *Asplenium klossii* C. Chr. [24,28,29]
- 6.1.16 *Asplenium lobangense* C. Chr. [28,29,36]
- 6.1.17 *Asplenium lobulatum* Mett. Ex Kuhn [27,28,29]
- 6.1.18 *Asplenium macrophyllum* Sw. [24,28,29]
- 6.1.19 *Asplenium malayo-alpinum* Holttum * - W. Meijer SAN 28572 (SAN). Det. R.E. Holttum November 1973.
- 6.1.20 *Asplenium musifolium* Mett. [28,29]
- 6.1.21 *Asplenium nidus* L. {without var. [2,5,18,27,37]}
 - a. var. *nidus* [24,28,29]
 - b. var. *curtisorum* [28,29]
- 6.1.22 *Asplenium nigrescens* Blume [27,28,29]
- 6.1.23 *Asplenium nitidum* Sw. [5,24,29]
- 6.1.24 *Asplenium normale* D. Don var. *normale* [5,27,28,29]
- 6.1.25 *Asplenium pachychlamys* C. Chr. [27,28,29]
- 6.1.26 *Asplenium paradoxum* Blume [24,28,29]
- 6.1.27 *Asplenium pellucidum* Lam. subsp. *pellucidum* [5,24,27,29], without var. [28]
- 6.1.28 *Asplenium persicifolium* J. Sm. Ex Mett. [28,29]
- 6.1.29 *Asplenium phyllitidis* D. Don subsp. *malesicum* [4,5,21,24,27,28,29]
- 6.1.30 *Asplenium polyodon* G. Forst. var. *polyodon* [29], without var. [28]
- 6.1.31 *Asplenium salignum* Blume [5,22,24,29]
- 6.1.32 *Asplenium scandens* J. Sm. ex Mett. [24,29]
- 6.1.33 *Asplenium scolopendroides* J. Sm. ex Mett. [28,29]

- 6.1.34 *Asplenium setisectum* Blume [28,29]
 6.1.35 *Asplenium subnormale* Copel. [4,28,29]
 6.1.36 *Asplenium tenerum* G. Forst. var. *tenerum* [5,21,27,29], without var. [28,37]
 6.1.37 *Asplenium thunbergii* Kunze [24,27,28,29], syn. *Asplenium decorum* Kze
 6.1.38 *Asplenium trifoliatum* Copel. [28,29]
 6.1.39 *Asplenium unilaterale* Lam. var. *unilaterale* [24,29], without var. [28]
 6.1.40 *Asplenium vitaforme* Cav. [5,21,24,29], syn. *A. squamulatum* Bl. [4]
 6.1.41 *Asplenium vulcanicum* Blume [28,29], including *A. salignum* Blume
 6.1.42 *Asplenium yoshinagae* Makino var. *planicaule* [28,29]
7. BLECHNACEAE
- 7.1 *Blechnum*
 7.1.1 *Blechnum borneense* C. Chr. [28,29]
 7.1.2 *Blechnum egregium* Copel. [28,29]
 7.1.3 *Blechnum finlaysonianum* Hook. & Grev. [4,27,28,29]
 7.1.4 *Blechnum fluviatile* (R. Br.) Lowe ex Salomon [18,28,29]
 7.1.5 *Blechnum fraseri* (A. Cunn.) Luer., incl. var. *philippense* H. Chr. [28,29]; without var. [18]
 7.1.6 *Blechnum indicum* Burm.f. [29]
 7.1.7 *Blechnum orientale* L. [4,5,8,10,21,24,27,28,29]
 7.1.8 *Blechnum pallescens* T.C. Chambers [28,29]
 7.1.9 *Blechnum patersonii* (R. Br.) Mett. [28,29]
 7.1.10 *Blechnum vestitum* (Blume) Kuhn (syn. *Blechnum capense* Schlecht. in [8]), without var. [18,28] var. *vestitum* [27,29]
 7.1.11 *Blechnum vulcanicum* (Blume) Kuhn [28,29]
 7.1.12 *Blechnum* sp.1 [28,29]
 7.1.13 *Blechnum* sp.2 [28,29]
- 7.2 *Stenochlaena*
 7.2.1 *Stenochlaena palustris* (N.L. Burm.) Bedd. [2,5,24,27,28,29]
8. CHEIROPLEURACEAE
- 8.1 *Cheiropleuria*
 8.1.1 *Cheiropleuria bicuspis* (Blume) C. Presl [28 (under Dipteraceae), 8,18, 21,27,29], syn. *Acrostichum bicuspe* Hook. [36]
9. CYATHEACEAE
- 9.1 *Cyathea*
 9.1.1 *Cyathea acanthophora* Holttum [28,29]
 9.1.2 *Cyathea alternans* (Wall. ex Hook.) C. Presl [29]
 9.1.3 *Cyathea borneensis* Holttum [24,29]
 9.1.4 *Cyathea brachyphylla* Holttum [28,29]
 9.1.5 *Cyathea capitata* Copel. [28,29]
 9.1.6 *Cyathea contaminans* (Wall. ex Hook.) Copel. [10,18,21,27,28,29]
 9.1.7 *Cyathea discophora* Holttum [28,29]
 9.1.8 *Cyathea glabra* (Blume) Copel. [28,29]
 9.1.9 *Cyathea havilandii* Baker [18,28,29,36]
 9.1.10 *Cyathea hymenodes* Mett. [27,29]; n.v. Tagawa (1974) [29]
 9.1.11 *Cyathea incisoserrata* Copel. [29]
 9.1.12 *Cyathea latebrosa* (Wall. ex Hook.) Copel. [10,21,28,29,37]
 9.1.13 *Cyathea loheri* H. Christ. [28,29]
 9.1.14 *Cyathea longipes* Copel. [10,28,29]
 9.1.15 *Cyathea megalosora* Copel. [28,29]
 9.1.16 *Cyathea moluccana* R.Br. [28,29,33]
 9.1.17 *Cyathea obscura* (Scort.) Bedd. * - Sinclair et al. 9234 (SAN, from SING), name as on specimen label - for further verification.
 9.1.18 *Cyathea oosora* Holttum [28,29]
 9.1.19 *Cyathea polypoda* Baker [28,29,36]
 9.1.20 *Cyathea ramispina* (Hook.) Copel. [10,27,28,29]
 9.1.21 *Cyathea recommutata* Copel. [10,28,29,37]
 9.1.22 *Cyathea squamulata* (Blume) Copel. [28,29]
 9.1.23 *Cyathea stipitipinnula* Holttum [28,29]
 9.1.24 *Cyathea trichodesma* (Scort.) Copel. [28,29]
 9.1.25 *Cyathea trichophora* Copel. [28,29]
 9.1.26 *Cyathea tripinnata* Copel. [18,28,29]
 9.1.27 *Cyathea wallacei* (Mett. ex Kuhn) Copel. [28,29]
10. DAVALLIACEAE
- 10.1 *Araiostegia*
 10.1.1 *Araiostegia hymenophylloides* (Blume) Copel. [21,27,28,29]
- 10.2 *Davallia*
 10.2.1 *Davallia denticulata* (Burm.f.) Mett. [10,28,29]
 10.2.2 *Davallia dimorpha* Holtt. * [4]
 10.2.3 *Davallia divaricata* Blume [4,5,24,29]
 10.2.4 *Davallia embolostegia* Copel. [27,28,29]
 10.2.5 *Davallia lobbiana* T. Moore [24,28,29]
 10.2.6 *Davallia solida* (G. Forst.) Sw. [8,10,24,28,29]
 10.2.7 *Davallia trichomanoides* Blume var. *lorrainei* (Hance) Holttum [28 (as *D. lorrainei* Hance), 29], without var. [21]
- 10.3 *Davallodes*
 10.3.1 *Davallodes borneense* (Hook.) Copel. [5,18,24,28,29]
 10.3.2 *Davallodes burbridgei* C. Chr. [18,21,28,29]

- 10.4 *Humata*
- 10.4.1 *Humata angustata* (Wall. ex Hook. & Grev.) J. Sm. [29]
- 10.4.2 *Humata heterophylla* (Sm.) Desv. [8,10,28,29]
- 10.4.3 *Humata parvula* (Wall. ex Hook. & Grev.) Mett. [29]
- 10.4.4 *Humata pectinata* (Sm.) Desv. [24,29]
- 10.4.5 *Humata pusilloides* Copel. [29]
- 10.4.6 *Humata repens* (L.f.) Diels [5,10,24,28,29,37]
- 10.4.7 *Humata subvestita* (C. Chr.) Parris [18,27,28,29]
- 10.4.8 *Humata vestita* (Blume) T. Moore [28,29]
- 10.5 *Leucostegia*
- 10.5.1 *Leucostegia immersa* (Wall. ex Hook.) C. Presl [28,29]
- 10.6 *Scyphularia*
- 10.6.1 *Scyphularia simplicifolia* Copel. [24,28,29]
11. DENNSTAEDTIACEAE
- 11.1 *Dennstaedtia*
- 11.1.1 *Dennstaedtia ampla* (Baker) Bedd. [28,29]
- 11.1.2 *Dennstaedtia cuneata* (J. Sm.) T. Moore [28,29]
- 11.1.3 *Dennstaedtia rufidula* C. Chr. [28,29]
- 11.1.4 *Dennstaedtia scabra* (Wall. ex Hook.) T. Moore var. *tenuista* C. Chr. [27,28,29]
- 11.1.5 *Dennstaedtia terminalis* Alderw. [28,29]
- 11.2 *Histiopteris*
- 11.2.1 *Histiopteris incisa* (Thunb.) J. Sm. [10,24,27,28,29]
- 11.2.2 *Histiopteris stipulacea* (Hook.) Copel. [18,27,28,29]
- 11.3 *Hypolepis*
- 11.3.1 *Hypolepis alpina* (Blume) Hook. [28,29]
- 11.3.2 *Hypolepis bamleriana* Rosenst. [28,29]
- 11.3.3 *Hypolepis brooksiae* Alderw. [18,27,28,29]
- 11.3.4 *Hypolepis glandulifera* Brownsey & Chinnock [28,29]
- 11.3.5 *Hypolepis pallida* (Blume) Hook. [28,29]
- 11.3.6 *Hypolepis tenuifolia* * non (G.Forst.) Berhn., perhaps *H. bamleriana* Rosenst. [24]
- 11.4 *Lindsaea*
- 11.4.1 *Lindsaea borneensis* Hook. ex Baker [10,27,28,29]
- 11.4.2 *Lindsaea bouillodii* H. Christ. [10,28,29]
- 11.4.3 *Lindsaea carvifolia* K.U. Kramer [28,29]
- 11.4.4 *Lindsaea crispa* Baker [27,28,29]
- 11.4.5 *Lindsaea cultrata* (Willd.) Sw. [21,27,28,29], syn. *L. decomposita* Willd. [8]
- 11.4.6 *Lindsaea divergens* Hk. & Grev. * - G.H.S. Wood no.2010 Mt Silam dated 23/3/55 (SAN), syn. *Isoloma divergens* (Hk.&Grev.) J.Sm., det. Kew
- 11.4.7 *Lindsaea ensifolia* Sw. subsp. *ensifolia* [27,29] subsp. *agatii* (Brack.) K.U.Kramer [29 - ?Sabah]
- 11.4.8 *Lindsaea gomophylla* Baker [28,29]
- 11.4.9 *Lindsaea gueriniana* (Gaudich.) Desv. [28,29]
- 11.4.10 *Lindsaea heterophylla* Dryand. [29], syn. *Schizoloma heterophyllum* J.Sm. [8]
- 11.4.11 *Lindsaea integra* Holtum [27,28,29]
- 11.4.12 *Lindsaea jamesonioides* Baker [8,28,29,36]
- 11.4.13 *Lindsaea javanensis* Blume [27,29]
- 11.4.14 *Lindsaea lobata* Poir. var. *lobata* [29], without var. [28]
- 11.4.15 *Lindsaea lucida* Blume subsp. *lucida* [28,29]
- 11.4.16 *Lindsaea oblanceolata* Alderw. [10,27,28,29]
- 11.4.17 *Lindsaea obtusa* J. Sm. [24,28,29]
- 11.4.18 *Lindsaea odorata* Roxb. [28,29]
- 11.4.19 *Lindsaea parallelogramma* Alderw. [10,27,28,29]
- 11.4.20 *Lindsaea parasitica* (Roxb. ex Griffith) Hieron [5,28,29]
- 11.4.21 *Lindsaea repens* (Bory) Thwaites, see also [27]
a. var. *pectinata* (Blume) Mett. Ex Kuhn [28,29]; as *L. pectinata* Baker in [8]
b. var. *pseudohemiptera* Alderw. [28,29]
c. var. *sessilis* (Copel.) Kramer [28,29]
d. var. *truncata* Shim [29]
- 11.4.22 *Lindsaea rigida* J. Sm. ex Hook. [28,29]
- 11.5 *Microlepia*
- 11.5.1 *Microlepia hookeriana* (Wall. Ex Hook.) C. Presl [21,27,28,29]
- 11.5.2 *Microlepia manilensis* (Goldm.) C. Chr. [28,29]
- 11.5.3 *Microlepia ridleyi* Copel. [28,29]
- 11.5.4 *Microlepia speluncae* (L.) T. Moore var. *villosissima* C. Chr. [4,27,28,29]
- 11.5.5 *Microlepia strigosa* (Thunb.) C. Presl [28,29]
- 11.6 *Odontosoria* (incl. *Sphenomeris*)
- 11.6.1 *Odontosoria chinensis* (L.) J. Sm. [8,27,28,29]
a) var. *chinensis* [27,28,29]
b) var. *divaricata* [29], based on syn. *Davallia tenuifolia* Sw. cited in [8] for *O. chinensis*, and as *Davallia tenuifolia* Sw. in [36]

- 11.6.2 *Odontosoria retusa* (Cav.) J. Sm.
[24,28,29], syn. *Sphenomeris retusa*
(Cav.) Maxon [34]
- 11.6.3 *Odontosoria veitchii* (Baker) Parris [28,29]
- 11.7 *Paesia*
- 11.7.1 *Paesia radula* (Baker) C. Chr. [28,29]
- 11.8 *Pteridium*
- 11.8.1 *Pteridium esculentum* (G. Forst.) Cockayne
[27,28,29]
- 11.9 *Saccoloma* (incl. *Orthiopteris*)
- 11.9.1 *Saccoloma kingii* (Bedd.) Parris [28,29],
syn. *Orthiopteris kingii* (Bedd.)
Holtum [21]
- 11.10 *Tapeinidium*
- 11.10.1 *Tapeinidium acuminatum* K.U. Kramer
[28,29]
- 11.10.2 *Tapeinidium biserratum* (Blume) Alderw.
[28,29]
- 11.10.3 *Tapeinidium luzonicum* Hook. K.U. Kramer
a. var. *luzonicum* [27,28,29]
b. var. *thelypteroides* K.U. Kramer
[29]
- 11.10.4 *Tapeinidium pinnatum* (Cav.) C. Chr.
[8,10,28,29]
12. DICKSONIACEAE
- 12.1 *Calochlaena* (incl. *Culcita*)
- 12.1.1 *Calochlaena javanica* (Blume) M.D.
Turner & R.A. White [28,29]
- 12.2 *Cibotium*
- 12.2.1 *Cibotium arachnoideum* (C. Chr.) Holtum
[18,21,28,29]
- 12.2.2 *Cibotium barometz* J. Sm. * [8]
- 12.3 *Cystodium*
- 12.3.1 *Cystodium sorbifolium* (Sm.) J. Sm. [28,29]
- 12.4 *Dicksonia*
- 12.4.1 *Dicksonia mollis* Holtum [27,28,29]
13. DIPTERIDACEAE
- 13.1 *Dipteris*
- 13.1.1 *Dipteris conjugata* Reinw. [10,27,28,29]
- 13.1.2 *Dipteris lobbiana* (Hook.) T. Moore var.
lobbiana [5,10,29,33,37]
- 13.1.3 *Dipteris novoguineensis* Posth [28,29]
14. DRYOPTERIDACEAE
- 14.1 *Acrophorus*
- 14.1.1 *Acrophorus nodosus* C. Presl [27,28,29,32]
- 14.2 *Aenigmopteris*
- 14.2.1 *Aenigmopteris elegans* Holtum [28,29]
- 14.3 *Arachniodes*
- 14.3.1 *Arachniodes aristata* (G. Forst.) Tindale
[28,29]
- 14.3.2 *Arachniodes puncticulata* (Alderw.) Ching
[27,28,29]
- 14.3.3 *Arachniodes tripinnata* (Goldm.) Sledge
[27,28,29]
- 14.4 *Ctenitis*
- 14.4.1 *Ctenitis aciculata* (Baker) Ching
[21,24,28,29]
- 14.4.2 *Ctenitis atrorubens* Holtum [28,29]
- 14.4.3 *Ctenitis kinabaluensis* Holtum var.
kinabaluensis [28,29]
- 14.4.4 *Ctenitis minutiloba* Holtum [28,29]
- 14.4.5 *Ctenitis vilis* (Kunze) Ching * [4,5]
- 14.5 *Cyclopeltis*
- 14.5.1 *Cyclopeltis crenata* (Fee) C. Chr. [28,29]
- 14.5.2 *Cyclopeltis presliana* (J.Sm.) Berkerly *
[8, 22]
- 14.5.3 *Cyclopeltis* cf. *mirabilis* Copel. * [21]
- 14.5.4 *Cyclopeltis* sp.1 [29]
- 14.6 *Didymochlaena*
- 14.6.1 *Didymochlaena truncatula* (Sw.) J.S. Sm.
[8,5,21,28,29], as *Didymochlaena*
lunulata Desv. [36]
- 14.7 *Dryopsis*
- 14.7.1 *Dryopsis adnata* (Blume) Holtum &
P.J. Edwards [28,29]
- 14.7.2 *Dryopsis paucisora* (Copel.) Holtum
[28,29]
- 14.8 *Dryopteris*
- 14.8.1 *Dryopteris chaerophyllifolia* (Zippel) C.
Chr. [28,29]
- 14.8.2 *Dryopteris hasseltii* (Blume) C. Chr.
[28,29]
- 14.8.3 *Dryopteris polita* Rosenst. [28,29]
- 14.8.4 *Dryopteris purpurascens* (Blume) H.
Christ. [28,29]
- 14.8.5 *Dryopteris scottii* (Bedd.) Ching ex C.
Chr. [28,29]
- 14.8.6 *Dryopteris sparsa* (D. Don) Kunze [28,29]
- 14.8.7 *Dryopteris subarborea* (Baker) C. Chr.
[28,29]
- 14.8.8 *Dryopteris wallichiana* (A. Spreng.) Hyl.
[28,29]
- 14.9 *Heterogonium*
- 14.9.1 *Heterogonium aspidioides* C. Presl
[9,28,29]
- 14.9.2 *Heterogonium giganteum* (Blume) Holtum
[21,29]
- 14.9.3 *Heterogonium pinnatum* (Copel.) Holtum
[4,29]

- 14.9.4 *Heterogonium profereoides* (H. Christ.) Copel. [29]; as aff. in [21]
- 14.9.5 *Heterogonium sagenioides* (Mett.) Holttum [24,28,29]
- 14.9.6 *Heterogonium stenosemioides* (Baker) C. Chr. [5,24,29]
- 14.10 *Nothoperanema*
- 14.10.1 *Nothoperanema hendersonii* (Bedd.) Ching [28,29]
- 14.10.2 *Nothoperanema* sp.1 [28,29]
- 14.11 *Peranema* (incl. *Diacalpe*)
- 14.11.1 *Peranema aspidioides* (Blume) Mett. [28,29], syn. *Diacalpe aspioides* Bume [8]
- 14.12 *Pleocnemia*
- 14.12.1 *Pleocnemia conjugata* (Blume) C. Presl * [5]
- 14.12.2 *Pleocnemia hemiteliiformis* (Racib.) Holttum [27,28,29]
- 14.12.3 *Pleocnemia irregularis* (C. Presl) Holttum [4,10,24,28,29]
- 14.12.4 *Pleocnemia leuzeana* (Gaud.) C. Presl * [21]
- 14.12.5 *Pleocnemia olivacea* (Copel.) Holttum [4,21,24,28,29]
- 14.12.6 *Pleocnemia pleiotricha* Holttum [29]
- 14.13 *Polystichum*
- 14.13.1 *Polystichum gemniparum* C. Chr. [28,29]
- 14.13.2 *Polystichum holttumii* C. Chr. [28,29]
- 14.13.3 *Polystichum kinabaluense* C. Chr. [28,29]
- 14.13.4 *Polystichum obtusum* J. Sm. ex C. Presl [21,28,29]
- 14.13.5 *Polystichum oppositum* Copel. [28,29]
- 14.14 *Pterydrys*
- 14.14.1 *Pterydrys microthecia* (Fee) C. Chr. & Ching [21,28,29]
- 14.15 *Stenolepia*
- 14.15.1 *Stenolepia tristis* (Blume) Alderw. [28,29]
- 14.16 *Tectaria*
- 14.16.1 *Tectaria angulata* (Willd.) Copel. [4,5,21,27,28,29]
- 14.16.2 *Tectaria aurita* (Sw.) S. Chandra [22,24,29]
- 14.16.3 *Tectaria barberi* (Hook.) Copel. [4,24,29]
- 14.16.4 *Tectaria beccariana* [24,28,29]
- 14.16.5 *Tectaria brooksii* Copel. [29]
- 14.16.6 *Tectaria christii* Copel. [29]
- 14.16.7 *Tectaria coadunata* (J.Sm.) C. Chr. * syn. *Aspidium coadunatum* Wall. [8], basynym. *Sagenia coadunata* J.Sm.
- 14.16.8 *Tectaria crenata* Cav. [28,29]
- 14.16.9 *Tectaria decurrens* (C. Presl) Copel. [21,27,28,29]
- 14.16.10 *Tectaria devexa* (Kunze) Copel. [29]
- a. var. *devexa* [29]
- b. var. *novoguineensis* Holttum [29]
- 14.16.11 *Tectaria dissecta* (G. Forst.) Lellinger [28,29]
- 14.16.12 *Tectaria grandidentata* (Ces.) Holttum [29]
- 14.16.13 *Tectaria griffithii* (Baker) C. Chr. [28,29]
- 14.16.14 *Tectaria hilocarpa* (Fee) M.G. Price [29]
- 14.16.15 *Tectaria holttumii* C. Chr. [28,29]
- 14.16.16 *Tectaria inopinata* Holttum [27,29]
- 14.16.17 *Tectaria nitens* Copel. [28,29]
- 14.16.18 *Tectaria pleiosora* (Alderw.) C. Chr. [24,27,28,29]
- 14.16.19 *Tectaria simonsii* (Bedd.) Ching [29]
- 14.16.20 *Tectaria* cf. *stalatica* M.G. Price * [21]
- 14.17.21 *Tectaria singaporeana* (Wall.) Ching * [5]
- 14.16.22 *Tectaria trichotoma* (Fee) Tagawa [28,29]
- 14.16.23 *Tectaria vasta* (Blume) Copel. [4,21,29]
- 14.16.24 *Tectaria zeilanica* (Houtt.) Sledge [29]
15. GLEICHENIACEAE
- 15.1 *Dicranopteris*
- 15.1.1 *Dicranopteris clemensiae* Holttum [27,28,29]
- 15.1.2 *Dicranopteris curranii* Copel. [24,27,28,29]
- 15.1.3 *Dicranopteris linearis* (Burm.f.) Underw. [also in 4,5,10,24]
- a. var. *demota* Holttum [28,29]
- b. var. *montana* Holttum [27,28,29]
- c. var. *subpectinata* (H. Christ.) Holttum [28,29]
- d. var. *subspeciosa* Holttum * [27]
- 15.2 *Diplopterygium*
- 15.2.1 *Diplopterygium brevippinulum* (Holttum) Parris [28,29]
- 15.2.2 *Diplopterygium bullatum* (T. Moore) Parris [18,28,29]
- 15.2.3 *Diplopterygium longissimum* (Blume) Nakai [27,28,29], syn. *Gleichenia glauca* Hook [8,36]
- 15.2.4 *Diplopterygium norrisii* (Mett.) Nakai [28,29], syn. *Gleichenia norrisii* Mett. [8]
- 15.3.5 *Diplopterygium volubile* Nakai * syn. *Gleichenia arachnoids* Mett. [8], see also [12] under *Gleichenia volubilis* Jungh.
- 15.3 *Gleichenia*
- 15.3.1 *Gleichenia dicarpa* R. Br. var. *dicarpa* [27,29], without var. [18,28]
- 15.3.2 *Gleichenia microphylla* R. Br. {including var. *semivestita* (Labill.) Alderw.} [28,29]
- 15.3.3 *Gleichenia peltophora* Copel. var. *peltophora* [8,28,29], syn. *Gleichenia circinnata* Sw. var. *borneensis* Baker [8]

- 15.3.4 *Gleichenia vulcanica* Blume [8,28,29]
- 15.4 *Sticherus*
- 15.4.1 *Sticherus hirtus* (Blume) Ching var. *paleaceus* (Baker) [27,28,29], syn. *Gleichenia vestita* Blume [8]
- 15.4.2 *Sticherus impressus* (Parris) Parris [28,29]
- 15.4.3 *Sticherus loheri* (Christ) Copel. var. *major* (Holttum) Parris [28,29]
- 15.4.4 *Sticherus truncatus* (Willd.) Nakai var. *truncatus* [24,27,28,29], without var. [4,5], as *Gleichenia truncata* (Willd.) Spr. var. *truncata* [21], syn. *Gleichenia laevigata* (Willd.) Hook. [8]
- 15.4.5 *Sticherus vestitus* Ching * - based on syn. *Gleichenia vestita* Bl. [8]
16. GRAMMITIDACEAE
- 16.1 *Acrosorus*
- 16.1.1 *Acrosorus friderici-et-pauli* (Christ) Copel. [27,28,29]
- 16.1.2 *Acrosorus streptophyllus* (Baker) Copel. [28,29]
- 16.2 *Calymmodon*
- 16.2.1 *Calymmodon clavifer* (Hook.) T. Moore [28,29], syn. *Polypodium clavifer* Hook. [8,36]
- 16.2.2 *Calymmodon cucullatus* (Nees & Blume) C. Presl [27,28,29], syn. *Polypodium cucullatum* Nees et Blume [8,36]
- 16.2.3 *Calymmodon gracilis* (Fee) Copel. [27,28,29]
- 16.2.4 *Calymmodon hygroscopicus* Copel. [27,28,29]
- 16.2.5 *Calymmodon muscoides* Copel. [28,29]
- 16.2.6 *Calymmodon* sp.1 [28,29]
- 16.2.7 *Calymmodon* sp.2 [28,29]
- 16.2.8 *Calymmodon* sp.3 [28,29]
- 16.2.9 *Calymmodon* sp.4 [28,29]
- 16.2.10 *Calymmodon* sp.5 [28,29]
- 16.2.11 *Calymmodon* sp.6 [28,29]
- 16.2.12 *Calymmodon* sp.7 [28,29]
- 16.3 *Ctenopteris*
- 16.3.1 *Ctenopteris blechnoides* (Grev.) W.H. Wagner [28,29]
- 16.3.2 *Ctenopteris brevivenosa* (Alderw.) Holttum [27,28,29]
- 16.3.3 *Ctenopteris curtisii* (Baker) Copel. [27,28,29]
- 16.3.4 *Ctenopteris denticulata* (Blume) C. Chr. [28,29]
- 16.3.5 *Ctenopteris fuscata* (Blume) Kunze [28,29]
- 16.3.6 *Ctenopteris glandulosa* J.Sm. [[29], syn. *C. papillata* [28]
- 16.3.7 *Ctenopteris halconensis* (Copel.) Copel. [28,29]
- 16.3.8 *Ctenopteris khasyana* (Hook.) Holttum * [21]
- 16.3.9 *Ctenopteris millefolia* (Blume) Copel. [28,29]
- 16.3.10 *Ctenopteris minuta* (Blume) Holttum [28,29]
- 16.3.11 *Ctenopteris mollicoma* (Nees & Blume) Kunze [28,29], syn. *Polypodium malaccanum* Baker [8] - see Holttum (1954), syn. *C. fuscata* sensu Tagawa 1972 quoad Hotta 14699 [29], syn. *Polypodium fuscatum* Blume [8]
- 16.3.12 *Ctenopteris nutans* (Blume) J. Sm. [29]
- 16.3.13 *Ctenopteris repandula* (Mett.) C. Chr. & Tardieu [29]
- 16.3.14 *Ctenopteris subminuta* (Alderw.) Holttum [28,29]
- 16.3.15 *Ctenopteris subsecundodissecta* (Zoll.) Copel. [28,29]
- 16.3.16 *Ctenopteris taxodioides* (Baker) Copel. [28,29], syn. *Polypodium taxodioides* Baker [36]
- 16.3.17 *Ctenopteris* sp.1 [28,29]
- 16.3.18 *Ctenopteris* sp.2 aff. *nutans* [29]
- 16.4 *Grammitis*
- 16.4.1 *Grammitis bongoensis* (Copel.) Copel. [28,29]
- 16.4.2 *Grammitis caespitosa* Blume [28,29]
- 16.4.3 *Grammitis clemensiae* Blume [28,29]
- 16.4.4 *Grammitis congener* Blume [28,29]
- 16.4.5 *Grammitis dolichosora* (Copel.) Copel. [28,29]
- 16.4.6 *Grammitis fasciata* Blume [10,28,29]
- 16.4.7 *Grammitis friderici-et-pauli* (H. Christ) Copel. [28,29]
- 16.4.8 *Grammitis havilandii* (Baker) Copel. [28,29], syn. *Polypodium havilandii* Baker [36]
- 16.4.9 *Grammitis holttumii* Copel. [28,29]
- 16.4.10 *Grammitis impressa* Copel. [21,28,29]
- 16.4.11 *Grammitis intromissa* (H. Christ) Parris [28,29]
- 16.4.12 *Grammitis jagoriana* (Mett.) Copel. [28,29]
- 16.4.13 *Grammitis kinabaluensis* (Copel.) Copel. [28,29]
- 16.4.14 *Grammitis knutsfordiana* (Baker) Copel. [28,29]
- 16.4.15 *Grammitis locellata* (Baker) Copel. [28,29]
- 16.4.16 *Grammitis oblanceolata* (Baker) Copel. [28,29]
- 16.4.17 *Grammitis padangensis* (Baker) Copel. [28,29]
- 16.4.18 *Grammitis pilosiuscula* Blume [28,29]
- 16.4.19 *Grammitis reinwardtii* Blume [10,28,29,37]
- 16.4.20 *Grammitis reinwardtioides* Copel. [27,28,29]
- 16.4.21 *Grammitis scabristipes* (Baker) Copel. [28,29]

- 16.4.22 *Grammitis sumatrana* (Baker) Copel. [28,29]
 16.4.23 *Grammitis vittariifolia* (C. Chr.) Parris [29]
 16.4.24 *Grammitis* sp.1 [28,29]
 16.4.25 *Grammitis* sp.2 [28,29]
 16.4.26 *Grammitis* sp.3 [28,29]
 16.4.27 *Grammitis* sp.4 [28,29]
 16.4.28 *Grammitis* sp.5 [28,29]
 16.4.29 *Grammitis* sp.6 [28,29]
 16.4.30 *Grammitis* sp.7 [28,29]
- 16.5 *Prosaptia*
 16.5.1 *Prosaptia alata* (Blume) H. Christ [24,28,29]
 16.5.2 *Prosaptia barathrophylla* (Baker) M.G. Price [27,29]
 16.5.3 *Prosaptia burbridgei* (Baker) Parris [29]
 16.5.4 *Prosaptia celebica* (Blume) Tagawa & K. Iwatsuki [29]
 16.5.5 *Prosaptia contigua* (G. Forst.) C. Presl [5,27,28,29], syn. *Ctenopteris contigua* (G.Forst.) C.Presl. [4,37]
 16.5.6 *Prosaptia davalliacea* (F. Muell. & Baker) Copel. [28,29]
 16.5.7 *Prosaptia multicaudata* (Copel.) Parris [29]
 16.5.8 *Prosaptia obliquata* (Blume) Mett. [29]
 16.5.9 *Prosaptia venulosa* (Blume ex Kunze) M.G. Price [29]
 16.5.10 *Prosaptia* sp.1 aff. *barathrophylla* [29]
- 16.6 *Scleroglossum*
 16.6.1 *Scleroglossum debile* (Kuhn) Alderw. [27,28,29]
 16.6.2 *Scleroglossum minus* (Fee) . Chr., see also [27]
 a. large form [28,29]
 b. narrow form [28,29]
 16.6.3 *Scleroglossum pusillum* (Blume) Alderw. [5,10,27,28,29,37]
 16.6.4 *Scleroglossum* sp.1 aff. *minus* [28,29]
- 16.7 *Xiphopteris*
 16.7.1 *Xiphopteris hieronymusii* (C. Chr.) Holttum [29]
 16.7.2 *Xiphopteris musgraviana* (Baker) Parris [27,28,29]
 16.7.3 *Xiphopteris nudicarpa* (Zamora & Co) Parris [28,29]
 16.7.4 *Xiphopteris subpinnatifida* (Blume) Copel. [29]
17. HYMENOPHYLLACEAE
- 17.1 *Callistopteris*
 17.1.1 *Callistopteris apiifolia* (C. Presl) Copel. [28,29], syn. *Trichomanes apiifolium* Presl [36]
- 17.2 *Cephalomanes*
 17.2.1 *Cephalomanes javanicum* (Blume) Bosch [21,24,27,28,29], syn. *Trichomanes javanica* Blume [8,33]
 17.2.2 *Cephalomanes laciniatum* (Roxb.) de Vol [28,29]
 17.2.3 *Cephalomanes singaporianum* Bosch [29]
- 17.3 *Crepidomanes*
 17.3.1 *Crepidomanes bilabiatum* (Nees & Blume) Copel. [28,29]
 17.3.2 *Crepidomanes bipunctatum* (Poir.) Copel. [24,28,29], syn. *Trichomanes bipunctatum* Poir. [4]
 17.3.3 *Crepidomanes brevipes* (C. Presl) Copel. [28,29]
 17.3.4 *Crepidomanes christii* (Copel.) Copel. [21,24,28,29]
 17.3.5 *Crepidomanes sarawakense* K. Iwatsuki [24,29]
 17.3.6 *Crepidomanes singaporianum* Bosch * [24]
- 17.4 *Gonocormus*
 17.4.1 *Gonocormus alagensis* (H. Christ) Copel. [28,29]
 17.4.2 *Gonocormus diffusus* (Blume) Bosch [28,29]
 17.4.3 *Gonocormus minutus* (Blume) Bosch [24,27,28,29], syn. *Trichomanes proliferum* Blume [8]
 17.4.4 *Gonocormus novoguineensis* (Brause) Copel. [28,29]
 17.4.5 *Gonocormus teijsmanni* Bosch [28,29]
 17.4.6 *Gonocormus* sp.1 [28,9]
- 17.5 *Hymenophyllum*
 17.15.1 *Hymenophyllum peltatum* (Poir.) Desv. [28,29]
- 17.6 *Macroglena*
 17.6.1 *Macroglena meifolia* (Bory ex Willd.) Copel. [27,28,29], as syn. *Trichomanes meifolium* [10,37]
 17.6.2 *Macroglena obtusa* Copel. [28,29]
 17.6.3 *Macroglena schlechteri* (Brause) Copel. [28,29]
- 17.7 *Mecodium*
 17.7.1 *Mecodium badium* (Hook. & Grev.) Copel. [28,29]
 17.7.2 *Mecodium emarginatum* (Sw.) Copel. [27,28,29]
 17.7.3 *Mecodium imbricatum* (Blume) Copel. [29]
 17.7.4 *Mecodium javanicum* (Spreng) Copel. [28,29]
 17.7.5 *Mecodium paniculiflorum* (C. Presl) Copel. [28,29]
 17.7.6 *Mecodium polyanthos* (Sw.) Copel. [24,28,29]

- 17.7.7 *Mecodium productum* (Kunze) Copel. [27,28,29]
 17.7.8 *Mecodium subdemissum* (H. Christ) Parris [28,29]
 17.7.9 *Mecodium thuidium* (Harr.) Copel. [28,29]
 17.7.10 *Mecodium treubii* (Racib.) Copel. [28,29]
- 17.8 *Meringium*
 17.8.1 *Meringium acanthoides* (Bosch) Copel. [27,28,29]
 17.8.2 *Meringium bakeri* (Copel.) Copel. [28,29]
 17.8.3 *Meringium blandum* (Racib.) Copel. [27,28,29], syn. *Hymenophyllum blandum* Racib. [8]
 17.8.4 *Meringium cardunculus* (C. Chr.) Copel. [27,28,29]
 17.8.5 *Meringium denticulatum* (Sw.) Copel. [24,28,29], syn. *Hymenophyllum denticulatum* Sw. [4]
 17.8.6 *Meringium holochilum* (Bosch) Copel. [24,27,28,29], syn. *Hymenophyllum holochilum* C.Chr. [8]
 17.8.7 *Meringium hosei* (Copel.) Copel. [27,28,29]
 17.8.8 *Meringium johorensense* (Holtum) Copel. [28,29]
 17.8.9 *Meringium lobbii* (T. Moore) Copel. [28,29]
 17.8.10 *Meringium macrosorum* (Alderw.) Copel. [28,29]
 17.8.11 *Meringium meyenianum* C. Presl * Chew et al. no. 1142 (SAN) – identified as *Hymenophyllum serrulatum* (C.Presl) C.Chr.
 17.8.12 *Meringium microchilum* (Baker) Parris [10,27,28,29], syn. *Trichomanes microchilum* Baker [36]
 17.8.13 *Meringium pachydermicum* (Ces.) Copel. [27,28,29]
 17.8.14 *Meringium penangianum* (C.G. Matthew & H. Christ) Copel. [28,29]
- 17.9 *Microgonium*
 17.9.1 *Microgonium bimarginatum* Bosch [28,29]
 17.9.2 *Microgonium mindorensense* (H. Christ) Copel. [24,29]
 17.9.3 *Microgonium motleyi* Bosch [29]
 17.9.4 *Microgonium sublimatum* (Mull. Berol.) Bosch [24,28,29]
- 17.10 *Microtrichomanes*
 17.10.1 *Microtrichomanes dichotomum* (Kunze) Copel. [28,29]
 17.10.2 *Microtrichomanes digitatum* (Sw.) Copel. [28,29], syn. *Trichomanes digitatum* Sw [8,36]
 17.10.3 *Microtrichomanes nitidulum* (Bosch) Copel. [28,29], syn. *Trichomanes nitidulum* Bosch [8]
 17.10.4 *Microtrichomanes palmatifidum* (Mull. Berol.) Copel. [28,29]
 17.10.5 *Microtrichomanes ridleyi* (Copel.) Copel. [28,29]
 17.10.6 *Microtrichomanes vitiense* (Baker) Copel. [28,29]
- 17.11 *Nesopteris*
 17.11.1 *Nesopteris grandis* (Copel.) Copel. [28,29]
- 17.12 *Pleuromanens*
 17.12.1 *Pleuromanens album* (Blume) Parris [27,28,29]
 17.12.2 *Pleuromanens pallidum* (Blume) C. Presl [28,29], syn. *Trichomanes pallidum* Blume [8,36]
- 17.13 *Reediella*
 17.13.1 *Reediella endlicheriana* (C. Presl) Pic. Serm. [28,29]
 17.13.2 *Reediella humilis* (G. Forst.) Pic. Serm. [28,29]
- 17.14 *Selenodesmium*
 17.14.1 *Selenodesmium obscurum* (Blume) Copel. var. *obscurum* [29], without var. [27,28]
- 17.15 *Sphaerocionium*
 17.15.1 *Sphaerocionium pilosissimum* (C. Chr.) Copel. [27,28,29]
- 17.16 *Vandenboschia*
 17.16.1 *Vandenboschia auriculata* (Blume) Copel. [5,28,29], as *Trichomanes auriculata* Blume [21]
 17.16.2 *Vandenboschia maxima* (Blume) Copel. [27,28,29], as *Trichomanes maxima* Blume [8,21,36]
18. LOMARIOPSIDACEAE
- 18.1 *Bolbitis*
 18.1.1 *Bolbitis appendiculata* (Willd.) K. Iwatsuki subsp. *appendiculata* [21,29]
 18.1.2 *Bolbitis heteroclita* (C. Presl) Ching [5,21,24,29]
 18.1.3 *Bolbitis repanda* (Blume) Schott [28,29]
 18.1.4 *Bolbitis sinuata* (C. Presl) Hennipman [5,28,29]
- 18.2 *Elephaglossum*
 18.2.1 *Elephaglossum angulatum* (Blume) T. Moore [28,29]
 18.2.2 *Elephaglossum annamense* C. Chr. [28,29]
 18.2.3 *Elephaglossum blumeanum* (Fee) J. Sm. var. *blumeanum* [10,29]; without var. [28,37]
 18.2.4 *Elephaglossum callifolium* (Blume) T. Moore [28,29]
 18.2.5 *Elephaglossum commutatum* (Mett. ex Kuhn) Alderw. [10,28,29]
 18.2.6 *Elephaglossum heterolepium* Alderw. [28,29]

- 18.2.7 *Elephaglossum melanostictum* (Blume) T.Moore * [5]
 18.2.8 *Elephaglossum spongophyllum* P.R. Bell [28,29]
 18.2.9 *Elephaglossum stenolepis* P.R.Bell ex Holttum [27,28,29]
 18.2.10 *Elephaglossum* sp.* [24]
- 18.3 *Lomagramma*
 18.3.1 *Lomagramma brooksii* Copel. [21,28,29]
 18.3.2 *Lomagramma sinuata* C. Chr. [24,28,29]
 18.3.3 *Lomagramma sumatrana* v.A.v.R. * [21]
- 18.4 *Lomariopsis*
 18.4.1 *Lomariopsis lineata* (C. Presl) Holttum [10,24,29]
 18.4.2 *Lomariopsis spectabilis* (Kunze) Mett. [28,29]
- 18.5 *Teratophyllum*
 18.5.1 *Teratophyllum aculeatum* (Blume) Mett. var. *aculeatum* [24,29]
 18.5.2 *Teratophyllum clemensiae* Holttum [21,27,28,29]
 18.5.3 *Teratophyllum rotundifolium* (Bonap.) Holttum [24,29]
19. MARATTIACEAE
- 19.1 *Angiopteris*
 19.1.1 *Angiopteris angustifolia* (C. Presl) var. *angustifolia* [5,21,27,29], without var. [28]
 19.1.2 *Angiopteris brooksii* Copel. [28,29]
 19.1.3 *Angiopteris evecta* (G. Forst.) Hoffm. [5,24,27,28,29]
 19.1.4 *Angiopteris ferox* Copel. [27,28,29]
 19.1.5 *Angiopteris holttumii* C. Chr. [28,29]
 19.1.6 *Angiopteris palmiformis* (Cav.) Copel. [29]
- 19.2 *Christensenia*
 19.2.1 *Christensenia aesculifolia* (Blume) Maxon [4,21,24,28,29]
- 19.3 *Marattia*
 19.3.1 *Marattia sambucina* Blume [29]
 19.3.2 *Marattia sylvatica* Blume [21,28,29]
 19.3.3 *Marattia pellucida* C. Presl * [23]
20. MARSILEACEAE
- 20.1 *Marsilea*
 20.1.1 *Marsilea* cf. *crenata* C.Presl *- IMS-204 (BORH); corresponding to *Marsilea quadrata* A. Br. of Gibbs, 1914, see [8]
21. MATONIACEAE
- 21.1 *Matonia*
 21.1.1 *Matonia pectinata* R. Br. [28,29]
22. NEPHROLEPIDACEAE
- 22.1 *Nephrolepis*
 22.1.1 *Nephrolepis auriculata* (L.) Trimen [5,24,29], syn. *N. biserrata* (Sw.) Schott [8]
 22.1.2 *Nephrolepis cordifolia* (L.) C. Presl [28,29]
 22.1.3 *Nephrolepis davallioides* (Sw.) Kunze [38,29], syn. *N. acuminata* Kuhn [8]
 22.1.4 *Nephrolepis falcata* (Cav.) C. Chr. [5,24,28,29]
 22.1.5 *Nephrolepis hirsutula* (G. Forst.) C. Presl [4,27,28,29]
 22.1.6 *Nephrolepis persicifolia* H. Christ [24,29]
 22.1.7 *Nephrolepis pilosula* Alderw. [24,29]
 22.1.8 *Nephrolepis radicans* (Burm.f.) Kuhn var. *radicans* [29] without var. [28]
 22.1.9 *Nephrolepis* sp. * - Edwards 2006B [24]
23. OLEANDRACEAE
- 23.1 *Arthropteris*
 23.1.1 *Arthropteris repens* (Brack.) C. Chr. [28,29]
- 23.2 *Oleandra*
 23.2.1 *Oleandra neriiformis* Cav. [24,29]
 23.2.2 *Oleandra oblanceolata* Copel. [10,24,27,28,29]
 23.2.3 *Oleandra pistillaris* (Sw.) Copel. [5,21,27,28,29,37]
 23.2.4 *Oleandra tricholepis* Kunze [28,29]
 23.2.5 *Oleandra* sp.1 [24,29]
24. OPHIOGLOSSACEAE
- 24.1 *Botrychium*
 24.1.1 *Botrychium daucifolium* Wall. ex Hook. & Grev. [28,29]
- 24.2 *Helminthostachys*
 24.2.1 *Helminthostachys zeylanica* (L.) Hook. [28,29]
- 24.3 *Ophioglossum*
 24.3.1 *Ophioglossum intermedium* Hook. [28,29]
 24.3.2 *Ophioglossum nudicaule* L.f. [P97a] var. *nudicaule* [29]
 24.3.3 *Ophioglossum pendulum* L., {also in [5] without var.}
 a. forma *pendulum* [28,29]
 b. forma *nutans* Alderw. [28,29]
 24.3.4 *Ophioglossum reticulatum* L. [21,24]
 a. forma *complicatum* (Miq.) Wieff. [28,29]
 b. forma *dilatatum* (Miq.) Wieff. [29]

25. OSMUNDACEAE

25.1 *Osmunda*

- 25.1.1 *Osmunda* cf. *javanica* Blume * [Living collection seen at the Fernarium, Crocker Range Park HQ – G. Gunsalam & R. Jaman, pers. comm.], IMS-262 (BORH)
- 25.1.2 *Osmunda vachelli* Hook. *- Pereira SAN 144299 (SAN), Lim *et al.* SAN 143286 (SAN)

26. PARKERIACEAE

26.1 *Ceratopteris*

- 26.1.1 *Ceratopteris thalictroides* (L.) Brongn. [29]

27. PLAGIOGYRACEAE

27.1 *Plagiogyra*

- 27.1.1 *Plagiogyra adnata* (Blume) Bedd. [8,27,28,29]
- 27.1.2 *Plagiogyra clemensiae* Copel. [27,28,29]
- 27.1.3 *Plagiogyra glauca* (Blume) Mett. [28,29]
- 27.1.4 *Plagiogyra pycnophylla* (Kunze) Mett. [28,29]

28. POLYPODIACEAE

28.1 *Aglaomorpha*

- 28.1.1 *Aglaomorpha brooksii* Copel. [27,28,29]
- 28.1.2 *Aglaomorpha drynarioides* (Hook.) Roos, syn. *Merinthosorus drynarioides* (Hook.) Copel. [29]
- 28.1.3 *Aglaomorpha heraclea* (Kunze) Copel., syn. *Drynariopsis heraclea* (Kunze) Copel. [18,21,29]
- 28.1.4 *Aglaomorpha speciosa* (Blume) Roos, syn. *Photinopteris speciosa* (Blume) C. Presl [5,8,24,29]

28.2 *Belvisia*

- 28.2.1 *Belvisia callifolia* (H. Christ) C. Chr. [10,24,29]
- 28.2.2 *Belvisia mucronata* (Fee) Copel. forma *mucronata* [10,29], without forma [21,28]
- 28.2.3 *Belvisia spicata* (L.f.) Mirbel [27,28,29], syn. *Belvisia revoluta* (Blume) Copel. [21]
- 28.2.4 *Belvisia squamata* (Hieron. ex C. Chr.) Copel. var. *borneensis* C. Chr. [10,28,29]

28.3 *Colysis*

- 28.3.1 *Colysis acuminata* Holttum var. *acuminata* [21,29], without format [4,28,27]
- 28.3.2 *Colysis campyloneuroides* (Baker) Parris [24,29]
- 28.3.3 *Colysis fluviatilis* (Lauterb.) Ching [24,29]

- 28.3.4 *Colysis insignis* (Blume) Sm. [29]

- 28.3.5 *Colysis loxogrammoides* (Copel.) M.G. Price [28,29]

- 28.3.6 *Colysis macrophylla* (Blume) C. Presl [4,5,21,24,28,29]

- 28.3.7 *Colysis pedunculata* (Hook. & Grev.) Ching [24,28,29]

- 28.3.8 *Colysis pteropus* (Blume) Bosman [24,29], syn. *Microsorium pteropus* (Bl.) Ching [21]

28.4 *Drynaria*

- 28.4.1 *Drynaria quercifolia* (L.) J. Sm. [4,28,29]
- 28.4.2 *Drynaria rigidula* (Sw.) Bedd. [24,29]
- 28.4.3 *Drynaria sparsisora* (Desv.) T. Moore [10,24,28,29,37]

28.5 *Goniophlebium*

- 28.5.1 *Goniophlebium mehipitense* (C. Chr.) Parris [24,29]
- 28.5.2 *Goniophlebium percutsum* (Cav.) W.H. Wagner & Grether [5,24,28,29]
- 28.5.3 *Goniophlebium persicifolium* (Desv.) Bedd. [28,29]
- 28.5.4 *Goniophlebium rajaense* (C. Chr.) Parris [28,29]
- 28.5.5 *Goniophlebium subauriculatum* (Blume) C. Presl [28,29]

28.6 *Lecanopteris*

- 28.6.1 *Lecanopteris crustacea* Copel. [24,29]
- 28.6.2 *Lecanopteris pumila* Blume [5,27,28,29], as *L. carnosa* var. *pumila* [10], and as *L. carnosa* [33]
- 28.6.3 *Lecanopteris sinuosa* (Wall. ex Hook.) Copel. [10,28,29]
- 28.6.4 *Lecanopteris deparioides* (Ces.) Baker * [30] – Wong WKM 2705 (SAN); IMS-164 (BORH; SAN)

28.7 *Lepisorus*

- 28.7.1 *Lepisorus longifolius* (Blume) Holttum [48, 28 – Appendix, also listed in 10,33,37], syn. *Paragramma longifolia* (Blume) Pic. Serm. [5,24,29],

28.8 *Lemmaphyllum*

- 28.8.1 *Lemmaphyllum accedens* (Blume) Donk. [10,21,24,28,29,37]

28.9 *Leptochilus*

- 28.9.1 *Leptochilus minor* Fee [4,29]
- 28.9.2 *Leptochilus axillaries* (Cav.) Kaulf. * - Meijer no. 44015 (SAN), det. Holttum, November 73 (SAN)

28.10 *Loxogramme*

- 28.10.1 *Loxogramme avenia* (Blume) C. Presl [4,5,10,24,29]

- 28.10.2 *Loxogramme carinata* M.G. Price [28,29]
 28.10.3 *Loxogramme ensifrons* Alderw. [24,27,28,29]
 28.10.4 *Loxogramme forbesii* Copel.) * [5]
 28.10.5 *Loxogramme major* Copel. syn. *L. parallela* Copel. [29]
 28.10.6 *Loxogramme nidiformis* C. Chr. [28,29]
 28.10.7 *Loxogramme wallichiana* (Hook.) M.G. Price [28,29], syn. *Loxogramme forbesii* Copel [21]
- 28.11 *Microsorium*
 28.11.1 *Microsorium alternifolium* (Willd.) Copel. * [31]
 28.11.2 *Microsorium congregatifolium* (Alderw.) Holttum [27,28,29]
 28.11.3 *Microsorium heterocarpum* (Blume) Ching [5,21,27,28,29]
 28.11.4 *Microsorium insigne* (Bl.) Ching) * - Chew et al. no. 1183, from Mt Kinabalu (SAN), det. Holttum, November 1973
 28.11.5 *Microsorium linguiforme* (Mett.) Copel. [24,29]
 28.11.6 *Microsorium membranifolium* (R.Br.) Ching * - Wong WKM2848 from Boheydulang Island (SAN), dated 12.10.98
 28.11.5 *Microsorium musifolium* (Bl.) Ching * [4,5], Meijer SAN 48597 (SAN)
 28.11.6 *Microsorium punctatum* (L.) Copel. [5,24,28,29]
- 28.12 *Neocheiropteris*
 28.12.1 *Neocheiropteris sarawakensis* (Baker) Parris [24,27,29], syn. *Microsorium sarawakense* (Baker) Holttum [21]
 28.12.2 *Neocheiropteris zippellii* (Blume) Bosman [29], syn. *Microsorium zippelii* (Bl.) Ching [4]
- 28.14 *Phymatosorus*
 28.14.1 *Phymatosorus commutatus* (Blume) Pic. Serm. [24,29]
 28.14.2 *Phymatosorus ithycarpus* (Copel.) Parris [29]
 28.14.3 *Phymatosorus longissimus* (Blume) Pic. Serm. [29]
 28.14.4 *Phymatosorus nigrescens* (Blume) Pic. Serm. [4,24,27,29], syn. *Microsorium nigrescens* [10], *Pymatodes nigrescens* (Bl.) J.Sm. [4]
 28.14.5 *Phymatosorus scolopendria* (Burm.f.) Pic. Serm. [24,29]
- 28.15 *Platynerium*
 28.15.1 *Platynerium coronarium* (J. König) Desv. [10,24,27,28,29,37]
 28.15.2 *Platynerium ridleyi* H. Christ [5,10,29]
- 28.16 *Polypodiopsis*
 28.16.1 *Polypodiopsis brachypodia* (Copel.) C.F. Reed [28,29]
- 28.17 *Pyrrosia* (incl. *Drymoglossum*)
 28.17.1 *Pyrrosia angustata* (Sw.) Ching [5,24,29]
 28.17.2 *Pyrrosia christii* (Giesenh.) Ching [24,28,29]
 28.17.3 *Pyrrosia kinabaluensis* Hovenkamp. [24,29]
 28.17.4 *Pyrrosia lanceolata* (L.) Farw. [24,28,29], syn. *Cyclophorus adnascens* Desv. [8]
 28.17.5 *Pyrrosia longifolia* (Burm.f.) C.V.Morton [29]
 28.17.6 *Pyrrosia nummulariifolia* (Sw.) Ching [4,9,24,29]
 28.17.7 *Pyrrosia piloselloides* (L.) M.G. Price [29]
 28.17.8 *Pyrrosia platyphylla* Hovenkamp. [24,28,29]
 28.17.9 *Pyrrosia rasamalai* (Racib.) Ching [28,29], syn. *Pyrrosia floccigera* (Bl.) Ching [21]
 28.17.10 *Pyrrosia varia* (Kaulf.) Farwell * - Chew et al. no.1404 from Mt Kinabalu dated 29.8.61 (SAN)
- 28.18 *Selliguea* (incl. *Phymatopteris*, *Pycnoloma*, *Crypsinus*)
 28.18.1 *Selliguea albidopaleata* (Copel.) Parris [27,29]
 28.18.2 *Selliguea albidosquamata* (Blume) Parris [29]
 28.18.3 *Selliguea bisulcata* (Hook.) Hovenkamp * [47], syn. *Holcosorus bisulcatus* (Hook.) Copel. [24,29]; wrongly spelt as *Aolcosorus bisulcatus* [10]
 28.18.4 *Selliguea enervis* (Cav.) Ching [27,29]
 28.18.5 *Selliguea heterocarpa* (Blume) Blume [4,5,10,27,28,29]
 28.18.6 *Selliguea kamorangana* (C. Chr.) M.G. Price [28,29]
 28.18.7 *Selliguea lateritia* (Baker) Hovenkamp * [47], syn. *Selliguea taeniophylla* (Copel.) Parris [29]. Identification based on Sidiyasa & Arriffin 1565 from East Kalimantan (SAN), det. Hovenkamp.
 28.18.8 *Selliguea metacola* (Alderw.) Parris [29]
 28.18.9 *Selliguea murudensis* (C. Chr.) Parris [29]
 28.18.10 *Selliguea oodes* (Kunze) Hovenkamp * [47], based on G.H.S.Wood 2036 (SAN), det. Kew, as *Crypsinus oodes* (Kze) Copel.
 28.18.11 *Selliguea platyphylla* (Sw.) Ching [10,29]
 28.18.12 *Selliguea soridens* (Hook.) Parris [29], syn. *Polypodium soridens* Hook. [36]
 28.18.13 *Selliguea stenophylla* (Blume) Parris [29]
 28.18.14 *Selliguea stenopteris* (Baker) Parris [27,29]
 28.18.15 *Selliguea subsparsa* (Baker) Hovenkamp * [47], based on *Crypsinus wrayi* [37].

- syn. *Selliguea wrayii* (Baker) Parris
- 28.18.16 *Selliguea taeniata* (Sw.) Parris [5,47]; syn. *Crypsinus taeniatus* (Sw.) Copel. [21,10], syn. *Selliguea pakkaensis* (C. Chr.) Parris [29]
 a. var. *taeniata* [29]
 b. var. *borneensis* H. Christ [27,29]
 c. var. *palmata* (Blume) Parris [29]
- 28.18.17 *Selliguea triloba* (Houtt.) M.G. Price [27,29], syn. *Polypodium incurvatum* Blume [8]
- 28.19 *Thylacopteris*
 28.19.1 *Thylacopteris papillosa* (Blume) Kunze [5,21,28,29], syn. *Polypodium papillosum* Bl. [4]
29. PTERIDACEAE
- 29.1 *Acrostichum*
 30.1.2 *Acrostichum aureum* L. * [4], IMS-1 (BORH)
 30.1.2 *Acrostichum speciosum* Willd. * [4], IMS-4 (BORH)
- 29.2 *Pteris*
 29.2.1 *Pteris amoena* Blume syn. *P. purpureorachis* Copel. [29]
 29.2.2 *Pteris biaurita* L. [10,28,29]
 29.2.3 *Pteris clemensiae* Copel. [28,29]
 29.2.4 *Pteris dalhousiae* Copel. [8,27,29]
 29.2.5 *Pteris digitata* (Baker) C. Chr. [27,28,29]
 29.2.6 *Pteris ensiformis* Burm.f. [28,29]
 29.2.7 *Pteris excelsa* Gaudich. [21,24,28,29]
 29.2.8 *Pteris flava* Goldm. [28,29]
 29.2.9 *Pteris furcans* Baker [5,24,29]
 29.2.10 *Pteris holttumii* C. Chr. [28,29]
 29.2.11 *Pteris ligulata* Gaudich. [4,24,29]
 29.2.12 *Pteris longipes* D. Don, syn. *P. kinabaluensis* C. Chr. [27,29]
 29.2.13 *Pteris longipinnula* Wall. ex J. Agardh [9,28,29]
 29.2.14 *Pteris mertensioides* Willd. subsp. *mertensioides* [21,29], without subsp. [28]
 29.2.15 *Pteris oppositipinna* Fee [24,29]
 29.2.16 *Pteris pediformis* M. Kato [29]
 29.2.17 *Pteris philippinensis* Fee [29]
 29.2.18 *Pteris quadriaurita* Retz * [8,22]
 29.2.19 *Pteris rangiferina* C. Presl [28,29]
 29.2.20 *Pteris scabripes* Wall. Ex J. Agardh [29]
 29.2.21 *Pteris tripartita* Sw. [4,5,8,10,24,28,29]
 29.2.22 *Pteris vittata* L. [4,24,28,29]
 29.2.23 *Pteris wallichiana* J. Agardh [28,29]
 29.2.24 *Pteris* sp.1 [28,29]
30. SALVINIACEAE
- 30.1 *Salvinia*
 30.1.1 *Salvinia molesta* D.S. Mitchel * IMS-3 (BORH)
31. SCHIZAEACEAE
- 31.1 *Lygodium*
 31.1.1 *Lygodium borneense* Alderw. [29]
 31.1.2 *Lygodium circinnatum* (Burm.f.) Sw. [4,5,8,10,22,24,27,28,29]
 31.1.3 *Lygodium flexuosum* (L.) Sw. * [5,8]
 31.1.4 *Lygodium japonicum* (Thunb.) Sw. [29]
 31.1.5 *Lygodium longifolium* (Willd.) Sw. * - George et. al. SAN 120541 (SAN), det. P.J. Edwards 6.4.2004
 31.1.6 *Lygodium merrillii* Copel. [5,21,29]
 31.1.7 *Lygodium microphyllum* (Cav.) R.Br. [4,27,28,29]
- 31.2 *Schizaea*
 31.2.1 *Schizaea dichotoma* (L.) Sm. [10,27,28,29]
 31.2.2 *Schizaea digitata* (L.) Sw. [10,28,29,33]
 31.2.3 *Schizaea fistulosa* Labill. [28,29]
 31.2.4 *Schizaea malaccana* Baker var. *robustior* C. Chr. [29], without var. [8,28,36]
32. THELYPTERIDACEAE
- 32.1 *Amphineuron*
 32.1.1 *Amphineuron immersum* (Blume) Holttum [10,24,27,28,29]
 32.1.2 *Amphineuron kiauense* (C. Chr.) Holttum [28,29]
 32.1.3 *Amphineuron terminans* (Hook.) Holttum [24,29]
- 32.2 *Chingia*
 32.2.1 *Chingia atrospinosa* (C. Chr.) Holttum [28,29]
 32.2.2 *Chingia clavipilosa* Holttum var. *clavipilosa* [27,28,29]
 32.2.3 *Chingia* aff. *pricei* Holttum * [24]
 32.2.4 *Chingia sambasensis* Holttum [24,29]
- 32.3 *Christella*
 32.3.1 *Christella arida* (D. Don) Holttum [27,28,29]
 32.3.2 *Christella hispidula* (Decne.) Holttum [24,28,29]
 32.3.3 *Christella papilio* (Hope) Holttum * [21]
 32.3.4 *Christella parasitica* (L.) Leveille [4,10,28,29]
 32.3.5 *Christella subdentata* Holttum * [21]
 32.3.6 *Christella subpubescens* (Blume) Holttum [4,24,28,29]
- 32.4 *Coryphopteris*
 32.4.1 *Coryphopteris badia* (Alderw.) Holttum [28,29]
 32.4.2 *Coryphopteris gymnopoda* (Baker) Holttum var. *gymnopoda* [27,29],

- without var. [28]
- 32.4.3 *Coryphopteris multisora* (C. Chr.) Holttum [28,29]
- 32.4.4 *Coryphopteris obtusata* (Alderw.) Holttum [27,28,29]
- 32.5 *Macrothelypteris*
- 32.5.1 *Macrothelypteris multiseta* (Baker) Ching [28,29]
- 32.5.2 *Macrothelypteris torresiana* (Gaudich.) Ching [28,29]
- 32.6 *Mesophlebion*
- 32.6.1 *Mesophlebion crassifolium* (Blume) Holttum [21,28,29]
- 32.6.2 *Mesophlebion dulitense* Holttum [27,28,29]
- 32.6.3 *Mesophlebion motleyanum* (Hook.) Holttum * [5]
- 32.6.4 *Mesophlebion trichopodum* (C. Chr.) Holttum [24,27,29]
- 32.7 *Metathelypteris*
- 32.7.1 *Metathelypteris dayii* (Baker) Holttum [27,28,29]
- 32.7.2 *Metathelypteris flaccida* (Blume) Ching [28,29]
- 32.7.3 *Metathelypteris gracilescens* (Blume) Ching [28,29]
- 32.8 *Parathelypteris*
- 32.8.1 *Parathelypteris beddomei* (Baker) Ching var. *beddomei* [27,28,29]
- 32.9 *Plesioneuron*
- 32.9.1 *Plesioneuron fuschii* Holttum [28,29]
- 32.10 *Pneumatopteris*
- 32.10.1 *Pneumatopteris callosa* (Blume) Nakai [28,29]
- 32.10.2 *Pneumatopteris microauriculata* Holttum [28,29]
- 32.10.3 *Pneumatopteris micropaleata* Holttum [28,29]
- 32.10.4 *Pneumatopteris truncata* (Poir.) Holttum var. *truncata* [21,29], without var. [4,28]
- 32.10.5 *Pneumatopteris* sp.1 * [24]
- 32.11 *Pronephrium*
- 32.11.1 *Pronephrium asperum* (C. Presl) Holttum [24,29]
- 32.11.2 *Pronephrium borneense* (Hook.) Holttum [28,29]
- 32.11.3 *Pronephrium cuspidatum* (Blume) Holttum [10,21,27,28,29]
- 32.11.4 *Pronephrium firmulum* (Baker) Holttum [5,21,27,28,29]
- 32.11.5 *Pronephrium hosei* (Baker) Holttum [4,5,24,28,29]
- 32.11.6 *Pronephrium lineatum* (Blume) C. Presl [29]
- 32.11.7 *Pronephrium menisciicarpon* (Blume) Holttum [4,28,29]
- 32.11.8 *Pronephrium nitidum* Holttum [5,24,27,28,29]
- 32.11.9 *Pronephrium peltatum* (Alderw.) Holttum a. var. *aberrans* Holttum [28,29] b. var. *persetiferum* Holttum [27,28,29] c. var. *tenompokense* (C. Chr.) Holttum [28,29]
- 32.11.10 *Pronephrium repandum* (Fee) Holttum * [4]
- 32.11.11 *Pronephrium rhombeum* (H. Christ) Holttum [29]
- 32.11.12 *Pronephrium salicifolium* (C. Chr.) Holttum [4,5,29]
- 32.12 *Pseudophegopteris*
- 32.12.1 *Pseudophegopteris aurita* (Hook.) Ching [29]
- 32.12.2 *Pseudophegopteris kinabaluensis* Holttum [29]
- 32.12.3 *Pseudophegopteris paludosa* (Blume) Ching [29]
- 32.12.4 *Pseudophegopteris rectangularis* (Zoll.) Holttum [29]
- 32.13 *Sphaerostephanos*
- 32.13.1 *Sphaerostephanos baramensis* (C. Chr.) Holttum [27,28,29]
- 32.13.2 *Sphaerostephanos caulescens* Holttum [28,29]
- 32.13.3 *Sphaerostephanos gymnorachis* Holttum [28,29]
- 32.13.4 *Sphaerostephanos heterocarpus* (Blume) Holttum [5,24,28,29], syn. *Cyclosorus heterocarpus* [10]
- 32.13.5 *Sphaerostephanos inconspicuus* (Copel.) Holttum [28,29]
- 32.13.6 *Sphaerostephanos latebrosus* (Kunze ex Mett.) Holttum [28,29]
- 32.13.7 *Sphaerostephanos lithophyllus* (Copel.) Holttum [28,29]
- 32.13.8 *Sphaerostephanos lobangensis* (C. Chr.) Holttum [28,29]
- 32.13.9 *Sphaerostephanos neotoppingii* Holttum [28,29]
- 32.13.10 *Sphaerostephanos oosorus* (Baker) Holttum [29]
- 32.13.11 *Sphaerostephanos penniger* (Hook.) Holttum var. *Penniger* [29], without var. [28]
- 32.13.12 *Sphaerostephanos perglanduliferus* (Alderw.) Holttum [24,28,29]
- 32.13.13 *Sphaerostephanos polycarpus* (Blume) Copel. [4,21,29]
- 32.13.14 *Sphaerostephanos porphyrcola* (Copel.) Holttum [28,29]
- 32.13.15 *Sphaerostephanos squamatellus* Holttum

- [29]
 32.13.16 *Sphaerostephanos trichochlamys* Holttum [28,29]
 32.13.17 *Sphaerostephanos unitus* (L.) Holttum var. *mucronatus* (H. Chr.) Holttum [24,29], without var. [28]
 32.13.18 *Sphaerostephanos* sp.1 [29]
- 32.14 *Stenogramma*
 32.14.1 *Stenogramma aspidioides* Blume [28,29]
33. VITTARIACEAE
- 33.1 *Anthrophyum*
 33.1.1 *Anthrophyum alatum* Brack. [29]
 33.1.2 *Anthrophyum brookei* Hook. [24,29]
 33.1.3 *Anthrophyum callifolium* Blume [4,5,9,10,24,28,29]
 33.1.4 *Anthrophyum coriaceum* (D. Don) T. Moore [28,29]
 33.1.5 *Anthrophyum latifolium* Blume [21,28,29]
 33.1.6 *Anthrophyum lessonii* Bory [28,29]
 33.1.7 *Anthrophyum parvulum* Blume [4,24,28,29]
 33.1.8 *Anthrophyum reticulatum* (G. Forst.) Kaulf. [28,29]
 33.1.9 *Anthrophyum semicostatum* Blume var. *semicostatum* [21,29], without var. [28]
 33.1.10 *Anthrophyum sessilifolium* (Cav.) Spreng. [24,28,29]
 33.1.11 *Anthrophyum* sp.1 aff. *vittarioides* Baker [29]
 33.1.12 *Anthrophyum* sp.2 [29]
- 33.2 *Monogramma*
 33.2.1 *Monogramma dareicarpa* Hook. [24,29]
- 33.3 *Vaginularia*
 33.3.1 *Vaginularia paradoxa* (Fee) Mett. [28,29]
 33.3.2 *Vaginularia trichoidea* Fee [5,21,28,29]
- 33.4 *Vittaria*
 33.4.1 *Vittaria angustifolia* Blume [10,27,28,29,37]
 33.4.2 *Vittaria angustissima* Holttum [29]
 33.4.3 *Vittaria elongata* Sw. var. *elongata* [5,29], without var. [10,28]
 33.4.4 *Vittaria ensiformis* Sw. var. *ensiformis* [29], without var. [10,24,27,28]
 33.4.5 *Vittaria hirta* Fee [10,24,29]
 33.4.6 *Vittaria incurvata* Cav. [28,29]
 33.4.7 *Vittaria lineata* L. Sm. [8,28]
 33.4.8 *Vittaria longicoma* H. Christ [24,27,29]
 33.4.9 *Vittaria pachystemma* H. Christ [24,29]
 33.4.10 *Vittaria parvula* Bory [28,29]
 33.4.11 *Vittaria scolopendrina* (Bory) Thwaites
- [24,29]
 33.4.12 *Vittaria zosterifolia* Willd. [24,28,29]
34. WOODSIACEAE
- 34.1 *Acystopteris*
 31.1.1 *Acystopteris tenuisecta* (Blume) Tagawa [28,29]
- 34.2 *Athyrium*
 34.2.1 *Athyrium amoenum* C. Chr. [28,29]
 34.2.2 *Athyrium anisopterum* H. Christ [28,29]
 34.2.3 *Athyrium clemensiae* Copel. [28,29]
 34.2.4 *Athyrium pulcherrimum* Copel. [28,29]
 34.2.5 *Athyrium* sp.1 [28,29]
- 34.3 *Cornopteris*
 34.3.1 *Cornopteris opaca* (D. Don) Tagawa [28,29]
- 34.4 *Deparia*
 34.4.1 *Deparia biserialis* (Baker) M. Kato [28,29]
 34.4.2 *Deparia boryana* (Willd.) M. Kato [28,29]
 34.4.3 *Deparia petersennii* subsp. *petersennii* var. *petersennii* [29], without subsp. [28]
- 4.5 *Diplaziopsis*
 34.5.1 *Diplaziopsis javanica* (Blume) C. Chr. [28,29]
- 34.6 *Diplazium*
 34.6.1 *Diplazium allantoideum* M.G. Price [22,24,28,29]
 34.6.2 *Diplazium amplissimum* (Baker) Diels [28,29]
 34.6.3 *Diplazium atosquamosum* (Holttum) Parris [28,29]
 34.6.4 *Diplazium bantamense* Blume, syn. *D. tabacinum* [5,29]
 34.6.5 *Diplazium barbatum* C. Chr. [28,29]
 34.6.6 *Diplazium beamanii* M.G. Price [28,29]
 34.6.7 *Diplazium christii* C. Chr. [28,29]
 34.6.8 *Diplazium cordifolium* Blume, see also [4,8]
 a. var. *cordifolium* [21,24,27,28,29]
 b. var. *pariens* (Copel.) C. Chr. [27,28,29]
 34.6.9 *Diplazium costulisorum* (Copel.) Copel. [29]
 34.6.10 *Diplazium crenatoserratum* (Blume) T. Moore [5,10,28,29]
 34.6.11 *Diplazium dilatatum* Blume [28,29]
 34.6.12 *Diplazium dolichosorum* Copel. [28,29]
 34.6.13 *Diplazium esculentum* (Retz.) Sw. [4,24,29]
 34.6.14 *Diplazium falcinellum* C. Chr. [28,29]
 34.6.15 *Diplazium forbesii* (Baker) C. Chr. [28,29]
 34.6.16 *Diplazium fuliginosum* (Hook.) M.G. Price [28,29]

- 34.6.17 *Diplazium hewittii* (Copel.) C. Chr. [28,29]
34.6.18 *Diplazium hottae* Tagawa [27,29]
34.6.19 *Diplazium laevipes* C. Chr. [28,29]
34.6.20 *Diplazium latifolium* T. Moore [28,29]
34.6.21 *Diplazium latisquamatum* Holttum [21,27,28,29]
34.6.22 *Diplazium lomariaceum* (H. Christ) M.G. Price [28,29]
34.6.23 *Diplazium malaccense* C. Presl [27,29]
34.6.24 *Diplazium megistophyllum* (Copel.) Tagawa [28,29]
34.6.25 *Diplazium moultonii* (Copel.) Tagawa [28,29]
34.6.26 *Diplazium pallidum* Blume var. *pallidum* [21,29], without var. [28]
34.6.27 *Diplazium petiolare* C. Presl [28,29]
34.6.28 *Diplazium poiense* C. Chr. [27,28,29]
34.6.29 *Diplazium porphyrorachis* (Baker) Diels [21,24,27,28,29]
34.6.30 *Diplazium riparium* Holttum * [4,24]
34.6.31 *Diplazium sorzogonense* (C. Presl) C. Presl [5,28,29]
34.6.32 *Diplazium speciosum* Blume var. *speciosum* [29], without var. [28]
34.6.33 *Diplazium tomentosum* Blume [27,29]
34.6.34 *Diplazium tricholepis* C. Chr. [28,29]
34.6.35 *Diplazium vestitum* C. Presl var. *borneense* [29], without var. [28]
34.6.36 *Diplazium xiphophyllum* (Baker) C. Chr. [5,28,29]
34.6.37 *Diplazium* sp. 1 [27,28,29]
34.6.38 *Diplazium* sp.2 [27,29]
34.6.39 *Diplazium* sp.3 [29]