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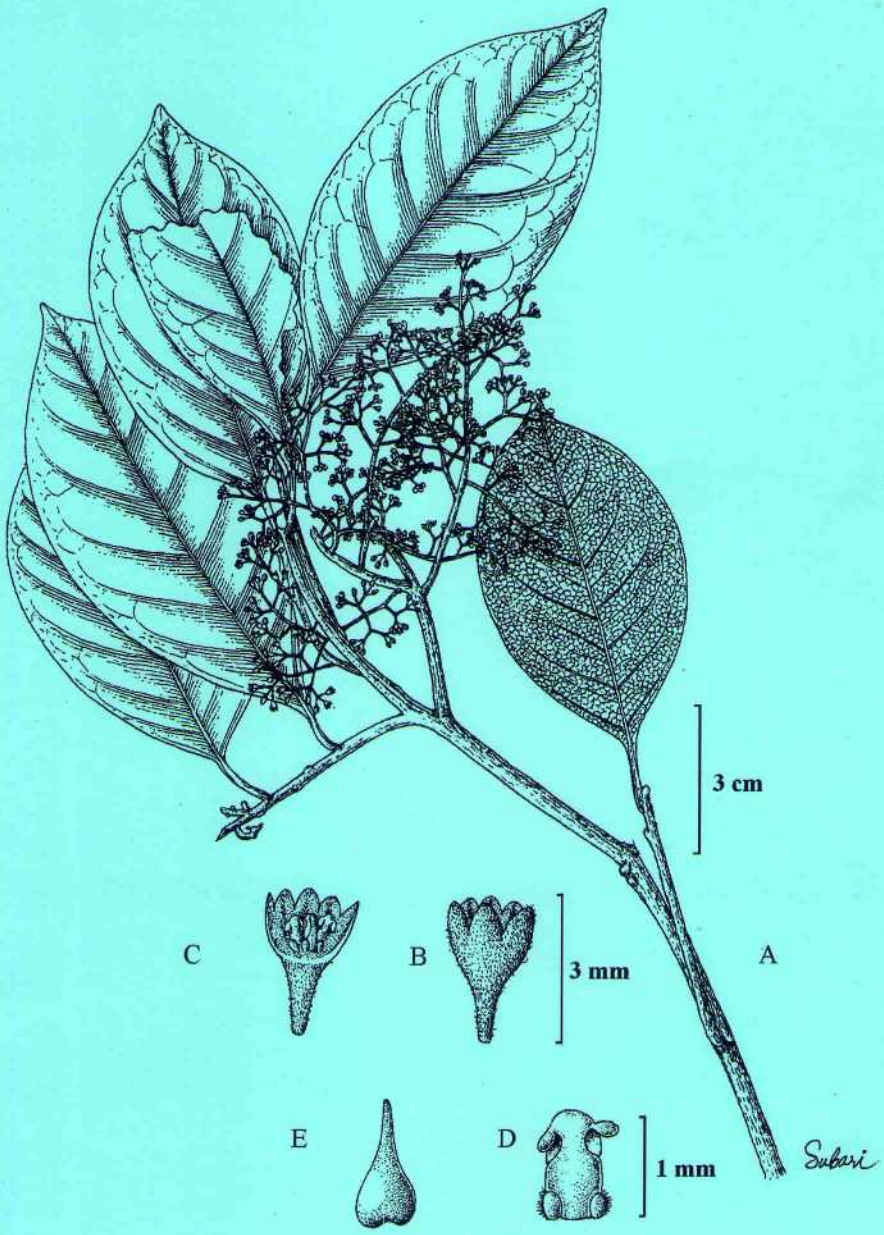

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THE NEW PTERIDOPHYTE CLASSIFICATION AND SEQUENCE EMPLOYED IN THE HERBARIUM BOGORIENSE (BO) FOR MALESIAN FERNS

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ABSTRACT.
WARD AM, W., HIDAYAT, A. & DARNAEDI D. 2012. The new pteridophyte classification and sequence employed in the Herbarium Bogoriense (BO) for Malesian ferns. Reinwardtia 13(4): 367-377. — BO followed sequences written in the first Flora Malesiana series II for Malesian fern specimen arrangement and flora listing, which then updated as revision for pteridophyte families done successively. However, the sequence in this incomplete flora to some extent is problematic. Recent advancement in pteridophyte classification is available and expected to stabilize delimitation of families and genera. The paper reviews the two sequences and presents a consensus for specimen arrangement and flora listing of Malesian fern.

Key Words: Pteridophyte classification, sequence, Malesian fern.

ABSTRAK
WARD AM, W., HIDAYAT, A. & DARNAEDI D. 2012. The new pteridophyte classification and sequence employed in The Herbarium Bogoriense (BO) for Malesian ferns. Reinwardtia 13(4): 367-377 . — Penataan spesimen dan pencatatan flora paku-pakuan dari wilayah Malesia di Herbarium Bogoriense mengikuti klasifikasi yang termuat dalam edisi pertama Flora Malesiana II. Urutan penggolongan ini terus diperbaharui sejalan dengan kemajuan revisi flora tersebut. Namun penggolongan dalam flora yang belum tuntas tersebut tidak jarang menimbulkan banyak pertanyaan. Perkembangan terbaru dalam klasifikasi paku-pakuan telah diterbitkan dan diharapkan cukup stabil untuk diaplikasikan. Tulisan ini meninjau klasifikasi dalam Flora Malesiana dan klasifikasi paku-pakuan terbaru tersebut, serta menghadirkan suatu urutan konsensus dari keduanya yang dapat diterapkan pada penataan spesimen dan pencatatan flora paku-pakuan dari wilayah Malesia

Kata kunci: Klasifikasi, paku-pakuan, urutan, paku Malesia.

INTRODUCTION

There are major changes in the classification of vascular plant through the publication of APG I-III and the lycophyte and fern linear sequence. These two attempt to present a convenience sequence to be applied in specimens arrangement, listing in flora, books, indices, *etc.*, which is claimed to be more natural and reflecting evolutionary relationship (Christenhusz *et al,* 2011a; Haston *et al,* 2009). Both classification are much appreciated as sort of solution to the present classification, generated using the most recent research result, mainly by means of molecular approach. Nevertheless, controversies are still to remain. It is often the result of molecular studies is rather discordance with conventional or morphological observations. Some relationships are sound impossible or rather not convincing because of inadequate sampling. Hence, there are suggestions to consider appropriate adjustment in the application (Hawthorne & Hughes, 2008; Sheperd, 2008; Stace, 2010).

Herbarium Bogor (BO) has been adopted sequence presented in the first volume of Flora Malesiana series II, written by Holttum, for Malesian ferns and fern allies collection, that sorted in alphabetical order. As he mentioned in his introductory note (1959), the groupings might changed in the final re-assessment at the conclusion of the treatment. After three volumes, there are significant departures in the families or genera groupings. The revision has covered 15 families and groups until 1998. The remaining taxa mostly are the large or difficult ones that in total occupy considerable space in the herbarium.

As the national herbarium, BO is referred for the correct plant identification in botanical research and works of, especially, university students in the country. This service is also considered as an effective way for disseminating updates of related researches. BO consistently follows Flora Malesiana as the most practical way to carry the service. However, the flora is problematic to some extent. Meanwhile, the expected better and new fern classifica-

tion in Christenhusz *et al.* (2011a), with its subsequent papers, is somewhat different to the overall flora sequence. There has been no attempt found to synchronize Flora Malesiana with the new classification of fern and lycophyte. This paper reviews the two sequences and proposes the best alternative for the alignment of families and genera of Malesian fern in **BO.**

Contrasting Flora Malesiana sequence to the New Classification

Stace (2010) mentioned that adopt new different classification often halted predominantly for the reason of unfamiliarity. To our observation, the most recent classification of fern and lycophyte (Christenhusz *et al,* 2011a, 2011b, 2011c) which is largely based on the works published in Smith *et al.* (2006), later is partly refined by Rothfels *et al,* (2012), is obviously different from the previously adopted in BO but clarifies relationship in some groups of taxa. It is quite unusual to group the Grammitids with other *Polypodiaceae,* or having Pteridaceae enlarged with Adiantoids and Vittarids. However, the inclusion of *Ctenitis* and *Lastreopsis* to *Dryopteridaceae* is a lot more sensible than to lump them in Tectaria Group. Some switching of taxa is already predicted but some newly recognized families are fairly atypical.

In the first volume of Flora Malesiana (1959), Holttum begun the indecisive fashion of delimiting fern family, ended up with groups of genera. Most part of the first and second volume of revision covered by the same person which causes such delimitation quite common. The label "group" often confused students that further oblige explanation. However, the revision is very functional in identify Malesian fern specimens. Problems occur whenever one deals with untreated genera that excluded from its initial group.

Table 1 is presented as an attempt to decipher the discrepancies between the two sequences. The second and third columns are conjointly sorted al-

No of Row	Initial group in FMII 1956	FM revisions	Classification in Christenhusz *et al.* (2011a, c)	Notes
1	**Adiantum Group** *Adiantum* *Anogramma* *Ceratopteris* *Cerosora* *Cheilanthes* *Coniogramme* *Doryopteris* *Hemionitis* *Notholaena* *Onychium* *Pellaea* *Pityrogramma* *Syngramma* *Schizolepton* *Taenitis*	(Not yet revised)	All of the member included **in *Pteridaceae*** See row 28	
2	**Asplenium Group** *Asplenium* *Diplora* *Loxoscaphe*	**(Not yet revised)**	***Aspleniaceae*** *Asplenium* *Hymenasplenium*	*Diplora, Loxocaphe = Asplenium*
3	**Athyrium Group** *Anisocampium* *Athyrium* *Callipteris* *Cornopteris* *Cystopteris* *Diplaziopsis* *Diplazium* *Dryoathyrium*	(Not yet revised)	***Athyriaceae*** *Anisocampium* *Athyrium* *Cornopteris* *Deparia* *Diplazium* ***Cystopteridaceae*** *Acystopteris* *Cystopteris* *Gymnocarpium* ***Diplaziopsidaceae*** *Diplaziopsis*	*Callipteris = Diplazium* *Gymnocarpium* is included in Dryopteris Group in FM II classification.

No **of** Row	**Initial group in FMII 1956**	FM revisions	**Classification in Christenhusz *et al.* (2011a, c)**	**Notes**
4		***Azollaceae*** *Azolla*	The genus is moved to ***Salviniaceae***	see row 29
5	**Blechnum Group** *Blechnum* *Brainea* *Doodia* *Woodwardia*	(Revision published soon)	***Blechnaceae*** *Blechnum* *Brainea* *Woodwardia* *Stenochlaena*	*Doodia = Blechnum* *Stenochlaena* is member of Pteris Group in FM II classification.
6		***Cheiropleuriaceae*** *Cheiropleuria*	***Dipteridaceae*** *Cheiropleuria* *Dipteris*	In the FM II classification, *Dipteris* is initially placed in Polypodiaceae but then not included in the revision.
7		***Cyatheaceae*** *Cyathea* *Dicksonia* *Cystodium* *Cibotium* *Culcita*	***Cyatheaceae*** *Alsophila* *Cyathea* *Gymnosphaera* *Sphaeropteris* ***Dicksoniaceae*** *Dicksonia* ***Cibotiaceae*** *Cibotium* ***Cystodiaceae*** *Cystodium* ***Culcitaceae*** *Culcita*	Different from FM II revision, *Cyatheaceae* consist of four genera of the scaly one, while other tree fern merit their own family.
8		***Davalliaceae*** *Davallodes* *Leucostegia* *Davallia*	***Davalliaceae*** *Davallodes* *Davallia* ***Hypodematiaceae*** *Leucostegia* *Didymochlaena* *Hypodematium*	Unlike the FM II revision, *Leucostegia* is placed in *Hypodematiaceae*, together with two genera, which in FM II classification is included in *Dryopteris* Group and *Tectaria* group respectively (but then not included in the revision).
9	**Dennstaedtia Group** *Dennstaedtia* *Histiopteris* *Hypolepis* *Microlepia* *Monachosorum* *Orthiopteris* *Paesia* *Pteridium*	(Revision partly published soon)	***Dennstaedtiaceae*** *Dennstaedtia* *Histiopteris* *Hypolepis* *Microlepia* *Monachosorum* *Paesia* *Pteridium* ***Saccolomataceae*** *Orthiopteris* *Saccoloma*	*Orthiopteris* **is placed in *Saccolomataceae.*** *Saccoloma* is not recognized in FM II classification.

No **of Row**	**Initial group in FM II 1956**	FM **revisions**	**Classification in Christenhusz *et al.* (2011a, c)**	Notes
10	**Dryopteris Group** *Acrophorus* *Currania* *Diacalpe* *Didymochlaena* *Dryopteris* *Gymnocarpium* *Peranema* *Polystichum* *Polystichopsis* *Stenolepia*	(Not yet revised)	***Dryopteridaceae*** *Acrophorus* *Arachnoides* *Diacalpe* *Dryopsis* *Dryopteris* *Polystichum* *Polystichopsis* *Stenolepia* *Dryopolistichum* *Ctenitis* *Lastreopsis* *Teratophyllum* *Lomagramma* *Elaphoglossum* *Bolbitis* *Arthrobotrya* *Rumohra*	*Peranema = Dryopteris* *Currania = Gymnocarpium,* which is included in ***Cystopteridaceae,* see** row 3 *Didymochlaena* **is included in *Hypodematiaceae,*** see row 8 *Dryopolistichum* in FM II clasification is intially included in Tectaria Group but then not included in the revision *Ctenitis* and *Lastreopsis* are member of Tectaria group in FM II revision. The last four genera are member of *Lomariopsis* Group in the FM II revision, in which the fifth is treated as a synonym. *Rumohra* is not recognized either in initial FM II classification.
11		***Equisetaceae*** *Equisetum*	***Equisetaceae*** *Equisetum*	
12		***Gleicheniaceae*** *Dicranopteris Gleichenia*	*Gleicheniaceae* *Dicranopteris* *Diplopterygium* *Gleichenia* *Sticherus*	Different from FM II revision, *Diplopterygium* and *Sticherus* **is recog**nized as distinct species apart from *Gleichenia.*
13	***Grammitidaceae*** *Acrosorus* *Calymodon* *Ctenopteris* *Grammitis* *Nematopteris* *Oreogrammitis* *Prosaptia* *Scleroglossum* *Xiphopteris*	(Not yet revised)	All member of this group are included in ***Polypodiaceae*** See row 26	
14	***Hymenophyllaceae*** *Hymenophyllum* *Trichomanes*	(Not yet revised)	***Hymenophyllaceae*** *Callistopteris* *Cephalomanes* *Didymoglossum* *Hymenophyllum* *Trichomanes* *Vandenboschia*	
15		***Isoetaceae*** *Isoetes*	***Isoetaceae*** *Isoetes*	

No of Row	Initial group in FM II 1956	FM revisions	Classification in Christenhusz *et al.* (2011a, c)	Notes
16		**Lindsaea Group** *Sphenomeris* *Tapeinidum* *Xyropteris* *Lindsaea*	***Lindsaeaceae*** *Sphenomeris* *Tapeinidum* *Xyropteris* *Lindsaea* *Odontosoria*	In the FM II revision, *Odontosoria* = *Sphenomeris.*
17		**Lomariopsis Group** *Lomariopsis* *Thysanosoria* *Teratophyllum* *Lomagramma* *Elaphoglossum* *Bolbitis*	***Lomariopsidaceae*** *Lomariopsis* *Thysanosoria* *Cyclopeltis*	Unlike in FM II revision, four genera are included **in *Dryopteridaceae,* see** row 10 *Cyclopeltis* is member of Tectaria Group in the FM II revision.
18	***Lycopodiaceae*** *Lycopodium*	(Not yet revised)	***Lycopodiaceae*** *Lycopodium* *Lycopodiella* *Huperzia*	
19	***Marattiaceae*** *Angiopteris* *Christensenia* *Macroglossum* *Marattia*	(Not yet revised)	***Marattiaceae*** *Angiopteris* *Christensenia* *Ptisana*	*Macroglossom* = *Angiopteris* *Ptisana* is a nomen novum for *Marattia* of the old world
20		***Matoniaceae*** *Matonia* *Phanerosorus*	***Matoniaceae*** *Matonia* *Phanerosorus*	
21	***Marsileaceae*** *Marsilea*	(Not yet revised)	***Marsileaceae*** *Marsilea*	
22	***Nephrolepis Group*** *Arthropteris* *Nephrolepis* *Oleandra*	(Revision published soon)	***Nephrolepidaceae*** *Nephrolepis* ***Oleandraceae*** *Oleandra*	*Arthropteris* **is included in *Tectariaceae,* see row** 32
23	***Ophioglossaceae*** *Botrychium* *Helmintostachys* *Ophioglossum*	(Not yet revised)	***Ophioglossaceae*** *Botrychium* *Helmintostachys* *Ophioglossum*	
24	***Osmundaceae*** *Leptopteris* *Osmunda*	(Not yet revised)	***Osmundaceae*** *Leptopteris* *Osmunda*	
25		***Plagiogyriaceae*** *Plagiogyria*	***Plagiogyriaceae*** *Plagiogyria*	

No of Row	Initial group in FM II 1956	FM revisions	Classification in Christenhusz *et al.* (2011a, c)	Notes
26		***Polypodiaceae*** *Aglaomorpha* *Arthromeris* *Belvisia* *Christiopteris* *Drynaria* *Goniophlebium* *Lecanopteris* *Lepisorus* *Leptochilus* *Lemmaphyllum* *Microsorum* *Paraselliguea* *Platycerium* *Podosorus* *Polypodiopteris* *Pyrrosia* *Selliguea* *Thylacopteris*	***Polypodiaceae*** *Aglaomorpha* *Arthromeris* *Christiopteris* *Drynaria* *Goniophlebium* *Lecanopteris* *Lemmaphyllum* *Lepisorus* *Leptochilus* *Loxogramme* *Microsorum* *Paraselliguea* *Platycerium* *Podosorus* *Polypodiopteris* *Pyrrosia* *Selliguea* *Thylacopteris* *Acrosorus* *Calymodon* *Chrysosrammitis* *Cochlidium* *Ctenopterella* *Dasygrammitis* *Grammitis* *Micropolypodium* *Oreogrammitis* *Prosaptia* *Radiogrammitis* *Scleroglossum* *Themelium* *Xiphopterella*	*Belvisia = Lepisorus* *Loxogramme* is **not** included in the FM II revision The second section of the column is member of *Grammitidaceae* **in FM II** classification *Xiphopteris = Cochlidium;* *Ctenopteris = Prosaptia;* *Nematopteris = Scleroglossum* Underlined genera is not recognized in initial FM II classification.
27	***Psilotuceue*** *Psilotum*	(Not yet revised)	***Psilotaceae*** *Psilotum* *Tmesipteris*	In FM II classification, *Tmesipteris* **is placed in** its own family.

No **of Row**	**Initial group in FMII 1956**	**FM revisions**	**Classification in Christenhusz *et al.* (2011a, c)**	Notes
28	**Pteris Group** *Acrostichum* *Hemipteris* *Lepidocaulon* *Pteris* *Schizostege* *Stenochlaena*	Not yet revised	***Pteridaceae*** *Acrostichum* *Adiantum* *Anogramma* *Asplenio*psis *Austrogramme* *Ceratopteris* *Cerosora* *Cheilanthes* *Coniogramme* *Doryopteris* *Haplopteris* *Hemionitis* *Notholaena* *Onychium* *Pellaea* *Pityrogramma* *Pteris* *Syngramma* *Taenitis* *Antrophyum* *Haplopteris* *Monogramme* *Rheopteris* *Vittaria*	*Hemipteris* & *Schizostege* = *Pteris* *Lepidocaulon* = *Histiopteris*, *Dennstaedtiaceae*, see row 9 *Stenochlaena* moved to *Blechnaceae* **see** row 5 All the member of *Adiantum* **and** *Vittaria* Group included here *Schizolepton* = *Taenitis* *Vaginularia* = *Monogramma*
29	***Salviniaceae*** *Azolla* *Salvinia*	Revised only for *Azolla*	***Salviniaceae*** *Azolla* *Salvinia*	In the revisionAzolla form its own family, *Azollaceae*
30	***Selaginellaceae*** *Selaginella*	Not yet revised	***Selaginellaceae*** *Selaginella*	
31		***Schizaeaceae*** *Schizaea* *Lygodium*	***Schizaeaceae*** *Schizaea* ***Lygodiaceae*** *Lygodium*	*Lygodium* moved to its own family
32		***Tectaria Group*** *Pteridrys* *Pleocnemia* *Ctenitis* *Tectaria* *Tectaridium* *Chlamydogramme* *Heterogonium* *Aenigmopteris* *Psomiocarpa* *Cyclopeltis* *Lastreopsis*	***Tectariaceae*** *Pteridrys* *Pleocnemia* *Tectaria* *Aenigmopteris* *Psomiocarpa* *Arthropteris*	*Tectaridium*, *Chlamydogramme*, *Heterogonium* = *Tectaria* *Ctenitis*, *Lastreopsis* moved to *Dryopteridaceae*, see row 10 *Cyclopeltis* moved to *Lomariopsidaceae*, **see** row 17

No of Row	Initial group in FMII 1956	FM revisions	Classification in Christenhusz *et al.* (2011a, c)	Notes
33		*Th* ***elypteridaceae*** *Ampelopteris Amphineuron Chingia Christella Coryphopteris Cyclogramma Cyclosorus Macrothelypteris Mesophlebion Metathelypteris Nannothelypteris Parathelypteris Phegopteris Plesioneuron Pneumatopteris Pronephrium Pseudocyclosorus Pseudophegopteris Sphaerostephanos Stegnogramma Thelypteris Trigonospora*	*Th* ***elypteridaceae*** *Cyclosorus Macrothelypteris Metathelypteris Phegopteris Pseudophegopteris Thelypteris*	**The** genus *Dictyocline* = *Cyclosorus,* is recognized in the initial FM II classification but then was not included in the revision. *Coryphopteris, Nannothelypteris, Parathelypteris = Thelypteris* The rest of the genera in FM II revision are synonyms for Cyclosorus.
34	***Tmesipteridaceae*** *Tmesipteris*	(Not yet revised)		This genus is included in ***Psilotaceae,*** **see row 27**
35	**Vittaria Group** *Antrophyum Monogramma Vaginularia Vittaria*	(Not yet revised)	All member of this group now included in ***Pteridaceae*** See row 26	

phabetically as applied in specimen arrangement in BO. Later in the table, these two are referred as FM II classification. The explanation in column "Notes" refers to genera listed in the fourth column ("Classification in Christenhusz *et al.* (2011a, c)") contrasted to the FM II classification. Some genera are underlined; refer to those that not included in the particular family or group in the FM II classification. The genus/genera written before the equal sign "=" is coming from the FM II classification, considered as the synonyms of the genus written afterward in the Christenhusz' classification. The table is confined to families and genera occurred in Malesian region.

Preferred option for BO

Good classification should reflect systematic relationship among the taxa, thus provides high level of predictivity which then will endure for the foreseeable future (Stuessy, 2009; Stace, 2010). The new classification (Christenhusz *et al.*, 2011a and its subsequent papers) is based on fairly large data set of the most recent studies which then confidently expected to perform a good classification. However, applying new sequence must consider carefully the cost of shifting. First, possibility of significant change to the classification is always present in the future. Second, rearranging hundreds of pigeonholes would demand a lot of time and resources which is fairly limited. Third, BO has priority of work, *i.e.* contribute in finishing the Flora Malesiana revision, rather than to deal with undone new combination caused by splitting or lumping genera. It is here, proposed BO to adopt these following actions for the Malesian fern collection arrangement and flora listing:

1. For genera in the indecisive groupings after FM II revision, their placement in the family could follow linear sequence in Christenhusz *et al.* (2011a, c) and the subsequent papers. This would dismiss the confusion over the term "group" and provide the right niche for genera excluded from the flora revision. For example, in the Tectaria group of FM II revision, some

of the genera included are more often considered closer to dryopterids. Hence, this grouping leads to the confusion over delimiting the later. Moreover, *Hypodematium,* was initially included in the Tectaria group, after the revision were left alienated. However, it must be anticipated that changing arrangement in this two groups according to the more recent linear sequence will result in considerable space issue, and proposing over than 20 new combinations is in necessity. This is partly because some members of the Lomariopsis group and Lindsaea group in FM II revision are involved. Nevertheless, it is recommended not to discern the new combinations. Other than change the placement of genera in families, it is preferable to entrust them as revised in the flora.

2. For genera in families after revision, the placing shall be kept as in revision instead of following the more recent linear sequence. The later option will caused the necessity to create many new combinations or to do nomenclatural corrections, as happen earlier in the ferns of Thailand (Lindsay & Middleton, 2009). The most noticeable example is *Cyatheaceae* and *Thelypteridaceae.* The splitting of *Cyathea* to four genera and lumping 22 genera in *Thelypteridaceae* to six will generate nomenclatural problems. Instead of creating new names and doing more changes in specimen order, since BO sort specimen alphabetically, it is best to leave them as the current arrangement based on the flora.

3. For genera that are not yet revised, they should be treated the same as treating the indecisive groups. However, whenever the flora updated and the sequence is somewhat different to the new classification, it is preferable to priorities the Flora. There will be none or minor changes to specimen arrangement in families with similar member of genera. Initial group with slightly mixed genera would have to split, such as Athyria group to three families (see Rothfels *et al.,* 2012 for *Diplaziopsidaceae),* or Dennstaedtia group to two families. This alteration involves only few species that would not generate space problem. However, families with medium to voluminous combination of genera such as *Dryopteridaceae* with additional member coming from Tectaria group and Lomariopsis group; *Pteridaceae* with the adiantoids and vittarids appended; also *Polypodiaceae* enlarged with grammitids, will require extra rooms. The revised genera of *Polypodiaceae* shall be sorted as in the flora while the untreated one such as *Loxogramme* and grammitids fern shall be arranged as in the recent linear sequence.

In summary, the Malesian fern collection in BO would be arranged according to the following sequence (in alphabetical order):

Aspleniaceae
Asplenium
Hymenasplenium
Athyriaceae
Anisocampium
Athyrium
Cornopteris
Deparia
Diplazium
Azollaceae
Azolla
Blechnaceae
Blechnum
Brainea
Stenochlaena
Woodwardia
Cheiropleuriaceae
Cheiropleuria
Cyatheaceae
Cibotium
Culcita
Cyathea
Cystodium
Dicksonia
Cystopteridaceae
Cystopteris
Gymnocarpium
DavaHiaceae
Davallodes
Davallia
Leucostegia
Dennstaedtiaceae
Dennstaedtia
Histiopteris
Hypolepis
Microlepia
Monachosorum
Paesia
Pteridium
Diplaziopsidaceae
Diplaziopsis
Dipteridaceae
Dipteris
Dryopteridaceae
Acrophorus
Arachnoides
Arthrobotrya
Bolbitis
Ctenitis
Diacalpe
Dryopolistichum
Dryopsis
Dryopteris
Elaphoglossum
Lastreopsis
Lomagramma
Polystichum
Polystichopsis
Rumohra

Stenolepia
Teratophyllum
Equisetaceae
Equisetum
Gleicheniaceae
Dicranopteris
Gleichenia
Hymenophyllaceae
Callistopteris
Cephalomanes
Didymoglossum
Hymenophyllum
Trichomanes
Vandenboschia
Hypodematiaceae
Didymochlaena
Hypodematium
Isoetaceae
Isoetes
Lindsaeaceae
Lindsaea
Odontosoria
Sphenomeris
Tapeinidum
Xyropteris
Lomariopsidaceae
Cyclopeltis
Lomariopsis
Thysanosoria
Lycopodiaceae
Huperzia
Lycopodium
Lycopodiella
Marattiaceae
Angiopteris
Christensenia
Ptisana
Matoniaceae
Matonia
Phanerosorus
Marsileaceae
Marsilea
Nephrolepidaceae
Nephrolepis
Oleandraceae
Oleandra
Ophioglossaceae
Botrychium
Helmintostachys
Ophioglossum
Osmundaceae
Leptopteris
Osmunda
Plagiogyriaceae
Plagiogyria
Polypodiaceae
Acrosorus
Aglaomorpha
Arthromeris
Calymodon
Christiopteris
Chrysogrammitis
Cochlidium
Ctenopterella
Dasygrammitis
Drynaria
Goniophlebium
Grammitis
Lecanopteris
Lemmaphyllum
Lepisorus
Leptochilus
Loxogramme
Micropolypodium
Microsorum
Oreogrammitis
Paraselliguea
Platycerium
Podosorus
Polypodiopteris
Prosaptia
Pyrrosia
Radiogrammitis
Scleroglossum
Selliguea
Themelium
Thylacopteris
Xiphopterella
Psilotaceae
Psilotum
Tmesipteris
Pteridaceae
Acrostichum
Adiantum
Anogramma
Antrophyum
Aspleniopsis
Austrogramme
Ceratopteris
Cerosora
Cheilanthes
Coniogramme
Doryopteris
Haplopteris
Hemionitis
Monogramma
Notholaena
Onychium
Pellaea
Pityrogramma
Pteris
Syngramma
Taenitis
Vittaria
Saccolomataceae
Orthiopteris
Saccoloma
Salviniaceae
Salvinia
Schizaeaceae
Lygodium
Schizaea
Selaginellaceae
Selaginella
Tectariaceae
Aenigmopteris
Arthropteris
Pteridrys
Pleocnemia
Psomiocarpa
Tectaria
Thelypteridaceae
Ampelopteris
Amphineuron
Chingia

Christella
Coryphopteris
Cyclogramma
Cyclosorus
Macrothelypteris
Mesophlebion
Metathelypteris
Nannothelypteris
Parathelypteris
Phegopteris
Plesioneuron
Pneumatopteris
Pronephrium
Pseudocyclosorus
Pseudophegopteris
Sphaerostephanos
Stegnogramma
Thelypteris
Trigonospora

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REINWARDTIA
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CONTENTS
Page

SRI ENDARTI RAHAYU, TATIK CHIKMAWATI, KUSWATA KARTAWINATA & ALEX HARTANA. Morphology vs. taxonomy in the family *Pandanaceae:* a case study in the Javanese species 317

SRI RAHAYU. *Hoya (Apocynaceae: Asclepiadoideae)* diversity in Gunung Gede Pangrango National Park, West Java, Indonesia 331

DEBY ARIFIANI, ADI BASUKRIADI & TATIK CHIKMAWATI. Newly described species of *Endiandra (Lauraceae)* from New Guinea 341

ALEX SUMADIJAYA. Six years experience on plant identification services: case study in Herbarium Bogoriense 347

BAYU ADJIE, AGUNG KURNIAWAN, NORIO SAHASHI & YASUYUKI WATANO. *Dicksonia timorense (Diksoniaceae),* a hemi-epiphytic new species of tree fern endemic on Timor Island, Indonesia ... 3 5 7

IAN M. TURNER. Nomenclatural notes relevant to the flora of Indonesia 363

WITA WARDANI, ARIEF HIDAYAT & DEDY DARNAEDI. The new pteridophyte classification and sequence employed in The Herbarium Bogoriense (BO) for Malesian ferns 367

DIAH SULISTIARTNI. The orchids genus *Dilochia* in Indonesia 379

DEDY DARNAEDI. Book review 389

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