

X. STATE OF AFFAIRS REGARDING FLORA MALESIANA: PROGRESS IN REVISION WORK AND PUBLICATION SCHEDULE

M. C. ROOS

Rijksherbarium, POB 9514, 2300 RA Leiden, The Netherlands

INTRODUCTION

The last two years I have made an inventory of the Flora Malesiana network and the revision work remaining. In total the network comprises c. 130 contributors working on 90 of the remaining 135 families (see Appendix). From an estimate by specialists on species numbers of vascular plants in Malesia it appears that the Malesian flora is far richer than traditionally assumed, amounting to some 42000. This means that the flora comprises c. 13% of the world flora of vascular plants on c. 2% of the land surface. For the ferns the figure is probably up to 30% of the total number of species.

Subsequently, all specialists revising taxa for Flora Malesiana were sent a questionnaire asking information on progress, possible bottlenecks, and the expected date of completion of the manuscript. There was a satisfactory response by 86% of the recipients.

RESULTS

The progress in most of the family treatments is slow to moderate. The problems hampering a quick progress pertain for a great part to other commitments (e. g. other Flora projects, field-work), although lack of funds especially to attract authors is also a major problem (Table 1); taxonomic difficulties are not often mentioned as a severe problem. The working teams on e. g. *Araceae*, *Papilionaceae*, *Rutaceae*, *Marattiaceae*, and *Polypodiaceae* have taken up an accelerated approach, which seems to work. In several families hardly any notable progress has been made the last few years, among others *Arecaceae* (full start from 1995 onwards), *Asclepiadaceae*, *Cunoniaceae*, and *Polygonaceae*.

Table 2 summarizes the state of affairs in the Flora Malesiana project; the prospects for the years 1993–1999 derived from the planning of the various authors are presented in more detail in Table 3. The commitments to Flora Malesiana so far cover 59% of the total amount of species (Table 4). Before the turn of the century, with some optimism, we may expect to have covered some 33% of the Flora.

DISCUSSION: SERIES I AND II

The *Orchidaceae* are by far the largest family and represent a task of a completely different order than all other families. This family needs a separate treatment, which is also reflected by the publication of the revisions for Flora Malesiana in a separate series, *Orchid Monographs*. For the following discussion, the data on the orchids are omitted.

Thus we are talking about some 35,000 species. Almost 20% has been published and with some optimism we may expect to have covered 40% by the turn of the century (Table 5). How these figures compare to what is needed for a timely completion of Flora Malesiana Series I and II in 20 years (i. e. in 2012) is shown in Figure 1 and in more detail in Figure 2. The graph presenting the expected number of species runs, after a 'slow start' in 1993,

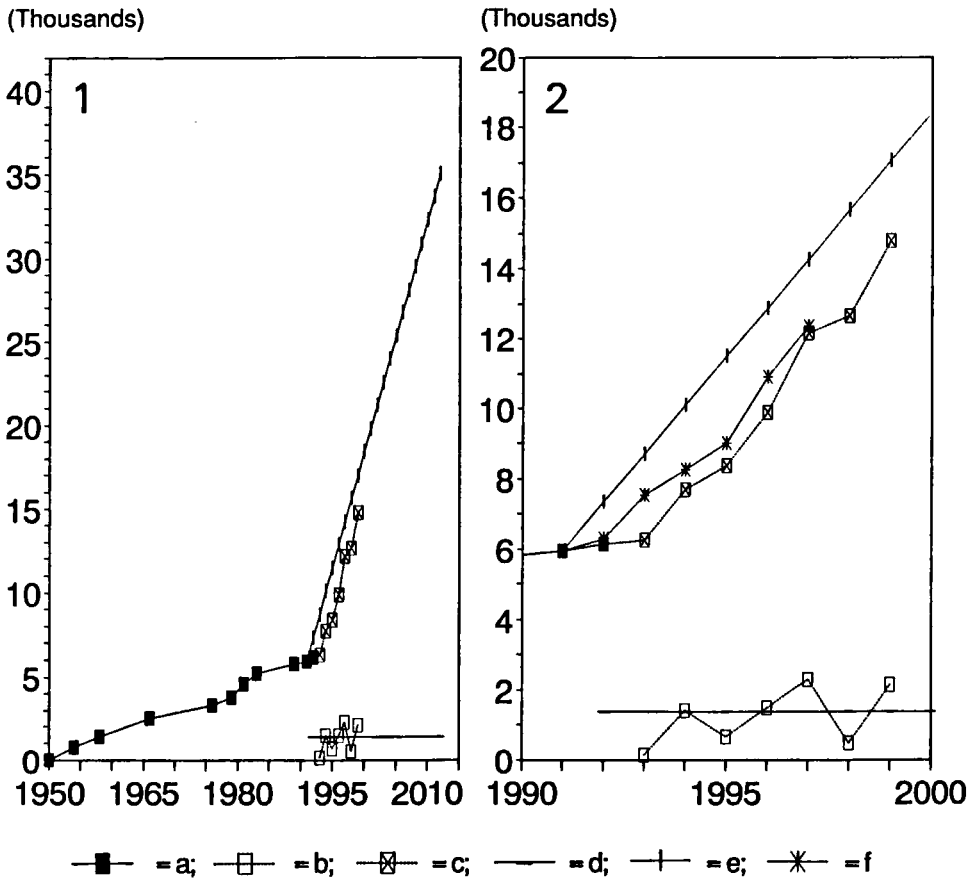


Fig. 1. The number of species published (a) and expected (b: per year; c: accumulated) compared to the target figures (d: per year; e: accumulated). — Fig. 2. Detail of Figure 1, showing also the expected number of species (f) according to the Action Plan.

more or less parallel to the one showing the target numbers. In 1994, 1996, 1997, and 1999 we may expect to reach the figures required per year. The average speed derived from the promises over the period 1993–1999 indicates that the completion of Flora Malesiana will take c. 27 years.

Compared to the Action Plan (Figure 2), the start is rather slow as only the *Mimosaceae* have been published in 1992 (Volume 11/1). By the end of the planning in the Action Plan, the two graphs are approaching each other. It shows that we have to beware of over-optimism as completion of family treatments can only be delayed; experience teaches us that a treatment is never finished earlier than promised. If we start from a probably more realistic expectation, i.e. from half of the average speed as derived from the promises, a coverage of about 33% of the Flora by the turn of the century will be achieved. Even this more pessimistic scenario means a substantial acceleration in the production of treatments.

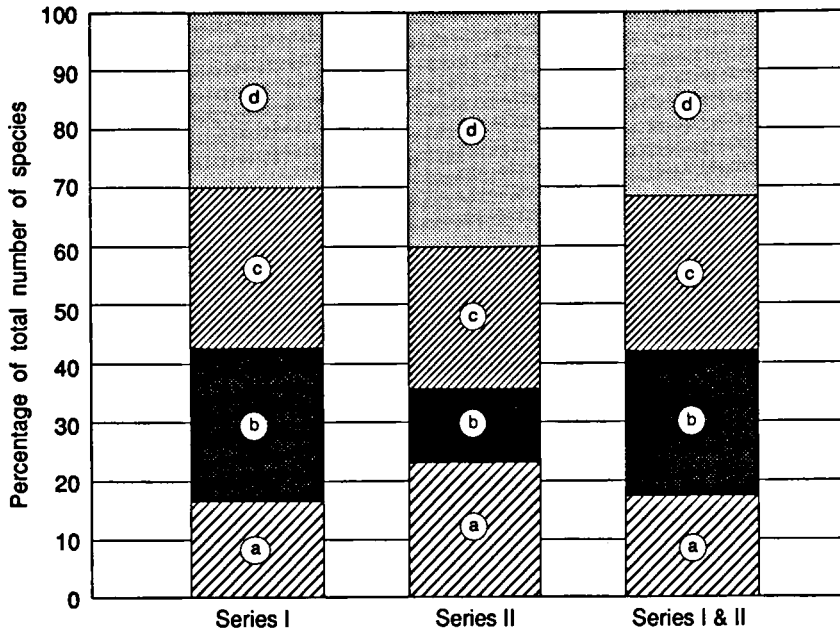


Fig. 3. A comparison between number of species published (a), expected before the year 2000 (b), under revision but not expected before the year 2000 (c), and not allotted as yet (d) for the Series I (seed plants, and excepting the orchids), Series II (ferns) and Series I + II combined.

From Tables 2 and 4 it is obvious that so far the greater part of the revisions deals with the relatively small-sized families. It is a really serious problem that the taxa not allotted to a (co-ordinating) author (Figure 3) as yet include a number of complex families like the *Gesneriaceae*, *Lauraceae*, and *Rubiaceae* (Table 7). So far we have not succeeded in raising funds to appoint taxonomists to treat these taxa for Flora Malesiana.

PUBLICATIONS SCHEDULE

Volume 11/2 has been published recently, with the *Rosaceae* and some small-sized families (*Amaryllidaceae*, *Alliaceae*, *Coriariaceae*, *Pentastemonaceae*, *Semonaceae*). Manuscripts of other families expected for 1993 are (Table 6) among others the *Sapindaceae* (submitted), *Caesalpiniaceae* (summer), *Meliaceae* (summer), *Vitaceae* (summer), *Boraginaceae*, and hopefully the *Myristicaceae* (end of the year). We expect for 1994 quite a number of manuscripts, some of considerable size, e. g. the *Eriocaulaceae*, *Loranthaceae*, and *Oleaceae*, whereas also some revisions for Series II can be expected. If the contributors will keep their promises, it can turn out that the present editorial capacity may be insufficient.

CONCLUSIONS

- 1) In my opinion, some optimism seems justified. Many authors accept an accelerated completion of Flora Malesiana, and practise a more restricted approach of their family treatments. It cannot be expected that further acceleration in the production of installments can be achieved by increased output by the present authors in the Flora Malesiana network.
- 2) The commitments to Flora Malesiana so far are quite satisfactory, showing that with the present efforts completion by the year 2020 may be possible. Realistic pessimism tells that realization of half of the promises by the year 1999 would already be a great achievement meaning that completion of Flora Malesiana by the year 2040 is feasible.
- 3) More authors are urgently needed to strengthen existing working teams, but especially to form working teams for the remaining problematic families.
- 4) It should not be forgotten that the Action Plan projecting a 20-years period for completion of Flora Malesiana implied the appointment of additional full-time contract researchers (in total c. 350 full-time equivalents). Fund raising efforts are well under way, but so far only the EC Human Capital and Mobility grant application will result in extra manpower. It is gratifying that even without additional funding substantial acceleration of the progress of Flora Malesiana can be achieved. However, this should not lead to complacency. Fund raising efforts must and will continue unrelentlessly.

Table 1. Problems hampering the progress in revision work.

| | | | | | |
|---------------------|----|---------------------------|---|-----|------------|
| Other commitments | 16 | (15 seed plants, 1 ferns) | = | 21% | (25%, 6%) |
| Lack of funding | 12 | (11 seed plants, 1 ferns) | = | 16% | (18%, 6%) |
| Lack of cooperators | 9 | (8 seed plants, 1 ferns) | = | 12% | (13%, 6%) |
| Taxonomic problems | 7 | (3 seed plants, 4 ferns) | = | 9% | (5%, 25%) |

Table 2. Numbers of families and species in Flora Malesiana (+ = + pm).

| | Seed plants | | Ferns | | Orchids | Total | |
|-------------------|-----------------|---------|----------|---------|------------------|----------|---------|
| | families | species | families | species | species | families | species |
| total | 265 | 30,680 | 35 | 4410 | 6500 | 301 | 41,590 |
| published | 157 | 5,091 | 8 | 1059 | 191 | 165 | 6,231 |
| under revision | 69 ⁺ | 16,460 | 21 | 1630 | 120 ⁺ | 90 | 18,325 |
| promises 1993-'99 | 58 ⁺ | 8,075 | 10 | 565 | 120 ⁺ | 68 | 8,760 |
| not allotted | 39 | 9,130 | 6 | 1720 | 6185 | 45 | 17,035 |

Table 3. Promised manuscripts before the year 2000 (numbers of families and species).

| | Seed plants | | Ferns | | Orchids | Totaal | | Action Plan |
|--------|-----------------|---------|----------|---------|------------------|----------|---------|-------------|
| | families | species | families | species | species | families | species | species |
| 1993 | 5 | 125 | | | | 5 | 125 | 1250 |
| 1994 | 13 | 1385 | 6 | 95 | 70 | 20 | 1550 | 750 |
| 1995 | 10 | 630 | 4 | 270 | 50 ⁺ | 14 | 950 | 750 |
| 1996 | 12 | 1035 | 1 | 200 | pm | 15 | 1235 | 1900 |
| 1997 | 10 | 2270 | | | pm | 11 | 2270 | 1400 |
| 1998 | 4 | 490 | | | pm | 3 | 490 | - |
| 1999 | 4 | 2140 | | | pm | 3 | 2140 | - |
| Totaal | 58 ⁺ | 8075 | 11 | 565 | 120 ⁺ | 71 | 8760 | 6050 |

Table 4. State of affairs regarding Flora Malesiana in percentages.

| | Seed plants | | Ferns | | Orchids | Total | |
|-------------------|-------------|---------|----------|---------|------------------|----------|---------|
| | families | species | families | species | species | families | species |
| published | 59 | 17 | 23 | 24 | 2.9 | 55 | 15 |
| under revision | 26 | 54 | 60 | 37 | 1.9 | 30 | 44 |
| promises 1993-'99 | 22 | 26 | 29 | 13 | 1.9 ⁺ | 23 | 21 |
| not allotted | 15 | 30 | 17 | 39 | 95.2 | 15 | 41 |

Table 5. Number of species to be treated in Flora Malesiana Series I + II (excl. Orchids).

| | species | % |
|-------------------|---------|-----|
| total | 35,090 | 100 |
| published | 6,150 | 18 |
| under revision | 18,090 | 52 |
| promises 1993-'99 | 8,640 | 25 |
| not allotted | 10,850 | 31 |

Table 6. Publication schedule for 1993.

| Series I in print | Expected manuscripts in 1993 | Expected manuscripts in 1994 |
|-----------------------|------------------------------|------------------------------|
| <i>Volume 11 (2):</i> | <i>Series I:</i> | <i>Series I:</i> |
| <i>133 species</i> | <i>1377 species</i> | <i>630 species</i> |
| Alliaceae | Boraginaceae | Costaceae |
| Amaryllidaceae | Caesalpiniaceae | Eriocaulaceae |
| Coriariaceae | Cycadaceae | Heliconiaceae |
| Pentastemonaceae | Hernandiaceae | Loranthaceae |
| Rosaceae | Illiciaceae | Musaceae |
| Stemonaceae | Lowiaceae | Nymphaeaceae |
| | Meliaceae | Oleaceae |
| | Myristicaceae | Rafflesiaceae |
| | Potamogetonaceae | Strelitziaceae |
| | Rubiaceae I–Naucleae | Viscaceae |
| | Sapindaceae | Xanthorrhoeaceae |
| | Schisandraceae | |
| | Vitaceae | <i>Series II:</i> |
| | | <i>96 species</i> |
| | | Azollaceae |
| | | Davalliaceae |
| | | Dipteridaceae |
| | | Marattiaceae |
| | | Matoniaceae |
| | | Ophioglossaceae |
| | | Salviniaceae |

Table 7: A number of the remaining large, problematical, and/or not allotted families.

| <i>Series I</i> | | <i>Series II</i> |
|-----------------|------------------|------------------|
| Annonaceae | Myrsinaceae | Dennstaedtiaceae |
| Asclepiadaceae | Rubiaceae | Dryopteridaceae |
| Asteraceae | Santalaceae | Lycopodiaceae |
| Gentianaceae | Scrophulariaceae | Selaginellaceae |
| Gesneriaceae | Tiliaceae | Vittariaceae |
| Lauraceae | Urticaceae | |

Appendix: Collaborators of Flora Malesiana

- Adema, F.A.C.B.
L *Sapindaceae*
Papilionoideae (co-ord.)
- Andrews, S.
K *Aquifoliaceae*
- Argent, G.
E *Musaceae*
Strelitziaceae
- Baas, P.
L Anatomy
- Balgooy, M.M.J. van
L *Elaeocarpaceae*
- Barlow, B.A.
CANB *Loranthaceae*
Viscaceae
- Berg, C.C.
BG *Moraceae*
- Bogner, J.
M *Araceae*
- Boyce, P.C.
K *Araceae*
- Breteler, F.J.
WAG *Papilionoideae*
- Buijsen, J.R.M.
L *Sapindaceae*
Alliaceae
- Camus, J.M.
BM *Marattiaceae*
- Chambers, C.
NSW *Blechnaceae*
- Cheek, M.R.
K *Nepenthaceae*
- Chinnock, R.J.
AD *Psilotaceae*
- Coode, M.J.E.
K *Elaeocarpaceae*
- Cowly, E.J.
K *Zingiberaceae*
- Craven, L.A.
CANB *Myrtaceae*
- Dameadi, D.
BO *Pteridophyta*
- Dasuki, U.A.
FIPIA *Papilionoideae*
- De Laubenfels, D.J.
Syracuse
Cycadaceae
- Djanaeva, V.V.
MHA *Berberidaceae*
- Djarwaningsih, T.
BO *Papilionoideae*
- Donkelaar, R. van
L *Asclepiadaceae*
- Dransfield, J.
K *Areaceae* (co-ord.)
- Dransfield-Sujatmi
K woody bamboos
- Endress, P.K.
Z *Eupomatiaceae*
Himantandraceae
- Frodin, D.G.
K *Araliaceae*
- Geerinck, D.J.L.
BR *Amaryllidaceae*
- Gideon, O.
LAE *Costaceae*
- Guymer, G.P.
BRI *Myrtaceae*
- Halya Ibrahim
KLU/KEP
Zingiberaceae
- Ham, R.W.J.M. van der
L Palynology
- Hansen, B.
C *Acanthaceae* (co-ord.)
- Hartley, T.G.
CANB *Rutaceae*
- Hartog, C. den
Nijmegen
Potamogetonaceae
- Hay, A.
NSW *Araceae* (co-ord.)
- Hegnauer, R.
L Chemotaxonomy

(Appendix Collaborators continued)

- Hettterscheid, W.L.A.
L/Aalsmeer
Araceae
- Hill, K.D.
NSW *Myrtaceae*
- Hoogland, R.D.
P *Cunoniaceae*
- Hou, D.
L *Caesalpinaceae*
- Hovenkamp, P.H.
L *Polypodiaceae* (co-ord.)
- Hu, C.-M.
IBSC *Myrsinaceae* (co-ord.)
- Huang, T.-C.
TAI *Daphniphyllaceae*
- Iwatsuki, K.
TI *Hymenophyllaceae*
- Jacobsen, N.
C *Araceae*
- Jarvie, J.
BO/GH *Myrtaceae*
- Jebb, M.
Madang *Nepenthaceae*
- Johns, R.J.
K *Dipteridaceae*
Aspleniaceae
Oleandraceae
- Johnson, L. A. S.
NSW *Casuarinaceae*
- Jones, D.
BISH *Rutaceae*
- Kalkman, C.
L *Rosaceae*
- Kamaruddin, Mat Salleh
Kalimantan
Annonaceae
- Kartawinata, K.
F *Lecythidaceae*
- Kato, M.
TI *Matoniaceae*
- Keng, H.
SING *Theaceae*
- Kennedy, H.
UBC *Marantaceae*
- Keßler, P.J.A.
L *Annonaceae*
- Kiew, R.
UPM *Oleaceae*
- Kirkup, D.W.
K Editor
- Koning, J. de
L *Asclepiadaceae* (co-ord.)
- Kramer, K.U.
Z *Pteridaceae*
- Kress, W.J.
US *Heliconiaceae*
- Laferrière, J.E.
A *Orobanchaceae*
Philesiaceae
Cheiropleuraceae
Equisetaceae
Marsiliaceae
- Larsen, K. & S.S. Larsen
AAU *Caesalpinaceae*
Caryophyllaceae
Lowiaceae
Zingiberaceae (co-ord.)
- Latiff, A.M.
UKMB *Vitaceae*
- Leenhouts, P.W.
L *Sapindaceae*
- Leeuwenberg, A.J.M.
WAG *Apocynaceae* (co-ord.)
- Lewis, G.P.
K *Papilionoideae*
- Mabberley, D.J.
OXF *Meliaceae*
Verbenaceae
- Madhusoodanan, P.V.
Kerala *Salviniaceae*
- Maesen, J. van der
WAG *Papilionoideae*
- Mahyar, U.
BO *Orchidaceae*
- McDonald, A.
A *Nymphaeaceae*
Sapotaceae

(Appendix Collaborators continued)

- | | | |
|---|---|---|
| Meijer, W. KY <i>Rafflesiaceae</i> | Roos, M. C. L <i>Poaceae</i> <i>Polypodiaceae</i> | Soepadmo, E. KLU <i>Bombacaceae</i> |
| Mogea, J. P. BO <i>Areaceae</i> | Rudjiman Yogyakarta <i>Apocynaceae</i> | Stevens, P. F. GH <i>Clusiaceae</i> |
| Murata, J. TI <i>Araceae</i> | Rugayah BO <i>Cucurbitaceae</i> <i>Papilionoideae</i> | Stone, B. C. PNH/BRIT <i>Pandanaceae</i> <i>Rutaceae</i> |
| Nicolson, D. H. US <i>Araceae</i> | Sands, M. K <i>Begoniaceae</i> | Stützel, Th. BOCH <i>Eriocaulaceae</i> |
| Nooteboom, H. P. L <i>Davalliaceae</i> | Saunders, R. Hongkong <i>Illiciaceae</i> <i>Smilacaceae</i> <i>Schisandraceae</i> | Sulistiarini, D. BO <i>Orchidaceae</i> |
| Ohashi, H SEN/TUS <i>Papilionoideae</i> | Savov, K. P. MHA <i>Tiliaceae</i> | Sunarno, B. BO <i>Papilionoideae</i> |
| Pannell, C. M. OXF <i>Meliaceae</i> | Schanzer, I. MHA <i>Rubiaceae</i> | Sunarti BO <i>Papilionoideae</i> |
| Parris, B. S. AK <i>Grammitidaceae</i> <i>Blechnaceae</i> | Schirarend, C. BHU <i>Rhamnaceae</i> | Symon, D. E. AD <i>Solanaceae</i> |
| Radcliffe-Smith, A. K <i>Euphorbiaceae</i> | Schot, A. M. L <i>Euphorbiaceae</i> | Tan, K. C <i>Polygonaceae</i> |
| Renner, S. S. MJG <i>Melastomataceae</i> (co-ord.) | Serebryanyi, M. M. MHA <i>Araceae</i> | Tantra, I. G. M. Samarinda <i>Sterculiaceae</i> |
| Ridder-Numan, J. W. A. L <i>Papilionoideae</i> | Sirirugsa, P. BKF/PSU <i>Zingiberaceae</i> | Telenkova, T. V. MHA <i>Euphorbiaceae</i> |
| Ridsdale, C. E. L <i>Rubiaceae</i> <i>(Naucleoideae)</i> | Smith, R. M. E <i>Zingiberaceae</i> | Trofimova, I. A. MHA <i>Acanthaceae</i> |
| Riedl, H. W <i>Boraginaceae</i> | | Turner, H. L <i>Sapindaceae</i> |

(Appendix Collaborators continued)

- | | | |
|---|--|--|
| Vasilev, A. MHA <i>Orchidaceae</i> | Welzen, P.C. van L <i>Sapindaceae</i> <i>Euphorbiaceae</i> (co-ord.) | Wilcock, C.C. ABD <i>Asclepiadaceae</i> |
| Veldkamp, J.F. L <i>Poaceae</i> (co-ord.) | White, F. OXF <i>Ebenaceae</i> | Wilde, W.J.J.O. de L <i>Cucurbitaceae</i> (co-ord.) <i>Myristicaceae</i> |
| Vermeulen, J.J. L <i>Orchidaceae</i> | Whitmore, T.C. Cambridge, UK <i>Euphorbiaceae</i> | Wilson, K.L. NSW <i>Casuarinaceae</i> |
| Vink, W. L <i>Winteraceae</i> <i>Sapotaceae</i> | Widjaja, E. BO <i>Araceae</i> woody bamboos | Wilson, P.G. NSW <i>Myrtaceae</i> (co-ord.) |
| Vogel, E.F. de L <i>Orchidaceae</i> (co-ord.) | Wiegleb, G. OLD <i>Potamogetonaceae</i> | Wiriadinata, H. BO <i>Papilionoideae</i> |
| Wagner, W.H. MICH <i>Ophioglossaceae</i> | | Wong, K.M. SAR woody bamboos |