ISSN 0254-8844

International Organization of Plant Biosystematists

Newsletter

No. 14

Edited by K. M. Urbanska

Issued from
The Department of Geobotany
Swiss Federal Institute of Technology

Zürich 1990

International Organization of Plant Biosystematists

Newsletter No. 14

Contents

Dear IOPB Members,

Here comes the No. 14 of our Newsletter. Best thanks for all contributions; I hope you will find the present issue informative and useful.

The Lead Article (p. 3) deals with an important project of Panarctic Flora. Not only the subject itself, but also the outlined cooperation between the Western countries and the USSR make this project exceedingly interesting. The perestroika comes to the botany, too, wonderful. Your Editor, for one, hopes for more cooperation between various scientists involved in the studies of the Arctic and - perhaps - for an opportunity to do some field work in the Siberian Far East. Cordial thanks to Dave Murray and Boris Yurtsev for this tremendously interesting paper.

The Panarctic Flora project coincides with the Nordic Flora activities. For this reason, our Council Member and the Main Editor of the NF, Dr. Bengt Jonsell, wrote up a brief commentary (p. 8). Thank you Bengt, our Members certainly will follow the development with much interest.

A very important item in this issue is the IOPB Directory (p. 10-17). I do hope you responded to our appeal and verified your addresses. Should, after all, be there any incorrect data, please send the information to our Secretary, Hans den Nijs, who did this difficult job splendidly. If you have a Fax facility, please give the number, too.

No "IOPB Chromosome Data"this time: the contributions have been submitted too late to be included. They will appear in the next issue.

Please read carefully the note from our Treasurer (p. 19). If you wish to receive the Newsletter regularly, please do pay your fees, otherwise we will be obliged to stop the publication. Thank you.

In the last Newsletter The Editor asked you to be selective about your publication list. Somehow it did not quite work, and the publication lists I'm receiving are sometimes very extensive. Since I cannot obviously publish very many data of a single contributor, please select three publications you consider the most important and add the remainder as e.g. "seven further papers".

Data for Newsletter No. 15 should arrive here before November 30, 1990.

All the best wishes for the (not too rainy summer) 1990

The Editor

NOTE: Please write in **capital** letters or use **typewriter** while preparing your 'Research News' sheet for the Newsletter. You don't want to have some words misspelled in print, do you?

Please only use the new form.

Should you have any more voluminous contribution to the Newsletter, please try to process the text and mail us the disk together with the printout. A disk 3 1/2" compatible with Macintosh is preferable. Thank you.

2. Lead Article

By David F. Murray, University of Alaska, Fairbanks, AK 99775, USA, and Boris A. Yurtsev, Komarov Botanical Institute, Leningrad, USSR

Panarctic floras

Introduction

Unified, panarctic accounts for both vascular and non-vascular plants are needed. The panarctic floras, proposed by us to fill that need, are a set of independent yet parallel treatments for vascular plants, bryophytes, and lichens, north of latitudinal treeline. There are already many accounts of the arctic floras, but, with one outdated exception, all are regional. Moreover, different taxonomic traditions, concepts and criteria, and different weightings of criteria used to discriminate species lead to different taxonomical treatments. Consequently the same plant can, for various historical (and linguistic) reasons, have different names in different countries. The opposite situation appears when different plants are subsumed by the same name.

The principal intellectual challenge of this project is the resolution of conflicts between treatments and the clarification of unifying principles. The technical challenge will be one of international communication and the formation of computerized databases as the core of each flora. The panarctic floras of this proposal will be fully documented and illustrated compendia (practical manuals), in English and Russian, by which to identify plants in each of the major plant groups. By standardizing taxonomic concepts and nomenclature, the treatments should appeal to a wide variety of users.

Why now?

Now is a particularly good time for this work. In addition to the excellent standard works for the vascular plants of Alaska, northern Canada, Greenland, Fennoscandia, and the Soviet Union, the Arctic Flora of the USSR has been completed, new multi-volume Floras for the Soviet Far East and for Siberia are now appearing (three volumes each thus far), and the first volumes for the Flora of North America and Flora Nordica are scheduled to appear soon. We can benefit from these treatments and the new information they will yield, but at the same time the floras will not be merely a recasting of information. The very act of synthesis will raise questions and stimulate research.

For bryophytes and lichens the literature is more diffuse and a search is required to produce a more complete preliminary list of taxa. There is a good base, however, from various sources: Handbook of the Lichens of the USSR (in progress), American Arctic Lichens I., Lichens of the Alaskan Arctic Slope, Handbook of the Mosses of the Arctic USSR, Handbook of Mosses of the USSR, Mosses of Eastern North America, Mosses of Arctic Alaska, Illustrated Moss Flora of Arctic North America and Greenland (in progress), Illustrated Moss Flora of Fennoscandia (includes Hepatics), The *Hepaticae* of the Northern USSR,

Hepaticae of West Greenland, *Hepaticae* of South Greenland, Hepaticae of Arctic Alaska, *Hepaticae* and *Hepaticae* of North America, and checklists for North America generally and for Alaska, Canada, and Greenland specifically.

Organization

Our initial proposal is for bi-national leadership of the panarctic floras project from two centres: the Komarov Botanical Institute in Leningrad, USSR and the University of Alaska Museum in Fairbanks, USA. The work will be carried out in two parallel but essentially independent efforts for vascular plants and non-vascular plants. The floras will actually be written by multi-national teams of contributors, and close coordination with colleagues in Canada and the Nordic countries will be established. To offer advice and guidance, a steering committee will be selected from among senior specialists in the arctic flora .

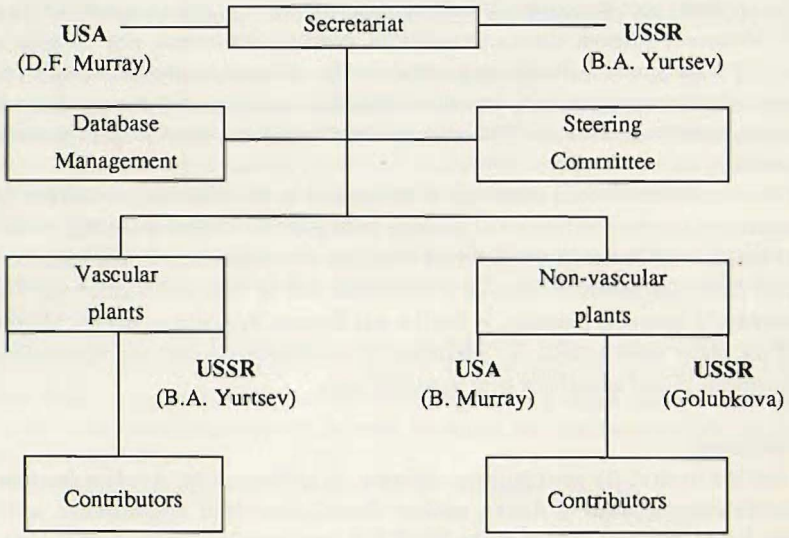

Fig. 1. The proposed organization scheme for the Panarctic Floras Project.

The computer environment

It is difficult, if not impossible, to separate the creation and uses of floras from the compilation and applications of electronic databases. Computers will be used to form a set of interactive databases of various types:

1. taxon-based files for nomenclatural data (the accepted names of plants and their synonyms), bibliographic data, and chromosome numbers;
2. specimen-based files derived mainly from specimen labels, but also from literature records in which specimens are cited, all of which provide the means to have computer-

generated maps for each species, lists of collecting localities, collectors, etc. drawn from 20 to 25 fully searchable fields;

3. files for writing diagnoses or descriptions and identification keys.

Finally, the process of publication itself is now advanced through the use of automated typesetting by computers.

It is our intention that the panarctic databases will be formed with pcTROPICOS, developed and supported by the Missouri Botanical Garden, so we can easily contribute to their even large database effort, but we are also very impressed with and currently using at ALA software available on the Macintosh system as a supplement to the mainframe computer.

Creating databases is labor-intensive, but the benefits begin early, increase dramatically as the projects mature, and persist beyond our ability to predict. What distinguishes the electronic format of the floras is the capacity to correct entries found to be in error or to update them as new information is available, all without large additional costs. We anticipate that revisions to the panarctic floras can be economically made.

Objectives for early phases of work

Workshop. A workshop in late 1990 or early 1991 will convene the organizers from the two primary institutions for a week of "nuts and bolts" discussions. A specialist for geographic information systems (GIS) will attend. GIS provides the means to integrate, through a hierarchy of geographic data, botanical databases with ones from other fields of biology. Database structure and associated data dictionaries will be studied, striving to meet the "industry standard", so that full compatibility with other systems will be assured. Priorities, procedures, and work schedules will be determined. These decisions will become the basis for grant proposals to our respective funding agencies so that work can begin.

Database development. Microcomputers will be installed at the Komarov Botanical Institute where there are both the specialists and abundant specimens, many of which are for taxa otherwise very poorly represented in other herbaria.

Herbarium exchanges and field expeditions. In spite of all the recent accomplishments, a great deal of original work remains to be accomplished on the taxonomy of arctic plants. After the technical hurdles have been crossed, there are still intellectual challenges to confront as we attempt to wrest (or do we mean wrestle?) a single, synthetic treatment from the different traditions and approaches there are in the Soviet Union, in Europe, and North America. The resolution of these differences requires that contributors from these schools of thought examine the same materials together. Exchanges of specimens and of people between the key herbaria will be vital to this process.

For the very difficult, so-called "critical", taxa, it will also be necessary to have teams of scientists, including monographers, working together in the field. Our own field work in other countries and together has opened our eyes to the enormous opportunities collabora-

tive work provides. It is difficult to overstate the value of seeing with one's own eyes similar but geographically distant landscapes and floras. There is also the likelihood of useful perspectives from bringing new eyes to examine old, even previously intractable, problems. It is our intention, too, that senior scientists will be joined by young botanists, whom we must encourage to choose the Arctic as their area of specialization. Priorities for field work must be established as soon as possible to have these studies launched early in the project and the results available as the treatments are written.

Early electronic and hard copy products. We will first compile working checklists of accepted names and synonyms for each of the two major sectors (Asiatic USSR to western Hudson Bay and eastern Hudson Bay to European USSR) which will be continuously refined as the project progresses. Similarly, the bibliographic files will be printed at intervals and circulated for review within and outside of this project. The chromosome number survey will be created following Flora Nordica standards.

Usefulness of the panarctic floras/databases

Today the Arctic is receiving a great deal of attention as 1) an important source of gas and oil, 2) the region likely to experience early and profoundly the effects of global climate change, and 3) a "last frontier" of pristine or only slightly modified natural ecosystems where indigenous people still hold traditional values. Exploitation and conservation are competitive activities; some would argue they are mutually exclusive. Hence, before exploitation of natural resources is contemplated, a careful weighing of costs and benefits is the only rational course. Little progress toward such an assessment is possible without a detailed knowledge of our natural resources. Floras and their associated databases, in a very direct and highly organized way provide information that can ultimately guide many management decisions, especially when rare plants, restricted habitats, and the protection (or restoration) of vegetation are prime considerations.

Inventory and documentation. Monographic floras are carefully documented inventories of the kinds of plants in a given area, thus their contribution to a knowledge of biodiversity is self-evident. Given that plant names are the key words by which to store information in databases and to conduct searches of them, provisions for standard names and the means to make correct identifications must have a high priority. As HAWKSWORTH and BISBY (1988) have stated so well, "The provision of names ... provides the only practical method by which pure and applied biologists of all disciplines can communicate, locate, and retrieve data on organisms from the whole body of biological knowledge."

Conservation and global change. Although there is a strong circumpolar element in the flora, many species are not uniformly distributed throughout the Arctic. Indeed, some are very restricted in range, and the study of endemics and rare taxa is an important line of re-

search. Furthermore, when these plants are so restricted as to be threatened with extirpation by modifications of their habitats, such cases must be made part of the cost-benefit equation when development is under consideration.

Although change is an inescapable fact of earth history, anthropogenic factors are now thought to be initiating and accelerating changes in global climate with implications of critical significance. There is, therefore, an immediate need to assess more precisely the nature of change and to predict the effects. Our ability to achieve these objectives presumes: 1. a detailed knowledge of the biota as the baseline against which change can be measured, and 2. that this knowledge is available in a form easily understood by non-taxonomists.

The Arctic is not immune from pollutants, in fact the study of the arctic haze is pointing to the need for monitoring that will most likely be based on the systematic assay of certain lichens and mosses.

Vegetation and geographic information systems. One of the problems we are addressing is how to synthesize and generalize the information on plant cover that is already at hand. How are the results of a myriad detailed studies to be organized? Can local, site-specific studies be extrapolated to larger areas, as in our case to the entire Arctic? To create accurate regional generalizations we must know well the geographic limits to which any set of data are valid. Without careful consideration of these questions, we will not be able to assess what new work is most needed, where it should be conducted, nor the geographic extent to which the conclusions can be correctly applied. A floristic signature for vegetation provides the continuous thread by which to trace plot studies to generalizations of vegetation at ever expanding scales, as from plot to watershed to geobotanical province to biogeographic zone.

To have a carefully considered, authoritative list of accepted names and, most importantly, to know their synonyms, is to have the keys to unlock numerous sources of information. Several names might then be used as key words to extend reviews of literature, thus the search for comparative data can be widened.

Conclusions

The panarctic floras project provides exciting challenges for international cooperation. By sharing we each contribute the strengths of our intellectual traditions and technology to achieve a full and balanced view of arctic plants. The panarctic databases will be established and maintained for the long term as a significant regional contribution to the study of biodiversity. Written in the simplest language possible, these floras can be important contributions to our theoretical understanding of systematics and as also have very practical applications as standard references to arctic plants.

References

HAWKSWORTH, D.L. and BISBY F. A., 1988: Systematics: the keystone of biology. In: HAWKSWORTH D. L. (ed.), Prospects in Systematics. Systematics Assoc. Special Vol. No. *36*, 4-30.

3. Comment on the Lead Article

by B.E. Jonsell, Bergianus Botanic Garden, P.O.Box 50017, S-10405 Stockholm, Sweden

Flora Nordica and the Panarctic Floras project

Flora Nordica (see IOPB Newsletters No. 9 an 11) is a project obviously both interfering with and mutually benefitting from a Panarctic Flora for vascular plants. No less than half of northern Holarctic or 5 out of its 10 latitudinal phytogeographic zones would fall within the probable range of a Panarctic Flora. The zonal division proposed for Flora Nordica runs from the Polar Desert Zone to the Hemiarctic (or Boreoarctic, as we will prefer to call it). The latter will include only a narrow strip of northernmost Norway, otherwise the Arctic areas included in Flora Nordica are islands viz. Spitsbergen, Bear Island, and Jan Mayen.

Within that half number of zones only about 10% or about 250 of the species are present. They are largely panarctic, an not seldom variously treated from the taxonomic point of view in different parts of that area. Another problem is that quite a few taxa form disjunct and often small alpine populations in Scandinavia, from which they were first known and described. In many cases this led to a tradition of narrow taxonomic concepts that are still adhered to, even after the variation in arctic regions has become known, albeit seldom properly analysed.

My hope is that Flora Nordica and Panarctic Flora will develop side by side, which for the Western European Arctic would mean an excellent integration of data along both north-south and east-west gradients.

***

4. Research News

ALBERS F., Prof. Dr., Institut für Botanik, Westfälische Wilhelm-Universität Münster, Schlossgarten 3, D-4400, Münster, West Germany.

Recent publication:

1988: Strategies in chromosome evolution in *Pelargonium* (*Geraniaceae*). Monogr.Syst.Bot.Missouri Bot.Gard. *25*, 499-502.

BAYER R.J., University of Alberta, Department of Botany, Edmonton, Alberta T6G 2E9, Canada

Recent publications:

1989: A systematic and phytogeographic study of *Antennaria aromatica* and *A. densifolia* (*Asteraceae: Inuleae*) in the western North American Cordillera. Madrono *36(4)*, 248-259.

1989: Nomenclatural rearrangements in *Antennaria neodioica* and *A. howellii* (*Asteraceae: Inuleae: Gnaphaliinae*). Brittonia *41(4)*, 396-398.
1990: Investigations into the evolutionary history of the *Antennaria rosea* (*Asteraceae: Inuleae*) polyploid complex. Pl.Syst.Evol. *169*, 97-110.

CARTIER D., Conservatoire et Jardin botaniques, case postale 60, CH-1292 Chambésy.
Recent publication:
Contribution à l'étude biosystématique du *Plantago atrata* Hoppe. Candollea *44*, 249-256.

LI Lin-Chu, Department of Biology, Fudan University, Shanghai
Recent publications:
1990: Study on the pollen morphology of *Calycanthus* L. Bull.Bot.Res. (Harbin, China) *10(1)*, 93-97.
1990: The study on the systematic position of *Metasequoia*. Wuhan Bot.Res. *8(3)* (in press).
And seven further papers.

PICHI SERMOLLI R.E.G., Professor, via Cantagrilli 1, I-50020 Montagnana V.P. (FI), Italy
Recent publications:
BENNERT H.W., PICHI SERMOLLI R.E.G., RASBACH H., RASBACH K. and REICHSTEIN T., 1989: *Asplenium x helii* Lusina, the valid name for the hybrids between *A. petrarchae* (Guérin) DC and *A. trichomanes* L. (*Aspleniaceae, Pteridophyta*). I. Nomenclatural notes. Bauhinia *9(1)*, 103-106.
BENNERT H.W., PICHI SERMOLLI R.E.G., RASBACH H., RASBACH K. and REICHSTEIN T., 1989: *Asplenium x helii* Lusina, the valid name for the hybrids between *A. petrarchae* (Guérin) DC and *A. trichomanes* L. (*Aspleniaceae, Pteridophyta*). II. Detailed description and illustrations. Webbia *43*, 311-337.
PICHI SERMOLLI R.E.G., 1989: Again on the typification of the generic name *Notholaena* R.Brown. Webbia *43*, 301-310.
Current projects: Study of a fern collection from Queensland.
Projects completed: Account on the taxonomy of some species of *Triplophyllum* (*Dryopteridaceae*) from tropical Africa.
Projects started: Italian collectors and collections in the extra-european countries.

URBANSKA K.M., Professor, Geobotanisches Institut ETH, Stiftung Rübel, Zürichbergstrasse 38, CH-8044 Zürich
Recent publication:
URBANSKA K.M. and LANDOLT E., 1990: Biological values of plant species. (In German). Ber.Geobot.Inst.ETH,Stiftung Rübel, Zürich, *56*, 61-77.

QUINN J.A., Professor, Department of Biological Sciences, Rutgers University, Piscataway, NJ 08855-1059, USA
Recent publications:
QUINN J.A, 1989: Within- and among-tree variation in flower and fruit production in two species of *Carya* (*Juglandaceae*). Amer.J.Bot. *76(7)*, 1015-1023.
QUINN J.A, 1989: Sex linkage of growth and forage attributes in buffalograss (*Buchloe dactyloides*). Proc. XVI Internat. Grassland Congress, Nice, France *1*, 415-416.
MCCARTY B.C. and QUINN J.A, 1990: Reproductive ecology of *Carya* (*Juglandaceae*): Phenology, pollination, and breeding system of two sympatric tree species. Amer.J.Bot. *77(2)*, 261-273.

***

5. IOPB Directory

by Hans C.M. den Nijs, Hugo de Vrieslaboratory, University of Amsterdam, Kruislaan 318, NL-1098 SM Amsterdan, The Netherlands

Ackerman James D.
Dept. of Biology
University of Puerto Rico
Rio Pedras, PR 00931
U. S. A.

Adolphi Klaus
Kolpingstr. 36
D-5461 Rossbach
W-Germany

Aeschlmann David
Conservatoire et Jardin Botanique
Case Postal 60
CH-1292 Chambesy/Geneve
Switzerland

Alnouche Malika
Institut des Sciences de la Nature U.S.T.H.B.,
B.P. no. 39,
El-Alia, Bab-Ezzouar,
Alger
Algeria

Albers Focke
Botanisches Inst. & Bot. Garten der Univ.,
Schlossgarten 3,
D-4400 Muenster
W-Germany

Alis. I.
Department of Botany,
University of Karachi,
Karachi 75 270
Pakistan

Amlrouche Rachid
Institut des Sciences de la Nature, U.S.T.H.B.,
B.P. no. 39,
El-Alia, Bab-Ezzouar,
Algeria

Anderson Gregory J.
Biological Sciences Group U-43,
University of Connecticut,
Storrs, Connecticut 06268
U. S. A.

Andersson Eva
Dept. of Systematic Botany,
Uppsala University,
P.O.Box 541,
S-751 21 Uppsala
Sweden

Anzalone Bruno
Instituto Botanico,
Citta Universitaria,
00185 Roma
Italy

Apelgren Karin
Dept. of Syst. Botany,
Uppsala University,
P.OBox 541,
S-751 21 Uppsala
Sweden

Armstrong J.E.
Dept. of Biological Sciences,
Illinois State University ,
Normal, Illinois 61761-6901
U. S. A.

Arroyo Dr. M.T.K.
Laboratorio de Sistematica y Ecologia
Vegetal, Depto. Biologia
Universidad de Chile,
Casilla 653
Santiago
Chile

Asker Sven E.
Inst. of Genetics,
University of Lund,
Soelvegatan 29,
S-22362 Lund
Sweden

Bachmann K.
Hugo de Vries Laboratory,
University of Amsterdam,
Kruislaan 318,
1098 SM Amsterdam
The Netherlands

Badr A.
College of Education,
King Abdulaziz University,
P. O. Box 344,
AlMadinah Almunawwarah
Saudi Arabia

Baln John F.
Dept. of Plant Science,
MacDonald College,
Ste. Anne de Bellevue,
Quebec
Canada H9X 1CO

Baltisberger M.
Geobotanisches Institut ETH,
Universitaetsstr. 2,
8092 Zuerich
Switzerland

Barlow Bryan A.
Division of Plant Industry CSIRO,
G.P.O. Box 1600,
Canberra, A.C.T. 2601
Australia

Bayer R.
University of Alberta,
Dept. of Botany,
Edmonton,
Alberta
Canada T6G 2E9

Berg Cornelis
The Norwegian Arboretum,
Milde,
5067 Store Milde
Norway

Bernardello Luis
Museo Botanico,
Universidad Nacional de Cordoba,
Casilla de Correo 495,
5000 Cordoba
Argentina

Biblioteket
Botanical Garden & Museum,
University of Oslo,
Trondheimsvn. 23B,
0562 Oslo 5
Norway

Blaise Solange
Universite de Paris, Fac. des Sci. D'Orsay,
Lab. de Biol. Vegetale C.,
Batiment 362,
91405 Orsay, Essonne
France

Blanche C.
Dep. de Botanica, Fac. de Farmacia,
Univ. de Barcelona,
Diagonal s/u ,
08028 Barcelona
Spain

Boom Brian M.
The New York Botanical Garden,
Bronx, NY 10458
U.S.A.

Borgen Liv
Botanical Garden & Museum,
University of Oslo,
Trondheimsvn. 23B,
0562 Oslo 5
Norway

Bot. Garten und Bot. Bibliothek
Koenigin-Luise-Strasse 6-8,
D-1000 Berlin 33
W-Germany

Botanic Institute
University of Aarhus,
Nordlandsvej 68,
DK-8240 Risskov
Denmark

Botanische Bibliothek
Menzingerstrasse 67
8000 München 19
BRDEUTSCHLAND

Bouharmont J. M. G.
Laboratoire de Cytogenetique,
Univ. Catholique de Louvain,
Place de la Croix-du-Sud 4,
B-1348 Louvain-La-Neuve
Belgium

Bradshaw Anthony D.
Department of Botany,
University of Liverpool,
Liverpool L69 3BX
England

Brandenburg W. A.
RIVRO
Nwe Wageningseweg 1,
Bennekom
The Netherlands

Breckle S.-W.
Abteilung oekologie/Fak.Biol.,
Universitaet (W1-142),
D-4800 Bielefeld
W-Germany

Briggs Barbara
Royal Botanic Gardens Sidney,
Mrs. Macquarie's road,
Sydney, N. S. W. 2000
Australia

British Museum General Library
Cromwell Road,
London SW7 5BD
England

Brochmann Christian
Botanical Garden and Museum,
University of Oslo,
Trondheimsvn. 23B,
0562 OSLO 5
Norway

Brouillet Luc
Institute Botanique
Universite de Montreal,
4101, Rue Sherbrook Est,
Montreal, Quebec
Canada H1X 2B2

Brown Gregory K.
Department of Botany
Univ. of Wyoming,
Laramie, WY 82071
U. S. A.

Bruederle Leo P.
Blueberry/Cranberry Research Center,
Cook College,
the State Univ. of New Jersey,
Chatsworth, NJ 08019
U. S. A.

Buttler Karl Peter
Weberstrasse 80
D-6000 Frankfurt 1
W-Germany

Calero Ana
Dpt. Ecologia y Botanica Aplicada,
Centro de Invest. y Tecnologia Agrarias,
Apdo. 60, La Laguna,
Tenerife, Canary Islands
Spain

Cardona M. A.
Dep. Biol. Animal, Biol. Vegetal i Ecologica,
Fac. de Sciences, Univ. aut. de Barcelona,
08193 Bellaterra,
Barcelona
Spain

Cartier D.
Univ. de Paris, Fac. des Sci.d'Orsay,
Lab. de Biol. Vegetale C.,
Batiment 362, 91405 Orsay,
Essonne
France

Chambers Kenton L.
Herbarium, Botany Dept.,
Oregon State University,
Corvallis, Oregon 97331
U. S. A.

Chaw Shu-Miaw
Louisiana State University
Baton Rouge
Louisiana 70803-1806
USA

Chinnappa C. C.
Department of Biology,
University of Calgary,
Calgary, Alberta
Canada T2N 1N4

Conservatoire et Library
Case Postal 60,
CH-1292 Chambesy/Geneve
Switzerland

Cook C. D. K.
Institut fuer syst. Botanik der Univ. Zuerich,
Zollikerstr. 107,
CH-8008 Zuerich
Switzerland

Czaplk R.
Department of Plant Cyt. & Embryology,
Jagellonian University,
Grodzka 52,
31-044 Krakow
Poland

Doebley J. F.
Botany Department,
University of Minnesota,
St. Paul, MN 55108
U. S. A.

Downie S. R.
Department of Biology,
University of Michigan,
Ann Arbor, MI 48 109
U. S. A.

Dulberger Rivka
Tel-Aviv University,
Department of Botany,
Tel-Aviv 69978
Israel

Eckenwalder J. E.
Department of Botany,
University of Toronto,
Toronto, Ontario
Canada M5S 1A1

Egli Jacqueline
Milchbuckstrasse 14
8057 Zuerich
Switzerland

Elchler Hansjoerg
Australian National Herbarium, CSIRO,
G.P.O.Box 1600,
Canberra, A. C. T. 2601
Australia

Ellsens J.W.
Dep. of Botany & Microbiology,
University of Oklahoma,
Norman, OK 73019
U. S. A.

Elven Reidar
Botanical Garden & Museum,
University of Oslo,
Trondheimsvn. 23B,
0562 Oslo 5
Norway

Eshbaugh W. Hardy
Department of Botany,
Miami University,
175 Upham Hall,
Oxford, Ohio 45056
U. S. A.

Fahselt Dianne
Dept. of Plant Sciences
University of Western Ontario,
London, Ontario
Canada N6A 5B7

Farron Claude
Botanisches Institut der Universitaet Basel,
Postfach 246,
CH-4009 Basel
Switzerland

Favarger C.
Institut de Botanique, Univ. de Neuchatel,
Ch. de Chantemerle 9,
CH - 2000 Neuchatel
Switzerland

Felber Francois
Institut de Botanique, Univ. de Neuchatel,
Chantemerle 22,
CH-2000 Neuchatel 7
Switzerland

Fernandez Lopez Carlos
Colegio Universitario "Santo Reino",
23071 Jaen
Spain

Fukuda I.
Div. of Biology,
Tokyo Woman's Christian University,
Zempukuji, Suginami,
Tokyo 167
Japan

Gadella T.
Rijksuniversiteit Utrecht,
J. F. Kennedylaan 28,
3981 GC Bunnik
The Netherlands

Galland Nicole
Inst. Bot. Syst. & Geobot.,
Univ. de Lausanne,
CH - 1015 Lausanne
Switzerland

Getliffe Norris Fiona M.
National Botanic Gardens,
Kirstenbosch,
Private Bag X7,
Claremont 7735
Republic of South Africa

Gottschlich Guenther
Am Dorfbrunnen 26,
D-7400 Tuebingen - Hagelloch
W - Germany

Grant Verne
Dept of Botany,
University of Texas,
Austin, Texas 73712
U. S. A.

Grant William F.
Department of Plant Science,
Macdonald, College of McGill Univ.,
Box 4000,
Ste. Anne de Bellevue, Quebec
Canada H9X 1C0

Greuter Werner
Bot. Garden und Museum, Berlin-Dahlem,
Koenigin-Luise-Strasse 6-8,
D-1000 Berlin
W - Germany

Guang-Xi Wang
Department of Biology,
Wuhan University,
Wuhan, Hubei
P.R. China

Hartman Ronald L.
Dep. of Botany,
The University of Wyoming,
3165 University Station,
Laramie, Wyoming 82071
U. S. A.

Hashimoto Kiyoshi
c/o The Hiroshima Botanical Garden,
Kurashige, I
tsukaichi - cho,
Hiroshima, 731-51
Japan

Haufler Christopher H.
Department of Botany,
University of Kansas,
Lawrense, Kansas 66045
U. S. A.

Hayashi Kazuhiko
Biological Institute
Osaka Gakuin University
Suita, Osaka 564

Japan

He Jingbiao
Department of Biology,
Wuhan University,
Wuhan, Hubei
P.R. China

Heath P. V.
9 Hazeldene Meads,
Brighton, BN1 SLR
England

Heckard L. R.
Jepson Herbarium, Botany Dept.,
University of California,
Berkeley, California 94720
U. S. A.

Heyn C.C.
Dept. of Botany,
The Hebrew University,
Jerusalem 91904
Israel

Heywood V. H.
IUCN,
53 The Green, Kew,
Richmond, Surrey TW9 3AB
UK

Hill Mr L. Michael
Biology Department
Bridgewater College
Bridgewater, Va 22812

USA

Holsinger Kent E.
Dep. of Ecology and Evolutionary Biology,
University of Connecticut, U-43,
75, North Eagleville Road,
Storrs, CT 06268
U. S. A.

Hong De-yuan
Lab. Systematic & Evolutionary Botany
Academia Sinica,
20 Nanxincun, Xiangshan
Beijing 100093
P.R. China

Hoshino Takuji
Biological Laboratory, Faculty of Science,
Ridaicho 1-1,
Okayama 700
Japan

Houle Francine
Institut Botanique, Universite de Montreal,
4101 Est, Rue Sherbrooke,
Montreal, Quebec
Canada H1X 2B2

Hui-qin Wang
Department of Biology,
Wuhan University,
Wuhan, Hubei
P.R. China

Hultgard Ulla-Maj
Dept. of Syst. Botany,
Uppsala University,
P.O. Box 541,
S-751 21 Uppsala
Sweden

Hurka H.
Institut fuer Biologie,
Spezielle Botanik,
Barbarastrasse 11,
D-45 Osnabrueck
W-Germany

Iltis Hugh
Dept. of Botany, University of Wisconsin,
132 Birge Hall,
430 Lincoln Drive,
Madison, Wisconsin 53106
U. S. A.

Institut de Botanique Bibliothèque
22, Chemin de Chantemerle
CH 2007 Neuchatel
SWITZERLAND

Iwatsuki Prof. Kunio
Dir. Botanical Garden University Tokyo
3-7-1 Hakusan, Bunkyo
Tokyo 112
Japan

Jackson R. C.
Dept. of Biological Sciences,
Texas Techn. University,
Lubbock, Texas 79409
U. S. A.

Jagan Mohun Rao N.
Crop Research Station,
Sununda Farm, MEDCHAL,
R.R. Dist. (A.P.) 501401
India

Jain S.C.
Plant Physiology & Biochemistry
Laboratory,
Dept. of Botany,
University of Rajasthan,
Jaipur -302 004

India

Jia-kuan Chen
Department of Biology, Wuhan University,
Wuchang,
Hubei, Wuhan
P.R. China

Jones Almut G.
Herb. Dept. of Plant Biol.,
Univ. of Illinois,
505 South Goodwin Avenue,
Urbana, Illinois 61801
U. S. A.

Jones David T.
Department of Botany,
University of Malaya,
59100 Kuala Lumpur
Malaysia

Jonsell B. E.
Bergius Botanic Garden,
Box 50017 ,
S-104 05 Stockholm

Sweden

Jury Stephen L.
Plant Science Laboratories,
University of Reading,
Whiteknights, Reading RG6 2AS
England

Kawano S.
Dep. of Botany, Faculty of Science,
Kyoto University,
Kyoto 606
Japan

Kell David J.
California Polytechnic State University,
San Luis Obispo, California 93407
U. S. A.

Kelso S.
Dept. of Biology,
Colorado College,
Colorado Springs, CO 80903
U. S. A.

Khalid Dr. Sami A.
Pharmacognosy Department
University of Khartoum
P.O. Box 1996
Khartoum
Sudan

Kobayashi Mikio
Utsunomiya University,
Faculty of General Education,
Mine-machi 350,
Utsunomiya 321
Japan

Kovanda M.
Czechoslovak Academy of Scie.,
Botanical Institute,
252 43 Pruhonice near Praha
Czechoslovakia

Kraehenbuehl Martin
Institut Botanique Universite,
Chantemerle 22,
CH-2000 Neuchatel 7
Switzerland

Krahulik Joseph L.
Pacific Tropical Botanical Garden,
Post Office Box 340,
Lawai, Kauai
Hawai 96765 USA

Kroenlein M.
Jardin Exotique de Monaco,
B. P. 105,
Monte Carlo MC 98002
Monaco CEDEX

Kuepfer Philippe
Institut de Botanique,
Chemin de Chantemerle 22,
CH-2007 Neuchatel
Switzerland

Lumboy W.F.
Dep. of Plant Biology, University of Illinois,
289 Morrill Hall,
505 S. Goodwin Ave.,
Urbana, IL 61801
U. S. A.

Landolt Elias
Geobotanisches Institut ETH,
Zuerichbergstrasse 38,
CH-8044 Zuerich
Switzerland

Lane Meredith A.
Director of Herbarium, University of Kansas,
2045 Constant Ave,
Lawrence, KS 66047
U. S. A.

Lazare Jean-Jacques
Centre d'Ecologie Montagnarde de Gabas,
F-64440 Laruns
France

Lefèbvre C.
Lab. d'Ecologie Vegetale et de Genetique,
Chaussee de Wavre 1850,
B-1160 Bruxelles
Belgium

Lewis Harlan F.
14280 Sunset Blvd.,
Pacific Palisades, CA 90272
U. S. A.

Lewis Walter H.
Dept. of Biology, Washington University,
Box 1137,
St. Louis, MO 63130
U. S. A.

Li Shiyou
Botanical Institute,
Northeast Forestry University,
Harbin
P.R. China

Li Linchu
Depart. of Biology
Fudan University
Shanghai
PR China

Llamas-Garcia Felix
Dpto. of Plant Biology,
University of Leon,
E-24071 Leon
Spain

Lo Hann-Chung
Department of Forestry,
National Taiwan University,
P.O.Box 13-387,
Taipei, Taiwan 107
Republic of China

Lowrey T.K.
Dept. of Botany,
National University of Singapore,
Lower Kent Ridge Road.
Singapore 0511

Luaces Marina Horjales
Depto. Biologia Vegetal,
Colegio Universitario de Vigo,
Aptdo. 874
36200 Vigo (Pontevedra)
Spain

Maclor L.W.
Department of Biology,
Buchtel College of Arts and Sciences,
Akron, OH 44325
U. S. A.

Marhold Karol
Jeremenkova 23,
CS-85 105 Bratislava
Czechoslovakia

Martinez Arturo M.
Serrano 665,
1414 Buenos Aires
Argentina

Martinsson Karin
Dept. of Systematic Botany,
Uppsala University,
P.O.Box 541,
S-751 21 Uppsala
Sweden

McNeill J.
Royal Ontario Museum
100 Queen's Park
Toronto, Ontario M5S 2C6
Canada

Menken S.
Hugo de Vries Laboratory
University of Amsterdam
Kruislaan 318,
1098 SM Amsterdam
The Netherlands

Molero Julian
Dep. of Botany, Faculty of Pharmacy,
Univ. of Barcelona,
Zona Univ. de Pedralbes,
08028 Barcelona
Spain

Montserrat-Marti J.M.
Institut Botanic,
Av. Muntanyans s/n,
Parc de Montuic,
08004 Barcelona
Spain

Moore David
Botany Dept.,
Plant Science Laboratories,
The University Whiteknights,
Reading RG6 2AS
England

Morita Tatsuyoshi
Niigata University
8050 Ikarashi-ni-no-cho
Niigata

Japan

Morton J. K.
Department of Biology,
University of Waterloo,
Waterloo, Ontario
Canada N2L 3G1

Mueller T.
The National Botanic Gardens and Herbarium,
P.O.Box 8100,
Causeway, Harare
Zimbabwe

Murray David F.
Museum,
University of Alaska,
Fairbanks, AK 99775
U. S. A.

Nabila Amirouche
Lab. Genetique Ecologique ISN USTHB
BP 139
El Alia, Bab el Zoua
1111 Alger

Algeria

Nationale Plantentuin
Domein van Bouchout,
B-1860 MEISE
Belgium

Newton L. E.
Dept. of Botany, Kenyatta University,
P.O.Box 43844,
Nairobi
Kenya

Nijs Hans C. M. den
Hugo de Vries Laboratory,
University of Amsterdam,
Kruislaan 318,
1098 SM Amsterdam
The Netherlands

Nogler G.A.
Inst. fuer Allgemeine Botanik, E.T.H.,
CH-8092 Zuerich
Switzerland

Noher de Halac Ines
B. Powell 2794,
5016 Cordoba
Argentina

Nordal Inger
Botanical Garden & Museum,
University of Oslo,
Trondheimsvn. 23B,
0562 Oslo 5
Norway

Okada Hiroshi
Dept. of Biology,
College Gen. Education
Osaka University,
Osaka 560
Japan

Peng Ching-I
Institute of Botany, Academia Sinica,
Nankang,
Taipei,
Taiwan, 11529
Republic of China

Perez de Paz Pedro Luis
Dep. de Biologia Vegetal (Bot.),
Facultad de Farmacia,
Universidad de La Laguna,
Tenerife,
Islas Canarias
Spain

Phipps James B.
Dept. of Plant Sciences,
The University of Western Ontario,
London, Ontario
Canada NOM 1AO

Pichi Sermolli R. E. G.
Via Cantagrilli 1,
I-50020 Montagnana val di Pesa,
Firenze
Italy

Ping-sheng Hsu
Department of Biology,
Fudan University,
Shanghai
P.R. China

Plant Research
Agriculture Canada,
Bldg. 49,
Ottawa, Ontario
Canada K1A 0C6

Plitmann Uzi
Dept. of Botany,
The Hebrew University,
Jerusalem 91904
Israel

Pogan Eugenia
Dept. of Plant Cytology and Embryology,
Inst. of Botany, Jagellonian University,
Grodzka St. 52,
31-044 Krakow
Poland

Powell A. M.
Dept of Biology, Sul Ross State University,
Box 6064,
Alpine, Texas 79832
U. S. A.

Puech S.
Lab. de Syst. et d'Ecologie Mediterraneennes,
Institute de Botanique,
Rue Auguste-Broussonet,
3400 Montpellier
France

Qaiser M.
Department of Botany,
University of Karachi,
Karachi-32
Pakistan

Quinn James A.
Department of Biological Sciences,
Rutgers University,
Piscataway, NJ 08855
U. S. A.

Raamsdonk L.W.D. van
Inst. Veredeling van Tuinbouwgewassen,
Postbus 16,
6700 AA Wageningen
The Netherlands

Raina S.N.
Cytogenetic Laboratory, Dept of Botany,
University of Dehli,
Dehli 110007
India

Ranganath R. M.
No. 112, 8th 'B' Main Road, 4th Block,
Jayanagar,
Bangalore 560 011
India

Ravanko O. M.
Department of Biology,
University of Turku,
SF-20500 Turku 50
Finland

Raven Peter H.
Missouri Botanical Garden,
P. O. Box 299,
St. Louis, Missouri 63166
U. S. A.

Real Jardin Botanico Library
C. S. I. C.,
Plaza de Murillo, 2,
28014 Madrid
Spain

Reichstein Tadeus
Inst. of Organic Chemistry,
University of Basel,
19. St. Johanns-Ring,
CH-4056 Basel
Switzerland

Rijksherbarium Library
Postbus 9514,
2300 RA Leiden
The Netherlands

Rossello Josep A
Dept. de Botanica, Facultat de Ciencies,
E-07071 Palmar de Mallorca,
Isles Baleares
Spain

Rousi Arne
Department of Botany,
University of Turku,
SF-20500 Turku 50
Finland

Royal Botanic Garden Librarian
Birdwood Avenue,
South Yarra, Vic. 3141
Australia

Royal Botanic
(ODC 499962 ME)
Kew,
Richmond, Surrey TW9 3AE
England

Russell George
Department of Botany,
The University,
Liverpool L69 3BX
England

Salvesen Per H.
Institute of Botany,
Box 14,
1432 AS-NLH
Norway

Sun-Sheng Sun
Airforce Medical School,
100 Jiangnan Street,
Jilin City
P.R. China

Santa Barbara Botanic Library
1212 Mission Canyon Road,
Santa Barbara, CA 93105
U. S. A.

Sauer W.
Inst. fuer Biologie I, Lehrst. Spez. Botanik,
Universitaet Tuebingen,
Auf der Morgenstelle 1,
D-7400 Tuebingen
W-Germany

Schw. Landesbibl. Zeitschriftenabt
Hallwylstrasse 15
CH 3003 Bern
SWITZERLAND

Semple John C.
Department of Biology, Faculty of Science,
University of Waterloo,
Waterloo, Ontario
Canada N31 3G1

Senckenbergische
Zeitschriftenabteilung,
Bockenheimer Landtstr., 134-138,
D-6000 Frankfurt/Main
W-Germany

Serials and Exchange Library
New York Botanical Garden,
Bronx, NY 10458-5126
U. S. A.

Shurkhal Dr. Anatoly V.
Vavilov Institute of General Genetics,
Gubkin street 3,
Moscow B-333
.1178809 USSR

Slang-chung Sun
Department of Biology,
Wuhan University,
Wuhan, Hubei
P.R. China

Speta Franz
Oberoesterr. Landesmuseum,
Museumstr. 14,
A-4010 Linz
Oesterreich

Stace C. A.
Department of Botany,
University of Leicester,
Leicester
England

Stedje Brita
Biol. Inst., Dep. of Botany, Univ. of Oslo,
P.O. Box 1045,
Blindern,
0316 Oslo 3
Norway

Stuessy T.
Department of Botany,
The Ohio State Univ.,
1735 Neil Avenue,
Colombus, Ohio 43210
U. S. A.

Sundara Rajan S.
137 (MIG), KHB Colony,
Koramangab,
Bangalore 560034
India

Tanaka Noriyuki
Biological Laboratory,
Teikyo University,
359 Otsuka, Hachioji-shi,
Tokyo 192-03
Japan

Teppner Herwig
Karl-Franzens-Universitaet Graz,
Institut fuer Botanik,
Holteigasse 6,
A-8010 Graz
Austria

Thompson Sue A.
Section of Botany,
Carnegie Museum of Nat. History,
4400 Forbes Ave.,
Pittsburgh, PA. 15213
U. S. A.

Uotila Pertti
Botanical Museum,
University of Helsinki,
SF 00170 Helsinki
Finland

Urbanska Krystyna
Geobotanisches Institut ETH,
Zuerichbergstrasse 38,
CH-8044 Zuerich
Switzerland

Utech F.H.
Carnegie Museum of Natural History,
Section of Botany, Herbarium CM,
4400 Forbes Avenue,
Pittsburg, PA 15218
U. S. A.

Valles-Xirau Joan
Catedra de Botanica, Facultat de Farmacia,
Universidad de Barcelona,
Zona Universitaria de Pedralbes,
08028 Barcelona
Spain

Verlaque Regine
Univ. de Provence, Cytotaxinomie Vegetale,
Centre de St.-Charles,
13331 Marseille Cedex 3
France

Vernet Dr. Philippe
Lab. Génétique Evolution Populations
Végétale URA CN 1185
Université de Lille, Bat. SN 2, 2nde étage
59655 Villeneuve d'asq
FRANCE

Vickery Jr Robert K.
Biology Department,
University of Utah,
Salt Lake City, Utah 84112
U. S. A.

Vyvey Rais
Leerstoel voor Morfologie Syst. en Ecologie
der Planten,
K. L. Ledeganckstraat 35,
B - 9000 GENT
Belgium

Wagner Florence S.
Department of Botany,
Division of Biol. Sciences,
The University of Michigan,
Ann Arbor, Michigan 48109-1048
U. S. A.

Wagner Warren H.
Department of Botany,
Division of Biol. Sciences,
The University of Michigan,
Ann Arbor, Michigan 48109-1048
U. S. A.

Warnock Michael
Sam Houston State University,
Div. of Life Sciences, Geology and
Geography,
Huntsville, Texas 77341
U. S. A.

Warwick Dr. Suzanne I.
Biosystematics Research Centre,
W. Saund. Bld.,
Central Experimental Farm,
Ottawa, Ontario K1A 0C6
Canada

Watanabe K.
Biological Institute,
Faculty of General Education,
Kobe University,
Kobe, 657
Japan

Waterway Marcia J.
McGill University Herbarium,
Macdonald College of McGill University,
21111 Lakeshore Road,
Ste. Anne de Bellevue, Quebec
Canada H9X 1C0

Watson Frank D.
Department of Biology,
Muhlenberg College,
Allentown PA 18104
U. S. A.

Webb C. J.
Botany Division, D.S.I.R.,
Private Bag,
Christchurch
New Zealand

Weber H. E.
Am Buehner Bach 12,
D-4550 Bramsche 3
W-Germany

Welmarck Gunnar
Botanic Garden,
S-413 19 Goteborg
Sweden

West Judith G.
Herbarium Australiense CSIRO,
P. O. Box 1600,
Canberra City, ACT 2601
Australia

Wieglеb G.
Fachbereich 7 Biologie,
Universitaet Oldenburg,
Postfach 2503,
D-2900 Oldenburg
W-Germany

Woodland Dennis W.
Biology Department,
Andrews University,
Berrien Springs, Michigan 49104
U. S. A.

Yamakawa Shigeya
Aburahi Laboratories, Shionogi & Co., Ltd.,
Koka-cho Koka-gun
Shiga-Ken
Japan

You Jun
Department of Biology,
Wuhan University,
Wuhan, Hubei
P.R. China

8. Meetings, Past and Future

IOPB Symposium 1992

The IOPB Symposium is tentatively scheduled for June 1992. Further details will follow in the next issues, but if you need any additional information soon, please contact our Vice President Dr. Peter H. Raven, Missouri Botanical Garden, P.O. Box 229, St. Louis, Missouri 63166-0299, USA, Phone: 314-577-5100.

The 3rd International Legume Conference will be held at Kew, England in July, 1992. Topics of discussion will include: phylogeny, molecular biology, structural botany, reproductive biology, biogeography, plant-animal interactions, *rhizobia* and *mycorrhizae*, phytochemistry, and genetic characteristics of phenological responses. Further information can be obtained from Dr. R.M. Pohill, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AB, Great Britain. FAX 01 948 1197.

***

7. Publishing News

Dr. Shoichi Kawano, our President, finished editing work on the book including the contributions presented at the last IOPB Symposium in Kyoto. The completed manuscript was mailed to the Academic Press Office in London. Dr. Kawano hopes that the book will appear soon and uses this opportunity to thank all the contributors and his staff for the good work.
Editorial comment: When the book appears, please do not forget that you will enjoy a discount as the IOPB Member.

***

8. Requests for Material and Information

Work goes on currently on a global presentation of karyological data for ferns and flowering plants from Germany (Federal German Republic and Democratic German Republic). This presentation should include chromosome counts with an exact information concerning the origin of material, banding-pattern(s), as well as data on meiosis.
Should you have any such information, please send the data to Prof. Dr. ALBERS F., Institut für Botanik, Westfälische Wilhelm-Universität Münster, Schlossgarten 3, D-4400, Münster, West Germany.

***

9. Note from our Treasurer

Hans C.M. den Nijs, Hugo de Vrieslaboratory, University of Amsterdam, Kruislaan 318, NL-1098 SM Amsterdam, The Netherlands. Phone: (3120) 525 7660, Fax: (3120) 525 7715

Membership fees for 1990-1992

In the beginning of this year I sent invoices to all members for the membership fee for the current period, 1990-1992. You may have noticed that the international banking procedures are relatively expensive, especially concerning rather small amounts of money. Regrettably, this will cost our organization a substantial part of the income. So it is of great importance that members pay their fees as soon as possible. Till the beginning of June I received from only about 80 of the members their contribution. I would urge the other some 130 members to join them as soon as possible.

Special thanks are due to those members who took the banking charges for their own account by paying US$ 10.- extra, such grants help to keep the IOPB finances from the red.

Recommended ways of payments, free of banking charges:

- Sending an **Eurocheque**, amounting **Dfl 55.-**, made payable to J.C.M. den Nijs, IOPB
- Sending an **International Postal Money Order**, amounting **US$ 25.-** or **Dfl 55.-**

Or, but these are charged (with about US$ 10.-):

- Crediting Den Nijs - IOPB bank account No. 47.58.49.477, at the AMRO Bank, B.O. Box 5, NL-2000 MB Haarlem, The Netherlands to the amount of **US$ 25.-**
- Sending a cheque, amounting US£ 25.- or Dfl. 55.-, and made payable to Den Nijs - IOPB.

The membership fee for **Institutional** members amounts **US$ 30.-** or **Dfl. 60.-** for the three-year period.

Edidor's comment: Please try to settle your fee as soon as possible, the regular publication of the Newsletter depends obviously upon your contribution.

IOPB Executive and Council

Executive

President: **Shoichi Kawano**
Department of Biology, Faculty of Science
Kyoto University
Kyoto 606, Japan
Phone: 075-751 21111
Fax: 075-751 6149

Past-President and Editor Newsletter:
Krystyna M. Urbanska
Geobotanisches Institut ETH, Stiftung Rübel
Zürichbergstrasse 38
CH-8044 Zürich, Switzerland
Phone: 01-256 38 77 (direct dealing 01-256 4308)
Fax: 01/252 34 04

Vice-President - President Elect:
Peter H. Raven
Missouri Botanical Garden
P.O. Box 229
St. Louis, Missouri 63166-0299, U.S.A.
Phone: 314-577-5100

Secretary-Treasurer: **Hans C.M. den Nijs**
Hugo de Vrieslaboratory
University of Amsterdam
Kruislaan 318
NL-1098 SM Amsterdam, The Netherlands
Phone: (3120) 525 7660
Fax: (3120) 525 7715

Member *ex officio* for 1992 Symposium:
W. Hardy Eshbaugh
Department of Botany
Miami University
316 Biological Sciences Building
Oxford, Ohio 45056, U.S.A.
Phone: 513-529-4200

Council

M.T.K. Arroyo, Laboratorio de Sistematica y Ecologia Vegetal, Departemento de Biologia, Faculdad de Ciencias, Universidad de Chile, Casilla 653, Santiago, Chile. Phone: 271 2983

Liv Borgen, University of Oslo, Botanical Garden and Museum, Trondheimsveien 23B, N-0562 Oslo 5, Norway. Phone: 686960

D. Cartier, Laboratoire de Biologie Végétale B, Université de Paris XI, Centre d'Orsay, Bâtiment 362, F-91405 Orsay-Cédex, France. Phone: 69417222

Hsu Ping-shang, Department of Biology, Fudan University, Handan Lu 220, Shanghai, P.R. China

Kunio Iwatsuki, Botanical Garden, University of Tokyo, 3-7-1 Hakusan, Bunkyo, Tokyo 112, Japan

B.E. Jonsell, Bergianus Botanic Garden, P.O.Box 50017, S-10405 Stockholm, Sweden. Phone: 08-156896

Meredith A. Lane, University of Kansas, Herbarium, 2045 Constant Avenue, Lawrence, Kansas, 66047, U.S.A.

Dr. John McNeill, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, M5S 2C6, Canada. Phone: 416-586-5515, Fax: 416-586-8044.

Arne Rousi, Department of Botany, University of Turku, SF-20500 Turku 50, Finland

Suzanne I. Warwick, Biosystematics Research Center, W. Saunder Building, Central Experimental Farm, Ottawa, Ontario KJ1A 0C6, Canada. Phone: 613-996-1665

MEMBERSHIP APPLICATION FORM

International Organization of Plant Biosystematists

The International Organization of Plant Biosystematists (IOPB) was founded in 1960 to promote international cooperation in the study of biosystematics. The IOPB acts on several levels, from coordinating and publishing information on biosystematics to organizing conferences. The IOPB is open to all persons working or interested in biosystematics which is interpreted in a broad sense (see symposium volume "Plant Biosystematics", edited by W.F. Grant, 1984).

An IOPB Newsletter is sent to all members. Such items as current research, requests for material and information, meeting reports, publications, etc. are reported. The Editor is Prof. Krystyna M. Urbanska, Geobotanisches Institut ETH, Zürichbergstrasse 38, CH-8044 Zürich, Switzerland.

At present, Membership is for the three year period between Symposia. The next Symposium will be held in Japan in 1989.
Membership fee 1990-1992: US$ 25.00.
Make cheques or money orders payable to the International Organization of Plant Biosystematists (IOPB).
Send the form and payment to the Secretary/Treasurer: Dr. Hans C.M. den Nijs, Hugo de Vrieslaboratory, University of Amsterdam, Kruislaan 318, NL-1098 SM Amsterdan, The Netherlands

---

IOPB - Membership application for

....
Last name First name (Mr., Mrs.) Title

Address

Date

Signature

Research News

for the International Organization of Plant Biosystematists Newsletter
(IOPB Newsletter)

Typewritten or in capital letters

....
Last name First name Title

Address:

Personal news (Promotions etc.)

Publications during the year*:

Current projects:

Projects completed:

Projects started:

Requests for research material and information:

Articles and reports should be attached

To be sent to Krystyna M. Urbanska, Geobotanisches Institut ETH, Stiftung Rübel, Zürichbergstrasse 38, CH-8044 Zürich, Switzerland

* Please select **three** titles and add the remainder as e.g. "seven further papers".