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Edited by K. M. Urbanska

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INTERNATIONAL ORGANIZATION OF PLANT BIOSYSTEMATISTS

NEWSLETTER No. 4

CONTENTS

Dear IOPB Members,

Here comes the fourth issue of your Newsletter - thanks to all contributors. The article on cytotaxonomy of bryophytes sent in by Drs. Przywara and Kuta represents, for many biosystematists concerned with the Angiosperms, an interesting change of subject. We wish the young scientists the best luck with their project.

Two contributions in the column "Profile of Lab" deal respectively with Canada and Czechoslovakia. Cordial thanks to Dr. Grant and to the team Dr. Slavik/Dr. Kovanda for their reports, very valuable for information exchange between scientists from all over the world.

The preparations to the IOPB Symposium 1986 are going on and the Invited Papers programme is virtually completed. You may be interested in some topics that will be discussed (p. 14). Also, you should begin to think seriously about your poster. Please don't forget to return your registration form in time, unless you prefer to sleep "sub Jove" in Zürich. It is supposed to be good for health, but...

In the column "Requests for material and information", we have an unusual but most exciting demand (p. 16). Please help if you can with the "treasure hunt". Visit your attic: what about the two dusty volumes sleeping on the back shelf??

Field-oriented botanists, the note from Dr. Woodland (p. 17) is just for you: small print in **any** rental agreement has indeed to be read carefully.

Data for the next issue of the Newsletter should arrive here before November 31, 1985. More research reports would be appreciated.

Have a good summer

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?

2. LEAD ARTICLE

By Leslaw Przywara and Elzbieta Kuta, Department of Plant Cytology and Embryology, Institute of Botany, Jagiellonian University, Grodzka 52, 31-044 Krakow, Poland.

Cytotaxonomy of bryophytes

As the only group of terrestrial plants with gametophyte being a dominant generation, the bryophytes occupy a particular position in an evolutionary chain and constitute a very interesting subject for biosystematic study. The mechanisms involved in the process of speciation are here different than those in flowering plants. In understanding of bryophyte evolution as well as in solving many very complicated taxonomical problems, cytotaxonomical and biosystematic studies are often very helpful. Unfortunately not many such investigations are carried out.

According to FRITSCH (1982) the chromosome counts for about 2'000 bryophyte species (700 species of hepatics and 1300 species of mosses) are known. It means that only about 10% of species have been studied karyologically till now. It should be emphasized, however, that these data mainly concern the materials from the northern hemisphere viz. Europe, North America, and Japan. There are also numerous counts for taxa from the Himalaya Mts and the Arctic.

As far as the karyology of bryophytes from southern hemisphere is concerned, there are some fragmentary data from Australia, Oceania, and Africa. On the other hand, the bryophyte flora of the Antarctics is rather well known, the chromosome numbers for about 40% of species being reported.

Since 1980, the present authors in collaboration with Dr. R. Ochyra have been carrying out the studies on cytotaxonomy and karyology of bryophytes originating from different geographic areas. Chromosome counts were given for 30 species of the Antarctic mosses and hepatics (KUTA et al. 1982, OCHYRA et al. 1982, PRZYWARA et al. 1984). Also the study on Polish bryophytes is in progress (PRZYWARA et al. 1983, KUTA et al. 1984, OCHYRA et al. in press): the long-term project forms a part of biosystematic investigations of the Polish bryophyte flora which consists of about 600 species of mosses and 300 species of hepatics.

References

FRITSCH R., 1982: Index to plant chromosome numbers - Bryophyta. Regn. Veget. 108, 1-268.

KUTA E., OCHYRA R. and PRZYWARA L., 1982: Karyological studies on Antarctic mosses. I. Bryologist 85, 131-138.

KUTA E., PRZYWARA L. and OCHYRA R., 1984: Chromosome studies on Polish bryophytes. Bryol.Beitr. 3, 28-45.

OCHYRA R., KUTA E. and PRZYWARA L. (in press): Chromosome studies on Polish bryophytes III. Acta Biol.Crac.ser.Bot. 26.

OCHYRA R., PRZYWARA L. and KUTA E., 1982: Karyological studies on some Antarctic liverworts. J.Bryol. 122, 259-263.

PRZYWARA L., KUTA E. and OCHYRA R., 1984: Cytological studies on Antarctic mosses II. J.Hattori Bot.Lab. 57, 127-137.

PRZYWARA L:, OCHYRA R. and KUTA E., 1983: Chromosome studies on Polish bryophytes II. Lindbergia 9, 178-185.

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3. PROFILE OF A LAB

Genetics Laboratory, P.O. Box 4000, Department of Plant Science, MacDonald College of McGill University, Ste. Anne de Bellevue, Quebec, Canada H9X 1CO.

By Dr. William F. GRANT.

The Genetic Laboratory has been engaged in the field of Biostematics in the broad sense, including the areas of Cytology, Cytogenetics, Chemosystematics, and Biotechnology, and secondly, in the field of Environmental Mutagenesis in which cytogenetic studies have been carried out on environmental chemicals, notably, pesticides. Projects have been developed with students who have wished to carry out a particular study for their thesis, with various colleagues, and upon requests from agencies to undertake a particular study.

Cytological, Cytogenetic, Chemosystematic, Biootechnological, and Mutagenic Studies in Genus Lotus (Leguminosae):

Introduction: Within the last 30 years the tetraploid species Lotus corniculatus has emerged as a successful forage crop in eastern Canada and the United States (GRANT and MARTEN 1985), and in many other countries throughout the world. When I first undertook to study these species, there was very little known about its "biology", and likewise for many other species of the genus.

Chromosome numbers: Lotus species have been collected from throughout the entire range of the genus, and their chromosome numbers determined. In 1985, chromosome numbers for 108 species are known (76 Eurasian, 30 North American and 2 Australian) of which 71 are tetraploid, 12 have both diploid and tetraploid cytotypes, and 25 species are tetraploid.

Gene transfer: Lotus corniculatus has certain problems as a forage species, for example, it lacks seedling vigor, seeds and seed pods ripen unevenly, and the seed pods dehisce or shatter. We have shown that it is possible to transfer desirable characteristics from wild diploid relatives to this economic tetraploid species. In order to avoid sterility barriers, we doubled the chromosome number in the diploids and hybrids between diploid species to bring them to the tetraploid level. Then, we found it possible to successfully make crosses at the tetraploid level, and in many cases, without resorting the embryo-culture, as is necessary for procuring diploid hybrids. One project in progress concerns the transfer of the non-shattering character to L. corniculatus.

Trisomics: In order to determine where genes are located on the chromosome we have made a start in the production of aneuploid plants, and have obtained trisomics in L. pedunculatus.

Chromosome banding: Chromosome banding studies are in progress. The two smallest chromosomes in the complement of L. tenuis are almost identical morphologically. Banding, however, clearly distinguished between the two.

Chemosystematics: The chromosome morphology of the diploid n=6 species does not differ greatly between species. In order to help resolve species and sectional relationships in the genus, chemosystematic studies have been carried out.

Mutagenic studies: We have made preliminary studies using X-rays and chemicals to see if mutations of practical value could be induced. As with most mutagenic studies, the majority of the mutants were undesirable, however, we did obtain mutants for increased seed and forage yield.

Biotechnology: Studies to induce haploidy in L. corniculatus by means of anther culture have been in progress for a number of years but have so far been unsuccessful in producing "polyhaploids". Another study is in progress using cell and tissue culture techniques to develop herbicide-resistant cultivars of Lotus corniculatus, by subjecting cells in culture to selective concentrations of herbicides, and testing the regenerated plants and their progeny for resistance.

Some highlights in Lotus research

a) hybrids by embryo culture (GRANT, BULLEN and NETTANCOURT 1962)
b) chromatographic evidence indicates L. corniculatus to be of allopolyploid origin (HARNEY and GRANT 1964)
c) chromatographic evidence that the subgenus Tetragonolobus should be given generic rank (HARNEY and GRANT 1965, SAMOROO and GRANT 1972)
d) cytomixis (NETTANCOURT and GRANT 1964)
e) trisomics (CHEN and GRANT 1968)
f) the association of a biochemical character with basic chromosome number and geographic distribution (GRANT and SIDHU 1967)
g) B chromosomes (SAMAROO and GRANT 1971, SMALL et al. 1984)
h) anther and ovule culture techniques (NIIZEKI and GRANT 1971)
i) a new diploid species from Pakistan (SZ.-BORSOS, SOMAROO and GRANT 1971)
j) DNA relationship of species (CHENG and GRANT 1973)
k) polytene chromosomes (FREED and GRANT 1976)
l) chromosome banding techniques (SHANKLAND and GRANT 1976)
m) electrophoretic studies showing self-incompatibility resonsible for reduced seed set after self-pollination and not self-sterility (DOBROFSKY and GRANT 1980)
n) binucleate cells (VEZINA et al. 1981)
o) induced mutants (THERRIEN and GRANT 1983)
p) pollen morphology by light and scanning electron microscopy of Loteae (CROMPTON and GRANT in prep).

Other biosystematic studies

In addition to the genus Lotus, biosystematic studies have included the genera Amaranthus, Avena, Betula, Celosia, Impatiens, Manihot esculenta and Trillium. These studies have involved chromosome number determinations and karyotype analysis (a computer program is now being used to analyze and draw idograms), chemosystematics, chromosome banding and DNA content using Feulgen cytophotometry. A biotechnological study is in progress using protoplast fusion techniques in the genus Impatiens to transfer genes between species that can not be transferred by conventional crossing techniques.

The cytogenetic effects of environmental chemicals

Studies on the cytogenetic effects of environmental chemicals have been in progress for a number of years using plant genetic test assays. Emphasis has been placed on herbicides, insecticides, and fungicides. The

chemicals are being classified on their ability to induce gene mutations and chromosome aberrations and from this information evaluated for their possible hazard to human health and the environment. Recent studies have shown that, for a specific chemical agent, comparable results in terms of genetic abnormalities are obtained in plant and animal systems (GRANT et al. 1981). Plant essays are easy to handle and relatively low in cost compared to animal systems. We have recommended that plant systems be accepted as a first-tier assay system in the assays used for the detection of genetic damage.

William F. GRANT, Professor, is carrying out cytogenetic and biosystematic studies in the genus Lotus and Impatiens. He also is involved in a project on the cytogenetic effect of environmental chemicals.

Students studying with Dr. Grant at the present time and their subject areas:
CASTILLO P. Sister-chromatic exchange in Vicia faba.
DELAFIELD S.J. Somatic cell hybridization of Impatiens species.
O'DONOUGHUE L. A study of seed dehiscence in Lotus species.
MACLEAN N.L. A study using tissue culture to develop herbicide resistance in Lotus corniculatus.
MERLIN C.M. Artificial hybridization in genus Impatiens.
RAELSON J.V. The use of chromosome banding techniques for karyotype differentiation of L. corniculatus and related diploid species.
ST-MARSEILLE P. A cytogenetic study of trisomy in Lotus tenuis.

Other staff in the Department of plant science in the area of biosystematics and their projects:
John BAIN, Assistant Professor, is carrying out chemosystematic and biosystematic studies of arctic-alpine Senecio; also chemosystematic studies of introgression in Carduus.
Dorothy E. SWALES. Emeritus professor. Flora of the Arctic. Flora of Lac Carré region, Québec.
Marcia J. WATERWAY. Taxonomy of Carex Sect. Heleonates. Studies on Carex aquatilis. Floristics of the Schefferville region. At present completing studies for her Ph.D. degree at the Bailey Hortorium, Cornell University, Ithaca, New York. Marcia's duties are temporarily being carried out by Marie JASIENIUK.

Recent publications:

GRANT W.F., 1984: Chemosystematics in the classification of cultivars. In: BENDZ G. and SANTESSON J. (eds), Chemistry in botanical classification. Almqvist & Wiksell, Uppsala. Acad.Press, Proc. 15th Nobel Symposium 293-302.

GRANT W.F., ZINOV'EVA-STAHEVITCH A.E. and ZURA K.D., 1981: Plant genetic test system for detection of chemical mutagens. Chapter 18. In: STICH H.F. and SAN R.H.O. (eds), Short term tests for chemical carcinogens. Springer, New York. 200-216.

GRANT W.F. and ZURA K.D., Plants as sensitive in situ detectors of atmospheric mutagens. Chapter 15. In: HEDDLE J.A. (ed.), Mutagenicity: New horizons in genetic toxicology. Acad.Press New York. 407-434.

GRANT W.F. and MARTEN G.C., 1985: Birdsfoot trefoil. Chapter 11. In: HEATH M.E., BARNES R.F. and METCALFE D.S. (eds), forages: the science of grassland agriculture; agriculture. 4th ed. Iowa State Univ. Press, Ames 98-108.

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Department of Biosystematics, Botanical Institute of the Czechoslovak Academy of Sciences, 25243 Bruhonice, Czechoslovakia.

By Dr. Bohumil Slavik, CSc., and Dr, Miloslav Kovanda, CSc.

The Department is one of the seven Departments of the Botanical Institute of the Czechoslovak Academy of Sciences and is located at Pruhonice, a village on the SE outskirts of Prague. It is the leading Czech centre of research in plant biosystematics, involving both phanerogams and cryptogams. Field work is generally concentrated in Czechoslovakia (especially in its western part, the Czech Socialist republic - CSR) and adjacent countries but materials from other territories are also studied. Expeditions and visits covered, in the past few years, Spain, France, Great Britain, Netherlands, Federal Republic of Germany, German Democratic Republic, Poland, Austria, Hungary, Romania, Bulgaria, Finland, U.S,S.R., Turkey, Egypt, Cyprus, Cuba, U.S.A., and Canada.

Research generally falls into six areas of which the first four overlap in various ways.

I. Taxonomy. This is the base from which the present Department has gradually developed. Two lines may be delimited, experimental and floristic. The experimental approach yielded important results in the past (Lotus corniculatus, Arabis hirsuta complex) but has been dormant since 1976 when it was decided to publish a Flora of the CRS. Eight volumes are planned, of which the first is now in press, the manuscript of the second is being finished and work on vols. 3 and 4 proceeds satisfactorily. The Flora will contain much biosystematic information, including chromosome numbers from materials of known wild origin, breeding systems, modes of pollination and dispersal, life forms, etc.
Some members of the Department participate in the preparation of other floras, such as Flora of Slovakia and Flora Iranica.

II. Karyology, cytotaxonomy, numerical taxonomy, chemotaxonomy, embryology. A systematic karyological investigation of the CSR flora carried out since the 1960s has resulted in an Index of chromosome numbers of CSR vascular plants which is now near completion. Special taxonomic studies include some genera in the Fabaceae, Campanulaceae, Asteraceae, and further Dianthus, Gagea, Taraxacum, Mentha and Carex flava agg. Besides Czechoslovakia, these studies cover nearly all European countries, Cyprus, Mongolia and U.S.A. Numerous methods have been applied in Carex flava agg., Myosotis palustris agg., Mentha spicata agg. and Mentha are in progress (the former genus in collaboration with the Long Ashton Research Station) and so is an embryological study of Czechoslovak Sorbus species done in collaboration with the Department of Plant Cytology and Embryology, Jagellonian University, Krakow, Poland.

III. Phytogeography. Current projects include:
- Atlas of distribution of vascular plants int the CSR. The manuscript of vol. 1 is being finished, corresponding to vols. 1 and 2 of the above Flora (except woody plants). Vol. 2 will roughly cover vols. 3 and 4 of the Flora. The central European grid system is used.
- Phytogeographical division of the CSR. Originally proposed for the use in the Flora, it was now elaborated into a system of basic phytochorotypes (see the references).

- Chorological studies of selected species in Czechoslovakia and/or Central Europe. Special attention is paid to riverain plants and dispersal through river valleys.
- Participation in international mapping programmes. The following should be mentioned: Atlas Florae Europaeae, mapping of Central Europe and supplying data for the mapping of the German Democratic Republic.

IV. Nature conservation and gene-pool protection. A complex ecobiological research of selected endangered species was started recently. Problems studied: methods of cultivation, breeding systems, chromosome numbers, pollination, dispersal, ontogenic development, taxonomy. The project covers various ecogeographical groups including endemics and subendemics, mountain plants, plants of fens, relict xerothermous species, etc. In some cases re-introduction is considered. A Red data Book is being prepared in conjunction with other institutions.

V. Mycology. Taxonomy, nomenclature, ecology and chorology of selected groups of higher fungi (Polyporales, Aphyllophorales, Agaricales). Studies in the taxonomy of Hyphomycetes, with a special reference to lugnicolous species. Both projects concern all Czechoslovakia, the latter also Cuba.

VI. Lichenology. Studies in the taxonomy of foliicolous lichens (worldwide, especially tropics and subtropics). Comparative anatomy and ontogeny of fruit bodies. Classification and pyrenocarpous lichens. Catalogue of Czechosloval lichens and key to the Czechoslovak lichens (manuscripts completed). Key to European lichens (two volumes published hitherto jointly with J. Poelt). Distribution of the exsiccata collection "Lichenes selecti exsiccati" (by 1984 2000 taxa have been distributed).

Members of the department and their current research:

SLAVIK B. (Head of the department). Atlas of the distribution of vascular plants in the CSR (long-term project). Mapping of central Europe. Phytgeographical division of the CSR, classification of phytochorotypes. Plant dispersal through river valleys. Flora of Cyprus. Taxonomy of Malvaceae. Cytogeography of Batrachium.

BELOHLAVKOVA R. Taxonomy of ornamental plants (Begoniaceae, Paeoniaceae, Lupinus).

HOLUB J. Nomenclature. Taxonomy and chorology of Crataegus and Rubus in Czechoslovakia. Delimitation of genera in Lycopodiales. Atlas Florae Europaeae (long-term project).

HOLUBOVA-JECHOVA V. Lignicolous and herbaceous Dematiaceae (Hyphomycetes) of Central Europe and Cuba (long-term project).

HROUDA L. Taxonomy and phytogeography of Gagea, Ornithogalum, Equisetum, Ulmus, and Cistaceae.

CHRTKOVA-ZERTOVA A. Taxonomy of Fabaceae (long-term project) and Cucurbitaceae.

JAVURKOVA V. Karyological research of miscellaneous genera and species (long-term project).

KIRSCHNER J. Taxonomy and cytotaxonomy of Viola, Chrysaspis, Atriplex and Taraxacum.

KIRSCHNEROVA L. Karyological research of miscellaneous genera and species (long-term project).

KOTLABA F. Taxonomy, nomenclature, ecology and chorology of Polyporales, Aphyllophorales and Agaricales (long-term project).

KOVANDA M. Taxonomy and cytotaxonomy of Dianthus and Primulaceae. Embry-

ology and chemotaxonomy of Sorbus (long-term project).
MESICEK J. Karyological research of miscellaneous genera and species.
MLADY F. Phytogeography of NW Bohemia. Atlas of the distribution of vascular plants in the CSR (long-term project).
STEPANEK J. Taxonomy and cytotaxonomy of Mentha, Knautia and Chrysaspis. Chemotaxonomy of Mentha.
STEPANKOVA J. Taxonomy and numerical taxonomy of Carex flava agg. and Myosotis palustris agg.
TOMSOVIC P. Taxonomy of selected species of Brassicaceae (long-term project) and Chenopodiaceae. Taxonomy of Nuphar and Nymphaea.
VEZDA A. Key to European lichens. Taxonomy of foliicolous lichens (long-term project). Revision of Cuban lichens. Ontogny and phylogeny of asexual organs of reproduction.

Recent publications:

HOLUB J., 1984: New genera in Phanerogamae. Folia geobot.Phytotax. 19, 95-99.
HOLUB J., 1984: Some new nomenclatural combinations. I. Folia Geobot. Phytotax. 19, 213-215.
HOLUB J., 1984: Subspecies names Javorka, Magyar Flora (1924-1925). Preslia 56, 303-318.
HOLUB J., 1984: Regional aspects of the European flora - a survey of vols. 1 to 5 of Atlas Florae Europaeae. Norrlinia 2, 19-31.
HOLUB J., 1984: Some general remarks of Atlas Florae Europaeae. Norrlinia 2, 107-115.
HOLUB J., 1984: Ecobiological research of plant species. (In Czech.). Zpravy Cs.Spolec. 19(3), 5-18.
HOLUB J., 1984: Bioecological approaches to the study of individual species. (In Czech.). Zpravy Cs.Bot.Spolec. 19(3), 47-58.
HOLUBOVA-JECHOVA V., 1984: Bactrodesmiastrum, a new genus of lignicolous Hyphomycetes. Folia Geobot.Phytotax. 19, 103-106.
HOLUBOVA-JECHOVA V. and MERCADO SIERRA A., 1984: Studies on Hyphomycetes from Cuba. II. Hyphomycetes from the Isla de la Juventud. Ces.Mykol. 38, 96-120.
HROUDA L., 1984: Relations between plant taxonomy and ecobiology. (In Czech.). Zpravy Cs.Bot.Spolec. 19(3), 33-36.
JORGENSEN P. and VEZDA A., 1984: Topelia, mediterranean lichen genus. Beih. 79 zu Nowa Hedwigia (Festschrift J. Poelt), 501-510.
KIRSCHNER J. and STEPANEK J., 1984: Taraxacum (Spectabilia) nordstedtii Dahlst. in Central Europe. Folia geobot.Phytotax. 19, 287-297.
KOTLABA F., 1984: Geographical distribution and ecology of polypores (Polyporales s.l.) in Czechoslovakia. (In Czech.). Praha, 194 pp.
KOTLABA F., 1984: The very rare Pholiota albocrenulata found in Bohemia. (In Czech.). Mykol.Listy 17, 1-4.
KOTLABA F., POUZAR Z. and RYVARDEN L., 1984: Some polypores, rare or new for Cuba. Ces.Mykol. 38, 137-145.
KOVANDA M., 1984: A new hybridogenous Sorbus. Preslia 56, 169-172.
KOVANDA M., 1984: Chromosome numbers in selected Angiosperms (2). Preslia 56, 289-301.
POELT J. and VEZDA A., 1984: Rhizocarpon inimicum spec.nov., eine weitere parasitische Flechte auf Lecanora rupicola spec.coll. Herzogia 6, 469-475.
SLAVIK B., 1984: Grundlegende Phtyochorotypen der Tschechischen Sozialistischen Republik. Preslia 56, 241-256.
SLAVIK B. (ed.), 1984: Minimum and maximum altitudes in the distribution of vascular plant in the Czech Socialistic Republic II). Zpravy Cs.

Bot.Spolec. 19, 95-106.
THOR G. and VEZDA A., 1984: Einige neue oder bemerkenswerte Flechten mit gyalectoiden Apothecien von Nord-Indien und Nepal. Folia Geobot.Phytotax. 19, 71-81.
VEZDA A., 1984: Foliicole Flechten der Insel Cuba. Folia Geobot.Phytotax. 19, 177-210.
VEZDA A. and PISUT I., 1984: Zwei neue Arten der Flechtengattung Absconditella (lichenisierte Stictidaceae, Ostropales) in der Tschechoslowakei. Nove Hedwigia 39, 1-6.

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4. RESEARCH NEWS

A. AFRICA

No reports.

B. ASIA

No reports.

C. AUSTRALIA

New Zealand

Dr. WEBB Colin J., Botany Division DSIR, Christchurch, stayed for some time in the United States where he worked together with K.S. Bawa at the Department of Biology, University of Massachusetts. He is now continuing his research work in New Zealand.

Publications in 1984:

Pollination specialization and protogyna in Myrrhidendron donnellsmithii (Umbelliferae). Syst.Bot. 9, 240-246.
Heterophylly in Eryngium vesicutosum (Umbelliferae). N.Z.Journ.Bot. 22, 29-33.
A natural intergenic hybrid, Aciphylla squarrosa x Gingidia montana, and the frequency of hybrids among other New Zealand apinoid Umbelliferae. N.Z.Journ.Bot. 22, 403-411.
Hummingbird pollination of Malvaviscus arboreus in Costa Rica. N.Z. Journ.Bot. 22, 575-581.
together with HAIR J.B.: Chromosome numbers for Australian Gingidia (Apiaceae). Brunonia 7, 215-216.

D. EUROPE

England

Dr. FERGUSON I.K., Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, U.K., continues to work on a survey of the pollen morphology of Palmae with Dr. DRANSFIELD J. (Kew) and on pollen of Papilionoideae and Caesalpinioideae. He started a study on pollen morphology of the neotropical species of genus Bauhinia L. (Caesalpinioideae: Leguminosae).

Recent publications:

DIEZ M.S. and FERGUSON I.K., 1985: Pollen morphology of Mandragora autumnalis Bertol. (Solanaceae). Pollen and Spores 26, 151-160.

FERGUSON I.K., 1985: The pollen morphology of Moringaceae. Kew Bull. 40, 25-34.

Dr. HARLEY R., Royal Botanic Gardens, Kew Richmond, Surrey TW9 3AB, U.K., has published a series of "Notes on New World Labiatae". At present he tries to keep abreast with description of well defined new taxa still being discovered. A paper on Hyptis sect. Polydesmia is in press, and a paper on hybridization in Hyptis is almost completed. He started a revision of the genus Hyptis (Labiatae). more than 300 species. A taxonomic revision with cognizance of cytological, pollination and other data.

Germany

Dr. WEBER H.E., Professor at Universität Osnabrück, Abt. Vechta, Driverstr. 22, D-2828 Vechta, completed a monography on Rubus L. in Westfalia, and started a project on taxonomic research on Rubus L. on other parts of Central Europe.

PD Dr. WIEGLEB G., Universität Oldenburg, Fachbereich 7 Biologie, Postfach 2503, D-2900 Oldenburg, started works on 1) Inter- and intraspecific variability on morphological and reproductive adaptations in Potamogetonaceae and 2) Morphological and cytological studies in the Ranunculus penicillatus-complex.

Recent publication:

WIEGLEB G. and HERR W., 1983: Taxonomie und Verbreitung von Ranunculus subgenus Batrachium in niedersächsischen Fliessgewässern unter besonderer Berücksichtigung des Ranunculus penicillatus Komplexes. Göttinger Florist.Rundbr. 17, 101-150.

Italy

Dr. PICHI SERMOLLI R.E.G., Professor of Botany, Via Cantagrilli 1, I-50020 Montagnana Val di Pesa (Firenze), completed projects: On the taxonomy and nomenclature of some species of Ctenitis from Tropical Africa, Webbia (in press). A contribution to the knowledge of the Pteridophyta of Rwanda, Burundi and Kivu (Zaire) II. Bull.Jard.Bot. Nat.Belg. (in press). Projects nearly completed: Le spore delle teridofite Italiane. Pteridiphyta Italica.

Recent publications:

- 1983: A contribution to the knowledge of the Pteridophyta of Rwanda, Burundi and Kivu (Zaire) I. Bull.Jard.Bot.Nation.Belg. 53, 177-284.
- 1983: Fragmenta Pteridologiae - VIII. Webbia 37, 111-140.
- 1983: Notes on Adanson's fern genera Ceterac and Scolopendrium. Webbia 37: 159-169.
- 1984: A new species of Dryopteris from Tropical East Africa. Webbia 37, 329-339.

Monaco

KROENLEIN M., Director of Jardin Exotique de Monaco, B.P. 105, MC-98002 Monaco-Cedex, travelled in Somaly from 3rd ro 28th of March, 1985 and started a project on Index Seminum.

Norway

Dr. NORDAL I., Botanical Garden and Museum, University of Oslo, Trondheinsvn 23b, N-0562 Oslo, started biosystematic studies in Cochlearia (Brassicaceae).

Recent publication:
NORDAL I. and DUNCAN T., 1984: A cladistic analysis of Haemanthus and Scadoxus. Nord.J.Bot. 4, 145-153.

Spain
FERNANDEZ-LOPEZ C., Colegio Universitario "Santo reino", 23071 Jaen, started studies of fluvial vegetation in Jen (three articles in Blancoana 1, 1983) to complete the study of the flora of Jaen (more than 2'300 taxons) of vascular plants. He completed a check-list of the flora of Jaen (SE Iberian Peninsula) in 1979 and 1983 (vascular plants).
Recent publications:
FERNANDEZ-LOPEZ C., 1983: Fuentes para la flora de Jaen. Coop.Farmaceutica (ISBN 84-300-8516-5). 141 pp.
FERNANDEZ-LOPEZ et al., 1984: Blancoana 2 (ISSN 0212-8314).

Switzerland
Dr. BALTISBERGER M., Conservator of the Herbarium ZT, Geobotanisches Institut ETH, Universitätsstr. 2, CH-8092 Zürich, is working on biosystematic investigations on species of the genus Betonica and Stachys. He completed investigations on Ranunculus alpestris s.l.
Recent publications:
BALTISBERGER M., 1980: Die Artengruppe des Ranunculus Polyanthemos in Europa. Ber.Schweiz.Bot.Ges. 90, 143-188.
BALTISBERGER M., 1984: Zytologische Untersuchungen an einigen Pflanzen aus Albanien. Ber. Geobot.Inst.ETH, Stiftung Rübel, 51, 63-77.
BALTISBERGER M. and LENHERR A., 1984: Neue Chromosomenzahlen aus der Gruppe der Stachys recta L. und anderen, verwandten Artengruppen. Ber.Geobot.Inst.ETH, Stiftung Rübel, 51, 39-62.
BALTISBERGER M. and LENHERR A., 1984: Labiaten aus Albanien. Candollea 39, 423-439.
LENHERR A. and BALTISBERGER M., 1984: Stachys beckeana (Labiatae) in Albanien und Jugoslawien. Pl.syst.Evol. 145, 97-104.
MÜLLER M. and BALTISBERGER M., 1984: Cytotaxonomische Untersuchungen an der Artengruppe des Ranunculus alpestris (Ranunculaceae). Pl. Syst.Evol. 145, 269-289.

Dr. COOK C.D.K., Professor of Botany, Botanischer Garten der Universität Zürich, Zollikerstr. 107, CH-8008 Zürich, reports that a series of revisions of Hydrocharitaceae were recently published in "Aquatic Botany". He completed studies on Hydrocharitaceae and started studies on Sparganiaceae and Typhaceae.

Dr. FAVARGER C., Professeur honoraire de l'Université, Institut de Botanique, Chantemerle 22, CH-2000 Neuchâtel 7.
Recent publications:
FAVARGER C., 1984: Défense et illustration de la botanique systématique. Le Nouvel Humaniste, Genève, 5, 3.
- 1984: Cytogeography and Biosystematics. In: GRANT W.T. (ed.), Plant biosystematics. Acad.Press Don Mills, Ontario. 453-476.
CELEBIOGLU T. and FAVARGER C., 1982: Contribution à la cytotaxonomie du genre Minuartia L. (Caryophyllaceae) en Turquie et dans quelques régions voisines. Biologie-Ecologie méditerranéenne 9(2-3), 139-160.
CELEBIOGLU T. and FAVARGER C., 1984: Recherches cytotaxonomiques et cytogéographiques sur Minuartia sect. Sabulina (Caryophyllaceae)

en Turquie. Pl.Syst.Evol. 144, 241.255.
CELEBIOGLU T., FAVARGER C. and HUYHN K.-L., 1983: Contribution à la micromorphologie de la testa des graines du genre Minuartia (Caryophyllaceae) I. Sect. Minuartia. Bul.Mus.natn.Hist.Nat., 4e sér. 5, section B, Adansonia 4, 415-435.
DUCKERT-HENRIOD M.M. and FAVARGER C., 1984: Poa cenisia All. en Suisse - Etude cytogéographique. Diss.Bot. (Festschrift Welten), Vaduz, 435-451.

E. NORTH AMERICA

Canada

DOWNIE St., Department of Botany, University of Alberta, Edmonton, Alberta, T6G 2E9, has started his Ph.D. Thesis "The biosystematics of Arnica subgenus Arctica", and prepares together with DENFORD K.E. a publication on the taxonomy of Arnica frigida and Arnica louiseana (Asteraceae).

U.S.A.

Dr. ACKERMAN J., Department of Biology, University of Puerto Rico, Pio Piedras, Puerto Rico 00931, has completed the studies on limitations to natural fruit production in the orchid, Ionopsis utricularioides - pollinator activity and the dual reward system of Spathiphyllum friedrichsthalii (Araceae). Projects started: Orchid flora of Puerto Rico and the Virgin Islands. Species integrity and variation in the Oncidium variegatum complex (Orchidaceae).
Publications in 1983:
On the evidence for a primitively epiphytic habit in orchids. Syst. Bot. 8, 474-477.
Specificity and mutual dependency of the orchid-euglossine bee interaction. Biol.J.Linn.Soc. 20, 301-314.

Dr. ASHTON P., Professor at Arnold Arboretum, 22 Divinity Avenue, Cambridge, MA 02138, reports that he started in May a project on demography research into rain forest trees in Malaysia (with HUBBALD St.P., University.of Iowa) at the Manokaran Forest Research Institute of Malaysia, Hefong.

HAHN W.J., Dept. of Botany, Missouri Botanical Garden, P.O.Box 299, St. Louis, MO 63166-0299, will begin graduate studies at Cornell this August. He stayed two years in Paraguay working with the Museo Nacional de Historia Natural and started a project on S.E. Asia Palmae. Publication in press: Together with LOPEZ J.A., ROMBOLD J. and LITTLE E.: Los arboles cimunes del Paraguay.

F. MESOAMERICA

No reports

G. SOUTH AMERICA

Argentina

Dr. NOHER DE HALAC I., B. Powell 2794, 5061 Cordoba, reports that she completed a project on megasporogenesis and megagametogenesis in relation to polarity and callose deposition in species and hybrids of

Oenothera. Projects started: Pollen sterility in species and hybrids Oenothera. Development of the ovule Triticale (Triticosecale Witt.).

Venezuela

RAMIREZ N., Licenciado, Universidad central de Venezuela, fac. Ciencias, Escuela de Biologia, Depto de Botanico, Apto 21201, Caracas, started the projects "Pollination ecology of marsh community" and "Pollination ecology of pre-paramo community". Projects completed: Pollination ecology of a plant swamp community. Floral Biology and breeding system of sex species of Banuinia? genus in Venezuela.

Publication 1984:

Infeccion de semillas por hongos en Capaifera pubiflora en ios Altos Llanos Centrales de venezuela. Bol.Soc.Venez.Cienc.Nat. 142, 165-173.

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5. IOPB SYMPOSIUM, Zürich 1986: news from the Organizing Committee

The First Circular has been mailed some weeks ago and we are working now on the Invited Papers programme. If everything goes well, we should have a panel of outstanding Speakers. Another interesting news is that some long-standing concepts and beliefs are going to be reviewed and updated (see the provisional list below).

There will be two types of Invited Papers:

1. Those dealing with general problems (maintenance of variation in plant populations; chance, space and time in plant evolution; genome differentiation in higher plants; gene flow and genetic variation in plant populations; pollen grain and male function in plants; ecological differentiation and the concept of ecotype revised; influence of natural hybridization upon differentiation in plants);
2. those dealing with specific ecosystems (differentiation trends in tropical woody Angiosperms; energy allocation and expenditure in some woodland herbs; differentiation in some aquatic plants; phytochemical and demographical patterns in some mediterranean plants; processes in evolution of insular taxa; reproduction and speciation patterns in the arctic flora).

We hope to see many IOPB Members in Zürich.

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6. PUBLISHING NEWS

Lotus Newsletter, No. 15, 1984, is ready for distribution. It contains progress reports and other items on Lotus being carried out throughout the world. A limited number of copies are available from the Editor, Dr. W.F. Grant, Genetics Laboratory, Box 282, Macdonald Campus of McGill University, Ste. Anne de Bellevue, Quebec, Canada H9X 1C0. Cost $5.00 postpaid. Please sent payment if you wish a copy.

Sommerfeltia is a series of monographs in plant taxonomy, phytogeography, phytosociology, plant ecology, plant morphology, and evolutionary botany. It is issued at irregular intervals, one article per vol-

ume. Papers are by Norwegian authors. They are in English or, less often, in Norwegian with an English summary.
For information, contact: Editor: Dr. Anders Danielsen. Editorial Board: Scientific staff of the Botanical Garden and Museum, University of Oslo. Address: Sommerfeltia, Botanical garden and Museum Tronheimsveien 23B, N-0562 Oslo 5, Norway.

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7. MEETINGS

1985 June 23-28,	Canadian Congress of Biology. University of Western Ontario, London, Ontario, Canada. A joint meeting of the Canadian Botanical Association together with the Society for Environmental Biology, Entomology Society of Canada, Genetics Society of Canada and others. The congress includes sessions on forest research and public policy, community organization, life in cold climates, predation, ageing, plant and animal diseases plus many others.
August 21-24,	International Symposium on South Eastern Asian Plant Genetic Resources. Jakarta, Indonesia. For information write to: National Biological Institute (LBN), Jalan Raya Juanda 18, Bogor, Indonesia.
September 3-6,	Plasticity in Plants. University of Durham, UK. Sponsored ba the Society for Experimental Biology. For information contact: Prof. D.H. Jennings, Dept. of Botany, University of Liverpool, Liverpool L69 3BX, UK.
end of 1985	A workshop is planned in Montpellier (Centre Louis Emberger) on 'Biological Invasions: History, genetics, demography and physiology of invading species'. For information contact: Dr. P. Jacquard, Unité de Biologie des Populations et des Peuplements (B2P), CNRS, BP 5051, F-34033 Montpellier-Cedex, France.
1986 August 10-16,	The Ecological Society of America will hold its annual meeting in collaboration with the 4th Congress of the International Association for Ecology, Syracuse, New York, USA. INTECOL and the ESA will present a complementary and integrated program of symposia, workshops, courses, and field trips under the theme "Global Connections in Ecological Theory and Practice".

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8. REQUEST FOR MATERIAL AND INFORMATION

Dr. ACKERMANN J., University of Puerto Rico, Department of Biology, Rio

Piedras, Puerto Rico 00931, USA, would appreciate live, pickled or pressed material of "equitant" Oncidiums. Exchange possible.

Dr. BALTISBERGER M., Herbarium ZT, Conservator, Geobotanisches Institut ETH, Universitätsstrasse 2, 8090 Zürich, would appreciate herbar material (exchange possible), part of fruits and living plants of the genus Betonica and Stachys.

DOWNIE St., Department of Botany, University of Alberta, Edmonton, Alberta, Canada, T8G 2E9, would appreciate Arnica seeds from Scandinavia, USSR and throughout North America

HAHN W.J., Dept. of Botany, Missouri Botanical garden, P.O.Box 299, St. Louis, MO 63166-0299, U.S.A., would appreciate collections, seeds, chemical vouchers of Palmae. Offers: determinations, duplicates in exchange, literature.

Dr. HARLEY R., Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, England, would appreciate seeds of Hyptis species - except H. suaveolens and H. pectinata.

Dr. NOHER DE HALAC I., B. Powell 2794, 5016 Cordoba, Argentina, would appreciate seeds of Oenothera and of Triticale.

Dr. WIEGLEB G., Fachbereich 7 Biologie, Universität Oldenburg, Postfach 2503, D-2900 Oldenburg, FRG (Federal Republic of Germany) would appreciate herbarium specimens of Ranunculus sg. Batrachium from all over the world.

Dr. WOODLAND D.W., Biology Dept., Adrews University, Berrien Springs, MI 49104, USA, would appreciate seeds of any Urticaceae, especially Boehmeria, Myriocarpa, Urera and Pilea from Central and South America. Also interested in Urtica from any parts of the world excluding North America. Proper location and label data should be included.

Ms. Sally A. BOURGEOIS, (504) 394-1395, 5615 Durbridge Drive, New Orleans, Louisiana 70114, USA, writes:
"In my possession I have an exquisite book given to me by my grandfather which, I hope, you will find of great interest. Years ago, my grandfather purchased this book at an antique store in Old North Creede, Colorado. Recently, he designated me the recipient of this book under the condition that I investigate a few details. We are curious to know basically four things: 1) are the other two volumes (vols. 1 and 3) still in existence, 2) of what importance will the book serve to any interested party, 3) what is the book's present value, and 4) are any organizations or individuals interested in obtaining the book.
The title of the book is "Medical Botany Volume II", by William Woodville, M.D.. Under the dedication, three pages into the book, is a copyright date reading "February 20th, 1792". The book is in hardbound form and absolutely excellent condition, with every page intact. Each plant that is represented in "Medical Botany Volume 2" is accompanied by a hand painted, color print and individually dates (the dates are between February 1, 1791 and March 1, 1792). Each print is magnificently detailed and vividly colorful.

If you or someone you know can answer any of my questions mentioned earlier, please contact me by calling or writing to the address above. Thank you for your time."

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9. MISCELLANEOUS NOTES

Suggestions for IOPB. Writes Dr. W.F. Grant, President of the IOPB: "1) A former Secretary of IOPB, Dr. David M. Moore has suggested that IOPB might consider commissioning a synthesis of the biosystematic data on various large cosmopolitan genera, rather like modern versions of the classical accounts of Crepis.
2) A former Secretary of IOPB, Dr. Otto T. Solbrig has suggested that IOPB might be interested in developing a program of research on plant biosystematics of tropical plants. Since Otto is Vice-President of the International Union of Biological Sciences, I have requested him to give some elaboration as to how IOPB might play a role, as IUBS has declared one of their programs "Decade of the Tropics 1983-1993."
I shall look forward to receiving your comments."

Tyler Prize 1986. Writes Dr. Jerome B. Walker, Executive Director, University of Southern California, University Park, Los Angeles, CA 90089-4019, USA: "The Executive Committee of the Tyler Prize is inviting nominations for 1986. The Tyler Prize annually honors scientific accomplishments and critical leadership contributing significantly to the environmental and energy needs of the world.
A cash prize on the scale of the Nobel Prize is awarded for the protection, maintenance, improvement and understanding of ecological and environmental conditions anywhere in the world; and for the discovery, further development, improvement or understanding of known sources of energy or new sources of energy.
The Tyler Prize Executive Commitee would be grateful for your personal participation and your assistance in encouraging your colleagues to participate."

Warning. Writes Dr. Dennis W. Woodland, Biology Dept., Adrews University, Berrien Springs, MI 49104, USA: "Botanists should be cautioned when doing field work, to read carefully any signed insurance information when renting an automobile in foreign countries. I recently had a rental car stolen in Mexico and found that the 20% deductable applies to the replacement cost of a **new** automobile if stolen from a **non-locked enclosure**. Costs: 400,000 pecos = $ 1900.00 (US). Botanists should also be cautioned to check with their home institution insurance policy as to whether loss is covered. Many policies do **not cover** rental loss."

PERSONAL DATA COLLECTION

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

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Return to: Dr. Krystyna M. Urbanska, Editor, IOPB Newsletter,
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