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THE BEAN BAG

**A newsletter to promote communication among research scientists
concerned with the systematics of the Leguminosae/Fabaceae**

Number 36

November 1992



The Bean Bag Directory

Joseph H. Kirkbride, Jr. and John H. Wiersema

In the last few years, the policy of the *Bean Bag* has been to send out a *Directory* listing the Readers, their addresses, and their specialties each November. The cost of mailing the November issue and directory has been approximately three times the cost of mailing the May issue. We, like everyone else in the world, must make our financial resources go farther than ever before. By altering the *Directory*, mailing costs can be cut by approximately 50% per year.

One possibility is to put the *Directory* on a microfiche. A microfiche weighs less than a sheet of paper, so we could continue to send out the complete *Directory* each year. The *Directory* would occupy about one-fifth of a microfiche, so that we could place other documents or reprints of selected legume literature on the remainder of the microfiche. To use a microfiche, a microfiche reader must be at hand. We are concerned that the usability of the *Directory* would be severely limited by placing it on a microfiche.

It has been decided to produce the *Directory* on a three-year schedule, and combine its production with a culling of the mailing list. This year, 1992, a complete printed *Directory* is being sent to each Reader. In 1993 and 1994, separate printed directory supplements will be sent to each Reader. New Readers will receive copies of the complete 1992 *Directory* and of the supplements. The Readers will have to keep their 1992 *Directory* until 1995. In 1995, the mailing list will be culled, and a complete printed *Directory* will be sent to each Reader. This will start a new three-year cycle.

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From the Editors

Joseph H. Kirkbride, Jr. and John H. Wiersema

This is the first issue of the *Bean Bag* without the participation of Charles R. (Bob) Gunn as co-editor. We thank him very much for 17 years of outstanding service as an editor of the *Bean Bag*. We would also like to take this opportunity to thank the Agricultural Research Service of the US Department of Agriculture for their continuing financial support of the *Bean Bag*.

The *Bean Bag* (BB) is designed to promote communication among research scientists concerned with legume systematics. To achieve this goal the BB is issued in May and November of each year and features six columns: From the Editors, News (meetings, major events, announcements, etc.), Latin American Legume Report, Nodulation and Nitrogen Fixation (new nodulation records), Gleanings, and Recent Legume Literature. Data in the Gleanings column are derived from questionnaire sheets which Readers complete and return. If you have news about legume systematics, send it to us for this column. The Recent Legume Literature column contains published research papers of specific interest to BB Readers. Recent is defined as one year old. We rarely will publish a citation that is more than one year old. Specific interest to BB Readers is defined as research papers of interest to a worldwide group of legume systematic botanists. We encourage BB Readers to send us notices, observations, etc.

Diacritical marks can now be placed in the BB. If such marks should be placed in your name, address, publications, etc., please let us know. We are especially interested in correcting our Directory.

Electronic copies of the BB and the *Directory* can be obtained from TAXACOM or through Internet at HUH.HARVARD.EDU. TAXACOM is a free online service for biosystematics and biogeography at the Buffalo Museum of Science, Buffalo, New York, USA. The system operator is Dr. Richard H. Zander. TAXACOM is available 24 hours daily at telephone number 716-896-7581 using 2400/1200/300 bps, 8 data bits, 1 bit stop, and no parity. Outside of the USA use CCITT at 2400 bps, otherwise use Bell protocols. HUH.HARVARD.EDU is a free service on Internet maintained by Dr. James Beach at the Harvard University Herbaria, Cambridge, Massachusetts, USA. Connect to HUH.HARVARD.EDU via FTP using the name FTP and the password FTP, and copies of the BB and the Directory are in the subdirectory /PUB/NEWSLETTERS/BEANBAG.

In Memorial

Rob Geesink

1945 - 1992

Frits Adema, Jeannette Ridder-Numan, and Anne Schot

On 2 September 1992, Dr. Rob Geesink passed away. After his biology studies, he joined the Rijksherbarium, Leiden, in 1972. He made important contributions to taxonomy of Southeast Asian plant groups, especially Portulacaceae and Papilionoideae of Fabaceae. He participated in many expeditions to Thailand and Borneo, and also contributed to the floras of Thailand and Hawaii. Of great importance is his work on the translation and revision of *Thonner's Analytical Key to the Families of Flowering Plants*. Until 1989 he put all of his energy into the *Flora Malesiana* in his official function as chairman of the research group of tropical phanerogams.

In his thesis, *Scala Millettiearum* (1984), he treated the enormously complicated group of genera accumulated in this tribe. His great interest in phylogeny and theoretical aspects of systematics was apparent in it, and he subsequently vigorously developed that interest. His description of 'natural' relationships with application of formal logic, theories of probabilities, and even the second law of thermodynamics, were totally different from commonly used methods. He inspired many students and staff members of his institute and established an active reading circle on the theory of systematics and phylogeny.

Rob Geesink had a very creative mind and was open to all new ideas which he reviewed

critically. Fiercely he defended those ideas with which he agreed and refuted those with which he disagreed. With his passing we have lost an enthusiastic, inspiring, and honest colleague and friend. We will miss his contributions.

Our sympathy goes out to his wife Dia and three young children, Willem, Anne-Hess, and Janna.

Third International Legume Conference

12-19 July 1992

Roger M. Polhill

The Third International Conference, held on 12-19 July 1992 at the Royal Botanic Gardens, Kew, involved 200 delegates from 30 countries. The focus of the meeting was on the evolution of legumes and was divided into several interlinked sessions - higher level systematics, the fossil record, structural botany, nitrogen economy, and the evolution of certain cultivated legumes. The 48 papers presented were mostly reviews of relevant topics, but 111 poster papers were also displayed and linked to the spoken presentations by discussion. Receptions were provided in conjunction with extended poster sessions to fully involve all the participants. Demonstrations were also given of several computer programs and a demonstration of the International Legume Database and Information Service. Two satellite meetings were also held - the Third ILDIS Workshop at the University of Southampton on 7-9 July and the Seventh Meeting of the International Group for the Study of the Mimosoideae at Kew on 20-21 July.

Regular readers of the *Bean Bag* will be aware that the meeting had been planned since 1988 so that some aspects of research and coordination could be commissioned. The convenors were selected from several countries and a special meeting was hosted by the Missouri Botanical Garden in November 1990 to plan the structure. The outline was followed closely in the final program, but it was most gratifying that so many aspects selected proved to be exactly opportune and that so much excellent data could be brought out at the meeting. There was a strong feeling of excitement as the very recent progress became apparent. It was also notable that much of this was being presented by young research workers with great enthusiasm to learn new techniques and concepts. The meeting clearly met the principal objectives beyond expectation and was widely recognized as outstandingly successful.

The most important shift in emphasis in recent years has been the use of molecular systematics to provide new and exciting genetic data to complement other suites of information for systematic purposes, allowing also for a more refined assessment of plant uses and strategies for plant breeding. An increasing number of relatively convenient techniques to assess modifications in DNA are becoming available. The meeting provided a very useful opportunity to compare techniques and to assess their relative value for different problems from the species level to that of major groups of genera. The results are extremely encouraging at all hierarchical levels and their value to the assessment and development of various legume crops was particularly pertinent.

The assessment of evolutionary relationships has been greatly improved by the wide acceptance of cladistic methods. Advances have been made in the taxonomy of a number of important tribes and the prospects elsewhere are very promising. Considerable emphasis was placed on the basal groups of the family which are predictably the most difficult to resolve taxonomically, but substantial progress has been made with a variety of approaches. New surveys of morphological features relating to wood, leaves, flowers, pollen, fruits, and seeds, have improved our understanding, as have new data from the study of anther-walls and embryology. Special attention was given this time to the fossil record. A specially commissioned volume, *Advances in Legume Systematics, Part 4, The Fossil Record*, was published immediately before the meeting and synthesized a great deal of information not previously widely known to legume researchers. There were correspondingly lively discussions at the meeting and the opportunity to provide a historical background to the discussion on higher level systematics.

The session devoted to the nitrogen factor in legume evolution provided a very useful focus to analyze what is special about legumes and what makes them so important to the human economy. Much progress has been made in our understanding of nitrogen acquisition systems and the evolution of rhizobial and mycorrhizal associations. There are costs and benefits in this competitive edge that

legumes have over most other plant families, and it was possible to review this on a broad scale and illustrate specific models, including the significance of grain legume selection.

The final day was devoted to macromolecular and cytogenetic evidence for the evolutionary processes associated with domestication and differentiation in cultivated and wild plants. Relationships between crop plants and wild species can be quantitatively assessed by techniques similar to those used in higher order systematics. The establishment of common ground between those who study evolution over geological time and those who study it over the ten thousand years of agriculture made an appropriate endpoint to the meeting.

The proceedings of the meeting will be published by the Royal Botanic Gardens, Kew, as four volumes, *Advances in Legume Systematics, Part 5 - The Nitrogen Factor, Part 6 - Structural Botany, Part 7 - Phylogeny, and Part 8 - Evolution and Domestication*. The first two should appear in 1993, the second pair by early 1994.

The success of the meeting was greatly enhanced by the generous support of a number of donors, with special acknowledgement to the Directorate General for Science, Research and Development of the Commission of the European Communities, the National Science Foundation of the USA, the British Council, the Commonwealth Science Council, and the Royal Society of London. The travel grants allowed an excellent representation from many countries and from various disciplines in a way that is very helpful for advancing legume science in the future. We look forward to plans for the next meeting.

A New Publication

from the Royal Botanic Gardens, Kew

Advances in Legume Systematics, Part 4 The Fossil Record

Edited by

P.S. Herendeen and D.L. Dilcher

J.M. Lock

The latest volume in the *Advances in Legume Systematics* series addresses the fossil history of the Leguminosae. While modern legumes are among the most diverse and important groups of plants, very little has been written about their history. The fossil record of legumes, especially tertiary legumes, is surprisingly good, yet paleobotanical data have contributed very little to understanding legume evolutionary patterns and relationships.

The book is a comprehensive assessment of legume paleontology. There are 16 contributions divided into three sections [Each individual contribution is cited below in RECENT LEGUME LITERATURE]. The first deals with specific taxa: *Podogonium*, '*Pterocarpus*' and *Caesalpinia* from Europe, *Acacia* from the Caribbean, a synopsis of fossil mimosoid wood, and an account of early Eocene fossil Papilionoid flowers. The second consists of regional studies covering SE North America, the Caribbean, Hungary, Abkhazia (Georgia), China, India, and New Zealand. A final section includes three more general papers on climatic pulses and legume evolution, fossil legume wood, and a summary chapter on the phylogenetic and biogeographical implications of the fossil record.

The 336-page book is extensively illustrated with line and half-tone figures, and is available from The Kew Shop, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, United Kingdom, price £24.00 in the shop or £27.60 including packing and surface postage world-wide. Payment must be in £ sterling or by VISA or MASTERCARD.

Seventh Meeting of the
International Group for the Study of the Mimosoideae

20-21 July 1992

Gwilym P. Lewis, Ma. de Lourdes Rico-Arco, and Jacques P.J. Vassal

The seventh meeting of the International Group for the Study of the Mimosoideae (IGSM) was held 20-21 July 1992 at the Royal Botanic Gardens, Kew, in connection with the Third International Legume Conference. Forty-one active members participated. The two-day program included 8 papers, 5 illustrated slide shows, and the business meeting. Dr. Leon Brimer was elected as the new Secretary/Editor of the IGSM and replaced Dr. Jacques P.J. Vassal who was highly complimented for his excellent work over the last 20 years. After 1 January 1993, subscriptions will be collected by the new Secretariat [Dr. Leon Brimer, Royal Veterinary and Agricultural University, Department of Pharmacology and Pathobiology, 13, Bulowsvej, DK-1870 Frederiksberg C (Copenhagen), Denmark]. Among other relevant discussions during the business meeting were: future of the group, possible collaborative projects, and the creation of an editorial board. The price of Bulletin 20 (1992) is \$24.00, but the price of Bulletin 21 (1993) will be \$30.00. The next meeting of the group will probably be in Argentina in connection with the Latin American Botanical Congress. Ing. René Fortunato and Dr. Leon Brimer will be corresponding to explore this option. September 31st, 1992, was designated as dead-line to submit papers for the next bulletin. To close the meeting most of the members attended a jazz concert and picnic in Kew Gardens.

Kew Calendar 1993

Victoria Mathews, Editor
 The Kew Magazine

The theme of the 1993 Kew Calendar is the Leguminosae. Comprising plates from *Curtis's Botanical Magazine*, this colorful calendar demonstrates the remarkable diversity of genera and species which belong to the family. Copies can be purchased by mail order from the Kew Shop, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, United Kingdom. The price (including postage and packing) is £5.50 for the United Kingdom and other European countries and £6.80 for all countries outside of Europe. Checks should be made payable to 'The Royal Botanic Gardens, Kew,' and all payments must be in £ sterling, payable through a United Kingdom bank. If paying by VISA or MASTERCARD, give your account number and date of expiration of your card, as well as your name and address. If you would like to send Kew Calendars to friends, The Kew Shop will mail them on your behalf - simply send the names and addresses with your remittance, and the Shop will do the rest.

New Journal and Newsletter

Genetic Resources and Crop Evolution

Genetic Resources and Crop Evolution (GRACE) is devoted to all aspects of plant genetic resources research. The managing editorial board consists of P. Hanelt (Editor-in-Chief) and K. Hammer. The journal publishes original articles in the areas of taxonomic, morphological, physiological, biochemical, genetic, cytological, and ethnobotanical research of genetic resources and includes contributions to germplasm management in a broad sense, i.e., collecting, maintenance, evaluation, storage, and documentation. Areas of particular interest include: 1) crop evolution, 2) domestication, 3) crop-weed relationships, 4) related wild species, and 5) history of cultivated plants, including paleoethnobotany. The journal also publishes short communications, e.g., newly described crop taxa, nomenclatural notes, reports of collecting missions, evaluation results of germplasm, etc., as well as book reviews of important publications in the field of genetic resources. Every volume will

contain some review articles on actual problems. The journal is the internationalized continuation of the German periodical *Die Kulturpflanze*, formerly published by the Institute of Genetics and Crop Plant Research, Gatersleben, Germany. All contributions are in the English language and are subject to peer review. Articles for the journal are submitted to: Editorial Office, GRACE, Kluwer Academic Publishers, P.O. Box 17, 3300 AA Dordrecht, The Netherlands. Institutional subscriptions are Dfl.253.00/US\$129.00, and personal subscriptions are Dfl.130.00/US\$66.00. USA subscribers contact Kluwer Academic Publishers Group, Order Dept., P.O. Box 358, Accord Station, Hingham, Massachusetts, 02018-0358, USA, and non-USA subscribers contact your subscription agent or Kluwer Academic Publishers Group, Order Dept., P.O. Box 322, 3300 AH Dordrecht, The Netherlands.

Pasture and Forage Legume Network News

This newsletter is the successor to *Forum for Medic Genetics Resource Activities*, previously published by the International Board for Plant Genetic Resources (IBPGR) in Rome. Last year an agreement was reached to transfer publication of *Forum for Medic Genetics Resource Activities* from IBPGR to ICARDA, Aleppo, Syria. "Research on annual pasture and forage legumes and their applications involves germplasm enhancement, resource management and socio-economic studies. With this quarterly letter, [they] hope to bring these strands together, to provide you with a general overview of developments in such areas as ley farming, forage legume rotations and pasture ecology. By doing so, [their] objective is not to go into great detail, but rather to act as an exchange where readers can get quick and concise updates." The first five numbers have been published, March 1991, June 1991, October 1991, April 1992, and September 1992. To subscribe at no cost, contact *Pasture and Forage Legume Network News*, c/o Scott Christiansen, ICARDA/PFLP, P.O. Box 5466, Aleppo, Syria.

Nodulation and Nitrogen Fixation

Legume Nodulation Reports not in Allen and Allen (1981)

Taxon	Status ¹	Nodule ² Shape	Source ³
<i>Almaleea paludosa</i> (J. Thompson) Crisp & P. Weston	+		2
<i>Centrosema rotundifolium</i> Benth.	+		1
<i>Trifolium apertum</i> Bobrov	+		3
<i>Trifolium cernuum</i> Brot.	+		3
<i>Trifolium incarnatum</i> L. subsp. <i>molineri</i> (Balb. ex Hornem.) Syme	+		3
<i>Trifolium leucanthum</i> M. Bieb.	+		3
<i>Trifolium medium</i> L. subsp. <i>sarosiense</i> (Hazsl.) Simonkai	+		3
<i>Trifolium michelianum</i> Savi var. <i>balansae</i> (Boiss.) Azn.	+		3
<i>Trifolium miegeanum</i> Maire	+		3
<i>Trifolium ochroleucum</i> Hudson	+		3
<i>Trifolium pallescens</i> Schreber	+		3
<i>Trifolium patens</i> Schreber	+		3
<i>Trifolium repens</i> L. var. <i>biasolettii</i> (Steudel & Hochst.) Asch. & Graebner	+		3
<i>Trifolium sylvaticum</i> Gerard ex Lois.	+		3
<i>Trifolium tumescens</i> Steven ex M. Bieb.	+		3

¹Status: +, root nodules reported as present; -, root nodules reported as absent; ±, the nodulation report conflicts with Allen and Allen (1981).

²Nodule shape: Ae, aescynomenoid; As, astragaloid (now referred to as caesalpinoid by Corby); Cr, crotalaroid; CrB, branched crotalaroid; CrS, simple crotalaroid; De, desmodioid; Gl, globose; Lu, lupinoid; Mu, mucunoid.

³Source:

1. CORBY, pers. commun., 1992.

2. CRISP, pers. commun., 1992.

3. Fay, M.F., L.R. Mytton, and P.J. Dale. 1991. Germplasm assessment in *Trifolium* species. *Plant Breeding* 106: 226-234.

Gleanings

ADEMA (New Reader) is taking over the revision of Leguminosae-Papilionoideae for *Flora Malesiana* from Rob Geesink.

AGUILAR is working on a seed identification manual for Philippine legumes and a nomenclatural updating of caesalpinioideae species of the Philippines. She has two papers in press: "Nodulation of some leguminous forest tree species" and "Updated nomenclature of papilionaceous species in the Philippines." She needs seeds of tropical legumes and references on seeds and Caesalpinioideae nomenclature, and offers herbarium specimens of flowering plants from the Philippines.

ALBUQUERQUE is working on Leguminosae in popular medicine, and needs information on the bibliography of Leguminosae in popular medicine and also in alimentation, and offers any information already published about Amazonian Leguminosae.

BERNAL offers his 1986 publication, *Crotalaria* (Fabaceae-Faboideae), *Flora de Colombia*, 1 ed., Imprenta Nacional, Santafé de Bogotá, Colombia, Monografía No. 4, 119 pages.

CANNON needs any Phyllachoraceae (shiny black spots < 1-10 mm in diam. on otherwise unaffected or almost unaffected green leaves).

CHEN is now working on the legumes of Yunnan, China; needs information or publications on *Phaseolus*, *Vicia*, and *Vigna*, and offers seeds or specimens of Leguminosae from Yunnan or China.

CHRISTIANSEN (New Reader) is a grazing management specialist and works in the Pasture Forage and Livestock Program and the Genetic Resources Unit at the International Center for Agricultural Research in Dry Areas (ICARDA). These units assist national agricultural research systems in West Africa and North Africa with the collection, characterization, evaluation, multiplication, and utilization of naturalized pasture and forage legumes. Most of their work centers on annual species of *Medicago* and *Trifolium*. He is also editor of the new newsletter *Pasture and Forage Legume Network News*.

COMBES is starting to work on *Lathyrus sativus* resistance to bruchids (*Callosobruchus*); needs material of *L. sativus* from all over the world, and offers material of *L. sativus*, *L. sylvestris*, and *L. latifolius*.

CORBY and David L. SMITH are preparing a paper on the size and nitrogen-content of leguminous embryos, and CORBY offers 300 g of dried material of *Mora megistosperma* seed.

DOYLE is working on a phylogenetic analysis of the family Fabaceae, with emphasis on Caesalpinioideae and basal Papilionoideae, using several approaches: 1) sequencing of the chloroplast gene *rbcL*, 2) restriction site analysis of the cpDNA inverted repeat, and 3) tracking the distribution of gene losses and inversions in the chloroplast and mitochondrial genomes of legumes and putatively related families (in collaboration with Dr. J.D. Palmer, Indiana University, USA). He needs leaf and seed material to fill gaps in his sampling, particularly in some groups of tribe Caesalpinieae (*Acrocarpus*; *Dimorphandra* group: *Arcoa*, *Burkea*, *Chidlowia*, *Dimorphandra*, *Erythrophleum*, *Mora*, *Pachyelasma*, *Sympetalandra*, *Stachyothyrsus*, and *Trapterocarpon*; and, *Sclerolobium* group: *Dipytychandra*, *Sclerolobium*, and *Tachigalia*), Cassieae (other than Cassiinae), *Adenolobus*, and *Brenierea*. He has DNA isolated from over 200 legume genera from diverse sources (including ca. 50 Phaseoleae), and anyone interested in pursuing molecular phylogenetic studies of the family may be able to obtain small amounts of DNA (sufficient for PCR amplification).

ECHIKH (New Reader) is studying genetic variability of Algerian *Vigna unguiculata* and the origin of Algerian *V. unguiculata* cultivars, and needs seeds of *V. unguiculata* landraces from three areas, the Mediterranean, West Africa, and eastern Asia.

EDWARDS (New Reader) is doing a revision of *Argyrolobium*, needs seed of same, and offers seeds of South African legumes.

EZE needs viable seeds of as many species as possible of the genus *Vigna* for comparative studies.

FANTZ is currently working on *Flora Mesoamericana* (*Centrosema*, *Clitoria*, and *Barbieria*), and is starting on *Clitoria* for *Flora of Oaxaca* and *Centrosema* and *Clitoria* for *Flora of North America*. He is willing to examine and annotate any taxa of these genera for those projects.

GENISE (New Reader) is working on the floral biology of *Macroptilium*, *Prosopis*, and *Vigna*.

GILL is working on the allelopathic effects of aqueous extracts of some common weeds on the rate of germination, shoot and root growth, and biomass production of some grain legumes.

GRAVES is doing evaluations of new green manure germplasm for cropping systems in California, cover crops in vineyards, and drought tolerant annual legumes for use in dryland cereals rotations, and is collecting and evaluating naturalized *Medicago polymorpha* for alfalfa weevil tolerance in California. He needs material of *Medicago hypogea* and *Vicia amphicarpa*, and offers material of Mediterranean annual medics, subclovers, and associated legume types.

Heald, Judith. See LOCK.

HUGHES is continuing exploration, collection, and taxonomic revision of *Leucaena* with a series of field trips to Central America and Mexico during 1991-92, and offers seeds of a wide range of Central American and Mexican woody legumes.

IBRIS is studying the germination of *Vigna subterranea*, and needs references about its germination.

JOLLS has, since 1988, been studying seed mass, germination ecology, seed oil fatty acid content and composition, and the reproductive biology of *Senna (Cassia) obtusifolia*, sicklepod, of southeastern USA, and is also interested in its uses in Asian medicine and other applications in ethnobotany. She wants fruits with seed from 10-20 different plants representing populations at the extremes of *Senna obtusifolia*'s distribution. She offers any legume from the state of North Carolina, USA, particularly those on the southeastern coastal plain (especially Pitt County, near Greenville, North Carolina) and from northern Michigan where she is in summer residence at the University of Michigan Biological Station on Douglas Lake, Michigan, USA (Emmet County).

KITE is beginning preparation of a paper on the chemotaxonomy of non-protein amino acids in *Caesalpinia*, is working on the chemotaxonomy of *Andira*, and needs seeds in bulk of *Andira* and *Caesalpinia*.

Kodala, Phillip G. See TINDALE.

LABAT is working on the Papilionoideae of Madagascar, needs legume materials from there, and offers identification of the material.

LADIPO (New Reader) is conducting exploration for indigenous multipurpose tree species (MPTS) with particular emphasis on legumes for use in agroforestry systems in lowland West African acid soil environments, and then screening and evaluating them. He needs seeds of leguminous trees and shrubs and information on members of the genera *Millettia* and *Indigofera*, and offers seeds of West African legumes.

LEEN is working on the biological control of *Ulex*.

LEWIS needs seed samples of *Caesalpinia*, sens. lat., and seeds and fixed flowers of African *Hoffmannseggia*, and offers seeds of a limited number of Central and South American *Caesalpinia* and identification services for *Caesalpinia* worldwide.

LI, De-Zhu, (New Reader) is starting to work on the *Flora Yunnanica: Leguminosae*, needs literature on Yunnan legumes, and offers a checklist of the Yunnan Leguminosae.

LI, Rui-Jun, (New Reader) is working on "Biosystematic studies on northeastern Chinese *Vicia* L." under Prof. Ming-Yuan Liu, and needs references on and viable seed samples of *Vicia*.

LI, Zhi-Min, (New Reader) is working on the legume flora of SE Tibet in the Himalayas.

LISTON is studying the molecular phylogeny of the legume tribes lacking the chloroplast DNA inverted repeat, needs *Gueldenstaedtia*, *Halimodendron*, *Millettia* (Old World), and *Sarcodum*, and offers Galegeae.

LOCK and Judith Heald are working on a check-list of Indo-Chinese legumes for ILDIS (Cambodia, Laos, Thailand, and Vietnam).

LUNGU (New Reader) is working on the taxonomy and biogeography of *Entada*, needs *Entada* seeds (other than those species listed below), and offers *Entada abyssinica*, *E. arenaria* subsp. *arenaria*, *E. arenaria* subsp. *microcarpa*, *E. bacillaris*, *E. chrysostachys*, *E. dolichorrhachis*, *E. gigas*, and *E. nudiflora*.

MA needs publications on *Astragalus*, especially taxonomic and phytogeographic from the Old World, and offers the same.

MATOS will have 8 papers on the foliar anatomy and architecture of various genera of Caesalpinioideae and Faboideae published during 1992 in *Acta Botánica Cubana* and has in press a paper on the recent collection of *Crotalaria urbaniana* Senn in the basin of the Río Cauto in Cuba. This endemic species is considered very close to extinction. The plant found was moved to the Botanical Garden "Cupaynicú" in Granma Province where it is being conserved *ex situ*. The publication will contain a complete botanical description of this Cuban species as well as photographs and drawings. She will complete in 1992 a taxonomic study of the tribe Millettieae in Cuba and manuscripts on the anatomy and foliar architecture of the Cuban members of Millettieae. She offers viable material and herbarium specimens of Cuban vascular plants.

MAXTED offers to identify temperate forage legumes in return for specimen duplicates.

McKEY (New Reader) is working on the ant-plant symbiosis involving Leguminosae, *Acacia*, *Humboldtia*, *Leonardoxa*, and other genera.

MRIDHA (New Reader) is studying the utilization of some fungi by growing legumes in periodically flooded soils.

MUNIVENKATAPPA (New Reader) is working on Leguminosae for the *Flora of India*, and offers materials of Indian legumes.

NOVOSELOVA (New Reader) is currently preparing a thesis entitled "Biology of reproduction of annual species of *Medicago*," and has conducted studies on the embryology, morphology of ovules and embryo sacs, pollen tube growth, development of embryos and endosperm after pollination, and cleistogamy in annual *Medicago* of more than 100 species from various botanical gardens and the collection of the N.I. Vavilov Institute of Plant Industry (VIR).

OLIVEIRA needs material of *Lupinus*, and offers material of *Aeschynomene*, *Desmodium*, and *Lupinus*.

PAISOOKSANTIVATANA (New Reader) is working on the taxonomy and ethnobotany of legumes in Thailand.

PLANCHUELO (New Reader) is working on the taxonomy, anatomy, and phenology of cultivated and wild South American *Lupinus* and on phenology and yield simulation models for peanut and soybean. She needs herbarium specimens and seeds of *Lupinus*, and offers herbarium specimens of legumes from Córdoba, Argentina.

PREDEEP is nearing completion of his study of the taxonomy of the subtribes Clitoriinae, Diocleinae, Erythrinae, Glycininae, and Ophrestinae of tribe Phaseoleae from India.

PRZYBYLSKA, SALMANOWICZ, and ZIMNIAK-PRZYBYLSKA (New Readers) are studying seed protein polymorphism in cultivated *Lupinus*, *Phaseolus*, and *Vicia* section *Faba*, and have a paper in press on seed proteins in *Phaseolus*. They need seeds of New World *Lupinus*, wild *Phaseolus coccineus*, and *Vicia* species related to *V. faba*, and offer reprints of their publications.

RADIONENKO is working with the genetic engineering of *Trifolium pratense*, including protoplast, cell, tissue, and organ culture, processes of organogenesis, somatic embryogenesis, and zygotic embryogenesis, and needs material of *Trifolium pratense*.

RAMIREZ DELGADILLO (New Reader) is studying the genus *Phaseolus* in Jalisco, Mexico, needs references on and seeds of wild *Phaseolus*, and offers herbarium specimens and to exchange Jalisco seeds.

REYNOSO DUEÑAS (New Reader) has a publication in press on a new species of *Bauhinia* from the state of Jalisco, Mexico, and is working on the genus *Calliandra* in western Mexico and the distribution of Caesalpinioideae in the state of Jalisco. She needs literature and type photographs of Caesalpinioideae and *Calliandra*, and offers herbarium specimens of species from western Mexico in flower or fruit.

SALMANOWICZ (New Reader). See PRZYBYLSKA.

SHOLARS (New Reader) is working on the Californian perennial *Lupinus* for the new *Jepson Manual*.

SMITH, David L. See CORBY.

SUN is now working on the legume flora of SE Tibet in the Himalayas.

SURESH (New Reader) is doing biomass research on legume trees in Western Ghats, India, needs material of *Acacia mangium*, and offers material of *Albizia lebbec*, *Pterocarpus marsupium*, and *Xylocarpa xylocarpa*.

TINDALE and her assistant Phillip G. Kodela are working on *Acacia* descriptions for the *Flora of Australia* and have three papers in press: "New species of *Acacia* (Fabaceae, Mimosoideae) from tropical Australia," *Telopea* 5(1), 1992; "*Acacia pedleyi* (Fabaceae, Mimosoideae), a new species from central-eastern Queensland," *Austrobaileya* 3(4), 1992; and, "*Acacia bulgaensis* and *A. matthewii*, two new species of *Acacia* section *Juliflorae* (Fabaceae, Mimosoideae) allied to *A. cheelii* from eastern New South Wales, Australia," *Australian Systematic Botany* 5(5), 1992. In late 1992, they will be working on the Series Botrycephalae.

TUCKER is studying carpel proliferation in *Swartzia* species with more than one carpel, and needs pickled material of young flowers and inflorescences in developmental stages of *Swartzia* species with more than one carpel.

WU is starting to work on the *Flora Yunnanica: Leguminosae*, needs literature on Yunnan legumes, and offers a checklist of the Yunnan Leguminosae.

ZIMNIAK-PRZYBYLSKA (New Reader). See PRZYBYLSKA.

RECENT LEGUME LITERATURE

Eds. Note: Author names in all capital letters are BB Readers. Their full names and addresses are listed in November 1992 BB Directory. Correspondence about their articles should be sent directly to them.

ARONSON. 1991. Description and distribution of *Acacia macracantha* Humb. et Bonpl. ex Willd. (Leguminosae, Mimosoideae) in northern Chile. *Gayana Bot.* 48: 81-87.

ARONSON and C. Saravia Toledo. 1992. *Caesalpinia paraguariensis* (Fabaceae): Forage tree for all seasons. *Econ. Bot.* 46(2): 121-132.

Awasthi, N. 1992. Indian fossil legumes. Pp. 225-250 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record*. Royal Botanic Gardens, Kew.

Axelrod, D.I. 1992. Climatic pulses, a major factor in legume evolution. Pp. 259-279 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record*. Royal Botanic Gardens, Kew.

Bandyopadhyay, S., B.D. Sharma, and THOTHATHRI. 1992. A new subspecies of *Bauhinia ornata* (Leguminosae) from India. *Nord. J. Bot.* 12(2): 223-224.

BARNEBY. 1992. Centennial beans: A miscellany of American Fabales. *Brittonia* 44(2): 224-239.

BARNEBY. 1991. A new unifoliolate *Lupinus* (Fabaceae: Lupininae) from the Brazilian Planalto. *Brittonia* 43(3): 168-170.

BERNAL and J.E. Correa. 1992. Fabaceae-Faboideae. In: *Especies vegetales promisorias de los países del Convenio Andrés Bello*. 1va. edición. Editora Guadalupe Ltda. Santafé de Bogotá-Colombia. Tomo VIII. 550 pp.

Buzek, C. 1992. Fruits of "*Pterocarpus*" *tertiarius* Weyland from the North-Bohemian Basin, Czechoslovakia. Pp. 19-31 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record*. Royal Botanic Gardens, Kew.

CANNON. 1991. A revision of *Phyllachora* and some similar genera on the host family Leguminosae. *Mycologia Papers* 163: 1-302.

CARDENAS. 1989. *Inga neblinensis* (Leguminosae; Mimosoideae) a new species from the southern part of Venezuela. *Ann. Missouri Bot. Gard.* 76(4): 1179-1181. In Spanish with English summary.

CHEN, SUN, and M. Mizuno. 1992. On the genus *Euchresta* Benn. (Leguminosae) with "Wallace's Line." *Acta Phytotax. Sin.* 30(1): 43-56.

Chung, Y. and S. Lee. 1991. Studies on the wing petal morphology of the *Sophora* group. *Korean J. Pl. Tax.* 21(1): 37-54. Key and descriptions to wing petal morphology of 10 genera presented.

Cole, C.T. and D.D. Biesboer. 1992. Monomorphism, reduced gene flow, and cleistogamy in rare and common species of *Lespedeza* (Fabaceae). *Amer. J. Bot.* 79(5): 567-575.

Contreras and LEWIS. 1992. A new species of *Caesalpinia* (Leguminosae-Caesalpinioideae) from Mexico. *Kew Bull.* 47(2): 309-313.

Crepet, W.L. and HERENDEEN. 1992. Papilionoid flowers from the early eocene of southeastern North America. Pp. 43-55 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record.* Royal Botanic Gardens, Kew.

CUBERO and M.C. Saxena, eds. 1991. Present status and future prospects of faba bean production and improvement in the Mediterranean countries. *Options Méditerranéennes, Serie A: Seminaires Méditerranéennes, numéro 10.* CIHEAM/ECC/ICARDA, Zaragoza, Spain. 179 pp.

Den Outer, R.W. and W.L.H. Van Veenendaal. 1992. Wood anatomy of the *Baphia* group (Leguminosae). *Int. Assoc. Wood Anat. Bull.* 13(2): 135-149.

Derstine, K.S. and TUCKER. 1991. Organ initiation and development of inflorescence and flowers of *Acacia baileyana*. *Amer. J. Bot.* 78: 816-832.

DILCHER, HERENDEEN, and F. Hueber. 1992. Fossil *Acacia* flowers with attached anther glands from Dominican Republic amber. Pp. 33-42 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record.* Royal Botanic Gardens, Kew.

DOYLE. 1991. The pros and cons of DNA systematic data: Studies of the wild perennial relatives of soybean. *Evolutionary Trends in Plants* 5: 99-104.

DOYLE. 1991. Evolution of higher plant glutamine synthetase genes: Tissue specificity as a criterion for predicting orthology. *Molecular Biology and Evolution* 8: 366-377. Phylogeny of legume GS genes involved in nodulation.

DOYLE and J.L. Doyle. 1991. DNA and higher plant systematics: Some examples from the legumes. Pp. 101-115 in: G. Hewitt, A.W.B. Johnson, and J.P.W. Young, eds., *Molecular Techniques in Taxonomy.* NATO ASI Series H, Cell Biology Vol. 57.

DOYLE, LAVIN, and BRUNEAU. 1992. Contributions of molecular data to Papilionoid legume systematics. Pp. 223-251 in: P.S. Soltis, D.E. Soltis, and DOYLE, eds., *Molecular Systematics of Plants.* Chapman and Hall, NY.

Engel, T. 1992. Petiolar anatomy of North American *Astragalus* (Fabaceae) with persistent petioles. *Aliso* 13(2): 339-346. Results compared with Old World *Astragalus* and *Astracantha*.

FANTZ. 1991. Ethnobotany of *Clitoria* (Leguminosae). *Econ. Bot.* 45(4): 511-520.

FANTZ and PREDEEP. 1992. Comments on four legumes (*Clitoria*, *Centrosema*) reported as occurring in India. *Sida* 15(1): 1-7.

- GRAHAM. 1992. The current status of the legume fossil record in the Caribbean region. Pp. 161-167 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record*. Royal Botanic Gardens, Kew.
- Greinwald, R., P. Bachmann, L. Witte, ACEBES-GINOVES, and F.-C. Czygan. 1992. Taxonomic significance of alkaloids in the genus *Adenocarpus* (Fabaceae-Genisteae). *Biochem. Syst. Ecol.* 20(1): 69-73.
- GRIMES. 1992. Metamerism, heterochrony, and inflorescence morphology of the *Pithecellobium* complex (Leguminosae: Mimosoideae: Ingeae). *Brittonia* 44: 140-159.
- GRIMES. 1992. Lectotypification of *Acacia tenuifolia* (L.) Willdenow, and description of a new variety, *Acacia tenuifolia* var. *producta*, from the Guianas. *Brittonia* 44: 266-269.
- Gros, J.P. 1992. A synopsis of the fossil record of mimosoid legume wood. Pp. 69-83 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record*. Royal Botanic Gardens, Kew.
- GUINET and CACCAVARI. 1992. Pollen morphology of the genus *Stryphnodendron* (Leguminosae, Mimosoideae) in relation to its taxonomy. *Grana* 31: 101-112.
- Guo, S.-X. and Z.-K. Zhou. 1992. The megafossil legumes from China. Pp. 207-223 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record*. Royal Botanic Gardens, Kew.
- HABLY. 1992. Distribution of legumes in the Tertiary of Hungary. Pp. 169-187 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record*. Royal Botanic Gardens, Kew.
- Hammer, K., M. Esquivel, and H. Knüpfner, eds. 1992. "...y tienen faxones y fabas muy diversos de los nuestros..." Origin, evolution and diversity of Cuban plant genetic resources, vols. 1-2. Institute für Pflanzengenetik und Kulturpflanzenforschung, Gatersleben, Germany. The first 2 volumes of this planned 3-volume work have just been published. Volume 1 includes 3 articles on "Natural and ethnohistorical causes of the diversity of Cuban agriculture," 10 articles on "Origin and diversity of Cuban Agriculture from an ethnobotanical point of view," and a report on the database of cultivated plants of Cuba. Volume 2 is devoted to an inventory or checklist of the 1,045 cultivated taxa of Cuba. By family, Leguminosae are most numerous, with 164 species listed. Each entry, arranged alphabetically, includes accepted names, synonyms, family name, Cuban folk names, uses, origin, additional information, and literature references. Indices to families and genera, uses, synonyms, and folk names are also provided.
- HERENDEEN. 1992. A reevaluation of the fossil genus *Podogonium* Heer. Pp. 3-18 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record*. Royal Botanic Gardens, Kew.
- HERENDEEN. 1992. The fossil history of the Leguminosae from the Eocene of southeastern North America. Pp. 85-160 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record*. Royal Botanic Gardens, Kew.
- HERENDEEN and P.R. Crane. 1992. Early caesalpinoid fruits from the Palaeocene of southern England. Pp. 57-68 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record*. Royal Botanic Gardens, Kew.
- HERENDEEN, W.L. Crepet, and DILCHER. 1992. The fossil history of the Leguminosae: Phylogenetic and biogeographic implications. Pp. 303-316 in: HERENDEEN and DILCHER, eds., *Advances in Legume Systematics, Part 4. The Fossil Record*. Royal Botanic Gardens, Kew.

- HOC. 1992. Notulae ad Floram paraquaiensem. 34. Sinonimia en el género *Pithecellobium* C. Martius (Leguminosae-Ingaeae). *Candollea* 47: 89-92.
- LABAT. 1991. *Abrus longibracteatus*, une espèce nouvelle de Leguminosae-Papilionoideae du Laos et de Viêt Nam. *Bull. Mus. natl. Hist. nat. ser. 4, sect. B, Adansonia* 13: 167-171.
- LAVIN. 1992. Evolutionary relationships of the genus *Robinia*. Pp. 61-77 in: J.W. Hanover, K. Miller, and S. Plesko, eds., "Black Locust: Biology, culture, and utilization." Michigan State University Press, East Lansing, Michigan.
- LEEN. 1992. *Cytisus striatus*. *Madroño* 39(1): 79.
- LERSTEN, GUNN, and BRUBAKER. 1992. Comparative morphology of the lens on legume (Fabaceae) seeds, with emphasis on species in subfamilies Caesalpinioideae and Mimosoideae. USDA Techn. Bull. no. 1791. 44 pp. 29 species in 27 genera of Caesalpinioideae (13 species, 13 genera, from all 5 tribes) and Mimosoideae (16 species, 14 genera, from all five tribes) were surveyed by SEM.
- LEWIS. 1992. Two new species of *Aeschynomene* (Leguminosae-Papilionoideae) from Brazil. *Kew Bull.* 47(1): 141-145.
- LEWIS. 1992. *Camptosema scarlatinum* var. *pubescens*. *Kew Mag.* 9(1): 12-14.
- LEWIS. 1992. A new species of *Canavalia* (Leguminosae-Papilionoideae) from Brazil. *Kew Bull.* 47(2): 305-307.
- Li, R.-J., X.-J. Liu, M. Liu, and M.-Y. Liu. 1991. Biosystematical studies on northeast China *Vicia* L. II. Karyotype analysis and evolution of *V. amoena* complex. *Bull. Bot. Res.* 11(4): 75-80. In Chinese with English summary.
- Li, R.-J., X.-J. Liu, M. Liu, and M.-Y. Liu. 1992. Biosystematical studies on northeast China *Vicia* L. III. Preliminary cytological observations on *Vicia cracca* group. *Bull. Bot. Res.* 12(2): 163-167. In Chinese with English summary.
- LIMA, Haroldo. 1989-1990. Tribe Dalbergieae (Leguminosae-Papilionoideae) - Morphology of fruits, seeds, and seedlings and its application to taxonomy. *Arq. Jard. Bot. Rio de Janeiro* 30: 1-42. In Portuguese with English summary.
- LISTON. 1992. Variation in the chloroplast genes *rpoC1* and *rpoC2* of the genus *Astragalus* (Fabaceae). *Amer. J. Bot.* 79: 953-961.
- LISTON. 1992. Isozyme systematics of *Astragalus* sect. *Leptocarpi* subsect. *Californici* (Fabaceae). *Syst. Bot.* 17(3): 367-379.
- MAASSOUMI and S. Tietz. 1991. *Astragalus ghamsaricus*, a new species of the section *Megalocystis* Bunge (Leguminosae). *Mitt. Bot. Staatssamml. München* 30: 381-384.
- MAXTED. 1991. Cytotaxonomic studies of eastern Mediterranean *Vicia* species (Leguminosae). *Pl. Syst. Evol.* 177: 221-234.
- MAXTED. 1992. An ecogeographic study of *Vicia* subgenus *Vicia*. Systematic and ecogeographic studies in crop gene pools. IBPGR, Rome.

- MAXTED, A.M.A. Khattab, and BISBY. 1991. The newly discovered relatives of *Vicia faba* L. do little to resolve the enigma of its origin. Bot. Chron. 10: 435-465. Phenetic analysis of *Vicia* sect. *Faba* and a discussion of other evidence from literature.
- NIELSEN and GUINET. 1992. Synopsis of *Adenantha* (Leguminosae-Mimosoideae). Nord. J. Bot. 12(1): 85-114. 12 spp. recognized.
- Niembro-Rocas, A. and M.T. Yong Medina. 1992. Morfología de las semillas de *Inga jinicuil* Schlecht. Una planta leñosa tropical de importancia agroforestal. Semina 1(): 1-4.
- Niembro-Rocas, A. 1992. Formato descriptivo para la caracterización morfológica de semillas de leguminosas de importancia agroforestal. Semina 2(): 1-23.
- NIYOMDHAM. 1992. Notes on Thai and Indo-Chinese Phaseoleae (Leguminosae-Papilionoideae). Nord. J. Bot. 12(3): 339-346.
- OLIVEIRA. 1991. *Aeschynomene indica* L. no Brasil: Primeira citção. Iheringia, sér. Bot., Porto Alegre 41: 3-8.
- Oliver, E.G.H., A.C. Fellingham, and VAN WYK. 1992. Notes on African plants. Fabaceae: A new species of *Priestleya* from the southwestern Cape. Bothalia 22(1): 47-51.
- Padulosi, S. and N.Q. Ng. 1990. Wild *Vigna* species in Africa: Their collection and potential utilization. Pp. 58-77 in: N.Q. Ng and L.M. Monti, eds., Cowpea genetic resources: Contributions in cowpea exploration, evaluation and research from Italy and the International Institute of Tropical Agriculture. Ibadan, Nigeria.
- Pienaar, B.J. 1991. The *Vigna vexillata* complex (Fabaceae) in southern Africa. S. African J. Bot. 57(5): 236-245.
- Pienaar, B.J. 1991. A new species of *Vigna* Savi (Fabaceae) from southern Africa. S. African J. Bot. 57(6): 314-318.
- PLANCHUELO. 1990. Flower morphology of *Lupinus gibertianus* complex and its relation with cultivated species (abstract). VI Int. Lupin Conf., Temuco-Pucon, Chile 136.
- PLANCHUELO and D. Dunn. 1989. Two new species of the *Lupinus lanatus* complex. Ann. Missouri Bot. Gard. 76(1): 303-309.
- Poinar, G.O., Jr. 1991. *Hymenaea protera* sp.n. (Leguminosae, Caesalpinioideae) from Dominican amber has African affinities. Experientia (Basel) 47: 1075-1082.
- Pole, M. 1992. Fossils of Leguminosae from the Miocene Manuherikia Group of New Zealand. Pp. 251-258 in: HERENDEEN and DILCHER, eds., Advances in Legume Systematics, Part 4. The Fossil Record. Royal Botanic Gardens, Kew.
- PRZYBYLSKA, ZIMNIAK-PRZYBYLSKA, and D. Górecka. 1992. Comparative study of seed proteins in the genus *Pisum*. XIV. Further evidence on the existence of electrophoretic albumin variant characteristic of *P. fulvum* Sibth. et Smith. Genetica Polonica 33(2): 97-100.
- PRZYBYLSKA, ZIMNIAK-PRZYBYLSKA, and P. Krajewski. 1992. Isoenzyme variation in the genetic resources of *Vicia faba* L. Genetica Polonica 33(1): 17-25.
- Raulerson, L. 1991. *Strongylodon lucidus* (Forst. f.) Seem. on Guam. Micronesica 24(1): 161.

- Richardson, G.R. and R. Cross. 1991. Seed testa morphology of 18 species of *Rafnia* Thunb. family Fabaceae sub-family Papilionoideae. *Scanning Micros.* 5(4): 1165-1171.
- ROSKOV. 1991. The main criteria of the legume genera. Pp. 93-95 *in: Obschebiologicheskie aspekty filogenii rastenij.* Moscow. In Russian.
- ROSKOV. 1991. Phylogenetic relationships and microevolutionary processes in the *Trifolium* group. Pp. 87-89 *in: Filogenia i sistematika rastenij.* Moscow. In Russian.
- SALMANOWICZ and D. Krygier. 1992. Comparative study of seed albumins in the genus *Vicia*. *Genetica Polonica* 33(1): 27-34.
- SALMANOWICZ and PRZYBYLSKA. 1992. Seed albumins from some species of *Lathyrus*, *Lens*, and *Cicer*: Comparative analysis by gel filtration and electrophoresis. *Genetica Polonica* 33(2): 107-113.
- SALMANOWICZ and I. Svendsen. 1992. Primary structure of the major seed albumin from different genera of the tribe Vicieae (Leguminosae). *Genetica Polonica* 33(3): 187-202.
- Schutte, A.L. and VAN WYK. 1990. Taxonomic relationships in the genus *Dichilus* (Fabaceae-Crotalariaeae). *S. African J. Bot.* 56(2): 244-256.
- Senff, M.I., M.C.M. Hickenbick, and N.R. Paim. 1992. Cytogenetic studies in species of the genus *Vigna* Savi (Leguminosae-Papilionoideae). *Rev. Bras. Genet.* 15(2): 407-418.
- Shakryl, A.K. 1992. Leguminosae species from the Tertiary of Abkhazia. Pp. 189-206 *in: HERENDEEN and DILCHER, eds., Advances in Legume Systematics, Part 4. The Fossil Record.* Royal Botanic Gardens, Kew.
- STIRTON and D.J. Du Puy. 1992. A new species of *Baphia* (Leguminosae: Papilionaceae) from Madagascar. *Kew Bull.* 47(2): 289-291.
- Thulin, M. 1991. Two new species of *Vigna* (Leguminosae) from Somalia. *Nord. J. Bot.* 11(5): 543-547.
- Thulin, M. 1992. Eight new species and a record of *Indigofera* and *Microcharis* (Leguminosae-Indigoferaeae) from Somalia. *Nord. J. Bot.* 12(3): 315-326.
- TUCKER. 1991. Helical floral organogenesis in *Gleditsia*, a primitive caesalpinoid legume. *Amer. J. Bot.* 78: 1130-1149.
- TUCKER. 1992. The developmental basis for sexual expression in *Ceratonia siliqua* (Leguminosae: Caesalpinioideae: Cassieae). *Amer. J. Bot.* 79(3): 318-327.
- VAN WYK. 1990. Studies in the genus *Lotonotis* (Crotalariaeae, Fabaceae). 9. Four new species of the *L. pentaphylla* group, section *Lypozygis*. *Bothalia* 20(1): 1-7.
- VAN WYK. 1990. Studies in the genus *Lotonotis* (Crotalariaeae, Fabaceae). 13. Two new species and notes on the occurrence of cleistogamy in the section *Leptis*. *Bothalia* 20(1): 17-22.
- VAN WYK. 1990. Studies in the genus *Lotonotis* (Crotalariaeae, Fabaceae). 12. Four new species of the *L. falcata* group, section *Leptis*. *Bothalia* 20(1): 9-16.
- VAN WYK. 1992. Notes on African plants. Fabaceae: The identity of *Argyrolobium obsoletum* and the correct name for some species of *Polhillia* (Crotalariaeae). *Bothalia* 22(1): 42-43.

-
- VAN WYK, G.H. Verdoorn, and R. Greinwald. 1991. Taxonomic significance of alkaloids in the genus *Liparia* (Fabaceae-Liparieae). S. African J. Bot. 57(6): 344-347.
- VAN WYK and C.S. Whitehead. 1990. The chemotaxonomic significance of prunasin in *Buchenroedera* (Fabaceae-Crotalarieae). S. African J. Bot. 56(1): 68-70. Supports merger of *Buchenroedera* and *Lotononis*.
- Veen, G., R. Greinwald, P. Cantó, L. Witte, and F.-C. Czygan. 1992. Alkaloids of *Adenocarpus hispanicus* (Lam.) DC: varieties. Z. Naturforsch. 47(c): 341-345.
- Wenninger, J. 1991. Revision von *Astragalus* L. sect. *Chlorostachys* Bunge, sect. *Phyllobium* Bunge und sect. *Skythropos* Simpson (Leguminosae). Mitt. Bot. Staatssamml. München 30: 1-196. Sect. *Chlorostachys* with 21 spp. and 8 subspp. in Asia and east Africa; sect. *Phyllobium* with 10 spp. and 2 subspp. in Asia, mostly Himalayan; sect. *Skythropos* with 7 spp. in Asia, mostly in China. 2 spp. and 5 subspp. described as new.
- Wheeler, E. and P. Baas. 1992. Fossil wood of the Leguminosae: A case study in xylem evolution and ecological anatomy. Pp. 281-301 in: HERENDEEN and DILCHER, eds., Advances in Legume Systematics, Part 4. The Fossil Record. Royal Botanic Gardens, Kew.
- Wilmot-Dear, C.M. 1992. A revision of *Mucuna* (Leguminosae-Phaseoleae) in Thailand, Indochina, and the Malay Peninsula. Kew Bull. 47(2): 203-245.
- Wolfe, A.D. and J.R. Estes. 1992. Pollination and the function of floral parts in *Chamaecrista fasciculata* (Fabaceae). Amer. J. Bot. 79(3): 314-317.
- ZIMNIAK-PRZYBYLSKA, PRZYBYLSKA, and D. Górecka. 1992. Comparative study of seed proteins in the genus *Pisum*. XV. Electrophoretic albumin patterns in *P. sativum* L. subsp. *asiaticum* Govorov. Genetica Polonica 33(2): 101-105.

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