

The Bean Bag

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

Number 56

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FROM THE EDITOR

Barbara Mackinder

The Bean Bag exists to promote communication among research scientists concerned with legume systematics. In this issue, I have slightly simplified the formatting of the newsletter to reduce the time required to compile *The Bean Bag* although the overall content and structure of *The Bean Bag* remains unchanged. As before, readers' contributions are reported as appropriate, under six headings: From the Editor, News, Latin American Legume Report, Nodulation and Nitrogen Fixation, Gleanings, and Recent Legume Literature. The Recent Legume Literature column contains published research papers of specific interest to *Bean Bag* Readers has been derived from Readers' contributions in conjunction for more than a decade with references from *The Kew Record of Taxonomic Literature*. Recent is defined as up to 18 months old and of specific interest to *Bean Bag* Readers is defined as research papers of interest to a worldwide group of legume systematic botanists. In this edition at the request of a handful of contributors, I have also included some slightly older publications that have not previously appeared in *The Bean Bag*.

Due to financial constraints at RBG Kew, *The Kew Record of Taxonomic Literature* ceased to be compiled at the end of 2008 when it was decided that the cost of keeping the database up to date could no longer be justified. If readers are working in, or have knowledge of, institutes that compile electronic records of literature which are available on-line, I would be grateful if they would send me the appropriate URL. In future, in the absence of any other sources, Recent Legume Literature will comprise Readers' contributions alone.

The Bean Bag is delivered to readers via e-mail. New readers wishing to receive a copy need to send an email me at B.Mackinder@kew.org and provide their title, first and last names and area(s) of interest.

Requests for copies of past issues to be delivered as email attachments should be sent to the editor.

Written contributions may be sent to:

Dr. B. Mackinder, Bean Bag Editor, Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, United Kingdom.

NEWS

Fifth International Leguminosae Conference to be held in Argentina, August 2010

Renée H. Fortunato

Announcement of the Fifth International Leguminosae Conference: Advances in the XXI Century. August 8 - 14, 2010, Buenos Aires – ARGENTINA

Leguminosae, V Conferencia Internacional: Avances en el Siglo XXI. 8 - 14 de Agosto, 2010, Buenos Aires – ARGENTINA

The Fifth International Legume Conference will be held in Buenos Aires, Argentina, August 8-14, 2010. The conference, coming almost ten years after the 4th International Legume Conference in Canberra, Australia will offer an excellent forum for Legume Specialists to disseminate advances in their work made during the last decade. Furthermore, the meeting will provide an opportunity to build new collaborations and strengthen and renew existing collaborations.

This International Meeting is to be held in honour of the memory to **Prof. Arturo Burkart** (1906-1975), a recognized authority in Legume research and the former Director of The Darwinion Institute of Botany (1936-1975).

The Conference will have simultaneous translations: English-Spanish, Spanish-English, - English-Portuguese, Portuguese-English. Topics will include Phylogeny, and the new Legume classification, Phytogeography, Developmental and Structural studies, Wood Anatomy, Reproductive Biology, Cytology, Genetic, Phytochemistry, Palynology, Anatomy, Paleobotany, Pollination, Plant-Animal-Microbe Interactions, Functional Evolution in Root Nodules, Species-Populations-Hybrids-Polyploidy, Seed and Seedling Biology, Evolutionary Developmental Biology (Evo-Devo), Legumes as model organisms, Molecular Ecology and Evolution, Plant-Soil Interactions, Systematics-Taxonomy, Floras, Economic Botany, Conservation, Breeding Systems and Genetics Resources.

It may be possible to include other topics. Anyone wishing to propose a different topic should contact a member of the Organising Committee.

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Pro-treasurer: Cecilia Bessega (Email: cecib@ege.fcen.uba.ar)

Papers presented at the conference will be published in: Advances Legumes Systematics 12 and 13.

Herbarium visits can be arranged during the conference and following the meeting scientific field trips to the North East, North West and South of Argentina will be organised

ALL ARE WELCOME TO ARGENTINA AND WE LOOK FORWARD TO YOUR PARTICIPATION!

En Buenos Aires, Argentina se realizará la V Conferencia Internacional de Leguminosae, entre el 8 y 14 de Agosto de 2010. El objetivo de este evento es convocar a los especialistas en la Familia y difundir los avances realizados en el inicio del Siglo XXI. Después de 10 años de la última reunión realizada en Canberra, Australia, 2000: IV Conferencia Internacional, será posible congregarse nuevamente a los investigadores de diferentes áreas de la ciencia que estudian la Familia. En esta reunión hará posible el intercambio entre los investigadores de diferentes continentes y la difusión del conocimiento actual en Leguminosae.

Esta reunión Internacional es en Honor a la memoria del Prof. Arturo Burkart (1906-1975), reconocido investigador en Leguminosae y Director del Instituto de Botánica Darwinion (1936-1975).

La Conferencia tendrá traducción simultánea: Inglés-Español, Español- Inglés, Inglés-Portugués, Portugués-Inglés, y abordará tópicos sobre Filogenia y nueva clasificación de Leguminosae, Fitogeografía, Desarrollo y Estructura, Anatomía de Madera, Biología Reproductiva, Citología, Genética, Fotoquímica, Palinología, Anatomía, Paleobotánica, Polinización, Interrelación Planta-Animal-Microorganismos, Evolución Funcional en Nódulos Radiculares, Especies-Poblaciones-Híbridos-Poliploides, Biología de Semilla y Plántula, Biología de la Evolución – Desarrollo (Evo-Devo) Leguminosae como modelo, Ecología Molecular y Evolución, interrelación Planta-Suelo, Sistemática-Taxonomía, Floras, Botánica Económica, Conservación, Sistemas de Cruzamiento, Mejoramiento, Recursos Genéticos.

En la L5CI será posible incluir nuevos tópicos y para realizarlo, por favor se solicita se contacten con el Comité Organizador.

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Las presentaciones de los Simposios y Conferencias serán publicadas en: *Advances Legumes Systematics* 12 y 13.
El L5CI está organizando visitas a herbarios y después de la Conferencia se realizarán viajes de estudio al NE, NW y S de Argentina.
TODOS SON BIENVENIDOS A ARGENTINA, Y NOSOTROS LOS ESTAMOS ESPERANDO!

The Rupert Barneby Award

Fabián A. Michelangeli

The New York Botanical Garden is pleased to announce that Juliana Rando of the Universidade de Sao Paulo is the recipient of the **Rupert Barneby Award** for the year 2009. She is working on Caesalpinioideae of the Flora da Serra do Cipó and in particular working with *Chamaecrista* Moench sect. *Chamaecrista* ser. *Coriaceae*. Juliana is a doctoral student of Jose Rubens Pirani.

The New York Botanical Garden now invites applications for the **Rupert Barneby Award** for the year 2010. The award of US\$ 1,000.00 is to assist researchers to visit The New York Botanical Garden to study the rich collection of Leguminosae. Anyone interested in applying for the award should submit their curriculum vitae, a detailed letter describing the project for which the award is sought, how a visit to the NYBG would help accomplish the goals of the project, and the names of 3 referees. Travel to the NYBG should be planned for sometime in the year 2010. The application should be addressed to Dr. Benjamin Torke (email: btorke@nybg.org) or Institute of Systematic Botany, The New York Botanical Garden, 200th Street and Kazimiroff Blvd., Bronx, NY 10458-5126 USA, and received no later than December 1 2009. Electronic applications are preferred. Announcement of the recipient will be made by December 15th.

Anyone interested in making a contribution to **THE RUPERT BARNEBY FUND IN LEGUME SYSTEMATICS**, which supports this award, may send their check, payable to The New York Botanical Garden, to Dr. Benjamin Torke (btorke@nybg.org).

RBG Kew Legume herbarium collections on the move

Barbara Mackinder

An extension to the existing herbarium and library buildings at RBG Kew is now almost complete. The extension will accommodate all the herbarium and ancillary collections of RBG Kew's holdings of Leguminosae and Compositae. Leguminosae alone accounts for c. 750,000 herbarium sheets all of which will have to be frozen for a minimum of 72 hours before being housed in the new compactor-based storage system. We hope to begin the move at the end of the summer of 2009 and expect the total time needed to complete the transfer to be about 12 months. As a consequence, access to the legume collections and the provision of loans will be disrupted. Furthermore, delays in communication with legume staff members are anticipated as on moving days, it will not be possible to respond to telephone or email enquiries. We will be doing all we can to minimise the disruption and ask that anybody wishing to visit the legume collections or requiring a loan of material in the next 12 months, contact us well in advance to increase the possibility of our being able to respond to their request in a timely manner.

NODULATION AND NITROGEN FIXATION

Nodule hunting in South Africa: implications for legume taxonomy

Janet Sprent, Ben-Erik van Wyk & Euan James

Last August/September JS was fortunate to visit South Africa to learn about their flora, in particular their nodulated legumes. Inter alia, I was able to visit HDL (Tom) Corby, who in his mid nineties was still very sprightly. Following his pioneering work relating nodule morphology to legume taxonomy, JS, EJ and colleagues have spent many years extending Corby's data

to include anatomical features of nodules. This short note adds further detail to this, for tribes Crotalarieae and Podalyrieae, using mainly nodules collected by JS with B-E v W and with the latter's vital taxonomic input.

In 2007, Sprent suggested that tribe Crotalarieae formed part of a group of legumes whose nodules are characterised by having only infected cells in their infected regions (i.e. lacking so-called interstitial cells that do not contain nitrogen fixing bacteria). Evidence for this was based on only a few genera. A recent key paper supporting this suggestion for the largely African genus *Lotononis* was published by Yates et al. 2007. These workers studied six species of *Lotononis* section *listii* and found all of them to have lupinoid nodules, originally defined by Corby (1988) by the possession of lateral meristems that grow around the subtending root, forming a collar-like structure. There have been occasional reports on nodules from species in other sections of *Lotononis* as having indeterminate nodules. Two of us (JS and B-E v W) recorded a further five species of *Lotononis* outside section *listii* and these also had indeterminate, sometimes branched, nodules. Genus *Lotononis* is in need of further study and it seems that nodule structure could be a useful diagnostic character. Although not used in defining *Lupinus*, nodule structure separates this genus from all others in tribe Genisteae whose nodule structure is known (Sprent, 2009).

Aspalathus is a large genus in tribe Crotalarieae, endemic to the Cape region of S Africa. Sections of a nodule on *A. carnosa* (seed kindly supplied by F. Dakora, Pretoria) have recently been found (EJ, unpublished) to have nodules whose infected tissue contains no interstitial cells. Thus evidence is accumulating that tribes Crotalarieae and Genisteae have nodule structural characters that set them apart from many other legume tribes.

Tribe Podalyrieae, another S African endemic, is currently thought to be close to tribes Crotalarieae and Genisteae (van Wyk, 2005). However, nodule structure in several species of *Cyclopia* showed both infected and interstitial cells in the infected region (Elliott et al, 2007). Recent studies on three species of *Podalyria* and one of *Virgilia* also in tribe Podalyrieae confirmed that these too had nodules with interstitial cells (EJ & JS unpublished), supporting the separation of this tribe from its relatives.

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GLEANINGS

Breteler, F. J. Following the results of an investigation of the generic limits of *Anthonotha sensu lato*, a revision of *Anthonotha sensu stricto* has been completed and will be published in 2009. A revision of *Isomacrolobium* will follow in 2010.

Corby (HDL), Tom, has recently (2008) published a handbook *Seed-Germination among the Leguminosae* which presents a detailed description of the features and modes of germination in Leguminosae including a previously unrecognized mode of germination exhibited by *Arachis*. Following his extensive experience in raising leguminous seedlings, and studying their nodulation, he shows that the current terminology of germination, as embodied in the words, epigeal, geal and hypogeal, is inadequate in distinguishing the three modes. The handbook can be downloaded as a pdf, free of charge from his website <http://www.hdlcorby.com>

Filimban, F. will be starting her doctoral thesis in September 2009 at the University of Edinburgh, UK studying the taxonomy and biogeography of *Senna* in the Arabian Peninsular.

Sprent, J. I. is about to publish a book *Legume Nodulation, a global Perspective*. The book will be published by Wiley-Blackwell and is due out May-June 2009. The book will provide a comprehensive review of the current knowledge of the world's leguminous plants and their symbiotic nitrogen-fixing bacteria. For further details see www.Sprentland.com

Stirton, C. has been working with Dr. Muthama Muasya (Kenya), Dr. Samson Chimphango (Malawi), and Meshack Dlodlu (Swaziland) at the University of Cape Town as a mentor sponsored by the Mellon Foundation. They are looking at the biogeography of Cape Fynbos legumes linked to nutrition, nodulation, and systematics. Stirton is developing LUCID™ keys

for the genera *Otholobium* (55 spp), *Psoralea* (66 spp.), and *Aspalathus* (278 spp.). His monograph on *Otholobium* will go to press at the end of 2009. Dlodlu is studying the molecular systematics of African Psoraleeae and revising the *Psoralea aphylla* L. complex for a Masters degree.

Van der Maesen, J. is continuing a treatment of Papilionoideae for the Flore du Gabon, with the help of colleagues for a few genera. The count stands at 60 genera, several represented by a single species, together totalling 274 species for the country. He has also prepared a manuscript on a new species of *Platysepalum* from Gabon. Last summer, he visited the Canadian genebank in Saskatoon, Saskatchewan to verify the identity of their excellent living perennial collection of *Cicer* although he feels it is disheartening that still so few *Cicer* species (and accessions per species) are available for molecular screening and for research such as interspecific hybridization.

Van der Maesen, J with Adomou from Benin and Adema from Leiden are preparing a revision of 2 African sections of the genus *Millettia*: *Efulgentes* and *Opacae*, which will involve a name change for the latter section.

Zimmerman, E. is a doctoral student at the Université de Montréal, Canada and is studying floral evolution in the Dialiinae clade.

Vanderborgh manages a wild bean collection, chiefly centered on wild *Phaseolus* and *Vigna* species. The collection includes 1750 accessions representing 213 taxa. Detailed data are available on the web site, at the following address: <http://www.br.fgov.be/RESEARCH/COLLECTIONS/LIVING/PHASEOLUS/> (thierry.vanderborgh@br.fgov.be)

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