



The Bean Bag

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

Issue 62, December 2015

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LETTER FROM THE EDITOR

Dear Bean Bag Fellow

This has been a year of many happenings in the legume community as you can appreciate in this issue; starting with organizational changes in the Bean Bag, continuing with sad news from the US where one of the most renowned legume fellows passed away later this year, moving to miscellaneous communications from all corners of the World, and concluding with the traditional list of legume bibliography.

Indeed the Bean Bag has undergone some organizational changes. As the new editor, first of all, I would like to thank Dr. Lulu Rico and Dr. Gwilym Lewis very much for kindly inviting me to take on the lead of The Bean Bag. I very appreciate this opportunity; connecting with the wonderful community of legume *aficionados*! I am myself a legume *aficionada*, in love with the caesalpinoid legume genus *Senna* as well as with those small secretory structures called extrafloral nectaries and found across the entire family. As a member of the Legume Phylogeny and the Legume Morphology working groups - of which you will read some news in this issue – it is an honor for me to continue the legacy of the Bean Bag.

Second, the Bean Bag will continue to work as usual with the difference that the newsletter and important communications will be send out through new BB Google Group to which BB members have been added earlier this year. This is the only purpose of the google group. For any correspondence about the BB, members are invited to email the editor at the new BB address beanbag.kew@gmail.com.

Finally, I am very grateful to all contributors of this issue for sharing their news, insights, images and publication citations. Note that this newsletter will be made available for online download on the BB webpage along with the pdfs of all previous issues: www.kew.org/science-conservation/research-data/publications/bean-bag.

Thank you very much for your consideration and I wish you Very Happy Holidays and Very Happy New Year!

Kind regards,

Brigitte Marazzi



IN MEMORY OF

CHARLES ROBERT (BOB) GUNN

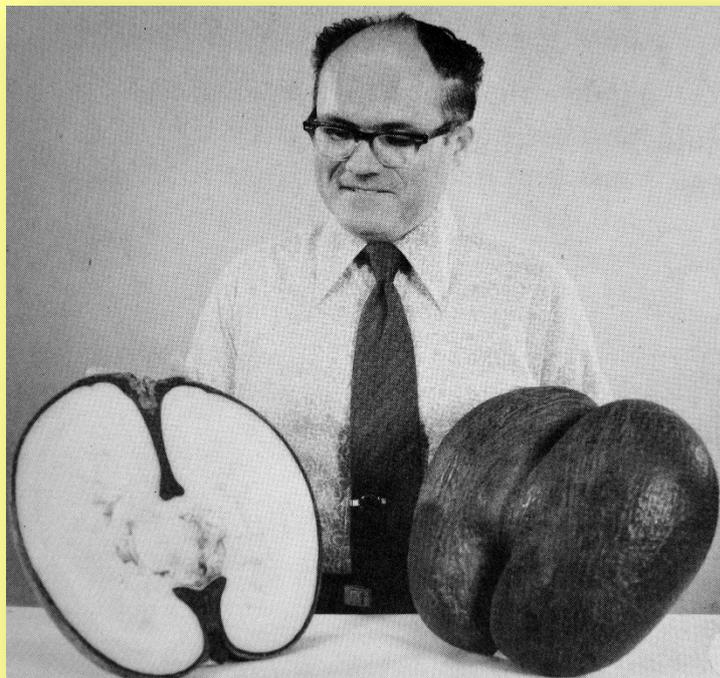
1 JUNE 1927–26 SEPTEMBER 2015

By Joseph H. Kirkbride, Jr.
(US National Arboretum, Chicago, USA)

Bob received his Bachelor of Science degree in botany from Iowa State College in 1950. The Ross Seed Company, Louisville, Kentucky, immediately hired him as a seed analyst, and a year later he became a Registered Seed Technologist (no. 11). He studied at night and earned his Master of Science degree in systematic botany from the University of Louisville in 1958 with a thesis entitled, "A Flora of Bernheim Forest, Bullitt County, Kentucky". He received his Doctor of Philosophy degree in systematic botany from Iowa State University in 1965 with a thesis entitled, "The *Vicia americana* complex (Leguminosae)". Before completion of his doctorate, he was invited in 1965 to become curator of the seed collection of the USDA-ARS New Crops Research Branch, Beltsville, Maryland, now known as the U.S. National Seed Herbarium (BARC) at the U.S. National Arboretum, Washington, DC.

Bob worked on many different projects for the USDA Agricultural Research Service. He always wanted to do two very large seed projects describing fruits and seeds: a generic study of an agriculturally important family, either Fabaceae or Poaceae, and all the families of seed plants. He felt that Fabaceae was the better family to work on because it had more characters and variation in its fruits and seeds than Poaceae. Bob participated in the First International Legume Conference in 1978, which resulted in a consensus on the tribal and generic classification of legumes. As a first step in his studies, he surveyed legume seed

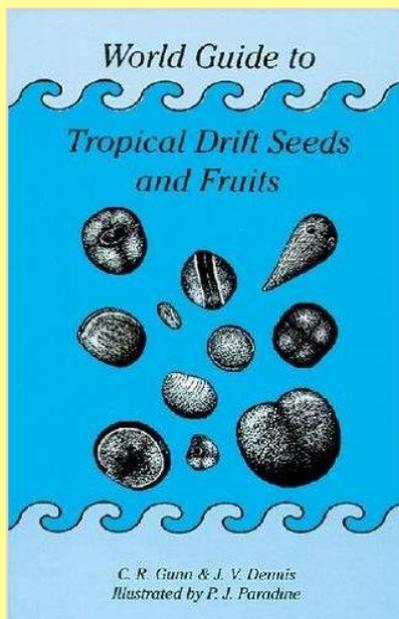
characters, and prepared a nomenclator of legume genera for use in his databases. He maintained lists of missing legume genera and families, and where ever he went, searched for fruits and seeds of missing taxa. BARC now has more than 140k collections of fruits and seeds, and is, without doubt, the world's largest, most comprehensive seed herbarium because of Bob's research.



Portrait of Bob Gunn from Figure 7 in Gunn, C.R. and J.V. Dennis. 1976. *World guide to tropical drift seeds and fruits*. New York: Quadrangle/The New York Times Book. Co.

Using these resources, Bob and various collaborators prepared three publications on the fruits and seeds of the traditional legume subfamilies, Caesalpinioideae, Mimosoideae, and Faboideae. Each genus had its fruits and seeds fully described on an even-numbered page and on the opposite, odd-numbered page was a full-page plate illustrating the fruits and seeds. There were also keys for identification of the genera using fruits and seeds. Bob retired in 1992, but continued tirelessly working on the Faboideae volume, which was published in 2003. Having completed the Fabaceae project, Bob started on the families' treatment, which was completed in 2006. That treatment was done as an online DELTA database.

Following the First International Legume Conference, Bob and Richard S. Cowan felt the need for a semiannual newsletter to keep legume taxonomists informed about developments in legume systematics. The first number was issued in 1975, and Bob was the principal Editor until his retirement in 1992. Bob was also involved in the founding and development of the International Legume Database & Information Service (ILDIS). His database of legume generic names was used as the beginning frame work for the ILDIS database. The faboid genus *Bobgunnia* J. H. Kirkbr. & Wiersema was named in his honor in 1997. As a hobby, Bob collected drift seeds, and in 1976 published *World guide to tropical drift seeds and fruits* with John V. Dennis.



REPORTS OF 2015 HAPPENINGS

LEGUME MORPHOLOGY INTERNATIONAL SYMPOSIUM AND WORKSHOP: CURRENT KNOWLEDGE AND FUTURE DIRECTIONS

2 – 5 November 2015, Universidade Estadual Paulista (UNESP)
Botucatu, São Paulo State, Brazil

Briefing by Gwilym Lewis (Royal Botanic Gardens, Kew, UK)

The first international Legume Morphology Working Group (LMWG) meeting was held during the XI Latin American Botanical Congress held in Salvador, Bahia, Brazil in October 2014. At that meeting Dra. Ana Paula Fortuna Perez volunteered to organise and host a second LMWG meeting in 2015. This became a reality in November 2015 when, co-organised by Dra. Brigitte Marazzi and supported by an international organizing committee, the second LMWG gathering took place in Botucatu, Brazil. This combined a two day symposium about legume morphology with a two day workshop, the latter focussing on morphological character definition and coding, initial preparation of a legume morphology glossary and database and a discussion about potential future funding. Much of the funding for the combined symposium and workshop was generously provided by FAPESP, CAPES, and UNESP.

The symposium was divided into four sessions, namely: reproductive traits, vegetative traits, systematic examples, and approaches to using morphological data. In total there were 24 speakers from seven countries, with one third of the speakers being Brazilian. In addition there was a small poster session, the limited number of posters being a refreshing change from the conference norm because it was possible to read them all in a relaxed and uncrowded atmosphere! It is proposed that a subset of the presented papers will be published in a special issue of an international journal so as to make the presentations available to a wider legume audience.

A report of the morphology workshop that followed the symposium is given on the next page of this issue of the Bean Bag.



Some of the over 70 participants of the Legume Morphology International Symposium and Workshop, Current knowledge and future directions, held in Botucatu, Brazil, in November 2015. Photo courtesy of Gustavo Shimizu.

REPORT OF THE LEGUME MORPHOLOGY WORKSHOP

4 – 5 November 2015, Universidade Estadual Paulista (UNESP)

Botucatu, São Paulo State, Brazil

Briefing by Brigitte Marazzi (Instituto de Botánica del Nordeste, Corrientes, Argentina)

The second Legume Morphology Working Group (LMWG) meeting was held in Botucatu, Brazil, in the form of a two-day workshop, on November 4 and 5, 2015, following the two-day International Symposium “Legume Morphology: Current Knowledge and Future Directions” (see above). Thirty-one participants participated to the workshop that consisted of the discussion sessions on ‘Character list & Glossary’ and ‘Database’, and a final session on ‘Future directions’.

The main results of the first session included a draft of a working list of morphological characters and character states to be completed at the next workshop as well as a list of terms used in legume science to be considered for inclusion in the glossary and be submitted as part of a larger flowering plant glossary for the Flora of Brazil Online. In addition, upon request of the Legume Phylogeny Working group (LPWG), the group also discussed a table with diagnostic

characters describing the new subfamilies as recently presented as a first draft by the LPWG. The main results of the ‘Database’ session were an introduction to different database platforms, the choice of an overall platform for universal use, the discussion of obstacles to enacting such a database and likely solutions and the selection of key individuals to head efforts moving forward.

Finally, the last session addressed funding possibilities for future activities by the LMWG. The future of the LMWG was also briefly addressed, resulting in the (accepted) proposition of merging the LMWG with the LPWG. The expanded LPWG will include a number of coordinators from the LMWG leading different teams (‘Database’, ‘Character List’, ‘Glossary’, Evolutionary Studies’). For more information or to request the full workshop report send an email to legume.morphology@gmail.com.



Participants of the workshop organized by the Legume Morphology Working Group (LMWG) in Botucatu, Brazil, in November 2015. Photo courtesy of Leandro Araújo.

A LOOK INTO 2016

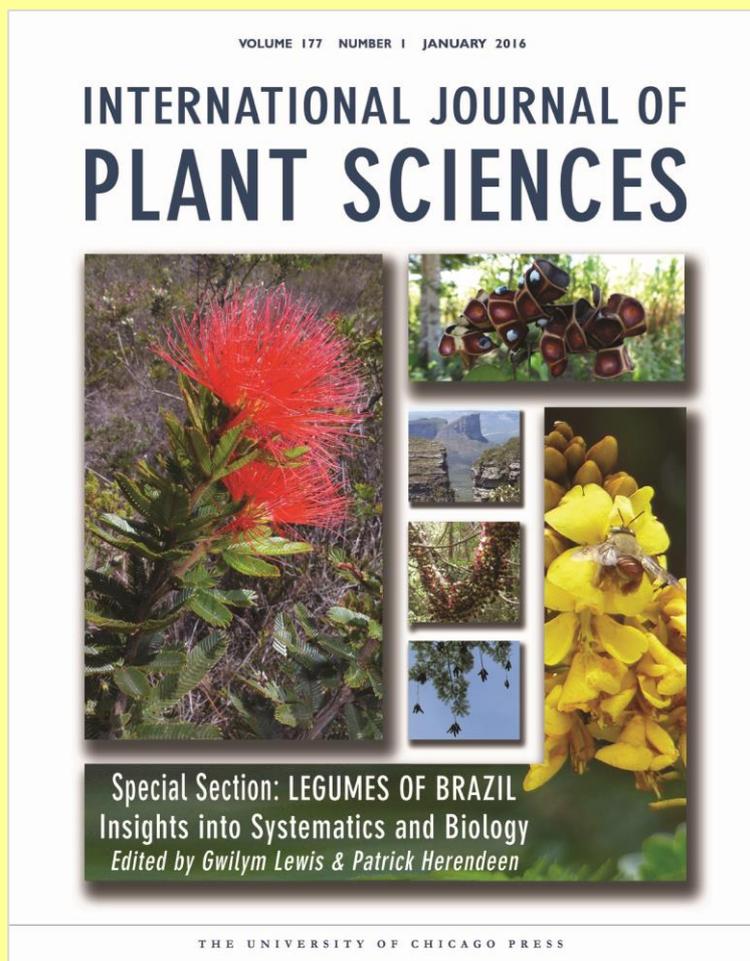
INTERNATIONAL YEAR OF PULSES

The Food and Agriculture Organization of the United Nations (FAO) has declared 2016 the year of pulses, with the aim to “heighten public awareness of the nutritional benefits of pulses as part of sustainable food production aimed towards food security and nutrition”. [...] The term “pulses” is limited to crops harvested solely for dry grain.” For more information and facts about the Year of Pulses and pulses themselves, visit FAO’s webpage: www.fao.org/pulses-2016/en/



SYMPOSIUM ISSUE ON LEGUMINOSAE HIGHLIGHTING BRAZIL’S IMPORTANT ROLE IN MODERN LEGUME SYSTEMATICS AND BIOLOGY.

Published by the International Journal of Plant Sciences and edited by Gwilym Lewis and Patrick Herendeen this issue features six papers by Brazilian legume researchers and their collaborators. An Introduction is available online: www.jstor.org/stable/10.1086/684170?origin=JSTOR-HTMLeTOCAlert



II INTERNATIONAL LEGUME SOCIETY CONFERENCE - OCTOBER 11-14, 2016

Organized by the International Legume Society and the Instituto de Tecnologia Química e Biológica António Xavier of the Universidade Nova de Lisboa, the ILS Conference will be held in Tróia, Portugal. More information on the conference webpage: www.itqb.unl.pt/meetings-and-courses/legumes-for-a-sustainable-world



LEGUME SHOTS OF THE YEAR



FLOWERING HUARANGO TREE (*ACACIA MACRANTHA*) IN PERU.

Photo courtesy of and text by
Briggitte Melchor (Museo de
Historia Natural, UNMSM, Lima, Peru)

Acacia macracantha is commonly known as "huarango". This tree occurs in the drainage area of river Nepeña (Ancash, Peru). Its wood is locally used as firewood, and ashes are used to wash pots.

THE WHITE FLOWERED VARIANT OF THE BERMUDA BEAN (*PHASEOLUS LIGNOSUS*), A PARTICULARLY RARE LEGUME TO FIND IN THE WILD NOWADAYS.

Photo courtesy of and text by Daniel Debouck
(International Center for Tropical Agriculture, Colombia)

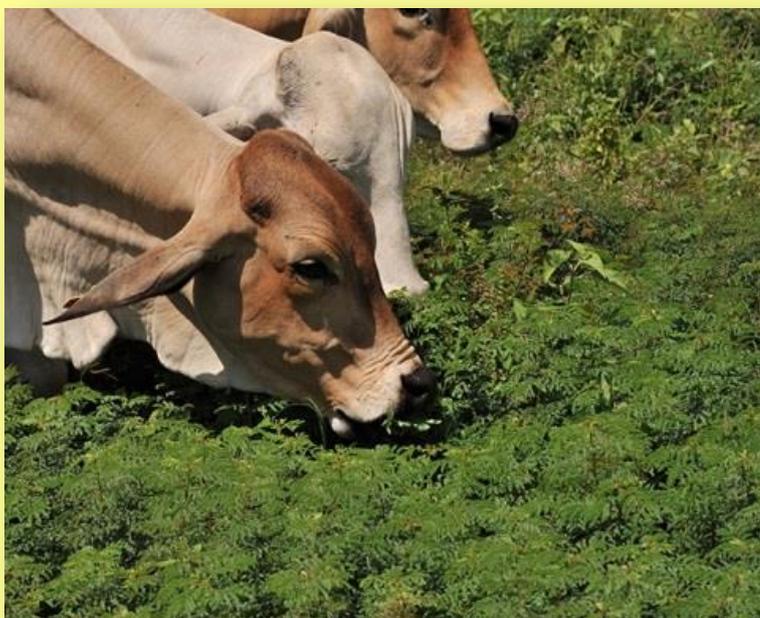
The seed increase of both magenta and white flowered variants is a contribution towards the endangered plants of the UK Overseas Territories. This image was taken in one of the experimental stations where the white flowered variant of *P. lignosus* is still in the seed production phase. (For more details on this species see Debouck, 2015, in the BB list of Legume Publications).



***DESMANTHUS BICORNUTUS* BEING GRAZED BY CATTLE AT JAMES COOK UNIVERSITY, TOWNSVILLE, AUSTRALIA.**

Photo courtesy of and text by
Christopher Gardiner (James Cook
University, Townsville, Australia)

Recently five cultivars of *Desmanthus* (from *D. bicornutus*, *D. leptophyllus* and *D. virgatus*) have been granted PBR status by IP Australia. These are considered to be valuable new pasture legumes for the semiarid clay soil regions of tropical and subtropical northern Australia. The descriptions of the cultivars are available online: www.ipaustralia.gov.au/pdfs/pbr/PVJ28.2.pdf



LEGUME BIBLIOGRAPHY UNDER THE SPOTLIGHT

THE AUSTRALIAN *VIGNA* SPECIES: A CASE STUDY IN THE COLLECTION AND CONSERVATION OF CROP WILD RELATIVES

By Bob Lawn (Tropical Crop Science Unit, Townsville, Australia)

This book chapter, published in 'Crop Wild Relatives and Climate Change' edited by Redden et al., describes collaborative research over the past 35 years to collect, describe and conserve accessions of wild mungbean (*Vigna radiata sublobata*) and its relatives from across northern Australia and nearby islands. The research has established that there is considerable genetic diversity within *Vigna* crop wild relatives in the Australian tropics.

Rather than being an adventive species, the wild mungbean is now recognised to be an indigenous species and Australia as a centre of diversity for the wild accessions. Based on a range of ancestral traits including tuberous-rooted perenniality, the Australian wild mungbean includes arguably some of the most authentically 'wild' mungbean germplasm to be found anywhere.

Full citation: Lawn, R.J. (2015) Chapter 18: 'The Australian *Vigna* species: A case study in the collection and conservation of crop wild relatives' Pages 318-335 in R. Redden, S.S. Yadav, N. Maxted, Md E. Dulloo, L. Guarino, P. Smith (Eds) *Crop Wild Relatives and Climate Change*. John Wiley & Sons, Inc.: Hoboken, New Jersey. ISBN: 978-1-118-85433-4

PUBLICATION NEWS FROM THE WORLD OF LEGUME SYSTEMATICS

A list with this year's publication citations of studies on legume systematics is here provided with the taxa of focus highlighted in bold. Please accept our apologies if any citation is missing. This collection of studies and the coming symposium issue by the International Journal of Plant Science reported above in this BB issue provide an elegant insight into a vibrant year of research in Systematics and Biology of Leguminosae. Among the several new taxa described this year, noteworthy is *Podocarpium eucenicum*, a new fossil species from the Eocene discovered in China (see Xu et al. 2015) as well as the new genus *Limadendron* from South America (see Meireles & Tozzi 2015).

Amen Y.M., Marzouk A.M., Zaghoul M.G., & Afifi M.S. (2015). The genus ***Machaerium*** (Fabaceae): taxonomy, phytochemistry, traditional uses and biological activities. *Natural Product Research* 29: 1388-1405.

Bagheri A., Erkul S.K., Maassoumi A.A., Rahiminejad M.R., & Blattner F.R. (2015). ***Astragalus trifoliatrum*** (Fabaceae), a revived species for the flora of Turkey. *Nordic Journal of Botany* 33: 532-539.

Bandyopadhyay S. & Ghoshal P.P. (2015). Seven new combinations in ***Phanera*** (Fabaceae: Caesalpinioideae: Cercideae). *Telopea* 18: 141-144.

Bandyopadhyay S. (2015). Author attribution and lectotypification of the name ***Bauhinia diphylla*** (Fabaceae: Caesalpinioideae). *Edinburgh J. Bot.* 72: 215-217.

Bandyopadhyay S. (2015). On the taxonomic identity of ***Phanera jampuiensis*** Darlong & D.Bhattach. *Telopea* 18: 155-157.

Bianco M.L., Ferrer-Gallego P., Grillo O., Laguna E., Venora G., & Bacchetta G. (2015). Seed image analysis provides evidence of taxonomic differentiation within the ***Medicago*** L. sect. ***Dendrotelis*** (Fabaceae). *Systematics and Biodiversity* 13: 484-495.

Boatwright J.S., Maurin O., & Bank M. (2015). Phylogenetic position of Madagascan species of ***Acacia*** s.l. and new combinations in ***Senegalia*** and ***Vachellia*** (Fabaceae, Mimosoideae, Acacieae). *Botanical Journal of the Linnean Society* 179: 288-294.

Calles T., Lewis, G. P., Berlinger, C. & Crespo, M. B. (2015). Lectotypification of ***Macroptilium atropurpureum*** (Leguminosae). *Kew Bull.* Published

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- Choi I.S., Kim J.H., & Choi B.H. (2015). Complete plastid genome of *Astragalus mongholicus* var. *nakaianus* (Fabaceae). Mitochondrial DNA. DOI: 10.3109/19401736.2015.1053118
- Clark R.P. & Gagnon E. (2015). A revision of *Mezoneuron* (Leguminosae: Caesalpinioideae) in New Caledonia, with perspectives on vegetation, geology, and conservation. *Phytotaxa* 207: 68-92. <http://dx.doi.org/10.11646/phytotaxa.207.1.3>. Available online: <http://www.mapress.com/phytotaxa/content/2015/ftp00207p092.pdf>.
- Clark V.R., Schrire B.D., & Barker N.P. (2015). Two new species of *Indigofera* L. (Leguminosae) from the Sneeuwberg Centre of Floristic Endemism, Great Escarpment (Eastern and Western Cape, South Africa). *PhytoKeys* (48), 29-41. Available online: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4408730/>
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- De Souza A. O., & Da Silva, M. J. (2015). A new species of *Chamaecrista* (Leguminosae) from the Brazilian Central Plateau. *Phytotaxa* 204: 165-171.
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