

# The Bean Bag

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

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## FROM THE EDITOR

Barbara Mackinder

*The Bean Bag* is designed to promote communication among research scientists concerned with legume systematics. To achieve this goal *The Bean Bag* is issued each year and features six columns: From the Editor, News (meetings, major events, announcements, etc.), Latin American Legume Report, Nodulation and Nitrogen, 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 *Bean Bag* Readers and is derived from Readers contributions in conjunction with references from *The Kew Record* (Kew's current awareness list of taxonomic literature). Recent is defined as up to 18 months old. Specific interest to *Bean Bag* Readers is defined as research papers of interest to a worldwide group of legume systematic botanists.

*Bean Bag* Readers are encouraged to send notices, observations, etc.

*The Bean Bag* can be delivered to readers via e-mail. If you wish to have your copies e-mailed to you, please send an email message to the editor (email: [B.mackinder@rbgkew.org.uk](mailto:B.mackinder@rbgkew.org.uk)). Will new readers please provide their title, first and last names, full postal address and area(s) of interest?

Electronic copies of the current and past issues of *The Bean Bag* can be viewed on the World Wide Web server of the Royal Botanic Gardens, Kew, UK at <http://www.rbgkew.org.uk/herbarium/legumes/beanbag.html>

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## NEWS

### The Rupert Barneby Award

James Luteyn

The New York Botanical Garden is pleased to announce that Karren Redden, a Ph.D. graduate student from George Washington University is the recipient of the Rupert Barneby Award for the year 2004. She will be studying several Caesalpinioideae genera.

The New York Botanical Garden now invites applications for the Rupert Barneby Award for the year 2005. 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, and the names of 2-3 referees. Travel to the NYBG should be planned for sometime in the year 2005. The application should be addressed to Dr. James L. Luteyn, 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, 2004. Announcement of the recipient will be made by December 15th.

### Legumes of the World

Gwilym Lewis

As many readers of Bean Bag will be aware, Gwilym Lewis, Brian Schrire, Barbara Mackinder, and Mike Lock (now retired) of Kew are editing the large volume titled *Legumes of the World*. We had expected to publish two years ago, but the book has grown in size and scope and it has taken time and effort to accumulate illustrations for all 730 legume genera currently recognised. This has led to an inevitable delay in getting the production into print. We apologise to all contributors and to those of you who have been patiently waiting for the book to appear, but trust that when it does appear the wait will have been worthwhile.

Because the volume is so highly illustrated, costs have been creeping ever upwards. It is now imperative that we subsidise production costs in order to keep the final book price down to a reasonable sum. To achieve this we need to raise £25,000. We would be delighted to receive donations (large and small) from Bean Bag readers towards this target figure. We will acknowledge all donations in the book. If you would like to contribute or know of a potential wealthy benefactor please contact either Gwilym Lewis at [G.Lewis@rbgkew.org.uk](mailto:G.Lewis@rbgkew.org.uk), or the Bean Bag editor, Barbara Mackinder, at [B.Mackinder@rbgkew.org.uk](mailto:B.Mackinder@rbgkew.org.uk)

### Fruits and Seeds of Legume Genera

J.H. Kirkbride Jr., C.R. Gunn and A.L. Weitzman

In December 2003, the third and final volume of our generic studies on legume fruits and studies was published by the U.S. Department Agriculture as Technical Bulletin 1890; see *Recent Legume Literature* for a full, formal citation. It has 1,212 pages, is bound as two books, and weighs 9.5 pounds (5.2 kilos). The 452 faboid genera accepted by the USDA, ARS, Germplasm Resources Information Network (GRIN) in 1997 are treated. There are fruit and seed data and illustrations for 435 genera; only fruit data and illustrations for seven genera; and, we were unable, at that time, to locate either fruits or seeds for 18 genera. There are 45 pages of seed keys in this volume, but no fruit keys. The format of the volume adheres as closely as possible to that of the first two volumes, covering Caesalpinioideae and Mimosoideae, so that the three volumes can be easily compared. Each Bean Bag Reader will receive a free copy of the volume. While they last, free copies can be requested from the senior author: J.H. Kirkbride, J.H., Jr., USDA, ARS, SBML, Rm. 304, Bldg. 011A, BARC-West, Beltsville, MD 20705-2350, USA; tel.: 1-301-504-9447; e-mail: [joe@nt.ars-grin.gov](mailto:joe@nt.ars-grin.gov).

The first two volumes, covering Caesalpinioideae and Mimosoideae, are now out-of-print. Parkway Publishers published the data and images from all three volumes on a CD-ROM in 2000, and it is also out of print. The data and images were accessed using the CSIRO software program Intkey created by M. Dallwitz. The senior author has updated the database to reflect the 685 legume genera currently recognized in GRIN. There are fruit and seed data and images for 658 genera; only fruit data and images for 13 genera; and, we were unable to locate either fruits or seeds for 14 genera. There are now significant

differences between the print volumes and the database, especially in subfamilies Caesalpinioideae and Mimosoideae. The current database is available via the Internet at: <http://nt.ars-grin.gov/SBMLWeb/OnlineResources/Fabaceae/>. To access the database and images, Intkey, version 5, must first be downloaded via the Internet and installed on the user's PC. Intkey is now available free-of-charge from: <http://WWW.biodiversity.uno.edu/delta/win32/intk32.exe>. The USDA Animal and Plant Health Inspection Service (APHIS) is now converting the database and images to Lucid format, so later this year it will be available in both Intkey and Lucid formats.

## **Advances in Legume Systematics: Parts 10 and 11**

Papers presented at the Fourth International Legume Conference, July 2001 in Canberra, Australia have been published in the latest two parts of the Advances in Legume Systematics series. This series presents the most up-to-date results on the evolution and taxonomy of the Leguminosae.

### **Part 10: Higher Level Systematics**

Bente B. Klitgaard

Part 10 contains 19 original and peer-reviewed research papers (organized into 4 sections) and includes two introductory papers on the whole family, seven papers on subfamily Caesalpinioideae, several of which integrate morphological and molecular data, two papers on subfamily Mimosoideae which present new molecular data and discuss the results in the light of the current classification of subfamily Mimosoideae and eight papers on the largest subfamily Papilionoideae, which address problems of phylogenetic relationships in different branches of this subfamily.

Advances in Legume Systematics part 10, Higher Level Systematics. Klitgaard, B.B. & Bruneau, A. (eds.). Royal Botanic Gardens, Kew. 2003. 422 pp. ISBN 1 84246 054 4  
Price £59.50 or US\$107.10 plus P&P. from <http://www.kewbooks.com/>

### **Part 11: Biology of *Acacia***

Simone Farrer

Dedicated to the genus *Acacia*, one of the most ecologically and economically important genera of all flowering plants, part 11 (a special issue of Australian Systematic Botany) contains 13 scientific research papers (organized into 4 sections) and includes five papers on *Acacia* Systematics and Biogeography, five papers on Population Genetics and Utilisation, two papers on Legume-animal interactions in *Acacia* and a further paper looking at Symbiosis with Mycorrhizal fungi.

Australian Systematic Botany Volume Systematic Botany 16(1). Biology of *Acacia*. Advances in Legume Systematics Series Part 11. Crisp, M.D., Farrer, S.C. & Launonen, T.M. (eds.). CSIRO Publishing. 2003. 138 pp.  
Price US\$80 from [www.publish.csiro.au/journals/asb](http://www.publish.csiro.au/journals/asb)

### **Legumes of South Asia**

Sundershan Kumar

Prepared as part of the ILDIS project, this new checklist provides nomenclatural, distributional and descriptive information on the legumes of Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, Pakistan and Sri Lanka. It is fully cross-referenced to more detailed literature and source publications, and will be an invaluable asset to both students and professionals working with the Leguminosae.

Kumar, S. and P.V. Sane. 2003. Legumes of South Asia. Royal Botanic Gardens, Kew. 2003. 536 pp. ISBN 1 84246 058 7  
Price £39.00 or US\$70.20 plus P&P. from <http://www.kewbooks.com> or from Dr. S. Kumar ([s.kumar@nbri.res.in](mailto:s.kumar@nbri.res.in))

## The Asian *Vigna*: Genus *Vigna* subgenus *Ceratropis*

Nigel Maxted

In 2003, a book dealing with the phylogeny of Asian *Vigna* from the perspectives of morphological and molecular analyses, *ex situ* and *in situ* conservation and eco-geographical analyses was published. In addition, morphological descriptions, keys, and eco-geographic details of each species in the group are provided

The Asian *Vigna*: Genus *Vigna* subgenus *Ceratropis* Genetic Resources. Norihiko Tomooka, Duncan A. Vaughan, Helen Moss & Nigel Maxted. Kluwer Academic Publishers, Dordrecht, 2003. 288 pp. ISBN 1 4020 836 8. February Price £ 79.00 or EUR 115.00 or US\$ 127.00. See accompanying flyer or <http://www.wkap.nl/>

## International Group for the Study of Mimosoideae resurrected

Bruce Maslin

The International Group for the Study of Mimosoideae is being revived. The basic aim of the Group is to provide a venue for the dissemination of information concerning the biology, taxonomy, phytogeography, utilisation, etc. of the Legume subfamily Mimosoideae. The IGSM will now operate principally via the worldwide web, although some provision will be made for people who do not have web access. Membership of the Group is free. The 'WebIGSM' site is currently under construction and will be hosted at the WorldWideWattle.com site which is due to be officially launched (on the web) on 25 March 2004. If are not a member of the IGSM and wish to join then visit [worldwidewattle.com](http://worldwidewattle.com) or email Bruce Maslin at: [brucem@calm.wa.gov.au](mailto:brucem@calm.wa.gov.au).

## SOUTH AMERICAN LEGUME REPORT

Renée H. Fortunato

### Argentina-Chile Report

Simposio de *LEGUMINOSAS (FABACEAE)*

*ESTUDIOS MULTIDISCIPLINARIOS EN GRUPOS COMPLEJOS DE SUDAMERICA AUSTRAL*

Ciudad de San Luis, San Luis, Argentina, 19-23 de octubre de 2003

### Renée H. Fortunato

En el marco del Congreso Binacional: XXIX Jornadas Argentinas de Botánica — XV Reunión Anual de la Sociedad Botánica de Chile se efectuó el Simposio de especialistas en Leguminosas el día 21 de octubre de 2003 (14-18 hs).

Coordinación: Renée H. FORTUNATO

Participantes: 68

Durante el Simposio se presentaron las siguientes ponencias:

### Biología floral del género *Cassia* s.l. (Caesalpinioideae)

Floral biology of the genus *Cassia* s.l. (Caesalpinioideae)

Laporta C.<sup>1,2</sup> & Palacios R.<sup>1</sup>

<sup>1</sup> FCEyN, Ciudad Universitaria, Pabellón II, 4 piso, Lab. 11, Buenos Aires, Argentina.

<sup>2</sup> University of Bremen, Center of Environmental Research, UFT, Bremen, Alemania.

E-mail: [laporta@uni-bremen.de](mailto:laporta@uni-bremen.de)

Estructura poblacional y relaciones filogenéticas (distancia y parsimonia) en especies de *Prosopis* (Mimosoideae) en base a marcadores moleculares

**Population structure and phylogenetic relationships (distance and parsimony) among species of *Prosopis* (Leguminosae) based on molecular markers**

Bessegga C., Saidman B.O. & Vilardi J.C.

Dpto. EGE, Facultad de Ciencias Exactas y Naturales. UBA.

E-mail: cbessegga@cicv.inta.gov.ar

**Avances en las relaciones genéricas del complejo *Galactia – Camptosema – Collaea* (Papilionoideae)**

Advances in the generic relationships of the complex *Galactia-Camptosema-Collaea* (Papilionoideae)

Sede S. M.<sup>1</sup>, Tosto D.<sup>1</sup>, Poggio L.<sup>1,2</sup> & Fortunato R. H.<sup>2,3</sup>

<sup>1</sup> Laboratorio de Citogenética y Evolución, Dpto. Cs. Biológicas, FCEN, UBA.

<sup>2</sup> CONICET

<sup>3</sup> Instituto de Recursos Biológicos, INTA, Castelar, Buenos Aires, Argentina.

E-mail: silvanasede@hotmail.com

**Análisis del complejo *Phaseolus-Macroptilium-Vigna* (Papilionoideae)**

Analysis of the complex *Phaseolus-Macroptilium-Vigna* (Papilionoideae)

Drewes S. I.

Departamento de Biodiversidad y Biología Experimental, F.E.C.yN.-U.B.A., P.II, 4° Piso, Ciudad Universitaria. 1428. Buenos Aires Argentina.

E-mail: drewes@bg.fcen.uba.ar

**Evolución cromosómica en especies Sudamericanas de *Lathyrus* (papilionoideae).**

Chromosome evolution in South American species of *Lathyrus* (Papilionoideae)

Seijo J.G. & Fernández A.

Instituto de Botánica del Nordeste, Sargento Cabral 2131, Corrientes, Argentina.

E-mail: seijo@agr.unne.edu.ar

**Estudio fitoquímico comparativo de algunos géneros de las subfamilias Caesalpinioideae, Mimosoideae y Papilionoideae (Leguminosae)**

Comparative phytochemical study of some genera of Caesalpinioideae, Mimosoideae and Papilionoideae (Leguminosae)

Lamarque A.L.<sup>1</sup>, Labuckas D.O.<sup>1</sup>, Guzmán C.<sup>1</sup> & Fortunato R.H.<sup>2</sup>

<sup>1</sup> IMBIV, F.C.E.F.y N. -UNC. Av. V. Sarsfield 1611. 5016 Córdoba, Argentina

<sup>2</sup> CONICET en Instituto de Recursos Biológicos INTA, 1712 Castelar, Buenos Aires, Argentina.

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**NODULATION AND NITROGEN FIXATION  
Legume Nodulation Reports not in Allen and Allen (1981)**

Joseph H. Kirkbride, Jr.

Taxon	Status <sup>1</sup>	Source <sup>2</sup>
<i>Astragalus chrysopterus</i> Bunge	+	12
<i>Callerya atropurpurea</i> (Wall.) Schot	+	1
<i>Cytisus balansae</i> (Boiss.) Ball	+	7
<i>Cytisus striatus</i> (Hill) Rothm.	+	7
<i>Desmodium grahamii</i> A. Gray	+	5
<i>Desmodium retinens</i> Schldtl.	+	5
<i>Genista hystrix</i> Lange	+	7
<i>Gompholobium scabrum</i> Sm.	+	10
<i>Indigofera ambylantha</i> Craib	+	11
<i>Indigofera carlesii</i> Craib	+	11
<i>Indigofera potaninii</i> Craib	+	11
<i>Inga hayesii</i> Benth.	+	6

Taxon	Status <sup>1</sup>	Source <sup>2</sup>
<i>Lespedeza cuneata</i> (Dum. Cours.) G. Don var. <i>serpens</i> (Nakai) Ohwi	+	13
<i>Lespedeza davidii</i> Franch.	+	12
<i>Machaerium microphyllum</i> (E. Mey.) Standl.	+	6
<i>Medicago popovii</i> (Korovin) Sirj.	+	8
<i>Melilotus albus</i> Medik.	-	3
<i>Phaseolus parvulus</i> Greene	+	5
<i>Phaseolus pedicellatus</i> Benth.	+	5
<i>Rhynchosia reniformis</i> DC.	+	2
<i>Trifolium stoloniferum</i> Muhl. ex Eaton	-	4
<i>Trigonella verae</i> Sirj.	+	8
<i>Xylia xylocarpa</i> (Roxb.) W. Theob.	+	9

<sup>1</sup> Status: +, root nodules reported as present; -, root nodules reported as absent.

<sup>2</sup> Source:

1. Corby, H.D.L. 2002. Personal communication that he received from G. Lim in 1992.
2. Hiers, J.K., R.J. Mitchell, L.R. Boring, J.J. Hendricks, and R. Wyatt. 2003. Legumes native to longleaf pine savannas exhibit capacity for high N<sub>2</sub>-fixation rates and negligible impacts due to timing of fire. *New Phytologist* 157:327–338.
3. Lum, M.R., Li, Y., LaRue, T.A., David-Schwartz, R., Kapulnik, Y., and Hirsch, A.M. 2002. Investigation of four classes of non-nodulating white sweetclover (*Melilotus alba* annua Desr.) mutants and their responses to arbuscular-mycorrhizal fungi. *Integrative and Comparative Biology* 42(2):295–303.
4. Morris, D.R., V.C. Balgiar, T.M. Schuler, and P.J. Harmon. 2002. Biological nitrogen fixation and habitat of running buffalo clover. *Journal of Plant Nutrition* 25(4): 735–746.
5. Parker, M.A. 2002. Bradyrhizobia from wild *Phaseolus*, *Desmodium*, and *Macroptilium* species in northern Mexico. *Applied and Environmental Microbiology* 68(4): 2044–2048.
6. Parker, M.A. 2003. Genetic markers for analyzing symbiotic relationships and lateral gene transfer in Neotropical bradyrhizobia. *Molecular Ecology* 12:2447–2455.
7. Pérez-Fernández, M.A., and B.B. Lamont. 2003. Nodulation and performance of exotic and native legumes in Australian soils. *Australian Journal of Botany* 51:543–553.
8. Roumiantseva, M.L., E.E. Andronov, L.A. Sharypova, T. Dommann-Kalinowski, M. Keller, J.P.W. Young, and B.V. Simarov. 2002. Diversity of *Sinorhizobium meliloti* from the Central Asian alfalfa gene center. *Applied and Environmental Microbiology* 68(9): 4694–4697.
9. Sinsuwongwat, S., A. Nuntagij, A. Shutsrirung, M. Nomura, and S. Tajima. 2002. Characterization of local rhizobia in Thailand and distribution of malic acid. *Soil Science and Plant Nutrition* 48(5):719–727.
10. Watkin, E.L.J., W. O'Hara, W. Graham, and J.G. Howieson. 2001. Biodiversity of native root nodule bacteria in Western Australia. The Fourth International Legume Conference, Program and Abstract, page 93. Australian National University, Canberra, Australia.
11. Wei, G.H., E.T. Wang, Z.Y. Tan, M.E. Zhu, and W.X. Chen. 2002. *Rhizobium indigoferae* sp. nov. and *Sinorhizobium kummerowiae* sp. nov., respectively isolated from *Indigofera* spp. and *Kummerowia stipulacea*. *International Journal of Systematic and Evolutionary Microbiology* 52:2231–2239.
12. Wei, G.H., Tan, Z.Y., Zhu, M.E., Wang, E.T., Han, S.Z., and Chen, W.X. 2003. Characterization of rhizobia isolated from legume species within the genera *Astragalus* and *Lespedeza* grown in the Loess Plateau of China and description of *Rhizobium loessense* sp. nov. *International Journal of Systematic and Evolutionary Microbiology* 53:1575–1583.
13. Zhu, Y.Y., Feng, L.K., En, T.W., Ge, H.W., and Wen, X.C. 2002. Characterization of *Rhizobia* that nodulate legume species of the genus *Lespedeza* and description of *Bradyrhizobium yuanmingense* sp. nov. *International Journal of Systematic and Evolutionary Microbiology* 52:2219–2230.

## GLEANINGS

Ed. Note: Names in all capital letters are *Bean Bag* Readers whose email addresses (or if not available postal addresses) are given after each entry.

AKOTOYE is working on micromorphology of Papilionoideae. He requests Leguminosae micromorphology literature and offers seeds of some Ghanaian Leguminosae in exchange. (hakotoye@yahoo.com)

BEYHAUT is currently working on Genus *Mimosa* L. in Uruguay and geographically related areas. She requests *Mimosa* herbarium material from Uruguay, southern Brazil and boundary provinces of Argentina and offers herbarium duplicates of native legume species from Uruguay. (rbeyhaut@yahoo.com)

BEYRA-MATOS continues both her work on taxonomic monographs of genera of the subtribes Diocleinae and Glycininae (Leguminosae-Phaseoleae-Papilionoideae) and her collaboration with Dr. Matt Lavin on the taxonomic study of Cuban Leguminosae. She needs to locate type specimens of Cuban legume species and offers specimens or fresh material of Cuban legumes. (abeyraes@yahoo.com.mx)

KIRKBRIDE discovered, while updating the legume fruit and seed database, that the genus *Chloroleucon* is a junior synonym of the genus *Chloroleucum*. He proposed that *Chloroleucon* be conserved against *Chloroleucum*. While reviewing Dupuy's magnificent *The Leguminosae of Madagascar* published last year by the Royal Botanic Gardens, Kew, it was immediately apparent to him that the fruits and seeds of the two Malagasy species of *Cordyla* are radically different from those of the African species. He has submitted a manuscript to *Novon* proposing a new genus for the two Malagasy species using the generic epithet *Dupuya*. The fruit and seed data and images of the new genus are available in the online version of the legume fruit and seed database. (joe@nt.ars-grin.gov)

URL: <http://nt.ars-grin.gov/SBMLWeb/OnlineResources/Fabaceae/>

KIRKBRIDE and L. Gilbert have submitted their database of legume nodulation reports to the USDA Agricultural Research Service for publication. It has been accepted for publication, and should be accessible via the Internet later this year. It will be mounted on the server of the USDA, ARS, Germplasm Resources Information Network (GRIN). The database now contains nodulation reports for 4,657 legume species and infraspecific taxa. Once it is available online, it will be periodically updated as new reports become available. (joe@nt.ars-grin.gov)

GUNN and KIRKBRIDE are now working on a family database of fruits and seeds in DELTA format. Data collection and preparation of fruit and seed images are near completion. The database and images, for use with Intkey, will be published on the web site of the USDA, ARS, Systematic Botany and Mycology Laboratory late in 2004 or early in 2005. ([joe@nt.ars-grin.gov](mailto:joe@nt.ars-grin.gov))

MENDONÇA is working on legumes from the Jequitinhonha's river valley, Minas Gerais, Brasil. ([civictor@fafeid.edu.br](mailto:civictor@fafeid.edu.br))

UJIH is working on seed multiplication and development in the middle belt of Nigeria, in particular *Delonix regia* and *Caesalpinia pulcherrima* and requests literature on seed propagation and physiology. (Ujihilmar@yahoo.com)

VANDERBORGHT is maintaining a Phaseoleae-Phaseolinae collection, chiefly centred on wild *Phaseolus* and *Vigna* species. List of taxa is available on: <http://www.br.fgov.be/research/collections.living/phaseolus>. (T.Vanderborght@br.fgov.be)

## RECENT LEGUME LITERATURE

Ed. Note: Every effort has been made to ensure authors' names are correctly cited but please notify the editor if your name is misspelled. Authors names in all capital letters are *Bean Bag* Readers.

Abdelguerfi Laouar, M., A. Abdelguerfi, Z. Bouznad and G.G. Giottonneau. 2003. Autoecologie et distribution du complexe d'especes *Medicago ciliaris* - *M. intertexta* en Algerie. (Autoecology and distribution of the species complex *Medicago ciliaris* - *M. intertexta* in Algeria.) Acta Bot. Gallica 150(3): 253-265. Maps.

ADEMA, F. 2003. Notes on Malesian Fabaceae (Leguminosae-Papilionoideae): 9. The genus *Paraderris*. Blumea 48(1): 129-144. Icones, Anatomy and morphology, Keys. Many new taxa.

ADEMA, F. 2003. Notes on Malesian Fabaceae (Leguminosae-Papilionoideae): 10. The genus *Alysicarpus*. Blumea 48(1): 145-152. Icones, Anatomy and morphology, Keys.

ADEMA, F. 2003. Notes on Malesian Fabaceae (Leguminosae-Papilionoideae) 11. The genus *Derris*. Blumea 48(2): 393-419. Icones, Anatomy and morphology, Keys. 1 var. nov.; 1 comb. nov.

AINOUCHE, A., Bayer, R.J., Cubas, P. and Misset, M.-T. 2003. Phylogenetic relationships within tribe Genisteeae (Papilionoideae) with special reference to the genus *Ulex*. In Klitgaard, B.B. & Bruneau, A. (eds.). Advances in Legume Systematics 10, Higher Level Systematics, Higher Level Systematics, pp 239-252. Royal Botanic Gardens, Kew.

Allan, G.J., Zimmer, E.A., Wagner, W.L. and D.D. SOKOLOFF. 2003. Molecular phylogenetic analyses of tribe Loteae (Leguminosae): implications for classifications and biogeography. 2003. In Klitgaard, B.B. & Bruneau, A. (eds.). Advances in Legume Systematics 10, Higher Level Systematics, Higher Level Systematics, pp. 371-393. Royal Botanic Gardens, Kew.

- Andrew, R.L., J.T. MILLER, R. Peakall, M.D. CRISP and R.J. Bayer. 2003. Genetic, cytogenetic and morphological patterns in a mixed mulga population: evidence for apomixis. *Austral. Syst. Bot.* 16(1): 69-80. Chromosome numbers, Anatomy and morphology, Reproductive biology.
- Aymard C.G.A. and V. Gonzalez. 2003. A new species of *Acosmium* (Leguminosae: Papilionoideae, Sophoreae). *Harvard Pap. Bot.* 7(2): 399-402. Icones, Anatomy and morphology. *Acosmium stirtonii* sp. nov.
- BANDYOPADHYAY, S. 2003. Seedling morphology of *Bauhinia foveolata* Dalz., Leguminosae: Caesalpinioideae. *J. Bombay Nat. Hist. Soc.* 99(3): 551-553. Icones, Anatomy and morphology.
- BANDYOPADHYAY, S. 2003. Pits with inflated trichomes on under surface of leaves of *Bauhinia malabarica* Roxb., Leguminosae: Caesalpinioideae. *J. Bombay Nat. Hist. Soc.* 99(3): 548-551. Errata: In page 551, left column, line 11, for seed leaf read leaves). Icones, Anatomy and morphology.
- BANDYOPADHYAY, S. 2003. Notes on the distribution of *Bauhinia wallichii* Macbr. and *B. ovatifolia* T. Chen, Leguminosae: Caesalpinioideae. *J. Bombay Nat. Hist. Soc.* 99(3): 547-548.
- Banko, P., Cipollini, M. L., Breton, G., Paulk, E., WINK, M. and I. Izhaki. 2002. Seed chemistry of *Sophora chrysophylla* (Mamane) in relation to the diet of the specialist seed predator *Loxioides bailleui* (Palila) in Hawaii. *J. Chemical Ecology* 28: 1393-1410.
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