The Bean Bag

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

Issue 65, Year 2018

CONTENT

Letter from the Editor 2
Good to Know 3
Reports from the Legume World 4
A Look into 2019 7
Legume Shots of the Year 9
Legume Bibliography under the Spotlight 14
Publication News from the World of Legume Systematics 18
Letter from the Editor

Dear Bean Bag Fellow

I hope your 2019 has been wonderful so far!

Apologies for the delay in getting this issue to you. A lot has been going on, including submission of papers to the forthcoming Advances in Legume Systematics 13. As you will see, this is another long issue. And finally, now we have a new BB webpage, although it is currently undergoing a change into a new layout expected to go live very soon.

A lot has been going on in 2018 in the legume world, as it is usual for such a large and fascinating family!

This issue starts by having a look at the BB Website and issues online. Afterwards, we will look at “Reports from the legume world” with beautiful images of Flemingia species from India, and go back into 2018, with the International Legume Conference in Sendai, Japan, and some looks into 2019.

Several beautiful photographs of legumes from all over the world will delight you. And also those of the Australian Pilbara region with its Vigna species. In conclusion, as always, you’ll find the traditional list of legume bibliography.

Despite the new webpage, the Bean Bag Newsletter is still sent out through the BB Google Group, which is the only purpose of this google group. For correspondence about the BB, members are invited to email the editorial email: beanbag.kew@gmail.com.

Finally, I am very grateful to Gwil Lewis and Leo Borges for their editorial assistance and to all contributors of this issue for sharing their news, insights, images and publication citations, making this probably one of the longest issues!

Thank you for your attention.

Kind regards,

Brigitte Marazzi

The Bean Bag Newsletter in the Web

The present and the most recent newsletters are made available for online download on the BB webpage, whereas issues 1-54 are found on the digital library: www.biodiversitylibrary.org/bibliography/122385#/summary

Join us on Google Group: groups.google.com/forum/?hl=en#forum/thebeanbag
Find us on Facebook: www.facebook.com/groups/1484192248560637/
Finally, the Bean Bag webpage is back on track, still kindly hosted on Kew’s website, thus continuing the legacy! The current layout is going to be changed this coming March. Save the URL!


DO NOT MISS HISTORICAL BEAN BAG ISSUES (1975-2007)

Issues 1-54 are found on the digital library: www.biodiversitylibrary.org/bibliography/122385/#/summary
Flemingia Roxb. ex W. T. Aiton is one of the wild relatives of the pigeon pea, Cajanus cajan. There are 46 taxa, distributed in the old world tropics. In India, there are 26 species and one variety. Four species, *F. gracilis* Mukerjee, *F. nilgeriensis* (Baker) Wight ex Cooke, *F. rollae* (Hemadri & Billore) An. Kumar and *F. tuberosa* Dalzell are endemic to the southern Western Ghats.

*Flemingia angustifolia* Roxb. has been neglected by many researchers and has been resurrected here. A previous new combination made by other authors, i.e. *F. stricta* subsp. *pteropus* (Baker) K. K. Khanna & An. Kumar is found to be conspecific with *F. stricta* Roxb.

Although *F. praecox* C. B. Clarke ex Prain was previously reported to occur in Madhya Pradesh, our study suggests that this species is not found in India, but occurs only in Myanmar.


Sandip K. Gavade is doing his doctoral dissertation on *Flemingia*, supervised by Dr. Manoj M. Lekhak at the Angiosperm Taxonomy Laboratory, Department of Botany, Shivaji University, Kolhapur - 416004, Maharashtra, India. They collaborate with L. J. G. van der Maesen from Naturalis Biodiversity Center, in Leiden, The Netherlands.
The Strobilifera complex includes *F. bracteata* (Roxb.) Wight, *F. fruticulosa* Wall. ex Benth., *F. strobilifera* (L.) R. Br. and *F. tiliacea* Niyomdh. We recognize all these species as distinct. Finally, the Rhynchosoioides complex comprises *F. gracilis*, *F. nilgheriensis*, *F. rollae* and *Flemingia* sp. nov., which we treat as distinct species. Nomenclatural problems encountered are discussed and have been resolved for each species of *Flemingia* (in India).

Two species collected from Maharashtra and Jharkhand in the present study could not be identified using Indian literature. Further studies are needed to assess their taxonomic status. We have reported *F. sootepensis* (earlier known from Thailand) from India for the first time.

In conclusion, the present work is fundamental in understanding the taxonomy of the group. Genus *Flemingia* has great economic potential and is an important genetic resource. Some species have important traits such as disease resistance and salt tolerance, which can be used in breeding programmes. It could be used in improving protein quality of *Cajanus cajan*.

As the present work provides a detailed inventory of *Flemingia* species in India, information on endemic species will be very useful for setting their conservation priorities.

Well-resolved taxonomy will form the basis of needed future studies on various aspects, like anatomy, phylogeny, and phytochemistry.

**Related publications**


---

**Flemingia sootepensis** from India.

Tall erect shrubs c. 5-8 feet tall, with a triangular stem, lanceolate stipules, trifoliolate leaves, and a winged petiole. Fruits are turgid and 2 seeded.

Photo by Sandip Gavade
Summary statistics of ILC7

- 132 participants from 27 countries
- 78 oversea participants, 54 Japanese participants
- 11 symposia, 1 workshop, 3 flash talk sessions
- 85 oral presentations and 33 poster presentations.

Some social moments during the conference

1. Opening of registration and welcome reception
2. The auditorium hosting the conference symposia
3. Delicious Japanese gastronomic experience at the conference dinner
4. Visit at the Tohoku University Botanical Garden
5. Visit at the The Nikka Whisky Sendai Factory Miyagikyo Distillery

First day of the conference – Everybody seems happy!

Group photo by Tadashi Kajita and the Organizing Committee
Website: http://7ilc.info/

Photo credits:
1-3 Tadashi Kajita
4-5 Brigitte Marazzi
A Look Into 2019

Building a Character Statements List
Communicated by Leonardo Borges on behalf of the Legume Phylogeny Working Group

Following the goals of the LPWG, in 2018 we got back to the plan of developing a comprehensive character statements list for the Leguminosae. This list is based on characters used in published papers on legume phylogeny, plus updates on coding, terminology, and new additions by the systematics community. During the 7th ILC, in Sendai, Japan, a number of researchers from around the globe joined the team that is working on this task. With their help, we believe the project will gain traction and produce a useful resource for legume research in taxonomy, systematics, and morphological evolution. Nonetheless, building such a list is a complex task. We welcome people interested in contributing to this project to get in touch with Leonardo Borges at:
legume.morphology@gmail.com
aquitemcaqui@gmail.com

International Conference on Legume Genetics and Genomics
May 12 – 17 in Dijon, France

Communicated by Brigitte Marazzi, Editor BB Newsletter

The focus appears to be on legume crops and agriculture, but the 11 sessions on the currently available program span over a wide range of topics. Our well-known legume systematist, Dr. Colin Hughes, is going to give the keynote lecture that opens the Legume diversity Session, entitled Phylogenomics And Evolutionary Diversification Of Legumes: Live Fast And Die Young.

Session #1 – Opening and introduction
Session #2 – Genomes
Session #3 – Functional Genomics
Session #4 – Seed biology and quality
Session #5 – Legume diversity
Session #6 – Plant development and signalling
Session #7 – Genomics for agro-ecological services
Session #8 – Symbioses
Session #9 – Abiotic stress resistance
Session #10 – Genome enabled breeding
Session #11 – Biotic stress resistance

Photo credits:
top - by Christophe Finot
middle, left – by J, Alchemica
middle, right - by Arnaud 25
bottom – by Iha Holiday ads
Part 13 of the Advances in Legume Systematics (ALS) series is currently in preparation for publication as a Special Issue of Australian Systematic Botany.

The first two volumes of ALS, edited by Roger Polhill and Peter Raven, were published in 1981, arising from the first International Legume Conference (ILC) at Kew in 1978, with a further 10 volumes appearing over the subsequent 35 years.

ALS Part 13 follows on from the ILC7 at Sendai in Japan and will include a set of ca. 15 papers on diverse legume systematics topics including fossils, morphology, taxonomy, classification, genomics, databasing, phylogeny, biogeography and economic botany.

The extended deadline for submission of papers has now passed and the editors (Colin Hughes, Ashley Egan, Tadashi Kajita and Daniel Murphy) are working to bring this volume to fruition, with publication anticipated later in 2019.
**Legume Shots of the Year**

*Cenostigma pyramidale*

Brazil, Bahia.
A species from one of the genera that resulted from clarifying relationships within the Caesalpinia group.

Photo by Edeline Gagnon

*Hoffmannseggia sp.*

Peru.
Another member of the Caesalpinia group. Here reproduced along with another three legume species from coastal lomas vegetation in full bloom, spectacular.

Photo by Gwil Lewis
Poissonia weberbaueri
Peru.
The second of a series of legumes from coastal lomas vegetation in full bloom.
Photo by Gwil Lewis

Weberbauerella brongniartioides
Peru.
In coastal lomas vegetation.
Photo by Gwil Lewis

Lupinus mollendoensis
Peru.
A rare species, here in coastal lomas vegetation.
Photo by Gwil Lewis
*Lupinus luisanae*

from the paramo de Oceta, eastern Cordillera of Colombia, the new species described in Contreras et al. (2018). It is one of a set of four large acaulescent fistulose inflorescence species of *Lupinus* from Colombia that were the focus of the Contreras et al. study.

Photo by
Natalia Contreras
This vine has become an invasive alien species in many countries outside its natural range of distribution.

Photo by Leonardo Borges
Trifolium repens

on Prince Edward Island, Canada, in July 2018, as part of the Global Urban Ecology Project, looking at adaptation of white clover in urban vs. rural environments.

Photo by Edeline Gagnon

Bauhinia forficata subsp. pruinosa

Corrientes, Argentina.
Ants are visiting the nectar-secreting prickle, unique among legumes and described for the first time by Gonzalez and Marazzi (2018).

Photo by Brigitte Marazzi
Most of the eight papers in the selection on legume morphology presented in this issue of the Botanical Journal of the Linnean Society (volume 187) were presented in the international Legume morphology symposium and workshop held in November 2015, in Botucatu, São Paulo, Brazil. This was the second formal meeting of the Legume Morphology Working Group (LMWG), now fully integrated into the Legume Phylogeny Working Group (LPWG).

Three contributions are mainly focused on filling gaps in legume morphology: osmophores (Marinho et al. 2018), extrafloral nectaries (Gonzalez and Marazzi 2018), and zygomorphic detarioid flowers (Kochanovski et al. 2018).

The usefulness of morphology in a phylogenetic context is explored in three other papers: pollen morphology (Banks and Lewis 2018) and leaflet anatomy (Pinto et al. 2018, Silva et al. 2018).

The last two contributions included in this issue are more focused on evolutionary and ecological aspects of plant phenotypes: growth form in Andean Lupinus (Contreras-Ortiz et al. 2018) and testing division of labour in Chamaecrista flowers (Nogueira et al. 2018).

Overall, the studies presented in this issue cover a wide range of morphological topics and together fit well with the goals established by the former LMWG, which are still alive:

(1) to evaluate how comparative morphological studies may help to better understand species groups and poorly-resolved molecular phylogenetic relationships; (2) to identify gaps in our knowledge about legume morphology and coordinate efforts to fill these gaps and (3) to promote consistency in legume morphological terminology.

Some contributions go beyond the original goals and develop under-studied aspects of biology of Fabaceae or attempt to establish links between morphology, evolution, diversification and ecology.
Wild relatives of crop plants help broaden the genetic diversity available for plant breeding. To fill a geographic collecting gap and sample germplasm that is naturally adapted to harsh environments, collections of the native legume *Vigna* were made from roadsides around the Pilbara. All 32 collections proved to be morphotypes of the *V. lanceolata* Benth. species complex, including a diminutive form (recently described as *V. triodiophila*) found around rockpiles near Karratha that appears to be well-adapted to grazing by rock wallabies.

It was an interesting trip. The Pilbara is well worth visiting.

The remote Pilbara region in Western Australia is characterised by a dry climate (annual rainfall 250-350 mm), extreme summer temperatures and shallow soils. Herbaceous legumes including *Vigna* are found in the run-on parts of the landscape (foreground). The box on the right shows *V. lanceolata* Silverleaf form. Photos by Bob Lawn.
Collection locations for 32 accessions of *Vigna* in the Pilbara region, Western Australia. Solid blue lines indicate the main roads traversed for collecting. Larger towns are indicated for reference. Image reproduced with permission.

Florets of *Vigna* accessions from the Pilbara. Left: *V. lanceolata* Silverleaf form; Centre: *V. triodiophila*; Right: *V. lanceolata* Central form. Photo by Bob Lawn.

All 32 *Vigna* accessions collected in the Pilbara were amphicarpic, with 1- or 2-seeded geocarpic pods (white) on underground rhizomes and 4-8 seeded aerial pods (green). Photo by Bob Lawn.

LEGUME BIBLIOGRAPHY UNDER THE SPOTLIGHT

UNDERSTANDING PALOUE (LEGUMINOSAE: DETARIOIDEAE) REVISION OF A PREDOMINANTLY GUIANA SHIELD ENDEMIC.

Communicated by Gwil Lewis, Royal Botanic Gardens, Kew

From the abstract: On the basis of morphological and molecular phylogenetic analyses, the genus Paloue is revised to include the genera Elizabetha and Paloveopsis. As newly circumscribed, Paloue comprises 17 species, 2 subspecies, and 2 varieties. The following 11 new combinations in Paloue are made, and one new hybrid is recognised:

- P. bicolor (Ducke) Redden
- P. coccinea (Schomb. ex Benth.) Redden
- P. duckei (Huber) Redden
- P. durissima (Ducke) Redden
- P. emarginata (R. S. Cowan) Redden
- P. fanshawei (R. S. Cowan) Redden
- P. leiogyne (R. S. Cowan) Redden
- P. macrostachya (Benth.) Redden
- P. paraensis (Ducke) Redden
- P. princeps (M. R. Schomb. ex Benth.) Redden
- P. speciosa (Ducke) Redden
- P. × grahamiae (R. S. Cowan) Redden.

Based on a total evidence phylogeny, the two varieties of Paloue coccinea are no longer recognized, and a lectotype has been designated for Paloue guianensis Aubl. The species of Paloue are small to large woody trees that are distributed in northern South America; most are endemics in the Guiana Shield.


Left: Paloue sandwithii inflorescence. Photo by Kenneth Wurdack.
Right: Paloue riparia inflorescence and developing fruit. Photo by Karen Redden.
A list with the year’s publication citations of studies on legume systematics is here provided. We thank authors who sent us their references. Please accept our apologies if any citation is missing. This collection of studies and the publications highlighted above provide an elegant insight into another vibrant year of research in Systematics and Biology of Leguminosae.


http://repositorio.unisucre.edu.co/handle/001/602


Publications from the World of Legume Systematics (Cont.)


