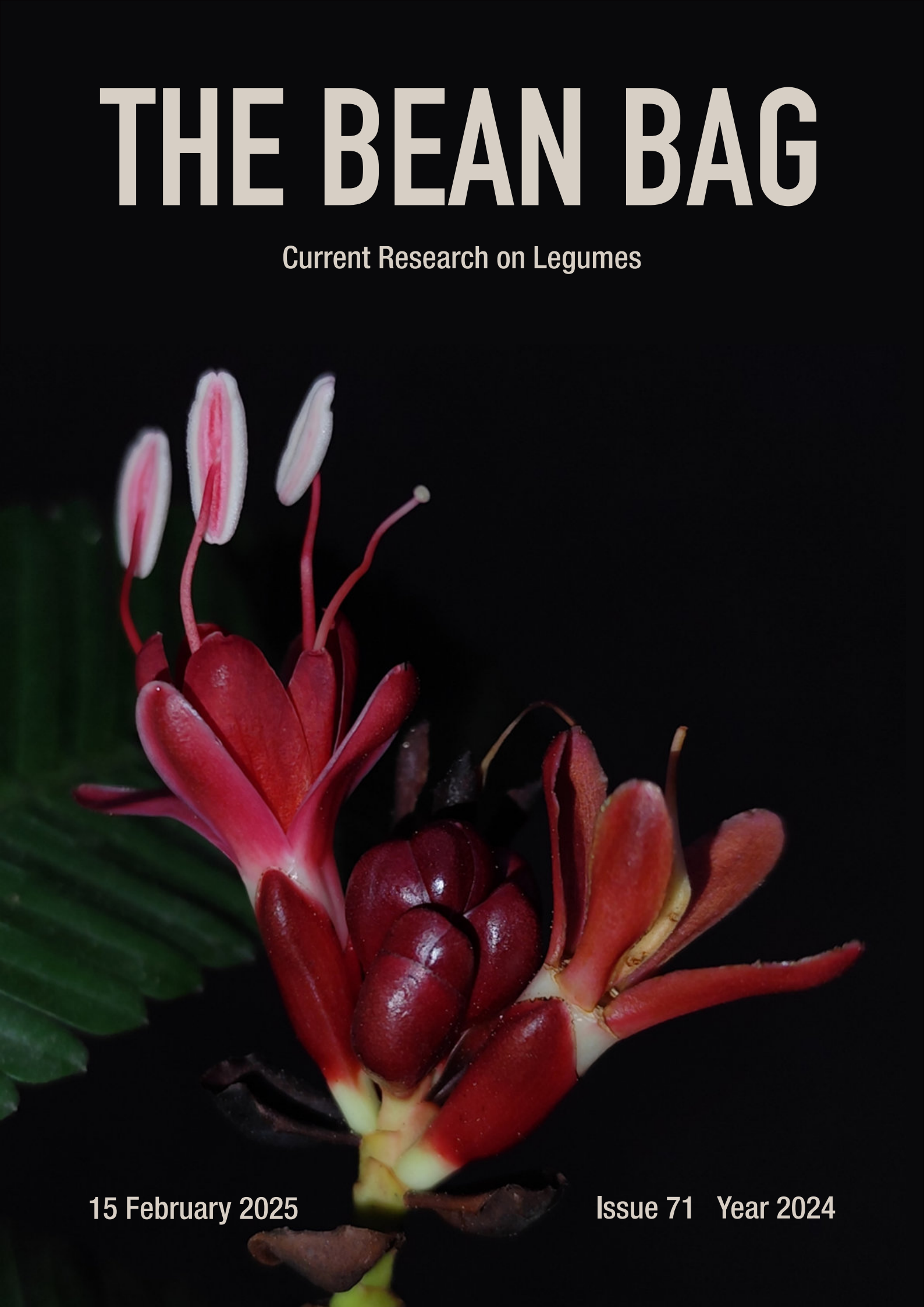
THE BEAN BAG

Current Research on Legumes



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Issue 71 Year 2024

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Inflorescences and leaves of *Parapiptadenia zehntneri*. Photo: Domingos Cardoso.

WELCOME NOTE

Issue 71: From the Editors

Leonardo Borges (Universidade Federal de São Carlos, Brazil) & **Stephen Boatwright** (University of the Western Cape, South Africa)

with contributions by **Brian du Preez** (University of Cape Town, South Africa) & **Marcus Falcão** (Jardim Botânico do Rio de Janeiro, Brazil)

This new issue celebrates the **50th anniversary of the Bean Bag!**

The origin of the newsletter goes back to an informal meeting between legume systematists attending the First International Congress of Systematics and Evolutionary Biology (ICSEB), held in 1973 at the University of Colorado, US. Two years later, in May 1975, the first printed issue edited by Charles (Bob) Gunn and Richard Cowan, was distributed around the world.

As the first pages of that volume show (see below), the aim of the annual newsletter is to share news on publications, events, projects, opportunities, requests and other information of interest to "legume-lovers of the world". Fifty years later, Issue 71 of the Bean Bag keeps faithful to that goal and continues to highlight the efforts of the legume community to push the limits of our knowledge on the diversity, ecology, evolution and systematics of this beautiful family.

This year's Bean Bag includes reports from the Legume Phylogeny Working Group, six announcements, two digests of 2024 legume papers written by postgraduate students, portraits of three leguminologists in the Gallery of Leguminologists, a spotlight on one botanical artist, new legume species highlights from 2024, a photo gallery and the annual compilation of legume literature in the 2024 bibliography. To pay homage to our origins, this year's cover reinstates the more straight-forward subtitle of the first edition: "Current Research on Legumes".

A big thank you to everybody involved in assembling the Gallery of Leguminologists —a very interesting window into the lives of fellow leguminologists— and to Colin Hughes for taking care of the Artist spotlight and the New Legume Species. We also thank Carole Sinou for assistance with posting the Bean Bag to the Legume Data Portal; Gwilym Lewis at Kew for reviewing parts of this issue and facilitating the archiving of the Bean Bag in the Kew Research Repository, and to our many contributors for sharing their time and insights.

Finaly, thanks also to you, the legume community as a whole. Over the past 50 year, you've kept a bright light pointing to new ways to study the beautiful family we all love. Without your efforts, highlighted in the continuous growth of each year's legume bibliography, there would be no news for us to share.

To read more recent BB issues, visit the Legume Data Portal.

A complete list of issues of the BB (since 1975 are available via the Kew Research Repository.

To receive new volume notifications and eventual information of interest to the legume community, join the BB email group and don't forget to keep an eye on the Legume Data Portal, which also posts news items of interest to the legume community.

Cover image: *Paloue speciosa* (Ducke) Redden (Detarioideae), a rare amazonian species of small trees with dark red bracteoles, sepals and petals, three developed stamens and small staminodes. Photo: Marcus J. A. Falcão.

Wiborgiella sessilifolia (Crotalarieae) from South Africa

THE BEAN BAG

Current Research on Legumes

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Number ONE

MAY 1975

An Historical Note: The First International Congress of Systematic and Evolutionary Biology (ICSEB) was something new under the sun in several respects. For the first time it brought together botanical and zoological practioners of systematics for the interchange of ideas, philosophy, methodology, and goals: this was the principal purpose of the Congress organizers. There was another less evident purpose, however; it provided an opportunity for specialists in various groups of organisms to convene informal meetings to discuss how they might cooperate more closely with each other and with scientists of all sorts whose work has the potential for providing new data for the synthesis that is the essence of systematic biology.

So it was that the devotees of the Leguminosae who were at the Congress came together for a very interesting meeting. One of the conclusions reached (there were not all that many!) was that we needed to be in touch with each other regularly and that a newsletter should be undertaken by someone. Initially, Tom Elias (Carey Arboretum of the New York Botanical Garden) volunteered to produce such a publication and he set about the task with enthusiasm; many of you completed a questionaire which he mailed out rather widely. However, his administrative duties as director of the Arboretum finally forced him to give up the task and the editors listed above have stepped into the breach. How well we do at it is strongly dependent on your assistance, about which, more follows.

Credit for the name of the newsletter should also be recorded. It was proposed very early, perhaps even during the Boulder ICSEB meetings, by Mary Kalin Arroyo who was at that time assisting Howard Irwin with his research on Brazilian legumes but has since taken a position at the Universidad Central de Venezuela in Caracas. Responses to our 10 March letter to most of you have contained a few comments on the name, mostly favorable. It was not intended to be frivolous, as we believe the content of future issues will prove, but a rather fanciful title for what will necessarily be a highly diversified collection of news and notes of interest to leguminologists.

* *

What Will the Newsletter Be? "Que sera sera" may not be quite the correct answer but we mean to say, the BEAN BAG will be whatever all of us together make of it. But in the beginning the editors believe that what is wanted is news of new and completed research in systematics, new publications, honors conferred on any of our number, changes of address, requests for research materials, expeditions and other field studies (especially news of opportunities for participation), and other miscellany of interest to legume-lovers of the world. The newsletter will

not be able to take items more than about a fourth page in length (typewritten) and all items will have to have a direct bearing on the systematic botany of the Leguminosae. (Can we agree from the outset that both the collective view and the two or three family view of the assemblage are admissible in these pages? We happen to be "one family-three subfamilies" in our outlook.) Important as they are to human welfare, new strains of cultivated crop plants, for example, will not be reported on here, unless they have taxonomic significance. If we grow too large, too rapidly, costs may exceed the resources available to us.

Enclosed with each copy of the BEAN BAG you will find a news-collecting outline which you should complete insofar as necessary to bring the information about you and your work up to date, and return the form to us. We will use these data to put together the next issue and by so doing reduce the research time we expend in putting together the text each time. Your prompt cooperation will be greatly appreciated! But please send the form back by the end of September. ----- The Editors.

* *

Research on Neotropical Legumes in Argentina. (Editors' Note: This account was provided in August 1973 and then brought up to date in April 1975 by Dr. Burkart, just before his untimely death from a stroke on 26 April. It was already in manuscript form and publication of his notes seems to us to be a small memorial to a man whose scientific work has contributed so much to our knowledge of legumes.) Arturo Burkart has written us a fulsome account of the many legume studies at the Instituto de Botanica Darwinion in Buenos Aires and at other research centers in the country; the following is a digest of this very vigorous program, much of which is under his direction or supervision, or with his collaboration. Lic. Lilian Dora Bravo is monographing the Argentine species of Cassia using traditional as well as recently evolved methodologies.... Lic. Edith V. Gomez de Rabini is studying the local species of Astragalus, beginning with those of Patagonia.... Lic. Diana Murray began a study of Lupinus in northwestern Argentina where there are some 15 poorly known species, and Dra. Betty Sorarú is continuing the project.... Dra. Caccavari de Filice is engaged in palynological studies of the Mimosoideae of Argentina and has already published systematic accounts of the pollen of the Acacieae, Piptadenieae, and Adenantherae; currently she is working with the Mimoseae and in the case of Mimosa she has extended the series and sections in South America. She is also studying the pollen of Dolichos monticola, Dolichopsis paraguariensis and Vigna luteola.... Prof. Oscar Vilchez (La Molina University in Lima, Peru), during a year's study of Peruvian legumes with Dr. Burkart, revised Dalea, Zornia, and Vicia. Now back in Peru, he is working on a taxonomic survey of native forage legumes.... Ing. Agr. Anibal Vera V. (Universidad de Oriente, Monagas, Venezuela) spent three months in 1973 with Dr. Burkart becoming better aquainted with the taxonomy of Venezuelan legumes. He is working on a revision of Venezuelan Zornia species (about 13) and continues to study herbaceous legumes and forage tree-legumes.... Arturo Burkart has contributed in the past few years floristic treatments of the legumes for the "Flora de la Provincia de Buenos Aires", "Flora ilustrada de Entre Rios", the "Flora Patagonica", the "Flora de Jujuy", and the Mimosoideae for the "Flora Catariense" (Brazil). The latter region is especially rich in species of Mimosa with about 45 kinds, of which six appear to be new to science. Monographic revisions are under way of Phaseolus, Adesmia, Zornia (Argentina, Uruguay, Southern Brazil), as well as continuing studies of Galactia and Rhynchosia. In collaboration with O. Solbrig, Beryl Simpson, and J. H. Hunziker, Burkart has completed a world monograph of Prosopis (4 species in Asia and Africa, 40 in the New World) which is being published by the Journal of the Arnold Arboretum. This is part of an international IBP project which promises to have great significance in the reforestation of extremely arid regions. For example, P. tamarugo in the Atacama Desert of Northern Chile has been planted for sheep forage; now this spiny desert legume gives

You can read the first issue of the Bean Bag at the Kew Research Repository

A WORD OF THANKS TO PROFESSOR COLIN HUGHES

Stephen Boatwright (University of the Western Cape, South Africa) & **Leonardo Borges** (Universidade Federal de São Carlos, Brazil)

The legume community would like to extend a word of thanks to the outgoing Editor of the Bean Bag, Professor Colin Hughes. He has made an enormous contribution by keeping this important newsletter going, and transforming it to the digital format that it is today.

Colin became Editor of the Bean Bag in 2020 (volume 67), when he took over from Dr Brigitte Marazzi, and subsequently led the editing of four concurrent volumes.

Colin was responsible for introducing two new elements into the Bean Bag, namely the "New legume species highlights", compiled since volume 67, and the "Gallery of Leguminologists", compiled since volume 69. These added elements introduced stunning images and interesting information on the many new taxa described in legumes from all regions of the world, and also allow us to pay tribute to the many dedicated scientists that study them, often over the span of many decades.

We are immensely grateful to Colin for his leadership and unfailing dedication to legume science. His enthusiasm and attention to detail have been a winning combination to the benefit of the Bean Bag.

Colin hicking in Switzerland (top) and Scotland (bottom), most likely happy for the publication of a new volume of the Bean Bag. Photos: Anne Bruneau.

TAXONOMY WORKING GROUP

Coordinators: **Marianne le Roux** (South African National Biodiversity Institute, SANBI, South Africa), **Anne Bruneau** (Université de Montréal, Canada) & **Juliana Gastaldello Rando** (Universidade Federal do Oeste da Bahia, Brazil)

The Legume Phylogeny Working Group (LPWG) Taxonomy Working Group is steering efforts to create a global consensus checklist of legume species. Launched in 2020, this initiative aims to establish a unified reference for scientific names in the legume family, enhancing communication and collaboration across all disciplines. To date, the names of 50% of all legume genera have been reviewed with contributions from 101 experts across 28 countries.

In April 2024, a week-long virtual *check-a-thon* brought together taxonomists to validate and refine the checklist. During the event, participants utilized *Rhakhis*, an innovative online name-editing tool, which was tested and implemented for the first time in 2023. Since then, we have continued to use a mix of editing using Google Spreadsheets and Rhakhis (see below for guidance). The list of genera that still need to be edited is listed here and is referenced in the description of the Legume Taxonomy Working Group on the Legume Data Portal.

A significant milestone was achieved in May 2024 with the release of the fifth version of the legume checklist. This and previous versions are available on Zenodo, with the latest data accessible via the Legume Data Portal.

The legume checklist featured prominently at the International Botanical Congress held in Madrid, Spain, in July 2024. A symposium titled "*Legume Systematics: From Collaborative Networks to Genome Sequencing*" showcased the checklist in a presentation that highlighted how collaborative tools are advancing our understanding of legume taxonomy, biogeography, and evolution. Notably, discussions during the congress led to a new initiative aimed at revising the higher-level classification of the Papilionoideae subfamily—a critical step, as this group represents the largest gap in name verification within the checklist.

Slide presented at the International Congress in Madrid, featuring the talk's title and its collaborators.

If you're interested in contributing to the Taxonomy Working Group, we encourage you to explore the July 2024 news item on the Legume Data Portal. It offers detailed guidance on how to participate, with data organized by subfamily for easier access. Checks can be conducted via subfamily-level spreadsheets (which are listed in this same Legume Data Portal news item) or directly online through *Rhakhis*. Looking ahead, data maintenance will become a central focus, including the routine review of unplaced names within *Rhakhis*.

By joining the Taxonomy Working Group, you'll have the opportunity to share your research with a global audience, foster collaborations, gain co-authorship opportunities through contributions to the checklist, and become part of the Legume Taxon Expert Network. The Taxonomy Working Group supports major international initiatives, including World Flora Online, the Catalogue of Life, and the Global Biodiversity Information Facility.

For inquiries or to join the group, please contact Marianne le Roux, Anne Bruneau, or Juliana Rando.

We look forward to working with you!

Gastrolobium spinosum (Papilionoideae), a species in the Papilionoideae, the subfamily still in need of specialist input for accurate name verification. Photo: Cal Wood (iNaturalist).

PHYLOGENOMICS WORKING GROUP

Coordinators: **Rafaela Trad** (Royal Botanic Gardens, Edinburgh, UK) & **Félix Forest** (Royal Botanic Gardens, Kew, UK)

The year 2024 was a special one for the phylogenomics of legumes with three symposia (and 18 talks!) at the XX International Botanical Congress in Madrid in July 2024 (abstracts can be found at the conference website; see sessions 4, 5 and 10).

Our updates for the phylogenomic section will be short this year, but we look forward to many phylogenomic studies coming up in 2025! The IBC meeting in Madrid showed us that the advances will come for many groups and at all the levels, including works on the family as a whole. Some of the important works we might see soon are the phylogenomic trees of (1) the subfamily Papilionoideae, (2) tribes Mirbelieae and Phaseoleae, the Adesmia clade and others, (3) several genera such as *Adesmia* DC., *Argyrolobium* Eckl. & Zeyh., *Astragalus* L., *Ebenus* L., *Eriosema* (DC.) Desv., *Inga* Mill., *Pterocarpus* Jacq., and *Sindora* Miq. It will be interesting to see the results of works using different probe sets. The symposia also gave us some insights into huge advances in the study of distribution patterns and biological processes such as introgression and whole genome duplication, which will allow us to investigate further the reasons that make the legumes such a successful family. An important side meeting also took place in Madrid, focusing mostly on the development of a subfamilial classification for the Papilionoideae. The main outcomes of these discussions can be found here and we encourage you to have a look.

With that we want to wish you all a great 2025 and that the legume community continues to be a reference for a dynamic and lively collaborative network.

OCCURRENCE DATA WORKING GROUP

Coordinators: **Edeline Gagnon** (University of Guelph, Canada), **Joe Miller** (Global Biodiversity Information Facility (GBIF), Denmark) & **Jens Ringelberg** (University of Edinburgh, UK & Wageningen University, the Netherlands)

The Occurrence Data Working Group aims to promote the use of legume occurrence data in scientific studies. On our recently updated webpage (https://www.legumedata.org/working-groups/occurrences), we provide information and resources about the assembly and cleaning of occurrence data, as well as an up-to-date list of published studies with publicly available quality controlled legume occurrence datasets. We hope that this encourages other researchers to re-use these datasets, to avoid unnecessary repetition of work and promote collaboration. If your published dataset is not yet listed, please reach out to us.

Like every year, here we provide an overview of recent studies that generated novel legume occurrence datasets, as well as some more general legume biogeography studies:

In a publication based on her MSc thesis, **Charlotte Hagelstam-Renshaw** (Université de Montréal, Canada) and colleagues present a novel occurrence dataset of the entire Cercidoideae subfamily. They use this dataset, in combination with a newly dated molecular phylogeny, to assess phylogenetic biome conservatism across this pantropical subfamily, finding intriguing differences in biome evolution across clades, continents, and growth forms.

Advances in Legume Systematics 14 part 2, edited by **Anne Bruneau** (Université de Montréal, Canada), **Luciano de Queiroz** (Universidade Estadual de Feira de Santana, Brazil), and **Jens Ringelberg**, and with contributions from a large number of collaborators, has now been published. This special issue features a new tribal and clade-based classification and full generic synopsis of the entire subfamily, as well as distribution maps of all 163 Caesalpinioideae genera and species and genus richness maps of the subfamily, based on a dataset of over 548,000 occurrence points. Occurrence data of non-mimosoid Caesalpinioideae were contributed by **Juliana Rando** (Universidade Federal do Oeste da Bahia, Brazil), **Guilherme Sousa** (Universidade Estadual de Campinas, Brazil), **Haroldo de Lima** (Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Brazil), **Isau Huamantupa-Chuquimaco** (Universidad Nacional Amazónica de Madre de Dios, Peru), and **Domingos Cardoso** (Universidade Federal do Bahia & Jardim Botânico do Rio de Janeiro, Brazil).

Moabe Fernandes (University of Exeter & Royal Botanic Gardens Kew, UK) led an international team to carefully quantify the taxonomic, spatial, and evolutionary knowledge of

the entire legume family. Their work shows that almost 20% of all legume species do not have a single occurrence record in public databases, and approximately half of all species have fewer than ten occurrence records. Furthermore, there are very strong geographical biases in the availability of occurrence data (see their Figure 3). Clearly, filling these gaps should be a priority for legume biogeographers.

Many other exciting legume biogeography studies were published in 2024. For instance, **Patricia Alves Casaes** (Universidade Estadual de Santa Cruz, Brazil) and colleagues studied the diversification of *Chamaecrista* (Caesalpinioideae) species in rainforests and other biomes, and the role of their nitrogen-fixing bacterial symbionts in promoting these radiations. **Ryan Folk** (Mississippi State University, USA) et al. described in great detail the biogeography and evolution of *Astragalus* (Papilionoideae), the largest Angiosperm genus in the world, while **Brian Du Preez** (University of Cape Town, South Africa) presented a very nice overview of the biogeography of *Indigofera* (Papilionoideae), the third-largest legume genus. **Vinicius Delgado da Rocha** (Universidade Federal de Viçosa, Brazil) and his team analysed the multiple biome shifts between rainforests and savannas in *Dimorphandra* (Caesalpinioideae), and **Wallace São-Mateus** (Universidade Federal do Rio Grande do Norte, Brazil) and colleagues studied the fascinating amphi-tropical distribution of *Harpalyce* (Papilionoideae). Finally, the **Brazil Flora Group -- Leguminosae**, a large group of researchers working on Brazilian legumes, provided a very detailed overview of the diversity and distribution of legumes in this country, based on the fantastic work done for the Flora do Brasil 2020 project. Altogether, 2024 was a fantastic year for legume biogeography, and we are looking forward to 2025!

Finally, the Legume Occurrence Working Group **needs your help!** A project led by Jens Ringelberg, but with major input from Moabe Fernandes, Edeline Gagnon, and many other legume researchers, is aiming to assemble a quality controlled occurrence dataset for the entire legume family. A crucial part of this project consists of the careful checking of maps of species and genera by experts of particular groups. Several dozens of legume experts have already contributed to this, but there still are many genera that remain unchecked. Anyone who would like to help is very welcome to, regardless of their career stage (students are more than welcome to participate), and all contributors are invited to be a co-author on the resulting publication(s). If you are interested in helping, or would like to learn more about the project, please just send an email to Jens. Thank you!

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TRAITS WORKING GROUP

Coordinators: **Leonardo Borges** (Universidade Federal de São Carlos, Brazil) & **Renske Onstein** (Naturalis Biodiversity Centre, Netherlands & German Centre for Integrative Biodiversity Research, iDiv, Germany)

The field of legume morphology saw significant advances in 2024, with many new papers describing traits and exploring the ecology and evolution of legume morphology (see the Legume Bibliography 2024). In particular, the next volume of the "Advances in Legume Systematics", to be completed soon (see this year's Announcements), reflects this trend with more than one third of the accepted papers being morphological studies. However, most of these contributions are by researchers that have not yet joined the Traits Working Group. This highlights opportunities still open to foster collaboration across different research groups.

One interesting contribution from a Traits Working Group member came from Fiona Soper (Marcellus *et al.* (2024)). Their study found significant diversity in traits related to acquisition of nitrogen and phosphorus and how they differ between nitrogen-fixing and non-fixing legume trees (See more in this year's Student Digests). The authors are following up on these findings by integrating N-fixation into the root economic spectrum, and also by looking at the relationship between fixation rate and other understudied root traits across tropical tree species. We are very excited about the expansion of studies into the universe of root traits, which are ecologically and certainly evolutionary important, but much less known.

Looking ahead to 2025, we antecipate the publication of the comprehensive database on mimosoid morphology announced in previous reports. We expect this database will be fundamental to advance studies in morphology, ecology and evolution, as well as an stimulus to development of similar projects for other legume clades.

As always, we invite coleagues studying any aspect of legume morphology to join the Traits Working Group by filling the spreadsheet at https://shorturl.at/aqzR1.

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LEGUME DATA PORTAL

Coordinators: **Anne Bruneau** (Université de Montréal, Canada), **Carole Sinou** (Université de Montréal, Canada), **Flávia Pezzini** (Royal Botanic Garden Edinburgh, UK), **Joe Miller** (Global Biodiversity Information Facility (GBIF), Denmark)

The Legume Data Portal continues to actively publish news from the legume systematics community and to host updated versions of the legume species checklist (see Taxonomy Working Group report).

The Legume Data Portal, supported by Canadensys and GBIF, runs as an instance of GBIF's hosted portal service (https://www.gbif.org/hosted-portals). The portal is currently available in English and French, and we have begun translation into Portuguese. We are also keenly interested in seeing the translation of the portal into Spanish. If you wish to help with translations into Portuguese or Spanish, or if you would like to contribute to content, please contact us! There is tremendous scope to expand the Portal with other sorts of legume data beyond the current legume species checklist and species occurrence data.

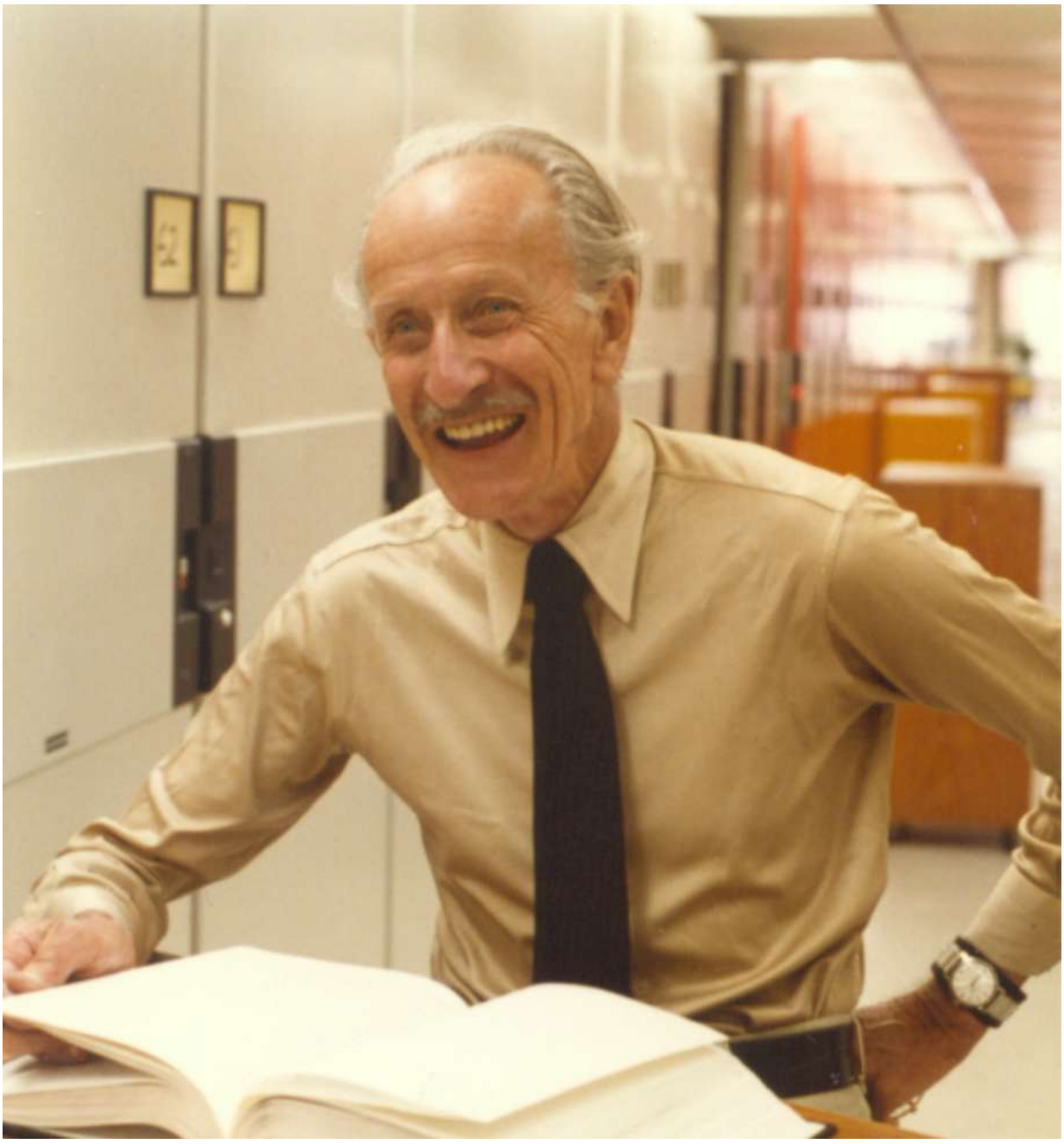
In the coming months, we intend to put in place a more direct communication mode with members of the legume systematics community. This will allow us to contact you when news items are posted and relevant information (about meetings, scholarships, publications, etc.) becomes available. Please check that your email contact information is up to date and don't hesitate to encourage new members to email us with their contact information.

For now, we would like to highlight an important post on the Portal that describes the procedures for checking and updating taxonomic names (see Legume Taxonomy Working Group report for more information). You'll also see an update regarding a project to renew the classification of Papilionoideae. Visit the Portal for this and other news!

Send us your news items and announcements (outstanding publications, new projects, positions available in your legume research group, meetings, activities, etc.) to post on the Legume Data Portal. News items get published regularly on the Portal alongside the annual BeanBag Newsletter. The entire community appreciates your contributions!

THE RUPERT BARNEBY AWARD OF THE NEW YORK BOTANICAL GARDEN

Ben Torke (The New York Botanical Garden, USA)



Rupert at the California Academy of Sciences herbarium, in 1993

The Rupert Barneby Award, named in honor of the late NYBG scientist and renowned legume expert, consists of US$2000 granted annually to assist researchers to visit The New York Botanical Garden to study the rich herbarium collection of Leguminosae. Graduate students and early career professionals with research in systematics and/or legume diversity are given special consideration. Projects that will result in the improved curation of the collection are desirable.

Anyone interested in applying for the award should submit the following: 1) curriculum vitae; 2) a proposal describing the project for which the award is sought; 3) contact information for two individuals who can vouch for the qualifications of the applicant.

The proposal should address specifically the activities to be performed at NYBG and should consist of four parts: 1) title page with proposal title, applicant's name, address, and e-mail address; 2) body of the proposal of no more than two pages, including justification, objectives, and research plan; 3) literature cited; 4) travel budget.

Please email your application to Dr. Benjamin M. Torke (btorke@nybg.org) no later than April 1, 2025 for consideration for the upcoming Award.

Announcement of the recipient will be made by May 1, 2025. Travel to NYBG should be planned for some period after July 1, 2025 and before June 30, 2026. Recipients are asked to give a presentation about their research.

ADVANCES IN LEGUME SYSTEMATICS 15

Leonardo Borges (Universidade Federal de São Carlos), **Marianne le Roux** (South African National Biodiversity Institute, SANBI, South Africa) & **Luciano Queiroz** (Universidade Estadual de Feira de Santana, Brazil)

The "Advances in Legume Systematics" series (ALS) stands as a testament to the dedication of the legume community towards advancing our knowledge on legume diversity and evolution. In recent years we have been particularly commited to filling gaps in our knowledge and to strengthen the solid basis layed out in seminal papers published in previous ALS volumes.

In the last five years, two volumes have been published (ALS 13 in 2019, ALS 14 part 1 in 2022; and ALS 14 part 2 in 2024) and a third started to be assembled in 2024. This last volume, ALS 15, is rooted in research presented at the 8th International Legume Conference, held in 2023 in Pirenópolis, Brazil. Following current publishing trends, articles are being released individually upon acceptance and will be soon merged into a Topical Collection of the Brazilian Journal of Botany. While the completion of ALS 15 is in progress, most of its articles are already available at the journal's website.

Given its diverse set of topics, ALS 15 will be valuable not only to the legume community but also to botanists broadly interested in legume biology and systematics.

Copaifera langsdorfii, a legume form the Brazilian Cerrado. Photo: Marcelo Kuhlmann.

NEW BOOK: FLORA OF INDIA VOLUME 6: FABACEAE (LEGUMINOSAE), PART 1

Stephen Boatwright (University of the Western Cape, South Africa)

Sanjappa, M., P.K. Pulsalkar, A.A. Mao (Eds). 2024. Flora of India – Volume 6, Part I. Botanical Survey of India, Culcutta.

It is well known that India is a region of spectacular biodiversity, boasting in excess of 45 000 plant species and hosting two global biodiversity hotspots within its borders. The Flora of India (1993–present) is the culmination of a long history of botanical exploration and dissemination in the region. Detailed information on the region and its flora is available in the introductory volumes published in 1996 and 2000:

- **Hajra, P.K., B.D. Sharma, M. Sanjappa and A.R.K. Sastry (Eds.), with assistance from M. Gangopadhyay and T. Chakrabarty. 1996.** Flora of India – Introductory Volume, Part I. Botanical Survey of India, Culcatta.
- **Singh, N.P., D.K. Singh, P.K. Hajra and B.D. Sharma (Eds.), with assistance from J.R. Sharma and B.P. Uniyal. 2000.** Flora of India – Introductory Volume, Part II. Botanical Survey of India, Culcatta.

The first volume enumerating the species of the family Fabaceae was published in March 2024, as volume 6 part 1 in the flora series. It covers the subfamilies Cercidoideae, Detarioideae, Dialioideae, Caesalpinioideae and Papilionoideae (Genistoids). It consists of 681 pages, with 125 colour plates and 53 line drawings, and will make the species from India more accessible to legume researchers across the world, and serve as a framework for future research on this hyper-diverse flora.

Flora of India volume 6 part 1 is available from the Natural History Book Service website.

FLORA OF INDIA

VOLUME 6

FABACEAE
(LEGUMINOSAE)

PART - I
Subfamily CERCIDOIDEAE
Subfamily DETARIOIDEAE
Subfamily DIALIOIDEAE
Subfamily CAESALPINIOIDEAE
[CAESALPINIOIDS & MIMOSOIDS]
&
Subfamily PAPILIONOIDEAE
[GENISTOIDS]

भारतीय वनस्पति सर्वेक्षण
BOTANICAL SURVEY OF INDIA

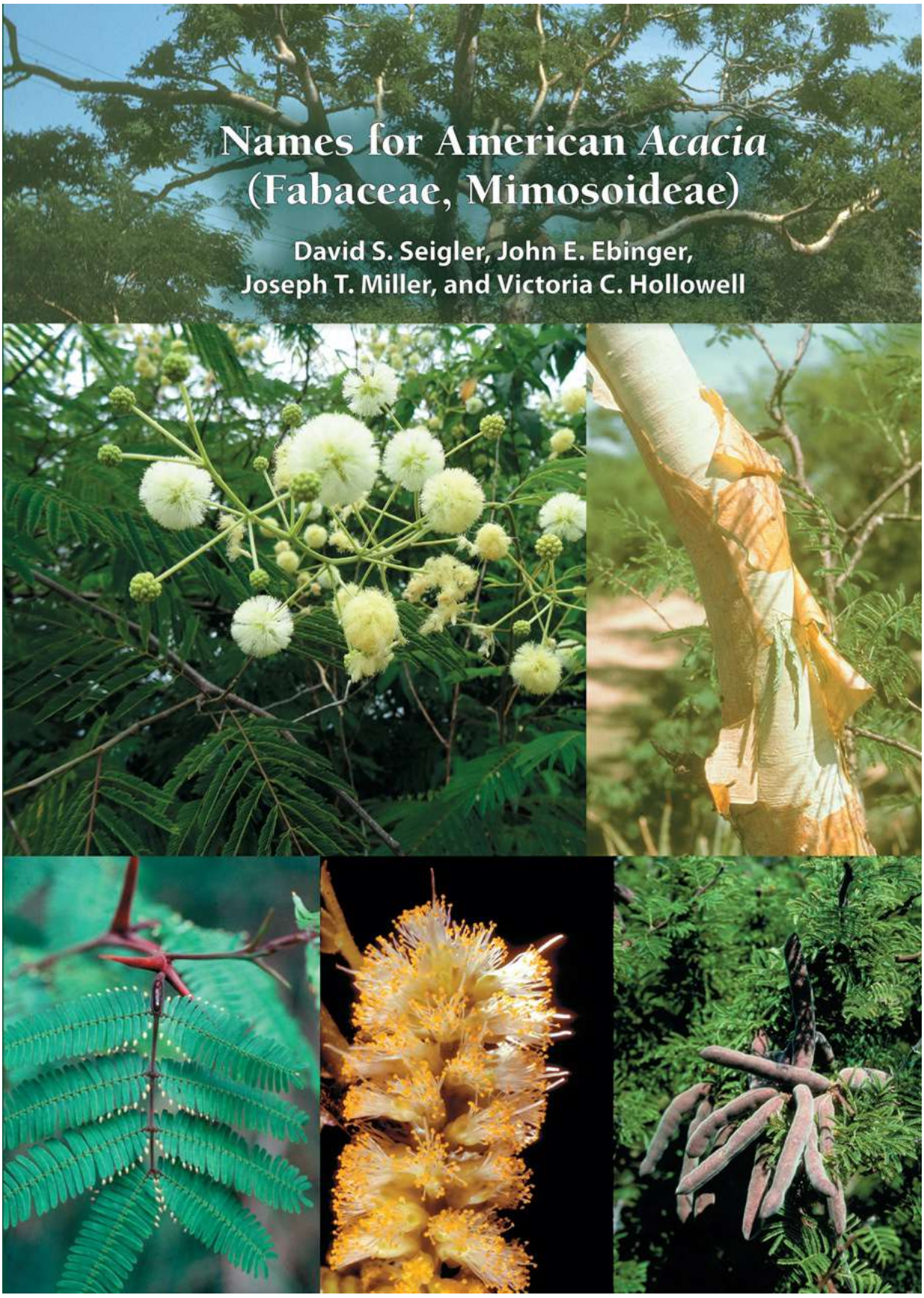
BOTANICAL SURVEY OF INDIA

NEW BOOK: NAMES FOR AMERICAN *ACACIA* (FABACEAE, MIMOSOIDEAE)

Barney Lipscomb (Botanical Research Institute of Texas Press, Fort Worth, Texas, USA)

D.S. Seigler, J.E. Ebinger, J.T. Miller & V.C. Hollowell. 2024. Names for American *Acacia* (Fabaceae, Mimosoideae). Botanical Research Institute of Texas Press.

Acacia Mill., s. l., (Fabaceae, Mimosoideae) has been recently proposed to principally consist of seven segregate genera: *Vachellia* Wight & Arn., *Senegalia* Raf., *Mariosousa* Seigler & Ebinger, *Acaciella* Britton & Rose, *Parasenegalia* Seigler & Ebinger, *Pseudosenegalia* Seigler & Ebinger, and *Acacia* s. str. Nomenclatural citations and type detail are presented here for 1706 species names in *Acacia* or affined genera in the New World, of which 386 species names are taxonomically accepted. Seventy-two names are currently recognized for *Vachellia* in the Americas that include an accepted 67 species, seven varieties and two forms. One hundred-one names are accepted for the most speciose genus *Senegalia* (100 species, one variety). Fifteen species names (eight varieties) are recognized in *Acaciella* , 14 species for *Mariosousa* , 11 species for *Parasenegalia* , and two species for *Pseudosenegalia* . Only 36 names (35 species, two varieties) are currently accepted for *Acacia* s. str., among the 714 species names (151 infraspecies) evaluated in *Acacia*. Other names considered may be assigned to *Mimosa* L. or to mimosoid legume genera such as *Albizia* Durazz., *Calliandra* Benth., *Desmanthus* Willd., *Entada* Adans., *Leucaena* Benth., *Lysiloma* Benth., *Piptadenia* Benth., *Prosopis* L., *Samanea* (Benth.) Merr., and *Zapoteca* H.M. Hern. The current status of other names in *Acaciella*, *Senegalia*, *Vachellia*, *Mimosa*, *Manganaroa* Speg., *Pithecellobium* Mart., *Poponax*, *Prosopis*, *Lysiloma*, and *Myrmecodendron* Britton & Rose that have not been transferred to, but mostly belong to, *Acacia* s. l. are also treated. Lectotypifications are newly provided for 248 names within the Mimosoideae, with three neotypifications.



David S. Seigler, Ph.D. is an Emeritus Professor of Plant Biology and an academic researcher from University of Illinois at Urbana-Champaign, Illinois.

John E. Ebinger, Ph.D. is Emeritus Professor of Botany, Eastern Illinois University,

Charleston, Illinois.

Joseph T. Miller, Ph.D. (Centre for Australian Biodiversity Research and Global Biodiversity Information Facility, Copenhagen, Denmark) focuses on ecology, biodiversity, phylogenetic tree, phylogenetics and species richness.

Victoria C. Hollowell, Ph.D., is an American biological researcher and editor.

To purchase your copy of the "Names for American *Acacia* (Fabaceae, Mimosoideae)", visit https://shopbritpress.org/ or call 817-332-4441 ext. 264. The price is $85.00, plus shipping. This is print on demand, please allow 3-5 weeks for delivery.

ISBN-13: 978-1-889878-78-2 Publication Date: 19 Aug 2024 (SBM 65) Specifications: 7"×10" (HBK), 328 pp, 2 b/w figs, 1 table

NEW BOOK: ILLUSTRATED GENERA OF RUST FUNGI OF BRAZIL

Barney Lipscomb (Botanical Research Institute of Texas Press, Fort Worth, Texas, USA)

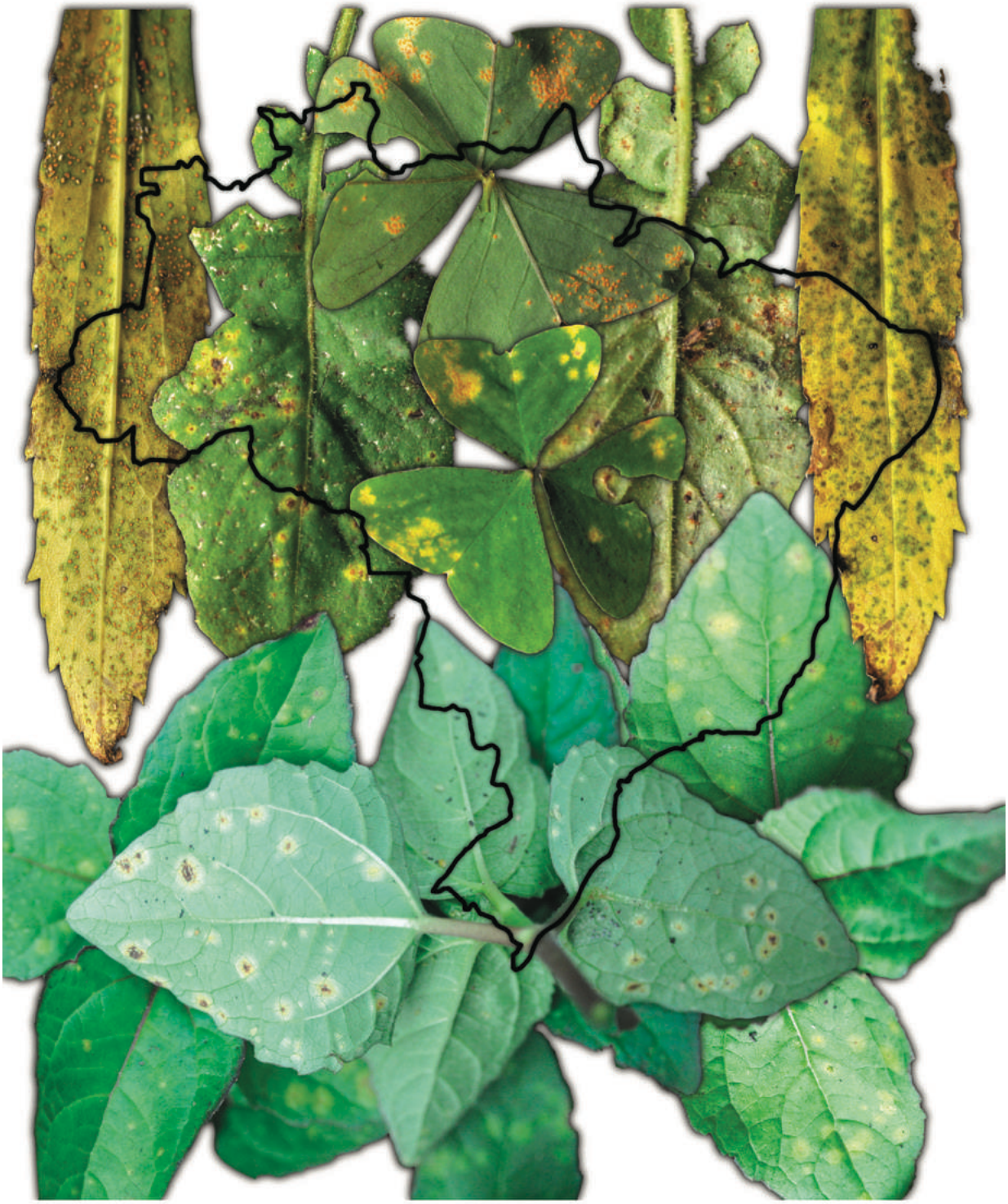
A. de Carvalho Junior & J.F. Hennen. 2023. Illustrated Genera of Rust Fungi of Brazil. Botanical Research Institute of Texas Press, U.S.A.

Even though this book is not specifically about the Fabaceae, it includes numerous references to the family as hosts of rust fungi. "Illustrated Genera of Rust Fungi of Brazil" presents up-to-date information about the genera of rusts fungi known for Brazil. Included are 65 plates of detailed black and white photos representing 62 genera, many of which infect legumes. This number represents approximately one-half of all of the known genera of rust fungi in the world. Results are based on many large scale surveys and field collecting expeditions in Brazil and supplemented with herbarium records. The largest portion of this book is the descriptive flora of the 62 genera, i.e., descriptions, and taxonomic treatments of rust fungi genera, arranged alphabetically by genera and species. Sixty-one genera are treated as holomorphs and 13 as anamorph genera. The most important practical results of taxonomic research on these parasitic and pathogenic rust fungi are products such as complete descriptions and illustrations of symptoms and signs, and other aids such as host indices and keys. These products help scientists and students to identify species of rusts. This book is aimed at students and professionals who are fascinated with rusts and their pathogenic fungi.

Anibal de Carvalho Junior holds an undergraduate degree in biology from Universidade São Judas Tadeu, São Paulo, SP, Brazil, 1989. His Ph.D. in Agronomy (Agriculture) is from the Universidade Esdadual Paulista, Botucatu, SP, Brazil, 2001. He has conducted post doctoral work at the Biological Institute of São Paulo. He began working at RB herbarium, Instituto de Pesquisa Jardim Botânico do Rio de Janeiro, RJ, Brazil (IPJBRJ) in 2002. Early in his career, he worked as a laboratory technician at Victoria Rossetti Fungarium (IBI) in the Biological Institute of São Paulo, São Paulo, SP, Brazil. He has published numerous scientific articles and books, mainly focused on rust fungi (Pucciniales, Uredinales). His current research interest include Basidiomycetes (Pucciniales), phytopathology, herbaria (collection management), and Biodiversity of the Cerrado and Atlantic forests.

Illustrated Genera of Rust Fungi of Brazil

Anibal Alves de Carvalho Junior and Joe Fleetwood Hennen



Joe F. Hennen received his B.S. at Southern Methodist University. He holds an M.S. (1952) and Ph.D. (1954) from Purdue University. From 1954 to 1958 he was plant pathologist of

cereal crops at South Dakota State University. From 1958 to 1968, he taught undergraduate botany courses at Indiana State University before returning to Purdue University as Professor of Botany and Plant Pathology and Curator in 1968. Three years later in 1971, he became Director of the PUR Herbarium. He has explored and collected from several regions of the United States, Central America, and specially Mexico and Brazil, focusing on the taxonomy of Neotropical rust fungi. In 1995, Hennen retired from Purdue University and move to Texas, were he became a Resident Research Associate at Botanical Research Institute of Texas, Fort Worth. He has authored and co-authored many scientific articles and books on rust fungi, always in partnership with students and collaborators.

To purchase your copy of the "Illustrated Genera of Rust Fungi of Brazil", visit https://shopbritpress.org/ or call 817-332-4441 ext. 264. The price is $40.00, plus shipping. This is print on demand, please allow 3-5 weeks for delivery.

ISBN-13: 978-1-889878-78-2 Publication Date: 1 May 2023 (SBM 63) Specifications: 7"×10" (HBK), 148 pp, 71 b/w figs, distribution maps, references, index

XXI INTERNATIONAL BOTANICAL CONGRESS

Stephen Boatwright (University of Cape Town, South Africa)

In the wake of a successful International Botanical Congress (IBC) hosted in Madrid from 21–27 July 2024, the South African botanical community is proud to announce that we are the next hosts for this prestigious event. The XXI IBC will be hosted at the Cape Town International Convention Centre in Cape Town, South Africa, from 21–28 July 2029. It is long overdue for the IBC to come to Africa, as this conference has never been hosted on the African continent in its almost 160-year history.

Why Cape Town?

Not only is South Africa rich in cultural diversity, but it is also home to three of the world's biodiversity hotspots, two found in the Greater Cape Floristic Region. Cape Town, situated at the southwestern tip of Africa, is located in this unique botanically diverse area, and offers a spectacular venue for the IBC. The city boasts exceptional beauty, including one of the most spectacular botanical gardens in the world (Kirstenbosch Botanical Gardens), as well as one of the Seven Wonders of the World, Table Mountain, and boasts many other tourist attractions that will appeal to IBC delegates. The rich flora in the Western Cape is dominated by fynbos, boasting a spectacular ca. 9500 plant species of which 68% are endemic. This flora has fascinated naturalists since its formal documentation by European explorers in the sixteenth century. Since then, and following the establishment of a port for seafarers in the late 1600s, there has been a fascinating history of documentation and description of the flora right up to the present day.

Please visit the IBC website for more information, and to join the mailing list.

ARTIST SPOTLIGHT

ROSEMARY WISE

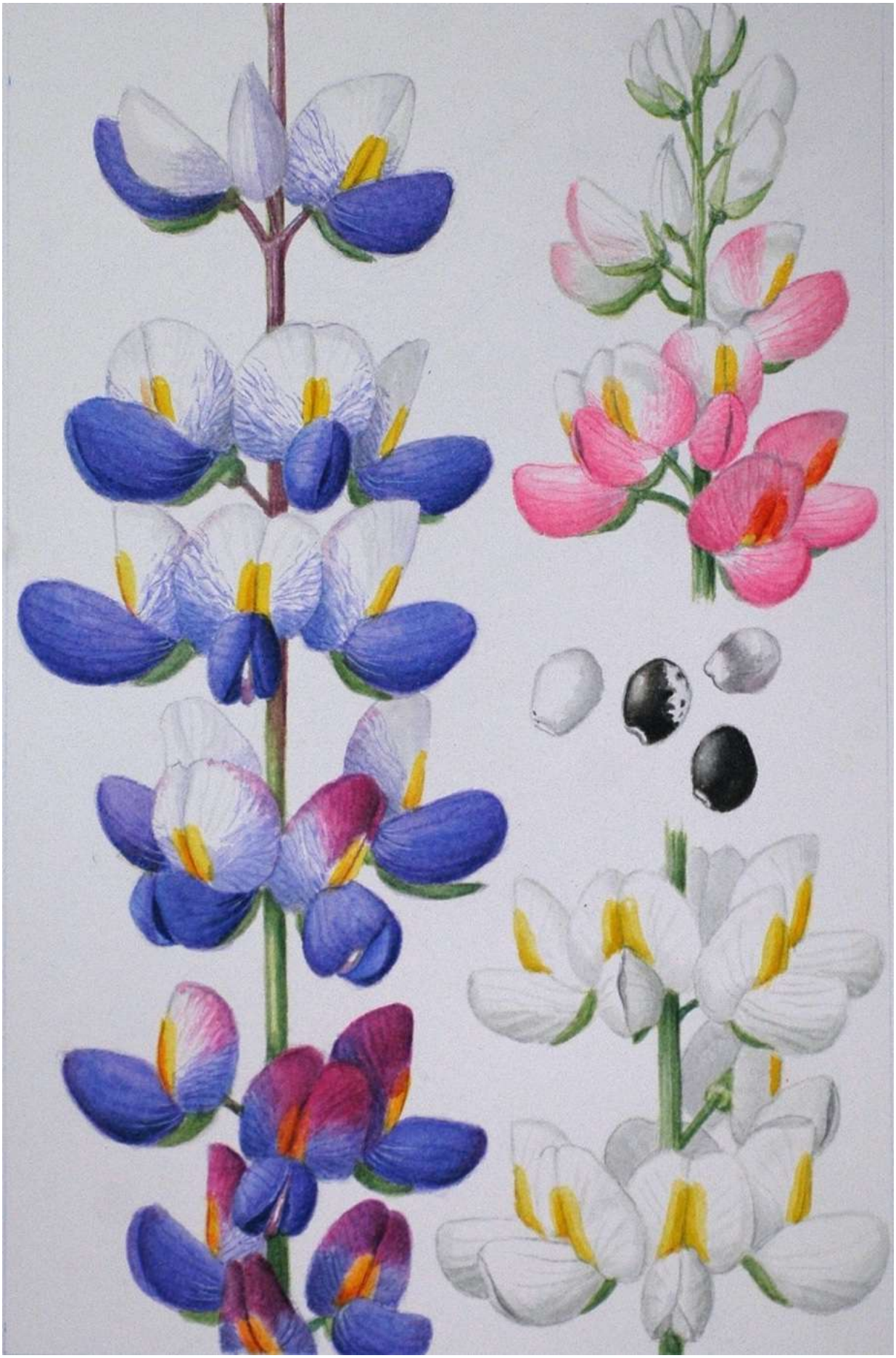
Colin Hughes (University of Zurich, Switzerland)

Rosemary Wise started work as a botanical illustrator in the Department of Plant Sciences at the University of Oxford, U.K., in 1965. She is still drawing and painting plants almost 60 years later.

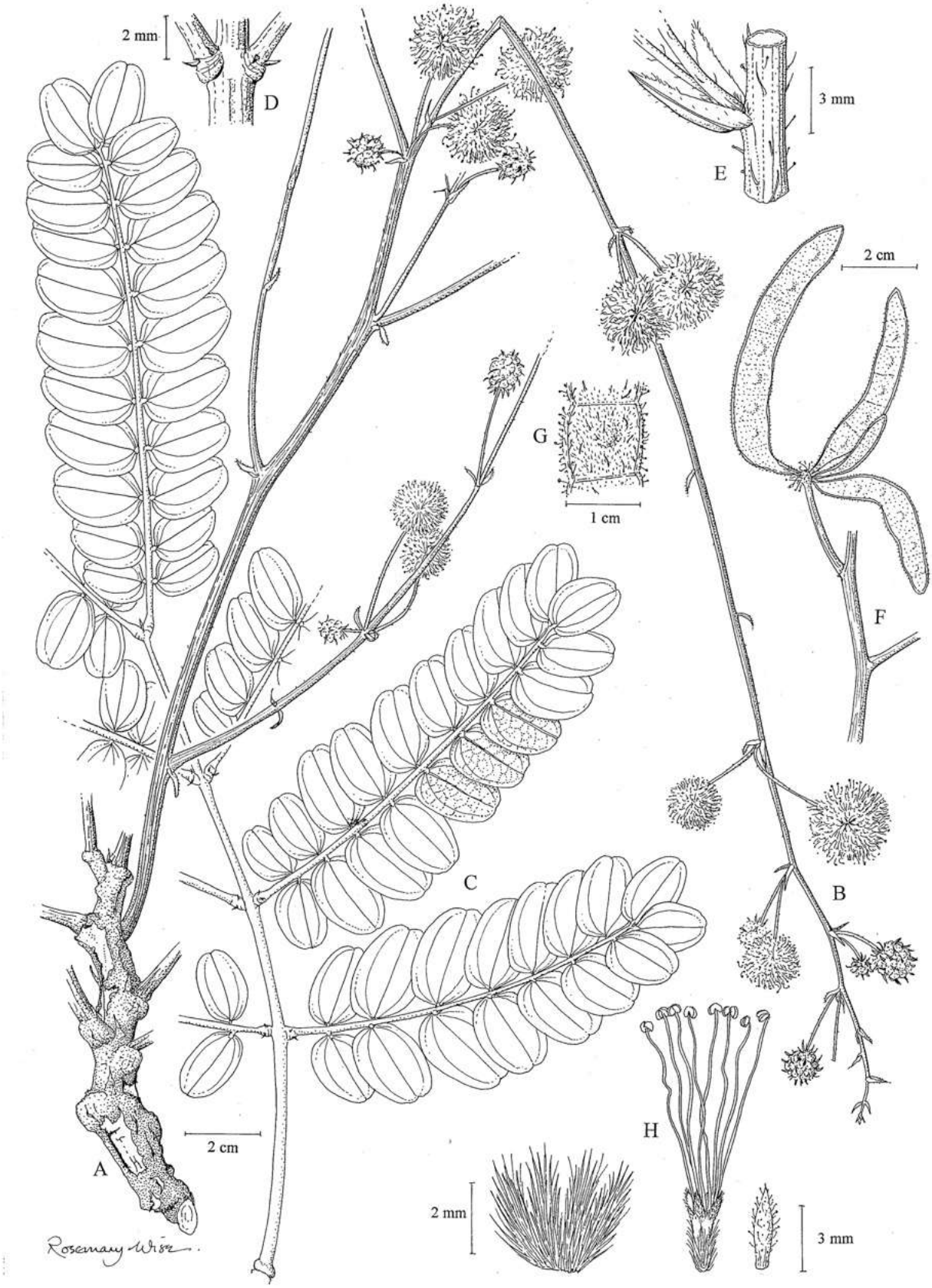
Rosemary's work spans plants as well as insects, including both black-and-white line drawings and watercolor paintings. She has illustrated numerous books, monographs, and scientific papers. Despite the fact that legumes comprise just a small fraction of her prodigious portfolio, Rosemary has probably illustrated as many legumes as any other botanical artist. She has assembled monographic sets of botanical drawings for a substantial set of legume genera alongside miscellaneous individual legume species, illustrating well over 600 legume species in total. These include large, and in some cases comprehensive, sets of drawings for the genera *Amicia*, *Andira*, *Gliricidia*, *Inga*, *Leucaena*, *Lupinus*, and *Parkia*, alongside a complete set of African 'Acacias,' i.e., all the *Vachellia* and *Senegalia* species of Africa.

Rosemary was awarded the prestigious annual international Jill Smythies Award for published botanical illustration by the Linnean Society of London. Ten years ago, to celebrate her 50 years at Plant Sciences in Oxford, she was awarded the Sibthorp Medal for "lifetime services to botany" by the University of Oxford.

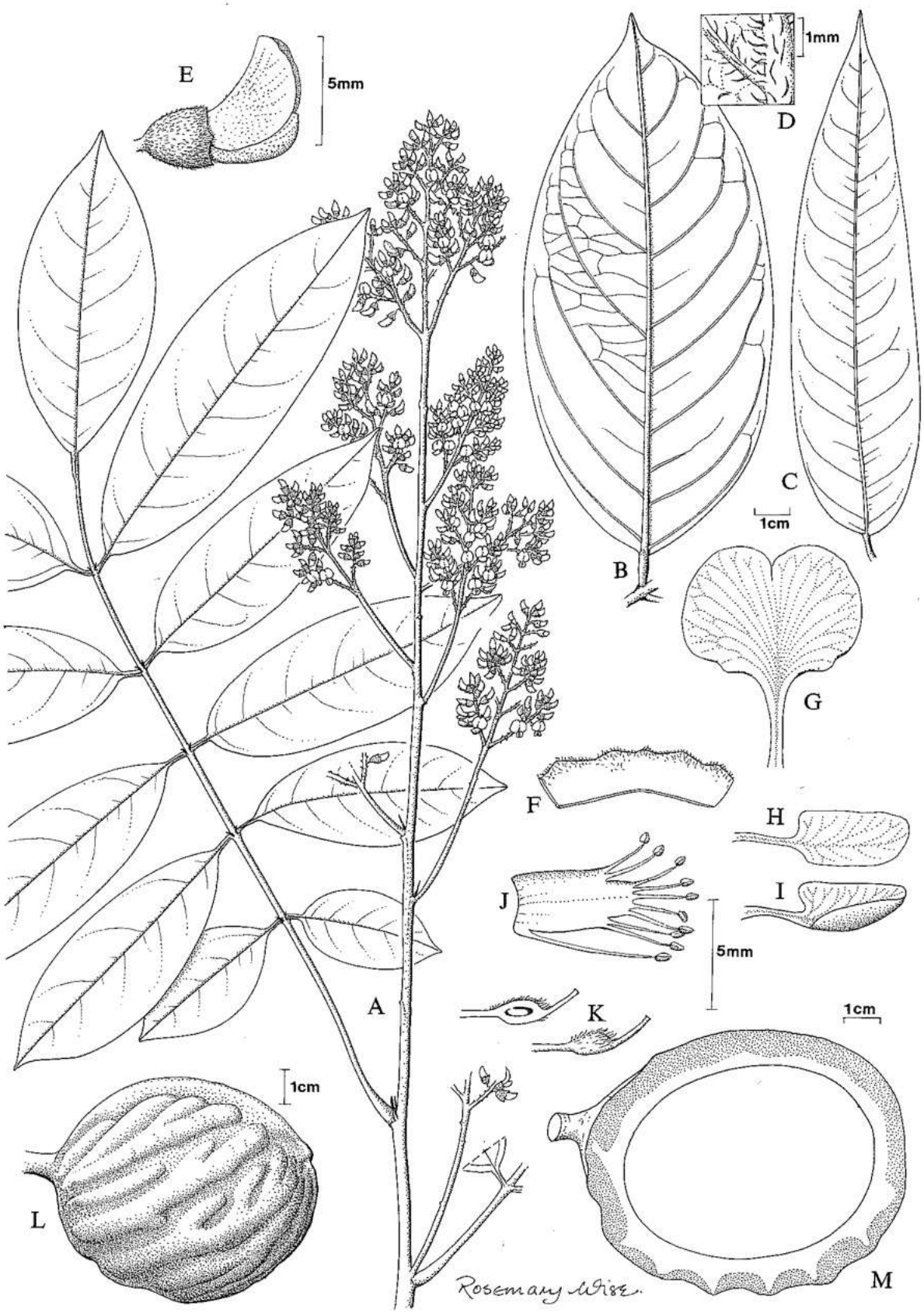
To know more about her work, visit Oxford: Rosemary Wise Botanical Illustration and Rosemary Wise | Department of Biology.



Lupinus mutabilis, the Andean crop lupin, illustrating the mutability of flower color. Copyright: Rosemary Wise. Published in 2018 in *Curtis's Botanical Magazine* 35 (2): pp. 134–148.



Mimosa suberosa, a Bolivian endemic. Copyright: Rosemary Wise. Published in Atahuachi & Hughes 2006. Two new species of *Mimosa* (Fabaceae) endemic to Bolivia. *Brittonia* 58(1): 59–65.



Andira taurotesticulata from NW South America. Copyright: Rosemary Wise. Published in: Pennington R.T. 2003. Monograph of *Andira* (Leguminosae-Papilionoideae). *Systematic Botany Monographs* 64: 1–143.

GALLERY OF LEGUMINOLOGISTS

This year the Gallery of Leguminologists features a papilionoid specialist and, once again, mimosoid specialists.

The editors of Bean Bag would welcome photos and reminiscences about researchers from other areas of legume taxonomy and biology, especially for those who may be less well known to the current generation of the legume community, and leguminologists whose achievements have not always been celebrated elsewhere.

Synopses need not be complete biographies but a few images would bring them to life.

DAVID S. SEIGLER AND JOHN E. EBINGER

Helen C.F. Hopkins (Royal Botanic Gardens Kew, UK) & **Bruce R. Maslin** (Bentley Delivery Centre, Australia)

To mark the recent publication of "Names for American *Acacia* (Fabaceae: Mimosoideae)", we are highlighting the careers of David S. Seigler (1940--) and John E. Ebinger (1933--). Both are currently emeritus professors at the University of Illinois, Urbana, and Eastern Illinois University, Charleston, respectively. They are the authors of numerous new species and new combinations in *Vachellia* and *Senegalia*, as well as in their new genera *Mariosousa*, *Parasenegalia*, and *Pseudosenegalia*, all segregates of *Acacia s.l.* in the Americas. The nomenclator, co-authored with Joseph Miller and Victoria Hollowell, pulls together a huge amount of information, and the authors have made a considerable effort to establish the correct application of names. It represents a tremendous achievement that will have a lasting impact, especially for American mimosoid taxonomy and nomenclature. They account for more than 1700 species names and 239 infraspecific ones that together refer to 386 accepted taxa; almost 250 lectotypes and a few neotypes are also designated.

Dave Seigler & Carlos Cespedes, 5 km NE of Vizarron on road to Jalpan, Mexico, 10 June 2005.

Dave continues to have a remarkable dual career as a plant taxonomist and phytochemist. This second interest came first, and in this field, he has published on a variety of groups (e.g., *Passiflora*, *Ungnadia*, Euphorbiaceae), especially on cyanogenic glycosides. He has written a textbook on plant secondary metabolism and edited or co-edited symposium volumes on plant chemistry and crop plants. His office is said to be piled high with books and reprints. He did a lot of collecting, including of acacias, while a postdoc at the University of Texas, but he didn't follow up on this until he was based in Illinois and worked over several summers in the lab of Dr. Eric E. Conn at the University of California, Davis. Eric (or Dr.

Caaan as Dave would call him) was a renowned biochemist who found that different biochemical pathways to cyanogenesis are characteristic of different taxonomic groups within *Acacia s.l.* Dave's interest in acacia taxonomy started from cyanogenesis, and he has done fieldwork and research in Mexico, South America, and Western Australia. During a field trip in the southern USA in 2022, he was bitten by a rattlesnake, ended up in intensive care for six days, but undaunted, was soon back at work as usual.

John Ebinger, bursts into song in a pasture full of *Vachellia farnesiana* in Mexico. Photo: Dave Seigler.

After a BA in botany from Miami University, Oxford, Ohio, and a spell in the US Air Force as a jet and helicopter pilot, John completed his MSc and PhD at Yale. Apparently, he flew one

of the jets from Florida to New Haven for his interview. He subsequently became a professor of Botany at Eastern Illinois University, a position he held from 1963 until his formal retirement in 1995. His early taxonomic work included studies on *Kalmia* (Ericaceae) and *Luzula* (Juncaceae), and in this family, he is commemorated by the genus *Ebingeria*. He has written or co-authored over 200 papers, many on the vegetation, flora, and rare plants of Illinois and the Midwest. At Eastern Illinois University, the Stover-Ebinger herbarium (EIC) is named (half) in his honor. His current interests include nomenclature and old literature, and he has an excellent editorial eye, alongside an exuberant personality. Comments on manuscripts are sometimes emphasized by long lines of exclamation and question marks, and "check" in capital letters.

The pair first met in the early 1970s through the Illinois State Academy of Science, and by the early 1980s, they had started collaborating on acacias, becoming increasingly interested in their taxonomy. They undertook several field trips, especially to Mexico and Texas, with John also visiting Curacao and Florida. Although they have frequently worked with other people (e.g., Céspedes *et al.* 2013; Ebinger *et al.* 2010), most of their taxonomic publications on mimosoids have been written together, including accounts in ALS 14-2.

Dave and John have the same sense of humor, and there is a great synergy between them, as they pass manuscripts back and forth, debating and checking. No longer in their first flush of youth, John is now 91 and has recently undergone heart surgery, and Dave is a few years behind in age with a touch of arthritis. But their work is far from done. They have an account of *Vachellia* in the Americas almost ready for the press, and a treatment for *Senegalia* is not far behind.

The following reminiscences from Bruce Maslin refer principally to two field trips to Mexico with Dave:

I first met Dave in 1985 when we were both visiting Eric Conn's laboratory at Davis. The following year we met again, this time in the company of John, at the Second International Legume Conference in St. Louis. After this conference, DSS and I started out on our first trip to Mexico, traveling in his pickup to the border at Laredo. We did a little general mimosoid collecting in Oklahoma on the way, and in Texas, Dave introduced me to my first American acacias, now species of *Vachellia* and *Senegalia*. From Laredo, we took a bus to Monterrey, where we picked up a hired VW beetle. To my horror, Dave said I could drive—I had never driven on the "wrong side" of the road before, and what an experience that was, especially on Mexican roads! I won't detail the very many wonderful experiences from our journey to Oaxaca in the south, but suffice it to say that Dave's congenial personality, sense of humor, broad knowledge of plants, Mexican geography and history, and of course his familiarity with mimosoids, all contributed to making this a truly memorable trip. All up, we were on the road for almost two weeks. Two decades later, we returned to Mexico, this time reaching the northern tip of the Yucatan Peninsula. Many of the photos that were taken on these trips are now on the WorldWideWattle website as species of *Acaciella*, *Mariosousa*, *Senegalia*, and

Vachellia. If I had to choose a Mexican species that amazed me the most, then it would have to be one of the remarkable Ant Acacias, *Vachellia cornigera*, with its incredible stipular spines inhabited by ants (until disturbed!), large petiole glands, which provide ants with a source of carbohydrate, and leaflet tips that possess specialized protein "sausages" called Beltian Bodies, which the ants also harvest. In return, the ants are aggressive defenders of the plants that they call home.

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IVAN CHRISTIAN NIELSEN (1946–2007)

Colin Hughes (University of Zurich, Switzerland), **Daniel Murphy** (Royal Botanic Gardens Victoria, Australia) & **Bente Klitgaard** (Royal Botanic Gardens Kew, UK)

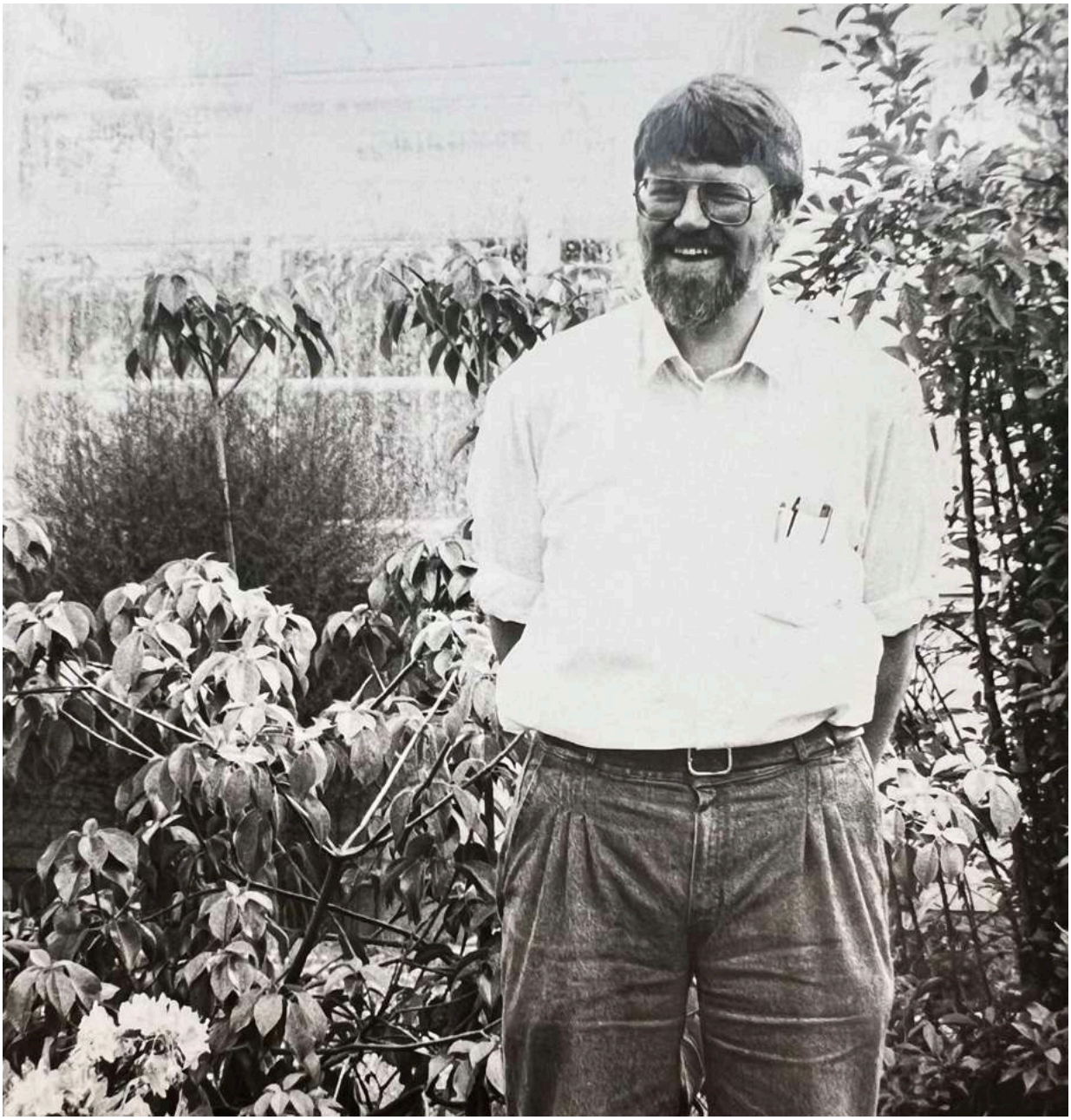
The Danish botanist Ivan Nielsen was an expert on mimosoid legumes of S.E. Asia. Between 1976 and 1992, Ivan produced an impressive series of publications on the taxonomy of Asian mimosoids. These included numerous national and regional flora treatments of mimosoids (Cambodia, Laos & Vietnam; New Caledonia; Thailand; Malesiana), revisions of

the ingoid genera *Archidendropsis*, *Wallaceodendron*, *Paraserianthes*, *Pararchidendron*, and *Serianthes* in the Malesian, Australian, and Pacific region (together with P. Guinet and T. Baretta-Kuipers; 1983-1984 in *Adansonia*), revisions of the large, complex, and species-rich genus *Archidendron* (*Opera Botanica*, 1985), and the Malesian species of *Acacia* and *Albizia* (*Opera Botanica*, 1985). All of this culminated in his comprehensive regional treatment of mimosoid legumes for *Flora Malesiana* in 1992. Underpinning all this, Ivan carried out extensive fieldwork in S.E. Asia, making invaluable collections of poorly-known mimosoids.

Ivan Nielsen in 1978 at the first meeting of the International Group for Study of Mimosoideae, IGSM, Kew, London. Photo: Bruce Maslin.

In many ways, Ivan Nielsen was to S.E. Asian mimosoid legumes what Rupert Barneby was to Neotropical mimosoids. They both provided important advances in the generic classification of the pantropical, species-rich ingoid clade (former tribe Ingeae plus *Acacia*),

as well as substantial species-level taxonomic accounts of ingoid legume genera in their respective geographical regions. At the same time, they were both acutely aware that generic delimitation across tribe Ingeae would require further pantropical synthesis, as well as improved phylogenies that would come from the goldmine of new DNA sequence data starting to emerge in the early 2000s. To advance this, Ivan invited one of us (DM) to work on molecular phylogenetics of Ingeae with him in Aarhus, but unfortunately, the full results of this collaboration did not come to fruition before Ivan became ill. Nevertheless, the critical foundations established by Ivan and Rupert Barneby paved the way for the more integrated world view of the ingoid clade that has recently been achieved through molecular phylogenies sampling pantropically.



Ivan in the greenhouses of the botanic garden in Aarhus, photo Aarhus Stiftstidende.

Ivan Nielsen studied and worked almost throughout his career at the Department of Systematic Botany and the Institute of Biology at Aarhus University in Denmark, initially as

an undergraduate, Master's, and Doctoral student and later as assistant professor, lecturer, senior research fellow, curator of the Herbarium Jutlandicum (AAU), and finally as director of the Institute (1985-1992). Ivan was thus heavily involved in administration, but his deep love of botany and plants was always to the fore, notably in the flair and knowledge he brought as manager of the greenhouses in the botanic garden in Aarhus. Ivan was an important contributor to the establishment, expansion, success, and world-class reputation of botany in Aarhus.

Ivan at a reception in the Institute for Botany, University of Aarhus, photographer unknown.

Ivan had many other roles, notably as Editor of the *Nordic Journal of Botany* and *Opera*

Botanica from 2001 to 2006. Furthermore, Ivan was deeply committed to supporting capacity building and training, work that took him to Africa and especially Senegal and Burkina Faso, funded by the Danish International Development Agency, DANIDA. This work led to his appointment as a member (1993-1996) and later chairman (1996-2001) of the Danish Council for Development Research and as a board member of the International Plant Genetic Resources Institute in Rome.

Ivan lived with his wife on a farmstead in a beautiful spot in central Jutland, Denmark. He was a proud Dane committed to the rural environment; a true gentleman of the old school of taxonomic botanists; a mentor to students and younger colleagues, and he had a calm, careful, kind, and welcoming demeanor and a committed and optimistic outlook. His premature death at age 61 left a big gap in both Aarhus and the legume community.

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VELVA E. RUDD (1910–1999)

Colin Hughes (University of Zurich, Switzerland) & **Toby Pennington** (University of Exeter, UK)

Like so many botanists, Velva Rudd developed a lifelong interest in a particular plant group—in her case, the legumes—during her PhD, which focused on the American species of *Aeschynomene* (Papilionoideae). Velva worked primarily on tropical American papilionoid legumes, publishing more than 70 taxonomic papers. These included a six-part monograph in *Contributions from the United States National Herbarium*, published over a thirteen-year period (1955–1968), comprising species-level taxonomic accounts of seven genera (*Aeschynomene*, *Ateleia*, *Chaetocalyx*, *Cyathostegia*, *Dussia*, *Nissolia*, and *Ormosia*) in the Americas.

Velva Rudd in 1973, Directory of Scientists in the National Museum of Natural History, photo courtesy of Smithsonian Department of Botany

Working before the advent of molecular phylogenetics, Velva relied on morphology, leaving her with several generic delimitation and classificatory dilemmas that she puzzled over. Based on her accounts, many of these questions have now been resolved (e.g., the non-monophyly of *Aeschynomene*), but it is striking how many of the groups she recognized correspond to clades. Though she worked with limited numbers of herbarium specimens in her revisions of neotropical groups, more recent work that has benefited from much more extensive collections made through the 1970s–2000s has often shown Velva's species boundaries to be sound (e.g., in *Centrolobium* and *Dussia*). This accuracy of species delimitation speaks to an excellent taxonomic eye and the ability to be pragmatic and productive in the face of incomplete data.

Portrait of Velva Rudd, from Torres, A. 2019. Get to Know the Leading Ladies of Science at the Smithsonian. Smithsonian Voices. National Museum of Natural History.

Like many of the most productive taxonomic specialists, Velva Rudd worked throughout her career in one place—at the Smithsonian National Museum of Natural History Department of Botany in the U.S. National Herbarium. As one of a small group of pioneering female scientists working at the Smithsonian, Velva played a part in paving the way for greater gender equality in botany and indeed more widely. She started as a technician, becoming

assistant curator in 1948, and later curator until her retirement in 1973. As a curator embedded in a large herbarium with rich legume collections, Velva's work spanned large swathes of the legume family alongside the core genera she worked most intensively on.

She published 156 names across legumes, including in the genera *Acacia* (now in *Vachellia*), *Aeschynomene*, *Centrolobium*, *Cladastris*, *Coursetia*, *Crotalaria*, *Dalbergia*, *Desmanthus*, *Dussia*, *Machaerium*, *Mimosa*, *Myrocarpus*, *Nissolia*, *Ormosia*, *Oxyrhynchus*, *Paramachaerium*, *Piscidia*, *Poecilanthe*, *Poiretia*, *Sophora*, and *Styphnolobium*. Before her death in 1999, she submitted several generic treatments for the recently published legume volume of the *Flora of North America*.

Having wrapped up an illustrious career at the Smithsonian, Velva moved to California and, in semi-retirement, continued to be active in botany, associated with a tiny herbarium at California State University, Northridge (SFV). Velva was a seasoned traveler, did fieldwork in Brazil, Costa Rica, Mexico, Sri Lanka, and Venezuela, and was still traveling well into her 80s, touring Costa Rica.

Ormosia fordiana, formerly *Ruddia fordiana* (Oliv.) Yakovlev © luotuo

A suite of legumes are named in her honor, including the genus *Ruddia* Yakovlev (1971) (now a synonym in *Ormosia*), subgenus *Ruddia* of *Ateleia*, *Ormosia ruddiana*, *Acacia ruddiae* (now *Vachellia*), *Dioclea ruddiae* (now *Macropsychanthus*), and *Nissolia ruddiae*.

STUDENT DIGESTS

MORPHOLOGY AND EVOLUTION OF FLORAL NECTARIES IN LEGUMES

Andrews Vinicius Silva (PhD candidate, Escola Nacional de Botânica Tropical, Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Brazil)

Despite the importance of nectar for plant reproduction and the long history of research on floral nectaries, there are still gaps in understanding their development and evolutionary origins. These gaps may be addressed through comparative morphological and evolutionary analyses based on precise hypotheses of homology. However, the terminology used to describe floral nectaries is often confusing and inconsistent. There is also controversy regarding the presence of nectaries in the flowers of certain species. To tackle these issues, Sinjushin (2024) set out to review the current state of knowledge on floral nectaries in legumes.

Leguminosae floral nectaries exhibit remarkable variation in location (Caspary, 1848; Sinjushin et al., 2022), shape (Sirichamorn et al., 2014), and symmetry (Teuber et al., 1980; Sinjushin, 2021). Their common anatomical structure includes modified stomata (Picklum, 1954; Konarska, 2020). Nectar secretion originates in the parenchyma (Fahn, 1979; Valtueña et al., 2007) and is sometimes released by unusual mechanisms, such as cell rupture (Leite et al., 2021).

The development of floral nectaries reportedly occurs late in floral ontogeny (Picklum, 1954), with the timing of nectar secretion varying among species (Davis and Gunning, 1992). Nectar storage, protection, and availability are crucial, with various adaptations to prevent loss (Fahn, 1972; Hopkins, 1984) and to ensure its accessibility to pollinators (Rodríguez-Riaño et al., 1999).

The loss of floral nectaries has occurred repeatedly in legumes, often accompanied by heterostameny (Paulino et al., 2016) and the presence of alternative food sources for pollinators, such as other specialized organs (Stone et al., 2003; de Barros and Teixeira, 2016) or extrafloral nectaries (Knox et al., 1985; Stone et al., 2003).

Exudate composition is influenced by both environmental factors (Vansell, 1941) and genetics (Walker et al., 1974; Cocucci et al., 1992). Phylogeny (van Wyk, 1993; Koptur,

1994) and pollination strategies (Mitchell, 2004; Agostini et al., 2011) also play potential roles in determining its composition.

The origin of floral nectaries in Leguminosae is still debated. Some researchers suggest they derive from stamens (Moore, 1936), while others propose multiple independent origins (Waddle and Lersten, 1973; Sinjushin, 2021). Their presence is considered ancestral in the order Fabales (Bernardello, 2007), and their absence in various groups is interpreted as independent losses (Schneider, 2007). However, the morphological variability of floral nectaries, combined with the challenges of studying them (Stirton, 1981; Sirichamorn et al., 2014), has resulted in these organs being rarely used in legume systematics.

Examples of legume species with floral nectaries. Top left: *Bauhinia galpinii*; top right: *Bauhinia uruguayensis*; bottom: *Bauhinia variegata*.

While Leguminosae floral nectaries exhibit notable evolutionary stability, the reasons for their absence in certain lineages remain unresolved. A comprehensive understanding of the diversity, function, and genetic and physiological mechanisms underlying the development of floral nectaries is crucial to addressing these questions. Sinjushin's (2024) exploration of previously overlooked aspects of floral nectary morphology and evolution highlights potential pathways for clarifying the diversity and significance of this ecologically important organ in the context of the Leguminosae.

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EVOLUTIONARY HISTORY AND ROOT TRAIT COORDINATION PREDICT NUTRIENT STRATEGY IN TROPICAL LEGUME TREES

Lydia K. Madika (PhD Student, University of Cape Town, South Africa)

Tropical forests are characterized by a rich diversity of tree species, including legumes, which are key players in nutrient cycling because of their unique ability to convert atmospheric nitrogen into forms usable by plants (Brookshire *et al.*, 2019). However, these trees face challenges in acquiring both nitrogen and phosphorus, with phosphorus often being limited in availability (Townsend *et al.*, 2008). To overcome these challenges, tropical trees have evolved distinct root traits and diverse symbiotic relationships (e.g., Fig.1). In this context, root diversity varies along two primary axes: collaboration with mycorrhizal fungi and a trade-off between nutrient acquisition and conservation (Weemstra *et al.*, 2016; McCormack & Iversen, 2019; Bergmann *et al.*, 2020; Weigelt *et al.*, 2021). Despite this understanding, there remains a notable gap in data regarding physiological root traits that influence plant functions, highlighting the necessity for evolutionary and functional approaches, particularly among closely related species. The legume family serves as an excellent model to fill these gaps, as its species have diverse strategies for nutrient acquisition (Ardley & Sprent, 2021). Moreover, recent phylogenetic analyses suggest that ecological niche may be a more reliable predictor of traits than genetic relatedness, and the exploration of phosphorus acquisition in tropical Fabaceae adds further complexity, underscoring the need for larger species samples to conduct comprehensive analyses.

In a recent study, Marcellus *et al.* (2024), investigated a range of traits related to root

morphology, physiology, and symbiosis of 22 species of Fabaceae trees from in tropical and subtropical regions. Specifically, they aimed to understand the phylogenetic distribution of nutrient-acquisition traits, compare nitrogen-fixing species with non-fixing ones, and explore potential trade-offs and relationships between these traits. To achieve this, they conducted a thorough analysis of various traits, including specific root length, root tissue density, nitrogen content in roots, respiration rates, phosphatase activity, mycorrhizal colonization, nitrogen-fixation rates, and nodule biomass. They also looked at aboveground traits like photosynthetic assimilation rates and specific leaf area.

Acacia saligna, a nitrogen-fixing legume. Top left: Habit. Top right: Blooms. Bottom: Root system highlighting nodules formed through symbiotic nitrogen-fixing bacteria. Photos by tgregor (top left), lamprisdimitris (top right) and Hongtao (bottom).

The study uncovered significant variation in fine root traits among the species, supporting the idea that there is considerable diversity within this group. Interestingly, the researchers found evidence of phylogenetic conservatism in some nutrient-acquisition traits, suggesting that evolutionary history influences these characteristics. They also noted clear differences between nitrogen-fixing and non-fixing species, with nitrogen-fixers exhibiting higher phosphatase activity, which aligns with the nutrient-trading hypothesis (Houlton *et al.*, 2008).

However, it's important to mention that the connection between nitrogen fixation and phosphatase activity was not mechanistic; instead, it appeared to be an evolutionarily conserved trait.

Adenanthera pavonina, a non-nitrogen-fixing legume. Top left: Habit. Bottom left: Fruit. Right: Seedling without nodules, indicating the absence of symbiotic nitrogen-fixing bacteria.

Connecting the detailed exploration of root traits and evolutionary history, the study by Marcellus *et al.* enriches our comprehension of nutrient strategies in tropical legume trees. This comprehensive approach highlights the importance of root traits, which are often underutilized in evolutionary studies, and demonstrates how both evolutionary history and functional traits collectively shape plant nutrient strategies in diverse ecosystems. These integrated insights provide a foundation for refining nutrient cycling and plant adaptation models, broadening our understanding of the complex dynamics within tropical forest ecosystems.

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NEW LEGUME SPECIES HIGHLIGHTS 2024

Colin Hughes (University of Zurich, Switzerland)

This is the fifth year that a selection of the new legume species published during the year has been highlighted in the *Bean Bag*. Over that period (2020–2024), between 50 and 100 new legume species and 30 and 200 new name combinations have been published each year. Thus, significant numbers of new legume species continue to be described across the world every year with no indication of any decline, and 2024 is no exception. Indeed, with more than 100 new legume species described during 2024, this is a bumper year for legume novelties.

This year's cohort of new legume species includes several examples of species being described based on splitting previously morphologically variable species complexes into multiple segregate species and/or upranking infraspecific taxa as distinct species. This is a trend that is likely to expand in the future as more detailed species-level phylogenies densely sampling all species and intraspecific diversity are assembled and will likely power the ongoing growth in legume species numbers for some time to come.

Alexa duckeana: A New Species from the Brazilian Amazon

The large actinomorphic or near-actinomorphic flowers of species of the genus *Alexa* would not, at first sight, suggest a Papilionoid legume, which mostly have zygomorphic keel flowers. However, radially symmetric flowers occur in a set of phylogenetically scattered lineages across subfamily Papilionoideae, including the genus *Alexa*. With nine species, the genus *Alexa* is distributed mainly in 'terra firme' forests across the Amazon basin in South America. This new species, *Alexa duckeana*, is endemic to the State of Pará in Brazil. It has all the characteristics of the genus *Alexa*—tree habit, large, actinomorphic, probably bat-pollinated flowers, an enlarged coriaceous campanulate brown calyx, white petals, and large woody pods.

Flowers and foliage of *Alexa duckeana*; photos by Guilherme Silva.

Da Silva G.S., Torke B.M. & Mansano V.D.F. 2023. *Alexa duckeana* (Leguminosae-Papilionoideae): a new species from the Brazilian Amazon. *Phytotaxa 629*: 255-265. https://doi.org/10.11646/phytotaxa.629.3.7

A New and Critically Endangered Rattlepod (*Crotalaria*) from Tropical China

Xishuangbanna Prefecture, in SW Yunnan Province of China, bordering Myanmar and Laos, home to the new species of *Crotalaria*, *C. menglaensis*, lies within a poorly-known biodiversity hotspot threatened by deforestation and the establishment of rubber plantations. Like many newly described species, *C. menglaensis* is categorized as *Critically Endangered* because it is globally extremely rare. Named for the type locality, Mengla County, where it is narrowly endemic, *C. menglaensis* is known from just a single locality with a handful of populations totaling fewer than 100 adult individuals. Species delimitation was based on detailed morphometric and phylogenetic evidence and adds to the already prodigious diversity in the genus *Crotalaria*, which comprises >700 species worldwide.

Crotalaria menglaensis; photos by Shabir Ahmad Rather.

Rather S.A., Radbouchoom S., Wang K., Xiao Y., Liu H. & Schneider H. 2024. Molecular, morphological, and morphometric evidence reveal a new, critically endangered rattlepod (*Crotalaria*, Fabaceae/Leguminosae, Papilionoideae) from tropical China. *PhytoKeys 242*: 333-348. https://doi.org/10.3897/phytokeys.242.122407

A New *Mimosa* Endemic to Central Madagascar

Almost every year, new species of the species-rich genus *Mimosa* are described, and this year is no exception. A large majority of these novelties are from the Americas, where most *Mimosa* species (>570) are distributed. In contrast, *Mimosa ibityensis*, described this year by Erik Koenen, is narrowly endemic to the Massif d'Ibity and surrounds in central Madagascar.

This brings the tally of Madagascan *Mimosa* species to 36, of which 34 are endemic or near-endemic. *Mimosa ibityensis* is found in the understory of the distinctive sclerophyllous *Tapia* forests of upland Madagascar on quartzite rock.

Mimosa ibityensis inflorescences and fruits; photos by E.J.M. Koenen.

Koenen E.J.M. 2024. A new species of *Mimosa* (Leguminosae) endemic to Central Madagascar. *Candollea 79*: 229–234. doi: http://dx.doi.org/10.15553/c2024v792a2

A New Broom, *Gonocytisus graecus*, from Greece

It is relatively rare that new legume species are described from Europe these days, especially when they are conspicuous roadside shrubs with showy flowers. Nevertheless, new field and taxonomic work on the diverse and complex genera of tribe Genisteae, which are distributed in large part across the Mediterranean basin, has revealed the hitherto unknown narrowly endemic species, *Gonocytisus graecus*, named as such as it is endemic to Greece.

Gonocytisus graecus flowers, fruits, and habit; photos by Ozan Şentürk.

Şentürk O., Kenicer G.J. & Yildirim H. 2024. A new broom *Gonocytisus graecus* (Genisteae, Leguminosae/Fabaceae), from Greece. *Phytotaxa 666*: 277-290. https://doi.org/10.11646/phytotaxa.666.4.3

Senegalia ajaya from West Bengal, India

Senegalia ajaya, newly described from India, is a formidably armed lianescent shrub with up to six lines of prickles on the stem, plus branchlets modified into tendrils with prickles and prickles on the underside of the leaf rachis. One of the unusual distinguishing features of this species is the two types of paraphyllidia (modified, reduced leaflets) found at the base of the pinnae.

Alam S. & Lokho A. 2024. *Senegalia ajaya* (Mimosoid clade, Caesalpinioideae, Fabaceae), a new species from Birbhum District, West Bengal, India. *Phytotaxa 668*(2): 186-194. https://doi.org/10.11646/phytotaxa.668.2.7

Senegalia ajaya; photos by S. Alam.

18 Species from One Species of *Pultenaea*, Including 14 New Species from SE Australia

This study presents a landmark example of how detailed morphological and geographical data are providing evidence for the delimitation of sets of morphologically distinct, narrowly endemic species across physiographically and geologically diverse and complex landscapes from previously widespread polymorphic species complexes. Here, detailed morphological analysis of the *Pultenaea setulosa* species complex, sampling more densely than previously across the Great Dividing Range and the Blue Mountains of SE Australia, has shown that geographically discrete populations are morphologically distinct and uniform, exhibiting fixed character states, suggesting strong geographical/ecological isolation over short distances. Alongside preliminary genetic data indicating non-monophyly of the elements of the *P.*

setulosa complex, this study provided the basis for delimiting 18 species, 14 of which are described as new. These include several species illustrated below, which are named for legume specialists: *P. westonii*, named for Peter Weston, *P. corrickiae*, named for Margaret Corrick, and *P. woolcockiorum*, named for Dorothy and Collin Woolcock, who authored a popular book on native peas in SE Australia.

Top from the left: *Pultenaea corrickiae*, photo by Andrew Orme; *P. rubescens*, photo by Paul Rossington. Bottom from the left: *P. westonii*, photo by Andrew Orme; *P. woolcockiorum*, photo by Murray Fagg.

Barrett R.L. et al. 2024. Revision of the *Pultenaea setulosa* species complex (Fabaceae: Mirbelieae) including 14 new species. *Australian Systematic Botany*, *37*(2): SB23014. https://doi.org/10.1071/SB23014

Barrett R.L., Clugston J.A., Jobson P.C. & Rossington P. 2024. *Pultenaea rubescens* (Fabaceae: Mirbelieae), a new species from north-eastern New South Wales. *Telopea 27*: 203-209. https://doi.org/10.7751/telopea19689

Three New Genera in the Mirbelia Clade

Alongside the ongoing inventory of species in the species-rich genus *Pultenaea* of the Mirbelia clade of subfamily Papilionoideae, new phylogenomic work has shown that the genus is non-monophyletic, prompting generic re-delimitation, with the reinstatement of the genus *Euchilus* and the circumscription of three new genera: *Grievea*, *Jennata*, and *Loricobbia*. As with several of the new species of *Pultenaea* named this year, two of these new genera are named for legume workers: *Jennata* for the late Jennifer (Jenny) Chappill and *Loricobbia* for Lorraine Cobb, who illustrated many legumes for Jenny Chappill and her students.

Clockwise from top left: *Grievea craigiana*; photo by Gillian Craig, *Jennata empetrifolia*; photo by Murray Fagg, *Loricobbia pauciflora*; photo by Terry Macfarlane.

Barrett R.L., Clugston J.A., Orthia L.A., Cook L.G., Crisp M.D., Lepschi B.J., Macfarlane T.D., Weston P.H. & Wilkins C.F. 2024. East rarely meets West: a revised delimitation for *Pultenaea* (Fabaceae: Mirbelieae) with reinstatement of *Euchilus* and three new genera from south-west Western Australia. *Australian Systematic Botany 37*(5), SB23029. https://doi.org/10.1071/SB23029

Upranking Infraspecific Varieties of *Libidibia ferrea* as Species

Detailed morphometric and ecogeographical studies of widespread polymorphic species can often provide evidence for upranking infraspecific taxa as distinct species. Recognition as species, as well as reflecting morphological distinctiveness, also means that important diversity is properly recognized in conservation, given that infraspecific taxa are rarely accounted for or are down-weighted in conservation assessment. Morphometric analysis and ecological niche modeling across the widespread South American species *Libidibia ferrea* (Caesalpinioideae), the iconic Brazilian 'pau ferro', or iron tree, so-called because of its hard, dense wood, revealed four distinct morphotypes with distinctive ecogeographic distributions. These results provided the basis for the recognition of four distinct species: *Libidibia ferrea*, *L. juca*, *L. leiostachya*, and *L. parvifolia*.

Clockwise from top left: Flowers of *Libidibia juca*; photos by R. Queiroz, tree habit of *L. leiostachya*; photo by J. Moreno, snake-bark of *L. parvifolia*; photo by L. Queiroz.

Oliveira F.G., Santos F.D.S., Lewis G.P., de Oliveira R.P. & de Queiroz L.P. 2024.

Reassessing the taxonomy of the *Libidibia ferrea* complex, the iconic Brazilian tree "pau-ferro" using morphometrics and ecological niche modeling. *Brazilian Journal of Botany*: 1-17. https://link.springer.com/article/10.1007/s40415-024-01011-0

Two New Species of *Brachypterum* in Australia

Molecular phylogenies and a revision of the Millettioid genera *Derris* and *Brachypterum* in Australia have demonstrated robust support for these two genera, and for two new species of *Brachypterum*, both endemic to northern Queensland, Australia. These new species are slender twining vines or lianas in various tropical forest types.

Top left: *Brachypterum nitidum*. Bottom left and Right: *B. opacum*. Photos: Rigel Jensen (left), Andrew Ford (right).

Cooper W.E., Zich F.A., Nauheimer L., Harrison M.J. & Crayn D.M. 2024. A revision of *Derris* and *Brachypterum* (Leguminosae subfamily Papilionoideae) in Australia. *Australian Systematic Botany* 37: SB23030. https://doi.org/10.1071/SB23030

Further Additions to the Hyper-Diverse Greater Cape Flora—Five New Species of *Aspalathus*

The description of five new species of *Aspalathus* emphasizes the importance and value of fieldwork. This is true even in areas like the Greater Cape Floristic Region of southern Africa, where the flora is generally already reasonably well-documented. As the authors note, new fieldwork is especially important to discover cryptic and short-lived, post-fire species and narrowly restricted endemics, which have frequently been overlooked. All five of these new species have highly restricted distributions; several of them are threatened. On the plus side, fieldwork can also rediscover populations of species thought to be extinct. Three such recently rediscovered species of *Aspalathus* are documented here alongside the five novelties.

Top: *Aspalathus albicephala*, Bottom: *A. jardinii*. All photos by Brian du Preez.

Du Preez B. & Stirton C.H. 2024. Four new species of *Aspalathus* (Fabaceae, Crotalarieae)

and notes on three rediscovered species from the Greater Cape Floristic Region. *South African Journal of Botany* 166: 169-180. https://doi.org/10.1016/j.sajb.2024.01.010

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A New Cliff-Dwelling *Hedysarum* from the Remote Qilianshan Mountains

There are more than 160 species of *Hedysarum* across north temperate Asia, Europe, northern Africa, and North America. The Qinghai-Tibetan Plateau is one of the centers of diversity for the genus, with 24 species, 22 of which are endemic there. The newly described *Hedysarum qilianshanense* is narrowly endemic to a remote valley in the magnificent Qilianshan Mountains on the northern border of the Qinghai-Tibetan Plateau. It grows on stony slopes and rock cliffs at elevations of 2000–3000 m.

Hedysarum qilianshanense; photos Pei-Liang Liu.

Pei-Liang Liu et al., 2024. *Hedysarum qilianshanense* sp. nov. (Fabaceae, Hedysareae), a new species from the Qilianshan Mountains in Gansu, China. *PhytoKeys* 237: 103-106. DOI: 10.3897/phytokeys.237.116236

The genus *Astragalus* just keeps on growing

With more than 3,000 species, the genus *Astragalus* is the most species-rich legume genus, indeed the most species-rich genus of flowering plants. Every year, in recent years, a clutch of new *Astragalus* species is added, reflecting the fact that the majority of newly described species belong in species-rich genera. Illustrated here are two of the 2024 *Astragalus* additions from Turkey and Pakistan.

Astragalus miksensis (top); photos M. First, *A. quettensis* (bottom); photos Amjad Khan.

Firat M. 2024. *Astragalus miksensis* Fırat (Fabaceae), a new species in section Hymenostegis from Van province, Türkiye. *Phytotaxa 641*:149-160. https://orcid.org/0000-0001-5814-614X

Ke Z.W., Yu K. & Gan Q.L. 2024. *Astragalus duheyuanensis* (Fabaceae), a new species from central China. *Annales Botanici Fennici* 61: 1-5. <https://doi.org/10.5735/085.061.0101

Khan A., Sultan A., Maassoumi Ashghar & Mumtaz A.S. 2024. *Astragalus quettensis* (Galegeae---Fabaceae), a new species of section *Pendulina* from Pakistan. *Phytotaxa 636*: 1-19. https://doi.org/10.11646/phytotaxa.636.1.1

Pourebrahim S., Kazempour-Osaloo S. & Maassoumi A.A. 2024. Contributions to *Astragalus* sect. *Dissitiflori* in the light of morphological and molecular evidence: a new species and a new resurrect. *Phytotaxa 668*: 239-251. https://doi.org/10.11646/phytotaxa.668.3.3

Yang Z.Z., Liu Q.R., Liu Z., Xiang J.S. & Li X.L. 2024. *Astragalus liuaiminii*, a new species of *Astragalus* (Fabaceae) from Xinjiang, China. *PhytoKeys 243*: 209-214. https://doi.org/10.3897/phytokeys.243.119707

Three new unifoliolate-leaved lupin species from Florida, U.S.A.

Dense sampling of species and intraspecific diversity in molecular phylogenies often reveals cryptic taxa, as seen here in *Lupinus* from Florida. RADseq data for 106 accessions of unifoliolate *Lupinus* from Florida, U.S.A revealed a set of eight subclades or genetic variants that are allopatrically distributed across the fragmented geographical distribution of the genus on the Florida sand ridges. These genetic variants correspond with quantitative morphological differences between these subclades. These results provided the basis for recognition of three new species and confirmed the distinction of two narrowly restricted, critically endangered sand ridge endemics, *L. westianus* and *L. aridorum*, which had previously been treated as conspecific or as intraspecific varieties. The recent Pleistocene ages of these taxa suggest that the relatively modest degrees of geographical isolation over short time spans can promote species divergence. The Florida clade of *Lupinus* is unusual in having unifoliolate leaves, which have evolved independently in Florida and eastern South America from digitate leaves which are found in the majority of *Lupinus* species.

Lupinus westianus in the pine barrens of the Florida panhandle (top left) and *Lupinus floridanus* (bottom left and right); photos Floyd Griffiths (top left); Edwin Bridges (bottom left and right).

Bridges E.L. & S.L. Orzell. 2024. Systematics of the unifoliolate Floridian *Lupinus* clade (Leguminosae: Papilionoideae). *Phytoneuron* 2024-04: 1--61. ISSN 2153 733X.

Nevado B., Atchison G.W., Bridges E.L., Orzell S., Filatov D. & Hughes C.E. 2024. Pleistocene diversification of unifoliolate-leaved *Lupinus* (Leguminosae: Papilionoideae) in Florida. *Molecular Ecology 33*: p.e17232.

Eleven new species of *Indigofera*

Following close on the heels of the 18 new species of *Indigofera* described from the Cape Floristic Region of southern Africa in 2023, this year saw an additional 11 species described from that same region, spearheaded by Brian du Preez and Brian Schrire.

Top: *Indigofera rhodantha* flowers and fruits; bottom: *I. vlokii* habit and flowers; all photos Brian du Preez.

du Preez B., Schrire B.D., Dreyer L.D., Stirton C.H. & Muasya A.M. 2024. Revision of *Indigofera* L. sect. *Brachypodae* subsect. *Brachypodae* (Fabaceae: Indigofereae) from the Greater Cape Floristic Region. *South African Journal of Botany 166*: 226-258. https://doi.org/10.1016/j.sajb.2024.01.025

A sky-blue flowered *Collaea* (Papilionoideae) from South Brazil

Species of *Collaea* (tribe Diocleae) have spectacular showy flowers suggesting potential as ornamental plants, and a new species, *C. caerulea*, described this year from southern Brazil is no exception. This new *Collaea* has beautiful, brightly coloured, bluish-lilac flowers which are the basis for the species epithet *caerulea* (from the Latin *caeruleus* = coloured sky-blue). Like many newly described species of the modern era, *C. caerulea* is a highly restricted endemic found at just two nearby localities in mixed *Araucaria* forest at mid-elevations in Santa Catarina State in southern Brazil; an IUCN threat category of *Critically Endangered* was proposed by the authors.

Collaea caerulea habit and flowers; photos Paulo Schwirkowski.

da Silva Oliveira A.C., Snak C., Schwirkowski P. & de Queiroz L.P. 2024. A new species of *Collaea* (Leguminosae, Papilionoideae) from South Brazil. *Brittonia* 1-7. https://doi.org/10.1007/s12228-023-09772-w

Ten new species of South African fountainbush

The genus *Psoralea*, known as fountainbush in South Africa, has around 129 species, ten of them newly described this year. These new species, all of them restricted to South Africa, arise from expanded fieldwork into previously under-collected areas, as well as from refinements to species delimitations in the leafless 'aphylla' and pinnately-leaved species complexes. Publication of these ten new species results from an ongoing project on the taxonomy, biogeography, and evolution of *Psoralea*. A further ten undescribed species are in the pipeline.

Left: *Psoralea vlokii*; photo Brian du Preez, right: *P. oreopola*; photo Fiona Hellmann

Stirton C.H., Bello A. & Muasya A.M. 2024. Ten new species and notes on the genus *Psoralea* L. (Psoraleeae, Fabaceae) from South Africa. *Plant Ecology and Evolution* 157: 291-312. https://doi.org/10.5091/plecevo.120171

GALLERY OF LEGUME PHOTOS

This gallery aims to showcase shots of legume species taken by members of the legume community. This year we have three beautiful images of Chinese legumes taken by Kai-Wen Jiang.

Phanera bohniana (H. Y. Chen) K. W. Jiang, S. R. Gu & T. Y. Tu, photographed by Kai-Wen

JIANG from K. Chiang & Z. M. Li KC1782 (NPH), collected from Yunnan Province, China.

Sunhangia elegans (DC.) H. Ohashi & K. Ohashi var. *handelii* (Schindl.) H. Ohashi & K. Ohashi, photographed by Kai-Wen JIANG from K. Chiang & Z. M. Li KC1803 (NPH), collected from Yunnan Province, China.

Weizhia pentaphylla G. Y. Li, Z. H. Chen, K. W. Jiang & B. Pan bis, photographed by Kai-Wen JIANG from K. Chiang & K. N. Ngae KC1984 (NPH), collected from Zhejiang Province, China.

LEGUME BIBLIOGRAPHY 2024

Brian du Preez (University of Cape Town, South Africa) & **Marcus Falcão** (Jardim Botânico do Rio de Janeiro, Brazil)

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A total of **388** new publications are presented in the Legume Bibliography 2024, categorized by the following subjects:

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