

# Congress News

#2 MONDAY 22 JULY



Sponsorship



GOBIERNO DE ESPAÑA

MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES



Edited by



REAL JARDÍN BOTÁNICO



SOCIEDAD BOTÁNICA ESPAÑOLA

## 20<sup>th</sup> IBC kicks off

Thousands of botanists attended yesterday evening to the 20<sup>th</sup> IBC Opening Ceremony. The event included a welcoming address and discourse by Mr. Juan Carlos Moreno Saiz, president of the Spanish Botanical Society (SEBOT), followed by speeches from Mr. Patrick S. Herendeen, Chair of the International Association of Botanical and Mycological Societies (IABMS), Mrs. María-Paz Martín Esteban, director of the Royal Botanic Garden of Madrid, and Gonzalo Nieto Feliner, president of the organizing committee. Following the welcome addresses, attendees were treated to a Spanish dance performance by the Iberian Dance Company and a welcome cocktail.

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DAVID GARCÍA HERRÁEZ

## WHY BOTANY? WHY NOW?

**Sandra Knapp called for joining efforts to guarantee the future of algae, fungi and plants “on which we all depend and that we all so love”**

At this critical time in Earth's history, it is more important than ever to work together. That is the message that Dr Sandra Knapp sent to the botanical world during the opening IBC 2024 lecture. The senior research botanist at the Natural History Museum in London defined Botany —broadly speaking, the study of algae, fungi, and plants—as a global collaborative enterprise.

Dr Knapp described the current planetary emergency: we depend upon the organisms for the very air we breathe, yet their survival, along with our own, is ever more in question. Climate change and biodiversity loss reinforce mutually and become a threat to the survival of all organisms. As a society, we have brought together a broad series of global goals, such as the Kunming-Montreal Biodiversity Framework and the overarching UN Sustainable Development Goals, to guide us on the path to a sustainable future for ourselves and for our planet.

According to Sandra Knapp, individual botanists or individual botanical institutions cannot face this threat alone. For her the time for concentrating the power and influence in a few institutions is gone, and our strength lies in our diverse skills and complementary understandings of the natural world. There are some amazing examples of how the community has some together to address global goals, some of these identified at the XIX International Botanical Congress in Shenzhen.

Sandra Knapp explained that our objective goal should be to create a level



Sandra Knapp during the Opening Lecture.

«At this critical time in Earth's history, it is more important than ever to work together»

playing field where all those who study algae, fungi and plants can come together to share ideas and exchange knowledge, so that together we can develop solutions both from nature and, most importantly, for nature. The botanist shared some learnings from the projects in which she participates and contributed new ideas for discussion.

Specialist in taxonomy and evolution of the family Solanaceae, Dr Knapp has strongly promoted collaboration between botanists and all those studying the natural world as President of the Linnean Society of London (2018-2022) and as Vice President and Past Acting President of

the International Plant Taxonomy Association (2011-2023).

Answering the questions Why botany? Why now? the opening speaker explained that it is time for us to join efforts in better, more diverse, and more distributed ways “to find solutions for Earth's problems so the algae, fungi, and plants upon which we all depend and that we all so love, have a secure future”.

This opening IBC lecture was supported by the BBVA Foundation, a private Spanish organization that awards several grants and prizes for scientific research such as the Frontiers of Knowledge Awards.

### TODAY'S LECTURES

08:30 - 09:30

KEYNOTE LECTURES  
Thorsten Lumbsch  
Kaoru Kitajima  
John D. Thompson

09:30 - 10:25

PLENARY LECTURE  
Pedro Jordano

19:05 - 19:55

PUBLIC LECTURE  
Bernardo B. N. Strassburg

[Abstracts on page 4]

An active congress on social networks...

The IBC Congress will be actively present on social networks. Through X, Facebook, Instagram or YouTube, the organizers will publish information on all aspects of the congress. At the same time, botanists will be able to participate in the conversation. The QR codes below this page refer to each of the social networks. Also with the iEvents APP delegates can learn about the scientific program, generate their personalized agenda and receive notifications with last minute information.

...that can be followed by streaming

The conferences held in the Plenary Hall (Public, Plenary and six Keynote Lectures) will be streamed on the Vimeo platform (see QR on page 4). Once the congress is over, these lectures will be available on the IBC YouTube channel (see QR below).

#IBC2024  
ibcmadrid2024.com



## Invitation to Participate in Interviews at the XX IBC for 'Around a Tree' project



The International Association for Plant Taxonomy (IAPT) and the XX International Botanical Congress (IBC) in Madrid in July 2024 will feature a special project to celebrate IAPT's 75th Anniversary (in 2025) and the IBC's 20th Anniversary. The project was developed in collaboration with Más Arte Más Acción (MAMA), a Colombian cultural foundation known for its multidisciplinary initiatives addressing critical global issues like biodiversity loss and climate change. As part of the broader "Around a Tree" project, this venture will produce interviews with various botanists attending IBC that will be shared through the IAPT website and other platforms in 2025.

**INTERVIEW OBJECTIVES.** The primary aim of the interviews is to document the career paths and perspectives of botanists from diverse backgrounds, creating an Oral History of Botany. These interviews will highlight the experiences and challenges faced by researchers, thereby inspiring new generations of botanists. Additionally, insights from these interviews, particularly those related to climate change and biodiversity loss, will be used to create a soundscape. This artistic piece will be presented during significant global events, such as the UN's COP16 Biodiversity Conference in Colombia (2024) and the COP30 Climate Change Conference in Brazil (2025). Another objective of the interviews is to ensure that key messages emerging from IBC will reach diverse audiences, enhancing public engagement with botanical science, making it more accessible to policymakers and the general public, and demonstrating its relevance to everyday life.



**ADDITIONAL COLLABORATIONS.** To extend the impact of this initiative, MAMA is collaborating with various organizations and events throughout 2024. These partnerships include the Irish Plant Science Association Meeting in Cork, Ireland, the 60th Conference of the Association of Tropical Biology and Conservation (ATBC) in Rwanda, and the Edinburgh Art Festival (EAF) in Scotland. Through these collaborations, MAMA aims to integrate scientific knowledge, art, and personal narratives to inspire collective action against biodiversity loss and climate change.

Delegates at the IBC and beyond can look forward to this unique blend of science and art, which promises to enrich the discourse on botanical research and its critical importance in addressing global environmental challenges.

We hope you will find a few minutes during the congress to participate in the interviews, which will take place in the LOBBY OF THE NORTH CONVENTION CENTER (CCN), floor 1.

## OPENING CEREMONY



The audience enjoyed a beautiful show of Spanish dance.



The assistants followed the talk of Dr. Knapp with interest.



Arrival of participants from all over the world.



Delegates collect their Congress badges.

# A GREAT LEARNING SPACE AND A BIG MEETING POINT

The IBC welcomes a wide variety of workshops and parallel ("satellite") meetings in which plant researchers of all disciplines and at different career stages are coming together to discuss, learn and network.

During the whole week of the Congress, assistants will be able to find many unique opportunities to approach cutting-edge research techniques through an extensive offer of workshops. Participants will be sharing and learning skills on topics such as the insights of single-cell multiomics in plants (characterization of single-cell states and activities), the EDGE approach for species conservation (how much evolutionary history will a species be responsible for in the future and how close it is to extinction), and even the applications of 3D printing in the research flow of Plant Science. In addition, several workshops will provide training on bioinformatics, including working with the transcriptome and genome datasets generated by the *RanOmics* sequencing

3D Printing  
Science:  
Design to



DAVID GARCÍA HERRÁEZ

María Paz Martín, Juan Carlos Moreno, Gonzalo Nieto and Patrick S. Herendeen, at IBC 2024 Opening ceremony.

# MADRID WELCOMES WORLD'S BOTANISTS

The 20th edition of the International Botanical Congress has officially begun. Over the course of this week, nearly 3,000 botanists from all around the globe will engage in discussions on botany and mycology, covering six main topics ranging from biodiversity and conservation to ecology and plants and society.

The institutional event took place yesterday evening featuring a welcoming address by Juan Carlos Moreno Saiz, president of the Spanish Botanical Society (SEBOT). He greeted everyone present, with special acknowledgments to the authorities and representatives of the sponsoring entities. Following this, Patrick S. Herendeen, Chair of the International Association of Botanical and Mycological Societies (IABMS), thanked the Spanish Organizing Committee for their dedication to organizing this IBC edition.

Subsequently, María-Paz Martín Esteban, director of the Royal Botanic Garden of Madrid, emphasized the importance of supporting research students and researchers “since it contributes to the dissemination of knowledge and strengthens networks of scientists”. She also emphasized that “the list of invited speakers represents

the diversity of the global scientific community in a number of ways”.

Gonzalo Nieto Feliner, President of the Organizing Committee, noted that while plants have become increasingly valued by citizens in recent years, there remains “a strong responsibility to communicate our science to society at large”. He also underlined the benefits of these in-person events for “networking, face-to-face discussion, and learning from interactive conversation”, that cannot be done online.

To close this institutional event, Juan Carlos Moreno talked about the Spanish botanical history, such as the American expeditions in the 18th century and the work of Spanish botanists as Mutis, to the

recent creation of the National Botanical Society in 2019 and highlighted the opportunity that this IBC mean “to work together to promote awareness of respect for nature and engage young botanists”.

To conclude the event, attendees enjoyed a delightful Spanish dance performance titled “Celebration”, presented by the Iberian Dance Company. The show was composed by six emblematic choreographies with early dances recreation and stylized spanish dance.

This was followed by a welcome cocktail reception where guests had the opportunity to savor a selection of national products and a touch of international cuisine.

## IABMS, guarantee for the future of the IBC

The International Association of Botanical and Mycological Societies (IABMS) is the body charged with the responsibility of ensuring the ongoing continuance of International Botanical Congresses (IBC). IABMS is composed of international organizations with interests in botany, mycology, phycology and related fields.

The goals of IABMS are to promote the exchange of information between member organizations and coordinate and further their aims and efforts and to encourage international scientific organizations with an interest in botany, mycology, phycology and related fields and are not yet members of IUBS, to apply for Scientific Membership in the Union so that they may participate in the Association.

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Participants of the workshop “3D printing for plant science”.

project, skills on RADSeq data and analyses, and the use of the *HMSC R* package (a model-based approach for analyzing community ecological data). Workshops will also offer useful training on all steps of the publishing procedure with the assistance of *New Phytologist* and in the creation and modification of Wikidata entries.

The Congress also hosts numerous meetings of international and national associations, working groups and commissions, where participants will discuss organizational matters, current projects and activities, recent advances and future strategies. These include the International Association for Plant Taxonomy (IAPT), which was responsible for designation of IBC venues until the 1980s, the International Association of Botanical and

Mycological Societies (IABMS), which has since assumed this role, the Society of Herbarium Curators Meeting, the Spanish Botanical Society (SEBOT), the Plant Modelling Community gathering, the *Botany Letters* journal meeting, and the annual meeting of the Young People for Spanish Botany (*Jóvenes por la Botánica Española*), among many others. In addition, the program includes several informal and affinity group meetings open to all interested attendees, such as the Global Botanical Garden Gathering, the Spatial Phylogenetics Discussion Meeting and the Pride

### Invitation to Contribute to The Madrid Declaration

Every time the scientific community gathers at an International Botanical Congress (IBC), a Declaration is proposed. The IBC Declarations seek to influence specific botanical issues of global concern. We want the XX IBC Declaration to be a collaborative project emerging from the botanical community, and we have created a mechanism for you to contribute your thoughts to this important initiative.

**How to Contribute?** If you would like to contribute, please share any ideas or suggestions on The Madrid Declaration by filling out the Google Form (available through the QR Code) by **Wednesday, July 24, 2024, at 7:00 pm (Madrid Time)**. All comments will be considered as we prepare the final Declaration, which will be announced at the closing ceremony on **Saturday, July 27, 2024**.

**Declaration Objectives.** The Madrid Declaration will focus on “**Stronger Connections between Plants and People to Secure Planetary Health and Resilience.**” We aim to call for ten strategic actions by scientists and other sectors of society, including governments, the corporate sector, and civil society, to nurture the relationships between plants and people so we can maximize their interconnectedness and mutual benefits. These actions are crucial to mitigating the impact of human activities on plants and securing planetary health and resilience.

**Any questions?**  
Please contact  
Lúcia G. Lohmann, chair of the XX IBC Declaration Committee.  
✉ [lucia.lohmann@me.com](mailto:lucia.lohmann@me.com)

Assistants will be able to find many unique opportunities to approach cutting-edge research techniques through an extensive offer of workshops.

Botany Meeting, which aims to connect, support and empower LGBTQIA+ people in botany from around the world. Several seminars and symposiums are also scheduled, including *Repeatome* (short-talks by early-career scientist on tandemly organized repetitive DNA), a series of presentations on *The 10,000 Plant Genomes Project* (an initiative to sequence and analyze the genomes of 10,000 plant species worldwide), and a presentation on *World Flora Online: how to get involved*, which will provide an introduction to this global database for contributors and users.



## Special edition of the RJB ANNUAL CALENDAR

■ The Real Jardín Botánico (CSIC), co-organizer of the XX IBC, houses priceless treasures from the history of scientific discovery over the last three centuries. The original drawings of the Royal Botanical Expedition of the New Kingdom of Granada (1783-1816), led by José Celestino Mutis, constitute the most valuable collection of botanical art in the RJB Archive, and one of the most important in the world, due to the artistic and scientific value of the drawings.

On the occasion of the XX IBC, a special edition of the RJB annual calendar has been prepared. It features a selection of drawings representing thirteen angiosperm families from this expedition, which covered areas corresponding to modern Colombia, Venezuela, Ecuador and Panama.

This calendar includes four separately printed plates on good quality paper.



The four botanical plates printed separately and included with the calendar:

*Tristerix secundus* (Loranthaceae),  
*Mucuna urens* (Fabaceae),  
*Brachyotum strigosum* (Melastomataceae)  
and *Palicourea* sp. (Rubiaceae).

The RJB annual calendar can be purchased at the exhibition area (RJB booth) for 15 €.



High-resolution scans of the original drawings of the Royal Botanical Expedition of the New Kingdom of

Granada (1783-1816) can be viewed at <https://mutis.rjb.csic.es/paginas/>

## TODAY LECTURES

### Cryptic disruptions of plant-animal mutualisms in the Anthropocene



**Pedro Jordano**

Research Professor at the Spanish Research Council and Associate professor at University of Sevilla, his research focuses on the study of biodiversity from both ecological and evolutionary perspectives. His work has been recognised by the National Award for Scientific Research on Natural Resources.

estimate both demographic and genetic outcomes of interactions. The functionality of most generalized mutualisms relies on complementarity of effects across a high diversity of partners. Anthropogenic disruptions to these interactions are often subtle and undetected but widespread, leading to an extinction debt overlooked in biodiversity loss assessments.

#### PLENARY LECTURE

🕒 09:30 - 10.25 📍 Plenary Room

Pairwise plant-animal mutualistic interactions build up into mega-diverse networks involving numerous interacting species. These mutualisms fundamentally consist of food provisioning by plants and, their counterpart, plant propagule (pollen, seeds) movement by the animals. Focusing solely on pairwise interactions underestimates the biodiversity needed for these networks. Loss of biodiversity in these assemblages entails losses of key functional services that may remain cryptic, i.e., their consequences undetected well after the loss. I explore study cases documenting the extinction of mutualistic interactions, and the loss of associated services that may occur well before the partner species become extinct. Moreover, also how addition of interactions (e.g., by invading species) may deconstruct native interaction networks. The combination of direct and passive interaction sampling and last-generation sequencing as DNA barcoding allow to identify species-specific contributions to these mutualisms and

## OPEN TO THE SOCIETY

■ Bernardo B. N. Strassburg inaugurates the series of four conferences that will be open to the public and focused on a broader audience, both in person and online through the Vimeo (QR on side). Bernardo B. N. Strassburg (today), Nox Makunga (Tuesday), Amy T. Austin (Thursday) and Alexandre Antonelli (Friday) will lecture on ecological restoration, South African medicinal plants, arid zone ecology and the conservation status of plants and fungi. The lectures will be held in the Plenary Room at 7.05 pm. In addition, a selection of the remaining invited talks that will take place in the plenary hall (plenary talks and six of the keynote talks) will also be offered by streaming, although the intended audience for these is academic.



#### PUBLIC LECTURE

🕒 19:05 - 19:55 📍 Plenary Room

### Unleashing the potential of ecological restoration in solving global environmental problems: science, policy and practice

**Bernardo B. N. Strassburg**

Founder and president of the International Institute for Sustainability, founder and chief scientist of re.green and professor at the Pontifical Catholic University of Rio de Janeiro. He works to design interventions that address environmental problems, focused on ecological restoration and using transdisciplinary science.



### Unraveling diversity and evolution of lichens in the genomic era

#### KEYNOTE LECTURE

🕒 08:30 - 10.25 📍 Plenary Room



**Thorsten Lumbsch**

Curator and Vice President of Science and Education at the Field Museum in Chicago, and former president of the International Association for Lichenology. His research focuses on evolutionary biology, species delimitation, reproductive modes, and biodiversity of tropical fungi, especially lichenized fungi and their photosynthetic partners.

Our understanding of the biology, evolution, and diversity of lichens has dramatically changed over the last decade. This symbiotic system has been shown to be complex, involving multiple fungi and diverse photosynthetic partners, influenced by phylogeny and ecology. In addition, bacteria and various groups of other fungi have been found to form part of the lichen holobiome. Furthermore, molecular data suggest that the evolution of these organisms happened in parallel to land plants and there is no indication from molecular data or fossils of an ancient origin of the lichen symbiosis. Genomic data has revolutionized the phylogeny of lichenized fungi inferred from phenotypical data and have also fundamentally changed our understanding of lichen species delimitation and biogeography. While it was assumed that ecology was the main driver shaping distributional ranges, many species once thought to have wide, intercontinental distributions are now recognized as distinct genetic clades, prompting a resurgence of historical biogeography within lichenology. The genomic era is in its infancy in lichenology and some open questions will be addressed with the growing number of genomic data becoming available.

### Tropical tree adaptation to fire regimes and infertile soils: key for ecosystem conservation

#### KEYNOTE LECTURE

🕒 09:30 - 10.25 📍 N103



**Kaoru Kitajima**

Kaoru Kitajima has held faculty positions at Kyoto University, Japan and the University of Florida and a research associate position with the Smithsonian Tropical Research Institute. She is a member of the Science Council of Japan and was President of the Ecological Society of Japan.

Fire is a key threat to the conservation of natural forests worldwide, especially in tropical regions. Population increase and expansion of agricultural lands encroach these forests, often situated on marginal lands. This talk highlights the case in northwest Madagascar's Ankarafantsika National Park, where we have established a 15-ha forest monitoring plot in a seasonally dry forest on infertile white sand. This forest supports a high diversity of endemic plants, with dominance of evergreen species despite the prolonged dry season, and animals including eight species of lemurs that aid in seed dispersal. Fire has driven forest loss in the region during the last three decades. Analyses of 3000 hectares near the park's southern border, fire-free until 2014, show large areas of primary forest burned in 2017, 2019, and 2021. The first burn makes a site susceptible to repeated burns, due to dead woody material serving as fuel, leading to the transformation of dense forests into barren deserts. This is a testimony to the importance of paying attention to variations in fire adaptation to design effective conservation strategies at the landscape level.

### Unleashing the potential of ecological restoration in solving global environmental problems: science, policy and practice

#### KEYNOTE LECTURE

🕒 09:30 - 10.25 📍 N104



**John D. Thompson**

John D. Thompson is a researcher at the Centre of Functional and Evolutionary Ecology (Montpellier). He works on ecology, evolution and conservation of Mediterranean plants. He is the president of the scientific committee of the Mercantour National Park and the Narbonne Regional Park.

The Mediterranean region and climate are changing, posing a modern challenge to identify how species, communities, and ecosystems respond to global change and to translate this information into conservation management and recommendations for political decisions. This talk focuses on the ecological and evolutionary dynamics of West Mediterranean endemic plant species that exhibit a unique distribution pattern spanning from northern Morocco through eastern Spain to Mediterranean France, recurrent in the flora of the West Mediterranean. The often narrow latitudinal range of species with this distribution pattern contrasts with a wide longitudinal range, so many occur in areas subject to different representations of the Mediterranean climate, and very often in peripherally isolated populations at the limits of their distribution. Specific examples will illustrate the ongoing adaptation processes and address conservation challenges of species due to their variability in ecological niches across different spatial scales, their spatial genetic structure, and their floral biology at distribution limits. Additionally, our knowledge of the Mediterranean region's history improves our understanding of this variability and the reasons and values for these species' conservation, often in areas where they are rare.