



IAVS

BULLETIN 2021/3

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Tulipa montana, Alborz Mts. near Lasem (Iran).

by David Zelený and Susan Wiser

This year was in the sign of virtual meetings. Thanks to COVID-19, international travel in many regions of the world was still restricted, and even in those parts where people could travel, many preferred not to do it. That is why we organised this year's 63rd Annual Symposium entirely online and called it "Vegetation goes Virtual". Despite bumps along the way, the meeting itself went surprisingly smoothly, and we are pleased about that. The European Vegetation Survey working group also hosted a fully virtual meeting, mainly organised by EVS Secretary Milan Chytrý, assisted by Italian colleagues. The two meetings were very different; the IAVS Symposium was organised by a professional conference provider, with all contributions pre-recorded and available online for three months. To cover the cost of this meeting at least partly, IAVS charged a registration fee similar in amount to virtual meetings of other international ecological associations. In contrast, the EVS meeting was completely live, had a more interactive and family-like setting and charged no registration fee. After these meetings, all organisers met virtually to share their experience; we learned a lot of new things, not everything went smoothly, and not all experiences were pleasant, but the opportunity to meet was as valuable as ever. We agreed that we must offer members of our Association the opportunity to meet, and if we cannot meet in person, we must go virtual.

In 2022, three meetings are already scheduled. The Asian Grassland Conference, organised by the IAVS Eurasian Dry Grassland working group, will run fully online from February 22–24, 2022. The 30th Conference of the European Vegetation Survey will be held live in Bratislava on May 9–13, 2022. The 64th Annual Symposium will be held in 2022 between June 26th and July 1st in Madrid, Spain, and our hope is for an in-person meeting with excursions. But we are also aware that our conferences will never be as they have been before; we need to consider that some people may still not be able or willing to travel, and meetings must offer an option for virtual participation. Let's hope our first try at a hybrid meeting next June will be a positive experience.

During the past year and a half, our Association went through some significant changes. We moved to the new management provider, from USA to Europe. Unfortunately, this happened during the least favourable period one can imagine – soon after the start of all the

COVID-19 lockdowns and restrictions. Practically everything took much longer than we hoped and wished for, and we also exchanged three assistants – owing to complications from the pandemic – before Marie Mahieux, our current administrator, started to work with us in January. We continued to meet twice per month, once as the full Governing Board and once for the Executive meeting (President, Secretary, Administrator), to solve problems as they arose. We realise that from the outside, our administrative situation has not been working as you the members might expect it should be – the website was not functional, the membership database and therefore also the membership registration didn't work, and payments could not be processed – for a stupidly bureaucratic reason. Within the Governing Board, we often felt like we were running against the wall and hitting it again and again, unable to progress.

But now, we are happy to announce that this dark time is over! We have a new, modern, and interactive website, and the membership database has been migrated to a robust and flexible platform. The website and membership database are integrated with 'members only' functions to be launched soon and numerous other options that can provide more features for members and more support to Working Groups and Regional Sections than we have been able to in the past. Hopefully, the final obstacle, not being able to process payments for membership and conference fees, will be resolved soon. If you need assistance with a matter related to the Association, please contact Marie Mahieux, our administrator, at admin@iavs.org; you should hear from her within three working days. If you do not receive a response, don't hesitate to contact one of the Governing Board members to help you.

It is you, the members, who make IAVS the friendly, collegial society that it is, focused on our shared commitment to continually increase knowledge and understanding of vegetation from our own backyards to across the world. As the Governing Board we want to express our sincere appreciation to members of Council, committee leaders, organizers of recent and future meetings, conveners of Working groups and Regional Sections, and of course all the members, for your continuing support of IAVS and your patience during a time of great challenges to the society.

The 63rd IAVS annual symposium “Vegetation goes Virtual”

The 63rd IAVS annual symposium was held on 20–23 September 2021. This virtual event was opened by President Susan Wiser, who began by remembering five luminaries of our society who passed away in the last year: Salvador Rivas-Martínez, Phillip Grime, Michael Barbour, Eddy van der Maarel and Akira Miyawaki.

Past conference openings focused on features of the location where the symposium was taking place, comparing both the ecology and culture to locations of previous symposia. Certainly ‘place’ is critical to vegetation science. That wasn’t going to work this year! IAVS, or its predecessor organisations, have held an annual symposium almost every year since 1956. So it was very disappointing to cancel the 2020 Vladivostok symposium and postpone the Madrid symposium until 2022 because of the pandemic. The IAVS Governing Board and Council felt it was important to continue in our mission to unite vegetation scientists from across the world and to take advantage of the new opportunities provided by the technical advances over the last year in meeting virtually. In fact, this was likely probably the first truly global symposium IAVS has ever held, where geographic distance of participants to the symposium location is no barrier to participation.

The organisers were very pleased with the participation in the symposium: there were 227 participants from 41 countries. The map below (prepared by Po-Yu Lin) illustrates the countries from which the participants came, with + signs indicating countries that were not represented at our last in-person symposium in Bremen, and – signs indicating those countries that were represented in Bremen, but not this year.

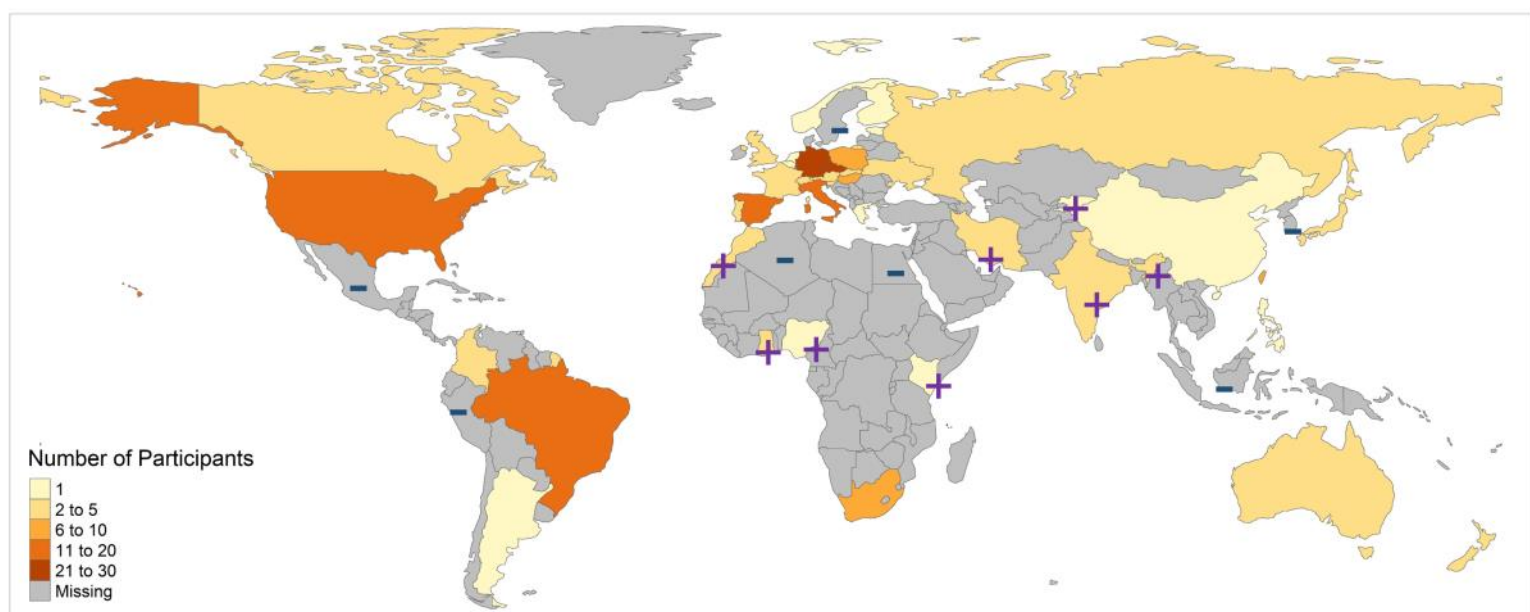
Our symposium had our usual events – including 4 plenary speakers; 5 Special sessions, 2 Workshops, 77 con-

tributed Oral presentations, 29 Posters with lightening talks and 14 Posters. Four of our Working Groups held their annual meetings during the symposium.

We also had some new types of events, made possible by meeting virtually. One event that proved very popular were the Virtual Excursions. This was an idea proposed by the Young Scientist WG to allow people to share an excursion to their field site to introduce us to their research directly. We also had Live Discussions, where we could use a chat facility for focussed discussions.

Having a virtual symposium was an experiment for IAVS. Although there were quite some technical challenges before and also during the symposium, the symposium in general ran smoothly. We sought feedback afterwards to learn what participants liked and what they didn’t like. The feedback we have received to date has generally been positive and our intention is to learn from this event as well as the recent virtual European Vegetation Survey working group conference (see associated article in this Bulletin) and the planned Asian Grassland conference (organised by the Eurasian Dry Grassland working group. This is important as our events may very well be hybrid in future - in part because of ongoing impacts of the pandemic, or because people may want to limit travel to reduce their carbon footprint, and because this increases the ability of those with limited travel funds to participate.

For those of you who participated in the symposium, remember that all the content was recorded and will stay available on the platform until the end of December. If you didn’t register, you can still do so at a 20% discount at https://www.iavs.org/page/Symposium2021_AnnualSymposiumHome. The full programme is also available to help you decide whether this interests you.





Benjamin Blonder
University of California, Berkeley, United States



Michelle Greve
University of Pretoria, South Africa



Jitka Klimešová
Institute of Botany of the Czech Academy of Sciences, Třeboň, Czech...

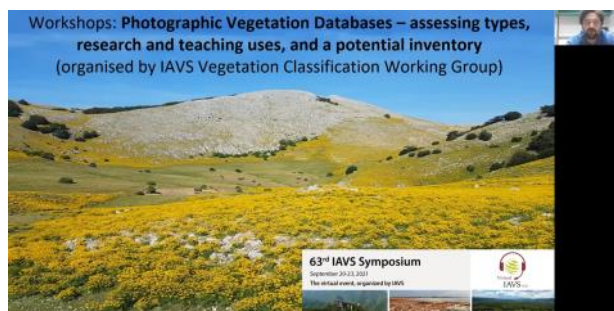


Mahesh Sankaran
National Centre for Biological Sciences, India

The symposium featured four plenary speakers



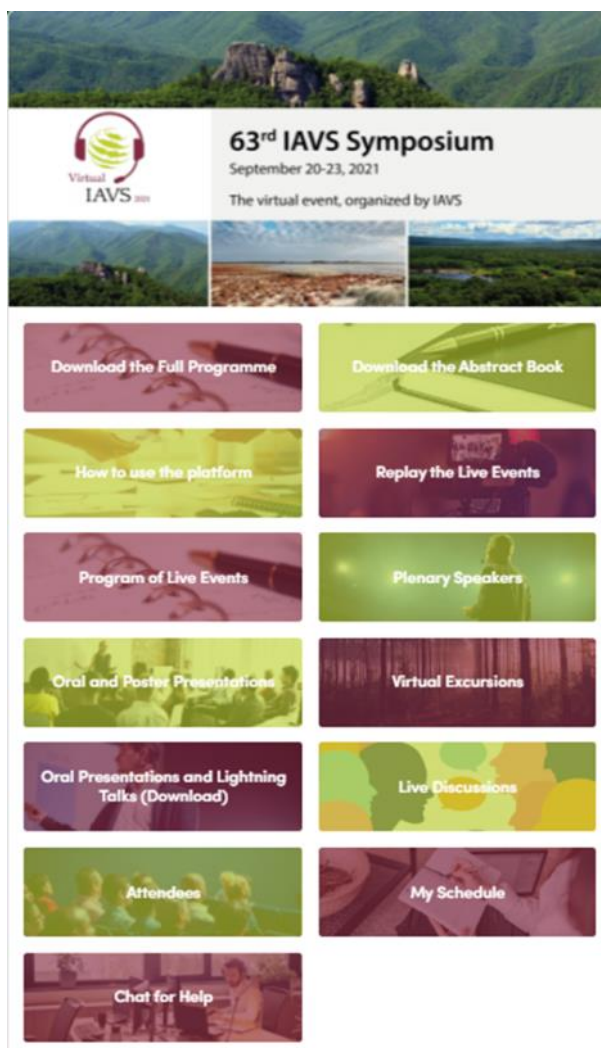
Virtual excursions allowed us to experience distant parts of the world, such as these wetlands in Angola



Some of us participated in Workshops



So many Posters and Oral Presentations to choose from!



2021 Young Scientist Awards

A highlight of our annual symposium is recognising outstanding contributions of you Young Scientists.

The winners in the Poster Award competition were:

First

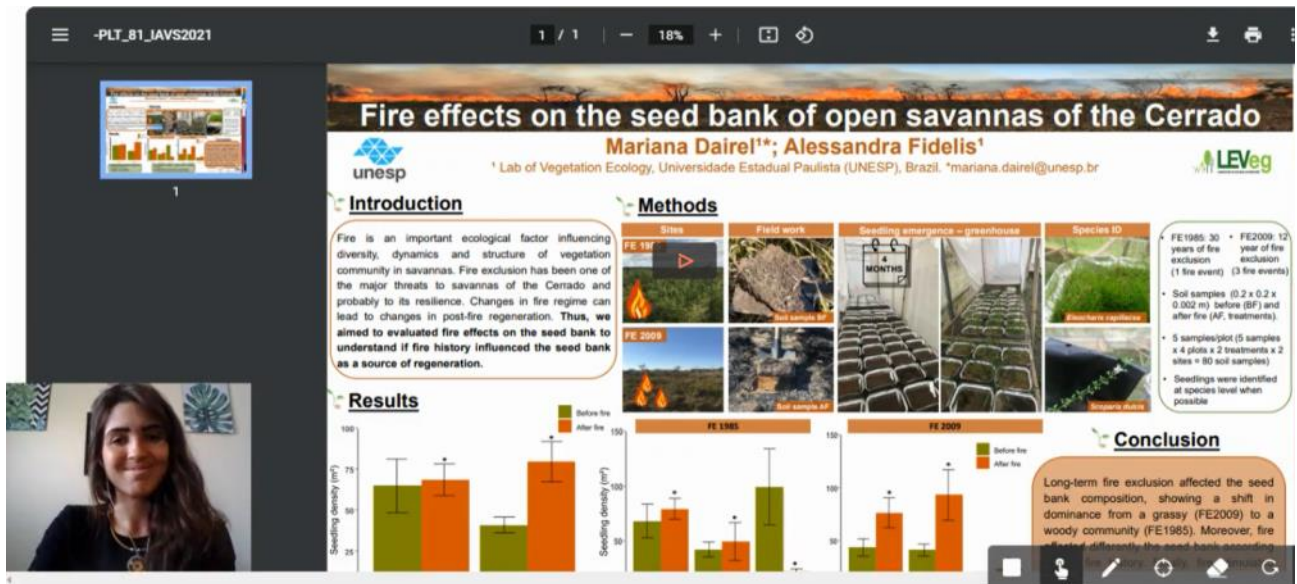
Mariana Dairel: Fire effects on the seed bank of open savannas of the Cerrado

Second

Yu-Pei Tseng: Do subtropical montane cloud forests in Taiwan act as insular systems for woody species?

Honorable mention

Kacper Foremnik: Effects of forest stand structure on a population of the endangered orchid species *Cypripedium calceolus* L.



The winners in the Oral Presentation Award competition were:

First

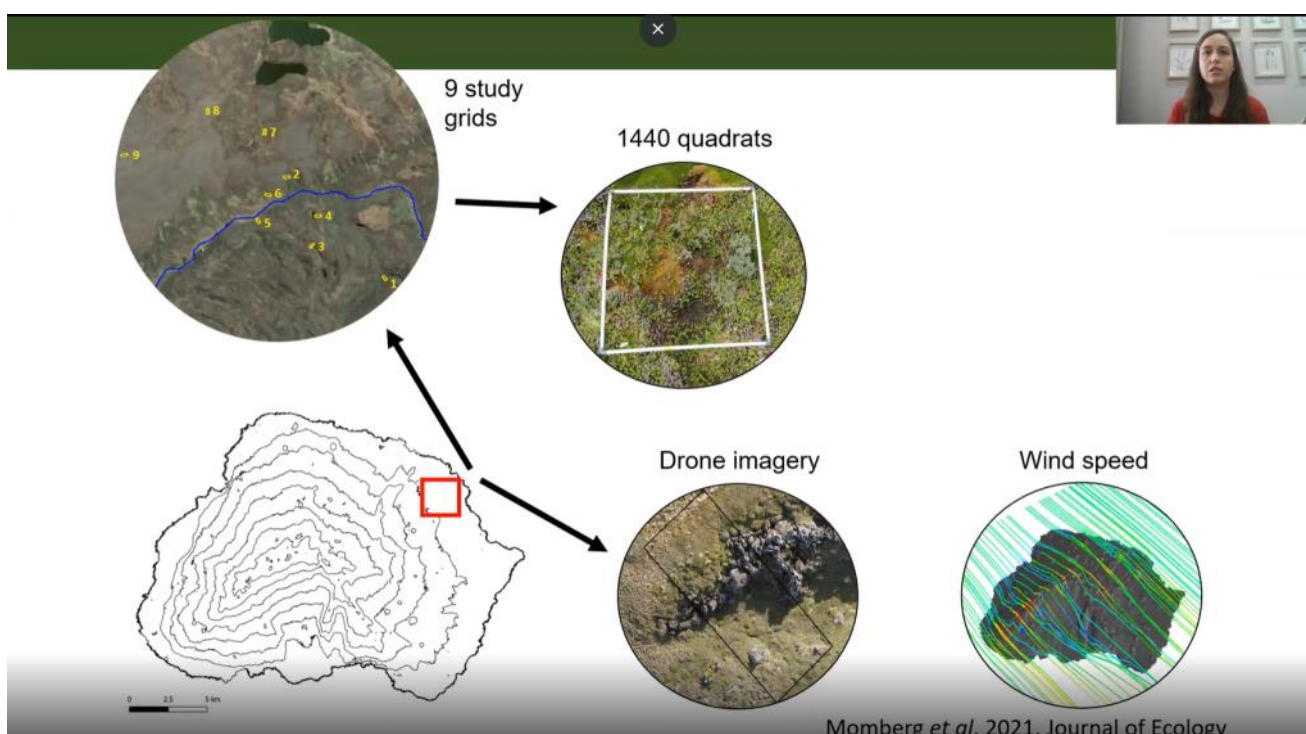
Mia Momberg: Wind stress as a climatic driver of plant species distributions and community-level characteristics

Second

Hudson Fontenele: Survival and flowering of three late-blooming grasses in a frequently burned Cerrado

Honorable mention

Paulina Meller: How frost and fire shape a tropical landscape in central Angola



64th IAVS Annual Symposium

27th June – 1st July, 2022

Madrid, Spain



Vegetation dynamics and conservation of natural and semi-natural habitats in a climatic crisis scenario

by Daniel Sánchez Mata and Rosario G. Gavilán

INVITATION

We invite all interested scientists to participate in the 64th IAVS Annual Symposium which will take over in Madrid (Spain). As precedents we can cite the Spanish symposia in the Canary Islands in 1993, and – on the mainland – in the Basque Country (Bilbao) in 1999, and the symposium in the neighboring Iberian country of Portugal in 2005 (Lisbon).

Spain is a diverse nation with an important and age-old European vocation. Its privileged location in the south-west of the European continent is a good reason to host the IAVS 64th Annual Symposium.

VENUE AND ACCOMODATION

The symposium will take place in the capital of Spain, Madrid at the Ciudad Universitaria, a vast land-area located in the northwestern part of the city which hosts basically educational, cultural and official institutions and their related dependencies.

The symposium will develop on the Moncloa Campus (Campus of International Excellence) of Complutense University. It is connected by direct bus or subway (one

specific stop) to the city of Madrid, which offers a wide range of hotel accommodation. Visitors can also opt to stay in budget university residences.

The auditorium of the Faculty of Medicine will serve for the morning keynote lecturers while several special classrooms will be fully available for the symposium. The Medicine building and the other surrounding faculties have their own cafeteria and restaurant, in addition to copy service and other facilities.

Madrid has over six million inhabitants in its metropolitan area, and except for brief interruptions, has been the Spanish capital and the seat of the national government and administration from the Renaissance to the present day.

Madrid offer of culture attractions and museums includes institutions of the stature of the Prado Museum, the Reina Sofia Museum of Contemporary Art, the Thyssen-Bornemisza Museum, and the National Archaeological Museum. It is also very near emblematic cities like Toledo, Segovia, Ávila, La Granja de San Ildefonso, Aranjuez and El Escorial among others, all of which are well worth a visit.



The Carriers of the Torch. Monument by Anna Hyatt Huntington (1955). Plaza Ramón y Cajal. Ciudad Universitaria. Complutense University, Madrid (Spain) (left); Faculty of Medicine main building (right)

Travel and accommodation

The city of Madrid has an exceptional public transport system and international rail and air connections. More info about suggested travel possibilities for Symposium venue and a list of different kinds of convenient accommodation sites will be provided soon. Please, visit the updated official symposium webpage <http://iavsmadrid2022.com>.

Please, check carefully the immigration requirements related with your country of origin before travel to Spain. The organizers will care for the rapid provision of invitation letters for all participants that require a visa for entering Spain.

DATES

The dates are **June 27th to July 1st, 2022**, for the symposium (4 full days - Monday to Friday - for contributions and one mid-excursion day). Pre-, mid-, and post-symposium excursions will be arranged. These dates offer an optimum calendar for excursions and for the symposium itself.

More detailed information including the important dates for the symposium will be included in the official website of the Symposium that will open throughout this month of November (<http://iavsmadrid2022.com>).

SCIENTIFIC PROGRAM

The symposium main topic runs on the urgent need to preserve the diversity of natural and semi-natural habitats. The development and implementation of the Natura 2000 network is Europe's foremost strategy for biodiversity conservation and includes both the continent and its biological content. The scientific comparison between the strategies and protocols applied in other countries will undoubtedly serve to promote major advances in the conservation of the territory.

Both, the conservational and methodological strategies, the landscape human uses, the habitat restoration, among others, will be different great topics. Specific themes include:

- Diversity and functioning of natural and semi-natural habitats
- Conservation of relictual vegetation as threatened habitats
- Pre-human landscapes
- The human impact as vegetation dynamics driver
- Habitat restoration
- How about the future? Habitat conservation in a climate change scenario



Madrid City Hall with 'La Cibeles' fountain (left) and Glass Palace at Retiro Park (right)



Abies pinsapo forests on limestone (Sierra de Grazalema) on the left; *Viola cazorlensis* on the right

The Symposium will adopt a hybrid format if required by the COVID19 health conditions. Symposium documentation will include a book of abstracts, a program, and specially prepared detailed excursion guides for the pre-, mid- and post symposium excursions. A special webpage will be prepared with basic information at least one year before the symposium; proposal and announcements were made at Palermo (2017), Bozeman (2018), Bremen (2019) and also will be made at IAVS Virtual Symposium (2021).

A practical course scheduled for July 26th, 2022 (mid-day) on **ordination methods** frequently used on community ecology research will be taught by **Pierre Legendre** (Montreal University, Canada).

ENVIROVEG (Vegetation and Environment), an approved Research Group from Complutense University led by Daniel Sánchez-Mata and Rosario Gavilán, will guarantee a high level of the symposium both academic and scientific. Also, the Spanish Geobotanical Society, led at this moment by Daniel Sánchez Mata, and the Spanish Botanical Society will officially support the meeting.

The collaboration of private and public institutional sponsors will help cover some symposium expenses reducing the cost of participants' fees.

EXCURSIONS

All the scheduled excursions will be accompanied by a leader, co-leaders, and by experts in the territory.

Pre-symposium excursion: June 18–26th, 2022

Objective: central and southern Iberian high landscape diversity including inland marsh and saltmarsh vegetation, Sierra Morena mountain range and the Subbetic-

Betic mountain ranges (with several remarkable landscapes such as limestone/dolomite and serpentized peridotite forests of the endemic *Abies pinsapo*, the Sierra Nevada National Park (with the Iberian highest point at Mulhacén Peak (3478 m asl), Sierra de Cazorla Natural Park, among others, all of them genuine biodiversity hotspots. Various easy hiking stretches are planned during the excursion.

Preliminary itinerary: Madrid-Alcázar de San Juan-Daimiel (Tablas de Daimiel National Park) – Córdoba (Sierra Morena Nature Reserve) – Seville-Grazalema (Sierra de Grazalema Nature Reserve) – Ronda (Sierra de las Nieves Nature Reserve) – Marbella/Estepona (Sierra Bermeja Nature Reserve-Granada (Sierra Nevada National Park) – Cazorla (Sierra de Cazorla Nature Reserve) – Madrid.

Post-symposium excursion: July 2nd to 10th, 2022

Objective: landscape diversity throughout the Iberian Central System (Spain/Portugal), including various easy hiking stretches and one full-day hike.

Preliminary itinerary: Madrid – Riaza-Montejo de la Sierra – Navacerrada – Cotos Pass (Sierra de Guadarrama National Park) – Segovia-Avila – Hoyos del Espino (Sierra de Gredos Mountains Regional Park) – Sierras de Béjar y Candelario – Sierra de la Peña de Francia – Serra da Estrela (Portugal).

The **Altai additional post-symposium excursion (July 3rd to 9th, 2022)** scheduled for 2020 within the Vladivostok cancelled IAVS Symposium will be available to registered participants, as communicated by the Russian colleagues. More info will be included soon at the Symposium webpage.

Mid-symposium excursions

There will be several one-day mid-symposium excursions such as Sierra de Guadarrama National Park, Montejo de la Sierra beech forests, Somosierra birch forests, El Lobo Peak high mountain area, El Escorial mid-mountain area, El Tiemblo ancient chestnut forest, central Spain inland gypsum and saline habitats, and limestone landscapes south of Madrid.

HOPE TO SEE ALL OF YOU IN MADRID, 2022!!

---oooOOOooo---



Brooms (Genisteae scrub communities) a characteristic high-mountain landscape in the Iberian Central System (Serra da Estrela, Portugal)

30th Conference of the European Vegetation Survey

Plant communities in changing environment

May 9–13, 2022, Bratislava (Slovakia)

by Jozef Šibík



30th
EVS Bratislava
2022

Dear colleagues, dear friends,

On behalf of the local organizing committee, we are pleased to invite you to the **30th Conference of the European Vegetation Survey (IAVS Working Group)**, which will be held on **May 9 – 13, 2022** in **Bratislava (Slovakia)**. The venue will be **Hotel Saffron** (<https://www.hotelsaffron.sk/en/>).

The main topic of the meeting will be the hot issue humanity is facing,
Plant communities in changing environment.



Photo credit: Matej Kováč, www.matejkovac.com

The conference will bring together international and national researchers from scientific and educational institutions, nature conservationists, and landscape managers to explore, share and discuss new knowledge, research topics, results, opportunities, and strengths related to European biodiversity strategy to protect nature and reverse the degradation of ecosystems.

To learn more about the scientific and social program, as well as the excursions, please visit the conference website at <https://evs2022.sav.sk>, which will be launched on December 1st, 2021.

The program will include both oral and poster presentations. Not only professional researchers but also young scientists and students are warmly welcome. Students and young scientists can participate in the competition for the best presentations, and prizes will be awarded at the social dinner.

Thanks to the International Association for Vegetation Science (IAVS), the members may apply for financial support to participate in this annual meeting. The Global Sponsorship Committee of IAVS will work with the local organizing committee to set criteria and administer the application process. Information about how to apply will be available on the meeting website.

Program of the Conference

Monday, May 9th

6pm - 10pm: Registration, Welcome drink

Tuesday, May 10th

9am - 6pm: Registration, Opening Ceremony, Presentations

	Fees include	Early registration	Late registration
IAVS members	coffee-breaks	190 €	220 €
Non IAVS members	lunches	210 €	240 €
Students IAVS members	conference package	160 €	190 €
Students non IAVS members	(T-shirt, bag, book of abstracts...)	180 €	210 €
Accompanying persons	coffee-breaks, lunches	90 €	90 €
Excursion	transport, lunch	50 €	50 €
Social dinner	dinner	60 €	60 €

Wednesday, May 11th

9am - 6pm: Presentations, EVS Business meeting

Thursday, May 12th

9am - 6pm: Presentations, Closing Ceremony

7pm - 4 am: Social dinner

Friday, May 13th

Field excursions (4 options):

a) **Riparian plant communities along the Danube River** (led by Mária Šibíková and Ivan Jarolímek).

b) **Steppes and thermophilous forests of the southwestern part of the Little Carpathians at the confluence of the Morava and Danube Rivers** (led by Katarína Vantarová, Iveta Škodová and Iva Hodálová).



Photo credit: Matej Kováč, www.matejkovac.com

c) **Dry calcareous grasslands of the Tematínske vrchy: conservation and restoration** (led by Monika Janišová and Daniela Dúbravková).

d) **Sand kingdom of the Záhorie lowland** (led by Milan Valachovič and Pavol Mered'a).

Fees

Important dates

Registration opening: December 1st, 2021.

Deadline for financial support applications: December 31st, 2021.

Deadline for registration and fee payment (early): January 31st, 2022

Deadline for registration and fee payment (late): April 15th, 2022

Deadline for Abstract submission: February 28th, 2022

Decisions about presentation acceptance: March 15th, 2022

Program: April 30th, 2022

In the case of an unsuitable pandemic situation and meeting cancellation, the fees will be returned to the participants (except for bank handling charges).

Financial support

If you need financial support from IAVS to participate at the EVS Conference, please fill in the financial support form in addition to the registration form by the end of December 2021. A motivation letter explaining the need to attend the EVS Conference, with an approximate amount of requested support (in Euros), and an explanation of what expenses are needed to be covered (travel, conference fee, accommodation, or any combination of these) will be necessary. Please state clearly that you have no or only partial financial support from your institution for attending the EVS Conference. Add a preliminary abstract of your talk or poster and a brief CV. Only IAVS members can apply for this support.

Accommodation

The organizers of the meeting do not provide booking services for the accommodations of the participants. However, a 15–25 % discount will be provided when making the reservation in the Hotel Saffron, and additional discounts linked to other accommodation facilities will be released later.

Useful links

<https://evs2022.sav.sk>

<https://www.hotelsaffron.sk/en/>

<https://www.visitbratislava.com>

<https://www.visitbratislava.com/top10/>

<https://www.visitbratislava.com/top10springexperiences/>

<http://greenfilms.sk/production/>

[bratislava-city-surrounded-by-nature/](http://greenfilms.sk/production/bratislava-city-surrounded-by-nature/)

Scientific Committee:

- Fabio Attorre, *Sapienza University of Rome*, Italy
- Idoia Biurrun, *University of the Basque Country*, Bilbao, Spain
- Milan Chytrý, *Masaryk University*, Brno, Czech Republic
- Anna Kuzemko, *M.G. Kholodny Institute of Botany, NAS of Ukraine*, Kyiv, Ukraine
- Joop Schaminée, *Wageningen Environmental Research*, Wageningen, the Netherlands
- Emiliano Agrillo, *Italian Institute of Environmental Protection and Research (ISPRA)*, Rome, Italy

On behalf of the organizing committee (Plant Science & Biodiversity Center, Slovak Academy of Sciences)

Jozef Šibík, Mária Šibíková, Milan Valachovič, Ivan Jarolímek, Iveta Škodová, Monika Janišová, Katarína Vantarová, Daniela Dúbravková, Jana Májeková and others

Looking forward to meeting you soon!



Sandberg ill near Bratislava with dry grassland vegetation



Acidophilous lichen-rich Pinus sylvestris forests on inland sandy dunes near Borský Mikuláš village (W-Slovakia)

Asian Grassland Conference (AGC), 22–24 February 2022

by Didem Ambarlı, Alla Aleksanyan, Jürgen Dengler, Frank Yonghong Li, Stephen Venn, Jianshuang Wu

As the largest continent of the world, Asia offers great opportunities for researchers, with its vast grasslands, diverse and unique environmental conditions, rich biodiversity, and varied ecological and evolutionary processes, some of which are not observed elsewhere. Simultaneously, it poses great challenges for nature conservation and sustainable livelihoods, due to climatic and land-use changes. To strengthen the exchange of scientific information and collaboration on Asian grasslands, EDGG is organising the very first Asian Grassland Conference. This virtual event is free of charge, owing to the generous support of the International Association for Vegetation Science (IAVS), the mother organization of EDGG. We invite researchers from all over the world to present or listen to studies on the flora, fauna, biodiversity, ecology, management and conservation of these precious habitats.

<https://edgg.org/AGC>



© K.P.Bhatta

Alpine meadow central Nepal

The conference will take place during three-half days, on an online platform from 22nd to 24th February 2022. We will ensure a broad level of regional representation in the event, highlighting research from less familiar parts of the continent. Besides keynote talks, regular oral presentations and speed-talks with posters, we will offer networking events, workshops and happy hours. In conjunction with the conference, we also plan to produce Special Features in a number of international, peer-reviewed scientific journals.

We will launch the online registration in the second half of November 2021. Further details will be announced in forthcoming issues of *Palaeartic Grasslands*, via the EDGG mailing list and social media accounts (Twitter @GrasslandE Facebook EDGG - Eurasian Dry Grassland Group) as well as on the conference website (<https://edgg.org/AGC>). If you want to be certain not to miss

out on anything, you can pre-register by sending an e-mail to edgg.agc@gmail.com.

We hope to meet many researchers interested in grassland research and conservation in Asia! Colleagues from other continents are, of course, very welcome to join us.

Topic and sessions

We intend to cover any aspect of **research and conservation in Asian natural and semi-natural grasslands**. Below you can find a preliminary session list, with brief descriptions. Presentations on other subjects of grassland research are also welcome.

1. **Biodiversity of grasslands:** patterns and drivers of a wide range of biodiversity facets
2. **Ecology and taxonomy of plant and fungi species in grasslands:** studies with a focus on individual species



© I. Smelansky

Halogeton glomeratus in rocky dry steppe, Karaganda Province, Kazakhstan

3. **Ecology and taxonomy of grassland vertebrate species:** studies with a focus on individual species, including wildlife management
 4. **Ecology and taxonomy of grassland invertebrate species:** studies with a focus on individual species
 5. **Grassland ecosystems under global change,** including climate change, land use change, habitat destruction, biotic invasions and eutrophication
 6. **Functional ecology of grasslands**
 7. **Grassland conservation, management and restoration**
 8. **Vegetation and habitat classification of grasslands,** at any level and with any approach
 9. **Remote sensing, mapping and modelling of grasslands**
 10. **Livelihoods and sustainability of pastoral communities,** including payment schemes for conservation
- Full details on the sessions will be provided in the Second Call and on the conference website.

Keynotes

AGC will offer keynote presentations that will provide comprehensive, enlightening and inspiring information on Asian grasslands. We are pleased to welcome three brilliant scientists presenting keynotes on vegetation ecology, wildlife ecology and global change. **Prof. Norbert Hölzel** (University of Münster) will talk about the impact of Post-Soviet land-use change on Central Asian steppe ecosystems. **Prof. Shuli Niu** (Institute of Geography and Natural Resources of the Chinese Academy of Sciences) will focus on the response of alpine grassland to global change. **Prof. Jiang Zhigang**

(Institute of Zoology of the Chinese Academy of Sciences) will present the status and conservation of the wild ungulates of the grasslands in China.

Special events

Apart from scientific presentations, the AGC will provide side events that facilitate individual exchange and networking. Below, you can find short descriptions of events. Full details will be provided in the Second Call. At registration, participants will also be able to register for these side events.

- **Happy Hour:** At the end of the daily sessions, participants will be invited to join a happy hour, where they can talk with other participants. For this purpose, we will offer a virtual event space where people can meet.
- **Introducing the Eurasian Dry Grassland Group (EDGG):** For newcomers we will present our organisation with its diverse range of activities, such as the Eurasian Grassland Conferences, the EDGG Field Workshops (research expeditions), our diamond open access journal *Palaeoartctic Grasslands*, our Special Features and edited books, our vegetation-plot database GrassPlot, our website and our online tool GrassPlot Diversity Explorer.
- **Meet the Editors:** This interactive event will provide participants with an opportunity to meet the editors of a number of high-impact journals. Participants can ask questions about all stages of publishing a scientific article, such as submission, evaluation



© J. Wu

A herd of white-cashmere goats are grazing on alpine steppes dominated by *Stipa purpurea*, (4700m a.s.l.) in Nyima County, Tibetan Autonomous Region, China

tion criteria, language issues, or how to reply to reviewers. Participants will have the opportunity to learn more about the “kitchen” of publishing. On the podium, there will be several experienced editors from a wide range of international journals, including *Vegetation Classification and Survey*, *Restoration Ecology*, *Applied Vegetation Science*, *Biological Conservation*, *Frontiers of Ecology and Evolution*, *Hacquetia* and *Frontiers in Environmental Science*.

- **Initiation of IAVS Regional Section(s) for Asia:** While IAVS has several well-established Regional Sections or Working Groups for Europe, North America, Latin America and the Caribbean, as well as Africa, vegetation ecologists in the largest of all continents are currently not formally organised across national borders. We will host a discussion on whether there is sense/need to establish a network for Asian vegetation ecologists within IAVS, whether one or several Regional Sections would make sense, what should be the aims of such Regional Sections and who would like to be active within them. We intend to invite also selected vegetation ecologists from Asian countries specialised in forests, wetlands, alpine, segetal and urban habitats.
- **Workshop on the vegetation typologies of Asia and their crosswalks to/overlaps with phytosociological syntaxa:** This workshop aims to develop our understanding of the vegetation typologies of Asia from a global perspective. Specifically, we would like to harmonize Asian typologies with that of GrassPlot, an EDGG-associated database of multi-scale vegetation-plot data of Palaearctic grasslands and other open habitats (<https://edgg.org/databases/GrassPlot>). Any contribution about the phytosociological classification of grasslands and other open habitats from any part of the Asian continent, as well as any critical review of the so far applied GrassPlot typological classification, are highly welcome to this workshop. There is a possibility that a publication could arise from this workshop.
- **Young Investigator Competition:** The aim is to reward young scientists for an excellent presentation of their research. Young scientists (less than 30 years old) should indicate at registration if they wish to participate in the contest.
- **Asian Grasslands Photo Competition:** This competition will celebrate the beauty and diversity of grasslands in Asia. The competition has four sub-sections: plants, animals, landscapes, and humans and grasslands. A jury will select the best contributions, which will be presented in the concluding session of the AGC, on the EDGG website and in the subsequent issue of *Palaearctic Grasslands*. The participants of the conference as well as any EDGG

member are invited to send up to three high-quality photographs within each topic. Please find detailed information on the *Palaearctic Grasslands* Issue 51. The deadline for photo submission is 6 February 2022.

- **Noticeboard:** We will set up a noticeboard where participants can share their announcements (including jobs, scholarships, events etc.) with all participants. All announcements will be collected in advance after the Second Call.

Special Features

We are planning to organize three SFs to give participants the opportunity to make their research more visible in a topical SF. Depending on the subject and content of their presentation, participants will be able to choose from three SFs in international, peer-reviewed journals:

- High-impact journal (*Biodiversity and Conservation* under consideration) (Chair of Guest Editors: Didem Ambarlı): For the outstanding contributions of the AGC.
- *Hacquetia* (approved; Chair of Guest Editors: Orsolya Valkó): This 7th EDGG Special Feature in *Hacquetia* will be on fauna, flora, vegetation and conservation of Asian grasslands. Both original research papers and review papers focusing on topics such as ecology, botany, zoology, conservation biology, restoration ecology, taxonomy, syntaxonomy, ethnoecology, rangeland management of Asian grasslands are welcome. The SF is open not only to participants of the AGC, but any scientist dealing with grasslands in Asia. Please find detailed information on the first call of the SF published in the *Palaearctic Grasslands* Issue 51. The deadline for submission of the preliminary abstracts is 28 February 2022.
- *Vegetation Classification and Survey* (approved; Guest Editors: Alireza Naqinezhad, Jürgen Dengler & Arkadiusz Nowak): The gold open access journal *Vegetation Classification and Survey* (VCS; <https://vcs.pensoft.net/>) would like to launch a Special Collection of articles dealing with “Grasslands of Asia” with a typological view. Papers developing, testing or applying vegetation typologies or present vegetation-plot databases or tools in ecoinformatics are suitable for submission. Contributions not related to the AGC are also possible. Please find detailed information on the 19 page of this issue. The deadline for submission of the preliminary abstracts is 28 February 2022.

Registration and costs

The registration and abstract submission will be launched in the second half of November 2021 with the Second Call. Registration and all side events will be free of charge, to ensure maximum participation with-

out financial barriers. Participants can pre-register by sending their name, e-mail address and affiliation to edgg.agc@gmail.com. We will save the contact information and contact you via an e-mail once the registration is open.

Organisers and Supporters

This virtual event is free of charge, owing to the generous support of the International Association for Vegetation Science (IAVS), the mother organization of EDGG. In addition, two scientific journals, *Frontiers in Ecology and Evolution* and *Grassland Research* are supporting the conference. Furthermore, the conference has a broad-based scientific committee, representing different parts of Asia and different research aspects (for details: <https://edgg.org/AGC/organizers>). We are grateful to all supporting organizations and persons.

If you have any questions or comments related to the conference, please do not hesitate to contact the organising committee below.

Didem Ambarlı (Chair), Düzce University, Turkey, didem.ambarli@gmail.com

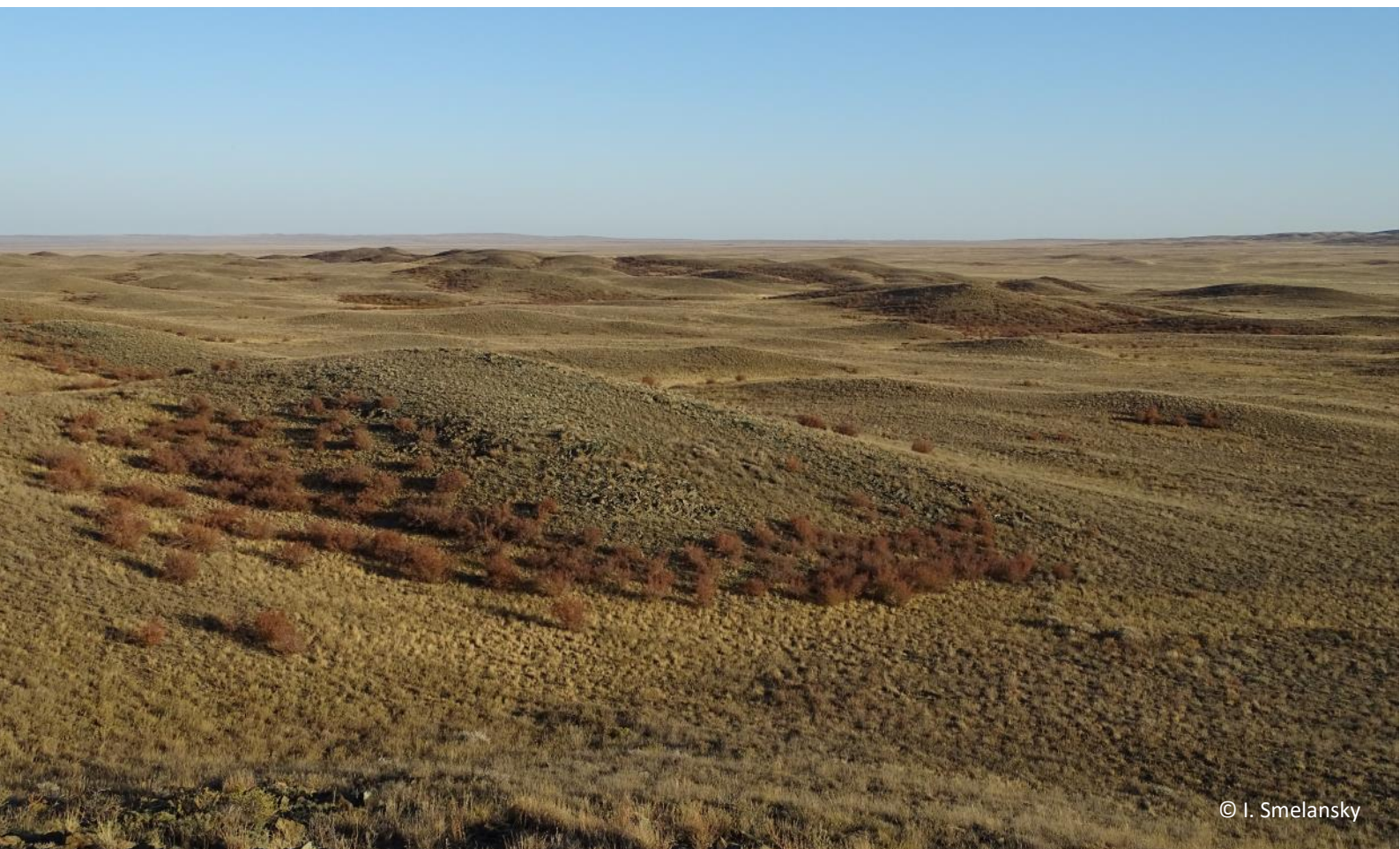
Alla Aleksanyan, Institute of Botany after A.L. Takhtajyan NAS RA, Yerevan, Armenia, alla.alexanyan@gmail.com

Jürgen Dengler, Zurich University of Applied Sciences (ZHAW), Wädenswil, Switzerland, dr.juergen.dengler@gmail.com

Frank Yonghong Li, Inner Mongolia University, Hohhot, China, lifyhong@126.com

Stephen Venn, University of Łódź, Poland, stephen.venn@helsinki.fi

Jianshuang Wu, Chinese Academy of Agricultural Sciences, Beijing, China, wujianshuang@caas.cn



© I. Smelansky

Artemisia sp. and *Stipa* sp. desert steppe in Karaganda Province, Kazakhstan

39th EADSVE Meeting in Dubrovnik in May 2022

by Nenad Jasprica and Željko Škvorc

The 39th Meeting of the Eastern Alpine and Dinaric Society for Vegetation Ecology (EADSVE) will take place in Dubrovnik, Croatia, from Wednesday 4 to Saturday 7 May 2022. The meeting will be organised by University of Dubrovnik.

Dubrovnik, the Pearl of the Adriatic, is listed as a UNESCO World Heritage and is an old city on the eastern Adriatic coast in the most south of Croatia. Phytogeographically, it lies within the *Quercetea ilicis* class. Dubrovnik is also place where Lujo Adamović (1864-1935), a well known Croatian botanist, spent his youth and latter years of life.

South Adriatic coast is unique location in Croatia with wonderful opportunities to enjoy the natural world, including world famous Dalmatian *karst*, as well as unique cultural opportunities, and many gastronomic and horticultural riches. More information on the venue, fees, excursions, etc. are provided at <http://www.eadsve.org/>.

All scientists, including graduate and undergraduate students, are invited to present their research results at the meeting, either orally or as posters.

We will strive to make your stay a truly memorable one.



© K. Pozniak

View from Dubrovnik town walls over to old harbour, St. Ivan fortress and the island of Lokrum

Call to contribute to a Special Collection of *Vegetation Classification and Survey* on “Grasslands of Asia”

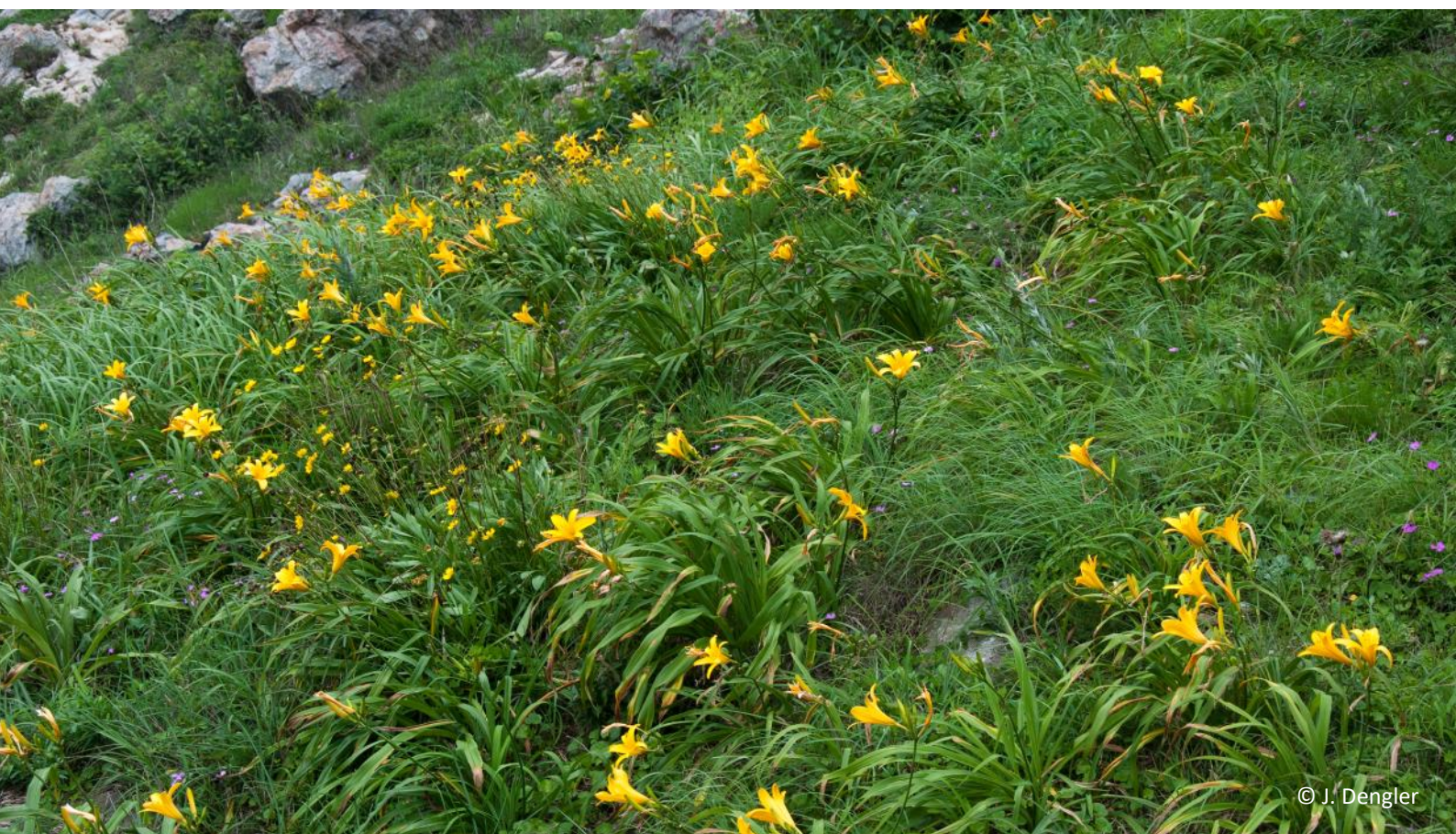
Editors:

Jürgen Dengler (Switzerland), Alireza Naqinezhad (Iran) and Arkadiusz Nowak (Poland)

Outline:

Asia is the largest continent on Earth, but also the continent with the most extensive grasslands. Enigmatic are the huge and diverse steppes in the interior of the continent, but there are also arctic grass tundras, alpine grasslands, alpine steppes, desert steppes, sub-

tropical savannas and a multitude of semi-natural grasslands created by millennia of human land use. Classification is an essential approach to make the huge diversity of different grassland types better accessible and comparable, both for basic research and applied sciences such as management and conservation. However, only few countries in Asia have a strong tra-



© J. Dengler

Grassland with *Hemerocallis* sp. in South Korea

dition in grassland classification. Moreover, the classification approaches vary strongly between and even within countries. Thus, it is currently hard to achieve a consistent scientific overview on the grassland types of Asia.

Thus on the occasion of the first **Asian Grassland Conference** 22-24 February 2022 (AGC; <https://edgg.org/AGC>; see page 13), the **Eurasian Dry Grassland Group** (EDGG; <https://edgg.org/>) and the gold open access journal ***Vegetation Classification and Survey*** (VCS; <https://vcs.pensoft.net/>) would like to launch a **Special Collection of articles dealing with “Grasslands of Asia” with a typological view**. In agreement with the scope of the journal, papers should **develop, test or apply vegetation typologies or present vegetation-plot databases or tools in ecoinformatics**. Typological approaches at any spatial scale from synusiae via phytocoenoses and landscapes to biomes are welcome. We are open to any approach to classify vegetation, including but not limited to the Braun-Blanquet approach and the EcoVeg approach. We particularly encourage studies based on extensive original data, but accept also regional and even local studies if they come from underrepresented regions or are methodologically innovative. Contributions presented at the AGC are particularly welcome, but also papers not related to the AGC are possible.

Procedure and deadlines

- Until 28/02/2022: Submission of (preliminary) abstracts (maximum 300 words, structured into “Question(s)”, “Study area”, “Methods”, “Results” and “Conclusions”) to dr.juergen.dengler@gmail.com
- Until 31/03/2022: submitted abstracts will be evaluated continuously and manuscripts either invited or declined
- Until 30/09/2022: submission of papers (with prevalence to invited papers, while also non-invited manuscripts might be considered on a one-by-one basis)
- Manuscripts will undergo peer-review and be published on a one-by-one basis once accepted
- We anticipate that we will conclude the whole Special Collection in the first half of 2023

Please note that *Vegetation Classification and Survey* is a gold open access journal, which normally requests article processing charges (APCs) from authors. Thanks to the generous support of the IAVS, articles submitted until the end of 2022 are exempt from APCs, provided the first author is an IAVS member, while membership is free of charge for scientists from many Asian countries (see IAVS website).



© A. Nowak

Community of *Stipa arabica* in Alay Valley near Sary-Tash

Call for manuscripts: Special Collection on African vegetation studies

by Reginald Tang Guuroh, Miguel Alvarez, Leslie Brown, Manfred Finckh, Ute Schmiedel, Gaolathe Tsheboeng and Jürgen Dengler

Introduction

The Special Collection titled “African vegetation studies” is an initiative by the African Regional Section (RS) of the International Association for Vegetation Science and *Vegetation Classification and Survey* (VCS). VCS is an international, peer-reviewed journal of plant community ecology (<https://vcs.pensoft.net/about>) published by the International Association for Vegetation Science (IAVS). The focus of the journal is on vegetation survey and classification at any organizational and spatial scale.

Motivation

At the beginning of the 19th century, the African continent was mostly pristine and roaming with wildlife without boundaries. As the human population increased, pressure has been put on the natural resources available. However, Africa still has large areas with near-natural vegetation and wildlife left. The continent has a large diversity of plant and animal life with several biodiversity hotspots. In addition, the African continent has, in the Congo basin, the largest remaining extension of continuous tropical rainforest globally. Africa is part of three floristic regions (Palaeotropis, Palaearctic and Capensis), adding to the high diversity of the continent.

The rapid population growth and consequent land use changes make the African continent a hotspot of change urgently requiring more research. There is still a narrow window of opportunity to collect more baseline biodiversity data on natural and near-natural vegetation as well as to monitor the long-term changes as a result of anthropogenic activities and climate change. It is therefore of crucial importance to conduct research on African vegetation and to publish the results internationally to assist in bridging the data and knowledge gaps that currently exist.

Scientific publications are a key part of every researcher’s work. However, vegetation surveys and synecological research from Africa are currently underrepresented in scientific literature, resulting in inadequate knowledge and data on the continent. Additionally, even when research is conducted by African researchers, their research outputs are currently grossly underrepresented in the international scientific space; both at conferences and in scientific publications. As a result, a lot of data is lost to the broader scientific community as it remains unpublished.

Focus of the Special Collection

This Special Collection will focus on distribution patterns of natural vegetation as well as the dynamics resulting from the increasing human impact. In agreement with the scope of the journal, papers should develop, test or apply vegetation typologies or present vegetation-plot databases or tools in ecoinformatics. Typological approaches at any spatial scale from synusiae via phytocoenoses and landscapes to biomes are possible. Particularly suitable are the following topics:

Current vegetation patterns

- Classification
- Gradient analysis of vegetation patterns
- Biogeography of vegetation
- Remote sensing of vegetation patterns

Ecoinformatics

- Vegetation-plot databases
- Methods and programs in ecoinformatics

Typological perspective on vegetation change

- Land cover change
- Dynamics of phytocoenoses
- Vegetation typologies as conservation tool



Semi-desert with succulents on the Canary Islands



Savanna landscape of Ghana



Savanna in Namibia



Vegetation mosaic in the intensively utilised landscape of southern Ethiopia

Procedure and deadlines:

- 22/09/2021: First announcement at the 2021 IAVS Symposium
- 19/10/2021: Publication of the call
- 31/12/2021: Submission of preliminary abstracts in the style of the journal to the Chair of the Collection Editors, Reginald Guuroh (rtguuroh@csir-forig.org.gh)
- 31/01/2022: Feedback to authors on acceptance of abstracts/ proposals
- 30/06/2022: Submission of invited manuscripts
- Manuscripts will undergo peer-review and be published on a one-by-one basis once accepted
- We anticipate that we will conclude the whole Special Collection in the first half of 2023 with the publication of a synthesising editorial

Please note that “*Vegetation Classification and Survey*” is a gold open access journal, which normally requests article processing charges (APCs) from authors. Thanks to the generous support of the IAVS (www.iavs.org), articles submitted until the end of 2022 are exempt from APCs, provided the first author is an IAVS member, while membership is free of charge for scientists from most African countries.

Editors:

Reginald Tang Guuroh (Ghana),
Miguel Alvarez (Germany, working in Eastern Africa),
Leslie Brown (South Africa),
Manfred Finckh (Germany, working in Angola and Morocco),
Ute Schmiedel (Germany, working in Southern Africa),
Gaolathe Tsheboeng (Botswana),
Jürgen Dengler (representative of the Chief Editors)

Call for SI in Biologia

Biological invasions in the 21st century: a global risk

by Katarína Hegedúšová and Eduardo Cires

Proposed Research Topic: Biological Invasions in the 21st Century: a global risk

About this Research Topic:

Biological invasions refer to the introduction, establishment, and expansion of alien species from other geographical areas. Most of the invasions have been caused by accidental introductions, yet some have been intentional. The transfer of species has been carried out for a long time but, without a doubt, the human movements, intensification of trade, ecosystems alteration and further development have accelerated the process. Therefore, biological invasions are globally recognised as a primary cause of biodiversity loss and can profoundly alter ecosystem properties and native biodiversity.

This **Special Issue** aims to bring together a set of **reviews and research articles about all aspects of plant invasion biology**, emphasising patterns and processes of biological invasions in terrestrial, freshwater, and marine ecosystems. Also of interest are scholarly papers on management and policy issues related to conservation programs and the global control of invasions. This Special Issue also welcomes risk management frameworks, including strategies for managing species or their impacts.

This Special Issue aims to deepen our knowledge of the routes of introduction of invasive species, identify the most invaded regions and habitats, characterise species invasiveness, genetic diversity of invasive versus native species, and the modification of ecosystems, species control management and the like. Furthermore, specific case studies are welcome.

We think you could make an excellent contribution based on your academic expertise and publication record. For further reading, please follow the link to the Special Issue Website at: <https://www.springer.com/journal/11756>.

We encourage the potential authors to send a short abstract to the Editors in advance (katarina.hegedusova@savba.sk, cireseduardo@gmail.com).

The submission deadline for abstracts is **December 15, 2021**, and the submission deadline for articles (Biologia) is **April 30, 2022**. Naturally, the submitted manuscripts should not be under consideration for publication elsewhere.

For further details on the submission process, please see the instructions for authors at the journal website <https://www.springer.com/journal/11756/submission-guidelines?IFA>.

We look forward to hearing from you soon.



29th Conference of the European Vegetation Survey: A report (6-7 September 2021)

*by Milan Chytrý, Emiliano Agrillo, Fabio Attorre, Idoia Biurrun, Anna Kuzemko and
Joop H.J. Schaminée*

The European Vegetation Survey (EVS) group has convened its annual meetings regularly since its foundation in 1992. After the successful 28th EVS meeting in Madrid in September 2019, the next meeting was planned to be held in Rome in May 2020. However, the COVID-19 pandemic made this plan impossible. The meeting was rescheduled to May 2021, but in the end, it appeared there would be still considerable health and financial risks associated with a live meeting even in spring 2021. Therefore, the EVS Steering Committee decided to convene an online meeting in September 2021.

The meeting was prepared by the EVS Steering Committee (Fabio Attorre, Idoia Biurrun, Milan Chytrý, Anna Kuzemko and Joop Schaminée) and the EVS Membership Administrator Emiliano Agrillo. The aim was to make it as simple as possible, i.e. with no conference fees, and as lively and interactive as possible, i.e. with no pre-recorded presentations. The website initially developed by the team of La Sapienza University for the cancelled Rome 2020 meeting was used for participant registrations and abstract submissions. Registration was possible until the very last days before the conference. The whole conference was running on the MS Teams platform provided by Masaryk University.

The main topic of the conference was “Revegetating Europe – Contributions of the EVS to the UN decade on Ecosystem Restoration”. By selecting this topic, the EVS group aimed to highlight its current active participation in ecological restoration and immense potential to contribute to future restoration efforts. One session was dedicated to ecological restoration, and another one to vegetation management and monitoring. As in any other EVS meeting, other sessions presented results of regional, national and international vegetation survey studies, survey methods, vegetation databases and other topics related to European vegetation and its diversity.

Table 1. Participants of the 29th EVS meeting by country

Italy	31	Ireland	2
Slovakia	15	Serbia	2
Czech Republic	12	Switzerland	2
Russia	11	Austria	1
Spain	9	Bosnia and Herzegovina	1
Ukraine	9	Denmark	1
Germany	7	Finland	1
Netherlands	7	France	1
Poland	7	Hungary	1
Latvia	6	Japan	1
Bulgaria	5	Kazakhstan	1
Slovenia	5	Morocco	1
Greece	3	Portugal	1
Lithuania	3	Romania	1
Turkey	3	Taiwan	1
Croatia	2		

The conference included two types of presentations: regular presentations of 12 minutes and lightning talks of 3 minutes, each followed by a discussion. The lightning talks substituted poster sessions at standard live conferences. In total, 36 regular presentations and 30 lightning talks were presented during two days. The electronic Book of Abstracts was published open access on the Zenodo platform (European Vegetation Survey 2021).

Based on the statistics provided by the MS Teams platform, the conference was attended by at least 155 participants from 31 countries (Table 1). However, the actual number was higher because, in several cases, more than one person followed the presentations sitting at one computer. Moreover, the live stream of

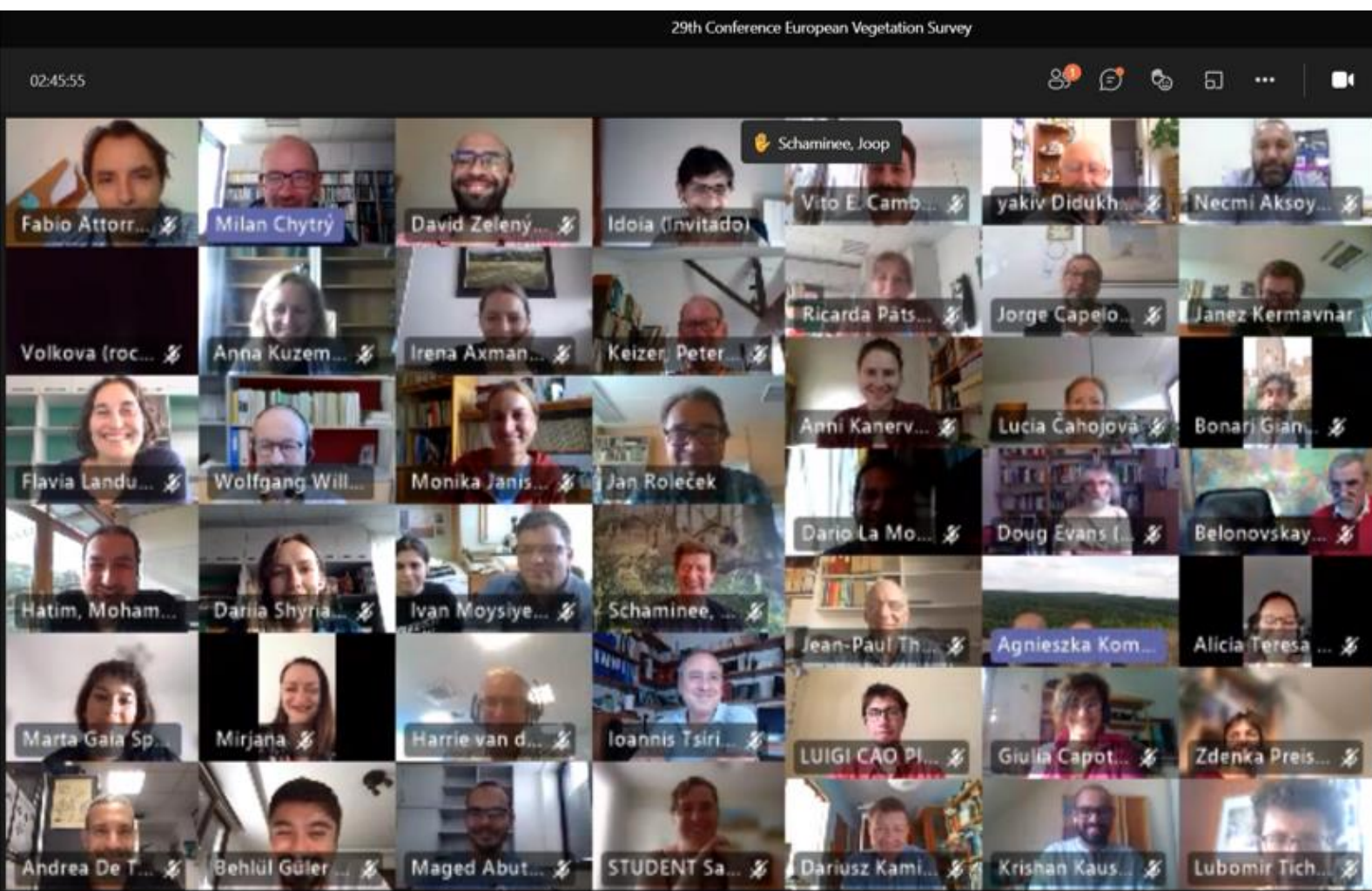
the conference was even projected in seminar rooms at some institutions. This large number of participants corresponded to the attendance in live EVS conferences in pre-covid times. Although many people were tired of numerous online events taking place in 2020-2021, this large interest in the EVS virtual conference demonstrated that EVS people are keen to share and discuss their results with others, look what the others do, see the old friends and meet new colleagues at least in the virtual space. The conference showed that the “new spirit of phytosociology” stimulated by Sandro Pignatti almost 30 years ago is still strong and survives difficult times.

The 29th EVS meeting was a great event, but it was a virtual event, which cannot fully substitute the interactions that happen in live meetings. We are looking forward to renewing the live annual EVS meeting series, which will happen in Bratislava, Slovakia, on 9-13 May 2022.

Reference

European Vegetation Survey (2021) *29th Conference of European Vegetation Survey: Revegetating Europe – Contributions of the EVS to the UN Decade on Ecological Restoration. Online conference, 6–7 September 2021. Abstracts.* Zenodo.

<https://doi.org/10.5281/zenodo.5171736>



A screenshot from the virtual 29th EVS meeting

Recently defended theses in Vegetation Science

In this issue we introduce the four recently defended PhD theses in vegetation science provided to the bulletin. You are welcome to present your work to a broad audience of vegetation scientists throughout the world this way. Your message can be published in the forthcoming issues if you send your contribution to monika.janisova@gmail.com containing the following information: 1) Name and affiliation of the student (photo appreciated); 2) Name and affiliation of the supervisor (photo appreciated); 3) Topic of the thesis; 4) Summary of the thesis; 5) Date of defense; 6) Publications related to the thesis.

Between land and sea — saline and brackish grasslands of the Baltic Sea coast [data usability, characterisation and conservation]

(Defended on 19th of August 2019 at the University of Hildesheim, Germany)



Ricarda PÄTSCH

Vegetation Science Group, Masaryk University, Brno, Czech Republic

Supervisors:

Anke MEISERT, University of Hildesheim, Germany

Erwin BERGMEIER, University of Göttingen, Germany

The study of vegetation-plot data on a broad geographical scale is of increasing importance in vegetation sci-



Anke Meisert and Ricarda (left), Erwin Bergmeier and Ricarda (right)

ence. It significantly contributes to the transnational characterisation of vegetation types as well as the better understanding of their large-scale patterns and to habitat typologies, which are important for decision-making processes in European nature conservation. I examined semi-natural salt-affected Baltic Sea grasslands which occur on sedimentary flats at the transition between land and sea. Their diverse vegetation is dependent on low-intensity grazing. This valuable part of the European cultural landscape, which is recognized as Annex I priority habitat type and assessed as Endangered in the European Red List of Habitats underwent an overall decrease in quality and quantity frequently related to abandonment.

Within my PhD thesis (Pätsch 2019) I (i) developed a proposal to integrate vegetation data using non-standard scales into general vegetation analyses, (ii) characterised the vegetation of Baltic Sea grasslands on



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Saline to brackish grasslands grazed by horses at the Polish Baltic Sea coast

transnational level, (iii) regarded them from a North-west European perspective, (iv) discussed their nature conservation aspects on European scale, (v) investigated changes in their plant species composition and discussed its possible relation to cessation of grazing and (vi) formulated a monitoring concept important for management planning in nature conservation.

Phytosociological data are generally based on detailed recordings of the relative importance of each species, commonly described by grades of species-quantity scales. During the historical development of vegetation science in Europe, especially in Northern Europe (Fennoscandia), different scales were developed, which are now largely forgotten and often misinterpreted. To adapt records using these scales to a format appropriate for general vegetation analyses and to enable their use for subsequent surveys of saline and brackish grasslands of the Baltic Sea, my co-authors and I searched for the most frequently used species-quantity scales of Fennoscandia, which we identified as the Norrlin, Hult-Sernander and Drude scale (Pätsch et al. 2019a). We successfully elaborated a proposal on the standardised transformation of their scale grades to percentage values, by conducting a comprehensive literature survey and by calculating hypothetical percentage species covers for the individual grades of the Norrlin scale. We identified six and three commonly used variants of the Hult-Sernander scale and the Drude scale, respectively, which were distinctive in the number of grades. The

results of this study contribute to an increased international availability and understanding of (historical) quantitative vegetation-plot data and enable a standardised use of copious data from Fennoscandia. They considerably increased the amount of data for the study described in the following paragraph. Thanks to Stephan Hennekens from Wageningen Environmental Research, transformations of species-quantity scales studied here can now be applied using Turboveg 3.

To examine the vegetation of Baltic Sea saline and brackish grasslands, my co-authors and I classified vegetation-plot data of the entire Baltic Sea coast, resulting in 33 vegetation types with most of them belonging to the classes of *Juncetea maritimi* and *Molinio-Arrhenatheretea* (Pätsch et al. 2019b). We determined that abiotic factors such as soil salinity, moisture and nutrient availability strongly relate to their separation within the littoral zones (height above sea level), whereas the geographic distribution of vegetation types relates to phytogeographical patterns, sea water salinity, differences in tidal range and climatic conditions. Our results revealed that grassland communities of the Baltic Sea coast are either most similar to North-west European or Arctic communities or are unique. Our findings contribute to an improved transnational perspective on Baltic Sea coastal grasslands and to the refinement of Natura 2000 habitat type descriptions, which are substantial for decision-making processes in nature conservation.

For the third article related to my PhD, my co-authors and I surveyed the relation of *Elytrigia repens* (couch grass) to species generally characteristic for the low-growing vegetation types of the southern Baltic Sea coast (Pätsch et al. 2019c). We revealed that a high cover of *Elytrigia repens*, which goes along with additional strongly competitive plants, significantly relates to a low incidence of characteristic salt grassland species and differences in abiotic factors. We developed a monitoring method based on a regular record of the abundance of *Elytrigia repens*, which may contribute to improved decision-making in grazing management and hence to the conservation of Baltic Sea coastal grasslands.

How I continue my path in academia:

After the successful defense of my PhD, I had the great opportunity joining the Wagner Ecology lab (University of Alberta, Edmonton, Canada) led by Viktoria Wagner. There, I was able to broaden my knowledge on grassland diversity by studying herb-rich Bedrock Meadows occurring in the mid-elevations of the Rocky Mountains in the Pacific Northwest of North America. This brilliant experience was followed by my exciting current position in the Vegetation Science Group (Masaryk University, Brno, Czech Republic) led by Milan Chytrý. Here, I will use and amplify my knowledge on salt-affected



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Baltic Sea coastal grasslands get inundated during strong storms in late summer



Flowering aspect of *Cotula coronopifolia*, here occurring in a trampled part of the supralittoral zone

grasslands and database handling aiming to develop a formalized classification system of pan-European inland and coastal salt-affected vegetation.

Without the respectful and mutually supportive cooperation I experienced during and after my PhD, facilitating a common understanding of challenges, tasks and goal-oriented solutions, neither of the above-mentioned studies would have been possible. For my future path in academia and as part of the International Vegetation Science Association community, I wish for and I am looking forward to further high-quality vegetation science and fruitful collaborations, especially in a (needed and hopefully more and more) diverse community and inclusive environment within and beyond the IAVS.

Publications related to the thesis

- Pätsch R, Jašková A, Chytrý M, Kucherov IB, Schaminée JHJ, Bergmeier E, Janssen JAM 2019a. Making them visible and usable – vegetation-plot observations from Fennoscandia based on historical species quantity scales. *Applied Vegetation Science* 22/4, 465–473. DOI: 10.1111/avsc.12452.
- Pätsch R, Schaminée JHJ, Janssen JAM, Hennekens SM, Bruchmann I, Jutila H, Meisert A, Bergmeier E. 2019b. Between land and sea – a classification of saline and brackish grasslands of the Baltic Sea coast. *Phytocoenologia* 49/4, 319 – 348. DOI: 10.1127/phyto/2019/0339.
- Pätsch R, Bruchmann I, Schellenberg J, Meisert A, Bergmeier E 2019c. *Elytrigia repens* co-occurs with glycophytes rather than characteristic halophytes in low-growing salt meadows on the southern Baltic Sea coast. *Biologia* 74, 385–394. DOI: 10.2478/s11756-019-00195-1.
- Pätsch R 2019. Between land and sea - saline and brackish grasslands of the Baltic Sea coast. Data usability, characterisation and conservation. Universitätsverlag Hildesheim. 112 pages. PhD thesis. DOI:10.18442/058.

Fire effects on vegetation and environmental variables in a sub-humid South American grassland

(Defended on 21 December 2020 at University of the Republic, Montevideo, Uruguay)



Luis LÓPEZ-MÁRSICO (luislopez@fcien.edu.uy)

Institute of Ecology and Environmental Sciences, Faculty of Sciences, Montevideo, Uruguay

Supervisors:

Alice ALTESOR: Institute of Ecology and Environmental Sciences, Faculty of Sciences, Montevideo, Uruguay.

FELIPE LEZAMA: Department of Environmental Systems, Faculty of Agronomy, Montevideo, Uruguay

Summary of the thesis

Disturbances are biomass removal events and have global relevance as they are capable of causing changes in the structure and functioning of ecosystems over time. Uruguay belongs to the Río de la Plata grasslands, and 60% of the country is occupied by native grasslands dominated by perennial species. In those plant commu-



Photo 1. Landscape dominated by the tussock grass *Saccharum angustifolium*

nities dominated by tall tussock grasses, patchy and asynchronous field-burns are a traditional management practice among ranchers, to release space and improve the quality of forage for livestock. This thesis evaluated the effect of fire, and in some cases the interaction with grazing, at different organization levels and at different spatial-temporal scales, on the plant structure of a grassland community dominated by *Saccharum angustifolium* (Photo 1) in the Eastern Hills (Sierras del Este) region from Uruguay.

Through a field study, the succession process was described in patches with different time since the last fire through a spatial chrono-sequence. We selected 18 grazed sites with four age categories since the last fire: 6, 18, 30, and more than 60 months before sampling. Plant composition, species richness (S), coverage of each species, bare soil (BS), and standing dead biomass (SDB) were determined in plots of 25 m². Patches of different time since the last fire had different species composition. On a patch scale (Figure 1), fire removes aboveground biomass of the dominant species (*S. angustifolium*) and causes a release of resources, such as space and light. The BS gaps that appeared are quickly colonized by herbaceous monocots and dicots, and we observed that S, diversity and evenness decreased, whereas SDB increased as time since the last fire increased. On a larger scale, we observed the coexistence of patches in different successional stages and differences in species composition between patches belonging to early stages. This study confirmed occasional and localized fires as a major driver of vegetation change and structural diversity in a grazed native grassland dominated by a tall tussock grass. These grasslands require asynchronous field burning of patches to generate structural changes that maximize both spatial and temporal heterogeneity.

Through a laboratory study, the germination response (Photo 2) to direct (heat-shock and smoke) and indirect (light intensity) fire-related cues, of five herbaceous and one shrubby species that occur in natural grasslands of eastern Uruguay were evaluated. All species are native and belong to the Poaceae (2 species) and Asteraceae (4 species) families. Seeds were subjected to smoke and heat-shock treatments (50°C, 100°C) under two light intensities (high-light and low-light). We found that direct fire-related cues did not stimulate germination in any studied species. Most species showed a reduced percentage of germination or a delayed mean germination time, relative to the control, when exposed to heat-shock at 100°C or smoke. However, seeds survived to high temperatures, indicating that they can tolerate a fire event. Light was found to be a key germination cue. Treated seeds responded to fire-related cues mainly when we simulated the high-light environment after fire. Our results contribute to the growing body of evidence that many species from South American grasslands do not rely on recruitment by seeds after a fire

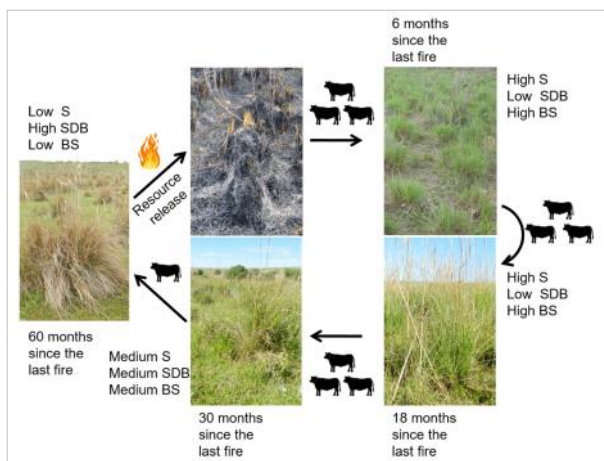


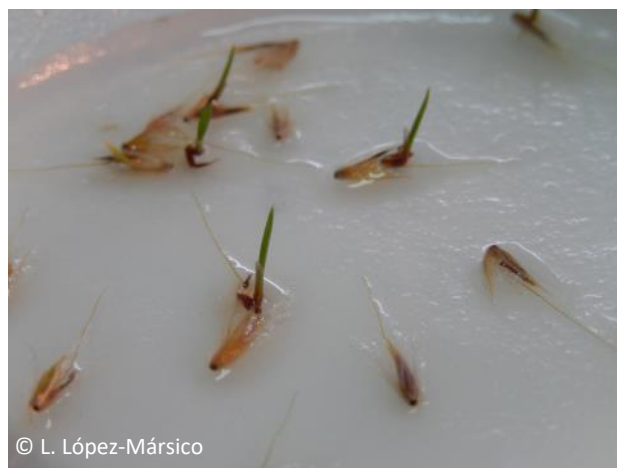
Figure 1. Diagram based on the Pyric Herbivory model in a Uruguayan grassland

event, but rather on the ability to resprout by means of subterranean or protected basal buds.

Through a field experiment, during three growing stations, the effects of fire-grazing interaction on abiotic and biotic variables of vegetation at different organization levels were analyzed. In a Protected Area, an experiment with all combinations of the factors fire and grazing was carried out (Photos 3 and 4), with three replications (12 plots of 300 m²). A fire characterization was made according to the intensity, effectiveness, and maximum temperature. The soil temperature increased by 40% after the fire and the soil humidity was not modified. The removal of standing dead biomass caused by the fire made it possible for domestic cattle to consume the fresh resprout of the dominant species (*S. angustifolium*) and generated modifications over time in temperature, moisture, and soil compaction. Fire, by consuming the biomass of the dominant species, caused a decrease in its coverage. This caused patches of bare soil to be generated and allowed a change in the composition of species and an increase in the species richness and coverage of groups of plants that were poorly represented. After the experimental burning, a partition of clumps was generated and therefore the number of *S. angustifolium* clumps increased.



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Photo 2. Germination of *Saccharum angustifolium*

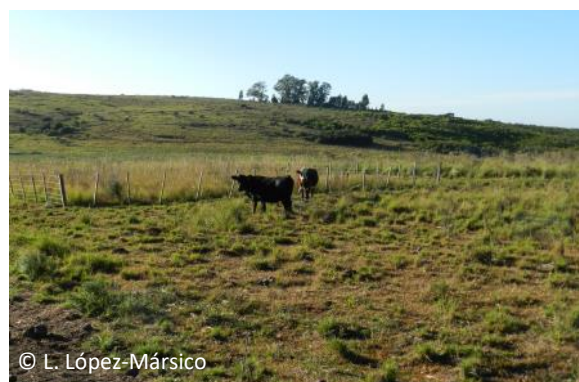
At the same time, there was a decrease in the volume of *S. angustifolium*, whereas in the plots that were burned and exclosed, the number of flowering culms quadrupled regarding the other treatments. As time passed, most of the variables returned to the pre-burn values. Grazing had less influence on the variables evaluated and its effects were noted at the end of the experiment. This experiment provides a large set of data that allows us to understand some processes that occur after livestock ranchers carry out field burns and these patches are

Publications related to the thesis:

López-Mársico, L., Lezama, F., & Altesor, A. (2021). Heterogeneity decreases as time since fire increases in a South American grassland. *Applied Vegetation Science*, 24(1), e12521.

Cuello, N., López-Mársico, L., & Rodríguez, C. (2020). Field burn versus fire-related cues: germination from the soil seed bank of a South American temperate grassland. *Seed Science Research*, 30(3), 206-214.

López-Mársico, L., Farías-Moreira, L., Lezama, F., Altesor, A., & Rodríguez, C. (2019). Light intensity triggers different germination responses to fire-related cues in temperate grassland species. *Folia Geobotanica*, 54(1), 53-63.



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Photos 3 and 4. Experiment of fire-grazing interaction in a Uruguayan grassland.

Intraspecific plant trait variability within the environmental and geographic space

(Defended on 6th July 2021 at the Free University of Bozen-Bolzano, Italy)



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Summary of the thesis:

Quantifying plant intraspecific trait variation and fitness across species distribution ranges is key to understand population dynamics and local extinctions in the face of global environmental change. Despite the large amount of primary data available in the ecological literature and publicly available data repositories, quantitative syntheses addressing generalities and dissimilarities of such patterns across different species worldwide are still lacking.

In my PhD dissertation I reported studies using meta-analytical approaches to quantify cross-species patterns of plant intraspecific trait variation within the environmental and geographic space. First, I presented a meta-analysis describing the intraspecific response of morpho-physiological leaf traits along elevational gradients. Afterwards, I reported a meta-analysis upon survival and intraspecific trait variation following reciprocal transplants within the elevational range of different plant species. Finally, we tested whether the probability

of occurrence modeled through species distribution models (SDMs) is coupled with intraspecific trait variability in North American tree species so that individuals have higher fitness at the centre of their species environmental niche than at the edges, which we defined as the 'fitness-centre' hypothesis.

Results of my works reveals that there are common intraspecific responses of several leaf traits across natural populations of different species located at different mountain ranges of the world. We also detect paired cross-species trends of covariation between leaf traits along elevation. By summarizing results of reciprocal transplant experiments along elevational gradients, we showed that individuals transplanted downward show larger biomass and height compared to their site of origin but failed to reach equal these traits and survival to that of local individuals. Individuals transplanted upward adjust their traits by decreasing plant growth and number of reproductive units to that of local individuals but nevertheless show lower survival. Importantly, we found that such patterns are moderated by temperature and precipitation difference between transplant sites at different elevations. Finally, in my thesis we showed that the 'fitness-centre' hypothesis does not hold true in none of the 66 North American tree species analyzed and that the lack of the relationship between individual fitness and the SDM-modeled probability of occurrence is pervasive across species differing in dispersal ability and climatic niche breadth.

Because plant functional traits and individual fitness play a crucial role in plant shift and local persistence following altered environmental conditions, I hope my studies will have relevant implications for biological conservation and contribute to identify biotic constraints within geographic distribution ranges of plant species.

Publications related to the thesis:

- Midolo, G., De Frenne, P., Hölzel, N., & Wellstein, C. (2019). Global patterns of intraspecific leaf trait responses to elevation. *Global change biology*, 25(7), 2485-2498. <https://doi.org/10.1111/gcb.14646>
- Midolo, G., & Wellstein, C. (2020). Plant performance and survival across transplant experiments depend upon temperature and precipitation change along elevation. *Journal of Ecology*, 108(5), 2107-2120. <https://doi.org/10.1111/1365-2745.13387>
- Midolo, G., Wellstein, C., & Faurby, S. (2021). Individual fitness is decoupled from coarse-scale probability of occurrence in North American trees. *Ecography*, 44(5), 789-801. <https://doi.org/10.1111/ecog.05446>
- Midolo, G., Kuss, P., & Wellstein, C. (2021). Land use and water availability drive community-level plant functional diversity of grasslands along a temperature gradient in the Swiss Alps. *Science of The Total Environment*, 764, 142888. <https://doi.org/10.1016/j.scitotenv.2020.142888>

Plant geography and vegetation in potential refugia in Greece: conservation value of floristic composition and ecological functions

(Defended on 9 November 2020 at Aristotle University of Thessaloniki, Thessaloniki, Greece)



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Summary of the thesis

The doctoral dissertation aimed to unravel the patterns of diversity and community assembly of the broad-leaved deciduous and mountainous coniferous forests in northern and central Greece. This area is characterised by great topographic and climatic variability, and has been considered as a refugial region for forest species and community types. The thesis is based on the complementary investigation of taxonomic, functional and phylogenetic diversity since such a combination of analyses can contribute to the understanding of diversity patterns of vegetation communities and the underlying mechanisms of community assembly.

A dataset of 3453 vegetation plots was compiled, consisting of 3408 plots from literature sources and 85 new plots of ravine forests, sampled for the present thesis. Vegetation classification led to distinguishing 25 floristically and ecologically distinct community types, further categorised in four forest types, namely beech, ravine, pine and oak forests.

The study of taxonomic diversity revealed distinct diversity patterns for the different forest types and especially for beech and oak forests. Beech community types were consistently observed to have the lowest levels of taxonomic diversity for all the investigated datasets (whole community level, understorey and overstorey) while oak community types had the highest levels of diversity. High light availability, soil conditions and presence of disturbances of intermediate level were considered to be among the main drivers of this differentiation of taxonomic diversity among forest types.

The four forest types included in the dataset were clearly differentiated based on the investigation of functional diversity as well. The broadleaved deciduous and mountainous coniferous forests were clearly differentiated from each other by traits related to all three central processes that are involved in community assembly (reproduction, dispersal and competition). Functional overdispersion was far more common than functional clustering based on single-trait analyses. Ravine and oak forests were differentiated mainly based on traits related to dispersal, while pine forests were differentiated based on pollination vectors. Although structured patterns were observed by the single-trait analyses, mostly random patterns were observed by the multidimensional analysis at the whole community level. Thus, there was no significant evidence of differentiation among the 25 forest community types based on the latter metrics, which was considered the outcome of complex relations between multiple co-occurring biotic and abiotic factors in the community types.

Based on phylogenetic diversity, the four forest types were also differentiated from each other based on the whole community analyses, with phylogenetic overdis-

person being far more common than phylogenetic clustering. More specifically, ravine forests appeared to have the highest levels of phylogenetic diversity, while oak forests had the lowest levels. A similar pattern was also found for phylogenetic structure at the whole community level. Particularly, ravine forests had the highest percentages of phylogenetically overdispersed plots, followed by pine forests with intermediate percentages of overdispersed plots and then by beech with low percentages of overdispersed plots and very few clustered plots. Finally, oak community types had the highest percentages of phylogenetically clustered plots.

For all facets of diversity, different patterns of diversity were observed when the total floristic composition of the communities was taken into account, compared to those observed when only understorey, overstorey or angiosperm taxa were included in the analyses. Particularly, the effect of the discrimination of forest layers was stronger for the functional diversity, the effect of discrimination of angiosperm taxa was stronger for the phylogenetic diversity, while all discriminations appeared to have significant effects on the observed patterns of taxonomic diversity. It is suggested that separate investigation of the forest layers can lead to more accurate conclusions, since it allows the results of the abundant taxa of the canopy to demonstrate driving mechanisms such as environmental filtering and results of the less abundant herb taxa to reveal underlying mechanisms such as niche differentiation. This is strongly supported by the results of the present thesis, since the investigation of functional and phylogenetic diversity and structure of the understorey forest layer revealed patterns that were not detected when analyses were implanted based on the total floristic composition of plots.

Due to the refugial character of the study area, attempts were made throughout the present study to investigate if its distinct climatic history has lasting imprints on the currently observed diversity patterns. Based on the taxonomic facet of diversity, a refugial character was inferred for beech forests by the relative-

ly large size of their species pools in agreement with similar evidence provided by palaeoecological (pollen and macrofossils) and molecular data from the literature. When functional diversity was investigated, ravine forests were found to have particular functional uniqueness among the studied forest community types, mainly through the single-trait analysis, and statistically significant clustering or overdispersion was observed for many of the traits or trait categories. This was interpreted as the possible results of the combined effects of environmental stability that lead to the preservation of distinct functional characteristics and the consequences of the long-term competition effects occurring in such stable environments. Furthermore, the two mesophytic ravine community types were highlighted among the rest by having phylogenetically overdispersed plots and included taxa with high evolutionary distinctiveness.

The thesis shows the advantages of a multifacet approach to diversity investigation. Additionally, it proposes a set of metrics that can be employed to obtain a holistic understanding of ecosystems' diversity. Furthermore, the importance of the community level investigation of diversity is also highlighted by the results of the thesis. Additional evidence provided by spatial patterns of diversity could provide further insight into the biogeographical processes that have potentially affected patterns of species distribution and vegetation composition and structure in the study area.

Publications related to the thesis

- Mastrogianni, A., Kallimanis, A. S., Chytrý, M. & Tsiripidis, I. (2019). Phylogenetic diversity patterns in forests of a putative refugial area in Greece: A community level analysis. *Forest Ecology and Management*, 446, 226-237. <https://doi.org/10.1016/j.foreco.2019.05.044>
- Mastrogianni, A., Chytrý, M., Kallimanis, A. S. & Tsiripidis, I. (2020). Plant trait filtering is stronger in the herb layer than in the tree layer in Greek mountain forests. *Ecological Indicators*, 131, 108229. <https://doi.org/10.1016/j.ecolind.2021.108229>



Aesculus hippocastanum, a typical species of ravine forests



Typical aspect of ravine forests in Greece. Locality: Mt. Ossa

Professor John Philip Grime (1935–2021), obituary

by Jason Fridley and Simon Pierce

Professor John Philip (“Phil”) Grime, Fellow of the Royal Society and recipient of the inaugural IAVS Alexander von Humboldt medal, died on April 19, 2021, at the age of 85. Perhaps no other scientist in the latter half of the 20th century had a larger impact on the field of vegetation science. Over a scientific career that spanned more

than five decades and produced nearly 200 publications, Phil helped to transform the study of plant communities from a largely descriptive and local discipline to a search for universal laws of plant adaptation — what he called *plant strategies*. Phil’s functional approach to understanding the structure of vegetation



© J. Fridley

Phil conducting the annual vegetation survey in the Buxton climate change experiment in 2013



© J. Fridley

Phil working on more vegetation surveys in 2013 at Buxton

has become a dominant mode of inquiry for ecologists worldwide and, as the need to understand human alterations of ecosystems has intensified, a critical tool for probing relationships between vegetation and ecosystem processes.

To vegetation scientists, Phil's work is synonymous with CSR theory, or 'Grime's triangle'. In a series of papers in the 1970s followed by the 1979 book *Plant strategies and vegetation processes*, Phil argued that two primary ecological gradients — environmental stress and disturbance — have fostered the evolution of three primary plant strategies: competitors (C), stress-tolerators (S), and ruderals (R). The theory expanded on MacArthur and Wilson's r-K theory by recognizing the critical role of variation in resource supply rates (particularly mineral nutrients) in 'K' selected species, driving strong divergence in the functioning of species across productivity gradients. Phil would refer to this phenotypic gradient as the 'resource axis' — eventually renamed the plant economics spectrum — and label the defining plant attributes as *functional traits*. Under Phil's direction, the Unit of Comparative Plant Ecology (UCPE) at Sheffield became the global hotspot for trait-based ecology. That today we take many of these functional trait strategies for granted — that species of infertile habitats invest more in tissue protection and nutrient retention than in growth, while those of fertile sites invest in traits allowing rapid resource capture — is a testament to the success of Phil's ideas.

Phil's ideas also helped shape the study of biodiversity. Starting in the late 1960s, Phil, along with colleagues including John Hodgson, conducted a series of vegetation surveys of the Sheffield region that documented fine-scale species richness patterns in relation to soil properties and management regimes. These surveys would become the basis of Phil's 'hump-backed model' (HBM), which predicted that plant species richness should peak in communities producing about 600 g m^{-2} biomass annually due to the opposing forces of competitive dominance versus stress or disturbance. The HBM was one of the first conceptual tools available to managers of local biodiversity, and it sparked several



IAVS symposium 2013 in Tartu, Phil on the left with Dave Tilman (right), mediated by Jason Fridley (center)



© J. Fridley

Phil on the cricket pitch with wife Sarah, son Matthew, and daughter Lucy, in 2013

new lines of investigation. For example, the height of the richness peak was predicted to reflect the size of the regional species pool, which presaged work on local-regional richness relationships and scale dependence in diversity patterns. Phil would also later argue that because plant diversity and productivity were often negatively correlated due to competition, it is the traits of dominant species rather than the number of species that best predict ecosystem processes. Today this 'mass ratio hypothesis' is implicit in commonly used measures of plant functional traits, such as the 'Community Weighted Mean', and guides application of functional traits in an array of global change applications, including Earth system models.

To those whose ideas challenged his theories, Phil was a fierce intellectual opponent who embraced confrontation. But Phil also collaborated widely with plant ecologists worldwide and nurtured scores of young scientists, many of whom went on to apply the functional approach to vegetation types far beyond Sheffield. Indeed Phil was one of the earliest ecologists to consider the global ramifications of vegetation change, and per-

formed a number of innovative experiments that addressed vegetation-environment interactions. Chief among these is the Buxton Climate Change Impacts Laboratory, a manipulation of temperature and rainfall in a limestone grassland that, at nearly 30 years old, is one of the longest running climate manipulations in the world.

Although Phil was not an active IAVS member, several of Phil's most important papers were published in the *Journal of Vegetation Science*, including two of the Journal's most highly cited works: Díaz et al. 2004 "The plant traits that drive ecosystems: evidence from three continents" (JVS 15: 295) and Grime 2006 "Trait convergence and trait divergence in herbaceous plant communities: mechanisms and consequences" (JVS 17: 255). Late in his career he also attended IAVS conferences in Wales, Lyon, and Tartu. Phil leaves a rich inheritance of ideas that will influence generations of researchers as they continue the search for universal principles governing vegetation processes and ecosystem function.



Phil Grime during the Post-Symposium excursion in the Western Australia, 2014

Professor Akira Miyawaki (1928–2021), obituary

A life of passion and encounter with people for phytosociology and creation of native forests by the Miyawaki method

by Kazue Fujiwara and Elgene Box

Professor Miyawaki always said publicly that women could live to be 130 years old and men to be 120, even in his lecture for their Majesties the Emperor and Empress. When he collapsed from a cerebral hemorrhage, I encouraged him not to worry because he had told me before that he would continue to plant until he was 120 years old. He would have regretted dying with only 93 years, on July 16, 2001.

He encountered so many people (teachers and old friends), including Professor Reinhold Tüxen[†], Josef Schmithüsen[†], Heinz Ellenberg[†], Otti Wilmanns, Konrad Buchwald, Hartmut Dierschke, Herbert Sukopp[†], Helmut Lieth[†], Heinz Schlüter[†], Wolfgang Haber, Richard Pott (Germany); Victor Westoff[†], Eddy van der Maarel[†] (the Netherlands); Teofil Wojterski[†] (Poland); Jean-Marie Géhu[†], Roland Carbiener (France); Emilia Poli, Erika and Sandro Pignatti, Franco Pedrotti (Italy); William S. Benninghoff[†], Dieter Müller-Dombois, Frank Golley[†], Elgene Box (USA); Emílie Balátová-Tuláčková[†] (former Czechoslovakia); Franz Fukarek[†] (Germany); Song Yongchang (China); and Adolf Horvát[†] (Hungary). Especially Prof. Tüxen was his lifelong teacher, and Prof. Miyawaki followed the theory and lifelong way of study of Prof. Tüxen.

He met many excellent teachers, got a whiff of Tüxen's idea, took over, and used it throughout his life.

Prof. Miyawaki was a member of the IAVS since 1959, the year of its second meeting. He was vice-president from 1982 until 2002, and was elected as an honorary member in 1997.

Life history

Prof. Miyawaki was born the fourth son of a farmer at Fukiyachō (now Nariwa-chō in Takahashi City) in Okayama Prefecture of southwestern Japan. He was a weak



At the Sagami Branch of Izumo Taisha.
September 26, 2017

boy and did not remember flying around and playing. He always saw farmers fighting with weeds in their fields and wondered how to remove weeds easily. For that reason, he chose weed ecology at Hiroshima University.

His elementary school was a branch school, with 18 classmates and about 90 students up to the sixth grade. The Okayama countryside was poor, and only Miyawaki had the experience of getting on a train because he went to the hospital by train. He was not good at physical education and music, but although he was ill and often absent, he was the best student in other subjects.



Mangrove survey at Phanga in Thailand. October 16, 1982

His parents wanted him to become an elementary-school teacher or agricultural technician because their eldest son went to Tokyo as a fairy-tale writer; the second son was drafted but died of illness after returning to Japan; and the third son died in the war. After graduating from elementary school in 1942, Miyawaki entered the prefectural Niimi Agricultural and Forestry School and lived in a dormitory for three years. In the winter of 1945, because his good grades permitted him to go on to school, he headed to Urawa (north of Tokyo), where his eldest brother lived, to take the entrance examination for Tokyo High School of Agriculture and Forestry. The Tokaido Line train got stuck for 4-5 hours and returned to Niimi, but fortunately there was a second test. For that he went around and entered Tokyo from the west, from Niigata (on the Japan Sea). On the day of the Tokyo fire-bombing (March 1945) he walked along the railroad tracks from Urawa to Fuchū in Tokyo (ca 43 km) to take the test. The Tokyo High School (now Tokyo University of Agriculture and Technology) had a teacher training course for agricultural and forestry schools and a training course for biology teachers at secondary education institutions. He chose biology. Dr. Ichiro Ohga, who is famous for germinating the seeds of ancient lotus more than 2000 years ago, gave him an ecology lecture. Dr. Ohga told him "The German word *Ökologie* is a combination of Greek *oikos* (house) and *logos* (science), and is translated into German as *Haushalt* (house economy). But economics alone is not enough to enable humans to live affluently.

Ecology, from the perspective of living beings and their lifestyles, will be important from now on. After all, isn't it ecology that suits you?"

He was encouraged to study further but was fed up with Tokyo because he had been hungry. So he entered Hiroshima University in 1949, which is close to his parents' home, and enrolled in the Department of Botany. In his third year, under Professor Yoshio Horikawa, Miyawaki wrote "Study of weed communities by Raunkiaer's life forms" as a graduation thesis. The old system of Hiroshima University had a three-year period of study. Prof. Horikawa told him "Weeds? Weeds are important because there aren't many people studying them in agriculture or forestry. However, Miyawaki-kun, if you study weeds, you won't see the light of day in your life, and no one will deal with you. If you are still prepared to continue for a lifetime, do it certainly." After the thesis came out, Prof. Horikawa introduced his thesis to a newspaper.

After graduating in 1952, Miyawaki was introduced by Prof. Horikawa to an assistant at Yokohama National University (YNU) but was not contacted by YNU; so he became a graduate student in the Botany Department of Tokyo University, with an introduction by Professor Yasuna Fukuda of Plant Physiology. Professor Horikawa proposed him again for the post of Assistant at YNU, after which he studied as a research student at Tokyo University three days a week and worked as an assistant at YNU three days a week.

In 1953-1956, he made a vegetation survey of weed communities for the whole country. From Hokkaido to Kagoshima (Okinawa had not yet been returned from the United States), he examined 120 weed-community sites in each of the four seasons, by the phytosociological square-measurement method that is widely used internationally. Vegetation was surveyed every year for 240 days, by sleeping on the night train, surveying where he arrived the next morning, and then taking the night train again to the next area. It became cheaper if he and his co-worker went around in a single trip without changing their route. He said "I did not change in the middle but bought a ticket for the entire trip. We had stayed at the graduates' and seniors' homes and at the school's night-duty room. My wife Haru was a student when I was a part-time high-school lecturer and third-year student at Hiroshima University. At the time of the survey, I remembered Oita, the brewery of Haru's parents' house, and asked them to stay, and repeated it four times a year." When Haru's junior-college graduation approached, Miyawaki's mother asked him to marry. He married Haru Yoshida in 1956, got a son Isao in 1958 and a daughter Keiko in 1962.

Shortly before the wedding, Professor Shizuo Hattori of Tokyo University encouraged him to write a morphological and ecological treatise on *Aster subulatus*, which Miyawaki submitted in German to The Botanical Magazine. Professor Hattori spent the night editing his German. This paper caught the eye of Professor Tüxen and an airmail arrived: "Weeds grow because they are cultivated and weeded. Human activity will be intense from now on. Weeds are at the forefront of greenery. I am also studying weeds. Why don't you come here and we can study together?" At the Humboldt Foundation exam to secure funding for study abroad, Miyawaki failed the first time because he could not understand the interviewer's German. The second time, Miyawaki guessed the questions in advance, arranged the answers on a piece of paper (created with the help of a

German teacher), and memorized them. He couldn't understand the German questions, and every time he was asked something, he sprinkled in the German he had learned. The examiner laughed and said "you will pass because you could speak, even if you couldn't understand". He became the first Japanese botanical researcher to study in Germany, at the Humboldt Foundation.

The trip to Germany was 56 hours flying, along the southern route, plus another three hours by car from Bremen to Stolzenau. The next morning he went to the laboratory to meet Tüxen and was invited to the Tüxen family that night. There Tüxen pulled up "the Japanese" in an encyclopedia, saying that he saw a Japanese for the first time. From the encyclopedia he read "a subspecies of the Mongoloid genus. The body is small, the cheekbones are exposed, and the eyes and beard are black." He looked at him sternly and was told that he was a real Japanese, *ein echter Japaner*. Miyawaki was Tüxen's first Japanese and left many anecdotes because of his unique German expression. Immediately his nickname became "Ishi" because he could not pronounce the German word *ich*. Day after day he was taken to a field survey. One cold day Professor Tüxen asked "How are you, don't you think we are the victims of science?" Miyawaki answered "No, I am your victim." When he had eaten enough, he made unique expressions such as "I'm stuck with food all over my neck and I don't need any more." He returned to Japan in November 1960, two and a half years after being recalled from Yokohama National University. He was an alumnus with Prof. Emilia Poli in Stolzenau.

After returning to Japan, Miyawaki attended the Nature Conservation Society of Japan three days a week, and translated and published papers and information on nature protection in Germany. As a result, he himself became a staunch nature protectionist.



With Sandro and Erika Pignatti and Richard Pott during then IAVS excursion in Tenerife, April 1993



Tüxen Prize of the Tüxen Gesellschaft in Rinteln, Germany. March 24, 1995

He received his Doctor of Science in 1961, became a lecturer, and became an Assistant Professor in 1962. In 1965, the university was closed due to a student dispute, but Miyawaki sat down in front of the gate with a backpack containing materials and shouted that he would not move until he entered the laboratory; he broke the strike and was the only person going to the laboratory every day. During a more intense second dispute in 1969, he returned to Germany for half a year; after returning to Japan in the fall, he and his students summarized their research at his home. In 1970, students who had graduated from other universities asked to become his disciples, and Miyawaki accepted students from three universities as research students and went on field surveys with them all. In 1974, after the 18th symposium of the proto-IAVS (in Rinteln), there was an International Phytogeographical Excursion in Japan, where he guided a group led by Prof. Tüxen from Hokkaido to Kagoshima and summarized the results in a book *Vegetation Science and Environmental Protection*.

In a 10-year project beginning in 1979, the Miyawaki Laboratory surveyed vegetation all over Japan, from Yakushima to Hokkaido, plus Okinawa, and Ogasawara, with the cooperation of phytosociology researchers and taxonomists nationwide. Ten volumes, 5324 pages, with maps of actual and potential vegetation and phytosociological tables of all plant communities, were published, one each year, under the title *Vegetation of Japan*. During the field survey, Miyawaki ate three bowls of breakfast rice and was not hungry during the day. He became stronger even when his students were hungry and tired. He said "You made a mistake because you did not eat enough breakfast". This habit continued until his age 80. At this time (1981-84) a survey of Thai mangroves was also conducted, on which he led people through mud, water and like monkeys across the prop roots of the mangroves.

After a symposium in Wageningen in 1984, Miyawaki hosted the 28th IAVS Symposium and excursion in Japan (Honshu) led by IAVS President Heinz Ellenberg; afterward he flew to Okinawa with some researchers. At this time, Prof. Elgene Box came to Japan for the first time and continued for a lifetime their friendship from the Argentine IAVS excursion of the previous year. At this time, researchers from around the world planted Miyawaki-method forests at the foot of Mt. Fuji and in Okinawa. Finally, near the end of the 10th volume of the *Vegetation of Japan*, Miyawaki also led the Eastern North American Vegetation Survey (1988-90) with Prof. Box.

It was rumored that Miyawaki had very strong good luck and that, in the event of an accident, Miyawaki would survive and his disciples would not. He was awarded the Asahi Prize in 1990, the Golden Blume von Rheydt in 1991, and the Medal with Purple Ribbon in 1992. He was asked by Mitsubishi Corporation to restore tropical forests of the world, and spent 300 mil-

lion yen to restore tropical forests in Sarawak (Malaysia) in 1991-1993; he also restored tropical forests around Belem (Brazil) from 1992 to 1993.

After retirement from Yokohama National University in March 1993, he became the director of the Japanese Center for International Studies in Ecology, which had been under discussion with the Governor of Kanagawa Prefecture. In 1996-2004, he was also the director of the Nagano Nature Conservation Research Institute. In 1986 he was elected Vice-President of the International Ecological Society, and served as Secretary-General of its Yokohama meeting in 1990; he became its Chairman in 1991-1994.

From 1998 to 2000, the Beijing Municipal People's Government and the Aeon Environmental Foundation, and 7,400 participants, planted 390,000 trees, mainly *Quercus mongolica*, to restore the natural forest around the Great Wall near Beijing. In 2000 Miyawaki's heart's desire, the 43rd IAVS Symposium, was held in Nagano, with an Excursion through much of Japan. He was awarded the Order of the Sacred Treasure, Second Prize in 2000, and the Blue Planet Prize, the 15th International Award for Global Environment in 2006. And Sango, Toyota, and Yokohama Rubber continued to restore natural forests overseas and in Japan. In 2011, he surveyed areas damaged by the tsunami caused by the Great East Japan Earthquake. At the time he recommended to the prime minister to create a green embankment to reduce damage and protect people's lives in the event of a disaster. In 2012, a public-interest incorporated foundation was set up with former Prime Minister Morihiro Hosokawa as the chairman of the "Great Wall of Forest Project" (renamed the Chinju-no-Mori Project in 2016), to use the rubble to realize the green embankment initiative along the coast.

On January 10, 2015, just before his 87th birthday, he returned home from his office, was taken to the hospital due to a cerebral hemorrhage at dinner, and entered the fight against his illness. In July 2017 he was moved to a sanatorium in Hadano. There, he and Kiyokazu Kusayama, Chief Priest of Izumo Shrine Sagami, initiated the "Creating Native Forest for Life 2020" project, that had been advocated since 2014 (when the 2020 Tokyo Olympics were decided). Miyawaki became the founding representative and started activities to convey the message of forest creation to the world. Most recently, Miyawaki's philosophy has resonated with young people in various places, who formed groups such as Urban Forest, Tiny Forest, Boom Forest and Midorization [Greening] Project to rebuild forests in the United Kingdom, Belgium, the Netherlands, France, and Jordan.

On July 16, 2021, Miyawaki died at Isehara Kyōdō Hospital, where he had been hospitalized since May. He loved to eat and was motivated to move around at work, but at the end he couldn't eat solids and lived in bed for half a year. How regrettable he was.



Plantation for restoration of tropical forest at University Nairobi in Kenya with students. One of the last activities before collapse. May 10, 2014

From Japan to the world

Miyawaki did not always like plants, but he devoted himself to Tüxen's theory and taught his disciples everything thoroughly. When Fujiwara stayed at the Tüxen Institute in Rinteln for three months in 1969, she felt that Miyawaki had taught his disciples everything that he studied from Prof. Tüxen. But he also discovered what he could do beyond that, spreading ideas to the general public of the creation of natural forests by a Miyawaki method. Researchers criticized his approach saying that secondary forests have much higher diversity than natural forests. But he insisted that it was most important to create stable natural forests that did not require long-term management and could withstand disasters. The true Miyawaki method requires: 1. Use of potted saplings of potentially dominant canopy species from the local potential natural forest; 2. Dense, mixed-species plantation; 3. Random spacing; 4. Everyone in the local population plants together; and 5. No management after three years. Even after he collapsed in 2015, he inspired and instructed volunteer groups all over Japan. Furthermore, the groups in Europe and India that were sympathetic to his ideas have implemented the Miyawaki method in their own ways and will continue to contribute to green environments.

Prof. Miyawaki was a promoter of research and projects, a landlord of funding, and a summarizer of research. He received five honorary doctorates, from three German universities and universities in Thailand and Malaysia. Miyawaki mastered Tüxen's philosophy completely and not only conveyed it to the Japanese, but also wrote it up completely as "plants and humans" in his own words, which was translated into English as *The Healing Power of Forests* (with a contribution from Prof. Box). From an introduction to nature protection in Germany, phytosociology and vegetation mapping have taken root in Japan, and have been developed to produce maps of vegetation naturalness, vegetation functions, and reforestation that requires no management after three years. Passion and energy for activities in-

volving citizens are embedded in all the reforestation efforts. His life started from a farmhouse, and he continued his studies while going back and forth between Tokyo and Bitchū-Takahashi 800km during the bombing of Tokyo in World War II. Beginning with a weed survey of 240 days a year, he involved his disciples and ran through his life at a furious pace. Since 1970, he has been working with many followers on the restoration of natural forests by the Miyawaki method, which was developed by combining Professor Tüxen's theory of potential natural vegetation and the experience of farmers. Until 2020, he planted 32.65 million trees in about 2,500 locations in Japan and 5,412,200 trees in 158 locations in 17 other countries.

Although he was in a wheelchair for his last seven years, he still had a strong passion for tree planting. In his wheelchair he was surrounded by 400 people at the 2019 Akira Miyawaki Resurrection Tree Planting Festival. In 2020 and 2021, during the coronavirus disaster, he could only meet people through glass and only hold his passion inside. But just like a Miyawaki-style forest, the intention will be conveyed to the world and will survive in forests forever.



© K. Kusayama

Miyawaki Revival tree plantation Festival at Hadano, Japan. April 30, 2019

IAVS standing on the restoration of grassy biomes

The UN Decade on Ecosystem Restoration is a call for the protection and revival of ecosystems all around the world, for the benefit of people and nature. This ambitious initiative was launched as a response to impact of human-related activities on species and ecosystems. If successfully implemented, the UN Decade on Ecosystem Restoration will catalyze unprecedented protection of biodiversity, ecosystem services and human livelihoods. Successful implementation of large-scale restoration deeply relies on the correct identification of target areas and appropriate restoration strategies.

Unfortunately, grassy biomes worldwide, encompassing grasslands, savannas, shrublands, and open woodlands, have been misunderstood as degraded forest, thus being targets for afforestation (tree planting in open biomes). The International Association of Vegetation Science, the largest worldwide union of scientists and others interested in theoretical and practical studies of vegetation, aims to promote science and conversations that will support conservation and management of diverse vegetation types on Earth. Aiming to support informed decision-making, the Governing Board of the IAVS makes the following evidence-based statements on the state of the world's grassy biomes.

- Grassy biomes are ancient, open biomes which are home to outstanding biodiversity and are unique providers of ecosystem services such as water provision and belowground carbon storage.
- Grassy biomes are not the product of forest degradation and should not be targets for afforestation and uncritical tree planting.
- Grassy biomes, despite suffering high rates of conversion, have long been ignored in restoration science, policy, practice and in the media discourse. Biome awareness disparity poses an additional and substantial threat to the sustainable use of grassy biomes.
- Tree cover is not a universal indicator of habitat quality, and in many cases, tree planting (particularly with alien species), afforestation and other ill-conceived policies will harm biodiversity, decrease the delivery of ecosystem services and jeopardize traditional livelihoods of hundreds of millions of people living in grassy biomes worldwide.
- Large-scale restoration of grassy biomes should abandon forest- and tree-centric approaches, embrace the socio-ecological principles that shape open biomes, and develop restoration strategies tailored to these ecosystems.
- Measures should be taken to better acknowledge the central role played by grassy biomes in contributing to the success of the UN Decade on Ecosystem Restoration.

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Churiuk Island, Kherson Region, Ukraine, 25.05.2021



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Afforestation of subtropical grassland in southern Brazil with *Eucalyptus* sp. (-30.357170°, -53.334233°)



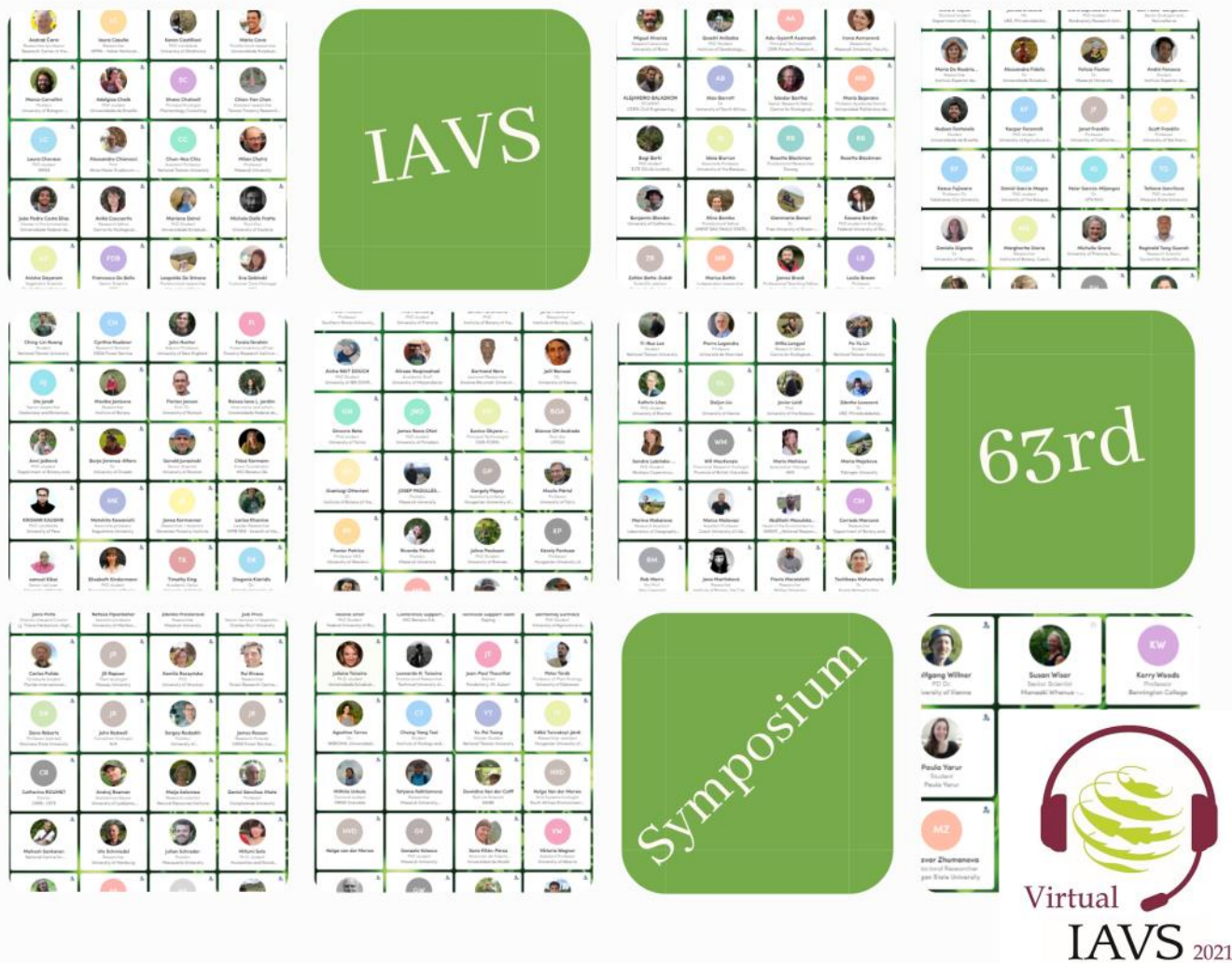
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Pristine highland grassland in the municipality of Cambará do Sul, southern Brazil. These grasslands have been targeted for afforestation with *Pinus* sp.



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Newly converted highland grassland in the municipality of Cambará do Sul, southern Brazil. *Araucaria* forest is seen in the background



Participants of the 63th IAVS Virtual Symposium in September 2021

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