

PALAEARCTIC GRASSLANDS

Journal of the Eurasian Dry Grassland Group

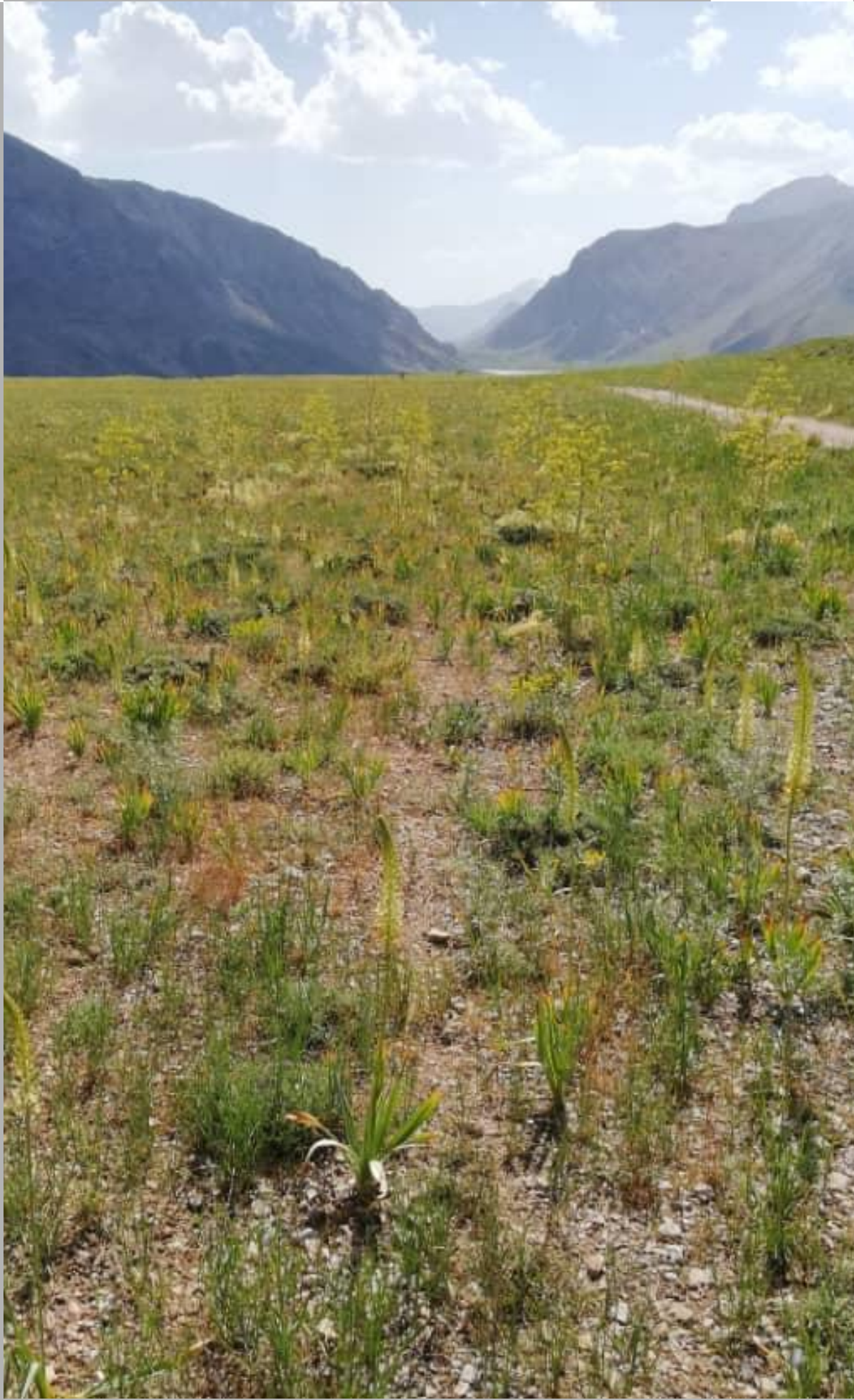


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Palaeartic Grasslands

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Palaeartic Grasslands, formerly published under the names *Bulletin of the European Dry Grassland Group* (Issues 1–26) and *Bulletin of the Eurasian Dry Grassland Group* (Issues 27–36), is the journal of the Eurasian Dry Grassland Group (EDGG). It appears in four issues per year. *Palaeartic Grasslands* publishes news and announcements of EDGG, its projects, related organisations and its members. It also serves as an outlet for scientific articles and photo contributions.

Palaeartic Grasslands is freely available at <https://edgg.org/publications/pg-journal> and new issues are announced to all EDGG members. All content (text, photos, figures) in *Palaeartic Grasslands* is open access and available under the Creative Commons license CC-BY-SA 4.0 that allow re-use provided proper attribution is made to the originators ("BY") and the new item is licensed in the same way ("SA" = "share alike").

Submissions following the [Author Guidelines](#) are welcome by the deadlines of the four issues: 31 January, 30 April, 31 July and 31 October.

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Scientific articles (Research Articles, Reviews, Forum Articles, Scientific Reports) should be submitted to the Receiving Editor Jürgen Dengler (dr.juergen.dengler@gmail.com) and will then undergo peer review, so publication in a certain issue cannot be guaranteed.

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All other text contributions (News, Announcements, Short Contributions, Book Reviews, Glimpses of a Grassland, Forthcoming Events) should be submitted to Idoia Biurrun (idoia.biurrun@ehu.es).

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Palaeartic Grasslands is published by EDGG c/o Prof. Dr. Jürgen Dengler, Plant Ecology, BayCEER, University of Bayreuth, Universitätsstr. 30, 85447 Bayreuth, Germany.

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LAYOUT AND TYPESETTING: Rocco Labadessa

Editorial

Dear readers,

While many grassland researchers are in the middle of their sampling season, we are happy to present a new issue of *Palaeartic Grasslands*. This period of the year is often full of tiring work and shortage of time, but it never fails to bring exciting findings and pleasant memories in the grasslands.

While moving forward in the season, we keep track of the last EDGG activities, such as the inspiring online talks that took place in the last edition of Talk Grasslands, summarised on the following page.

Regarding our future events, do not miss the important news and updated deadlines for participating in the Eurasian Grassland Conference in Bolzano/Bozen (see pp. 6-9).

In this issue, you will find some interesting news about pub-

lishing opportunities, including our special feature in *Hacquetia*, the IAVS journal *Vegetation Classification and Survey*, and a call for contributions to the *Journal of Integrative Agriculture*.

Here, we are also happy to present a research article by Boch et al. on the discovery of a new cup lichen species in Sweden.

While hoping to meet you in the next EDGG events, we really wish you exciting activities in the field, as well as relaxing times to enjoy reading *Palaeartic Grasslands*.

With warm wishes,
Rocco Labadessa



Primula farinosa. Photo: J. Dengler.

News

Talk Grasslands!

Report of the winter webinars 2023-2024

This year was now the third time that we have organized the webinar series Talk Grasslands, in the familiar format, with three talks given by experts on diverse topics related to grasslands. What began as an attempt to maintain academic debate and exchange during the Covid restrictions has developed into a regular part of the EDGG programme of annual activities.

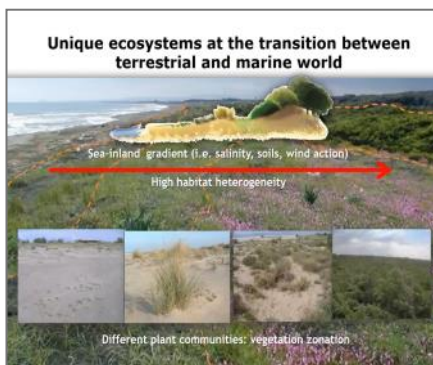
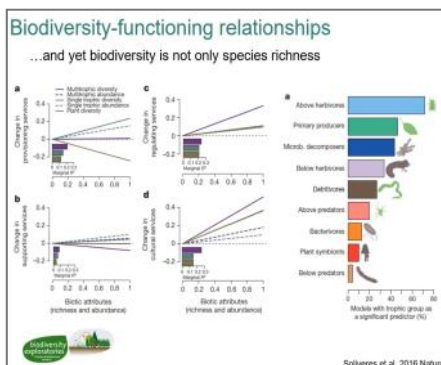
The series opened in January with a talk by Santiago Soliveres Codina on “Biodiversity-functioning relationships in grasslands...and elsewhere”. Santiago presented a number of studies supporting the suggestion that high levels of biodiversity support high levels of function in grassland habitats. This has been shown by a large body of experimental work. In studies of below ground and above ground systems, Santiago et al. and found that, in arid habitat systems, the contribution of rare species to function was also considerable. His main conclusions were that, when considering the relationship between diversity and function, it is also important to consider arthropods and microbes.

The second talk was presented in February by Alicia Acosta on the topic of “Mediterranean coastal dunes: threats and trends”. Alicia spoke presented a characterization of coastal dune systems in the Mediterranean region, the use of remote-sensing and field data for monitoring them and then gave us a synthesis of the main threats to those systems.

The closing talk of the season, on the title of “Natural vegetation structure, herbivore influence, and trophic rewilding: Insights from the last interglacial to Anthropocene perspectives” was given in March by Jens-Christian Svenning, who is the Director of the Centre for Ecological Dynamics in a Novel Biosphere at Aarhus, Denmark. Jens-Christian began by taking us back to the Pleistocene and then looking at the situation today. His main finding was that the megafauna had a critical role in the development and maintenance of grassland habitats and ecosystems, and bringing them back is good for the restoration of functional processes.

If you missed any of the talks or would simply like to review some of the content, then you can access recordings of them on the [EDGG YouTube channel](#). You can find full information about the talks and links to the recordings form these and those of previous talks from our [web-page](#). We will also post information there about next year’s series of talks sometime in the autumn, though you will also find announcements in the autumn edition of *Palaeartic Grasslands*.

Stephen Venn, Łódź, Poland
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Pages from the talks by Santiago Soliveres Codina, Alicia Acosta and Jens-Christian Svenning.

Call for photos for *Palaeartic Grasslands*

As usual, we are looking forward to your contributions to the Photo Story section, as well as your photographs for general illustrative purposes.

Submissions for the **Photo Story** section are always welcome. Photo Story is an open space where members can submit their own photo collection on a certain grassland-related topic of their choice. High-quality photos should be provided together with their captions (at least species names or landscape description), a brief text and possibly other graphical elements (like a map or a drawing). The selection of photos should fit within 4-15 (-20) pages and the contributors should propose a preliminary layout (in PDF or MS Word format), which will be finally typeset by Editors. As an example, you can look at the Photo Stories published in previous issues. As with scientific articles, Photo Stories undergo a review process with an emphasis on the quality of the photographs. There is no guarantee that they will be accepted without changes, and late submissions may be published in a subsequent issue.

We would also like to encourage you to contribute to the **Global Vegetation Project** with your vegetation photographs. Please take a look at the [project website](#) for an overview of the global map and the data entry form.

If you want to contribute to Photo Stories, or if you simply want to help us with enriching this aspect of the journal, please submit your photos together with the required information to Rocco (rocco.labadessa@gmail.com).

Deadline for photo submissions is **31 July 2024**.

Rocco Labadessa, Bari, Italy
rocco.labadessa@gmail.com

Call for Photo Competition “Neglected Grasslands”

Palaeartic grasslands encompass a wide variety of grassland habitats. Some of them are widespread and represent the grassland type when we commonly speak of grasslands, e.g. hay meadows. However, some other types of grassland habitats are less well known (e.g. coastal grasslands, halophytic grasslands, etc.) and deserve to have a place in people's consciousness as well. Could you provide a picture of a little-known grassland type?

You are invited to send up to three high-quality photographs within the competition theme (full size JPEG or TIFF images, at least 300 dpi) together with captions giving a short title or description and information on the subject (species name, date, place name). The Photo Jury (see imprint) will select the best photographs. The three best shots will be awarded with full space in the next issue, but we reserve the right to use other submitted materials for illustrative purposes in other parts of the issue. If you want to take part in the competition, please submit your photos together with required information to Edy (edy.fantinato@unive.it) by **31 July 2024**.

Edy Fantinato, Venice, Italy
edy.fantinato@unive.it



Meadow layers in Raseiniai, Lithuania. Photo: V. Gudynienė.

EDGG Event

eurac
research

**Deadlines for registration and abstract submission approaching:
19th Eurasian Grassland Conference**

26 August – 1 September 2024, Bolzano/Bozen, Italy

www.egc2024.it



The 19th Eurasian Grassland Conference (EGC) will be hosted by the Institute for Alpine Environment of Eurac Research in Bolzano/Bozen (Italy), from 26 August until 1 September. The theme of this year's conference is "Grasslands as biodiversity hotspots". The conference provides participants with the opportunity to follow talks about a wide range of topics dealing with grasslands: from the landscape perspective, use of resources, cultural diversity, and nature conservation issues.

The conference starts with an optional workshop on insects in grasslands on Monday, August 26th held by Lisa Obwegs, who works with wild bees, Elia Guariento, who works with butterflies and ants, and Andreas Hilpold, who works with grasshoppers. All of them are researchers working at Eurac Research. The workshop consists of a lecture in the morning, introducing the biology, the methodology and the ecology of the four taxa with a special focus on grasslands. The lecture is followed by an excursion by cable car in the afternoon to the panoramic plateaus of Renon/Ritten where we will search for insects using a set of different methods.

The opening talk will be given on Monday, August 26th by Thomas Wilhalm (Museum of Nature South Tyrol) and Andreas Hilpold (Eurac Research) and followed by an Ice Breaker event, taking place at the Museum of Nature South Tyrol.

There will be three further keynote speeches on the first and the second conference days on Tuesday, August 27th and Thursday, August 29th, held by: Camilla Wellstein (Free University of Bolzano/Bozen), Mattia Brambilla (University of Milan) and Peter Schönswetter (University of Innsbruck). The keynote speakers and the topics of their speeches are presented in more detail below. The mid-conference excursion, taking place on Wednesday August 28th will lead us to the dry continental steppe-like grasslands of the Vinschgau / Venosta valley with a trip to the alpine grasslands in Schnalstal/Val Senales. The post-conference excursion, taking place from August 30th until September 1st will lead us to the subalpine and alpine areas of the Isarco/Eisack valley and the famous Dolomites. We will see various types of grasslands, such as extensive subalpine pastures (*Nardion strictae*) and alpine grasslands on acidic and carbonate bedrock.

The deadlines for this year's Eurasian Grassland Conference are approaching:

- June 23: Abstract submission and EGC registration
- June 23: Travel grant application
- July 7: Payment of conference fees

Keynote Speakers

The opening talk will be given by Andreas Hilpold and Thomas Wilhalm, and will introduce the geography, vegetation and fauna of the host region, the Autonomous Province of Bolzano/Bozen, South Tyrol. Besides showing the typical

vegetation of the area, the talk will also discuss the major challenges of nature conservation, especially when it comes to grassland conservation. Further keynote talks will be given by Mattia Brambilla, Camilla Wellstein and Peter Schönswetter, shortly presented hereafter.



Thomas Wilhalm studied biology/botany in Innsbruck and wrote his dissertation at ETH Zurich. He has been the curator of botany at the South Tyrol Museum of Nature since 1998, where he is in charge of the phanerogam herbarium. He is responsible for flora mapping and involved in various scientific projects. His tasks also include assistance in nature conservation (e.g. compilation of Red Lists) and adult education (supervision of the Flora of South Tyrol working group).



Andreas Hilpold After his studies of biology/botany in Innsbruck and Barcelona he returned to South Tyrol where he worked several years at the Museum of Nature for the botanical and faunistic mapping of South Tyrol. Since 2015 he is researcher at the Institute for Alpine Environment at Eurac Research in Bolzano/Bozen where he coordinates biodiversity projects, among others, the long-term project "Biodiversity Monitoring South Tyrol", dealing with several taxonomic groups.



Mattia Brambilla: Particularly interested in ecology and conservation, Mattia mainly works on the effects of climate and environmental change on alpine species, the relationship between landscape, agriculture and animal species, and the interactions between human activities, biodiversity and ecosystem services. Mattia is researcher at the University of Milan.

His keynote presentation will be entitled "Birds of mountain grasslands: a steep hill to climb for conservationists": Grassland birds are among the most threatened avian groups in Europe, suffering the impacts and consequences of many pressures, from climate change to agricultural intensification, land conversion and abandonment. Understanding their responses to climate, topography, landscape, management (and relative interactions), is key to effective conservation. This talk will explore how grassland birds are affected by multiple factors in mountain areas, where the ongoing changes are often exacerbated. Crucial implications for conservation and main knowledge gaps will be pointed out.

Peter Schönswetter is professor at the Department of Botany of the University of Innsbruck. One of his main research interests is the biogeography of the Alpine flora including inner-Alpine steppes.

Schönswetter will provide insights into current research on the biogeography of European extrazonal steppes and the evolution of their biota. He will first present a biome-wide approach illustrating the divergence of extrazonal lineages of widespread steppe species and then focus on the change of their population sizes through time. He will then present new insights into disjunctly distributed and endangered *Astragalus* section *caprini* and finish with the unexpected spatiotemporal diversification of *Astragalus exscapus*, a strongly declining steppe species endemic to Europe.



Camilla Wellstein is head of the research area Analysis and Management of Mountain Ecosystems and member of the governing body of the Competence Center for Economic, Environmental and Social Sustainability, Free University of Bozen/Bolzano. She collaborated with international networks in H2020 projects on biodiversity and the impact of climate change and management on ecosystems. She combines organism biology with ecosystem ecology through experimental, monitoring and modeling approaches. She is currently studying vegetation dynamics, endemic species, plant functional traits and the diversity of grassland and forest ecosystems in the Italian Alps.

Her contribution will discuss grassland plant diversity and their dynamics from a functional, biogeographic, environmental, management and conservation background.



Conference organizers:

Julia Strobl, Bolzano, Italy

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Andreas Hilpold, Bolzano, Italy

andreas.hilpold@eurac.edu

Stephen Venn, Łódź, Poland

stephen.venn@biol.uni.lodz.pl

EDGG Publication**8th EDGG Special Feature in *Hacquetia*:
extended deadline for abstract submissions**

Following the first call for contributions to the 8th EDGG-edited Special Feature in *Hacquetia*, we are happy to announce an extended deadline for abstract submissions to 30 June 2024.

We welcome manuscripts about biodiversity and conservation of natural and semi-natural grasslands, including studies on all taxa and from any region in the Palaeartic realm (Europe; West, Central and North Asia; North Africa). Presenters at the [18th Eurasian Grassland Conference](#) are especially welcome to submit papers related to their presentations, but we welcome any study dealing with grassland studies in the Palaeartic realm.

[Hacquetia](#) is the international journal of the Biological Branch of the Slovenian Academy of Sciences. It appears in two issues per year, both in print and online. Through offering longer articles, open access publication and free reproduction of colour figures, it is a very attractive publication venue. The journal is indexed in the Scopus and Web of Science literature databases, and it now has a Journal Impact Factor of 0.5 and a Scopus Cite Score of 1.6.

If you plan to contribute, you are invited to send an abstract to the managing guest editor by the **extended deadline of 30 June 2024**. The deadline for full-text submission is planned to 31 October 2024 and manuscripts will undergo the normal peer-review process. Accepted papers will appear online approximately in June 2025. Author guidelines can be found at [Hacquetia homepage](#).

Contact for questions and abstract submission (Chair of the Guest Editors): rocco.labadessa@gmail.com

Guest Editor Team:

Rocco Labadessa, Italy, [scholar.google](#)

Orsolya Valkó, Hungary, [scholar.google](#)

Stephen Venn, Poland, [scholar.google](#)

Denys Vynokurov, Ukraine, [scholar.google](#)



Stipa pennata grassland in Madi-Kakas-hegy, Hungary. Photo: P. Chmielewski.

Announcement

Embrace the Diversity of Asian Vegetation: Join IAVS Asian Section and Attend Our November Workshop!

Dear Friends and Colleagues,

Two years ago, we embarked on an exciting journey by initiating the Asian section of IAVS. Today, we warmly invite you to join our growing community!

Asia, the largest continent, is home to about 60% of the world's population and boasts incredibly diverse vegetation, ranging from deserts and grasslands to lush forests. This diversity presents a unique opportunity for researchers and young vegetation scientists to delve into the rich tapestry of Asian vegetation studies. To foster this exploration, we are planning a series of engaging activities, including online and in-person meetings, training workshops, and mini-symposia. These events aim to deepen our understanding and passion for vegetation studies across Asia.

We are thrilled to announce our upcoming **online one-day workshop on November 5th**, financially supported by IAVS.

This free workshop will cover various types of biomes in Asia, featuring inspiring talks and training sessions from esteemed keynote speakers from China, Taiwan, Iran, Poland, Austria, and more. Stay tuned for more details as we approach the event date.

We would love for you to be part of this vibrant community. If you are interested in joining us, please fill out the form below and subscribe to our low-frequency mailing list to stay updated on our activities. **Membership is free and takes less than 30 seconds:** [Join Us Now!](#)

For further information please visit [IAVS Asian Section](#).

Alireza Naqinezhad, Derby, UK and Babolsar, Iran
(on behalf of the Steering Committee of the Asian Section)



An overview of the diversity of Asian vegetation.

Announcement

***Vegetation Classification and Survey (VCS)* now included in the Web of Science Core Edition**

Vegetation Classification and Survey (VCS), the gold open access journal of IAVS, was informed about its positive evaluation by the Web of Science on 9 April 2024. On 25 May 2024, VCS then was physically added to the Web of Science Core Edition, including the back issues since Volume 1 (2020). Many thanks to IAVS as owner and Pensoft as publisher, who made this success story possible. However, most of all, this early inclusion into the Web of Science Core Edition is due to the good articles of our authors and the great volunteer service our Associate Editors, Guest Editors, Linguistic Editors, Editorial Review Board members and other reviewers did and do for VCS.

We thus anticipate that in the course of June 2024, VCS will receive its first Journal Impact Factor (JIF). Already in 2022 VCS had been included in the Scopus database and got its first CiteScore of 2.0 in June 2023. Currently, the CiteScore-Tracker is at 2.5, so that we anticipate that the new CiteScore to be released in a few days will be around that value. In the annual editorial of VCS, Dengler et al. (2024) showed that the normalized citation rate of VCS compared to other journals has substantially improved over the last few years (Fig. 2). In our founding year 2020, we started at the same level as *Phytocoenologia* and *Tuexenia*, both of which by 2023 were left far behind (Fig. 2). The VCS articles of 2023 were on average even better cited than those in *Applied Vegetation Science* of the same year and had reached about the same level as *Journal of Vegetation Science* and *Biodiversity and Conservation* (Fig. 2). Since both the CiteScore and the Journal Impact Factor are based on the citation impact of articles published several years back, Dengler et al. (2024) could calculate the expected trajectory of the citation metrics of VCS in the next years. This projection suggest that the CiteScore 2023 (published in June 2024) will be ca. 2.4, the one for 2024 ca. 3.2 and the one for 2025 ca. 7.5. For the JIF, the projections are ca. 1.1 for the version of 2023 (published in June 2024), ca. 1.6 for 2024 and ca. 4.3 for 2025. If VCS due to its inclusion into the Web of Science VCS should better known and in consequence more people read and cite the articles, the real trajectories might even be above the projected ones. It is also in your hands!

To guide you to the hitherto six most influential articles in VCS, we selected those that according to the Field-Weighted Citation Impact (FWCI) of the Scopus database (as of 25 May 2024) were cited at least twice as much as expected for average articles in the subject field given their

age (an FWCI of 1 means that an article is cited just as often as an average article in the field) (Table 1).

The Chief Editors hope that with the inclusion into the Web of Science Core Edition and the increasing CiteScore, more authors than before will send their good articles in the fields of vegetation classification and ecoinformatics to VCS. VCS has several other attractive features as it is gold open access, allows longer articles than the standard ones of 8–20 pages, provided the content justifies the length, and offers linguistic editing by native speaking ecologists free of charge once an article is accepted. VCS has Permanent Sections on “Ecoinformatics” and “Phytosociological Nomenclature” and regularly organises Special Sections together with IAVS Working Groups and Regional Sections (see [VCS collections](#)). Moreover, VCS is the exclusive publication venue for Nomenclatural Proposals (in collaboration with the Group on Phytosociological Nomenclature, GPN) and Long and Short Database Reports (in collaboration with the Global Index of Vegetation-Plot Databases, GIVD).

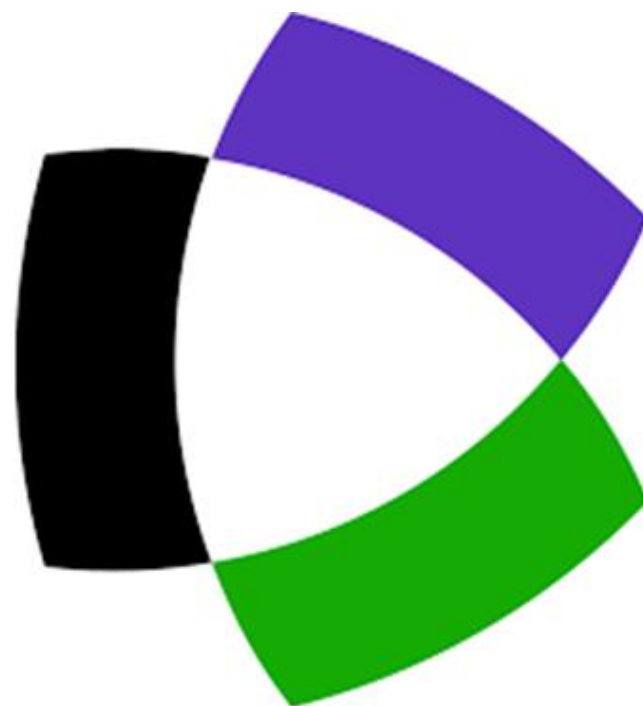


Figure 1. Logo of Clarivate, the company that provides the Web of Science Core Edition, in which *Vegetation Classification and Survey* has just been accepted.

As a gold open access journal, VCS has to charge article processing charges (APCs) from the authors. However, they are still extremely low for IAVS members, with 300 EUR for first authors from higher-income countries and currently 0 EUR for first authors from medium- and low-income countries. Thus, you are encouraged to submit your manuscripts still in 2023 when these extremely low APCs apply as they certainly will be increased for submissions in following years, given that VCS is now also in the Web of Science. Last but not least, those IAVS members who have access to APC funding from their institution or grant are encouraged to pay the non-reduced APCs to allow authors without access to such funds to publish at non-prohibitive costs.

With the growing number of submissions, we also need more competent reviewers and Linguistic Editors. If you have a deep interest in vegetation classification or ecoinformatics of vegetation and would like to join the Editorial Review Board of VCS, you are invited to send an e-mail application to Jürgen Dengler (see below) until 31 October 2024. Applications by young scientists, women and scientists from outside Europe are particularly welcome. Likewise native speakers with good skills in scientific writing are invited to apply to become a Linguistic Editor. If there are convincing applications, we will invite some of them to the Editorial

Review Board and the team of Linguistic Editors, respectively, when we augment them next time at the end of this year. The Editorial Review Board members are expected to do two to four qualitative and timely reviews per year and, after good performance, might be promoted to Associate Editors. Linguistic Editors should edit about three to six articles per year and are given in the imprint of the papers they edited.

Last but not least, we would like to highlight the ongoing Special Collection “Grasslands of Asia” edited by Jürgen Dengler, Idoia Biurrun, Victor Chepinoga, Alireza Naqinezhad and Arkadiusz Nowak on behalf of the EDGG and the IAVS Regional Section for Asia. So far, three articles have been published, one is in press and two are in peer review. Among these, very recently the first phytosociological classification of Armenian grasslands was published by Vynokurov et al. (2024), based on the results for the EDGG Field Workshop in Armenia (Aleksanyan et al. 2020). We intend to close the Special Collection soon. However, until approximately end of June 2024 manuscript submissions will still be possible. If interested, please get first into contact with Jürgen Dengler (see below).

We look forward to your submissions of good manuscripts as well as your applications to join the Editorial Board!

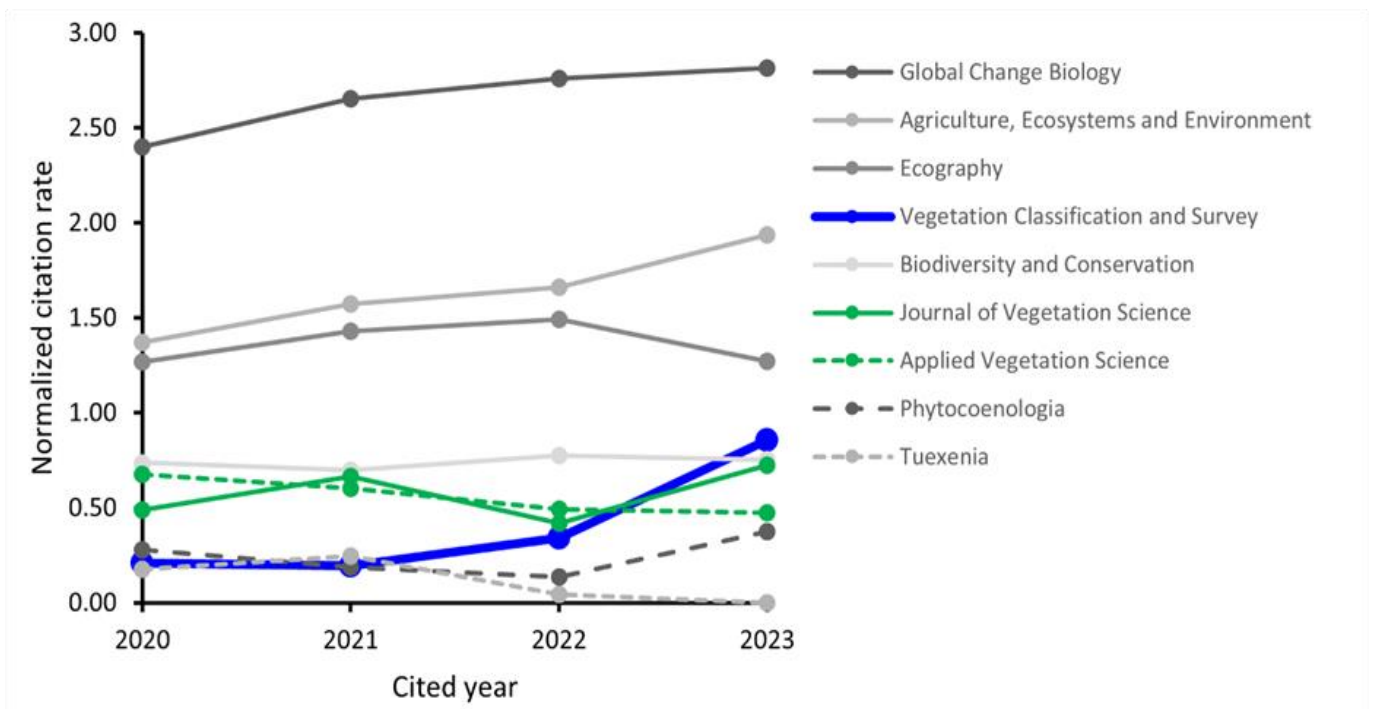


Figure 2. Development of the normalized citation rate of the articles published in specific years in *Vegetation Classification and Survey* compared to a selection of 29 other ecological journals. A normalized citation rate of 1 means that the articles of the respective journal are on average cited as frequently as the average of all articles in the 30 journals in that year. For readability only nine journals are shown. The underlying data were retrieved from the Scopus database on 8 January 2024. Full details can be found in Dengler et al. (2024).

Table 1. The six articles published in *Vegetation Classification and Survey* with the highest Field-Weighted Citation Impact (FWCI) values so far (as of 25 May 2024), sorted by decreasing FWCI.

Authors and year	Title	Citations	FWCI
Dengler et al. (2023)	Ecological Indicator Values for Europe (EIVE) 1.0	24	17.66
Chakkour et al. (2023)	Plant diversity in traditional agroecosystems of North Morocco	4	3.21
Loidi et al. (2022)	Climatic definitions of the world's terrestrial biomes	12	3.15
Luebert & Plissock (2022)	The vegetation of Chile and the EcoVeg approach in the context of the International Vegetation Classification project	9	2.58
Zeballos et al. (2020)	The lowland seasonally dry subtropical forests in central Argentina: vegetation types and a call for conservation	21	2.31
Nowak et al. (2020)	Classification of tall-forb vegetation in the Pamir-Alai and western Tian Shan Mountains (Tajikistan and Kyrgyzstan, Middle Asia)	20	2.18

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Research Article

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Cladonia homosekikaica Nuno new to Sweden – a cup lichen found in the grey dunes of Gotland

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Abstract: While sampling the vegetation of the semi-natural grasslands with the EDGG standard methodology on the Swedish island of Gotland, the terricolous lichen species *Cladonia homosekikaica* Nuno from the *C. pyxidata-chlorophaea* complex was found in 2022. This is the first record of this species from Sweden. We provide here detailed information on its differentiation from similar *Cladonia* species, characterize its overall distribution and its site conditions on Gotland. The new locality is far away from the next occurrences, which are mainly in southern Europe, with isolated records in Iceland and Finland. The vegetation type was a nutrient-poor sandy grassland near the coast, belonging to the association *Festucetum polesicae* (alliance: *Koelerion glaucae*, order: *Sedo acris-Festucetalia*, class: *Koelerio-Coryneporetea canescentis*). The overall distribution of *Cladonia homosekikaica* indicates that the species is slightly xero-thermophilous and occurs in slightly acidic grasslands. It thus might be found in other sandy dry grasslands around the Baltic Sea.

Keywords: Chemotype; *Cladonia homosekikaica*; *Cladonia pyxidata-chlorophaea* complex; *Festucetum polesicae*; first record; Gotland; grey dune; *Koelerion glaucae*; sandy grassland; Sweden.

Nomenclature: Westberg et al. (2021) for lichens, except *Cladonia homosekikaica* according to Species Fungorum (www.speciesfungorum.org).

Abbreviations: EDGG = Eurasian Dry Grassland Group; TLC = Thin-layer chromatography.

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Introduction

Certain dry grassland types have a diverse flora of terricolous bryophytes and lichens (Dengler et al. 2020; Biurrun et al. 2021). Particularly rich are the alvar grasslands in the hemiboreal zone of Europe and some types of sandy dry grasslands, where the diversity of bryophytes and lichens often exceeds that of vascular plants (Löbel & Dengler 2008), but these two cryptogamic groups are often not or not thoroughly sampled by vegetation ecologists. The sampling methodology of the Eurasian Dry Grassland Group (EDGG; www.edgg.org) for vegetation plots aims at collecting high quality data of non-forest habitats of the Palaeartic biogeographic realm (Dengler et al. 2018), among others feeding the [GrassPlot Diversity Explorer](#) (see Biurrun et al. 2021). Particular aspects of the methodology are precisely delimited plots of a few standard grain sizes, careful sampling not only of the vascular plants, but also of the terricolous bryophytes and lichens, and the measurement of a range of relevant environmental variables. The careful

search for cryptogams repeatedly yielded records of very rare species, species new to a region or country or recently even a species new to science (Dengler & Boch 2007; Khodosovtsev et al. 2024). During sampling of semi-natural grasslands with the EDGG methodology on the Swedish island of Gotland (Dembicz & Dengler 2022), the cup lichen *Cladonia homosekikaica* was sampled in an alvar grassland and later determined with thin-layer chromatography (TLC). As this is the first record of this species from Sweden, we provide here a detailed overview on the determination of the species, its overall distribution and the characteristics of the locality on Gotland.

Methods

In June 2022, I. Dembicz and J. Dengler sampled semi-natural grasslands of different types (sandy, rocky, meso-xeric, mesic, wet) on the Swedish island of Gotland to contribute to filling the information gap in the GrassPlot database in Fennoscandia (see Dengler et al. 2018; Biurrun et al.

2019, 2021). In total they sampled 50 10-m² “normal” plots and five EDGG “biodiversity” plots (nested-plot series of 0.0001–100 m²) distributed across the occurring semi-natural grassland types across the entire island (Dembicz & Dengler 2022). Following the EDGG methodology (Dengler et al. 2016), not only vascular plants, but also all terricolous bryophytes and lichens were recorded.

Species that could not be determined in the field were collected for later identification in the lab. In the case of lichens, these identifications were conducted by S. Boch and C. Keller. Seven specimens that could not be identified morphologically with a binocular or a microscope and the commonly used simple chemical tests were prepared for further identification using thin-layer chromatography (TLC) according to Orange et al. (2001). By means of TLC, the occurrence of phenolic secondary lichen metabolites can be identified. This is important for the identification of particular species and in many species groups to be able to distinguish between different species, and is therefore commonly used for the identification of species of the genus *Cladonia*.

The vegetation was preliminarily classified phytosociologically (Dembicz et al. in prep.), mainly based on the similar vegetation types on the Baltic islands of Öland (Löbel & Dengler 2008) and Saaremaa (Boch & Dengler 2006).

Results

In total, we analysed five *Cladonia* specimens with TLC. Beside *Cladonia coccifera*, *C. pyxidata*, and *C. symphylicarpa*, one specimen of a cup lichen that resembled a small *C. chlorophaea* turned out being *Cladonia homosekikaica*, based on the identified secondary metabolites. We will deposit the specimen in the United Herbaria of Zürich (Z+ZT).

Cladonia homosekikaica was sampled in plot SEGR046 on 11 June 2022. This plot was located in Gammelgarn at the East coast of Gotland (57.38253° N, 18.82277° E). It grew in a grey dune, just 1 m a.s.l. (Fig. 1). According to the preliminary phytosociological classification, the stand belonged to *Festucetum polesicae* Regel 1928 (alliance: *Koelerion glaucae* Volk 1931, order: *Sedo acris-Festucetalia* Tx. 1951 nom. invers. propos., class: *Koelerio-Coryneporetea canescentis* Klika in Klika et Novák 1941). The herb layer covered 60% and the cryptogam layer 80%, and the total plant species richness in 10 m² was 34 (24 vascular plants, 3 bryophytes and 7 lichens). The most dominant species were *Pulsatilla pratensis* (20%), *Hieracium umbellatum* (15%) and *Avenella flexuosa* (12%) in the herb layer and *Dicranum scoparium* (60%), *Cladonia arbuscula* aggr. (10%) and *Hypnum cupressiforme* var. *lacunosum* (10%) in the cryptogam layer.

Review of the current knowledge on *Cladonia homosekikaica*

Morphology, chemistry and determination

Cladonia homosekikaica has been traditionally considered a chemotype of *C. chlorophaea*, but it has soredia varying in

size from farinose to granular, while those of *C. chlorophaea* are solely granulose. Therefore, it has been formally described as an independent species from Japan (Nuno 1975). The species has a persistent squamulose primary thallus composed of 1–1.5 mm × 1–1.5 mm wide squamules that are olive green on the upper side and white below, and show entire or slightly crenulate margins. The greyish green to dark greenish brown podetia have regular cups, mostly without proliferations and are 7–15 mm long × 3–5 mm wide. The podetial surface is corticate or ecorticate, with diffuse or scattered soralia and with frequent squamules at the base. The soredia vary in size from farinose to granular (20–80 µm). The dark brown apothecia are rarely developed at the margin of the cups, but pycnidia are frequent, and contain a hyaline slime (Burgaz et al. 2020a). Two chemotypes have been reported. One contains homosekikaic and sekikaic acids, and the other additionally contains substances of the fumarprotocetraric acid complex (Ahti & Stenroos 2013). Spot tests are K-, C-, KC-, P+ red or P-, UV+ white. In our specimen, we detected sekikaic, homosekikaic and fumarprotocetraric acids.

Cladonia homosekikaica can further be confused with *C. fimbriata* and *C. coniocraea*, but the latter two have more slender podetia with finer soredia and a cortex that is restricted to the very basal part. *Cladonia homosekikaica* further has a similar chemical composition as *C. novochlorophaea* and *C. rei*, but the podetia of the former are never sorediate, and podetia of the latter never have distinct cups. Illustrations can be found in Burgaz & Ahti (2009), Ahti & Stenroos (2013) and Burgaz et al. (2020a).

Distribution and ecology

According to available knowledge, the species is scattered throughout the Northern Hemisphere, with evidence from Europe, Asia, North America but it has also been reported from Australia (Archer 1992; Ahti & Stenroos 2013; Burgaz et al. 2020s; GBIF Secretariat 2023). In Europe *C. homosekikaica* has been found in several countries such as Andorra, Belarus, Croatia, France, Greece, Lithuania, Montenegro, Portugal and Spain (Motiejūnaitė 2002; Burgaz & Ahti 2009; Ahti & Stenroos 2013; Burgaz et al. 2017, 2019, 2020a, 2020b; GBIF Secretariat 2023). It seems to be relatively widespread in Southern Europe, south of 45° latitude (GBIF Secretariat 2023). North of that latitude in Europe, there are only very few known occurrences, namely in Belarus, Lithuania (Motiejūnaitė 2002), Russia (Muchnik & Konoreva 2017), Finland (lichenportal.org) and Iceland (Ahti & Stenroos 2013; GBIF Secretariat 2023).

The species has been mainly reported growing on bare soil in exposed areas, with preference for acid substrates (Burgaz et al. 2020a) but has also been reported from wood (Tsurukau & Golubkov 2015; Muchnik & Konoreva 2017). This largely matches the ecology of the new site based on the species composition, albeit the soil samples have not been analyzed yet.

Discussion and outlook

The complicated taxonomy of the *Cladonia pyxidata-chlorophaea* complex and the need to use TLC for the identification of many of the member species, makes it likely that *C. homosekikaica* is more widely distributed than the current map suggests (GBIF Secretariat 2023). The overall distribution of *Cladonia homosekikaica* indicates that the species is slightly xero-thermophilous and occurs in slightly acidic grasslands. It thus might be found in other sandy dry grasslands around the Baltic Sea. It might also be worth analyzing herbarium specimens of the *Cladonia pyxidata-chlorophaea* complex to get a better overview of the global distribution of *Cladonia homosekikaica*.

Author contributions

I.D. and J.D. conducted the field sampling, while S.B. and C.K. identified the lichen samples in the lab. The article was planned and drafted by S.B. and J.D. while I.D. and C.K. checked, improved and approved it.

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Figure 1. Grey dune community in Gammelgarn at the East coast of Gotland in which *Cladonia homosekikaica* was found. Photo: J. Dengler.

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Short Contributions

Call for contributions to the new Special Feature in *Journal of Integrative Agriculture*

This is the first call for the submission of manuscripts for the new Special Feature in the *Journal of Integrative Agriculture* (JIA). We welcome manuscripts about "[Grassland Ecosystem Changes and Adaptive Management](#)" of natural and semi-natural grasslands, including studies on all taxa and from any region in the Palaeartic realm (Europe; West, Central, and North Asia; North Africa), but not limited to Palaeartic grassland.

[Journal of Integrative Agriculture](#) (JIA) is an international journal of Agricultural Sciences, founded in 2002 and published monthly. The current editor-in-chief is Academician Chen Hualan of the Chinese Academy of Sciences. JIA covers a range of topics including crop science, horticulture, plant protection, animal science, veterinary medicine, agroecology, food science, and agricultural economics. Manuscript types include reviews, research papers, short communications, and commentaries. All papers are published OA on the Elsevier-ScienceDirect (SD) platform. JIA's latest SCI impact factor is 4.8, ranking in the Q1 category of agricultural disciplines.

As we all know, grasslands are ecosystems of significant ecological, economic, and cultural importance. However, they are increasingly vulnerable to degradation due to a range of factors, including climate change, overgrazing, and shifts in land use. Despite varying degrees of restoration and management measures around the globe, the understanding of the dynamics of grassland ecosystems and their underlying drivers, as well as adaptive management measures, needs to be further developed. Therefore, this special issue seeks to delve into the complex dynamics of grassland ecosystems and the necessary adaptive management strategies to counter these challenges. It focuses on comprehensively understanding how grassland ecosystems evolve - from micro to macro scales and from natural to socio-ecological perspectives. Additionally, it will focus on the key drivers of these changes and the essential adaptive strategies for sustainable management.

Special issue information:

The *Journal of Integrative Agriculture* (JIA) is seeking contributions for a special issue on "Grassland Ecosystem Changes and Adaptive Management" to achieve high-quality management of global grasslands and provide more expertise to grassland ecological research. Topics include, but are not limited to:

- Dynamics of Grassland Ecosystems: Examining changes in biodiversity, ecological functions, and ecosystem services.
- Drivers of Grassland Ecosystem Changes: Factors such as climate change, land use changes, and human activities.
- Adaptive Management Strategies: Sustainable practices, conservation efforts, and policy frameworks for managing changing grassland ecosystems.
- Interdisciplinary Approaches: Incorporating soil science, ecology, microbiology, remote sensing, and other relevant fields to offer a holistic view of grassland dynamics.

We invite original research articles, reviews, case studies, and short communications that address any of the above themes. Submissions should contribute to the understanding of grassland ecosystem changes and offer perspectives on adaptive management strategies.

Keywords: Grassland degradation, Ecological dynamics, Adaptive management, Biodiversity, Ecosystem services, Climate change, Sustainable practices, Conservation strategies, Human-environment interaction, Ecological resilience, Soil monitoring, Grassland health and management.

Abstract submission deadline: 30 June 2024. Please send your abstracts to the managing guest editor at tong.li1@uq.edu.au. If you have any problems, please don't hesitate to contact with us. We will review the abstracts and invite selected authors to submit full papers, which will undergo a rigorous peer-review process with at least 2 reviewers.

All full papers should be submitted and presented in English. To distinguish them from general submission articles, authors must submit the manuscripts [online](#). Manuscript format and JIA information can be found at the JIA website, and authors must follow [JIA's submission guidelines](#). All manuscripts must pass the journal's rigorous peer-review process. Accepted papers will appear online approximately in June 2025.

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Biodiversity and Ecology

Kambach, S., Attorre, F., Axmanová, I., Bergamini, A., **Biurrun, I.**, Bonari, G., Carranza, M., Chiarucci, A., Chytrý, M., **Dengler, J.**, (...) & Bruelheide, H. 2024. Climate regulation is linked to the functional composition of the plant community in European forests, shrublands and grasslands. *Global Change Biology* 30: e17189. doi.org/10.1111/gcb.17189

Schöpke, B., Wesche, K., Tschan, G.F., Wulf, M. 2024. Plant species richness increase across crop field–dry grassland edges masks diverging patterns in generalists and specialists. *Landscape Ecology* 39: 39. doi.org/10.1007/s10980-024-01843-x

Conservation and Restoration

Kun R., Babai D., **Csathó A.I.**, Erdélyi A., Hartdégén J., Lengyel A., Kálmán N., Mártonffy A., Hábcenyus A.A., Szegleti Zs., Vig Á., Máté A., Malatinszky Á., Tóth T. & Vadász Cs. 2024. Effects of management complexity on the composition, plant functional dominance relationships and physiognomy of high nature value grasslands. *Nature Conservation* 55: 1–19. doi.org/10.3897/natureconservation.55.114385

Methodology, classification, databases

Knollová, I., Chytrý, M., Bruelheide, H., Dullinger, S., Jandt, U., Bernhardt-Römermann, M., **Biurrun, I.**, de Bello, F., Glaser, M. (...), Babbi, M., (...), Dembicz, I., **Dengler, J.**, (...) & Essl, F. 2024. ReSurveyEurope: a database of resurveyed vegetation plots in Europe. *Journal of Vegetation Science* 35: e13235. doi.org/10.1111/jvs.13235

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Wamelink, G.W.W., Goedhart, P.W., Roelofsen, H.D., Bobbink, R., Posch, M., van Dobben, H.F., Biurrun, I., Bonari, G., **Dengler, J.**, Dítě, D., Garbolino, E., Jansen, J., Jašková, A.K., Lenoir, J. & Peterka, T. (2024) A novel method to estimate the response of habitat types to nitrogen deposition. *Environmental Pollution* 349: e123844. doi.org/10.1016/j.envpol.2024.123844

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Forthcoming Events

Macroecology 2024

12-14 June 2024, Marburg, Germany

Conference website: <https://www.uni-marburg.de/>

7th European Congress of Conservation Biology (ECCB)

17-21 June 2024, Bologna, Italy

Conference website: <https://eccb2024.eu/>

19th Eurasian Dry Grassland Conference 2024

26 August – 1 September 2024, Bolzano/Bozen, Italy

Conference website: <https://www.egc2024.it/en>

GfÖ - Ecological Society of Germany, Austria and Switzerland - 2024

9-13 September 2024, Freising, Germany

Conference website: <https://www.gfoe-conference.de/>

Joint IAVS/EVS Conference

15-20 September 2024, Funchal, Madeira, Portugal.

Conference website: <https://www.iavsportugal2024.com/>



Linum flavum in Biala Gora dry grassland, Tomaszow Lubelski, Poland. Photo: P. Chmielewski.



EDGG on the web:

<http://www.edgg.org>



The Eurasian Dry Grassland Group (EDGG), founded in 2008, is a working group of the International Association for Vegetation Science (IAVS) and member of the European Forum on Nature Conservation and Pastoralism (EFNCP). On 10 March 2024, it had 1470 members from 65 countries.

The **Eurasian Dry Grassland Group (EDGG)** is a network of researchers and conservationists interested in any type of Palaeartic natural and semi-natural grasslands. It is an official Working Group of IAVS (<http://www.iavs.org>) but one can join our group without being an IAVS member. We live from the activities of our members. Everybody can join the EDGG without any fee or other obligation.

The EDGG covers all aspects related to grasslands, in particular: plants - animals - fungi - microbia - soils - taxonomy - phylogeography - ecophysiology - population biology - species' interactions - vegetation ecology - syntaxonomy - landscape ecology - biodiversity - land use history - agriculture - nature conservation - restoration - environmental legislation - environmental education.

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Dry grassland with *Phleum phleoides* in Aosta, Italy. Photo: J. Dengler.