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PALAEARCTIC GRASSLANDS

Journal of the Eurasian Dry Grassland Group

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Palaearctic Grasslands

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Palaearctic 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 usually appears in four issues per year. *Palaearctic Grasslands* publishes news and announcements of EDGG, its projects, related organisations and its members. At the same time it serves as outlet for scientific articles and photo contributions.

Palaearctic Grasslands is sent to all EDGG members and, together with all previous issues, it is also freely available at http://edgg.org/publications/bulletin.

Scientific articles (Research Articles, Reviews, Forum Articles, Scientific Reports) should be submitted to Jürgen Dengler (dr.juergen.dengler@gmail.com), following the Author Guidelines available from the EDGG website. They are subject to editorial review, with one member of the Editorial Board serving as Scientific Editor and deciding about acceptance, necessary revisions or rejection.

All other text contributions (News, Announcements, Short Contributions, Book Reviews, Glimpses of a Grassland…) should be submitted to Anna Kuzemko (anyameadow.ak@gmail.com) AND Idoia Biurrun (idoia.biurrun@ehu.es). Please check a current issue of *Palaearctic Grasslands* for the format and style. Deadline for submission to the next issue is **31 March 2021**

Photo and art contributions (photos for general illustrative purposes with captions; Photo Stories; contributions to Photo and Art Competition) should be submitted to our Photo Editor Rocco Labadessa (rocco.labadessa@gmail.com). Deadline for submissions to the next Photo Competition on "**Grassland lights**" is **31 March 2021**.

Contributions to the section **"Recent Publications of our Members"** should be sent to Iwona Dembicz (i.dembicz@gmail.com) and those for **"Forthcoming Events"** to Alla Aleksanyan (alla.alexanyan@gmail.com).

Photos included in submissions have always to be delivered in two forms, embedded in the document and as separate jpg (or tiff) files with sufficient resolution for printing (i.e. not less than 1 MB).

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

Editorial Board

On front cover page: *Xerolenta obvia* on *Stipa eriocaulis*, Valais, Switzerland. Photo: J. Dengler.

Editorial

Dear readers,

It is time to say good bye. This is the 6th issue of *Palaearctic Grasslands* during the current term of duty and the 12th and last issue under the current Chief Editor Team (Anna as Chief Editor, Idoia and Jürgen as Deputy Chief Editors). We believe that the journal has experienced quite a positive development during the three years since we decided to transform our former *Bulletin* into a novel type of journal, and we would like to thank those who made this possible. First of all, we are very grateful to Rocco Labadessa, as Photo Editor, without whom it would not have been possible to develop the Photo Stories, Photo Competitions and also the quality and diversity of general illustrative photos in such a way that they are now a kind of trademark of our journal, though Rocco also helped with many other things. Then we would like to highlight the comprehensive work of our 11 Linguistic Editors, who ensure that also the articles from the majority of non-native speakers of English are clearly understandable and our 16 Scientific Editors, who enabled us to establish peer-reviewed scientific articles as a major element of PG. We would also like to thank Péter Török for the coordination of the Book Review section and Iwona Dembicz for the section on Publications from our Members. Last but not least, we would like to thank you, the EDGG members, who constantly (or actually increasingly) submit valuable textual and photographic contributions and as readers, have often given us positive and encouraging feedback.

Before the 49th issue of *Palaearctic Grasslands*, a new Executive Committee (EC) of the EDGG will be elected (you can find information on the procedure and the candidates on pp. 4–6). Afterwards, one or several new Chief Editors will be appointed from the members of the new EC. All three of us are willing to continue. However, even if we are re-elected, there will have to be changes. The work on PG is already now the most time-consuming job among all functions in the EDGG EC, so the next EDGG EC will probably broaden the governance of PG by appointing several Chief Editors (also beyond the current team of three). However, all this is largely up to you members and your votes in the forthcoming elections.

For now we wish you a pleasant reading of this winter issue and hope to welcome you back in spring with the Editorial of the first issue under the newly appointed Chief Editor(s),

Anna Kuzemko, Idoia Biurrun & Jürgen Dengler

Red kite (*Milvus milvus*) flying over a grassland landscape in the Swiss Plateau. Photo: J. Dengler.

News

Election to the EDGG Executive Committee 2021–2023

Dear members of the EDGG,

Our term of duties is coming to an end and soon after the publication of this issue of Palaearctic Grasslands the elections to the new Executive Committee for the period 2021–2023 will start. During the nomination period, 16 EDGG members have been proposed as candidates of whom 10 agreed to stand for the election. You find their profiles below in alphabetical order.

The election will be conducted by electronic means and be overseen by an Election Committee led by Péter Török who is not standing for another term of duty. Each member has up to seven votes. Those seven candidates who receive the highest number of votes (including at least one candidate not based in Europe at the time of election) will become the next Executive Committee, whose members will internally decide who will serve on which position.

As the current Executive Committee we would like to inform you that the most time-consuming job within the Executive Committee is editing our journal *Palaearctic Grasslands* (mainly done by the three-head Chief Editor team), but our current Chief Editor, Anna Kuzemko, has decided that she would like to hand over this role during the next two years to someone else. Therefore, if you are interested in continuation of PG at the current high level, we would like to emphasize that apart from the current two Deputy Chief Editors, we would need someone to take over Anna's role successively.

The EDGG Executive Committee 2019–2021

Here are the candidates in alphabetical order:

Alla Aleksanyan (Armenia)

I'm Alla Aleksanyan – young scientist from Armenia. I'm interested in the different aspects of investigation of ecosystems, mainly grasslands in high mountainous countries (biodiversity, habitat classification, conservation, impact assessment etc.). From 2015 I have been an active member of IAVS, from 2016 member of EDGG, from 2016 to 2018 member of IAVS Young scientist council and from 2019 to 2021 member of Executive Committee of EDGG. I'm trying to attract more attention to ecosystems and biodiversity of one of the biodiversity hotspot and not very well explored part of the world. EDGG is a great platform for sharing experience, networking and for starting new international fruitful collaborations. If I will be elected as a member of the Executive Committee, I will continue to increase visibility and awareness raising about EDGG, to support organization of events, activities and initiatives. It's a great chance to continue interdisciplinary joint projects and field workshops on grasslands.

Didem Ambarlı (Germany/Turkey)

I am an Assistant Professor at Duzce University, Turkey, and currently a Postdoc at Technical University of Munich, Germany. My research focuses on community ecology and conservation science. I aim to understand the interactions between land use, biodiversity and ecosystem processes in grasslands. I see EDGG as a crucial organization in mainstreaming advances in grassland research and conservation. Therefore, I have been working voluntarily as a member of the Executive Committee for several years. I have led the organization of several EDGG conferences and recently the Talk Grasslands! series. Furthermore, I am helping with the website management. If I am elected, I'd like to continue organizing various online events such as talks and workshops, and excellent conferences. Furthermore, I'd like to take part in organization of highly-cited special features to increase the visibility and use of grassland science.

Idoia Biurrun (Spain)

I am an Associate Professor at the University of the Basque Country in Bilbao, Spain. My interest as vegetation scientist is focused on the classification, ecology and diversity patterns of grasslands and other habitats as forests, rivers and mires. I have been an active member of EDGG since 2012 and member of its Executive Committee since 2015. Currently, I am serving as Membership Administrator,

Deputy Chief Editor of our journal *Palaearctic Grasslands* and deputy Field Workshop Coordinator. In 2014 I organized the 7th Field Workshop in Navarre (Spain) and I am Deputy Custodian and manager of the EDGG-affiliated GrassPlot database since 2017. I would like to continue my contribution to the development of EDGG. Specifically, I would like to help attracting more members from countries poorly represented in EDGG to participate in EDGG events, to submit research papers in *Palaearctic Grasslands* and to contribute their data to GrassPlot.

Iwona Dembicz (Poland)

I am a Postdoc at the University of Warsaw (Poland). My scientific interests are ecology of grassland ecosystems, biodiversity patterns, habitat isolation, nature conservation and management, as well as ecological restoration. I have been a member of the EDGG since 2011. I co-organized the 8th EDGG Field Workshop in Southern Poland in 2015, and I participated in seven others EDGG Research Expeditions/Field Workshops. I appreciate the EDGG very much as an extraordinary framework for scientific cooperation and as a wonderful platform for building the general awareness on the role of grassland for preserving biodiversity, aesthetic value of grasslands and the need for their conservation. In 2019 I was elected as a member of EDGG Executive Committee and my main responsibility was coordination of EDGG Field Workshops. I would like to continue this activity as well as to contribute to further development of the EDGG by increasing visibility of this organization, inviting new members and helping with *Palaearctic Grasslands* publishing.

Jürgen Dengler (Switzerland/Germany)

I am Professor of Vegetation Ecology at the Zurich University of Applied Science (ZHAW), Wädenswil, Switzerland. My research fields are vegetation ecology, vegetation classification, biodiversity patterns, macroecology, ecoinformatics, nature conservation and ecological restoration. I work in many different habitats, but my main foci are all types of semi-natural and natural grasslands in the Palaearctic. I am Chief Editor of *Vegetation Classification and Survey* and Guest Editor of *Journal of Vegetation Science* and *Tuexenia*. I was one of the co-founders of EDGG in 2008, have served as a chair since then and "invented" the EDGG Field Workshops in 2009. During the past period 2019–2021, among others, I organised two EDGG Field Workshops in Switzerland, contributed to the development of *Palaearctic Grasslands* into a peer-reviewed diamond open access journal and at the same time attractive photo magazine, coordinated the various Special Features and led EDGG's own vegetation-plot database GrassPlot. If re-elected, I would love to contribute to the further dynamic development of EDGG, e.g. by attracting more members from Asia and possibly organising events also there.

Anna Kuzemko (Ukraine)

I am a Leading Researcher of the Geobotany and Ecology Department at the M.G. Kholodny Institute of Botany, NAS of Ukraine, and Doctor of Biological Science. My scientific interests are classification, ecology, dynamics, management and conservation of grassland vegetation. In recent years, I have been deeply involved in the development of the Emerald Network and the implementation of the Habitat Directive in Ukraine. I have been a member of the European Dry Grassland Group since 2008. I organized the 2nd EDGG Expedition in Central Podolia (Ukraine) in 2010 and the 8th EDGG Meeting in Uman' (Ukraine) in 2011. I would like to increase the activity and visibility of the EDGG in the field of environmental policy. I am member of the EDGG Executive Committee since 2015. My responsibilities in the current Executive Committee were: Editor of *Palaearctic Grasslands* and Deputy Facebook Group Administrator.

Rocco Labadessa (Italy)

I am an environmental biologist working as freelance consultant and researcher in southern Italy. My scientific interests include plant and animal community ecology, biodiversity patterns and conservation biology in Mediterranean ecosystems, with a focus on semi-natural dry grasslands. I have been a member of the EDGG since 2012, and during the last four years I have participated in the Editorial Board of our journal Palaearctic Grasslands, with major tasks regarding Photo Editing. I have been involved as editor of several EDGG Special Features in

the journal *Hacquetia*, and I have recently been working at the management of the brand new collaboration between EDGG and the Global Vegetation Project. For the next years, I would like to keep contributing to the development of the EDGG, especially through undertaking major tasks in the editing of *Palaearctic Grasslands* and promoting new interdisciplinary networking activities.

Frank Yonghong Li (China)

I am a Professor of Ecology and head of State Key Laboratory of Grassland Ecology at Inner Mongolia University (Hohhot, China). I am a member of the Executive Committee of the Grassland Society and the Ecological Society of China, and Associate Editor of *Journal of Arid Land*. I have been working on grasslands since my student time at Montpellier University (France), and later at the Institute of Botany of Chinese Academy of Sciences (Beijing) and at New Zealand Institute for Pastoral Agriculture (Palm. North) before moving to my current position. My research covers biodiversity and ecosystem conservation, with a current focus on the steppes on the Mongolian Plateau. I am in the Membership Committee of the IAVS and have been an EDGG member for years. I am pleased see the expansion of the EDGG from 'European' to 'Eurasian' and the initiation of *Palaearctic Grasslands* as a journal in recent years. I am looking forward to contributing to the development of EDGG, especially to the increase of the EDGG activities in Asia and the visibility of Asian grasslands in EDGG publications.

Alireza Naqinezhad (Iran)

I am a Professor of Vegetation Ecology and Phytodiversity at the University of Mazandaran, Iran. My main interests are vegetation and phytodiversity of forests and grasslands (dry/wet), particularly in mountain and alpine areas. I am a Council member of IAVS and a member of Global Sponsorship Committee since 2014. Since 2010 I have been actively involved in EDGG events and then in 2017 I was appointed as a founding and governing board of GrassPlot. As an executive committee, I plan to promote the EDGG into scientific communities particularly in the Middle East and Central Asia where it has been received less consideration! As EDGG has few representatives in these regions, my vision is to promote and motivate vegetation science communities of this part of the world to strongly participate in the meetings and working groups of EDGG.

Stephen Venn (Finland/UK)

I am Adjunct Professor in Ecology at the University of Helsinki, Finland, specialized in urban ecology, conservation biology and insect ecology. I am affiliated to the Helsinki Institute of Sustainability Science (HELSUS) and Helsinki Institute of Urban and Regional Studies (URBARIA). My empirical research focuses on plant-insect assemblages of meadow habitats; I am most familiar with carabid beetles, though I also work with bees, butterflies and spiders. Currently, I am employed by Metsähallitus and working on the conservation of semi-natural grassland habitats in northeast Finland. I have been a member of the EDGG since 2010 and member of the Executive Committee since 2011. I am also a member of the editorial committee of *Palaearctic Grasslands* and have contributed to the editing of four *Hacquetia* Special Features. If I am re-elected to the Executive Committee, I will be particularly interested to participate in initiatives to enhance research collaboration within EDGG.

Modifications of the EDGG Bylaws

On 16 February 2021, the EDGG Executive Committee changed the EDGG Bylaws with unanimous vote according to Article 9c of the Bylaws. While the modifications need the formal approval of the IAVS Council, we will tentatively implement them from now on. The changes mainly concern issues connected to the election procedure, overdue adjustments of terminology as well as corrections of some typos. The main changes are as follows:

- Clarification that the elections of the Executive Committee (EC) have to take place in the first half of uneven years.
- Term of duty of a newly elected EC from now on immediately starts after publication of the election results, not just before the General Assembly (which might be cancelled in the very year due to various reasons such as a pandemic).
- Specification that the election is coordinated by an independent Election Committee.
- Name change of *Bulletin of the EDGG* to *Palaearctic Grasslands* (as it has been in use for several years now).
- Name change of *Eurasian Dry Grassland Conferences* (EDGCs) to *Eurasian Grassland Conferences* (EGCs) (as it has been in use for several years now).
- Specification that there can be more than one Chief Editor of Palaearctic Grasslands (based on our experience that it is too much work for one person)
- Addition of the Field Workshop Coordinator as a required function within the EC (as Field Workshops are meanwhile equally important events of EDGG as EGCs).

You can find the new Bylaws as well as a track-changes version of our modifications on https://edgg.org/about under "Bylaws & Reports".

EDGG Secretary-general,

Jürgen Dengler, Wädenswil, Switzerland
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Updated Author Guidelines of *Palaearctic Grasslands*

While our Author Guidelines up to version 06 only covered the aspects relevant to scientific articles in PG, we have now updated them so that they provide specifications of any item whose submission is invited by our journal. Namely these are:

- News
- EDGG Event
- EDGG Publication
- Announcement
- Scientific articles in four categories
  - Research Article
  - Review
  - Forum Article
  - Scientific Report
- Photo Competition
- Photo Story
- A Glimpse of a Grassland
- Short Contribution
- Book Review
- Recent Publications of our Members
- Forthcoming Event
- Photos for general illustrative purposes

Some rules apply to all (or most) types of submissions, others only to one or few.

While there are many small adjustments and specifications, perhaps the most important ones codify what has become more or less practice like that over the past issues: "Photo Stories" now can have 3–8 printed pages, while "Glimpses of Grasslands" are a kind of short Photo Story with always 2 printed pages. Both categories do not allow for citations in the text, but you can give five, respectively two, relevant sources under the heading "Further reading".

Before you submit your next item, please consult our Author Guidelines, version 07, which are now available from our website. There you can also find to which editor you should send which type of submission.

On behalf of the Chief Editor Team:

Jürgen Dengler, Wädenswil, Switzerland
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15th EDGG Field Workshop:
Ukrainian steppes along climatic gradients
Ukraine, 24th May – 2nd June 2021

Unfortunately, due to the pandemic situation and current restrictions regarding travelling, the registration for the planned Field Workshop (FW) in Ukraine cannot be opened in the usual manner. At the moment, noone can predict the epidemiological situation at the end of May, and also it is hard to foresee how the rate and effectiveness of vaccinations will be in the next months in different countries.

We cannot promise that participants from other countries will be able to travel to (and from) the FW, and we cannot take any responsibility for the health or financial consequences of travel and participation in the FW. Accordingly, we will only offer the possibility to participate to people who registered in 2020 and, if there is someone else particularly enthusiastic to participate, then he or she is asked to contact Iwona Dembicz and Idoia Biurrun (EDGG FW Coordinators). The final decision about the organization of the FW will be taken at the end of March.

We would like to emphasize once again that we will not refund any costs of cancelled travel (or any other costs related to participation in the FW) and for the moment, we also cannot promise that we will receive any financial support for travel grants from IAVS.

We still hope that the 15th FW in Ukraine will finally take place, despite the difficult and unpredictable situation, and that most of those who wish to participate can do so.

Local organizers:

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Ivan Moysiyenko, Kherson, Ukraine
ivan.moysiyenko@gmail.com

Dariia Shyriaieva, Kyiv, Ukraine
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EDGG Field Workshop Coordinators:

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Idoia Biurrun, Bilbao, Spain,
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Eurasian Grassland Conference
"Grassland dynamics and conservation in a changing world"
Tolosa, Spain

The conference organizing committee is currently following the global Covid-19 situation regarding this year's EGC conference. We plan to hold the conference in Tolosa, Spain but only as long as it can succeed without jeopardizing the health and safety of all participants. We anticipate that the pandemic will decline by the time of the conference, 6-12th September 2021, and we are also hopeful that an effective vaccine will be widely available, permitting relaxation of the currently widespread travel restrictions.

Under those conditions, we hope to be able to hold a full-scale conference in Tolosa, with the same programme as we had planned for 2020. Of course, if those conditions are not met and we cannot be certain of the safety of participants, then we will consider organizing an alternative online event, and the Tolosa meeting will then take place in 2022. The final decision will be made and announced by the end of April 2021.

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EGC Coordinators:

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Didem Ambarlı, Munich, Germany,
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Talk Grasslands!

This winter, for the first time, EDGG organized a series of online talks to offer grassland researchers an opportunity to remain engaged in the latest grassland research and conservation studies, exchange ideas and hear inspiring talks (https://edgg.org/talks). The major motivation behind this was to be able to meet and stay tuned, even under the current Covid-19 restrictions. We had three talks and welcomed three distinguished scientists to talk on various aspects of grassland ecology, biodiversity and conservation. More than 220 participants joined the live talks. Moreover, the recordings, which are available on EDGG's Youtube channel, have been watched by many more (https://www.youtube.com/channel/UCuAZ2v0FI-w3WL2Yz2PzH9A).

Nadja Simons, an accomplished young grassland researcher from the Technical University of Darmstadt, gave the very first talk on 8th December 2020. She presented ***Drivers of insect decline in grasslands: mechanisms and solutions.*** She guided us to take a closer look at the insect (and spider) communities on managed grasslands in Germany. She highlighted the current trends of insect diversity, discussed the effects of management type and intensity on insect diversity, as well as the underlying mechanisms. Moreover, she provided insights into possible solutions for biodiversity-friendly grassland management. *You can find more information about her research from her webpage* https://www.econetlab.net/nadja-simons

Milan Chytrý from Masaryk University, Czech Republic, was our second invited speaker. On 12th January 2021, he presented the ***Recent developments of the EUNIS classification of European habitats,*** *namely the* EUNIS-ESy for automatic classification of European vegetation plots to EUNIS habitats. This is an expert system used to classify approximately 1.3 million vegetation plots from the European Vegetation Archive. His team has used these plots to produce statistically derived characteristic species combinations and distribution maps for more than 200 EUNIS habitat types. In his presentation, Milan Chytrý summarized the main features of the revised EUNIS classification and demonstrated how to use the EUNIS-ESy expert system. See also https://vegsciblog.org/2020/08/21/filling-empty-boxes-european-habitat-classification-eunis/.

Honor C Prentice, from the University of Lund, Sweden, gave the last talk of the current series on 4th February 2021. The title of her talk was ***Grasslands, ancient and modern: plant communities as bioassays.*** In her presentation, Honor showed different ways in which plant community composition can be used as a tool to investigate ecological and population-genetic questions. She gave examples from the grasslands and "alvar" heaths on the Great Alvar of Öland, where her team characterized the ages of the grassland fragments (using historical maps, aerial photos and satellite images) and explored different aspects of plant community assembly, as well as the historical and edaphic factors that are associated with the occurrences of individual species. You can find her publications here: https://portal.research.lu.se/portal/en/persons/honor-c-prentice(610306d8-3fb1-4409-8c66-937c9dea5378).html#Overview

We thank all the speakers for their time and for sharing their invaluable insights with us. We also thank all participants for joining and generating lively discussions. As this series of talks was so popular, we are already planning to organize live events in the coming months, which will allow us to come together from our remote parts of the Palaearctic and exchange ideas once more.

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Palaearctic Grasslands profile on Google Scholar

If you are interested to know which are the most-cited articles in our journal and who is citing them, you can now go to the Google Scholar profile of *Palaearctic Grasslands*, combined with its predecessors (*Bulletin of the European Dry Grassland Group*, *Bulletin of the Eurasian Dry Grassland Group*). Most-cited so far are three articles relating to the EDGG Field Workshops: Dengler et al. (2016b, 30 citations) presents the standardised methodology of the EDGG Field Workshops, Dengler et al. (2016a, 29 citations) provides an overview on mean, minimum and maximum species richness of Palaearctic grasslands across grain sizes and taxa, and finally, Dengler et al. (2009, 27 citations), summarizes the findings from the very first EDGG Field Workshop (then still called EDGG Research Expedition) in Transylvania, Romania, during which some world records of fine grain richness were recorded. To date, the most cited contribution under the new title *Palaearctic Grasslands* is Biurrun et al. (2019, 8 citations) on EDGG's GrassPlot database. So far Google Scholar records 183 citations, of which 49 were just from 2020, indicating the increasing interest in our journal.

You find the profile at: https://scholar.google.com/citations?user=AuiN-a4AAAAJ

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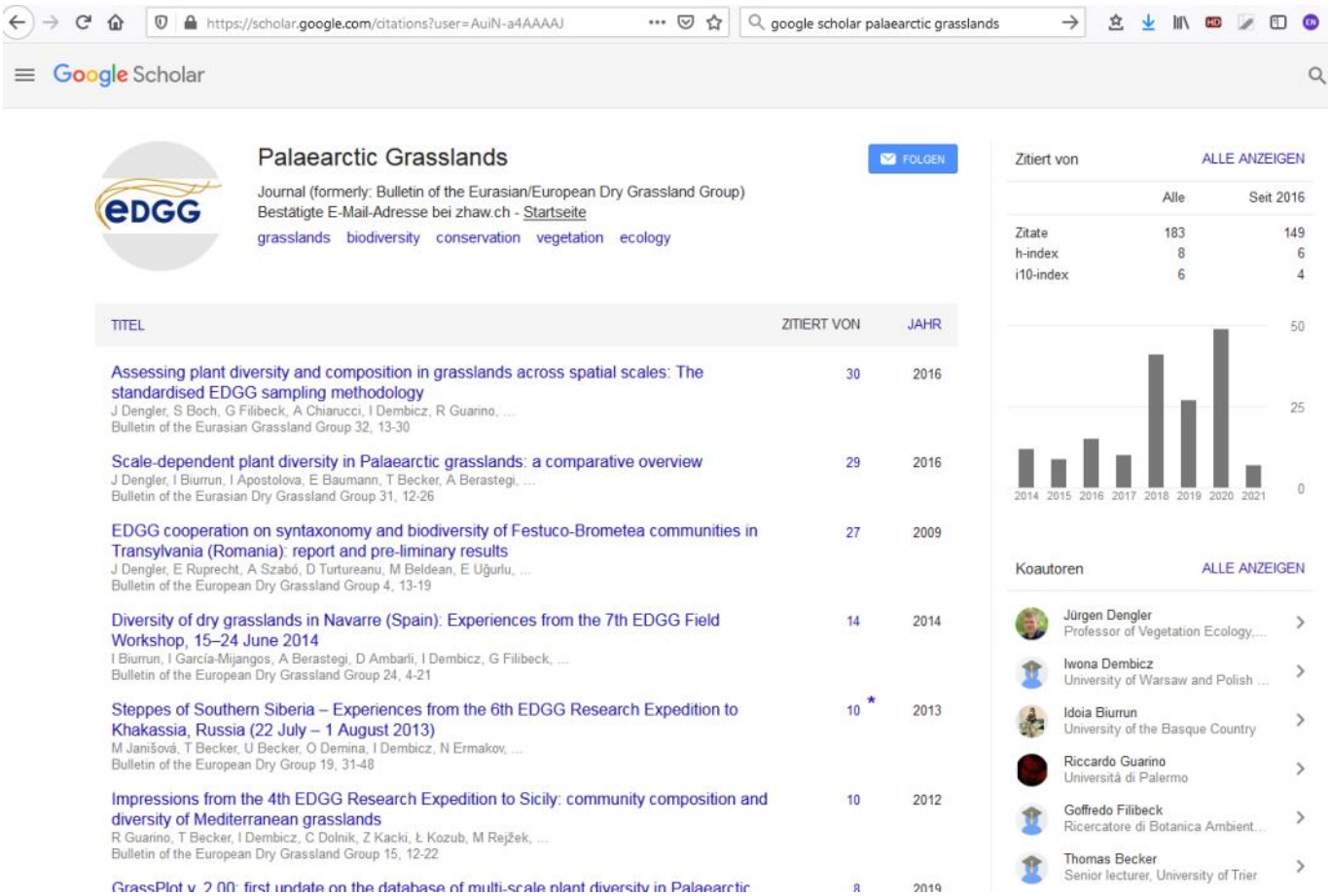

Photos in *Palaearctic Grasslands*

In this issue we are happy to announce some interesting news regarding photos in *Palaearctic Grasslands*!

As you will read on pages 12-13, we would like to encourage you to contribute to **the Global Vegetation Project** with your vegetation photographs:

1) If your photos have already been published in *Palaearctic Grasslands*, you can submit them to the global map citing DOI of your article or of the whole issue (you can find all published issues here: https://edgg.org/publications/bulletin);
2) If you are submitting new vegetation photographs to Palaearctic Grasslands, either within an article, a photo story or for general illustrative purposes, you can provide each photo file with the following information (* = required fields):
   - Date (year/month/day),
   - author's full name*,
   - place name,
   - latitude and longitude*,
   - vegetation type,
   - vegetation classification system,
   - naturalness (indicate if anthropogenic, natural or semi-natural),
   - dominant species list*,
   - additional comments.

Please take a look at the project website (http://gveg.wyobiodiversity.org) for an overview of the global map and the data entry form.

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

The theme of the current **Photo Competition** is "**Grassland lights"**, dedicated to all those scenes that best underline the beauty of natural light beyond and above grassland subjects.

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 (a short text to explain the meaning or a story behind the shot) and information on the subject (species name, date, place name).

A jury of at least five members from the Editorial Board of the journal 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 feel you can contribute with your shots, don't be shy! Everyone can join the competition!

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 3-8 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 this issue.

As with scientific articles, Photo Stories undergo a review process with a focus on photo quality. There is no guarantee that they will be accepted without changes, and late submissions may be published in subsequent issue.

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

Deadline for photo submissions is **31 March 2021**!

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Snowy *Stipa capillata* in the Velykyi Burluk-Steppe (Kharkiv Region, Ukraine). Photo: V. Ronkin.

Putting *Palaearctic Grassland* photos on the map: a new collaboration with the Global Vegetation Project website

One of the unique and notable features of *Palaearctic Grasslands* is its emphasis on photographs of vegetation. Vegetation photos are not just beautiful aesthetic images, they are permanent visual archives of vegetation at a particular place at a specific time, and there is enormous potential for using vegetation photos in both teaching and research.

The Global Vegetation Project (http://gveg.wyobiodiversity.org) is a new initiative that provides online access to an interactive global map of vegetation photos. Each open-access photograph includes useful information such as vegetation type, dominant species, climatic characteristics, biome and ecoregion, and anecdotal facts about the site of general interest. Since launching the application in August 2020, the map has grown to > 1000 photos thanks to contributions from more than 200 photographers around the world.

The map is a celebration of the diversity of vegetation on our planet. However, there are many areas in the world that are grossly underrepresented. If you explore the vegetation map you will notice that the Palaearctic, the largest biogeographic realm on Earth, is still relatively empty.

The Global Vegetation Project would like to collaborate with *Palaearctic Grasslands* to remedy this shortfall and promote the use and contribution of open-access vegetation photos. The Global Vegetation Project will be enhanced by adding the many high-quality photos in *Palaearctic Grasslands* to the map.

We encourage members of EDGG and contributors to *Palaearctic Grasslands* to consider contributing additional photographs of vegetation. This would enable anyone anywhere in the world to enjoy photos from the Palaearctic and learn something about the diversity of non-forest, non-shrubland and non-arable habitat types in this large realm.

Palaearctic Grasslands will benefit from this collaboration because each photo that was first published in *Palaearctic Grasslands* and then added to the global map will be linked to the citable item in the journal. This would be the individual article if this bears its own DOI or the whole issue if the photo comes from the general parts and short contributions. The Global Vegetation Project also displays

Fig. 1. Illustration of the online map of vegetation photographs using an example of a photo of a dry grassland submitted by Rocco Labadessa from Italy. The panels on the right illustrate two tabs that describe photo and vegetation information, and the climate diagrams. Note that users can compare long-term climate averages to the most recent decade.

the formal collaboration with *Palaearctic Grasslands* prominently on their website.

Consider the advantages. Figure 1 illustrates what one photograph of dry grassland submitted by Rocco Labadessa looks like on the online map. Note that it includes much additional information that was not provided by Rocco. The application takes the geographic coordinates and links it to global layers of climate, biomes, ecoregions, and more. This enables quick comparison of climatic differences between photographs.

The photo submission portal (http://gveg.wyobiodiversity.org/index.php/entry-submission) is a user-friendly form that gathers all the relevant information from the contributor (Fig. 2). When you upload a photo, you are asked to provide your name, latitude and longitude, and dominant plant species. The geographic coordinates are paramount, but we only ask to be as accurate as possible, ideally within one square kilometer so that the linkages with climate are accurate. We also allow the user to state the type of vegetation (i.e., the syntaxon), the Classification System that was used to define the vegetation type, the location name, landscape naturalness, observation date, email address, and a DOI if the photo is linked to a published article, and any additional comments about the site.

We look forward to working with the members of EDGG and are excited about sharing photos of grasslands in Europe, Asia, and northern Africa with the world.

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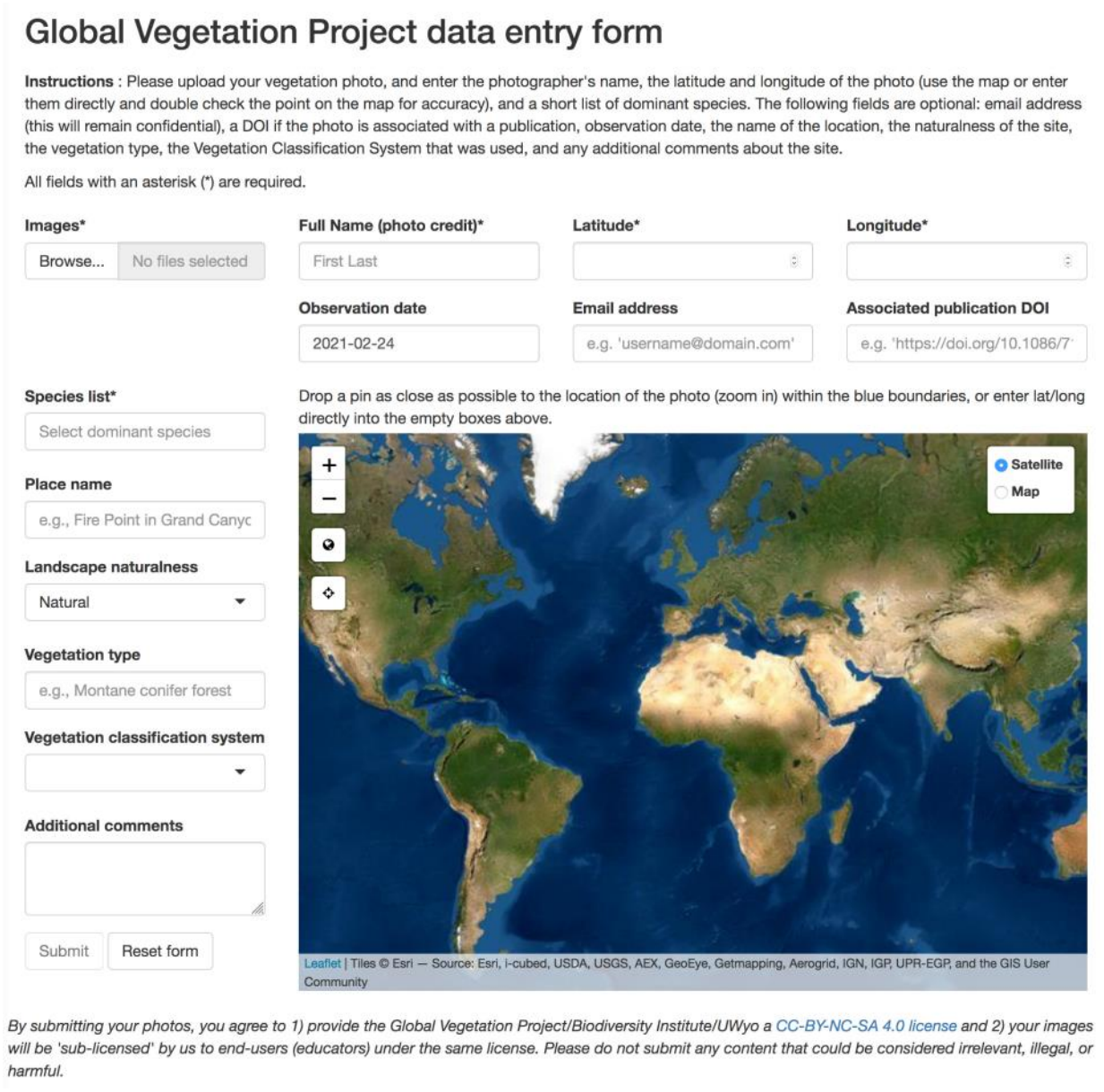

Fig. 2. The photo submission portal.

Corrigendum to Dengler et al. "Sampling multi-scale and multi-taxon plant diversity data in the subalpine and alpine habitats of Switzerland: Report on the 14th EDGG Field Workshop"

In Dengler et al. (2020), we reported *Cephaloziella dentata* (Raddi) Mig. as new to Switzerland. Now the sample has been revised by Thomas Kiebacher and Edi Urmi as *Cephaloziella massalongi* (Spruce) Müll.Frib., another species with denticulate leaves from that group of Europe's smallest hepatics, only few millimetres long and 0.3 mm wide. The tuberculate microstructure we detected in the plant material and considered to be the diagnostic tuberculate leaf gemmae of *C. dentata* may belong to gemma-like structures on leaves of *C. massalongi* presented in the drawings of this species in Paton (1999) or goniocysts of the lichen genus *Vezdaea*, growing intermixed on bryophytes and humus. The leaf cells in *C. massalongi* are papillose, not smooth as in *C. dentata*. Another feature are the bi-pointed two-celled leaf gemmae occurring on some shoots, which are similar to the gemmae of *Cephaloziella rubella* (Nees) Warnst., another species of that genus growing nearby. *C. massalongi* is a rare bryophyte in Switzerland, with only few recent records in the Swiss database (https://swissbryophytes.ch/index.php/de/verbreitung?taxon_id=nism-112). We apologize for the confusion caused by the publication of the preliminary results of our Field Workshop, while the species determination of some critical taxa was still ongoing. We thank Thomas Kiebacher und Edi Urmi for the correct determination of our sample of *Cephaloziella massalongi*, which is stored now in the Herbarium of Zurich (Z).

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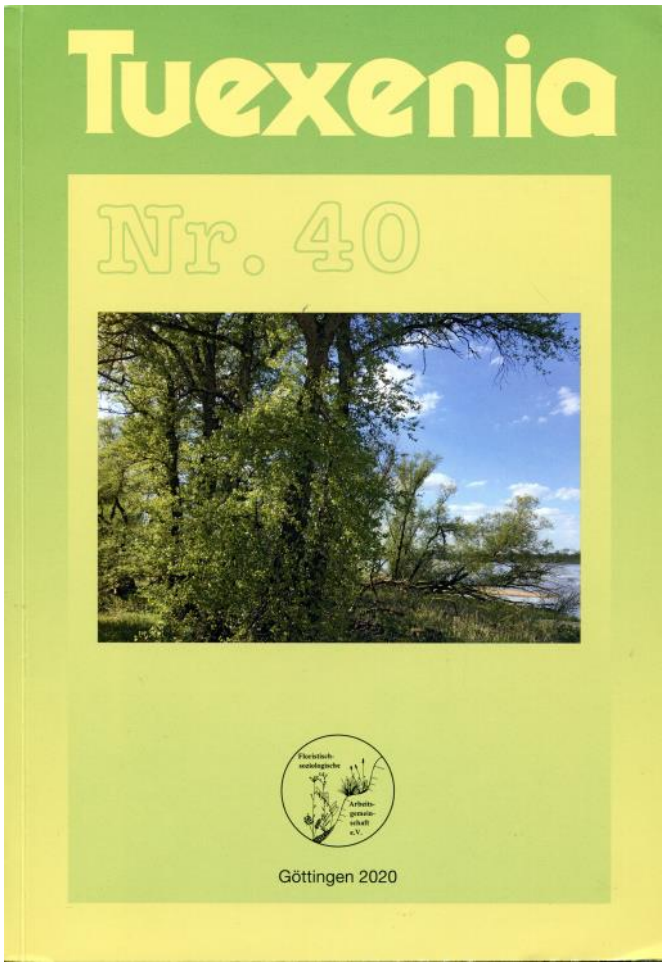
Red fox (*Vulpes vulpes*) in the Velykyi Burluk-Steppe (Kharkiv Region, Ukraine). Photo: V. Ronkin.

EDGG Publication

Traditional land use, management and biodiversity of European semi-natural grasslands: the 15th EDGG Special Feature in *Tuexenia* has been published



This Special Feature continues a long tradition of grassland-related publications in *Tuexenia* and marks two anniversaries at once: the 40th anniversary of *Tuexenia* (Dierschke 2020) and the 15th anniversary of the Special Feature on grasslands of Central Europe in *Tuexenia*. The present Special Feature edited by Steffen Boch, Thomas Becker, Balázs Deák, Jürgen Dengler and Viktoria Wagner briefly reviews the biodiversity decline in European semi-natural grasslands (Boch et al. 2020) and comprises eight research articles by 47 authors from 10 countries, highlighting different aspects of grassland research including several study organisms and spatial scales:

Janišová et al. (2020a) studied the relationships between traditional farming systems and recent plant diversity in grasslands of the alliances *Arrhenatherion*, *Cirsio-Brachypodion*, *Cynosurion*, *Deschampsion* and *Violion caninae* in the Apuseni Mountains in western Romania. As species richness increased with heterogeneity in recent management, the authors concluded that a combination of multiple traditional farming practices applied in rotation may support high plant diversity in a heterogeneous landscape with sustainable low-intensity farming.

Labadessa et al. (2020) compared the species composition of restored grazed and ungrazed grasslands with nearby reference grasslands in southeastern Italy. Compared with ungrazed plots, grazed plots became more similar to the reference grasslands in terms of species composition and structure. The authors therefore stated that in the case of available seed sources in the vicinity of a restored grassland, grazing can be a cost-effective, efficient and sustainable tool in grassland restoration, even during the early establishment phase.

Pápay et al. (2020) investigated the influence of shrub cover on the species composition of semi-natural grasslands and wild ungulates' preference for woody species in the Mátra Mountains in northern Hungary. In line with Boch et al. (2019), they found that increasing shrub cover significantly decreased the cover and species richness of grassland specialists, increased weed cover and changed mean ecological indicator values towards higher nutrient and moisture and lower naturalness scores. Although wild ungulate grazing alone was not feasible for suppressing shrubs, its combination with cattle grazing might support the maintenance of semi-natural grassland vegetation in mountainous areas.

Dayneko et al. (2020) described the role of ancient settlements (i.e., remnants of settlements built in the Scythian and Sarmatian periods) of the Lower Dnipro basin in southern Ukraine in maintaining steppe biodiversity. They found that sites of ancient settlements harbor a large number of native, steppe and non-synanthropic plants, which is comparable to the diversity of nature reserves and kurgans. The study therefore demonstrates that ancient settlement sites are surprisingly species-rich and comprise valuable enclaves of the steppe flora, highlighting their conservation value.

Zaniewski et al. (2020) investigated whether disturbance by off-road vehicles might reduce secondary succession and thereby replace formerly abandoned traditional agricultural and forestry land-use regimes to maintain the cryptogam diversity of inland dunes in Central Poland. While the highest off-road intensity led to a transformation of the habitat into its initial stage with active dune processes, succession

caused a development to pine forest in undisturbed patches. The authors concluded that diverse and spatially complex off-road activities might increase habitat heterogeneity and thus promote the coexistence of different cryptogam groups in inland dunes.

Janišová et al. (2020b) investigated diversity patterns in rocky steppes dominated by *Carex humilis* in four biogeographic regions of eastern Central Europe and along an elevation gradient from 140 to 1,350 m a.s.l. While low-elevation steppe grasslands were characterized by a higher beta and gamma diversity, as well as a higher proportion of therophytes, large-range species and steppe specialists, the proportion of alpine species and of generalist species increased with elevation. This study shows that a detailed analysis of biogeographic patterns based on phytosociological data can provide valuable insight into the structure of a particular vegetation type.

Büchler et al. (2020) addressed the question whether the variation in conservation value of semi-dry grasslands (alliance *Mesobromion*) in the canton of Zurich, Switzerland can be attributed to differences in site conditions. The authors used four different metrics to indicate the conservation value of the investigated grasslands and generally found the more valuable dry grasslands growing on steeper slopes with lower nutrient status. Counterintuitively, the more valuable grasslands had a high litter cover, which might indicate that they are currently anthropogenically underused, meaning that their future value will be threatened if no measures are taken to reduce the standing and dead biomass from time to time.

Cancellieri et al. (2020) provided an overview of the plant communities and ecological conditions of the dry grasslands of the Abruzzo, Lazio and Molise National Park in central Italy. Climatic (especially precipitation) and edaphic (especially bedrock and soil reaction) gradients were responsible for the species composition of the vegetation. In the study area, four high-ranking floristic-ecological groups belonging to four vegetation classes can be distinguished: *Molinio-Arrhenatheretea*, *Nardetea strictae*, *Festuco hystricis-Ononidetea striatae* and *Festuco-Brometea*. Species richness was highest in summer drought affected sites with low nutrient levels. Community-means of Ellenberg Indicator Values (EIVs) calibrated for the Italian flora (Pignatti et al. 2005) accurately reflected the environmental variables in grasslands.

Tuexenia is a Diamond Open Access journal and all publications are freely available from the newly designed *Tuexenia* journal website. In addition, all publications of the Grassland Special Features are provided on the EDGG website.

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EDGG Publication

Updated call for the 16th EDGG-edited Grassland Special Feature in *Tuexenia*: Grasslands of temperate Europe in a changing world

Submission of articles to the 16th Grassland Special Feature in *Tuexenia* are still possible.

Tuexenia is a diamond open access, peer-reviewed journal publishing original articles, reviews, and reports. The well-cited annual EDGG Special Feature is open to grassland-related topics with a focus on geobotany, vegetation ecology and related sciences, such as population biology, biodiversity research, biocenology, restoration ecology, and their applications, particularly in grassland conservation. We further welcome studies involving interactions of plants with other taxa such as animals and fungi.

Deviating from our first call, we extended the geographic and syntaxonomic scope:

- **Geographic scope**: As for *Tuexenia* in general, we invite contributions from the whole nemoral zonobiome (also called temperate midlatitudes) in Europe, including its transitions to neighboring zonobiomes (submediterranean, hemiboreal and forest-steppe zono-ecotones). This means that contributions from Galicia in the west to the Urals in the East are considered. By contrast, contributions from the boreal, arctic, mediterranean or continental (steppic) zonobiomes can only exceptionally be taken into account after prior approval by the Chief Editor, and if a clear connection to Central Europe is made.
- **Syntaxonomic scope:** Like EDGG, we focus on all types of natural and semi-natural grasslands (mesic, wet, dry, saline, sandy, rocky, alpine), but we may also consider vegetation types dominated by bryophytes, lichens, forbs and dwarf shrubs, e.g. tall forb communities and heathlands.

If you plan to contribute, you are invited to send the manuscript to the Chair of Guest Editors, Steffen Boch until **30 March 2021**. Early submitted manuscripts have a higher chance of inclusion in the next Special Feature 2021. Later submission is only possible after prior consultation with Steffen Boch.

Benefits of submitting to our Special Feature in *Tuexenia* include:

- Open access and peer-reviewed journal indexed in the Web of Science (Impact Factor 2019: 1.05).
- Significantly higher citation rates than regular Tuexenia articles (Tuexenia 39(2019): 5.9×, 38(2018): 2.2×, 37(2017): 1.8×, 36(2016): 3.2×, 35(2015): 2.5×; based on a Web of Science query on 28 January 2021).
- No color and page charges.
- Competent Guest Editor Team: Steffen Boch (chair, Switzerland), Thomas Becker (Germany), Balázs Deák (Hungary), Jürgen Dengler (Switzerland), Valentin H. Klaus (Switzerland).

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Alpine grassland with stands of spiniest thistle (*Cirsium spinosissimum*) along a stream, with the Bernina Massif in the background, Grisons, Switzerland. Photo: J. Dengler.

EDGG Publication

The 6th EDGG-edited Special Feature in *Hacquetia* is published

The sixth Special Feature edited by EDGG (eds. Orsolya Valkó, Stephen Venn and Rocco Labadessa) in the *Hacquetia* journal is available online (https://ojs.zrc-sazu.si/hacquetia/issue/view/813) and in paper. The special feature is part of the 20th issue of *Hacquetia* (Šilc & Čarni 2021). The special feature was initiated by members of the EDGG attending the 16th Eurasian Grassland Conference (EGC) in Graz, Austria in 2019 (Magnes 2019). The papers in this special feature cover a wide range of grassland ecosystems, from montane rocky grasslands to lowland sandy grasslands, feathergrass steppes and meadow steppes, and focus on the biodiversity and conservation issues of Palaearctic grasslands. We hope that this article collection will contribute to a better understanding of the ecology of grasslands and support their more effective conservation. The special issue contains five research papers from Slovenia (Čarni et al. 2021), Hungary (Kenyeres et al. 2021; Penksza et al. 2021) and Ukraine (Lysenko et al. 2021; Polchaninova et al. 2021). The Special Feature also includes a report of the EDGG activities in 2019 and 2020 (Dengler et al. 2021) and an editorial paper (Valkó et al. 2021).

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***Anemone apennina* in Subappennino Dauno (Puglia, Italy). Photo: R. Labadessa.**

Photo Competition

Best Shots on "Grassland studies"

Here are the three winners of the EDGG Photo Competition!
The Jury for the Photo Competition was composed of Edy Fantinato, Magdalena Firganek-Fulcher, Anna Kuzemko, Rocco Labadessa, Jim Martin, Jalil Noroozi & Salza Palpurina.

1st place

A goat with deep interest in vegetation-plot sampling in a subalpine heathland on Alp Glivers, Grisons, Switzerland.
Nikon D7200, Sigma 17-70 mm, f/2.8-4.0, 1/80 s, f/11, 17 mm, ISO 100.

Jürgen Dengler
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Reviews from the Jury:

"All lines on this image work to draw the eye in to the centre, to the "kiss" between the botanist and the goat."

"The sky-high location of these meadows and an unusual assistant make this photo somewhat surreal."

"This photo made me laugh and highlights the problems that can arise while recording field data. Also, the photo is an interesting composition with a stunning backdrop."

2nd place:

Surveying the effect of crane ploughing (soil perturbance made by cranes) on the vegetation of alkali grasslands in the Hortobágy National Park, Hungary.
DJI Phantom 4 Pro drone, 24 mm lens - full frame sensor, f/8, 1/1600 s, ISO 200.

Sándor Borza
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Reviews from the Jury:

"In this picture the composition is very balanced. The symmetry between the sampling scheme and vegetation makes the subjects of this image naturally part of the ecosystem."

" Everything looks beautiful from above, grasslands and their explorers are no exception."

3[3d] place:

Enthusiastic grassland scientists can see a challenge even in the large city centre. The gaps between these tiles may hide a record in the density of plant species at the smallest scales. *Herniaria hirsuta* is a quite rare plant species in Northern Germany with a scattered distribution also across other European countries. And we found it exactly here! In addition, sampling is a welcome warm-up among the conference lectures. Bremen, Germany, July 2019.
Taken from iPhone 8.

Monika Janišová
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Reviews from the Jury:

"I remember those amazing grasslands in the cracked slabs in front of the Congress Hall in Bremen! Truly, a genuine vegetation scientist will always find something to explore!"

Photo Story

DOI: 10.21570/EDGG.PG.48.22-26

Research activities at the dry grassland sites in the LTSER site Matsch/Mazia valley, Italy

Text by Veronika Fontana, Georg Niedrist, Julia Seeber, Michael Steinwandter, Andreas Hilpold, Elia Guariento, Johannes Klotz, Stefano Della Chiesa, Alessandro Zandonai, Filippo Colla, Erich Tasser, Nikolaus Obojes, Giacomo Bertoldi & Ulrike Tappeiner

Photos by Ivo Corrá, Fabio Dalvit, Mirto Fontana, Veronika Fontana, Erich Gasser, Georg Niedrist & Alfons Schäfer-Verwimp

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The dry grassland sites in Matsch valley (Vinschgau, Northern Italy) are part of the Long-Term Socio-Ecological Research (LTSER) site Matsch|Mazia (LTER Italy). The area was previously presented by Hilpold et al. in PG 40 (2019). In the present contribution we focus on the scientific activities conducted in the LTSER area.

Due to the high mountains surrounding the valley (the highest peak, Weisskugel rises to 3739 m a.s.l.), the area is characterised by a pronounced inner-alpine continental climate with an average precipitation of around 525 mm per year and average temperature of 5.6 °C. The dry grassland sites are all situated on southern slopes and are grazed by cattle and sheep (0.5-1.5 livestock units per ha). On the lower elevations (~1000 m a.s.l.) the sites have the *Festucetum valesiacae* association that gradually convert to *Sieversio-Nardetum strictae* before reaching the highest site at 2500 m a.s.l. The soil pH decreases from 5.3 to 4.6 with increasing elevation.

For our team of scientists, the sites represent a unique opportunity to conduct elevational studies. They represent an ideal natural elevational transect of grazed grasslands that starts at the valley bottom (at approximately 1000 m a.s.l.) and ascends to the mountain top at 2500 m a.s.l. In the recent years, we have surveyed a large number of animal and plant groups, including grasshoppers, butterflies, ants, spiders, beetles, vascular plants, lichens, bryophytes and many others. The data collected were used to investigate elevational biodiversity patterns focussing on species richness and beta diversity as well as to explore conservation-related aspects to gain a better understanding of the distribution of rare species and specialists. Furthermore, we investigated the response of functional plant traits along the gradient , studied trophic structures of the soils and participated in a global litter decomposition experiment (www.teacomposition.org). The dry grassland sites were also visited in 2016 by a large group of taxonomic experts during the annual "Biodiversity Day" which is organised by the Nature Museum of South Tyrol. Future surveys will be conducted in collaboration with Biodiversity Monitoring South Tyrol (https://biodiversity.eurac.edu/).

To link biological data to climate and soil properties, we installed several climate stations at various elevations including a large one at 1000 m a.sl. We can therefore monitor precipitation, air temperature and humidity, wind speed and direction, snow and vegetation height, soil temperature, soil moisture, soil water potential, and solar radiation. For specific surveys we also use small soil temperature loggers and a mobile device named "Ecobot" which allows us to measure standard meteorological and hydrological parameters in situ.

During autumn 2019, the dry grassland sites were also included within a special travelling event (*Cammini*) initiated by LTER Italy. The *Socio-ecological marathon - 42 km of aLTERnative transhumance* lasted three days during which more than 20 people walked from the Austrian LTER site Obergurgl to the Matsch|Mazia LTER site.

Further reading

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Bryophyte experts at work. Photo: A. Schäfer-Verwimp.

The climate station at 1000 m a.s.l. is an appropriate place to present our research activities to the media. Photo: M. Fontana.

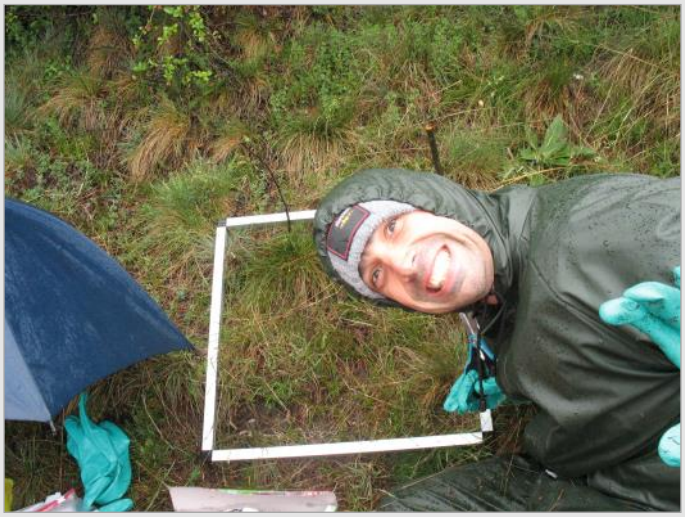
Thomas Frieß from Ökoteam - Institute for Animal Ecology and Landscape Planning in Graz, surveying *Hemiptera*. Photo: M. Fontana.

Erich Tasser using the so-called Ecobot – a mobile device for measuring in situ air temperature, radiation, soil moisture, and other parameters. Photo: F. Dalvit.

Andreas Hilpold identifying a butterfly. Photo: E. Gasser.

Johannes Klotz doing maintenance work at the climate station at 1000 m a.s.l. Photo: G. Niedrist.

Julia Seeber burying tea bags for the litter decomposition experiment. Photo: V. Fontana.



Georg Niedrist collecting plants for plant trait analyses and enjoying the weather. Photo: V. Fontana.

Michael Steinwandter and Veronika Fontana doing vegetation surveys in the dry grassland site at 2000 m a.s.l. Photo: M. Fontana.

Michael Steinwandter and Laura Stefani taking a soil sample. Photo: I. Corrá.

A Glimpse of a Grassland

The landscape view over the grasslands of the Lange Rhön plateau. Photo: N. Stanik.

The Rhön Mountains in Germany are often called the "Land of the Open Distances". The reason for that is the relatively low proportion of woodlands in this low mountain range, which creates an open landscape character and allows for unobstructed views from the mountaintops and plateaus into the broad valleys and surrounding lowland areas. The woodlands in the Rhön have been cleared successively since the Middle Ages. The steeper slopes of the land were then used as common pastures, whilst large areas of hay meadows have been developed on the plateaus and gentle slopes. Historic records report that every summer thousands of overflowing cartloads of hay were brought from the Lange Rhön into the surrounding villages to feed the livestock in winter. Currently, most meadows of the *c.* 3,300 ha large plateau are used under agri-environmental schemes that reflect historic management dates and practices with no fertilisers to maintain the nutrient-poor conditions.

Since my first fieldwork in this area in 2014, I have been fascinated by the species composition and richness of these grasslands, and the high patchiness within the swards. The grasslands of the Lange Rhön consist predominantly of species-rich montane *Nardus* grasslands *Violion caninae* and of *Trisetum flavescens*-dominated grasslands *Polygono-Trisetion*, which are both protected under the EU Habitats Directive. One special attribute of these grasslands is the smooth transition from *Nardus* grasslands to the more productive *Trisetum*-meadows. Sometimes both plant communities alternate with one another within a few meters and form a fine-scale mosaic. *Nardus* grasslands with varying habitat structures and many small-growing species require a closer view to appreciate the diversity and beauty.

The constant low-intensity management of the grasslands has contributed to a high floristic diversity. Due to this they have become important habitats for many endangered plant and animal species. For example, the grasslands of the

Lange Rhön provide essential habitats for one of the very few remnant populations of the black grouse *Tetrao tetrix* outside the German Alps, for corncrakes *Crex crex*, skylarks *Alauda arvensis*, and meadow pipits *Anthus pratensis*. Similarly, in this location plant species, such as *Arnica montana*, *Antennaria dioica*, and *Crepis mollis* have one of the core distribution areas in central Germany.

With a high pace of phenological development throughout the year, the grasslands create dynamic landscape impressions. In spring, the meadows become bright green within a couple of warm days but they quickly turn pale green in July, when *Nardus stricta* changes colour after flowering into yellowish green. These changing colours of the swards go together with various flowering aspects that delight not only every visitor but also us as botanists. It is also the unique landscape scenery that makes every day of my fieldwork special. It is always a pleasure to let the eye wander around and to perceive new details that you have not yet recognised. Luckily, I was able to continue my fieldwork in the grasslands during the recent times of the Coronavirus pandemic and I look forward to continuing them in 2021.

Further reading

Peppler-Lisbach, C., Stanik, N., Könitz, N. & Rosenthal, G. 2020. Long-term vegetation changes in *Nardus* grasslands indicate eutrophication, recovery from acidification, and management change as the main drivers. *Applied Vegetation Science* 23: 508–521.

Stanik, N., Lampei C. & Rosenthal G. 2020. Summer aridity rather than management shapes fitness-related functional traits of the threatened mountain plant *Arnica montana*. *Ecology and Evolution* 10: 5069–5078.

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***Arnica montana*. Photo: N. Stanik.**

***Antennaria dioica*. Photo: N. Stanik.**

***Phyteuma orbiculare*. Photo: N. Stanik.**

***Calluna vulgaris* surrounded by *Vaccinium vitis-idaea*. Photo: N. Stanik.**

Short Contributions

Invitation for joint research on the nutrient status and species composition of Palaeartic grasslands

Hi, my name is Martin Wassen and I would like to invite Palaeartic grassland ecologists to participate in joint research about ***plant diversity and nutrient availability in herbaceous ecosystems***.

My work focuses on herbaceous ecosystems (grasslands, fens, bogs, marshes, etc.) and one of my passions is the relationships between plant diversity and nutrient stoichiometry. I have published several papers on this subject (see below). To date, I have built up a dataset of 1038 plots across Europe in which ***vegetation recordings and C, N, P and K contents in above ground biomass*** have been measured.

At the start of the Covid pandemic I thought about how I could reach out to fellow ecologists and invited individuals to join through my Dutch network. This was highly successful and in 2020 we succeeded in expanding the dataset by one third (from 673 to 1038 datapoints). So far, the dataset is biased towards northwestern Europe (the Netherlands 607, Belgium 25, Poland 169, western Siberia 83, Germany 95, UK 12, Sweden 16, Belarus 10, Iceland 17) and towards wet and moist grasslands, fens and bogs. Subsequently, I particularly welcome samples from dry grasslands in countries other than the Netherlands.

My request: The method is very simple. Vegetation scientists making a relevé in herbaceous vegetation are asked to clip living above-ground phanerogam vegetation in a representative square next to the relevé. The sample should be taken around the peak of the growing season. Samples are ideally stored in paper bags and air-dried before sending them by surface mail to me. Typically, the size of a relevé should be 4 to 10 m^2 and the plot to be clipped c. 0.09-0.16 m^2. A typical relevé may include phanerogams, bryophytes and lichens, but for methodological reasons, we only collect the living vascular plant biomass in the sample to be clipped (leaves, stems, flowers, seed panicles; not sorted). Woody material (if any, i.e. dwarf shrubs) should be removed.

My offer: I will oven-dry the samples and determine dry plant mass and C, N, P and K concentrations in the lab. The results and interpretation of the nutrient status are given to the participant and they are free to use the data in their own research project. Following this, I will add the data to the existing database and at the end of 2021 will draw up an overview of the dataset. I propose that after presenting an initial overview of the dataset at the end of 2021, we decide together what a joint paper should be about. I offer co-authorship to all participants that provide a substantial number of plots.

Fieldwork in the Biebrza valley, Poland. Photo: T. Okruszko.

Interested? Send me an e-mail. We can discuss further details on planning, number of plots, type of vegetation and more detailed methodological instructions. I am currently preparing a user-friendly app that enables participants to easily upload the necessary information that goes along with the relevé. If you like we can also do it in the old fashioned way: on paper or digitally via a form.

References

Wassen, M.J., Schrader, J., van Dijk, J. & Eppinga, M.B. 2021. Phosphorus fertilization is eradicating the niche of northern Eurasia's threatened plant species. *Nature Ecology and Evolution* 5: 67–73.

Fujita, Y., Olde Venterink, H., Van Bodegom, P.M., Douma, J.C., Heil, G., Hölzel, N., Jabłońska, E., Kotowski, W., Okruszko, T., (…) & Wassen, M.J. 2014. Low investment in sexual reproduction threatens plants adapted to phosphorus limitation. *Nature* 505: 82–86.

Wassen, M.J., Olde Venterink, H., Lapshina, E.D. & Tanneberger, F. 2005. Endangered plants persist under phosphorus limitation. *Nature* 437: 547–550.

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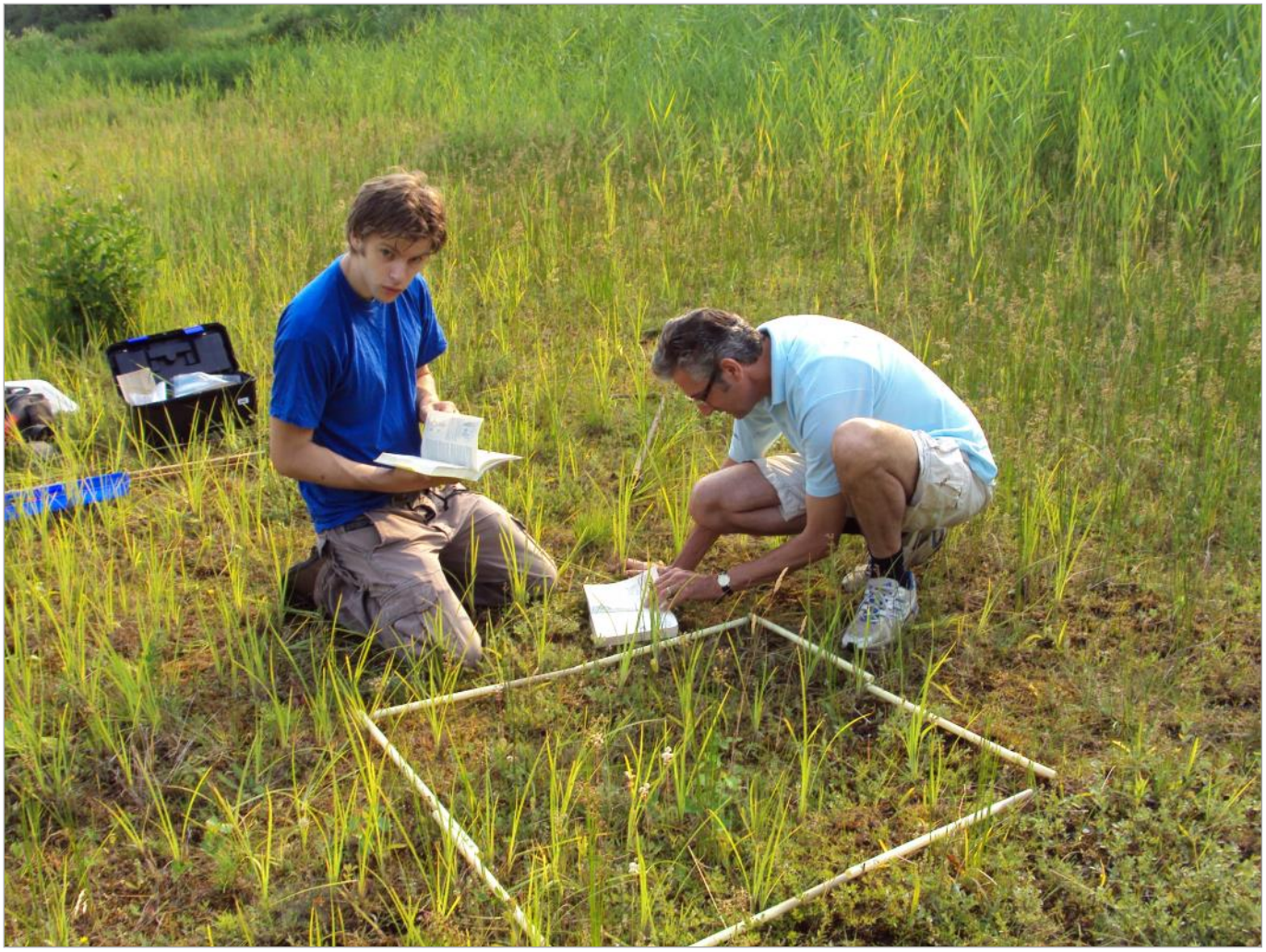

Fieldwork in eastern Twente, the Netherlands. Photo: I. Roeling.

Call for the Special Issue (SI) / Special Feature (SF) on the topic "Incorporating multiple functions and services of grassland ecosystems to advance conservation strategies for modern societal demands" in *Basic and Applied Ecology*

Grasslands of high nature value (HNV) fulfil multiple ecosystem functions and provide several ecosystem services. The variety of different functions and services developed out of a long history of diverse management systems, which have generated the high biodiversity of these ecosystems. Even if many of these grassland ecosystems are subject of national and/or transnational protection schemes, they experience a continuous qualitative and quantitative decline throughout Europe. A major driver of this negative trend is the substantial decrease in economic interest and motivation of maintaining these ecosystems, in favour of high-productivity grasslands. In the earlier small-scale agricultural context, production of biomass was the primary ecosystem service for all grassland types, whereas today other ecosystem services, such as their regulating services (e.g., carbon sequestration) or cultural services, such as their aesthetic value, appear to gain increased societal recognition. Therefore, one can assume that the consideration of multiple ecosystem functions and services will support and enhance conservation efforts of HNV grasslands as an important ecological, economic, and aesthetic resource against mono-functional highly productive grasslands of low biodiversity.

Our approach for the SI/SF is to utilise the ecosystem service approach and combine aspects from science and practice to advance conservation strategies for grassland ecosystems and taxonomic groups associated with grasslands. The SI/SF aims to collect scientific evidence on the multiple dimensions of ecosystem functions and services of HNV grasslands from a wide geographical range and relate this evidence to modern societal demands. The results should furthermore be discussed in the light of current and potential future conservation contexts. This would be an important step towards the generation of benefits and the transfer of knowledge into management practice, policy and decision-making. To achieve this, we particularly welcome studies that consider grassland's multiple ecosystem functions and services and their societal significance with the potential to advance either one or various of the following topics:

I. How are different facets of biodiversity linked to ecosystem functioning and service provision of HNV grasslands?

II. What biotic and abiotic processes, species (groups), and traits are a prerequisite that contribute to grassland's ecosystem functions and services?

III. What role does grassland management take in achieving multifunctionality and supporting multiple ecosystem services?

IV. How can this support and advance more focused conservation schemes and activities on HNV grasslands to generate diverse benefits for society?

Currently, we are preparing a list of contributions, for which we kindly invite brief abstracts (up to 200 words) on all types of papers for *Basic and Applied Ecology* (BAAE) and that meet the scope of this peer-reviewed journal (https://www.journals.elsevier.com/basic-and-applied-ecology; IF: 3.156). Please send us your abstracts, including title, list of contributing authors/affiliations, type of article, and estimated time of completion of the manuscript, by the **25th March 2021**. In collaboration with the editors of BAAE, we will then set the final deadlines for the SI/SF. On the basis of the number of papers accepted, we will organise either a Special Issue (*c.* ten or more papers) or Special Feature (up to five papers). Hopefully your contribution will be ready for submission in Summer/Autumn 2021. BAAE charges no submission or publication fees and provides Open Access options.

The SI/SF corresponds to the same-titled conference session for the annual meeting of the Ecological Society of Germany, Austria, and Switzerland (GfÖ), which will take place in September 2021 in Brunswick (Germany) (https://www.gfoe-conference.de/index.php?cat=show_start&LANG=en). Therefore, we want to encourage authors to present their studies not only in the SI/SF but also within the proposed session.

Guest Editor Team

Gert Rosenthal (chair, University of Kassel; Germany),
Nils Stanik (University of Kassel; Germany),
Eckhard Jedicke (Geisenheim University; Germany).

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Book Review

DOI: 10.21570/EDGG.PG.48.32-32

Molnár, V. A. & Csábi, M. 2021. Magyarország orchideái. Orchids of Hungary. [In Hungarian with English explanations] – Department of Botany, University of Debrecen, Debrecen. 224 pages, 831 colour photographs, 71 distribution maps. ISBN 978-963-490-247-8, Price: 24 Euro + 6 Euro postage & package charge (EU + UK) – contact info: A. Molnár V.: mva@science.unideb.hu

Orchidaceae is a very diverse and widespread plant family with an estimated 800 plant genera and at least 24 000 species (Fay & Chase 2009). Orchids have fascinated eminent biologists and botanists, including Linnaeus and Darwin, but they continuously attract many people regardless of their profession or main interest. Orchids are highly vulnerable to environmental changes, including climate change, because of their complex life cycles and highly specialised pollination strategies (Molnár et al. 2012). While they produce many easy-dispersed dust-like seeds (see data in Sonkoly et al. 2016) to aid dispersal, in most cases it is necessary to have a mycorrhiza for successful establishment. In Europe, many species are highly threatened, and their successful nature conservation is often reliant upon extensive habitat management by light grazing or mowing (Kull et al. 2016).

This book by Molnár V. & Csábi introduces the reader to this colourful world of orchids, focusing on species occurring in Hungary. It is a richly illustrated book and a real field guide (with a size that fits into a pocket), with lots of detail and clear explanations in both Hungarian and English. The book contains 71 orchid taxa, with 831 photos to illustrate the different taxa and present various morphological stages, colour varieties, fruits and vegetative individuals. The book starts with a summary and short introduction to orchid biology, including their morphology, life history traits, phenology and diversity of their pollination. The authors then introduce the most important orchid habitats in Hungary, which is followed by an alphabetic introduction of species (based on the scientific names, although the authors also provide the Hungarian and English common names). Most species are introduced with 5 to 7 colour highly detailed photos, but frequent species or those with several subspecies or varieties are illustrated with an even higher number of colour plates (e.g., *Anacamptis morio* and *Dactylorhiza incarnata*). All species descriptions are supplemented by a distribution map, based on up-to-date distribution data for the species in Hungary (http://floraatlasz.uni-sopron.hu/?lang=en). At the end of the book there are a few pages about colour variations, flower aberrations and hybrids; a section about conservation status and threats; and some tips on how to photograph orchids in an eco-friendly way.

This is a very colourful book with detailed descriptions with cross-referencing to similar taxa, informative pictograms on phenology, pollination mode and pollinator taxa, soil reaction, light and water demands and habitat preference. To sum up, this book is must-have literature for field botanists, plant experts and also hobby naturalists interested in orchid species in Hungary.

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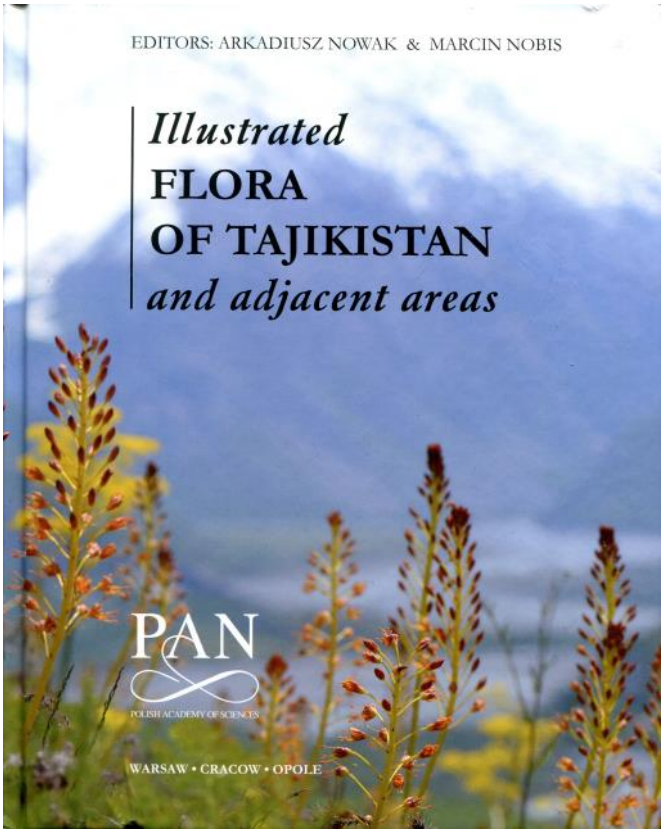
DOI: 10.21570/EDGG.PG.48.33-33

Book Review

Nowak, A., Nobis, M., Nowak, S., Nobis, A., Wróbel, A., Świerszcz, S., Klichowska, E. Dembicz, I. & Kusza, G. 2020. Illustrated flora of Tajikistan and adjacent areas. – 766 pp., Polish Academy of Sciences, Botanical Garden, Center for Biological Diversity Conservation, Warsaw, Cracow and Opole. ISBN 978-83-938900-5-7 (print) and 978-83-938900-6-4 (online).



Last autumn, I was surprised to find a heavy parcel from Poland in my mailbox. I opened it and found a roughly A4 size, 2.5 kg heavy hardcover book with a beautiful photo on the cover. It describes the vascular plant flora of the Middle Asian country Tajikistan, which is botanically-rich (4,300 species) and particularly rich in endemics (35%), despite the relatively small size of the country that covers only 143,000 km².

The main part of the book (673 pp.) is the "Catalogue of plants", which sounds much more banal than it is. In reality, it is a photographic guide to 1,864 species (including some from adjacent areas of Kyrgysztan and Uzbekistan). The species are arranged alphabetically within alphabetically ordered families (thus ferns, gymnosperms and angiosperms are mixed), sometimes interspersed by impressive double-page photographs visualising typical Tajik plant communities in splendid landscape settings. Each page presents three species, each with one to four photos , covering the outer half of the page. The inner half contains the name, any synonyms, red list status, a distribution map plus short descriptions covering the categories "Phytogeographical element", "Habitat", "Elevational range", "Flowering period", "Remarks" (with relevant (differential) characters) and sometimes "Usefulness". The selection of species is quite balanced and less photogenic families such as the *Poaceae* are also well represented. The quality of the photographs is mostly good and, in addition to the whole plant, details of flowers, fruits, leaf bases etc. are often visualised.

Apart from the "Catalogue", the book also contains a 58-page introductory section and a 5-page glossary of botanical terms. The introductory part greatly enhances the value of the book as it contains, among other topics , an overview of the physical geography, a brief history of the botanical exploration of the country, a detailed analysis of patterns of endemism (across regions and families) and, finally, an overview of the vegetation types of the country (30 pages). This text is accompanied by many helpful photographs. While it emerges that Tajikistan is a grassland country, ranging from the pseudosteppes of the lowlands via numerous types of steppes to the alpine grasslands at up to 4,000 m a.s.l., there are also some forests, shrublands and wetlands.

After this appraisal, the best part of the story is still missing: The book is gold open access! You can find it in Research Gate (https://www.researchgate.net/publication/344948625) and freely download a good resolution pdf of more than 200 MB. However, those who love real books can also order a free copy from the publisher (Secretariat of the Botanical Garden of the Polish Academy of Sciences in Powsin: ob.sekr@obpan.pl) as long as there are copies remaining from the original circulation figure of 1,000. You will only have to pay shipping costs (e.g. in Poland: 20 PLN, Germany: 64 PLN, UK: 93 PLN). I will use the real book at home, and hopefully, the pdf on a future field excursion to Middle Asia. A thousand thanks to the author and publishers for this generous arrangement!

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Recent Publications of our Members

In this section, the contents of which will also be made available via our homepage, we want to facilitate an overview of **grassland-related publications** throughout Eurasia and to improve their accessibility. You are invited to send lists of such papers from the last three years following the format below to Iwona Dembicz, i.dembicz@gmail.com. We will include your e-mail address so that readers can request a pdf. For authors who own full copyright, we can also post a pdf on the EDGG homepage.

Syntaxonomy of dry grasslands

Janišová, M., Bauer, N., Csiky, J., **Dengler, J.**, Hlásny, T., Hobohm, C., Škodová, I. & Willner, W. 2020. Broad-scale diversity patterns of Central European *Carex humilis* steppes. *Tuexenia* 40: 499–526.

Świerszcz S., Nobis M., Swacha G., Kącki Z., **Dembicz I.**, Waindzoch K., Nowak S. & Nowak A. 2020. Pseudosteppes and related grassland vegetation in the Pamir-Alai and western Tian Shan Mts – the borderland of the Irano-Turanian and Euro-Siberian regions. *Tuexenia* 40: 147–173.

Biodiversity & Ecology

Boch, S., Becker, T., Deák, B., **Dengler, J.** & Wagner, V. 2020. Traditional land use, management and biodiversity of European semi-natural grasslands – Editorial to the 15th EDGG Special Feature. *Tuexenia* 40: 401–407.

Winter flowering *Anagyris foetida* in Bari (Puglia, Italy). Photo: R. Labadessa.

Dayneko P., Moysiyenko, I., **Dembicz, I.**, Zachwatowicz, M. & Sudnik-Wójcikowska, B. 2020. Ancient settlements in Southern Ukraine: how do local and landscape factors shape vascular plant diversity patterns in the last remnants of grass steppe vegetation? *Tuexenia* 40: 459–478.

Freitag, M., Kamp, J., Dara, A., Kuemmerle, T., Sidorova, T.V., Stirnemann, I.A., Velbert, F. & **Hölzel, N**. 2020. Post-Soviet shifts in grazing and fire regimes changed the functional plant community composition on the Eurasian steppe. *Global Change Biology*, gcb.15411. https://doi.org/10.1111/gcb.15411

Widmer, S., Riesen, M., Krüsi, B.O., **Dengler, J.** & Billeter, R. 2020. Wenn Gämsen Schafe ersetzen: Fallstudie zu den Auswirkungen auf die Diversität von alpinen Rasen. *Tuexenia* 40: 225–246.

Conservation and restoration

Büchler, M.-O., Billeter, R. & **Dengler, J.** 2020. Optimal site conditions for dry grasslands of high conservation value in the canton of Zurich, Switzerland. *Tuexenia* 40: 527–546.

Deák, B., Kovács, B., Rádai, Z., Apostolova, I., Kelemen, A., Kiss, R., Lukács, K., Palpurina, S., Sopotlieva, D., Báthori, F. & Valkó, O. 2021. Linking environmental heterogeneity and plant diversity: the ecological role of small natural features in homogeneous landscapes. *Science of the Total Environment* 763: 144199

Deák, B., Rádai, Z., Lukács, K., Kelemen, A., Kiss, R., Báthori, Z., Kiss, P.J. & Valkó, O. 2020. Fragmented dry grasslands preserve unique components of species and phylogenetic diversity in agricultural landscapes. *Biodiversity and Conservation* 29: 4091–4110. doi: 10.1007/s10531-020-02066-7

Varga, K., Csízi, I., Monori, I. & **Valkó, O.** 2021. Threats and challenges related to grazing gardens: Recovery of extremely overgrazed grassland after grazing exclusion. *Arid Land Research and Management* doi: 10.1080/15324982.2020.1869120

Zaniewski, P.T., **Kozub, Ł.** & Wierzbicka, M. 2020. Intermediate disturbance by off-road vehicles promotes endangered pioneer cryptogam species of acid inland dunes. *Tuexenia* 40: 479–497.

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Forthcoming Events

15th EDGG Field Workshop:
24 May–2 June 2021 South Ukraine
FW webpage https://edgg.org/fieldworkshop2020

30th International Congress for Conservation Biology (ICCB) 2021
18–22 July 2021, Kigali, Rwanda
Conference website: https://conbio.org/mini-sites/iccb-2021

50th Annual Meeting of the Ecological Society of Germany, Austria and Switzerland
30 August 2021–3 September 2021,
Braunschweig, Germany
Conference website: https://www.gfoe-conference.de/

12th European Conference on Ecological Restoration SER 2021
31 August 2021–4 September 2021, Alicante, Spain
Conference website: https://chapter.ser.org/europe/event/alicante-spain-ser-europe-conference/

64th Symposium of the International Association for Vegetation Science (IAVS)
latter half of September 2021, online

17th Eurasian Grassland Conference: Grassland dynamics and conservation in a changing world
September 2021, Tolosa, Spain
Conference webpage https://edgg.org/egc2020

29th Workshop of the European Vegetation Survey (EVS)
26–30 September 2021, Roma, Italy

Ecology Across Borders 2021
12–15 Dec 2021, Liverpool, UK
Conference website: https://www.britishecologicalsociety.org/events/bes-annual-meeting-2020/ecology-across-borders-2021/

30th Workshop of the European Vegetation Survey (EVS)
Spring 2022, Bratislava, Slovakia

16th EDGG Field Workshop:
Summer 2022, South Tyrol (Vintschgau, Veltlin, etc.), Italy

18th Eurasian Grassland Conference
Summer 2022, Hungary

31st Workshop of the European Vegetation Survey (EVS)
May 2023, Kyiv, Ukraine,

17th EDGG Field Workshop
Summer 2023, Picos de Europa, Northern Spain

19th Eurasian Grassland Conference
Late summer 2023, Bolzano, Italy

Winter grassland with *Himantoglossum robertianum* in Bari (Puglia, Italy). Photo: R. Labadessa.

EDGG on the web:
http://www.edgg.org

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https://www.facebook.com/groups/938367279561202

EDGG on the ResearchGate
https://www.researchgate.net/project/EDGG-Eurasian-DryGrassland-Group

EDGG on Google Scholar
https://scholar.google.com/citations?user=AuiN-a4AAAAJ

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 22 February 2021, it had 1346 members from 64 countries.

The **Eurasian Dry Grassland Group (EDGG)** is a network of researchers and conservationists interested in any type of Palaearctic natural and semi-natural grasslands. It is an official subgroup 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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***Helicella* sp. on a lawn of the moss *Syntrichia ruralis* in a sandy dry grassland of the Upper Rhine Valley, Germany. Photo: J. Dengler**