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2021-06

Valko , O , Labadessa , R & Venn , S 2021 , ' Conservation, restoration and biodiversity of Palaeartic grasslands - Editorial to the 6th EDGG special issue in Hacquetia ' , Hacquetia , vol. 20 , no. 1 , pp. 167-170 . <https://doi.org/10.2478/hacq-2021-0008>

<http://hdl.handle.net/10138/354273>

<https://doi.org/10.2478/hacq-2021-0008>

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Conservation, restoration and biodiversity of Palaearctic grasslands – Editorial to the 6th EDGG special issue in *Hacquetia*

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Key words: biodiversity, conservation, grassland, management, Palaearctic, restoration, steppe.

Ključne besede: biodiverziteteta, ohranjanje, travišče, gospodarjenje, Palearktiki, obnova, stepa.

Abstract

This special issue is a collection of articles about the conservation, restoration and biodiversity of Palaearctic grasslands and was initiated by the Eurasian Dry Grassland Group at the 15th Eurasian Dry Grassland Conference (EDGC), held at Graz, Austria in 2019. The papers in this special issue cover a range of grassland habitats from montane dry grasslands to lowland sandy grasslands, feathergrass steppes and meadow steppes, and focus on the biodiversity values, conservation issues and restoration prospects of Palaearctic grasslands. We hope that the articles in this special issue will contribute to a better understanding of the ecology of grasslands and support their more effective conservation.

Izvleček

Posebna številka predstavlja zbirko člankov o ohranjanju, obnovi in biodiverziteti paleraktičnih travišč in je nastala na pobudo Skupine za evrazijska suha travišča na 15. konferenci o evrazijskih suhih traviščih (EDGC) v Gradcu (Avstrija) leta 2019. Članki obravnavajo travniške habitate od montanskih suhih travišč, do nižinskih peščenih travišč, step z bodalicami in travniških step ter se osredotočajo na pomen biodiverzitet, ohranjanja in možnosti obnove palearktikičnih travišč. Upamo, da bodo članki v tej posebni številki prispevali k boljšemu razumevanju ekologije travišč in njihovemu bolj učinkovitemu ohranjanju.

Received: 11. 1. 2021

Revision received: 13. 1. 2021

Accepted: 13. 1. 2021

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Introduction and motivation of the special feature

This special issue complements a large series of special volumes devoted to Palaeartic grasslands (including Habel et al. 2013, Janišová et al. 2014, Apostolova et al. 2014, Dengler et al. 2014, Carboni et al. 2015, Ruprecht et al. 2015, Török et al. 2016, 2020, Becker et al. 2016, Valkó et al. 2016c, 2018, 2019 Deák et al. 2017, 2018, 2019, Boch et al. 2020), edited on behalf of the Eurasian Dry Grassland Group (EDGG, <http://www.edgg.org>). The present special feature was initiated by the EDGG after the 15th Eurasian Dry Grassland Conference (EDGC) at Graz, Austria in 2019 (Magnes 2019, Dengler et al. 2021).

Contributions of the special issue

This special issue consists of five contributions, 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). These studies cover a range of grassland ecosystems from montane rocky grasslands to lowland sandy grasslands, feathergrass steppes and meadows steppes, and focus on the biodiversity and conservation issues of Palaeartic grasslands. This special issue also contains a report on the activities of the Eurasian Dry Grassland Group in 2019–2020 (Dengler et al. 2021).

Čarni et al. (2021) report an exceptionally fast grassland recovery process from a karst plateau in SW Slovenia. They studied grassland recovery using a chronosequence series of old-fields, including fields abandoned 1, 3, 6, 9, 13, 15 and 100 years ago. They identified three stages of succession. The initial stage was characterized by segetal weeds and indicated high levels of soil nutrients. The second successional stage was dominated by dense patches of perennial forbs (most of them ruderal species) preferring also high levels of soil nutrients. The third stage was dominated by caespitose hemicryptophyte grasses, many of them of sub-Mediterranean origin. The authors suggest that the quick succession can be attributed to the large species pool of natural grassland flora, the small size and annual mowing of abandoned fields and the close proximity of seed sources.

Kenyeres et al. (2021) assessed the habitat patterns limiting the occurrence of the protected snake-eyed skink (*Ablepharus kitaibelii fitzingeri*) in the Eastern Bakony

hills, in Western Hungary (Figure 1). They investigated the variation of vegetation, microclimate, and soil characteristics in places of occurrence of the target reptile species. Their results showed the importance of vegetation heterogeneity for providing suitable habitats for the species. In particular, shrub forests with a south-facing exposure provide a cooler microclimate during spring and autumn, while plateau vegetation with abundant bare rocks, can offer warmer shelter and a high density of non-flight arthropod fauna, as a food resource. The conservation of forest-grassland mosaics is also discussed with regard to local human threats and factors associated with climate change.



Figure 1: Rocky grassland in south facing exposure on Móróc-tető, in the Eastern Bakony hills, (Western Hungary), a habitat of the strictly protected snake-eyed skink (*Ablepharus kitaibelii fitzingeri*). Photo: Zoltán Kenyeres.

Slika 1: Kamnita travišča na južnih pobočjih Móróc-tető na vzhodnem delu hribovja Bakony (zahodna Madžarska), habitat strogo zavarovane vrste *Ablepharus kitaibelii fitzingeri*. Foto: Zoltán Kenyeres.

Lysenko et al. (2021) studied the vegetation of meadow steppes in Western Podolia, Ukraine (Figure 2). They investigated the ecological factors that have the greatest influence on the distribution and species composition of the meadow steppe communities, with a synphytoindication analysis and numerical classification methods. They showed that the distribution of the meadow steppe communities is influenced by climatic (thermoregime and continentality of climate) and edaphic (soil humidity, soil acidity and carbonate content) factors. The results contribute to the better understanding of the formation and dynamics of the vegetation of the region and can aid the development of management plans.

In their comparative study, Penksza et al. (2021) analysed the vegetation composition of Pannonian sandy grasslands on calcareous soil, dominated by *Festuca vaginata* or *F. pseudovaginata* (Figure 3). The latter species is a recently discovered taxon; hence, little is known about its



Figure 2: Meadow steppes on the slope near Vodnyky village, Galych district, Ivan-Frankivsk region, Ukraine. *Ophrys apifera* in the foreground. Photo: Ivan M. Danylyk.

Slika 2: Traviška stepa na pobočjih pri vasi Vodnyky, district Galych, regija Ivan-Frankivsk region, Ukrajina. V ospredju *Ophrys apifera*. Foto: Ivan M. Danylyk.

phytosociological characteristics in grasslands dominated by *F. pseudovaginata*. The authors found that stands dominated by *F. pseudovaginata* had a higher species richness and harboured twice as many Festuca-Brometea species compared to the *Festucetum vaginatae* stands. There were differences between the grasslands dominated by the two fescue species in terms of species richness, species composition and diagnostic species, which suggests that Pannonian sandy grasslands dominated by *F. pseudovaginata* can be considered an independent endemic association.



Figure 3: Dry sandy grassland with *Festuca pseudovaginata* in Central-Hungary. Photo: Károly Penksza.

Slika 3: Suha peščena travišča z vrsto *Festuca pseudovaginata* na osrednjem Madžarskem. Foto: Károly Penksza.

Dry grassland ecosystems of the Ukraine are highly fragmented due to anthropogenic activities, such as agriculture and mining. A number of such sites that have particular conservation value have been added to the Emerald Network. The Emerald Network is the non-EU equiva-

lent of the EU's Natura 2000 network. Whilst the order Araneae is not well-studied and not currently included in the Red Data book of Ukraine, some species are included in the Red Data Books of the Kharkiv and Donetsk regions. The arachnological fauna of these habitats includes a number of noteworthy species and Polchaninova et al. (2021) used studies of the flora and spider fauna of these habitats to assess a set of four xerothermic grassland sites in the Kryvorizkyi Iron Ore Basin. On the basis of this survey of spiders and vascular plants, they confirm the conservation value of the already protected Zelena Gully and additionally recommend protection of the Chervona Gully and the Slate Rocks sites. The quality of the fourth study site, Khrystoforova Gully was poorer for both taxa, and the authors concluded that it had declined due to the impacts of frequent fires and over-grazing. They conclude that this site should also be protected due to the value of the habitat, and measures implemented to reduce the level of disturbance.

Acknowledgements

We are grateful to all the authors for their contributions to this special issue and to the reviewers for their considerable input in improving the manuscripts. We would particularly like to thank Urban Šilc, Editor-in-Chief of *Hacquetia* for his continued support for this already considerable set of special features. Many thanks also to Aiko Huckauf for professional linguistic editing and the courtesy of the Eurasian Dry Grassland Group for financial support. O.V. was funded by NKFI FK 124404 and NKFI KH 126476 grants during manuscript preparation.

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