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Continental dry grasslands from range margin to range centre – Editorial to the 9th Dry Grassland Special Feature

Kontinentale Trockenrasen zwischen Arealrand und Arealzentrum – Vorwort zum 9. Trockenrasen-Sonderteil

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Zusammenfassung

Der diesjährige 9. Trockenrasen-Sonderteil von *Tuexenia* beginnt mit einem Bericht über die aktuellen Aktivitäten der *European Dry Grassland Group* (EDGG). Zunächst geben wir einen Überblick über die Entwicklung der Mitgliederzahl. Dann berichten wir vom letzten *European Dry Grassland Meeting* in Zamość (Polen, 2013) und vom letzten *European Dry Grassland Field Workshop* in Chakassien (Russland, 2013) und informieren über künftige Veranstaltungen der EDGG. Anschließend erläutern wir die Publikationsaktivitäten der EDGG. Im zweiten Teil des Editorials geben wir eine Einführung zu den fünf Artikeln des diesjährigen Trockenrasen-Sonderteils: Zwei davon beschäftigen sich mit der Syntaxonomie von Trockenrasen in Osteuropa: Der eine Artikel präsentiert erstmalig eine nach internationalen Nomenklaturregeln gültige Liste der Trockenrasengesellschaften Serbiens während der andere die Ergebnisse des zweiten EDGG-*Field Workshop* 2010 nach Podolien (Ukraine) vorstellt. Im dritten Artikel werden kryophytische Steppen in Südsibirien (Russland) analysiert. Der vierte Artikel analysiert in Böhmen (Tschechien) die bestimmenden Kräfte für Artenreichtum und Artenzusammensetzung der Trockenrasen. Der fünfte Artikel befasst sich mit der Auswahl von Wiederansiedlungsarten am Beispiel der Steppenrasen in Thüringen (Deutschland).

1. Introduction

This Special Feature is the ninth in a series devoted to dry grasslands and edited by members of the European Dry Grassland Group (EDGG; http://www.edgg.org) or its predecessor *Arbeitsgruppe Trockenrasen* that has been published in *Tuexenia* since 2005 (GALVÁNEK et al. 2012). The EDGG is a network of researchers and conservationists, both botanists and zoologists, working with Palaearctic dry grasslands and steppes (for a detailed background, see VRAHNAKIS et al. 2013). With this Editorial, we want to give an overview

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of the EDGG activities and introduce the contributions included in the present Special Feature dealing with continental dry grasslands between the western range margin of these grasslands and their range centre in central Asia.

2. News from the European Dry Grassland Group (EDGG)

2.1 Members and organisation of the EDGG

Early in 2014, EDGG surpassed the threshold of 1000 members. As of 7 June 2014, EDGG had 1,020 members from 61 countries. Membership in EDGG is free of charge and can be activated by sending an e-mail to Jürgen Dengler (juergen.dengler@uni-bayreuth.de).

2.2 European Dry Grassland Meetings and other EDGG events

Since the last report in *Tuexenia* (BECKER et al. 2013), the EDGG has organised several activities. The most important of these was the annual European Dry Grassland Meeting, held in Zamość, Poland, on 24–31 May 2013. The meeting was organized within the framework of EU LIFE project "Conservation and restoration of xerothermic grasslands in Poland – theory and practice" implemented by the Naturalists' Club and Regional Directorate for Environmental Protection in Lublin. Eighty-two EDGG members from 16 European countries (Austria, Belgium, Croatia, Czech Republic, Germany, Greece, Hungary, Italy, Latvia, Netherlands, Norway, Poland, Russia, Slovakia, Spain, Ukraine) and Asia (Israel and South Korea) took part in the meeting (Fig. 1). In total, 21 talks and 56 posters were presented during the sessions (CHMIELEWSKI 2013). Most of the conference contributions focused on theoretical and practical aspects of dry grassland management, restoration and conservation.

Along with the annual meeting, the EDGG co-organized two other conferences, the conference "Concepts for modern management of xeric grasslands between nature conservation and agriculture", Criewen Castle, Schwedt (Oder), Germany on 26–27 September 2013; and the Open Landscapes 2013 Conference in Hildesheim, Germany, from 29 September to 3 October 2013.

The 6th EDGG Research Expedition took place in the Kuznetsky Alatau Mts, part of the Altai-Sayanian mountain region (Republic of Khakassia, Russia) from 21 July to 1 August 2013. Fourteen scientists from 7 countries studied the variety of Central Asian (*Cleistogenetea squarrosae*) and European-Siberian (*Festuco-Brometea*) steppe vegetation using standardised sampling procedures including nested-plot series and phytosociological relevés (JANIŠOVÁ et al. 2013) (Fig. 2). The collected data can be used for defining the European-Siberian and Central Asian dry grassland classes and for comparison with central European steppe remnants at the western range margin of this vegetation type.

Shortly before the preparation of this editorial, the 11th European Dry Grassland Meeting took place in Kulikovo Pole, Destrict of Tula (Russia) at 5–15 June 2014. Further planned events are (detailed information available at http://www.edgg.org):

- 7th EDGG Field Workshop to Northern Spain, June 2014
- 12th European Dry Grassland Meeting, Mainz, Germany, 22–25 May 2015



Fig. 1. Participants of the 10th European Dry Grassland Meeting 2013 in Zamość, Poland (Photo: P. Chmielewski).

Abb. 1. Teilnehmer des 10. *European Dry Grassland Meeting* 2013 in Zamość, Polen (Foto: P. Chmielewski).



Fig. 2. Participants of the 6th EDGG Field Workshop 2013 Southern Siberia, Republic of Khakassia, Russia (Photo: J. Dengler).

Abb. 2. Teilnehmer des 6. *EDGG Field Workshop* 2013 in Chakassien, Südsibirien (Russland) (Foto: J. Dengler).

2.3 Publication activities of the EDGG

EDGG has continued its long-standing tradition of Special Issues/Features in international journals over the past year. The Special Issue in *Biodiversity and Conservation* on grassland diversity was the first EDGG Special Feature with a balanced proportion of zoological and botanical contributions. It was published in autumn 2013 containing 18 papers including the editorial (HABEL et al. 2013a) and the concluding remarks and recommendations (HABEL et al. 2013b). The Special Issue in *Agriculture, Ecosystems and Environment* was published in February 2014 and contained 14 articles and an introductory review (DENGLER et al. 2014), which provides a synthesis of the current knowledge on the biodiversity of Palearctic grasslands. Two new papers (JIMÉNEZ-ALFARO et al. 2014, ŠILC et al. 2014) were published in a Virtual Special Feature in Applied Vegetation Science jointly with the *European Vegetation Survey* (EVS; http://euroveg.org). The Special Issue in *Hacquetia* 2014 (APOSTOLOVA et al. 2014) contains 8 articles on "Dry grasslands of Southern Europe: syntaxonomy, management and conservation" plus an editorial.

Along with the mentioned Special Issues, EDGG has published three issues of its own electronic journal, the *Bulletin of the European Dry Grassland Group* (freely available from http://www.edgg.org/ publications.htm) during the reported period.

3. Introduction to the present Special Feature

The five articles presented in this Special Feature were written by 30 authors from 10 countries: Bulgaria (1 author), Czech Republic (3), Germany (8), Iran (1), Romania (2), Russia (4), Serbia (4), Slovenia (1), Turkey (1), Ukraine (5). When including the Editorial, four further authors from two further countries (Estonia, Switzerland) had contributed. In addition to the broad geographical range of authors, the five articles cover a broad range of study regions and topics, but all they are dealing with continental dry grasslands. Two articles focus on the syntaxonomy of dry grassland in Eastern Europe: AĆIĆ et al. (2014) presents a list of dry grassland syntaxa in Serbia and KUZEMKO et al. (2014) reports on the results of the second EDGG Research Expedition to Ukraine in 2010. The third article (ERMAKOV et al. 2014) analyzes cryophytic steppes in Southern Siberia (Russia) and the fourth article (MERUNKOVÁ et al. 2014) investigates the drivers of species composition and richness in Bohemian dry grasslands (Czech Republic). Finally, the article by KIENBERG et al. (2014) deals with the selection of species for reintroduction purposes, using the example of steppe grasslands in Thuringia (Germany).

The nomenclatural revision of dry grassland syntaxa in the paper by AĆIĆ et al. (2014) is an important step towards unified classification of the European grassland vegetation. The central part of the Balkan Peninsula is one of the regions with extraordinary diversity of grassland flora (HOBOHM & BRUCHMANN 2009) and vegetation (DAJIĆ STEVANOVIĆ et al. 2010) as it is a transitional region between Mediterranean and Central European zones (ŠILC et al. 2014). In their extensive literature survey, the authors listed 134 dry grassland communities registered for the territory of Serbia and Kosovo, and revised their nomenclature strictly following the International Code of Phytosociological Nomenclature (WEBER et al. 2000). Hopefully, the authors will continue in their activities and the nomenclatoric validation will be followed by the revision of syntaxonomic content of the described dry grassland syntaxa based on contemporary analyses and classification methods.

The paper by KUZEMKO et al. (2014) deals with the syntaxonomy, ecology and biodiversity of dry grassland vegetation in the forest-steppe zone of Central Podolia (Ukraine). The study fills knowledge gaps concerning diversity patterns in semi-natural and natural steppe vegetation, thereby providing a good comparison to what has been found in the man-made meadows of various European countries (see e.g. WILSON et al. 2012). Vegetation data consisting of nested-plot series of increasing size as well as normal plots covering the full variety of dry grassland types occurring in the study region were collected by an international team during the second Research Expedition of the European Dry Grassland Group (EDGG) in 2010, following the traditions of former expeditions (DENGLER et al. 2012, PEDASHENKO et al. 2013). In their phytosociological classification of collected vegetation data, the authors identified 9 associations belonging to *Festuco-Brometea* and *Koelerio-Corynephoretea*. Diversity patterns of Podolian dry grasslands were found not to fulfil expectations based on other European dry grasslands. This contribution is a very good starting point for more research on steppe vegetation at the centre of its range, and shows the need for a supra-national analysis based on comprehensive datasets.

ERMAKOV et al. (2014) studied cryophytic steppe communities in the Minusinskaya intermountain basin in Southern Siberia (Russia). Cryophytic steppe communities contain cryophytes i.e. plant species able to grow on frozen soil in the alpine zone. In steppes they occur on wind exposed ridges and summits of small hills without snow cover in winter. Five communities of Central Asian steppes (*Cleistogenetea squarrosae*) and one community of West Palearctic steppes (*Festuco-Brometea*) were described and classified by the authors at the subassociation level or as a variant of the three existing associations. The authors found substrate type and temperature regime as strongest explanatory factors for this outstanding steppe type and consider its stands as remnants of the Pleistocene vegetation in the area. Vegetation mapping shows the small-patch distribution of this steppe, which may be why it is not represented in large-scale vegetation maps.

MERUNKOVÁ et al. (2014) studied the environmental drivers of diversity patterns and species composition in dry grasslands of two regions in northern and central Bohemia (Czech Republic), which have not been quantified yet in a broad and systematic study in this region. They found soil pH (ranging from 4.0 to 7.8) to strongly affect species richness and composition. This relationship was either unimodal or linear positive, depending on the region. Moreover, species richness declined with increasing nitrogen concentration in the aboveground biomass (a measure which has been used as indicator of the ecosystem nutrient status). The authors concluded that this might indicate a future threat of diversity because of currently high atmospheric nitrogen deposition in combination with the absence of management in these grasslands.

While previous articles dealing with restoration of dry grasslands have focused on aspects of habitat restoration (e.g. KETNER-OSTRA et al. 2012), the paper by KIENBERG et al. (2014) concentrates on re-introductions of specific endangered plant species. Reintroduction of plant species is an increasingly important subject in grassland conservation and KIENBERG et al. (2014) raise an important issue: which species should be chosen for reintroductions into specific habitat types? They propose a three step procedure to filter out the species that are ecologically best suited for reintroductions and that are also internationally and locally endangered so that introductions would enhance their survival opportunities. For Thuringian steppe grasslands that were used as example habitat to test the species selection procedure, five species (*Astragalus exscapus*, *Linum leonii*, *Orchis morio*, *Pulsatilla pratensis* subsp.

nigricans and *Scorzonera purpurea*) were proposed as having the highest priority for reintroductions. The proposed species filtering procedure can be used in other habitat types and other regions and has, therefore, wide applicability.

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