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Report from research stays of EDGG members in Bayreuth

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Abstract: *Seven researchers from Bulgaria, Hungary, Poland and Ukraine participated in a research visit program financed by The Bavarian Academic Center for Central, Eastern and Southeastern Europe (BAYHOST). The guests spent from one to three weeks at University of Bayreuth, where they worked on the preparation of databases and scientific papers for international journals under the supervision and with the invaluable help of Jürgen Dengler. Besides the pure scientific work, participants had the possibility to visit protected areas and experience several cultural and historical landmarks of Upper Franconia.*

Keywords: EDGG Research Expedition, Ukraine, Bulgaria, Poland, Hungary, Sicily, phytosociological databases, SIGNAL.

BAYHOST program participants in the campus of University of Bayreuth. Photo: J. Dengler

Introduction

From 10 October to 2 November 2014, seven researchers from Bulgaria, Hungary, Poland and Ukraine participated in an academic exchange at the Research group of Disturbance Ecology (Prof. Dr. Anke Jentsch) of the University of Bayreuth, financed by the Bavarian Academic Center for Central, Eastern and Southeastern Europe (BAYHOST). The time spent in Bayreuth by each participant ranged from one to three weeks. The grants covered the travel, accommodation and other basic maintenance costs.

The main aims of the program were:

(1) Planning the paper and conducting the analyses on scale-dependent phytodiversity patterns and their drivers in Central Podolian dry grasslands; starting of writing up the manuscript (Anna Kuzemko).

(2) Analyses of the data from 4th EDGG Research Expedition to Sicily and preparation of the paper on diversity patterns of Sicilian dry grasslands (Iwona Dembicz)

(3) Working on three databases - Balkan Dry Grassland, Balkan Vegetation and Romanian National Grassland databases; planning methods of analysis of Balkan dry grassland vegetation. (Kiril Vassilev)

(4) Planning the paper and combining data sets from the Nordic-Baltic Dry Grassland Database and the Polish National Vegetation Database for the purpose of analysis of diversity patterns and large scale classification of dry grasslands (*Festuco-Brometea* and the *Koelerio-Corynephoretea*) (Zygmunt Kącki and Grzegorz Swacha)

(5) Analyses of the effects of different sampling methods on the species richness and species area relationships on the data of SIGNAL Assembly add-on experiment; planning the paper and writing the manuscript (Zita Zimmermann and Gábor Szabó)

Working process

The data from EDGG Expeditions (Kuzemko et al. 2014, Guarino et al. 2012) were analyzed using R scripts for different R packages (e.g. MuMin) by Anna Kuzemko and Iwona Dembicz under the supervision of Jürgen Dengler. The preliminary results of statistical analyses allowed the identification of the main drivers of grasslands biodiversity within the studied regions. The results will be compared with each other and with the results from dry grasslands of Transylvania (Turtureanu et al. 2014) in the near future.

As a result of Kiril Vassilev's checking procedure of three databases (Balkan Dry Grasslands Database (Vassilev et al. 2012), Balkan Vegetation Database and Romanian National Grassland Database, which are still not registered in GIVD), the quality of their data was improved and send to European Vegetation Archive (EVA). A great step was done for organizing of Romanian National Grassland databases, where popup lists were organized as well. Together with Jürgen Dengler, data property and governance rules for same databases were created, which will be suggested to all contributors.

Zygmunt Kącki and Grzegorz Swacha joined the Working Group on Dry Grasslands in the Nordic and Baltic Region (Dengler & Rūsiņa 2012), the main goal of which is to create consistent large-scale classification of dry grasslands in the Nordic-Baltic region. During the stay in Bayreuth deputies of the Nordic-Baltic Dry Grassland Database and the Polish National Vegetation Database (Kącki & Śliwiński 2012) prepared a joint data set in TURBOVEG format for classification of Nordic-Baltic dry grasslands. This required unification of nomenclature and standardization of header data. A total of ca. 12,000 relevés was exported to the JUICE software package for analysis. The joint time in Bayreuth resulted in discussing and accepting methods of data analysis.

Zita Zimmermann and Gábor Szabó worked with the data collected in the framework of the SIGNAL project under the leadership of Jürgen Dengler. Differences between the species richness values obtained by different sampling methods (rooted and any-part system) were calculated with linear mixed models in R. The effect of the sampling schemes on the shape of the species-area relationship (SAR) curves was also investigated using STATISTICA program. Based on the results, a manuscript is being prepared.

During the academic exchange all participants presented seminars on the aim of the stay, as well as on their scientific background and interests on the forum of Disturbance Ecology and Biogeography Departments of University of Bayreuth. They attended also training course on the use of R software and statistics in ecological studies conducted by Manuel Steinbauer from Department of Biogeography, as well as two paper writing seminars involving researchers from both above mentioned departments. The second paper writing seminar was focused on the manuscript "Diversity patterns of vascular plants, bryophytes and lichens in dry grasslands of Sicily (Italy) in relation to environment and scale" prepared by Iwona Dembicz during her stay in Bayreuth. Apart from valuable comments for the authors of the manuscript the involvement in paper-writing seminars was very interesting for the rest of participants. Such a form of seminars was previously unknown for the majority of the guests. Some of them are planning now to introduce such a fruitful form of meetings also within working groups at their home universities.

The participants had also a possibility to gain new experiences and knowledge during visit in the Ecological Botanical Gardens of the University of Bayreuth and its famous greenhouses, assisting the field research on experimental sites incorporated in the project SIGNAL and reading the extensive scientific literature delivered by Jürgen Dengler

Combining work with pleasure

In addition to purely scientific work, we were able to see the attractions of the medieval town Bayreuth, the capital of Upper Franconia. Jürgen Dengler organized also two very interesting trips. During the first excursion – to Franconian Switzerland, participants visited several dry grasslands sites with vegetation typical for the *Festuco-Brometea* class (*Seslerio-Festucion* & *Bromion erecti* alliances), spruce and beech forests, as well as had possibility to meet with the culture and traditions of the Upper Franconia. During the second trip they visited the city of Bamberg (UNESCO World Heritage) with its

Working process – Grzegorz, Zygmunt and Iwona. Photo: J. Dengler

Excursion to Franconian Switzerland. Photo: J. Ransijn

Working process – Kiril, Zita and Gabor. Photo: J. Dengler

Iwona and Jürgen at the experimental sites of the University of Bayreuth. Photo: A.Kuzemko

Working process – Anna. Photo: I. Dembicz

The main square of Bayreuth. Photo: A.Kuzemko

Initial presentation - Iwona Dembicz and Anke Jentsch. Photo: A.Kuzemko

In Bamberg. Photo: J. Dengler

outstanding medieval old town rich in surviving secular and ecclesiastical buildings, including the most impressive romanesque Cathedral Church of St Peter and St George.

At the invitation of Jürgen Dengler, Polish-Ukrainian and Bulgarian-Hungarian evenings were carried out in his home with traditional food and slideshows with photos from Jürgen's collection made during expeditions and other events of the EDGG in these countries.

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Polish-Ukrainian evening. Photo: J. Dengler

Polish-Ukrainian evening. Photo: A. Kuzemko

Bulgarian-Hungarian evening. Photo: J. Dengler

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