GrassPlot – The new database of multi-scale plant diversity of Palaearctic grasslands

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GrassPlot

The New Database of Multi-scale Plant Diversity of Palaearctic Grasslands

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The **Database of Scale-Dependent Phytodiversity Patterns in Palaearctic Grasslands (GrassPlot)** was established on 10 March 2017 in Bayreuth during an international workshop organized by Jürgen Dengler and supported by the BayIntAn program of the Bavarian Research Alliance (BayFor) and BayCEER.

GrassPlot is a collaborative initiative within the framework of the Eurasian Dry Grassland Group (EDGG), a working group of the IAVS. The GrassPlot database succeeds the former database of nested-plot data from grasslands in Europe founded in 2010, which consisted mainly of the data collected during the EDGG Research Expeditions/Field Workshops. Now the scope of GrassPlot has been widened (see below), and everyone with suitable data can join the Consortium. The purpose of GrassPlot is to establish and maintain a common data repository of high-quality vegetation-plot observations (relevés) of grasslands and related vegetation types from the whole Palaearctic biogeographic realm, and to facilitate the use of these data for non-commercial purposes, mainly academic research and applications in nature conservation and ecological restoration.

The GrassPlot database aims at complementing existing broad-scale vegetation databases such as the European Vegetation Archive (EVA) and the global database "sPlot". The special focus of GrassPlot is on **multi-scale and multi-taxon sampling** in **precisely delimited plots** with **extensive environmental data**.

During the GrassPlot workshop in Bayreuth the participants developed Bylaws aiming at balancing the interests of data providers and data users in a fair and transparent manner. The data owners can decide on the data access regime of their data; either restricted, semi-restricted or free. Persons who are willing to contribute their own published or unpublished plot records or plot records of other authors which they digitised from the literature can apply to become a member of the GrassPlot Consortium. Data must be provided in an electronic format, but exceptionally unpublished data in paper format will be accepted if they fill important gaps.

Participants of the GrassPlot Workshop I. Left to right: back row: Santiago Soliveres, Viktoria Wagner, Idoia Biurrun, Itziar García-Mijangos, Timo Conradi, Manuel Steinbauer; middle row: Alireza Naqinezhad, Goffredo Filibeck, David Storch, Riccardo Guarino, Jürgen Dengler, Monika Janišová; front: Iwona Dembicz.

Obligatory requirements for data contributions to GrassPlot are:

(a) origin in the Palaearctic biogeographic realm;

(b) grassland vegetation in the wide sense, i.e. terrestrial and semi-terrestrial vegetation types dominated by hemicryptophytes, therophytes, geophytes, and occasionally bryophytes, lichens and chamaephytes (forests, shrublands, aquatic, ruderal and segetal vegetation are not considered);

(c) careful sampling of precisely delimited plots with the aim of complete species lists;

(d) providing details of sampling methodology (in particular, whether rooted or shoot presence was recorded and which plot shape was used); and

(e) meeting one of the following criteria (or a combination of these): **(i) data for one or several of our eight standard grain sizes (0.0001; 0.001 or 0.0009; 0.01; 0.1 or 0.09; 1; 10 or 9; 100; 1000 or 900 or 1024 m²)** or **(ii) nested-plot series** with at least four different grain sizes.

Additional desired (but not obligatory) criteria are:

(f) precise GPS coordinates;

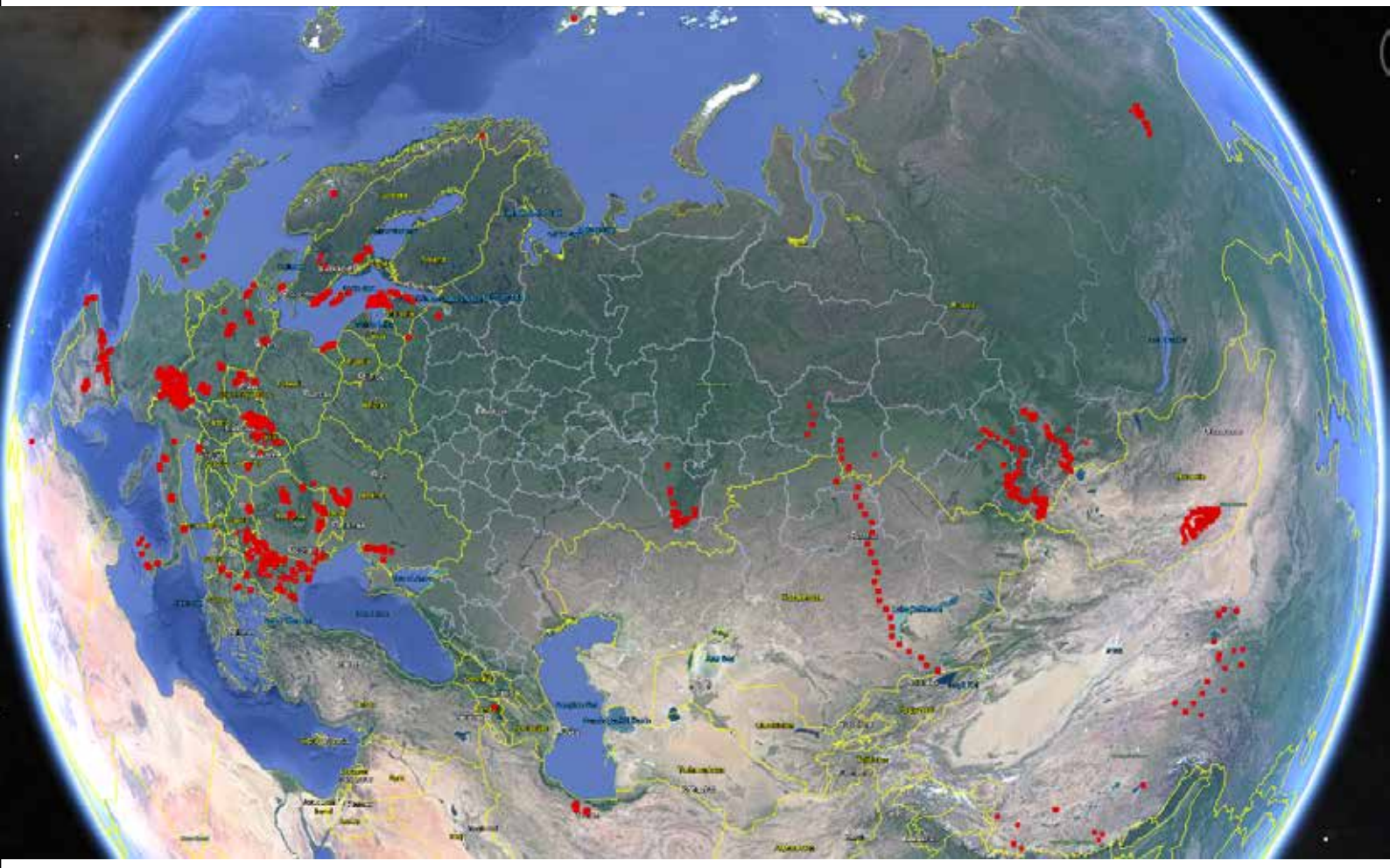
(g) complete sampling of one or several macroscopic non-vascular taxa of the terricolous vegetetation (bryophytes, lichens, “algae”) in addition to vascular plants;

(h) multi-scale, nested-plot sampling;

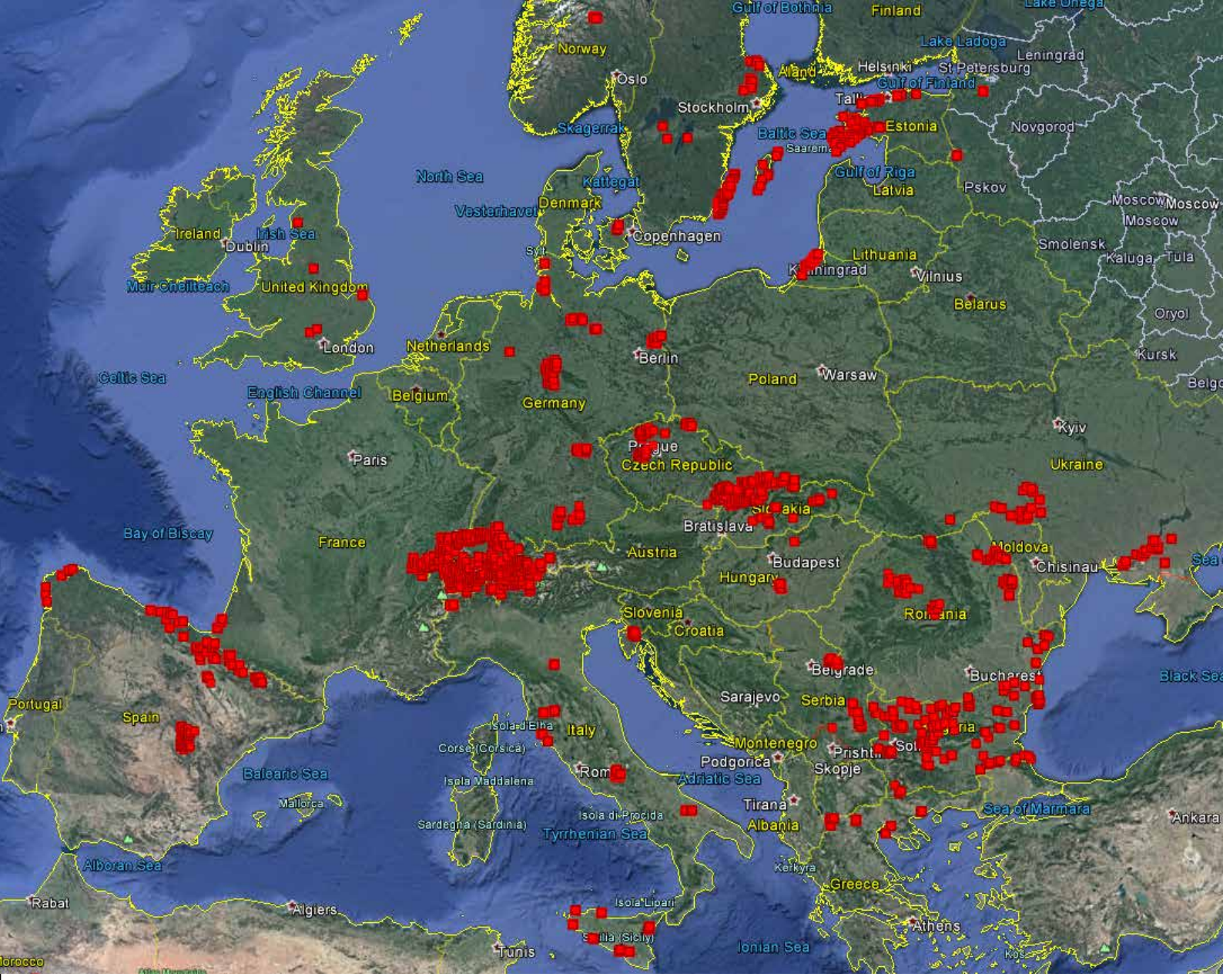
(i) direct cover estimates of species in percent for at least one grain size; and

(j) extensive environmental variables measured or determined at the plot scale (vegetation structure, topography, soil, land use).

GrassPlot is represented and governed by its Governing Board elected by the GrassPlot Consortium for two-year renewable terms. The first Governing Board for the period March 2017 – March 2019 consists of Idoia Biurrun (ES), Timo Conradi (DK/DE), Iwona Dembicz (PL), Jürgen Dengler (DE), Riccardo Guarino (IT), Alireza Naqinezhad (IR) and Viktoria Wagner (CZ/AT), with Jürgen Dengler being Custodian and Idoia Biurrun Deputy Custodian.



Distribution of GrassPlot data (as of 8 May 2017) in the Palaearctic biogeographic realm.
Source of base map: GoogleEarth



The highest density of GrassPlot data is currently in hemiboreal-temperate-submediterranean Europe. Source of base map: GoogleEarth

By now (as of 8 May 2017), substantial amounts of data have been collected in the GrassPlot Database, including 87 datasets from 116 data owners and 29 countries. This comprises 1,144 nested-plot series (with at least four grain sizes) and 27,355 plots with vascular plant data of which 12,278 plots have additionally data on bryophytes and lichens.

The establishment of the GrassPlot database opens new opportunities for extensive studies on grassland ecology and biodiversity in the Palaearctic realm. The members of the GrassPlot Consortium are informed about and invited to forthcoming paper projects using the GrassPlot data and they can propose paper projects themselves. You are welcome to join the GrassPlot Consortium with your data to advance science and to take advantage of these benefits.

For further information on GrassPlot and its database, please visit the GrassPlot webpage at http://www.bayceer.uni-bayreuth.de/ecoinformatics/en/grassplot/gru/html.php?id_obj=139267 or contact Jürgen Dengler and Idoia Biurrun.

Data collected during the EDGG Research Expeditions/Field Workshops are a significant contribution to the GrassPlot database. The steppes of the Kuznetsky Alatau Mountains, (Republic of Khakassia, Russia) were the destination of the EDGG Research Expedition in 2013.

Semi-natural temperate grasslands despite having anthropogenic origin can be extremely species-rich at small grain sizes. This colourful meadow is typical for subalpine belt of the Kriváńska Malá Fatra Mountains in the Slovak Western Carpathians.