

The new database of multi-scale plant diversity of Palaearctic grasslands (**GrassPlot**): invitation to contribute and opportunities for analyses

Jürgen Dengler^{1,2,*}, Idoia Biurrun³, Timo Conradi⁴, Iwona Dembicz^{5,1}, Riccardo Guarino⁶, Alireza Naqinezhad⁷, Viktoria Wagner⁸ & the GrassPlot Consortium

(1) Plant Ecology, Bayreuth Center of Ecology and Environmental Research (BayCEER), University of Bayreuth, Universitätsstr. 30, 95447 Bayreuth, Germany, (2) German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, Deutscher Platz 5e, 04103 Leipzig, Germany, (3) Department of Plant Biology and Ecology, University of the Basque Country UPV/EHU, PO Box 644, 48080 Bilbao, Spain, (4) Aarhus University, Ny Munkegade 116, 8000 Aarhus, Denmark, (5) Department of Plant Ecology and Environmental Conservation, Faculty of Biology, University of Warsaw, Żwirki i Wigury 101, 02-089 Warsaw, Poland, (6) University of Palermo, via Archirafi, 38, 90123 Palermo, Italy, (7) University of Mazandaran, Pardis, 4741695447 Babolsar, Iran, (8) Department of Zoology and Botany, Masaryk University, Kotlarska 2, 61137 Brno, Czech Republic, *juergen.dengler@uni-bayreuth.de

Introduction Understanding patterns and drivers of phytodiversity as well as ecological scaling laws and assembly rules constitute core interests both of vegetation ecologists and macroecologists. To enhance our understanding of these issues, we compiled the new “**Database of Scale-Dependent Phytodiversity Patterns in Palaearctic Grasslands**” (GrassPlot; GIVD ID EU-00-003) within the framework of the Eurasian Dry Grassland Group (EDGG). GrassPlot contains high-quality plot observations (relevés) of **eight standard grain sizes (0.0001; 0.001 ... 1000 m²)** as well as **nested-plot series** with at least four different grain sizes. The scope of GrassPlot are the **grasslands as well as other herb- or cryptogam-dominated terrestrial and semi-terrestrial vegetation types from the whole Palaearctic biogeographic realm** (Europe, North Africa, West, Central and North Asia). The plot observations in GrassPlot in nearly 50% of all cases also contain data on terricolous bryophytes and lichens in addition to vascular plants, as well as extensive environmental data determined in the field.

Background GrassPlot started as an informal repository for the multi-scale sampling data from the annual EDGG Research Expeditions/Field Workshops from 2009 onwards. In March 2017, an international expert workshop in Bayreuth, Germany, founded a formal consortium, defined rules under which data can be contributed or used (the Bylaws) and elected a Governing Board, Custodian and Deputy Custodian.



Fig. 1. (a) Multi-scale sampling at the EDGG Field Workshop in Navarre, Spain; (b) participants of the international workshop in Bayreuth.

Current content (14 April 2017)

- 82 datasets
- 107 data owners
- 28 countries
- 26,382 plots, among them 12,278 with data also for non-vascular plants
- 3,175 0.01-m² plots, 6,971 1-m² plots, 4,460 10- (or 9-) m² plots, 2,868 100-m² plots
- 1,132 nested-plot series (with at least 4 grain sizes)

Vegetation types among the plots

Festuco-Brometea (39.7%), *Molinio-Arrhenatheretea* (11.6%), *Ammophiletea* (9.5%), *Helichryso-Crucianelletea* (5.7%), *Juncetea maritimi* (5.3%), *Koelerio-Corynepherea* (3.7%), *Sedo-Scleranthetea* (2.3%), *Scheuchzerio-Caricetea* (2.2%), *Cleistogenetea squarrosae* (1.6%), *Juncetea trifidi* (1.6%), *Elyno-Sesleriete*a (1.5%), other classes (6.9%), currently unclassified (8.9%)

More information...

https://www.bayceer.uni-bayreuth.de/ecoinformatics/en/grassplot/gru/html.php?id_obj=139267

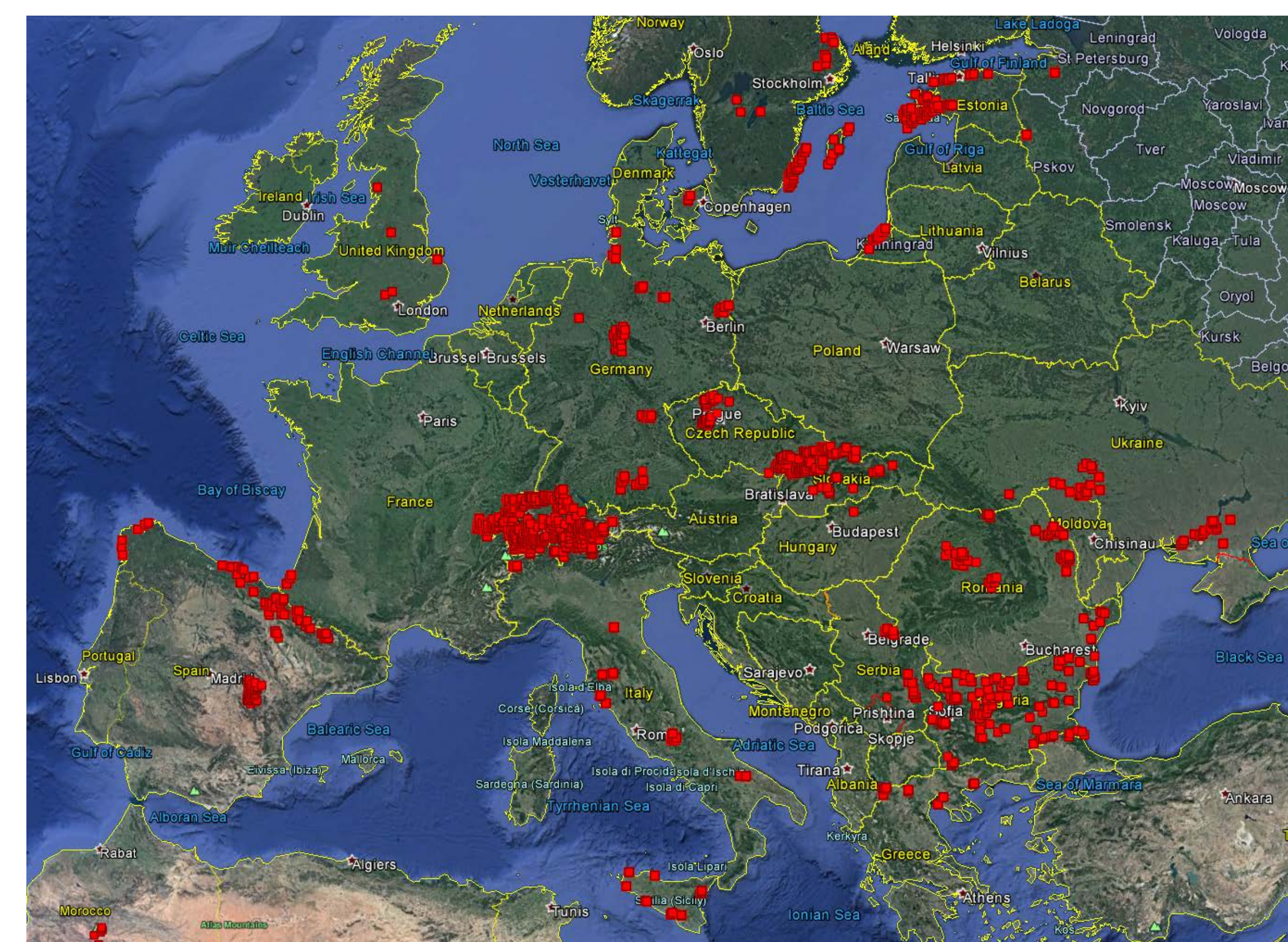
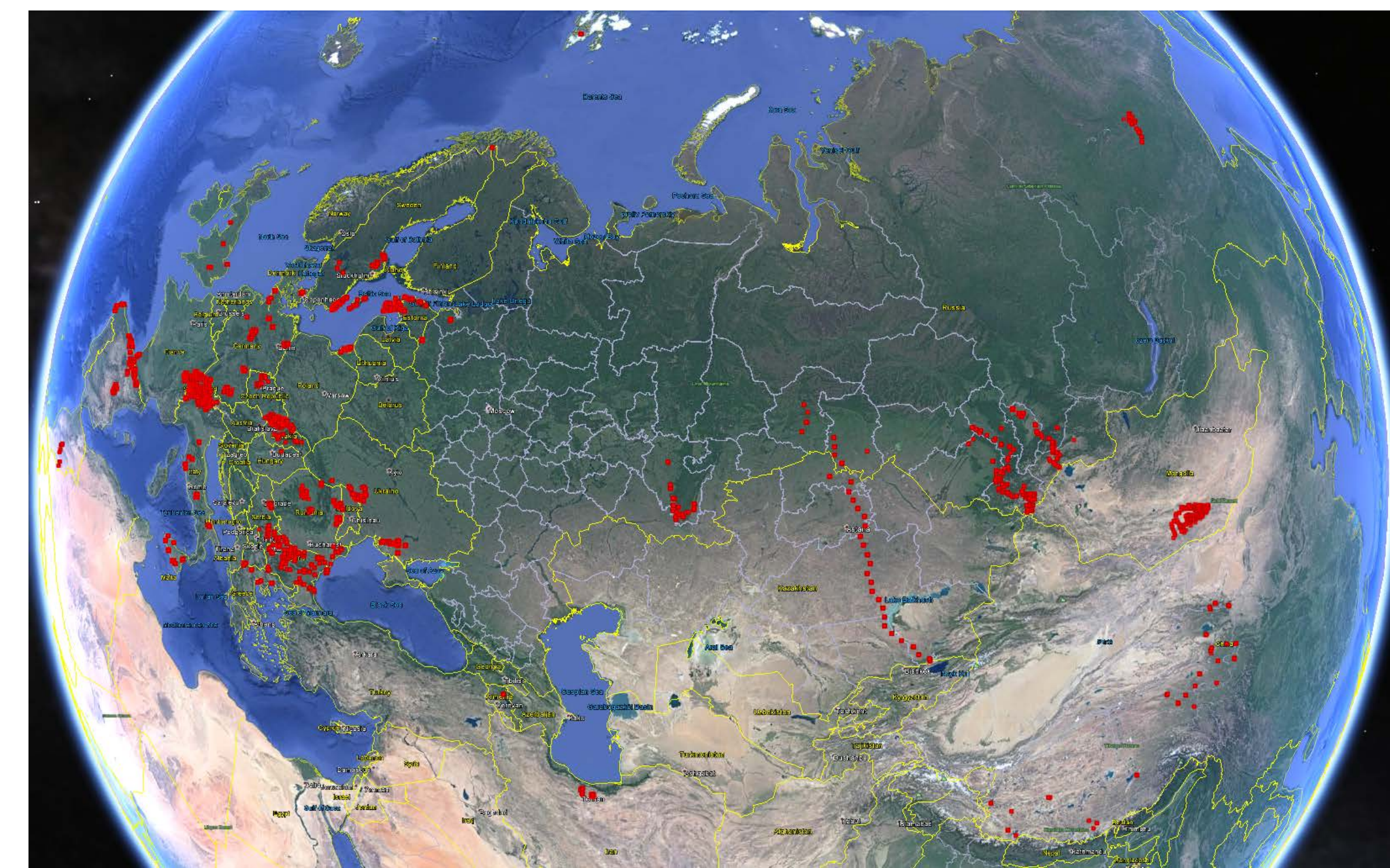


Fig. 2. Spatial coverage of GrassPlot data from Morocco to Yakutia. Currently, the majority comes from sub-Mediterranean to hemiboreal Europe (maps by Google Earth).

Ways to contribute Persons who have vegetation-plot data meeting the specific high-quality requirements of GrassPlot and who agree with the GrassPlot Bylaws, are invited to contribute their data and become members of the GrassPlot Consortium.

Opportunities for analyses The steadily growing content of GrassPlot is available for publication projects led by members of the GrassPlot Consortium with co-authorship option for the others. The **high-quality, fine-grain, multi-scale richness and compositional data across large ecological and biogeographic gradients** allow for **novel studies on patterns and drivers of alpha and beta diversity, functional and phylogenetic diversity, community assembly and niche patterns and many more.**

