



## Data Request Form

To obtain data from the European Vegetation Archive (EVA), please first make an enquiry to the EVA database administrator Ilona Knollová (ikuzel@sci.muni.cz) whether the data meeting your needs are available. If they are, please fill in the form below and submit it to Milan Chytrý (chytry@sci.muni.cz) or another member of the EVA Coordinating Board.

- Applicant's name:

Jürgen Dengler

- Applicant's institutional address:

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- Project title:

Which climatic and edaphic parameters drive the co-existence of different plant functional types in European grasslands?

- Brief description of aims and methods of the study:

**Background:**

Grasslands are among the most diverse communities at small grain sizes. In experimental settings, it has repeatedly been shown that different life forms (hemicryptophytes, chamaephytes, therophytes) and functional groups (graminoids, legumes, non-legume forbs) show contrasting patterns of resistance and resilience to experimental drought or flooding. However, it is not well understood whether and how this differential behaviour in experimental setups translates into broad-scale biogeographic patterns of community assembly. We will use the comprehensive plot database European Vegetation Archive (EVA; <http://euroveg.org/eva-database>) that contains several 100,000 vegetation relevés of grasslands from nearly all European countries to analyse for the first time how the fraction of life forms and functional groups in grassland changes across the continent and whether this is related to climatically and edaphically driven moisture supply.

**Approach:**

(a) Extract all grassland plots from EVA that have geo-references of a certain accuracy [we will either develop an own expert definition of "grassland" or use the one of the EEA project if available by then]

(b) Use the expert system for determination of main grassland types, which is currently being developed (Chytrý, Dengler,...) for the European Environment Agency (EEA), to assign each plot to one of these categories

(c) Use the Ecological Indicator Values for Europe (EIVE), initiated by a BayCEER-Anschubfinanzierung in 2015, to assign all species to life forms and functional groups and to calculate fractions of these per plot

(d) Create maps of fractional distributions of life forms and functional groups across Europe for all grasslands combined and for different types of grasslands separately

(e) Model these patterns with climatic and other geographic variables to understand which aspects of the climate drive the switch from perennial to annual species in grasslands and under



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which conditions a stable co-occurrence is possible etc.

**Output:**

This study will provide preliminary data to inform and develop a larger research proposal on “hydrological niches” by a research team based at the University of Bayreuth. If this pre-study with the few mentioned categorical traits is successful, we intend to publish the results in an international journal. In case of success, we also might extend the study to other functional traits (like leaf traits, dispersal traits, clonal traits) both for their community-weighted means and their trait diversity.

- Will someone else be involved in data editing or analysis in addition to the applicant?

Dr. Severin Irl, Prof. Dr. Bettina Engelbrecht, Dr. Leonor Alvarez-Cansino, Dr. Manuel Steinbauer, Eva Klotzbücher and potentially other student helpers, BSc-, MSc- and PhD students supervised by the named project leaders

- Estimated time of delivery of results (e.g. manuscript submission):

2017-2018

- Geographic area needed (e.g. countries or range of geographic coordinates):

All

- Vegetation types needed (syntaxa):

All (to be able to extract grasslands according to a definition developed in the project)

- Other data selection criteria:

None

- Envisaged publications:

(1) Likely one paper on distribution of fraction of life forms and other simple categorical traits across Europe’s grassland  
(2) Potentially a follow-up paper on other (metric) traits

- Specification of the co-authorship arrangements in publications based on the requested data (e.g. the extent of possible involvement of the original data providers, or of EVA data managers if extra work for this project is needed from them):

We will inform all data providers as well as the EVA Coordinating Board when we have achieved major results or plan the presentation of results on a conference. In any case data providers shall be informed about the project progress at least annually. In case a paper project should become concrete, we will announce this also to all data providers and offer that from each database that contributed at least 5% of the final dataset the custodians can propose one active co-author to join the team of authors (optionally we might accept co-authorship offers from nominees of smaller databases if they make valuable methodological/conceptual contributions). We will also offer co-authorship to the members of the EVA coordination and administration. In case we



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should use the expert system of European grassland types that is currently being developed under the leadership of Milan Chytrý for the EEA, the relevant researchers will also be offered co-authorship.

I agree with the terms of EVA Data Property and Governance Rules as approved on 26 May 2012 (<http://euroveg.org/download/eva-rules.pdf>).

[place, date]

Bayreuth, 22 August 2016

[applicant's name]