European Vegetation Archive
Data Request Form

To obtain data from the European Vegetation Archive (EVA), including the ReSurveyEurope Database, please first enquire the EVA database administrator Ilona Knollová (ikuzel@sci.muni.cz) whether the data that meet your needs are available. If they are, please fill in the form below and submit it to Ilona or another member of the EVA Coordinating Board (or ReSurveyEurope Board if you ask for data from the ReSurveyEurope Database).

- Applicant's name:

  František Zedek

- Applicant's institutional address:

  Department of Botany and Zoology, Faculty of Science, Masaryk University, Kotlářská 2, 61137, Brno, Czech republic

- Applicant's e-mail:

  fzedek@gmail.com

- Project title:

  The effects of recombination rate on niche size and species success in heterogeneous environments

- Are you asking for core EVA data (non-repeated vegetation surveys) or for ReSurveyEurope data (repeated vegetation surveys)?

  core EVA data

- Brief description of the aims and methods of the study:

  We aim to explore the hypothesis that species with higher recombination rates, as indicated by a greater number of chromosomes, thrive better in spatiotemporally heterogeneous environments and exhibit broader ecological niches. This investigation pivots on the less understood variability of recombination rates among sexually reproducing organisms and their evolutionary implications.

  To pursue this objective, we center our research on plants with holocentric chromosomes, particularly the European Cyperaceae and Luzula, leveraging the direct correlation between chromosome number and recombination rate, a feature that allows for the analysis across hundreds of species.

  Our methodological approach encompasses:

  Data Compilation: We gather chromosome numbers from existing databases (already done!), access georeferenced vegetation plot data to represent environmental heterogeneity, and use Ellenberg indicator values to gauge environmental conditions (in process).

> Analysis of Environmental Heterogeneity and Niche Size: We compute the variance in Ellenberg values across plots to assess environmental heterogeneity and employ alpha hull volume to estimate niche sizes, analyzing these against chromosome numbers.
>
> Competitiveness Evaluation: We determine species competitiveness through phylogenetic distances within plots and correlate these findings with chromosome numbers.
>
> Statistical Analysis: We apply regression analyses, including linear and mixed models, to explore the relationships between our variables of interest.

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

  > Only our team members: Dr. Pavel Veselý, Dr. Petr Šmarda, Prof. Petr Bureš

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

  > Autumn 2024 – Spring 2025

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

  > Europe including Macaronesia (or Northern Africa if such extra-European plots are available in the EVA database)

- Do you need plots to be georeferenced? If so, what is the minimum accuracy of plot location (in metres or kilometres) needed for your project?

  > Yes, up to 20 km

- Vegetation types needed (syntaxa):

  > All vegetation types.

- Other data selection criteria:

  > We need only vegetation plots contacting Poaceae, Cyperaceae, or Juncaceae species.

- Envisaged publications:

  > We plan upto 2 papers on the effects of recombination rate evolution on species competitiveness, niche size, and the ability to occupy heterogeneous habitats in Jimp journals, e.g. New Phytologist or Annals of Botany.

- Data deposition. Some journals require data used for the analysis to be stored in a public repository to ensure the repeatability of the analysis. According to EVA Rules, you are not allowed to store the original vegetation-plot data obtained from EVA. However, if you plan to publish in such a journal, you may deposit a reduced EVA-derived dataset that (1) would make it possible to repeat the analysis published in the paper and (2) does not contain any information not used in the analysis. For example, such a dataset can contain only a subset of species (e.g., only angiosperms or only neophytes), or replace species names with codes, or replace species cover values with presences/absences, or remove all the header data, or replace the exact plot coordinates by coarse grid-cell coordinates etc. If you plan to deposit reduced information from vegetation plots, please describe here what might be deposited. If the project developed so that you

needed to deposit more information than specified here, you would need to ask specific permission from the Custodians of the EVA databases used in your analysis before the dataset is deposited.

> Not applicable.

- Plant trait data from the TRY consortium. If you plan to combine your analysis of vegetation-plot data with plant trait data, you can also request a dataset of 18 gap-filled traits for a large number of plant taxa prepared by the TRY consortium. These traits include Leaf area, Specific leaf area, Leaf fresh mass, Leaf dry matter content, Leaf C, Leaf N, Leaf P, Leaf N per area, Leaf N:P ratio, Leaf delta15N, Seed mass, Seed length, Seed number per reproductive unit, Dispersal unit length, Plant height, Stem specific density, Stem conduit density, and Conduit element length. This dataset can be provided to you by the EVA manager together with the vegetation-plot data. If you use this dataset, you must inform about your project the TRY data contributors who might be potentially interested and invite them as potential co-authors, assuming they will make an intellectual contribution to your paper. The list of the TRY data contributors will be sent to you together with the gap-filled trait dataset.

> No

- Specification of the co-authorship arrangements in publications based on the requested data. Note that the EVA Rules recommend that co-authorship is offered to a representative of each database providing data that are particularly important for the project (e.g., a relatively large proportion of the final dataset used in the analyses or data from unique vegetation types or under-represented geographic areas). This database representative should be an expert in the topic of the project (not necessarily the custodian or deputy custodian), and this person should contribute to the project more than just by providing the existing data, e.g. by intellectual contribution to the concept of the paper, preparation of new data, or helping with data analysis, interpretation of the results or writing parts of the paper (see the IAVS Code of Professional Ethics: http://iavs.org/Governance/Code-of-Professional-Ethics.aspx). The project leader should enable active participation by regularly informing potential co-authors about the progress of the project from its early stage. The project leader should also make final co-authorship arrangements based on the real input of the individual contributors.

> František Zedek will be the lead author of publications, and will inform all data providers in key stages of the study. Co-authorship will be offered to one person (registered in the EVA online form) for each database who that contributed more than 5% plots included in the final dataset (i.e. after stratification and random removal of plots from oversampled areas). We expect that any co-authorship will be based on intellectual input to the paper beyond provision of the data; other data contributors or databases will be acknowledged in the paper. All the people who will participate in data processing and analyzing will be included among co-authors.

- Eligibility of the applicant to receive EVA or ReSurveyEurope data. Specify to which EVA or ReSurveyEurope database the applicant has contributed; if the applicant is not the custodian or deputy custodian of an EVA or ReSurveyEurope database, give a name of a custodian or deputy custodian who supports this data request.

> Prof. Milan Chytrý (custodian of the database EU-CZ-001)

- 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).
- If I ask for ReSurveyEurope data, I agree with the terms of ReSurveyEurope Data Property and Governance Rules as approved on 6 April 2022 (http://euroveg.org/download/resurveyeurope-rules.pdf).

- In any result obtained based on EVA core data (non-repeated vegetation surveys), I will cite the EVA report article (Chytrý et al. 2016; https://doi.org/10.1111/avsc.12191). In any result obtained based on the ReSurveyEurope data (repeated vegetation surveys), I will cite the ReSurveyEurope report article as soon as it is published. In addition, I will cite individual source databases used in my project (if possible, in the list of References; if not possible, at least as a list of databases in the electronic supplementary material).
- If I ask for the plant trait data from TRY, I agree to invite to my project the TRY data contributors following the list received from the EVA database manager.

Brno, Czechia, April 9th 2024

František Zedek