



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:

Gabriele Midolo

- Applicant's institutional address:

Department of Spatial Sciences, Faculty of Environmental Sciences, Czech University of Life Sciences Prague, Praha-Suchbát, Czech Republic

- Applicant's e-mail:

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- Project title:

Interpolated dynamics of local plant diversity in European vegetation

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

core EVA data + ReSurveyEurope

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

We will use a new method ([Keil and Chase 2022](#)) to estimate temporal plant biodiversity change, an alternative to the direct analysis of local time series. This approach is based on the well-established observation that species diversity is *spatially* and *temporally autocorrelated*, and thus it can be jointly *interpolated* in space and time. Using machine learning, we will interpolate species richness across several thousand EVA plots in a multi-dimensional space defined by 1) *geographical space* (= latitude, longitude, and elevation), 2) *time* (= year of sampling), and 3) *area* (= plot size). Our study will produce unprecedented time-varying predictions of vascular species richness change across the whole Europe and over several decades.

The study mostly focuses on EVA data for model training and testing. In addition, we would like to use ReSurveyEurope data to perform an external validation of our model. Specifically, we will test if observed changes in richness from actual resurveys correlates with our predicted local changes.

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

No. However, some part of the workflow may be shared with some of the main author team members who will be actively involved in this project, namely: Petr Keil (Czech



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University of Life Sciences Prague, Czech Republic), Adam T. Clark (University of Graz, Austria), and Milan Chytrý (Masaryk University, Czech Republic).

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

If possible, invitations to co-operate on the main manuscript will occur in 2-4 weeks following the data release. The manuscript will be submitted by spring 2025 the latest.

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

Europe (excluding Anatolia, Russia, Georgia, Armenia, Azerbaijan, Cyprus and Macaronesia).

- 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?

Plots need to be georeferenced and have minimum accuracy (coordinate uncertainty) of 5000 meters. However, we also want to include plots with missing coordinate uncertainty.

- Vegetation types needed (syntaxa):

All

- Other data selection criteria:

- We would like to request **the same core EVA data as provided in the release for EVA data request no. 163** (<https://euroveg.org/requests/EVA-data-request-form-2022-10-26-Midolo-Vecera-Divisek.pdf>). Additionally, we would like to include any newly available data up to 2024, provided there is a significant amount (e.g., more than 1,000 plots for that year).
- For the ReSurveyEurope, we would like to receive data for plots that were categorized at least once into one of the following habitat types (level-1 EUNIS): forests ('T'), grasslands ('R'), scrub ('S') and wetland ('Q').

- Envisaged publications:

We aim for a single scientific article on a high-impact journal on the interpolation of vascular species richness in Europe across several decades (e.g. between 1945 and 2020). Additional publications focusing on spatiotemporal interpolation of other response variables (e.g., individual species occupancy models, or beta diversity) could follow.



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- **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.

We will not store the original relevé data. However, since we aim to make our analysis fully reproducible for a high-impact journal, we would like to store a single dataset with the following entries (columns) for each plot (rows):

- number of vascular plant species (= species richness)
- longitude
- latitude
- year of sampling
- plot size (m²)
- habitat type (e.g., 'forest', 'grassland', 'wetland', ...) (level 1 of EUNIS classification system)
- elevation (based on longitude and latitude of the plots; extracted from available digital elevation models)

The information listed above is essential for reproducibility. **We will not share any additional data beyond what is specified.** If necessary, we will discuss with the custodians the possibility of excluding certain data for specific reasons.

- **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



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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: https://www.iavs.org/page/governance_code-of-professional-ethics). 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.

- A representative from each ReSurveyEurope and core EVA database (either the custodian or a person designated by the custodian) that contributed more than 0.1% (ReSurveyEurope) or more than 1% (core EVA) of total plot count included in the final dataset used in the analyses will be considered as co-author, provided they express interest by filling out the EVA online form.
 - The applicant can invite as co-authors representatives with fewer data from biogeographically important regions that are not represented in other databases.
 - Representatives will be kept informed about the project's progress and invited to provide intellectual contributions.
 - Those who are willing to contribute intellectually (i.e., either help in carrying out some analyses, interpret the results, and/or actively participate in the manuscript editing and writing) will be offered co-authorship.
 - All data contributors that were not included as co-authors will be acknowledged in the publications.
- 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.

This data request is supported by Milan Chytrý, the Custodian of the Czech National Phytosociological 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.



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Prague (Czech Republic), 12 September 2024

Gabriele Midolo

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