



Launching the **ReSurveyEurope** Initiative: EVA call for data contribution and collaboration

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I. Background and rationale

Although it is widely acknowledged that we are in the midst of an unfolding extinction crisis, there still is a lack of understanding the patterns and the underlying causes of historical community changes on fine spatial scales (e.g. relevés or plots). Recently, databases that integrate repeatedly measured plot data have become available (e.g. Biotime, <http://biotime.st-andrews.ac.uk/>) and delivered valuable new insights. Other initiatives such as ForestRePlot, Biodiversity Exploratories, sMon etc. are being developed, often with a specific focus on (parts of) Europe. However, there is a wealth of vegetation-plot resurvey data with repeated measurements over time available that are not yet mobilized. **ReSurveyEurope** aims at mobilizing such data and establishing a collaborative initiative as a basis for nuanced and robust assessment of biodiversity trends on small spatial grains over longer periods in Europe. Our initiative aims at inclusion of time series with repeated sampling of the same plot in the European Vegetation Archive (EVA, <http://euroveg.org/eva-database>) or identifying such samples in the existing EVA databases if they are already included. It also



support a parallel initiative within the global vegetation database sPlot (starting with its next version 4.0). While the **ReSurveyEurope** within EVA focuses on Europe, sPlot will collect such time series outside Europe and seek the consent of the EVA contributors to combine the data at the global scale, following the sPlot rules.

II. Launching the **ReSurveyEurope** initiative: aims and general approach

The **ReSurveyEurope** has been proposed by the group of initiators listed above. The overarching aim of this initiative is as follows:

- To establish a network of scientists that collaborate in collecting and analyzing fine-scale plant community resurvey data (relevés, plots) from Europe. The approach shall be inclusive and transparent, and thus **ReSurveyEurope** will be modelled according to the rules of the European Vegetation Archive (EVA).
- The focus of **ReSurveyEurope** will be put on regions, habitat types and ecosystems that are less covered by other initiatives, in particular open habitats such as grasslands, fields and wetlands, especially in lowlands and at mid-elevations. However, in principle, **ReSurveyEurope** will be collecting data from all ecosystems all over Europe.

III. Collaboration, governance and decision making

Such a collaborative initiative depends on the willingness of many actors to collaborate, and thus transparent governance and decision-making structures are essential. **ReSurveyEurope** will thus follow an inclusive approach in terms of open collaboration and co-authorship policy, which builds on the experiences and approach of EVA (see co-authorship arrangements at <http://euroveg.org/download/eva-data-request-form.docx>). This implies that i) data owners/contributors will have to be asked for their approval for any specific analysis (allowing to opt-in for the resulting papers according to specific criteria such as the numbers of plots used in the analysis), and that ii) colleagues not directly involved in **ReSurveyEurope** can submit proposals for analyses which will be subject to approval. This approach will follow the EVA Data Property and Governance Rules (<http://euroveg.org/download/eva-rules.pdf>).

The initiators of this call will oversee and develop the **ReSurveyEurope** initiative further.

IV. EVA call for data contribution and collaboration

Herewith, we open a call for identifying, mobilizing and contributing suitable data for **ReSurveyEurope**. This call is open to everyone within and beyond the EVA network – so please share the call with everyone you are aware of who might have such data.

The following data are suitable for **ReSurveyEurope**: fine-grain biodiversity data (e.g. relevés, plots, transects) that have sampled the presence (and ideally also abundance) of vascular plants with at least two repeated sampling events in different years done with identical or at

least similar and comparable methods. This data call includes both the terrestrial and aquatic environments. The geographic scope is Europe.

Data sets should contain as a minimum requirement:

- i) a full compilation of vascular plant occurrences (presences/absences), preferably also information on abundance or proxies for abundance such as cover or biomass
- ii) plots' latitude and longitude and information on the precision of the coordinates
- iii) sampling date (ideally the precise date, minimum the year)
- iv) plot size

Further, information on the method of data collection, vegetation cover, elevation, inclination, orientation, bedrock substrate, land use, recent land-use change and vegetation or habitat type would be most helpful.

V. Data provision format

The format of data provision should be ideally in Turboveg 2, in which the following header-data fields are added and filled in. Using Turboveg v. 2.148 or higher versions, a database structure with these fields can be downloaded from <https://www.synbiosys.alterra.nl/turboveg/> under Database dictionaries / ReSurvey) and uploaded to Turboveg using Backup/Restore / Restore. Then, when creating a new database or modifying the structure of an existing database, select ReSurvey under Database dictionary. In the existing database, new fields will be added to all vegetation plots, but the already existing extended header-data structure will not be affected. If the database already contains the fields LONGITUDE and LATITUDE, their structure (length, decimals etc.) will not be changed.

Field name	Type	Length	Decimals	Description
RS_PROJECT	C	50	0	Unique name of the resurvey project (words without diacritics), e.g. Hochberg alpine grassland
RS_SITE	C	8	0	Unique (within the project) code of the resurveyed site (numbers, letters or a combination of both); the site code is used when more than one plot was recorded at one survey time in a small area; it is used to pair observations from different times recorded at the same site
RS_PLOT	C	12	0	Unique (within the site) code of the resurveyed plot (numbers, letters or a combination of both); it is used to pair observations from different times recorded in the same plot; original surveyor plot names can be used here
RS_OBSERV	C	20	0	Unique (within the plot) code of the one-time observation (numbers, letters or a combination

				of both); this can be the combination of RS_PLOT and DATE (or only the year, when the record was taken)
DATE	N	8	0	Date of the record (at least year, preferably the exact date)
SURF_AREA	N	7	2	Plot size in square metres
PLOT_SHAPE	C	20	0	Description of the plot shape if not a square
MANIPULATE	C	1	0	Binary information (Y/N) about whether the plot was manipulated, either naturally (e.g. successional plots studied after disturbance) or experimentally (e.g. fertilized, mown, grazed); fill "N" for control (non-manipulated) plots from experiments.
MANIPTYPE	C	100	0	If the plot was manipulated, indicate the type of manipulation (e.g. post-fire succession, NP-fertilizing, dominant species removal)
LOC_METHOD	C	2	0	Method of plot (re-)location: Permanently marked plot isolated (i.e. somewhere within the site), Marked plot in a grid (i.e. with regularly spaced neighbor plots), Location with differential GPS, Location with GPS, Location from accurate map, Location from a description, Other
LONGITUDE	N	13	8	Longitude of the plot in decimal degrees, coordinate system WGS-84; if a plot is located by a single point, this coordinate should refer to the centre of the plot; if a plot is located by coordinates for each corner, coordinate should refer to the first corner
LATITUDE	N	13	8	Latitude of the plot in decimal degrees, coordinate system WGS-84; if a plot is located by a single point, this coordinate should refer to the centre of the plot; if a plot is located by coordinates for each corner, coordinate should refer to the first corner
LONGITUDE2	N	13	8	Only for plots with exact coordinates of the four corners: longitude of the second corner in decimal degrees, coordinate system WGS-84
LATITUDE2	N	13	8	Only for plots with exact coordinates of the four corners: latitude of the second corner in decimal degrees, coordinate system WGS-84
LONGITUDE3	N	13	8	Only for plots with exact coordinates of the four corners: longitude of the third corner in decimal degrees, coordinate system WGS-84

LATITUDE3	N	13	8	Only for plots with exact coordinates of the four corners: latitude of the third corner in decimal degrees, coordinate system WGS-84
LONGITUDE4	N	13	8	Only for plots with exact coordinates of the four corners: longitude of the fourth corner in decimal degrees, coordinate system WGS-84
LATITUDE4	N	13	8	Only for plots with exact coordinates of the four corners: latitude of the fourth corner in decimal degrees, coordinate system WGS-84
PRECISION	N	8	0	Location uncertainty in metres; in quasi-permanent plots, the number can be larger for older plots with uncertain location (up to hundreds of meters) and smaller for newer plots with GPS-measured location
OWNER	C	50	0	Data owner: Person, Institution
EVA_ACCESS	N	1	0	Access regime in the EVA database (Restricted, Semi-restricted or Free access)

If the resurveyed plots are contained in an existing EVA database, indicate them in the other above-mentioned fields, and send the updated version of the database to EVA (by e-mail to the EVA Database Manager Ilona Knollová, ikuzel@sci.muni.cz).

If you have or obtain data from resurveyed plots that are not stored in any EVA database, you can either store them in an existing EVA database or send them separately to Ilona Knollová. If they are not included in any existing EVA database, we will store them in the new specialized EVA database called ReSurveyEurope. If you have many records from resurveyed plots (several hundreds or thousands), you can register them as a new EVA database. In such a case, please register this database also in the Global Index of Vegetation-plot Databases (GIVD; <https://www.givd.info/>).

If your data are not in Turboveg or you do not use this program, please send it to us in any format. We will transform them into the Turboveg format.

VI. Metadata

Each resurvey dataset should come with a brief metadata sheet. If one database contains data from several resurvey projects, each of them should be accompanied by a metadata sheet. Please use the downloadable metadata sheet provided at <http://euroveg.org/download/ReSurveyEurope-Project-Metadata-Form.docx>.

VII. Time line

Please send the data to Ilona Knollová (EVA Data Manager, ikuzel@sci.muni.cz) by **31/01/2021**.

The aim is to have the first set of core data collated by **30/03/2021**.



We plan to write a short overview paper introducing **ReSurveyEurope**, its current status and future opportunities for a scientific journal (**in 2021**). This paper will present the idea, status quo and outline next steps. All data contributors will be invited for co-authorship.

After this paper is published, ReSurveyEurope will be used for various analyses, for which data contributors can opt-in as active co-authors.

For any queries, pls send e-mails to the contact persons listed on the first page.

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