



EVA Annual report (2024)

Dear EVA friends,

This is the 8th annual report of the European Vegetation Archive (EVA) summarizing the status of our database consortium, projects, and publications.

We are glad to announce that EVA has reached **two million** vegetation plots. In March 2024, there were 108 [EVA databases](#) that included **2,077,540 vegetation plots**, of which 90% were georeferenced. Of these plots, 79% may be accessed under the semi-restricted regime and 17% under the restricted regime, while the other 3% are open access.

We also compiled **481 individual datasets with 85,000 plots and 434,005 observations** included in [ResurveyEurope](#). A full description of these data has been recently accepted and will be available in: Knollová I., Chytrý, M., Bruelheide H., Dullinger S., Jandt U., Bernhardt-Römermann M. et al. 2024. **ReSurveyEurope: A database of resurveyed vegetation plots in Europe**. *Journal of Vegetation Science* 35: e13235. <https://doi.org/10.1111/jvs.13235>

In total, EVA data have been made available for **200 research projects** (see the full list [here](#)).

Since the last report, EVA members have produced 12 new publications. Pan-European studies included the first assessment of Raunkiaer's life forms across European vegetation ([Midolo et al. 2024](#)), the evaluation of macroclimatic and edaphic drivers on the biodiversity of European fen habitats ([Jiménez-Alfaro et al. 2023](#)), the decoupling of taxonomic and functional diversity in European grasslands ([Večeřa et al. 2023](#)), the formalized classification of European spring vegetation ([Peterka et al. 2023](#)), the detection of current and future hotspots for invasive plants in the Mediterranean region ([Cao Pinna et al. 2024](#)), and the comparison of climate and legacy effects of alpine floras in Europe and North America ([Malanson et al. 2023](#)). EVA data was also used to evaluate the biodiversity trends of arable fields in Central Europe ([Glaser et al. 2024](#)), to characterize the climatic determinants of cliff-edge forests ([Fraginière et al. 2024](#)) and to assess climate-change effects on the distribution of European forest geophytes ([Puchałka et al. 2023](#)). Further applications of EVA data included the calculation of habitat specificity to complement phylogeographic analyses of alpine plants ([Carnicero et al. 2022](#)), a contribution to the ecological characterization of *Aristolochia clematitis* ([Brzić et al. 2023](#)), and the development of a harmonized landcover map of Europe ([Gebhardt 2023](#)).

Since the database started in 2012, EVA has supported **81 journal papers**, 12 technical reports, and 115 presentations at scientific conferences. For an updated list of all publications, please visit the [EVA website](#). We congratulate project leaders and all data contributors on these achievements.

Borja Jiménez-Alfaro, Ilona Knollová and the EVA Coordinating Board

March 2024



EVA projects FINISHED in the last year

- Evolutionary determinants of disconnected phylogenetic and functional diversity in European grasslands (EVA project 62) – Zdeňka Lososová
- Plant invasions in the Mediterranean basin (EVA project 85) – Marta Carboni
- Variability of spring vegetation on a European scale (EVA project 100) – Michal Hájek
- Plants at the margin: the present and future role of microrefugia in biodiversity conservation (EVA project 109) – Yann Fragnière
- Climate impacts on understory herbs distributions, functional traits, and phenology (EVA project 118) – Michaela Vítková
- Creation of a harmonized land cover map as an example for the entire region of the Geneva Air Pollution Convention (EVA project 146) – Christin Loran
- *Alyso-Sedetalia* vegetation in Central and Eastern Europe (EVA project 150) – Iuliia Vasheniak
- The ecological niche of *Aristolochia clematitis* (EVA project 169) – Željko Škvorc
- Biodiv-Watch (EVA project 166) – Jan Schweizer (EVA data was not used)

EVA projects CANCELLED in the last year

- Numerical classification of the wet meadow vegetation in the Atlantic region of Western Europe (EVA project 17) – Pauline Delbosc
- Dark diversity and species pool estimates based on species co-occurrences and distribution (EVA project 39) – Meelis Pärtel
- Heterospecific plant soil feedback strength in relation to rarity, co-occurrence and relatedness in grassland communities (EVA project 108) – Maria Majeková
- Conservation Biology of *Viola stagnina* / *V. persicifolia* auct. in Switzerland (EVA project 152) – Jürgen Dengler
- Current ecological integrity as a predictor of past vegetation baselines (EVA project 156) – Elena Pearce
- Comparing present pollen and vegetation richness across Europe to reconstruct past plant biodiversity (EVA project 51) – Carole Adolf
- LIMEN - European Protected Biodiversity Outside the Gold-Green Zone in Limburg (EVA project 64) – Inez Woltjer

Reference list of new EVA publications

- Brzić I., Brener M., Čarni A., Čušterevska R., Čulig B., Dziuba T., Golub V., Irimia I., Jelaković B., Kavgacı A., Krstivojević Čuk M., Krstonošić D., Stupar V., Trobonjača Z. & Škvorc Ž. 2023. **Different ecological niches of poisonous *Aristolochia clematitis* in central and marginal distribution ranges — another contribution to a better understanding of Balkan endemic nephropathy.** *Plants* 12: 3022.
<https://doi.org/10.3390/plants12173022>
- Cao Pinna L., Gallien L., Pollock L.J., Axmanová I., Chytrý M., Malavasi M., Acosta A.T.R., Campos J.A. & Carboni M. 2024. **Plant invasion in Mediterranean Europe, current**



- hotspots and future scenarios.** *Ecography*: e07085.
<https://doi.org/10.1111/ecog.07085>
- Carnicero P., Wessely J., Moser D., Font X., Dullinger S. & Schönswetter P. 2022. **Postglacial range expansion of high-elevation plants is restricted by dispersal ability and habitat specialization.** *Journal of Biogeography* 49: 1739–1752.
<https://doi.org/10.1111/jbi.14390>
- Fraginière Y., Champoud L., Küffer N., Braillard L., Jutzi M., Wohlgemuth T. & Kozłowski G. 2024. **Cliff-edge forests: Xerothermic hotspots of local biodiversity and models for future climate change.** *Global Change Biology* 30: e17196.
<https://doi.org/10.1111/gcb.17196>
- Gebhardt S. 2023. **Creation of a harmonized land cover map as an example for the entire region of the Geneva Air Pollution Convention.** German Environment Agency, Germany. <https://www.umweltbundesamt.de/publikationen/creation-of-a-harmonized-land-cover-map-as-an>
- Glaser M., Dullinger S., Moser D., Wessely J., Chytrý M., Lososová Z., Axmanová I., Berg C., Bürger J., Buholzer S., Buldrini F., Chiarucci A., Follak S., Kůzmič F., Meyer S., Pyšek P., Richner N., Šilc U., Steinkellner S., Wietzke A. & Essl F. 2024. **Pronounced turnover of vascular plant species in Central European arable fields over 90 years.** *Agriculture, Ecosystems & Environment* 361: e108798.
<https://doi.org/10.1016/j.agee.2023.108798>
- Jiménez-Alfaro, B., Aunina, L., Carbognani, M., Dítě, D., Fernández-Pascual, E., Garbolino, E., Hájek, O., Hájková, P., Ivchenko, T. G., Jandt, U., Jansen, F., Kolari, T. H. M., Pawlikowski, P., Pérez-Haase, A., Peterka, T., Petraglia, A., Plesková, Z., Tahvanainen, T., Tomaselli, M. & Hájek, M. 2023. **Habitat-based biodiversity responses to macroclimate and edaphic factors in European fen ecosystems.** *Global Change Biology* 29: 6756–6771. <https://doi.org/10.1111/gcb.16965>
- Malanson G., Pansing E., Testolin R. & Jiménez-Alfaro B. 2023. **Simulations reveal climate and legacy effects underlying regional beta diversity in alpine vegetation.** *Frontiers in Ecology and Evolution* 11: 1053017. <https://doi.org/10.3389/fevo.2023.1053017>
- Midolo G., Axmanová I., Divišek J., Dřevojan P., Lososová Z., Večeřa M., Karger D.N., Thuiller W., Bruehlheide H., Ačić S., Attorre F., Biurrun I., Boch S., Bonari G., Čarni A., Chiarucci A., Čušterevska R., Dengler J., Dziuba T., Garbolino E., Jandt U., Lenoir J., Marcenò C., Rūsiņa S., Šibík J., Škvorc Ž., Stančić Z., Stanišić-Vujačić M., Svenning J.-C., Swacha G., Vassilev K. & Chytrý M. 2024. **Diversity and distribution of Raunkiaer's life forms in European vegetation.** *Journal of Vegetation Science* 35: e13229.
<https://doi.org/10.1111/jvs.13229>
- Peterka T., Hájková P., Jiroušek M., Hinterlang D., Chytrý M., Aunina L., Deme J., Lyons M., Seiler H., Zechmeister H., Apostolova I., Beierkuhnlein C., Bischof M., Biță-Nicolae C., Brancaleoni L., Čušterevska R., Dengler J., Didukh Ya., Dítě D., Felbaba-Klushyna L., Garbolino E., Gerdol R., Iemelianova S., Jansen F., Juutinen R., Kamberović J., Kapfer J., Klímová B., Knollová I., Kolari T. H. M., Lazarević P., Luostarinen R., Mikulášková E., Milanović Đ., Miserere L., Moeslund J. E., Molina J. A., Pérez-Haase A., Petraglia A., Puglisi M., Ruprecht E., Šmerdová E., Spitale D., Tomaselli M., Vassilev K. & Hájek M. 2023. **Formalized classification of the class *Montio-Cardaminetea* in Europe:**



towards a consistent typology of spring vegetation. *Preslia* 95: 347–383.

<https://doi.org/10.23855/preslia.2023.347>

Puchałka R., Paż-Dyderska S., Dylewski Ł., Czortek P., Vítková M., Sádlo J., Klisz M., Koniakin S., Čarni A., Rašomavičius V., De Sanctis M. & Dyderski M.K. 2023. **Forest herb species with similar European geographic ranges may respond differently to climate change.** *Science of The Total Environment* 905: 167303.

<https://doi.org/10.1016/j.scitotenv.2023.167303>

Večeřa M., Axmanová I., Chytrý M., Divíšek J., Ndiribe C., Velasco Mones G., Čeplová N., Ačić S., Bahn M., Bergamini A., Boenisch G., Biurrun I., Bruun H. H., Byun C., Catford J. A., Cerabolini B. E. L., Cornelissen J. H. C., Dengler J., Jansen F., Jansen S., Kattge J., Kozub Ł., Kuzemko A., Minden V., Mitchell R. M., Moeslund J. E., Mori A. S., Niinemets Ü., Ruprecht E., Rusina S., Šilc H., Soudzilovskaia N. A., van Bodegom P. M., Vassilev K., Weiher E., Wright I. J. & Lososová Z. 2023. **Decoupled phylogenetic and functional diversity in European grasslands.** *Preslia* 95: 413–445.

<https://doi.org/10.23855/preslia.2023.413>