

Cross-border data pipeline for the flora of the Bohemian Forest

A German-Czech research team presents a new binational data infrastructure. Over the past four years, the project "Flora of the Bohemian Forest" has made scientific data available from historical species monitoring projects in both countries as well as new data on the current plant diversity of the Bohemian Forest (Šumava). The data is publicly online available in German and Czech language. The scientists, on the Bavarian side led by the Bavarian Natural History Collections (SNSB), recently published their results in the Biodiversity Data Journal. The established services will be further developed in the coming years within the framework of the NFDI4Biodiversity Consortium and the SNSB data project on the flora of Bavaria.

The Bohemian Forest is a biologically unique area in Central Europe, which deserves special attention in the exploration and documentation of its biodiversity and nature conservation. Despite a long tradition of floristic and biogeographic research in this region in both countries, there has never been a transboundary survey and analysis. Different methodological approaches and research foci as well as linguistic and political barriers significantly limited the cooperation between experts in the past. The Bohemian Forest extends beyond the two national parks Bavarian Forest and Šumava, from the area of the *Großer Arber* to the Austrian *Mühlviertel*.

The great challenge for the biodiversity data scientists was the development of a new and sustainable technical infrastructure that brings together several million data sets from Czech and Bavarian data management systems in a dynamic

and quality-controlled way. "To merge the two data management systems, the technical and content-related translation of categories, structures and formats was necessary," explains Dr Stefan Seifert, senior biodiversity computer scientist at the SNSB IT Center. The task was to combine scientific names, information on origin, geographical localisation, endangerment status and extinction risk of the plants in a new common data infrastructure. The consolidation of all information is of great importance in order to be able to jointly develop suitable measures for the conservation of species and ecosystems on both sides of the border. This includes, for example, monitoring the population development of rare and endangered species.

In 2018, the cross-border initiative "Flora of the Bohemian Forest – Květena Šumavy – Flora Silvae Gabretae" was launched to provide data regardless of national borders. Partners are the Department of Botany at the University of South Bohemia in České Budějovice, the Bavarian Forest National Park, the Czech Šumava National Park, the Charles University Prague and the Bavarian Natural History Collections(SNSB) with its SNSB IT Center.

The new data portal on the flora of the Šumava presents information and data on occurrence and distribution of plants in German, Czech and English language, via distribution maps, species lists and species descriptions of the regional vascular plants. The website is aimed at plant and nature lovers, citizen scientists as well as professional botanists, foresters, farmers and ecologists from the Czech Republic and Germany.

The SNSB IT Center was largely responsible for the background processes of data management in the Diversity Workbench network and for data integration: the research group lead by Dr. Dagmar Triebel controlled the data import and the technical provision of historical and current distribution data of the Bavarian side of the Bohemian Forest. In addition

to its expertise in data science and software development, the SNSB IT Center, as part of the Bavarian State Collection for Botany (SNSB-BSM), also provided its botanical expertise: BSM botanists took over the scientific supervision of the Bavarian species lists, the identification of difficult species, the collaboration on species profiles and the classification within the regional red List of threatened species. Data gathering in the field is done using the smartphone app DiversityMobile developed by the SNSB IT Center.

“The project has sustainably promoted intercultural exchange between Czech and German scientists. At the same time, the new technical services professionalise the exchange of biodiversity data with an environmental indicator function between the two countries. In the future, we would like to expand the digital network and also include Austrian data, thus covering the study area completely,” explains Dr. Dagmar Triebel, curator at the Bavarian State Collection for Botany and head of the SNSB IT Center. The individual services and software components will be further developed within the framework of the citizen science project “Koordinationsstelle Bayernflora” and integrated into the National Research Data Infrastructure (NFDI). The project “*Flora of the Bohemian Forest*” was funded by the European Union within the framework of the “European Territorial Cooperation” (ETC) programme for cross-border cooperation between Bavaria and the Czech Republic.

Publication:

Novotný, P., Seifert, S., Rohn, M., Diewald, W., Štech, M. & Triebel, D. 2022. Software infrastructure and data pipelines established for technical interoperability within a cross-border cooperation for the flora of the Bohemian Forest. *Biodiversity Data Journal* 10: e87254: 1-21, <https://doi.org/10.3897/BDJ.10.e87254>

Links

<https://www.florasilvaegabretae.eu/de/>

<https://snsb.de/nfdi/>

<https://snsb.de/flora-von-bayern/>

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