

## ReSurveyEurope

### Project Metadata Form

When contributing data to ReSurveyEurope, please fill in this form for each resurvey project and send it to Ilona Knollová ([ikuzel@sci.muni.cz](mailto:ikuzel@sci.muni.cz)) together with the database. A resurvey project is understood as repeated sampling of a certain type of vegetation in a certain study area using specific methods.

- PROJECT NAME (identical with the Resurvey Project name given in the database):

West-Carpathian calcareous fens 2002-2018

- FULL PROJECT NAME (use if the full project name is longer than used in the database):

Resurvey of West-Carpathian calcareous fens between 2002-2018

- REFERENCE (publication or URL or DOI of the dataset if published online):

Hájek, M., Horsáková, V., Hájková, P., Coufal, R., Dítě, D., Němec, T., & Horsák, M. (2020). Habitat extremity and conservation management stabilise endangered calcareous fens in a changing world. *Science of The Total Environment*, 719, 134693.

- DATA OWNER: person(s), institution(s):

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- CONTACT E-MAIL:

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- METHODS (description of sampling design and methods):

At each site, we found the patch where the first survey (2001-2005) was conducted using the Garmin inReach Explorer+ GPS device (Garmin, USA) with the bias of only a few meters. Four researchers participated in both surveys, guaranteeing the same sampling strategy. In the first survey, the plots were preferentially selected to cover homogeneous sedge-moss patches, which are likely to support habitat specialists. In the second survey, we aimed to find the original plots as accurately as possible, although a small bias in meters cannot be excluded. Relative plant species abundances were estimated using the Braun-Blanquet cover codes at nine-grade scale (r, +, 1, 2m, 2a, 2b, 3, 4, 5) in both surveys. We kept plot sizes the same as in the first sampling period, ranging from 16 to 25 m<sup>2</sup>.

- ENVIRONMENTAL DATA (list of environmental data measured):

The environmental data are not included into the EVA database, but they are available upon request. In the first survey, no environmental data were collected except for water pH and conductivity. In 2018, we conducted more detailed measurements of local environmental conditions to describe local habitat extremity, including peat chemistry (Ca, Mg, K, Fe, total nitrogen, phosphates and total organic carbon). We collected the bulk peat sample in the central part of each vegetation plot from the depth of 0-10 cm.

We estimated the amount of precipitated calcium carbonate in this bulk peat sample in three different ways: as a total inorganic carbon (TIC), loss of ignition at 950 °C (LOI) and by visual estimation in the field on the four-grade scale (0, none; 1, low; 2, intermediate; and 3, high). Because field estimation correlated more strongly with TIC (Pearson's  $r = 0.93$ ,  $p < 0.0001$ ) than with LOI ( $r = 0.89$ ,  $p < 0.0001$ ), we used only TIC in subsequent analyses. Water content in the same peat sample was measured volumetrically, as a weight difference between the fresh sample and the sample dried at 105 °C until constant weight. We used the same peat sample also for chemical analyses. Water extraction was used to obtain soil solution. The novAA 350 flame atomic absorption spectrometer from Analytik Jena equipped with an autosampler and dilutor was used to determine the Ca, Mg, K and Fe contents. Phosphate phosphorus, nitrate ( $\text{NO}_3^-$ ) and ammonium ( $\text{NH}_4^+$ ) were determined by using the Helios Delta VIS Spectrometer (manufacturer Thermo Electron Corporation) with a sipper unit. Total organic carbon (TOC), total inorganic carbon (TIC) and total nitrogen (TN) were measured using the Shimadzu TOC-VCPH Analyzer with the TNM-1 module. Total nitrogen correlated strongly with the sum of ammonium and nitrate ions (Pearson's  $r = 0.99$ ). Depth to water table was measured relative to the apical parts of highest mosses. Management intensity was estimated using observations during the study period and consultations with nature conservancy authorities. We used the four-grade scale: 0, no disturbance reported; 1, occasional mild disturbance (mowing, mulching, grazing or a single tree and shrub cutting event); 2, repeated yet irregular disturbance (typically mowing); and 3, frequent disturbance of mowing by an engine hand brush cutter in most cases.

- MANIPULATED PLOTS (description of the treatment if the plots were manipulated, e.g. mowing twice a year, fertilizing by NPK once a year, post-fire succession)

No experimental manipulations were applied. In some sites, management had ceased.

Brno, 23.1.2020

Michal Hájek