Modelling the future distribution and biodiversity of European fen habitats under global change

Patrícia Singh[1], Borja Jiménez-Alfaro[2], Liene Auniņa[3], Petra Hájková[1], Tatiana Ivchenko[4], Florian Jansen[5], Tiina Kolari[6], Paweł Pawlikowski[7], Tomáš Peterka[1], Alessandro Petraglia[8], Teemu Tahvanainen[6], Łukasz Kozub[7], and Michal Hájek[1]

[1]Masaryk University, Institute of Botany and Zoology, Brno, Czechia (patadurcanova@gmail.com)
[2]University of Oviedo
[3]University of Latvia
[4]Russian Academy of Sciences
[5]Rostock University
[6]University of Eastern Finland
[7]University of Warsaw
[8]University of Parma

Along with the historical decline of fens due to anthropogenic impact, climate change is expected to jeopardise fen biodiversity by reducing their geographic extent and altering species composition. Yet, the impact of climate change on fen distribution and biodiversity in the future remains unclear. We used 27,555 vegetation plots representing eight fen habitat types widely distributed in Europe to compute Ecosystem Distributional Models. For each fen habitat type, we projected their future potential occupancy area and range shift and evaluated the influence of different climate scenarios and groundwater pH on distribution and biodiversity. Our findings could be helpful for the nature protection authorities across Europe to assess conservational and restoration measures to mitigate potential future biodiversity loss in European fen habitats.