IMPACTS OF EUROPEAN POND TURTLE REINTRODUCTION ON WETLAND FOOD WEBS

K. Theissinger[1], J. Meka[1], C. Grac[2], F. Labat[3], K.A.E. van der Zon[4], A. Meyer[5], J.-Y. Georges[6]

[1]Senckenberg Nature Research Institute, LOEWE Center for Translational Biodiversity Genomics, Frankfurt, Germany, [2]National School for Water and Environmental Engineering, ENGEES, Strasbourg, France, [3]AQUABIO, Clermont-Ferrand, France, [4]Université de Strasbourg, CNRS, LIVE UMR 7362, Strasbourg, France, [5]EABX, INRAE, Cestas, France, [6]Université de Strasbourg, CNRS, IPHC UMR 7178, Strasbourg, France

General data

Preferred type of contribution: oral presentation

Session Title: BEF_1.1: Advancing our understanding of freshwater ecosystems in the face of anthropogenic change: going beyond biodiversity

Abstract body

The impacts of species reintroductions on ecosystems are poorly reported, especially in terms of ecosystem functioning. Within the Emys-R project (www.emysr.cnrs.fr) we characterized the diet of captive-bred European pond turtles (*Emys orbicularis)* after release in the wild in the Neu Woerr area (French-German border, Upper Rhine Valley) to assess the consequences of reintroduction on trophic food webs. For this, eDNA metabarcoding was implemented on *Emys* fecal samples, while the temporal trends of macroinvertebrate communities (*Emys'* main prey) were monitored throughout successive releases over 5 years. Fecal eDNA analyses revealed that released captive-bred turtles exhibited a highly diversified diet (insects, gastropods, amphibians and plants). Importantly, turtles showed a preference for prey with relatively large body size and high longevity (Odonata, Coleoptera and Hemiptera), thus operating at the highest trophic levels in the ecosystem, with larger turtles potentially feeding on larger prey. Yet, the successive releases of turtles have not impacted the macroinvertebrate community throughout time. We demonstrate that captive-breeding, where turtles feed on artificial pellets, does not compromise their predatory skills once released in the wild. We discuss our findings in light of the opportunistic feeding behavior of the European pond turtle and show the relevance of such conservation initiatives benefiting local biodiversity without jeopardizing existing ecosystems.

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