

PRIORITY AREAS FOR BIODIVERSITY CONSERVATION IN THE CONTEXT OF GLOBAL CHANGE

*O. Nekrasova*¹, *M. Pupins*², *O. Marushchak*³, *J. Meka*⁴, *A. Čeirāns*², *A. Skute*², *V. Tytar*⁵, *K. Theissinger*⁴, *J.-Y. Georges*¹

¹Université de Strasbourg, CNRS, IPHC UMR 7178, Strasbourg, France, ²Daugavpils University, Department of Ecology, Institute of Life Sciences and Technologies, Daugavpils, Latvia, ³Université de Strasbourg, CNRS, IPHC, UMR, STRASBOURG, France, ⁴LOEWE Center for Translational Biodiversity Genomics, TBG - Senckenberg Nature Research Institute, Frankfurt, Germany, ⁵Schmalhausen Institute of Zoology NASU, Kyiv, Ukraine

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Human-driven habitat degradation, climate change and biological invasions are major causes of current species mass extinction. In Europe where wetland surface area has declined by 90% since 1700s, the European pond turtle *Emys orbicularis* is considered as the reptile that suffered the most dramatic decline. Recently alien turtle species originated from America, Asia and Africa have been widely spread in Europe with high invasion potential threatening native biodiversity. Using field data, open databases and GIS modelling, we mapped present and future distributions, in relation to habitat and climate conditions, of the native European pond turtle and seven alien turtle species, including the red slider painted turtle *Trachemys scripta* sp. which is listed as one of the 100 worst invasive species in the world. We show that presently *T. scripta* and *Graptemys pseudogeographica* exhibit highest ecological flexibility, occupying most habitats suitable for native *E. orbicularis* with ~45% overlap at the scale of (mainly Western) Europe. By 2050, this overlap will increase, except in Northern and Eastern Europe where *E. orbicularis* is predicted to expand its range by 700 km, while exotic turtles spread only up to Southwestern Ukraine. We conclude that priority conservation areas for the endangered European pond turtle are Eastern and Northern Europe, where competition risk of invasive turtles are limited. We thank the projects EMYS-R (www.emysr.cnrs.fr), Nr.lzp-2021/1-0247 and PAUSE.

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