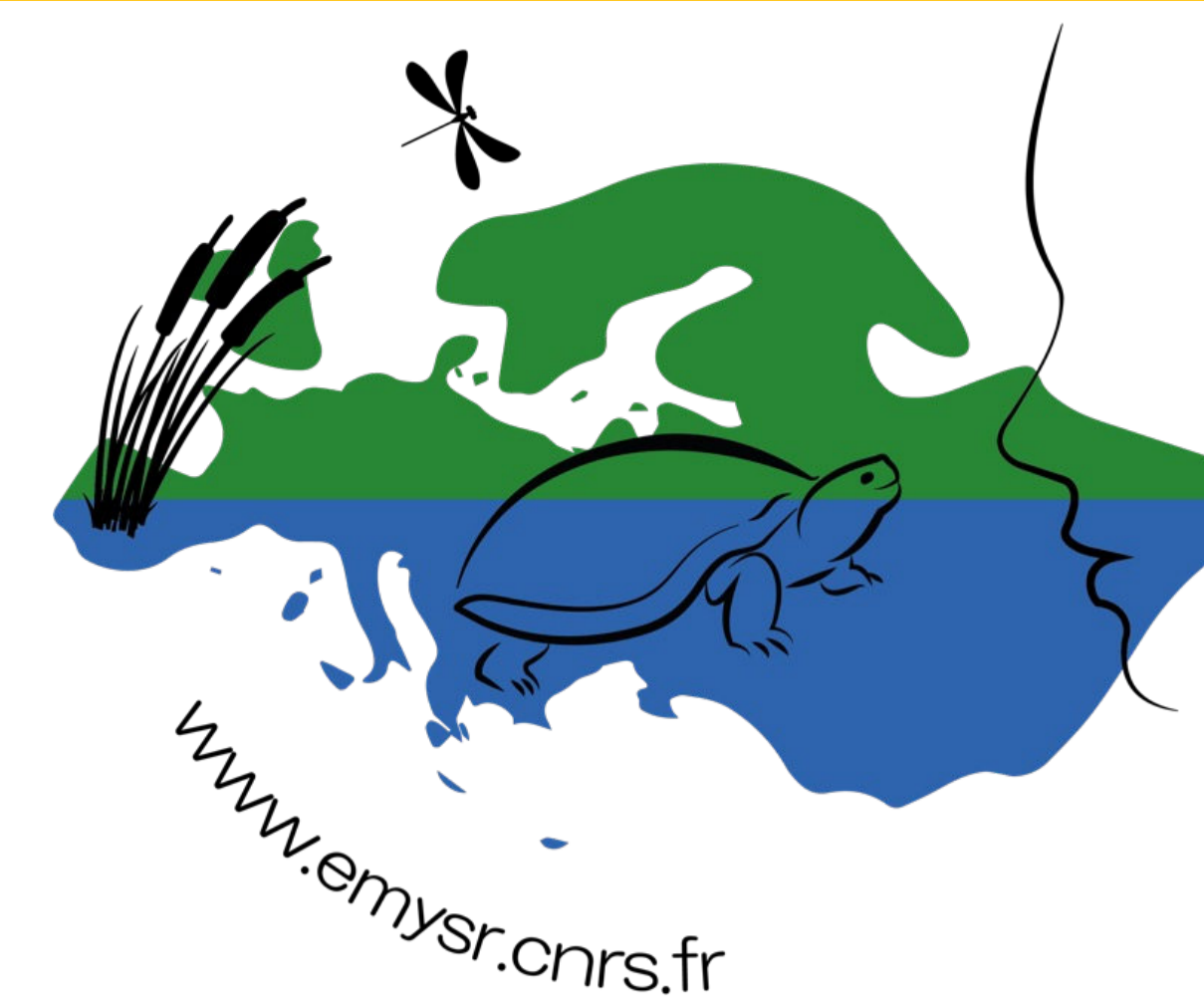




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Benefits and adverse impacts of wetland restoration for species reintroduction

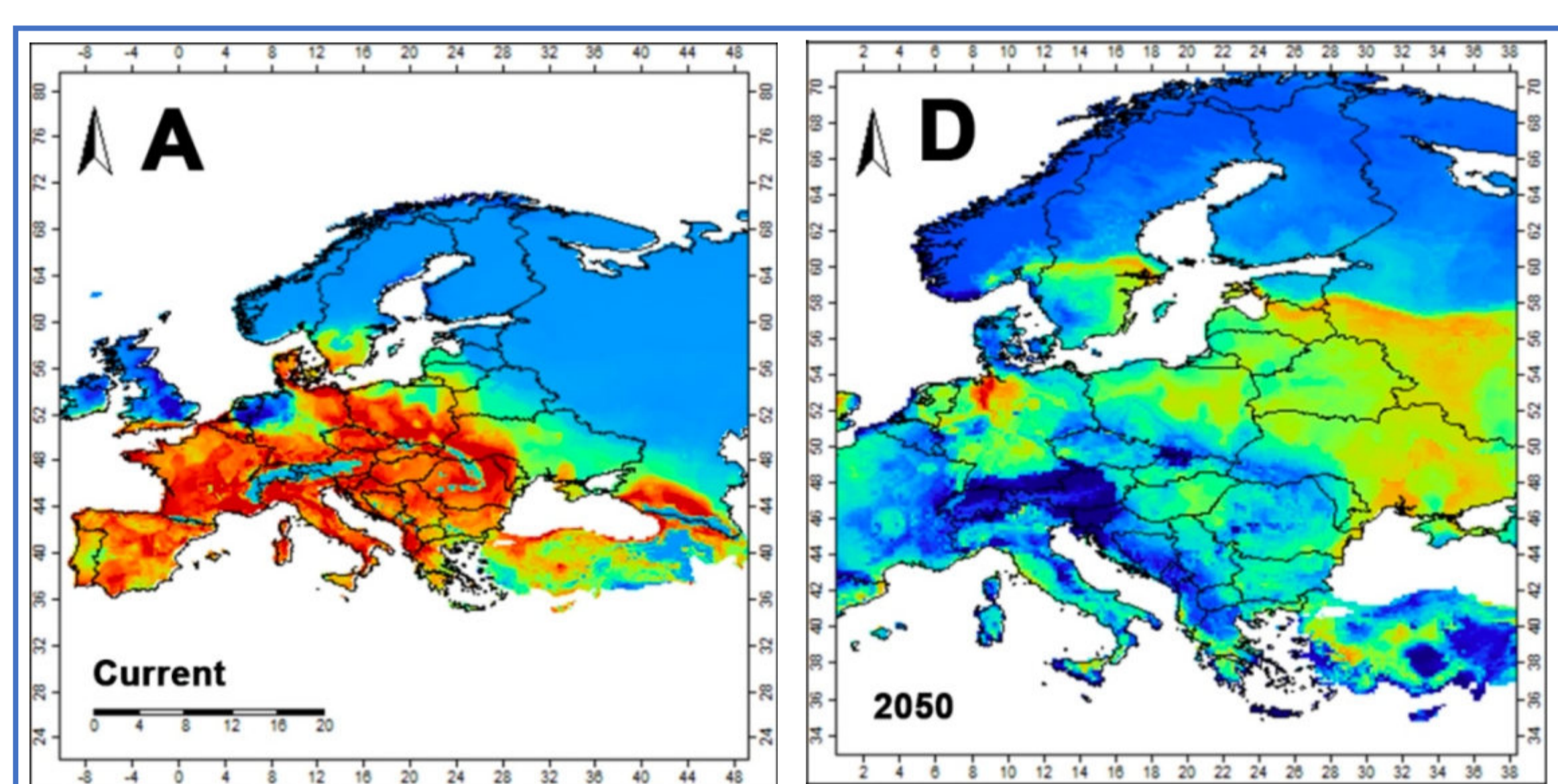
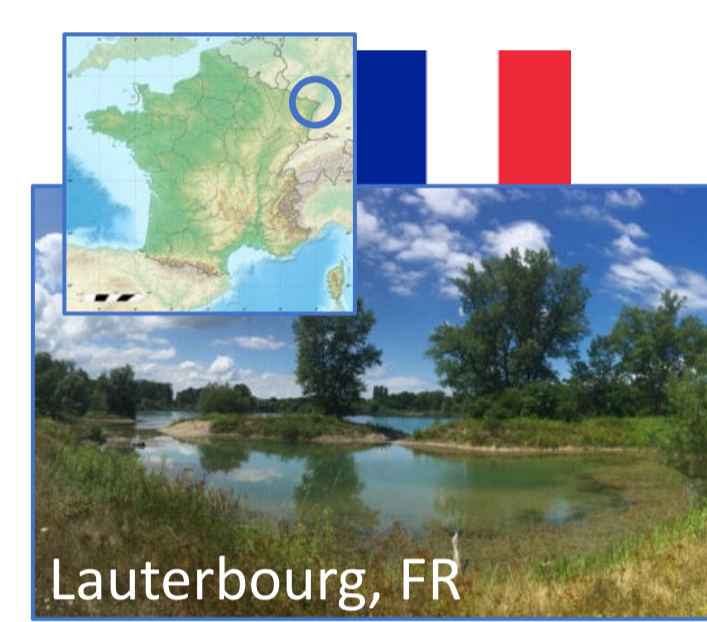
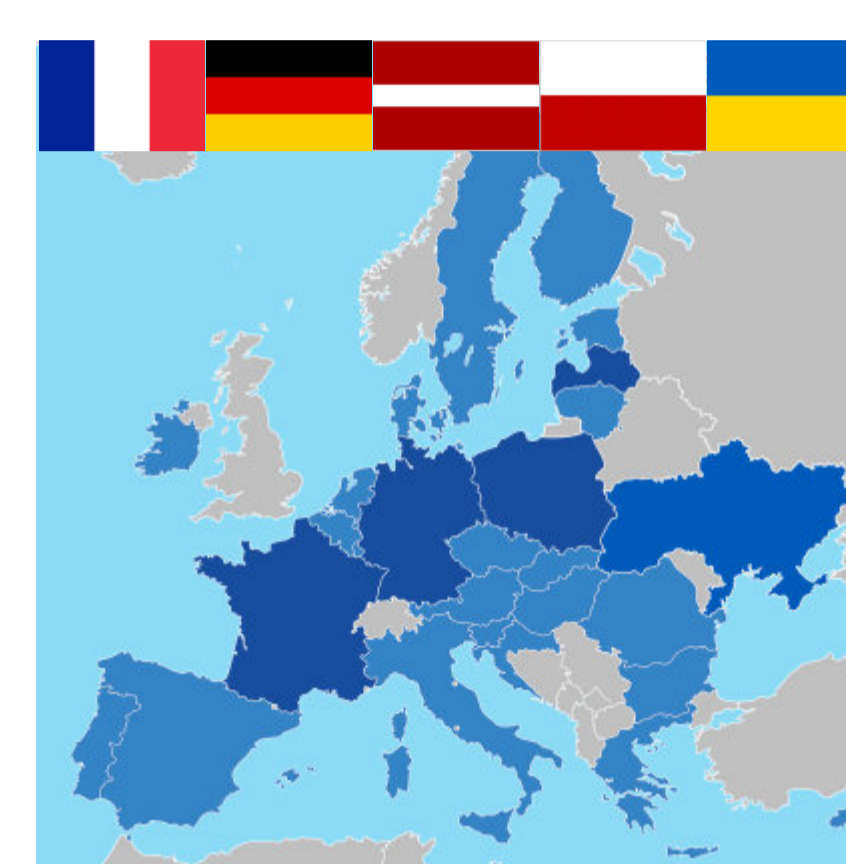
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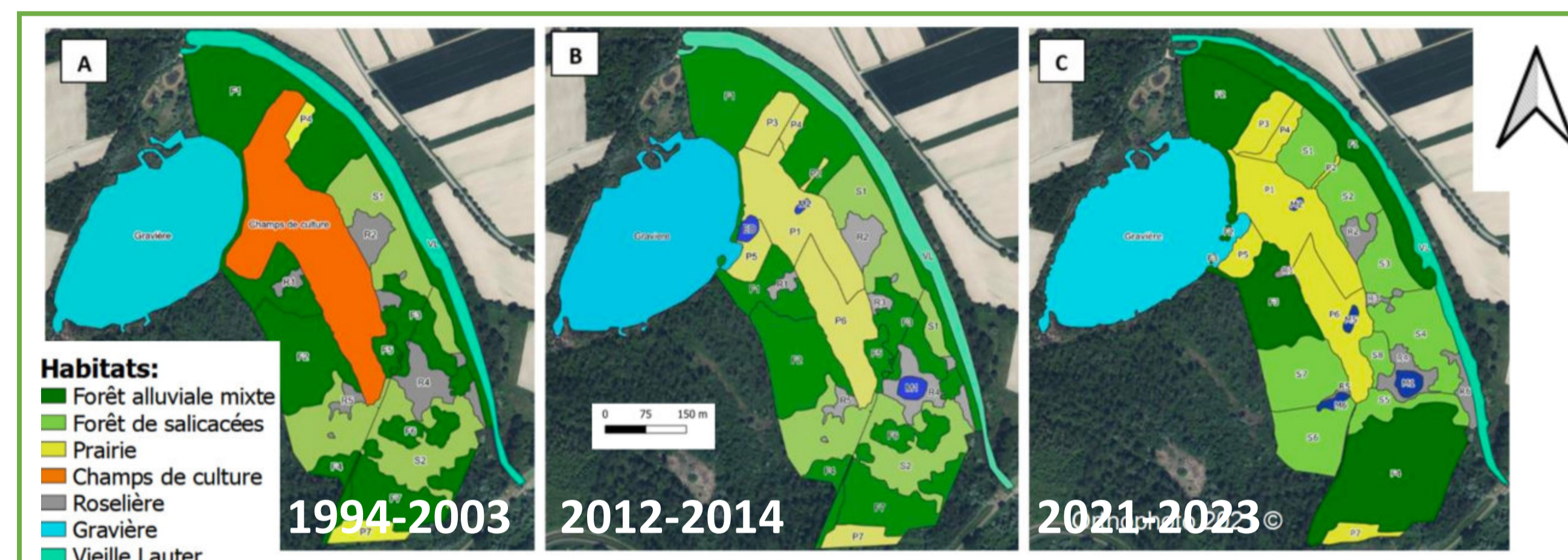
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In Europe where wetlands have declined by 90% since the 1700s, the European pond turtle *Emys orbicularis* has suffered the most dramatic decline of all reptiles. This small-sized turtle emblematic of wetlands has benefited numerous conservation initiatives throughout Europe. Yet the actual results of these projects have been little disseminated. *Emys-R* aims at testing three main hypotheses: 1) higher degrees of wetland restoration can compensate for limited capabilities of captive bred *Emys* to settle in the wild; 2) conservation actions can benefit society by bringing together people and nature; 3) well-perceived *Emys* can be an emissary (echoing "Emys-R") for improving public perception of nature, and more specifically poorly-perceived wetlands.

Emys-R is a 3-yr transdisciplinary participatory action-oriented research project for defining the most efficient, socially-supported, ecological methods to restore wetlands in favour of *Emys* reintroduction and associated biodiversity in Europe, based on literature review of former EU-funded conservation initiatives and long term monitoring on 3 study sites in FR, DE and LV.



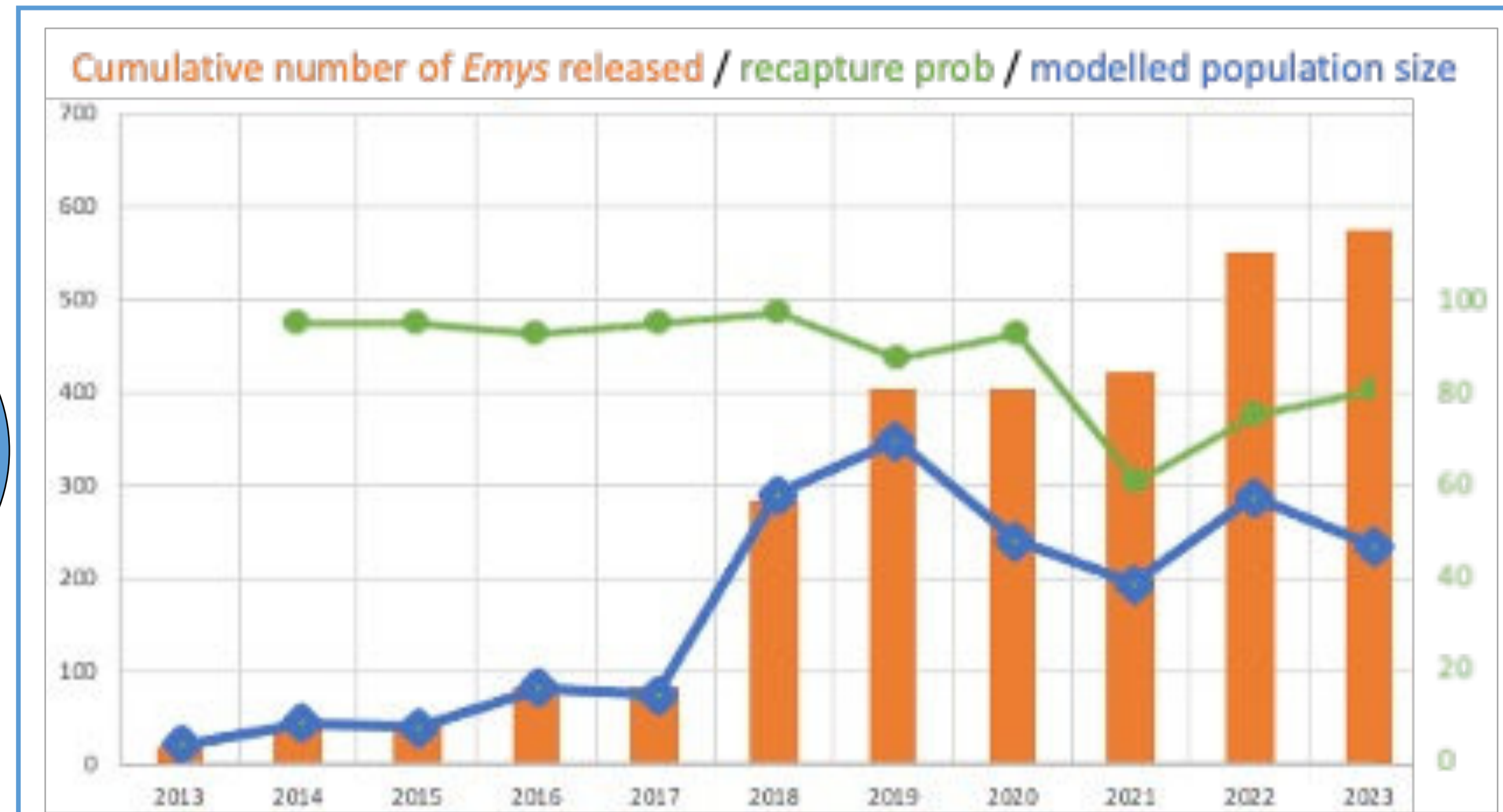
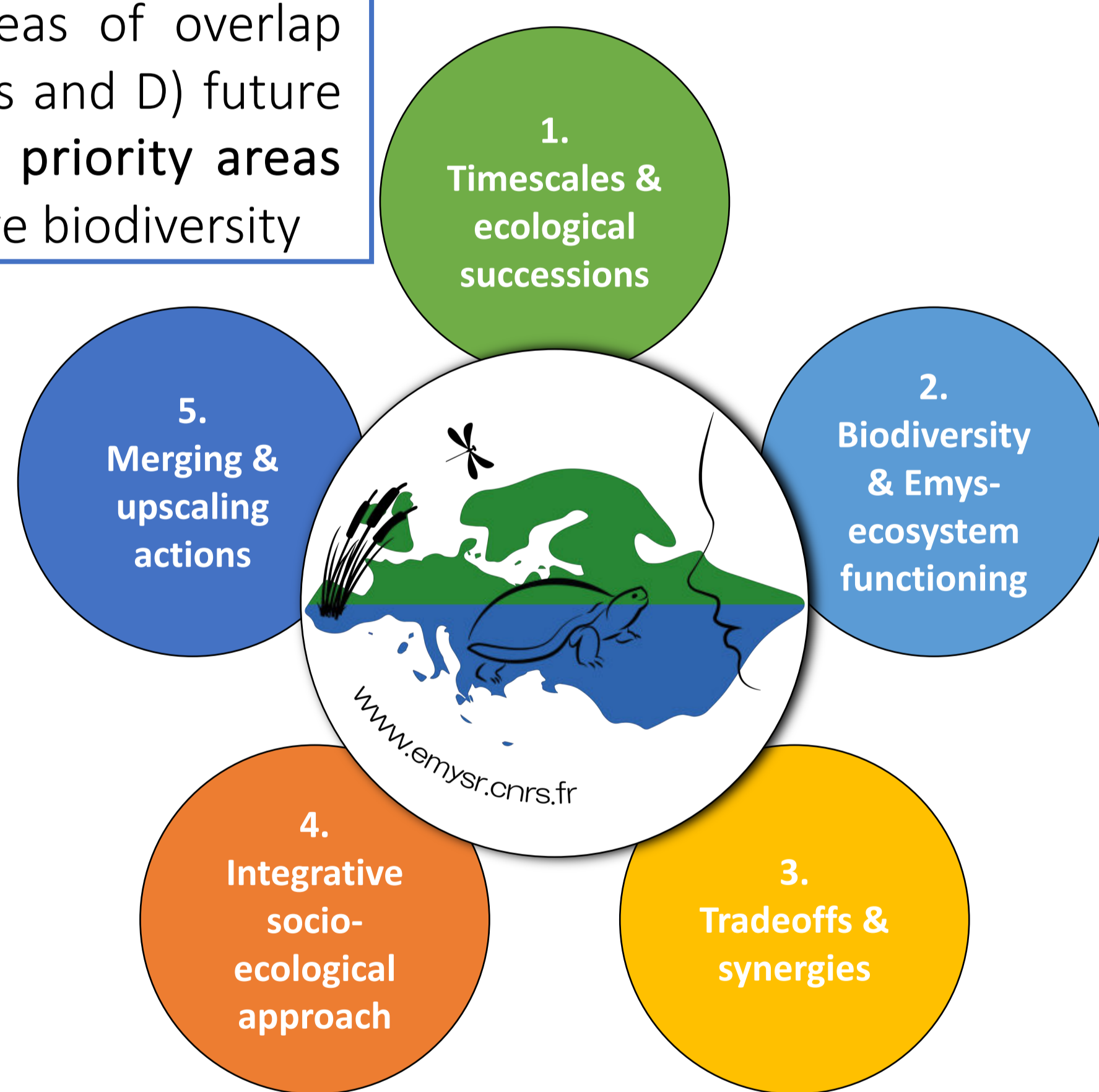
Bioclimatic models identified A) current areas of overlap between *Emys* and 7 exotic freshwater turtles and D) future areas exempt of interspecies competition as priority areas for conservation of *Emys* and associated native biodiversity



FR: Wetland restoration (1994-2003) led to improved habitat diversity, quality and suitability for native species, incl. *Emys*



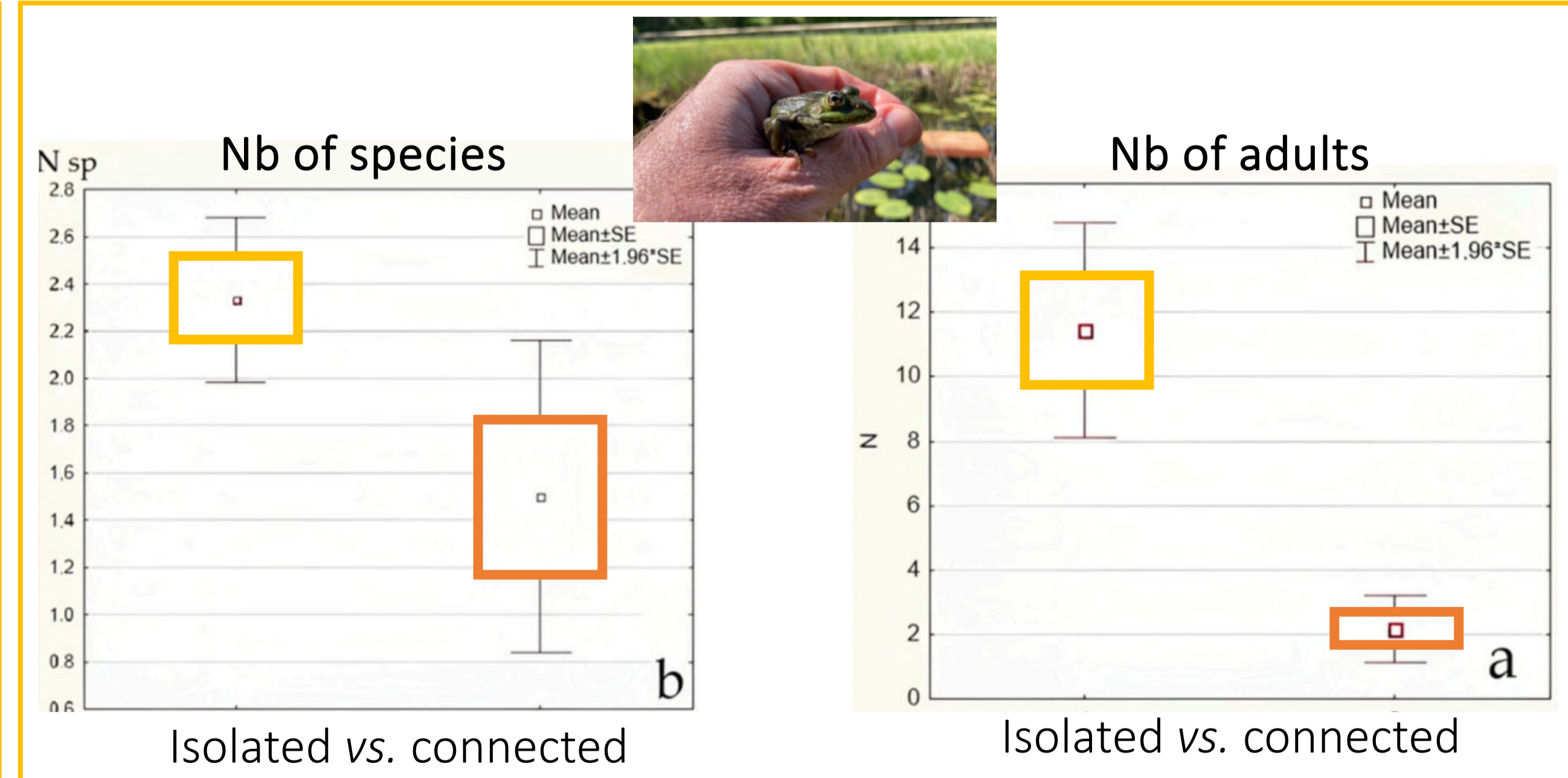
ALL: Public seminars and participatory workshops led to a new paradigm for wetland governance



FR: *Emys* reintroduction (2013-2023) led to 37% survival of released individuals. Predation and low reproduction on site make the population not self-sustainable on the short term



FR: Invasive alien species (e.g. calico crayfish *Faxonius immnis*) benefited post-restoration suitable habitats; adaptive management (experimental adaptive ponds) is tested



LV: For native amphibians, restoring geographically isolated wetlands in presence of invasive predatory fish (e.g. Chinese sleeper *Percottus glenii*) is more appropriate than restoring pondscape connectedness

Emys-R (<https://emysr.cnrs.fr/>) was funded through the 2020-2021 Biodiversa+ and Water JPI joint call for research projects, under the BiodivRestore ERA-NET Cofund (GA N°101003777), with the EU and the funding organisations Agence Nationale de la Recherche (ANR, France, grant ANR-21-BIRE-0005), Bundesministerium für Bildung und Forschung (BMBF, Germany, grant BMBF project number 16LW015), State Education Development Agency (VIAA, Latvia, grant ES RTD/2022/2), and National Science Center (NSC, Poland, grant 2021/03/Y/NZ8/00101). Also supported by LV pond aquaculture project Nr lzp-2021/1-0247; Nr 16-00-F02201-000002, and Long-Term Study in Ecology and Evolution (SEE-Life) program of CNRS, Neu Woerr, France. Dr Oksana Nekrasova was supported by the Collège de France and Agence Nationale de la Recherche ANR through the PAUSE ANR Ukraine programme (grant ANR-23-PAUK-0074).

