

Strasbourg, May 3, 2024



**Call for applicants to the entrance examination (*concours*)  
of the Doctoral School ED414 at University of Strasbourg, France**

**PhD project: Comparative behavioral ecology and ecophysiology of  
the European pond turtle *Emys orbicularis* along a latitudinal gradient**

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Preamble: The Institut Pluridisciplinaire Hubert Curien<sup>1</sup> (IPHC, UMR7178 CNRS-Université de Strasbourg, France) is opening a call for applicants to the entrance examination<sup>2</sup> (*concours*) of the Doctoral School ED414 at the University of Strasbourg, France.

<sup>1</sup>IPHC (<https://iphc.cnrs.fr>) is a large pluridisciplinary laboratory composed of 3 departments. The Department Ecology, Physiology, Ethology is developing research on the adaptive strategies of animal species to natural and anthropogenic environmental constraints. The objective is to assess the survival capacities of species in a rapidly changing world and to provide a scientific basis to support decision-making.

<sup>2</sup>The entrance examination (*concours*) is open to highly-qualified candidates with a Master degree who have been preselected first by the hosting laboratory, and second by the university. The entrance examination (*concours*) consists in a ~10-15' presentation of past and future research by the so-preselected candidates, followed by 10-15' questions-answers, both in front of a jury composed by several scientists of different fields of research in life sciences. This entrance examination (*concours*) is highly competitive and implies that the applicants have top-quality academic records, strong scientific knowledge and appropriate preparation for the examination that is held in physical presence in Strasbourg, 8-10 July 2024.

**Project description**

Context: Wetlands are among the richest ecosystems in terms of biodiversity and biomass. However, it is estimated that on a global scale, 90% of wetland areas have disappeared since the 18th century, leading to the decline of their biodiversity, now accentuated by climate change and biological invasions. In this context, the European pond turtle *Emys orbicularis* (hereinafter "Emys") constitutes a case study: due to the loss of its habitat, this small freshwater turtle has suffered the most important decline of all reptiles throughout Europe. In Europe, its current distribution extends from Spain to Latvia, with major populations around the Mediterranean basin, and smaller, sometimes relict, populations in more continental regions. This raises a major question: what adaptative strategies does the European pond turtle implement for its survival in contrasting environmental contexts along its geographical range?

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Scientific objectives: The PhD candidate will study the behavioral ecology and ecophysiology of European pond turtles from populations facing contrasting environmental conditions along a latitudinal gradient across Europe. From a database collected since 2015 which will be completed during the project by the PhD candidate through additional field and experimental protocols, two major hypotheses will be tested: **\_H1\_** Due to its opportunistic diet, the Emys adjusts its habitat use and its behavior in relation to the seasonal environmental and trophic conditions. Using a **behavioral ecology** approach based on GPS telemetry supplemented by accelerometers deployed on animals moving freely in their environment, will be studied habitat use strategies and behaviors in relation to abiotic and biotic conditions. At the same time, using **biometry** will make it possible to estimate possible links between behavior and health status - an indicator of fitness - of individuals. **\_H2\_** Due to its ectothermal physiology, the Emys adjusts its thermoregulatory behavior along the Spain-France-Latvia climatic gradient. Through an **ecophysiology approach** based on animal-borne accelerometry, infrared thermography and respirometry in controlled conditions, will be studied the time budget and seasonal thermal/energy balances of individuals subjected to climatic conditions currently considered as favorable (Spain), median (France) and extreme (Latvia).



The candidate will analyze existing data and complement it through field and experimental protocols to be implemented. Data mainly consist of **1)** time series of physical parameters (temperature, pressure, light sampled at 1Hz, triaxial accelerometry at 10Hz) collected by new generation of animal-borne autonomous recorders deployed for several continuous months, and **2)** GPS-based movement data collected on free-ranging animals over successive seasons, from which behavioral inferences will be established. In add, the candidate will set **3)** experimental protocols for developing the ecophysiological approach. This will make it possible to identify the environmental and individual determinants of habitat use and survival of pond turtles from populations across its geographical range and provide a scientific basis for decision support for habitat and species management.

This project is part of the Biodiversa+ funded Emys-R project (<https://emysr.cnrs.fr/>) and the Neu Woerr long-term Studies in Ecology and Evolution (SEE-Life) program of the CNRS.

Application procedure: The prerequisites for the application are **1)** the expertise for large time series treatment, processing and analyses, and the ability to interpret signals in physiological, behavioral and ecological terms, **2)** multivariate and spatial statistics, and **3)** the ability in writing scientific publications in English.

The applicants are invited to contact the PhD supervisor (Dr Habil. Jean-Yves Georges, [jean-yves.georges@iphc.cnrs.fr](mailto:jean-yves.georges@iphc.cnrs.fr)) **before 24. May 2024**. Applications should include a detailed CV, marks, scores and ranks during the Master degree(s) and a motivation letter that clearly shows the match between the candidate's expertise and the goals and needs of the project. Considering the highly competitive nature of the entrance examination (*concours*), only highly skilled and motivated candidates are encouraged to apply.