

ECR SPOTLIGHT

ECR Spotlight – Chloé Chabaud

ECR Spotlight is a series of interviews with early-career authors from a selection of papers published in Journal of Experimental Biology and aims to promote not only the diversity of early-career researchers (ECRs) working in experimental biology during our centenary year but also the huge variety of animals and physiological systems that are essential for the 'comparative' approach. Chloé Chabaud is an author on 'Prey consumption does not restore hydration state but mitigates the energetic costs of water deprivation in an insectivorous lizard', published in JEB. Chloé conducted the research described in this article while a PhD student in Jean-François Le Galliard and Olivier Lourdais's lab at Sorbonne Université and La Rochelle Université, France. She is now a post-doc in the lab of Natasha Tigreros at The University of Arizona, Tucson, USA, investigating the evolutionary ecology and physiology of interspecific relationships under climate change.

Describe your scientific journey and your current research focus

I have just finished my PhD on the influence of water balance on trophic interactions in the lizard *Zootoca vivipara*, a terrestrial mesopredator. Using experimental approaches, I demonstrated that water restriction cannot be compensated for by food intake in this species, and food actually exacerbates behavioural conflicts between thermoregulation and hydoregulation. Through laboratory observations, I also investigated the trade-offs between behavioural hydoregulation and predator avoidance, showing that detecting predators via chemoreception increases water loss. My PhD work suggests that the behavioural strategies employed by organisms for thermo-hydoregulation can influence the dynamics of predator-prey relationships.

I am now starting a post-doc to study how stressful environmental conditions can modify resource allocation trade-offs between different life-history traits in butterflies.

How would you explain the main finding of your paper to a member of the public?

In places where water is scarce, terrestrial animals have developed diverse strategies to stay hydrated. For example, they can obtain water from their food. This has been previously demonstrated, but mostly in species adapted to desert environments that were herbivorous (eating mostly plants). But what about lizards? These reptiles feed on a wide variety of invertebrates (insects, spiders, worms...), yet they often depend on free-standing water sources to drink. In this paper, our aim was to investigate whether lizards also rely on the water content of their food to stay hydrated. We focused on the common lizard, an insectivorous species that resides in temperate climates. Our results revealed that these lizards don't gain significant hydration from their food, regardless of the type of invertebrates they consume. However, when lizards consume high-quality insects, it appears to help them save energy and maintain better condition during periods of water scarcity. This study helps us



Chloé Chabaud

understand how lizards deal with a lack of water in their environment and how the food they eat can make a difference.

What are the potential implications of this finding for your field of research?

Our findings help the scientific community to better understand how climate change and particularly modifications of water availability in the environment can modify trophic interactions in terrestrial ecosystems.

What do you think experimental biology will look like 50 years from now?

In the field of evolutionary ecology, I believe that experimental research will shift towards larger scales, focusing on communities and ecosystems, over the next 50 years. This will probably involve using mesocosms equipped with advanced technology to closely monitor environmental factors and biological elements (such as population density and sex ratios) with precision, all without the necessity of interfering with or disrupting the experimental setup.

What changes do you think could improve the lives of early-career researchers, and what would make you want to continue in a research career?

I believe the most challenging aspect lies in the lack of permanent positions available in my country, even after completing one or two post-doc positions. The notion of having to change jobs and countries every 2 years by the time you're 30 can be rather distressing and unsettling, particularly for women who wish to balance a family life with their research career. Opening more research positions available after one post-doc would greatly improve the perspective for early-career researchers.

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Zootoca vivipara basking in an outdoor enclosure at CEREEP Ecotron IleDeFrance, a station dedicated to experimental research in ecology, where Chloé conducted her PhD experiments.

What's next for you?

I'm beginning a post-doc position at the University of Arizona. Even though it's far from home, I'm joining a very welcoming team and the scientific questions I'll be working on are super intriguing, so I'm really looking forward to it!

Reference

Chabaud, C., Brusch, G. A., Pellerin, A., Lourdaï, O. and Le Galliard, J. F. (2023). Prey consumption does not restore hydration state but mitigates the energetic costs of water deprivation in an insectivorous lizard. *J. Exp. Biol.* **226**, jeb246129. doi:10.1242/jeb.246129