© 2023. Published by The Company of Biologists Ltd | Journal of Experimental Biology (2023) 226, jeb246067. doi:10.1242/jeb.246067

ECR SPOTLIGHT

ECR Spotlight – Joe Wynn

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. Joe Wynn is an author on 'Lost: on what level should we aim to understand animal navigation?', published in JEB. Joe conducted the research described in this article while a DPhil student in Prof. Tim Guilford's lab at the University of Oxford, UK. He is now a post-doctoral researcher in the lab of Prof. Miriam Liedvogel and Dr Sandra Bouwhuis at Institut für Vogelforschung, Germany, investigating the mechanisms of bird migration, and how these mechanisms evolve through time.

Joe Wynn

Describe your scientific journey and your current research focus

I was on holiday in France as a kid when I made a bet with my parents who said that I couldn't identify the small black-and-red birds, which I won by correctly identifying them as black redstarts (*Phoenicurus ochruros*). From then, I was hooked. After a lot of indecision, I decided to give in to the inevitable and studied biology at university where – despite really trying to get interested in more 'sensible' subjects (genetics, biochemistry, statistics, plant sciences…) – I was sucked into an undergraduate project on navigation in seabirds. It's no exaggeration to say that in this time I was living the dream; working on shearwaters all night, birding all day and somehow having more parties than I thought it was possible to have. This was largely facilitated by Ollie Padget and Sarah Bond, who played no small part in convincing me to do a PhD. I stayed in Oxford to do this, though Coronavirus more or less wrecked my carefully planned experiments. Instead, I ended up analysing ringing data with super-weird non-parametric statistics, which I guess has kind of become my unintended niche. This has always struck me as really weird, as I gave up maths when I was 16 and found undergraduate statistics deeply uninteresting. Most of these analyses were focused on sensory and cognitive mechanisms of bird navigation, though through it all my interest in the inheritance of migratory information hasn't wavered. When I heard that a position with Miriam [Liedvogel] and Sandra [Bouwhuis] in North Germany was coming up, I leapt at the chance to learn some genomics, and ever since I have been moving towards more evolutionarily focused questions. It's all a bit of a mishmash, but its great waking up in the morning and getting to actually decide what to work on!

How would you explain the main message of your Commentary to a member of the public, and how would you explain the broader impact of research in this area?

Just very simply, I'd suggest that the main message is that the most magical part of animal navigation is just how little we understand about it even now. And that an understanding of navigation is more than just understanding the mechanisms of sensory perception. How do animals construct representations of space in their brains? How do you take a migratory trajectory and encode it on a genome? How important is social learning in determining migratory direction? We've been looking at this stuff for more than a century, and in some respects, for all our progress, we're as clueless about it now as we were then. If that's not magic, I don't know what is.

Is there anything that you learned while writing this Commentary that surprised you?

I'd pitched the Commentary to Miriam originally as more or less a straight-up literature review, but one uncharacteristically sunny weekend in late August – when I was sitting on my balcony, drinking beer and reading Douglas Hofstadter's remarkable book 'I Am A Strange Loop' – I was struck by how similar Hofstadter's arguments about reductionism in the study of consciousness were to the classic ethological questions posited by Tinbergen. This sounds very pretentious, I appreciate, but at the time it felt so genuinely revolutionary that I jotted some very garbled thoughts down. Whilst this thesis has changed a lot through revisions and input from Miriam, it has formed the basis of the Commentary. Although I don't think that Hofstadter's work is all completely relevant to animal

Joe Wynn's contact details: Institut für Vogelforschung, An der Vogelwarte 21, Wilhelmshaven, 26386, Germany.
E-mail: joseph.wynn@ifv-vogelwarte.de

Journal of Experimental Biology (2023) 226, jeb246067. doi:10.1242/jeb.246067

A wood warbler being released following 'ringing' this year. Ringing involves attaching uniquely numbered metal rings to the legs of birds, and has been used to record migratory movements for over a century. These data are tremendously valuable, and have formed the bedrock of my scientific career so far. Photo credit: Corinna Langebrake.

behaviour, I find his argument about how the scale over which one studies a phenomenon necessarily shapes the conclusions drawn to be an essential lesson in my scientific development. If people only take one thing from this paper, I hope that it's that.

What do you see as the main value of Review/Commentary-type articles?

Whilst I think that Reviews/Commentaries are a good vehicle for synthesis, and to sum up advances in the field, I think perhaps the main value is as an object to inspire discourse and debate. Commentaries especially shouldn't shy away from being thought provoking, but should do this in as respectful a way as possible; it's easy to forget that at the end of each citation is a person who more often than not is just doing their best! I also think that Commentaries should be fun, and should try to be creative in the way they express a point of view. I would hope that our piece is read in this spirit; it's not intended as a comprehensive overview, rather as a good-humoured point of reflection both for me and Miriam and (hopefully!) for the field more widely.

Are there any important historical papers from your field that have been published in JEB?

There are really too many to choose from! For me, the number one would have to be Geoffrey Matthew's 1953 paper 'Navigation in the Manx shearwater' (doi:10.1242/jeb.30.3.370). This really emphasises what can be achieved with an experimental approach, and I was lucky enough to see the notebooks he used to record these results. Apart from the scientific contributions, the human endeavour required for this study has always struck me as amazing; in many respects, it's such a humbling achievement and has for sure inspired me when designing my own experiments and analyses.

Are there any modern-day JEB papers that you think will be the classic papers of 2123?

Anna Gagliardo's 2013 Commentary, 'Forty years of olfactory navigation in birds' (doi:10.1242/jeb.070250), has had a huge impact on me, as has her study with Joël Bried, Paolo Lambardi, Paolo Luschi, Martin Wikelski and Francesco Bonadonna on displacement in shearwaters, 'Oceanic navigation in Cory's shearwaters: evidence for a crucial role of olfactory cues for homing after displacement', published the same year (doi:10.1242/jeb.085738). The simplicity of the experimental design is just super cool – and the conclusions are really hard to argue with! I'd also put Nikita Chernetsov, Peter Berthold and Ulrich Querner's 2004 tracking study with storks, 'Migratory orientation of first-year white storks (*Ciconia ciconia*): inherited information and social interactions' (doi:10.1242/jeb.00853), in the same bracket. Again, a very cool manipulation that tells us an awful lot.

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?

If I were to be specific, I'd suggest that as a community we appreciate that emigrating/moving away is a privilege that not everyone can indulge in. Moving to Germany and living as an immigrant – albeit a very privileged one – has been quite challenging, and without a level of support that not everyone has access to I might have really struggled. I think an acknowledgement of how emotionally, logistically and bureaucratically hard emigration can be is the first step towards understanding (a) that uprooting your life post-PhD cannot be a given and (b) that to do so requires an awful lot of support. I feel this opinion is already shifting, but I feel that expediting this process might improve the lives of ECRs a lot.

What's next for you?

I'm off to Poland to retrieve some geolocators next month, then I'm radiotracking robins and then I'm GPS tracking gulls. I try and think about the long-term, and have got plans to develop two study systems over the next few years, but being realistic I just want to be able to study birds and ask questions I find interesting, without being unemployed, for as long as possible. I feel that studying animal behaviour is meant to be fun, and so I try to focus on enjoying my science and not getting overwhelmed with all the extraneous stuff that gets in the way of that.

Reference

Wynn, J. and Liedvogel, M. (2023). Lost: on what level should we aim to understand animal navigation? *J. Exp. Biol.* **226**, jeb245441. doi:10.1242/jeb.245441