

John D. Kirwan

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Relevant Employment

Postdoctoral researcher (Oct 2019-Present). Stazione Zoologica Anton Dohrn, Naples, Italy. I research the photic behaviour of sea urchins as part of an international HFSP collaboration. This entails designing and carrying out behavioural experiments and statistical analysis.

Project manager (Jun-Jul 2019). Lund Vision Group, Lund University. Carried out vision science behavioural experiments and analysis using R, MatLab and Python.

Doctoral researcher (2013-2018). Lund Vision Group, Lund University. My PhD research concerned simple visual systems in diverse animals and how well these systems can be used to see. I investigated the visual systems of understudied species using novel methods and introduced more sophisticated means of analysis than have conventionally been applied.

Expedition assistant leader (2013). Lowest to Highest for Cancer Expedition, Nepal. I was the assistant leader and first aid officer for a Jordanian charity expedition to Mount Everest base camp. The successful 11-day expedition included 18 participants.

Research assistant (2012-2013). School of Natural Sciences, Trinity College Dublin. I contributed to R code, which was used in the stable isotope analysis packages SIAR (a package for stable isotope analysis using Bayesian modelling) and SIBER (which measures ecological niche breadth).

Skills

Programming: Proficient in R and MATLAB, familiar with Python, Stan, BASH, and Git.

Writing: Deeply interested in scientific writing. Took lead in role in writing and editing first author research articles. Earned distinction in Stanford Online 'Writing in the Sciences' course.

Teaching: Supervised student labs for advanced Sensory Biology and Neurobiology courses and the introductory Zoology course at Lund University throughout my PhD. I graded reports and contributed to improvements in the lab structure in each case.

Supervision: Supervised three student projects concerning animal vision during my PhD and subsequently co-supervised one masters project and one student project at Lund University.

Administration: Secretary of LU Science PhD student council (2014-2015) and representative for LU Biology PhD student council (2014-2017). Member of organizing committee of BLAM student annual meeting for 2015.

Language: Native English speaker, fluent Swedish, limited Irish Gaelic and Spanish.

Design: Very proficient with Adobe illustrator; proficient with Adobe photoshop.

Further information: EU B driving licence, Mountain Leader award (professional hillwalking leadership qualification) holder.

Education

PhD (2013-June 2018). Biology. *Spatial vision in diverse invertebrates*. Lund University, Sweden.

Research MSc (2008-2010). *Molecular evolution of hearing*. University College Dublin, Ireland.

BSc Science (2004-2008). Zoology. First class honours (First in class). University College Dublin, Ireland.

Publications

Sumner-Rooney, L., Kirwan, J.D., Lüter, C., & Ullrich-Lüter, E. (2021). Run and hide: Visual performance in a brittle star. *Journal of Experimental Biology* **224**, jeb.236653.

Olsson, P., Johnsson, R.D., Foster, J.J., Kirwan, J.D., Lind, O., & Kelber, A. (2020). Chicken colour discrimination depends on background colour. *Journal of Experimental Biology* **223**, jeb.209429.

Sumner-Rooney, L., Kirwan, J.D., Lowe, E. & Ullrich-Lüter, E. (2020): Extraocular Vision in a Brittle Star Is Mediated by Chromatophore Movement in Response to Ambient Light. In: *Current Biology* **30**, 319-327.

Kirwan, J.D. & Nilsson, D-E. (2019): A millipede compound eye mediating low-resolution vision. In: *Vision Research* **165**, 36-44.

Foster, J.J., Kirwan, J.D., el Jundi, B., Smolka, J., Khaldy, L., Baird, E., Byrne, M.J., Nilsson, D-E., Johnsen, S. & Dacke, M. (2019): Orienting to polarized light at night - matching lunar skylight to performance in a nocturnal beetle. *Journal of Experimental Biology* **222**, jeb.188532.

Kirwan, J.D., Bok, M.J., Smolka, J. Foster, J.J., Hernández, J.C., Nilsson, DE. et al. (2018): The sea urchin *Diadema africanum* uses low-resolution vision to find shelter and deter enemies. In: *Journal of Experimental Biology* **221**, jeb.176271.

Kirwan, J.D., Graf, J., Smolka, J., Mayer, G., Henze, M.J. & Nilsson, D-E. (2018): Low-resolution vision in a velvet worm (Onychophora). *Journal of Experimental Biology* **221**, jeb.175802.

Kirwan, J.D., Bekaert, M., Commins, J.C., Davies, K.T.J., Rossiter, S.J. & Teeling, E.C. (2013): A phylomedicine approach to understanding the evolution of auditory sensory perception and disease in mammals. In: *Evolutionary Applications* **6**, 412-422.

Davies, K.J., Cotton, J.A., Kirwan, J.D., Teeling, E.C. & Rossiter, S.J. (2011): Parallel signatures of sequence evolution among hearing genes in echolocating mammals: an emerging model of genetic convergence. In: *Heredity* **108**, 480-489.