

Kevin Healy

Zoology PhD Candidate at Trinity College Dublin

Theoretical evolutionary ecologist with diverse quantitative skills focusing on comparative analysis and energetic modelling to understand trophic interactions at ecological and evolutionary scales.

Date of Birth: 16: 3: 1989

Nationality: Irish

Email: healyke@tcd.ie

Websites: College Webpage

Personal Webpage

Twitter: @healyke

Academic Publications

Healy, K., Guillaume T., Finlay, S., Kane, A., Kelly, S.B.A., McClean, D., Kelly, D.J., Donohue, I., Jackson, A.L. and Cooper, N., 2014. Ecology and mode-of-life explain lifespan variation in birds and mammals. *Proceedings of the Royal Society B*, 281(1784). DOI: 10.1098/rspb.2014.0298

My second full peer-reviewed paper as lead author. I developed and carried out the main analysis and was heavily involved in the initial conception, data collection and writing of the manuscript.

Healy, K., McNally, L., Ruxton, G., Cooper, N. and Jackson, A.L. 2013. Metabolic rate and body size linked with perception of temporal information. *Animal Behaviour*. 86, 685-696.

My first full peer-reviewed paper as lead author. I carried out the data collection, statistical analysis and writing of the paper. It was widely picked up in the media and is currently the most downloaded paper from the journal website

Donohue, I., Petchey, O.L., Montoya, J.M., Jackson, A.L., McNally, L., Viana, M., **Healy, K.**, Lurgi, M., O'Connor, N.E. and Emmerson, M.C. 2013. On the dimensionality of ecological stability. *Ecology Letters*. 16, 421-429.

This was my first full peer-reviewed paper. I was involved in both the development of the conceptual framework during a three-day workshop and also in the development of the statistical analysis used to produce the multidimensional ellipsoids.

Education

2011-Present: PhD in Zoology, Trinity College Dublin

Thesis: General scaling of predator-prey interactions.

This is a four-year project, supervised by Dr. Andrew Jackson and Dr. Andrew Parnell of UCD. I am investigating how various ecological and physiological traits such as sensory perception, maneuverability and lifespan define the ability of individuals to interact with one another. In particular I am interested in traits associated with scaling relationships such as mass and metabolic rates and how these traits link towards more complex structures across levels from individual shoaling behavior to ecosystem stability. I have 2 peer-reviewed publications in international journals to date arising from my PhD project. Funded by the HEA through the PRTL-5 and co-funded by the ERDF.

2007-2011: B.A. Mod in Zoology, First class honours and Gold Medal, Trinity College Dublin
Thesis: "Fractal structure of intestinal parasite communities in the field mouse".

In this project I showed that the distribution of intestinal parasite body sizes follows a distribution predicted from the fractal structure of the mouse intestine. (Overall mark of 82%).

2010: Ureka research position in SoMER (Summer of Molecular Evolution Research) program, National College of Ireland Maynooth.

Ten week program under the supervision of Dr. Christen Griffen researching the evolutionary divergence of several morphs of the entomopathogenic nematode species found on an artificial island in Dublin bay. My time as an intern was spent helping to develop the sequencing techniques used to investigate the divergence of the nematode morphs associated with different symbiotic bacteria strains.

Awards and Grants

- 2011: Ph.D. TCD in Theoretical Ecology.
Funded by the HEA through the PRTLI-5 and co-funded by the ERDF. (€72,000)
- 2011: Awarded Gold medal by TCD for exceptional merit at degree examinations in final year of B.A Mod. Zoology by achieving an overall final year mark of 77%.
- 2010: Ureka research position in SoMER (Summer of Molecular Evolution Research) program National College of Ireland Maynooth (funded by Science Foundation Ireland) (€3000)

Conference presentations

- 2014: Trinity College Dublin Zoology and Botany Postgraduate Symposium: Talk "The evolution of Toxicity in Snakes, Quantity over Quality?"
- 2014: University College Dublin Earth Institute Industry and enterprise showcase: Poster "Ecology and mode-of-life explain lifespan variation in birds and mammals"
- 2013: ESEB XIV Congress, Lisbon, Portugal: Fifteen minute talk and poster presentation
Talk: "Metabolic rate and body size linked with perception of temporal information"
Poster: "Ecology and mode-of-life explain lifespan variation in birds and mammals"
- 2013: British Ecological Society Macroecology SIG meeting: Talk "Metabolic rate and body size linked with perception of temporal information"
- 2013: University College Dublin Earth Institute Industry and enterprise showcase, University of Sheffield: Talk "Metabolic rate and body size linked with perception of temporal information"
- 2013: Trinity College Dublin Zoology and Botany Postgraduate Symposium: Talk "Metabolic rate and body size linked with perception of temporal information"
- 2012: IsoEcol: International Conference on Applications of Stable Isotope Techniques to Ecological Studies, Brest, France: Talk "Accounting for the process of foraging in source-level variation in isotopic mixing models."

Workshops and skills

Workshops

- 2013: Spatial Analysis in R Workshop, Barry Rowlingson, University of Sheffield
- 2013: Introduction to Morphometrics Workshop, Francois Gould, Trinity College Dublin
- 2013: IUCN Red List of Ecosystems Workshop, Edmund Barrow, Trinity College Dublin
- 2012: Introduction to Bayesian analysis using WinBugs, David Lund, University of Cambridge
- 2012: Innovation Academy Creative thinking workshop, Trinity College Dublin
- 2012: Innovation Academy Film production workshop, Trinity College Dublin
- 2012: Introduction to the website management software DreamWeaver, Trinity College Dublin
- 2011: Introduction to Stable Isotope Mixing models, Andrew Jackson, Trinity College Dublin
- 2009: Mayfly Species Identification workshop, Mary Kelly Quinn, National Biodiversity Data Centre

Skills

- Shape analysis with geometric morphometrics (TPS software series, geomorph R package)
- Phylogenetic comparative methods in R (ape, geiger, phytools packages)
- Version control and data sharing: GitHub and Figshare accounts
- Document creation and formatting with LaTeX
- Database management with Microsoft Access

Science communication

Writing

Author of the *Weird and Wonderful Animal* series for Science Spin magazine
Feature articles for Science Spin
Ask a Scientist panel member, Science Spin
Science articles for Trinity News
Administrator for the EcoEvo@TCD blog (2013/2014)
Regular contributor to the EcoEvo blog - <http://www.ecoevoblog.com/>
Blog posts for science.ie, the Society of Biology and Study2U
Ecology and evolution articles for Walton Magazine

Teaching

Junior Freshman: Introduction to Biology
Junior Freshman: Introduction to Evolution, Biodiversity and the Environment
Senior Freshman: Physiology
Junior Sophister: Data handling
Senior Sophister: Evolution
Senior Sophister: Statistics
Biodiversity and Conservation MSc: statistics

Other

April 2014: Volunteer organiser for the first Soapbox Science Ireland event
November 2013: Winner of the Lithium zone in "I'm a scientist get me out of here"
Summer 2013: Tour guide for the Zoology Museum, TCD