

Tim CD Lucas

PERSONAL INFORMATION

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EDUCATION

PhD 2012–present University College London, CoMPLEX
Thesis: *Social structure and network epidemiology in bat zoonoses*
Description: I am using *complex networks* to study the epidemiology of bat-borne diseases. As bats carry a number of important *zoonotic diseases*, understanding the spread of these diseases within the bat population and how this affects spillover to humans and livestock is increasingly important. The unusually social nature of bat populations will strongly affect how diseases spread.
Advisors: Prof. Kate JONES & Dr Hilde WILKINSON-HERBOT

MRes 2011–2012 University College London, CoMPLEX
Modelling Biological Complexity · Merit
Description: This was part of a combined MRes/PhD Program. It is an interdisciplinary course applying *quantitative methods* to the life sciences.

MBioSci 2006–2010 University of Sheffield, Animal & Plant Sciences
Zoology · First
Description: For my final project I used *wavelet* analysis to study multi-annual *cycles in malaria* incidence in Thailand.

RESEARCH EXPERIENCE

Internship Autumn 2014 Zoön: An R package for reproducible SDMs
I wrote the first version of an R package for *reproducible* Species Distribution Modelling. The package uses an online repository of user submitted ‘modules’ to allow the software to keep up with this fast moving field and allow analyses to be completely reproducible. [[Github](#)]

Summer Project Summer 2012 Estimating abundances using acoustic data
I adapted ‘*ideal gas*’ models to acoustic data. I applied the model using R to a pan-European bat survey. We have worked on this project further, validating results with simulations, and are now preparing a manuscript for publication.

Case Presentation May 2012 Pair approximations in spatial biology
I compared a number of moment closures for a *pair-approximation* model of tree population growth to lattice simulations written in Mathematica. [[pdf](#)]

Case Presentation Dec. 2011 Gaussian processes for bat identification
I applied a novel *machine learning* method to a library of *bat calls* in Matlab. I compared the effectiveness of this method to standard machine learning methods applied in R. [[pdf](#)]

August 2011 Smithsonian Tropical Research Institute

<i>Volunteer Fieldwork</i>	Two months fieldwork in Panamá on two projects: studying <i>Anolis dewlap</i> evolution and studying gut length plasticity in Red-eyed tree frogs.
	<i>May 2011</i> Chiloé Silvestre, Chile
<i>Volunteer Fieldwork</i>	I spent two weeks field work trapping Darwin's foxes in Chile to collect samples for geophylogenetics.
	<i>August 2010</i> University of Sheffield
<i>Summer Internship</i>	I studied the evolutionary response of plant communities to climate change with Dr Raj Whitlock. I collected, propagated and analysed plants collected from the field.
	<i>August 2009</i> University of York, YCCSA
<i>TRANSIT Internship</i>	I studied collective foraging behaviour by programming a <i>complex 3D foraging simulation</i> in Java with Dr Jamie Wood and Dr John Pritchard at the York Centre for Complex Systems Analysis.

PUBLICATIONS

- 2014 **Lucas TCD***, Moorcroft EA*, Free R, Rowcliffe MJ, Jones KE. (2014) *A generalised random encounter model for estimating animal density with remote sensor data*. Methods in Ecology and Evolution. In Review.
- 2013 Walters CL, Collen A, **Lucas TCD**, Mroz K, Sayer CA and Jones KE. (2013) Challenges of Using Bioacoustics to Globally Monitor Bats. in *Bat Evolution, Ecology, and Conservation*. Springer New York. 479-499.

* Co-first authors.

COMPUTER SKILLS

<i>Languages</i>	R (seven years), Python, Matlab, Mathematica, Java.
<i>OS</i>	Comfortable with Windows, Mac or Linux.
<i>Other</i>	Experience in Git/Github, unit testing, LaTeX, web design, markdown.

OTHER INFORMATION

<i>Meetings</i>	2014 · Presentation at CEH, Wallingford seminar series.
	2014 · Presentation at <i>id2oxford</i> conference.
	2014 · Poster at the CoMPLEX conference.
	2013 · Presentation at BritBats 2 [<i>Slides</i>].
	2013 · Invited attendance at <i>ecoVIZ</i> Tansley workshop.
	2013 · Poster at the CoMPLEX conference and ID2 conference. [<i>pdf</i>]
<i>Teaching</i>	2013–2014 · Online tutor for <i>SYSMIC</i> , a course for teaching quantitative skills to biologists.

October 16, 2014