Tim CD Lucas

PERSONAL INFORMATION

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EDUCATION

2012–present **University College London, CoMPLEX**

PhD

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

2011–2012 **University College London, CoMPLEX**

MRes

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.

2006–2010 **University of Sheffield, Animal & Plant Sciences**

MBioSci

Zoology · **First**
Description: For my final project I used *wavelet* analysis to study multi-annual *cycles in malaria* incidence in Thailand.

EXPERIENCE

Summer 2012 **Estimating abundances using acoustic data**

Summer Project

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.

May 2012 **Pair approximations in spatial biology**

Case Presentation

I compared a number of moment closures for a *pair-approximation* model of tree population growth to lattice simulations written in Mathematica. [pdf]

Dec. 2011 **Gaussian processes for bat identification**

Case Presentation

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**

Volunteer Fieldwork

Two months fieldwork in Panamá on two projects: studying *Anolis* dewlap evolution and studying gut length plasticity in Red-eyed tree frogs.

May 2011 — Chiloé Silvestre, Chilé

Volunteer Fieldwork

I spent two weeks field work trapping Darwin's foxes in Chilé to collect samples for geophylogenetics.

August 2010 — University of Sheffield

Summer Internship

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.

August 2009 — University of York, YCCSA

TRANSIT Internship

I studied collective foraging behaviour by programming a *complex 3D foraging simulation* in Java with Dr Jamie Wood and Dr John Pritchard at the York Centre for Complex Systems Analysis.

PUBLICATIONS

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.

COMPUTER SKILLS

Languages — R (6 years), Python, Matlab, Mathematica, Java.

OS — Comfortable with Windows, Mac or Linux.

Other — Experience in Git/Github, unit testing, LaTeX, web design, markdown.

OTHER INFORMATION

Meetings

- 2014 · Poster at the CoMPLEX conference.
- 2013 · Presentation at BritBats 2 [Slides].
- 2013 · Invited attendance at ecoVIZ Tansley workshop.
- 2013 · Poster at the CoMPLEX conference and ID2 conference. [pdf]

Teaching

2013–2014 · Online tutor for SYSMIC, a course for teaching quantitative skills to biologists.

June 5, 2014