Thomas Smallwood — *Curriculum Vitae*

CONTACT INFORMATION

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RESEARCH INTERESTS

Epidemiology; Biodiversity; Conservation; Global Climate Change Ecology; Ecoinformatics

EDUCATION

Imperial College London, School of Public Health, St Mary's Campus, Paddington, London, UK

PhD Public Health Science **November 2015 – Present**

- NERC Science and Solutions for a Changing Planet Doctoral Training Programme
- Supervisors: Professor Christl Donnelly (ICL) & Professor Rosie Woodroffe (ZSL)
- Case partner: Wildlife Conservation Society
- Project title: Modelling multi-host viral pathogens for biodiversity conservation

  Viral pathogens, in particular those that can be trasmitted between multiple host species, have contributed to local extinctions and population declines in a wide range of taxa and in all major ecosystems. As a result, disease is being increasingly recognised as a major threat to biodiversity. This project aims to apply epidemiological tools to quantitatively assess the circumstances under which intervention is required to conserve threatened populations and the most effective intervention strategies to achieve this. This will be applied to two key case studies: rabies in African wild dogs, and ebola in Western gorillas and chimpanzees.

Imperial College London, Department of Life Sciences, Silwood Park Campus, Ascot, UK

MSc Computational Methods in Ecology and Evolution **October 2014 – September 2015**

- Pass with Distinction and Diploma of Imperial College
- Research Project: The effects of temperature on the population dynamics of disease vectors.
  Supervisors: Dr Samraat Pawar & Dr Lauren Cator
  As the majority of disease vectors are ectotherms, there is a need for models in order to develop a framework for predicting the effects of climate change on vector population dynamics. In this project, a novel, mechanistic life history theory-based model of the population density of disease vectors was developed. Incorporating the thermal sensitivity of life history traits allowed for the exploration of the impact of temperature on vector population density. The sensitivity of this model and the potential impacts of mismatches in optimum temperature at different vector life stages was also investigated. The results were considered in the context of R_0 and the transmission of vector-borne disease.

University of York, Department of Biology, Heslington, UK

BSc Biology with a Year in Europe **October 2010 – July 2014**

- 1st (Hons)
- ERASMUS placement year at the Evolutionsbiologisk Centrum, Uppsala Universitet, Sweden
- Specialised in ecology and ecological genetics
- ERASMUS Project: Studying the genetic structuring of capercaillie (*Tetrao urogallus*) populations in northern Sweden and investigating the impact of landscape features
  Supervisor: Professor Jacob Höglund
- Final Year Project: Determining national susceptibility to biotic invasion using surrogate measures
  Supervisor: Professor Chris Thomas

FUNDING

NERC Science and Solutions for a Changing Planet Doctoral Training Programme, 2015

ACADEMIC AWARDS AND ACTIVITIES

Ede & Ravenscroft Prize for academic excellence and outstanding contribution to the department and university life, 2011
Head of Department's Prize for contribution to the department and university, 2014
Course Representative, University of York Biology Department, 2010-11, 2011-12, 2013-14
Chair, University of York Biology Department Student- Staff Liaison Group, 2011-12
Student Representative, University of York Biology Ethics Committee, 2010-11, 2011-12
Membership:

- Royal Society of Biology
- British Ecological Society

University of Montana Ecological Field Skills Course, August 2013

- Grade: A

Research Experience

Westwind Expedition, South Georgia

Expedition Member **October 2015**

Assisted on a scientific expedition to South Georgia in the sub-Antarctic. Extracted a exploratory ice core and used ice penetrating radar to determine the depth of a number of glaciers.

Reef Conservation International, Punta Gorda, Belize

Marine Conservation Intern **August 2014 – September 2014**

Intern working on conservation in the Port of Honduras Marine Reserve. Responsibilities included performing a range of surveys, assisting in educating guests on the island and assisting in developing new monitoring studies.

Evolutionsbiologiskt Centrum, Uppsala Universitet, Uppsala, Sweden

ERASMUS Placement Student **August 2012 – June, 2013**

Ten month placement in the Department of Population Biology and Conservation Biology with Jacob Höglund's research group. During this time I worked on the ecological genetics of capercaillie in Sweden. In addition to developing laboratory and analytical skills, this project developed my organisational and time management skills. Being a member of a lab group also developed my presentation skills and my ability to critically evaluate scientific literature.

Earthwatch International, Ankarafantsika National Park, Madagascar

Volunteer Field Assistant **July 2009**

Assisted in field work monitoring the fossa popualtion in Ankarafantsika National Park, as well as additional work on conservation and educating local communities on conservation, sustainability and the value of the fossa as a form of pest control.

Research Skills

Modelling: Modelling can provide a powerful tool for developing an understanding of ecological systems. Working mainly in R and Python, I have experience modelling population dynamics and am now working on epidemiological models.

Statistical analysis: Statistical and quantitative skills are essential to ecology and are therefore an aspect I focussed on during my degree, choosing a project with a significant analytical component. Furthermore, statistical and quantitative analysis are core aspects of the MSc in Computation Methods in Ecology and Evolution, further developing these skills. I'm experienced in using a number of statistical programmes including R and mathematical computing in Python.

Computational skills: The MSc in Computation Methods in Ecology and Evolution has given me the opportunity to develop my computational skills, including learning multiple programming languages and the use of high performance computing. I also have experience in using a range of specialised programs, including for GIS, population genetics and biodiversity.

Academic writing: Correct academic writing style is an essential skill, and one I developed through writing a range of reports and essays. This includes a number of extended research projects, such as my ERASMUS placement year project, dissertation, and masters thesis. I continue to develop these skills by taking postgraduate skills courses in academic writing and writing literature reviews. I am also adept at producing documents in both Microsoft Word and in LaTeX.

Presentation skills: The ability to present one's research is an essential skill. I have developed this skill through presentations, posters, and vivas through-out my time in higher education, including at an internal symposium at the Evolutionsbiologiskt Centrum, Uppsala University. This has been aided by my role as a course representative and chair of the Student-Staff Liaison Group while at the University of York.

Teamwork: Collaborative projects and my work as a course representative have developed my ability to work as a member of the team during my degree. However, the greatest challenges came while working on remote projects in Costa Rica, Madagascar and the sub-Antarctic which required collaboration and communication in remote and challenging conditions.

Other Activities

I enjoy travelling and have done so extensively, often spending time working on conservation and community projects in countries such as Costa Rica, Madagascar and Belize.

As an undergraduate, I was involved in a range of clubs and societies, in particular the Skydiving Club, and represented the University of York in athletics. Since joining Imperial I've been involved in a number of sports and been elected Silwood Union Sports Officer.

I am also a keen scuba diver, recently completing the PADI Rescue Diver qualification, and alpinist.