University of Birmingham

Dr Jim Reynolds DPhil

Lecturer in Ornithology and Animal Conservation

School of Biosciences (/schools/biosciences/index.aspx)

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About

Dr Jim Reynolds has worked on the reproductive biology and the nutritional ecology of birds from many different and diverse orders including passerines, geese, grouse, kingfishers and terns. He has worked in North America and in mainland Europe in investigating how human activity influences food availability and the resulting changes in avian reproductive investment and life histories. He employs state of the art technologies and traditional methods in field ornithology in spear-heading research into the foraging ecology of free-living birds in the UK, in the UK's Overseas Territories and elsewhere.

Qualifications

BSc (University of Southampton)

MScF (University of Toronto)

DPhil (University of Oxford)

Biography

Dr Jim Reynolds was born in Northampton and remained in the Midlands where he attended school in Warwick before studying Biology at the University of Southampton. He carried out applied graduate work (MScF) in the Faculty of Forestry at the University of Toronto where he was a rarity studying wildlife of boreal forests rather than the 'crop' itself. He returned to the UK and to graduate work (DPhil) at the University of Oxford where his interests in nutritional ecology and physiology grew. He then returned to North America to apply his interests in foraging ecology to the conservation of a Federally Threatened bird species in the southern USA. Although he continues to collaborate on this Florida Scrub-Jay (*Aphelocoma coerulescens*) project, he is now a lecturer in ornithology and animal conservation at Birmingham.

Teaching

Dr Reynolds teaches on three years of the undergraduate programme with a particular emphasis on the reproductive biology, physiology, ecology and behaviour of birds.

He is Module Leader for the first-year animal biology course BIO145 (Introduction to Evolution and Animal Biology), and he also lectures on BIO234 (Ecology), BIO372 (Conservation Biology) and BIO392 (Advanced Topics in Animal Behaviour).

Furthermore, Dr Reynolds runs a final-year module to south-central Florida when students collect data on endangered fauna for their honours projects.

Dr Reynolds' teaching employs the theoretical and practical approaches that he employs in his research, allowing students to understand how investigations are founded in good biological understanding and that techniques that have been established for decades can still generate data that are useful and progress our knowledge in key subject areas. This is at the heart of his teaching philosophy where students should have a good grounding in theoretical and applied components of core ecological and behavioural principles in order to call themselves whole animal biologists.

Postgraduate supervision

I have supervised seven PhD students to completion with the following thesis titles:

- Is eggshell pigmentation a condition-dependent strategy? Implications for egg crypsis in Japanese quail. (2014)

- Breeding and population ecology of Sooty Terns on Ascension Island. (2014)

- The ecological and structural functions of avian eggshell pigmentation. (2013)

- Assessing the ecological significance of linkage and connectivity for avian populations in urban areas. (2013)

- The role of food availability in determining the energetic and life history costs of reproduction in short-lived birds. (2012)

- From nest building to life-history patterns: Does food supplementation influence reproductive behaviour of birds? (2011)

- A curate's egg: feeding birds during reproduction is 'good in parts'. A study of Blue Tits *Cyanistes caeruleus* and Great Tits *Parus major*. (2010)

For a list of possible PhD projects offered by Dr Reynolds **www.findaphd.com/search/customlink.asp?inst=birm-Biol&supersurname=Reynolds (http://www.findaphd.com/search/customlink.asp?inst=birm-Biol&supersurname=Reynolds)**

Research

Research Theme within School of Biosciences: **Organisms and Environment (/research/activity/organisms-environment/index.aspx)**

The reproductive biology of birds

Profile

- BSc 1987 University of Southampton, Biology
- MScF 1993 University of Toronto, Avian physiology
- DPhil 1998 University of Oxford, Avian reproductive biology
- 2000-2002 Postdoctoral research fellow at the University of Memphis (TN) and Archbold Biological Station (FL)
- 2003- Lecturer in Ornithology and Animal Conservation at the University of Birmingham

Research interests

Nutrient acquisition and utilisation by reproductive birds

Acquisition and utilisation of nutrients for reproduction require considerable energetic and temporal investments on the part of the breeding bird. Dr Reynolds is interested in how endogenous and exogenous nutrient-use is mediated during breeding attempts.

Past research has focused on macronutrient use by Florida Scrub-Jays (*Aphelocoma coerulescens*) and micronutrient use by Zebra Finches (*Taeniopygia guttata*). He continues to study further aspects of nutrient-limited reproduction in small passerines. Current research examines the influences of food supplementation on various reproductive parameters of garden and woodland birds, including timing of laying, clutch size, chick growth and survival, fledging success and mid and long-term survival (e.g. recruitment to the breeding population), and investigations of the energetic investment of reproductive phases.

He is also examining the functional significance of pigmentation patterns of eggshells (with Dr Phill Cassey at the University of Adelaide, and Dr Vallo Tilgar and Prof. Raivo Mänd at the University of Tartu, Estonia). Future research will continue to focus on various impacts of food availability on life-history parameters and future work will use controlled aviaries to examine the reproductive consequences of nutrient limitation.

Dr Reynolds also undertakes research on the breeding biology of the Sooty Tern (*Onychoprion fuscata*) colony on Ascension Island in the south Atlantic where he works on their population dynamics including threats to colony stability, movements of birds during and between breeding seasons, and the breeding cycle. He collaborates with Prof. Alistair Dawson (Centre for Ecology & Hydrology, Edinburgh) and Prof. Chris Feare (University of Leeds) among others.

He has a number of external collaborators including: Dr Andrew Gosler (Edward Grey Institute of Field Ornithology, University of Oxford) and Dr Ivan Miksik (Academy of Sciences of the Czech Republic) - functional significance of eggshell pigmentation in Great (*Parus major*) and Blue (*Cyanistes caeruleus*) Tits; Drs Stuart Bearhop and Jon Blount (University of Exeter at Falmouth) - further studies of food supplementation, including the use of stable isotope analysis; Prof. Marcel Visser (Netherlands Institute of Ecology, Heteren, The Netherlands) - reproductive energetics of small passerines; Dr Kim Fernie (Canadian Wildlife Service, Burlington, Ontario, Canada) - effects of electromagnetic fields on breeding performance of Tree Swallows (*Tachycineta bicolor*); Prof. Steve Schoech (University of Memphis, Memphis, TN, USA), Dr Reed Bowman (Archbold Biological Station, Venus, FL, USA) and Dr Annette Sauter (Swiss Ornithological Institute, Sempach, Switzerland) - food availability and reproductive performance of Florida Scrub-Jays.

His group has also hosted a number of overseas students under the IAESTE scheme run by the British Council. They have included students from Brazil, Croatia, Mongolia, Ivory Coast, Poland, Serbia and the USA who were trained in ornithological techniques both in the laboratory and in the field.

Current active projects include:

- The functional significance of eggshell pigmentation in garden birds (Kaat Brulez) and quail (Camille Duval) (co-supervisor: Dr Phill Cassey, Adelaide)
- Assessing the ecological significance of linkage and connectivity for avian biodiversity in urban areas (Emma Rosenfeld; with co-supervisors - Drs Jon Sadler & Adam Bates, GEES)
- The effects of supplementary feeding on the reproductive biology of garden birds (Simone Webber)
- The population dynamics of Sooty Terns (*Onychoprion fuscata*) on Ascension Island in the south Atlantic (John Hughes)

Other activities

Dr Jim Reynolds is a keen contributor to activities of the British Ornithologists' Union including committee work concerning scientific meetings and their publications. He is an Associate Editor of *Ibis*, their journal. He travels extensively for both work and leisure.

Publications

Reynolds, S.J., G.R. Martin, A.S. Dawson, C.P. Wearn and B.J. Hughes. 2014. The sub-annual breeding cycle of a tropical seabird. *PLoS ONE* **9**(4): e93582. doi:10.1371/journal.pone.0093582.

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Expertise

Reproductive biology of birds; nutrient acquisition and utilisation by birds; significance of eggshell pigments; impacts of high-voltage power lines on breeding performance of birds; life history patterns of birds; birds in towns and cities; Ascension Island and birds

Alternative contact number available for this expert: **contact the press office (http://www.birmingham.ac.uk/news/contacts/index.aspx)**

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