

DR ORLY RAZGOUR

Centre for Biological Sciences
 University of Southampton, Highfield Campus, Southampton SO17 1BJ, UK
 Phone: (+44) 02380592932; E-mail: Orly.Razgour@soton.ac.uk
 Website: <http://globalchange genetics.org>

My research sits at the interface between ecology, conservation and molecular biology. My main research aims are to examine evolutionary and ecological responses to global change, and to understand how environmental heterogeneity at different spatial and temporal scales affects geographical distribution, genetic composition and ecological interactions. I carry out multidisciplinary research, combining novel genetic and genomic tools with ecological research and spatial, ecological and mathematical modelling. My research is applied in nature, aiming to provide the evidence base for managing our environment and conserving biodiversity.

My research programme encompasses four main areas of investigation:

- 1) Genomic approaches to studying species responses to climate change: investigating genetic adaptations and their population level consequences.
- 2) Landscape genetics and the effect of environmental heterogeneity on range shifts in response to climate change.
- 3) Ecological modelling of distribution, dispersal and biotic interactions.
- 4) Phylogeography and evolutionary history.

Current and Previous Positions

2016-Present – **NERC Independent Research Fellow / Lecturer in Ecology, University of Southampton**
 2015-Present – Official Research Collaborator, CIBIO/InBio, University of Porto, Portugal
 2015-2016 – NERC Independent Research Fellow, University of Bristol
 2013-2015 – Impact Research Fellow, University of Stirling
 March-July 2013 – GIS Specialist, The Bat Conservation Trust
 Jan-Feb 2013 – Contracted Scientific Consultant, woodland bats modelling, Natural Resources Wales
 May 2012 – Lecturer, MSc Ecology and Conservation, Nottingham Trent University
 March-May 2012 – Contracted Scientific Consultant, Joint Nature Conservation Consortium (JNCC)
 2009-2012 – Hourly-paid Teacher, University of Bristol

Education

2009-2012 – **PhD**, University of Bristol, with **Faculty of Science Commendation**
*“From genes to landscapes: conservation biology of the grey long-eared bat, *Plecotus austriacus*, across spatio-temporal scales”* (Bat Conservation Trust Scholarship)

2006-2008 – **MSc Ecology, *Cum Laude***, Ben-Gurion University
“The effect of microhabitat characteristics and interspecific Interactions on bat community patterns over natural water bodies in desert environments” (Albert Katz Scholarship)

2003-2006 – **BSc Hons Biodiversity Conservation**, 1st Class Distinction, University of Kent

Academic Awards

2014 – **John Marsden Medal** for best UK doctoral thesis in Biology, The Linnean Society of London
 2013 – **Faculty of Science Commendation** for outstanding PhD thesis, University of Bristol
 2012 – **Vincent Weir Scientific Award** for contribution to bat conservation research
 2012 – Student talk prize Population Genetics Group Meeting, University of Glasgow
 2011 – Student talk prize Ecological Genetics Group Meeting, London
 2008 – **Merav Ziv Award** for MSc research project, Ben-Gurion University
 2007 – **Frederick Sigmund Prize** for excellence in desert studies, Ben-Gurion University
 2004-2006 – **Faculty and Rotary Prizes** for outstanding academic achievements, University of Kent

Research Grants

- 2015-2020 – **NERC** Independent Research Fellowship, ‘Developing an integrated framework for investigating biodiversity responses to global environmental change’, role: PI (£668,885)
- 2015-2017 – **Marie Skłodowska-Curie** Action Individual Fellowship (declined the award)
- 2014-2016 – **Rufford** Small Grant Fund, ‘Using genetic tools to assess the conservation status of cave-dwelling bats’, PI Rachael Cooper-Bohannon, role: Co-I (£12,000)
- 2014-2015 – **British Ecological Society** Research Grant, ‘Up in the air: researching ecological connectivity in sky island bats of the Ethiopian Highlands’, role: PI (£5,000)
- 2014 – **SAGES** Early Career Researcher Exchanges Grant (£2,780)
- 2013-2015 – **University of Stirling** Impact Fellowship, ‘Fight or flight: The spatial genomics of bat species response to climate change’, role: PI (£72,000)
- 2012 – **Bat Conservation Trust**, Funding to write a conservation management plan (£13,200)
- 2011 – **NERC Biomolecular Analysis Facility** Project Grant, ‘Conservation genetics of the grey long-eared bat (*Plecotus austriacus*) across spatial and temporal scales’, PI Gareth Jones (£20,604)
- 2010 – **Vincent Weir**, ‘Molecular diet analysis of cryptic bat species’, role: PI (£4,134)

Publications

- Jones ML, Bertola LD, **Razgour O** (Accepted) Predicting the effects of interspecific interactions on habitat suitability for the endangered African wild dog under future climate and land cover changes. *Hystrix*
- Razgour O**, Salicini I, Ibáñez C, Randi E, Juste J (2015) Unravelling the evolutionary history and future prospects of endemic species restricted to former glacial refugia. *Molecular Ecology* 24: 5267-5283.
- Alberdi A, Gilbert MTP, **Razgour O**, Aizpurua O, Aihartza J, Garin I (2015) Contrasting population-level responses to Pleistocene climatic oscillations in an alpine bat revealed by complete mitochondrial genomes and evolutionary history inference. *Journal of Biogeography* 42: 1689–1700.
- Razgour O** (2015) Beyond species distribution modelling: a landscape genetics approach to investigating range shifts under future climate change. *Ecological Informatics* 30: 250-256.
- Razgour O**, Rebelo H, Puechmaille SJ, Juste J, Ibáñez C, Kiefer A, Burke T, Dawson DA, Jones G (2014) Scale-dependent effects of landscape variables on gene flow and population structure in bats. *Diversity and Distributions* 20: 1173–1185.
- Hope PR, Bohmann K, Gilbert MTP, Zepeda L, **Razgour O**, Jones G (2014) Second generation sequencing and morphological faecal analysis reveals unexpected foraging behaviour by Natterer's bat (*Myotis nattereri*) in winter. *Frontiers in Zoology* 11: 39.
- Razgour O**, Juste J, Ibáñez C, Kiefer A, Rebelo H, Puechmaille SJ, Arlettaz R, Burke T, Dawson DA, Beaumont M, Jones G (2013) The shaping of genetic variation in edge-of-range populations under past and future climate change. *Ecology Letters* 16: 1258–1266.
- Razgour O**, Whitby D, Dahlberg E, Barlow K, Hanmer J, Haysom K, McFarlane H, Wicks L, Williams C, Jones G (2013) Conserving grey long-eared bats (*Plecotus austriacus*) in our landscape: a conservation management plan. Available to download from www.bats.org.uk
- Razgour O** (2013) Grey long-eared bat in Jersey. *Societe Jersiaise Annual Bulletin* 31: 42–43.
- Razgour O**, Clare EL, Zeale MRK, Hanmer J, Bærholm Schnell I, Rasmussen M, Gilbert MTP, Jones G (2011) High-throughput sequencing offers insight into mechanisms of resource partitioning in cryptic bat species. *Ecology and Evolution* 1: 556–570.
- Razgour O**, Hanmer J, Jones G (2011) Using multi-scale modelling to predict habitat suitability for species of conservation concern: The grey long-eared bat as a case study. *Biological Conservation* 144: 2922–2930.
- Razgour O**, Korine C, Saltz D (2011) Does interspecific competition drive patterns of habitat use in desert bat communities? *Oecologia* 167: 493–502.
- Razgour O**, Korine C, Saltz D (2010) Pond characteristics as determinants of species diversity and community composition in desert bats. *Animal Conservation* 13: 505–513.

Publications In Review / In Prep

- Razgour O**, Rebelo H, Di Febbraro M, Russo D. **Invited Review**: Painting maps with bats: species distribution modelling in bat research and conservation. Under review in *Hystrix*
- Razgour O**, Taggart J, Manel S, Juste J, Ibáñez C, Rebelo H, Alberdi A, Jones G, Park KJ. An integrated framework to identify wildlife populations under threat from climate change. Submitted.
- Razgour O**, Kasso M, Santos H, Juste J. Landscape genetics of Sky Island bats in the threatened Ethiopian Highlands. In Prep.
- Cooper-Bohannon R, Rebelo H, Jones G, **Razgour O**, Cotterill F, Monadjem A, Schoeman C, Taylor P, Park KJ. Should I stay or should I go? Predicting potential range shifts for southern-African bat distributions past, present and future. In Prep.

Selected Conference Presentations

- Razgour O, Taggart J, Manel S, Juste J, Ibáñez C, Rebelo H, Alberdi A, Jones G, Park KJ. Using genomic approaches to inform bat conservation under global change. **ConGenomics Conference**, CIBIO/InBio, Portugal, May 2016 (oral presentation) – **Talk Prize**
- Razgour O, Manel S, Taggart J, Jones G, Juste J, Ibáñez C, Rebelo H, Alberdi A, MacKenzie S, Park KJ. Genomic approaches to studying bat responses to global change. **49th Population Genetics Group Meeting**, Edinburgh, UK, Dec 2015 (oral presentation)
- Razgour O. Genetic approaches to studying bat responses to global change. **National Bat Conference**, Warwick, UK, Sep 2015 – **Invited Speaker**
- Razgour O, Alberdi A, Salicini I, Ibáñez C, Randi E, Juste J. Insights from the past into biodiversity responses to future climate change using bats as a model. **International Biogeography Society Conference**, Bayreuth, Germany, Jan 2015 (oral presentation)
- Razgour O. Genetic approaches to studying species responses to climate change. **1st International Workshop on Cellular and Molecular Biology**, Pernambuco, Brazil, Nov 2014 – **Invited Speaker**
- Razgour O, Kleczkowski A. Modelling range shifts under future climate change in bats. **2nd Spatial Ecology and Conservation Conference**, Birmingham, UK, July 2014 (oral presentation)
- Razgour O, Juste J, Ibáñez C, Rebelo H, Puechmaille SJ, Jones G. The shaping of genetic variation in the Mediterranean hotspot under past and future climate change. **EcoGenes Conference: Adapting to Global Change in the Mediterranean Hotspot**, Seville, Sep 2013 (poster)
- Razgour O, Juste J, Ibáñez C, Kiefer A, Rebelo H, Puechmaille SJ, Arlettaz R, Burke T, Dawson DA, Beaumont M, Jones G. The shaping of genetic variation in edge populations under past and future climate change: the grey long-eared bat as a case study. **46th Population Genetics Group Meeting**, Glasgow, UK, Dec 2012 (oral presentation) – **Student Talk Prize**
- Razgour O, Dawson DA, Burke T, Rebelo H, Juste J, Ibáñez C, Kiefer A, Jones G. Living on the edge: conservation genetics of the grey long-eared bat across spatial scales. **3rd European Congress of Conservation Biology**, Glasgow, UK, Aug 2012 (poster)
- Razgour O, Dawson DA, Burke T, Rebelo H, Juste J, Ibáñez C, Kiefer A, Jones G. Living on the edge: conservation genetics of the grey long-eared bat across spatial scales. **56th Ecological Genetics Group Meeting**, Edinburgh, UK, April 2012 (oral presentation)
- Razgour O, Clare EL, Zeale MRK, Bærholm Schnell I, Rasmussen M, Gilbert MTP, Jones G. Next generation sequencing deciphers mechanisms of coexistence in cryptic bat species. **12th European Ecological Federation Congress**, Avila, Spain, Sep 2011 (poster)
- Razgour O, Clare EL, Zeale MRK, Bærholm Schnell I, Rasmussen M, Gilbert MTP, Jones G. Next generation sequencing deciphers mechanisms of coexistence in cryptic bat species. **55th Ecological Genetics Group Meeting**, London, UK, April 2011 (oral presentation) – **Student Talk Prize**
- Razgour O, Jones G. Linking habitat loss and bat decline: the conservation biology of the grey long-eared bat, **15th International Bat Research Conference**, Prague, Czech, Aug 2010 (oral presentation)
- Razgour O, Korine C, Saltz D. The importance of temporary ponds for the conservation of insectivorous bats in desert environments. **2nd International Conference on Drylands, Deserts and Desertification**, Sede Boqer, Israel, Dec 2008 (poster) – **Poster Prize award**
- Razgour O, Korine C, Saltz D. The importance of temporary ponds for the conservation of insectivorous bats in desert environments. **22nd International Congress for Conservation Biology**, Tennessee, USA, July 2008 (oral presentation)

Invited Lectures

- 2016 – Developing an integrated framework to investigate bat responses to global environmental changes. **Imperial College of London**, UK, 19th May.
- 2014 – Genetic approaches to studying species responses to climate change. **Federal University of Pernambuco**, Brazil, 1st Dec.
- 2012 – From genes to landscapes: multi-scale approaches for the conservation of bats. **Bristol Zoo Conservation Lectures**, Bristol, 5th Dec.

Teaching

- 2015-2016 – Lecturer, Tropical Ecology Costa-Rica Field Course, University of Bristol
- 2015 – Lecturer, Coordinator, Landscape Genetics Workshop, CIBIO, University of Porto, Portugal
- 2015 – Lecturer, Conservation Management, 4th year module, University of Stirling
- 2014 – Contributor, Mammal Field Techniques course, Federal University of Pernambuco, Brazil
- 2013-2015 – Tutor, undergraduate students, University of Stirling
- 2013 – Contributor, Field and Laboratory Techniques, 3rd year module, University of Stirling
- 2013 – Lecturer and coordinator, Bioacoustics Training Workshop, University of Stirling
- 2012 – Lecturer, MSc Ecology and Conservation, Nottingham Trent University
- 2011-2012 – Teaching Assistant, Bats Bugs and Biodiversity Field Course, University of Bristol
- 2010-2011 – Tutor, undergraduate students, University of Bristol
- 2009-2012 – Teaching Assistant, undergraduate and postgraduate courses, University of Bristol, including: Evolutionary Biology, Statistics and Experimental Design, Diversity of Life, Life Systems, Ecology, Conservation Biology

Student Supervision

- 2015-2019 – Ms Barbara Moraes, **PhD** candidate, Universidade Federal de Pernambuco, Brazil: ‘Population variability of the capuchin monkey (*Sapajus libidinosus*) in semiarid areas’ (co-supervisor).
- 2015-2017 – Ms Joanna Riley, **MRes** candidate, University of Bristol: ‘Radiotracking sandhill dunnarts in the Great Victoria Desert, Western Australia’ (co-supervisor).
- 2015-2016 – Mr Mike Persey, **MSci** project, University of Bristol: ‘Incorporating biotic interactions into species distribution modelling’.
- 2014-2017 – Mr Andrew Carr, **PhD** candidate, University of Bristol: ‘Commercial woodland management and temperate insectivorous bats’ (co-supervisor).
- 2014-2015 – Ms Megan Jones, BSc Honours project, University of Stirling: ‘The effects of future climate change, habitat loss and interspecific interactions on the distribution of the endangered African wild dog’.
- 2014-2015 – Ms Francesca Wilkinson, BSc Honours project, University of Stirling: ‘Predicting the effects of future climate change on European Lepidoptera diversity’.

Academic Roles

- 2016-ongoing – **Organising Centre for Biological Sciences Seminar Series**, University of Southampton
- 2015-ongoing – **Review Editor in Conservation**, Frontiers in Ecology and Evolution
- 2015-2016 – Coordinator, Workshops in Ecology and Behaviour Seminars, University of Bristol
- 2015-2016 – Member of the Research Committee, University of Bristol
- 2015-2016 – PhD Assessor, Ms Lia Gilmour & Ms Parvathy Venugopal, University of Bristol
- 2014 – PhD thesis evaluator, Universidad de Murcia, Spain

Research Skills

- Fieldwork** –wildlife surveying and sampling, including radio-tracking and trapping (mist nets, harp traps), bioacoustics, leading research expeditions in Africa, Latin America, the Middle East and across Europe and the UK
- Molecular lab techniques** – including extractions, quantification, PCR, qPCR, sequencing, RAD-seq, primer design
- Bioinformatics and molecular data analysis** –Next Generation Sequencing data analysis (STACKS, Qiime), genome assembly (Trinity, Toxedo, Abyss), basic Linux/Unix and Python, phylogenetic

analysis (Mr Bayes, BEAST), Approximate Bayesian Computation of evolutionary history, population genetic and genomic analysis of microsatellite and SNP datasets (STRUCTURE, PLINK, BayeScan, LFM, Arlequin, Population graphs, R packages)

Modelling, statistics and spatial analysis – extensive GIS and spatial analysis experience (ArcGIS, R), Ecological niche / distribution modelling (Maxent), advanced statistical analysis (R, SPSS, including GLM, GLMM)

Project management – obtaining funding; managing budgets; supervising students; employing, training and managing research assistants and volunteers; coordinating fieldwork; managing stakeholders and project collaborators; reports and dissemination

Languages – English (native), Hebrew (native), Spanish (fluent), French (basic), Arabic (basic)

Selected Public Engagement

International NGOs – Research Director and board member of [Bats without Borders](#), charitable organisation for the conservation of southern African bats.

Public lectures – to conservation practitioners, volunteers, wildlife groups and environmental consultants (including Regional Bat Conferences, Zoos, Bat Groups, Wildlife Trusts)

Public training workshops – bat survey methods (Jersey June 2011, 2013), guiding public bat walks

Consultation on science, planning and conservation – EU Habitat Directive Article 17 Reporting 2013; UK Biodiversity Action Plan Bat Steering Group Meeting (invited speaker 2012, 2013); Devon local planning authorities; Natural Resources Wales; Bat Conservation Trust; Vincent Wildlife Trust; Natural England Countryside Stewardship Scheme

Advisor – conservation organisations consortium HLF £4.6 million ‘Back from the brink’ project to save threatened UK species.

Contribution to popular science blogs – [Stirling Conservation Science](#); [Mammal Society 60th Anniversary](#)

Selected Research Press Coverage

2013 – Nature Climate Change (3: 781) Research Highlights “Genetic pinch”

2013 – [BBC News](#) (5th Aug) “Rare bat on brink of extinction”. Interview by Victoria Gil

2013 – BBC Radio 4 today show (5th Aug) – Interview about the conservation management plan

2013 – BBC World Service World Update (5th Aug) – Interview about climate change and bat conservation

2013 – [ITV](#) 6pm West Country News (5th Aug). “Decline in the bat population”. Interview by Jacquie Bird

2013 – [The New Scientist](#) (7th Aug) “Beautiful British bat is one in just 1000” by Jacob Aron

2013 – [The Guardian Newspaper](#) (5th Aug) “Britain’s grey long-eared bats may die out without help, conservationists warn”. Interview by Steven Morris

2012 – [BBC Mundo](#) (28th June) “El misterioso susurro del murciélago orejado”. Interview by A. Martins

2011 – ITV 6 pm Channel News (1st June) “Rare bat attracts expert”. Interview by Jess Dunsdon

2011 – Bat News magazine (autumn/winter 2011) – 2 page interview about my PhD research

2010 – University of Washington [Conservation Magazine](#) “To the bat...pond” by David Malakoff

Journal Peer Review Services: Molecular Ecology, Molecular Ecology Resources, Heredity, Evolutionary Applications, Molecular Phylogenetics and Evolution, Biological Conservation, Conservation Genetics, Journal of Applied Ecology, Ecography, PLoS ONE, Landscape and Urban Planning, Mammalian Biology, Journal of Mammalogy, Canadian Journal of Zoology, Acta Chiropterologica, Frontiers (Review Editor)

Selected List of Current Active Collaborators

- **Bat Conservation Trust:** landscape management for the grey long-eared bat; conservation management for forest bats under climate change; public engagement and impact activities.
- Kevin Watts, **Forest Research**, Forestry Commission: adaptive forest modelling under climate change.
- **Cabot Institute**, University of Bristol: global change research group; public engagement in research
- **Gareth Jones**, University of Bristol: effects of climate change on bats.
- **Mark Beaumont**, University of Bristol: modelling the spread of adaptive alleles.
- **Justin Travis**, University of Aberdeen: modelling range shifts in response to future climate change.
- **Kirsty Park**, University of Stirling: conservation management for forest bats.
- **Simon MacKenzie**, University of Stirling: genomic responses to environmental change.
- **William Symondson**, Cardiff University: using metagenomics to study ecological networks.

- **Elizabeth Clare**, Queen Mary University of London: using metagenomics to study ecological networks.
- **Javier Juste** and **Carlos Ibáñez**, Estación Biológica de Doñana (CSIC), Spain: various projects on the molecular biology of bats and responses to environmental changes in Europe and Africa.
- **Stephanie Manel**, Centre of Functional and Evolutionary Ecology (CEFE, CNRS), France: the application of landscape genomics to global change research.
- **Hugo Rebelo**, CIBIO, University of Porto, Portugal: distribution modelling and the genetic effects of climate change on bats; cryptic Iberian bat species.
- **Raquel Vasconcelos**, CIBIO, University of Porto, Portugal: landscape genetics for conservation management of lizard biodiversity in Socotra
- **Sébastien Puechmaille**, Greifswald University, Germany: phylogeography and landscape genomics of bats.
- **Antton Alberdi**, University of the Basque Country, Spain: phylogeography of European bats.
- **Thomas Gilbert**, Centre for GeoGenetics, University of Copenhagen, Denmark: high throughput sequencing for molecular ecology.
- **Bruna Bezerra**, Universidade Federal de Pernambuco, Brazil: genetic and ecological consequences of Atlantic forest fragmentation.