LAURA J. GRAHAM

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RESEARCH INTERESTS

I am an ecologist interested in understanding how anthropogenic changes such as climate change and habitat loss affect global ecosystems, and how this in turn affects human well-being. I am particularly interested in using novel statistical methods and heterogeneous sources of data to answer applied and theoretical questions. In my current position, I am focussed on understanding the effect of scale and spatial structure on ecosystem service provision and as such am developing spatially-explicit social-ecological systems models.

EMPLOYMENT

2016–Present **Research Fellow in Spatial Modelling.** University of Southampton, UK

Working on the ERC funded project *'SCALEFORES: Developing a science of scale for ecosystem services'*

PI: Felix Eigenbrod

2015–2016 **Postdoctoral Research Associate.** Stony Brook University, NY, USA

Working on the NASA funded project *'Combining time-series data, ecology and physiology to predict the consequences of climate change on hummingbird diversity'.*

PI: Catherine Graham

2014 **Research Assistant.** EU OpenNESS Project

Literature reviews of the connections between natural capital/ecosystem services and macroeconomic competitiveness, and of the state of the field of adaptive management.

2007–2010 **Data Analyst.** Experian Ltd. Nottingham

Data analysis, processing and statistical analysis for development and maintenance of core Business Strategies databases and products. I combined socio-demographic and locational data with retail data into reports and analyses to enable my clients to make business decisions.

EDUCATION

2011–2015 **PhD, Geography**; University of Nottingham

Thesis title: Strengthening urban landscape planning: a metapopulation modelling framework

Funded by the Economic and Social Research Council.

The central argument of my PhD research was that ecological impact assessment needs to be done at a landscape scale. To this end, I examined how metapopulation modelling can be used to perform such an assessment and used my methods to compare urban planning scenarios. This research required me to work at the science–policy interface.

Supervisors: Prof. Roy Haines-Young & Dr. Richard Field

Examiners: Prof. Jon Sadler, Dr. Adam Algar

2010–2011 **MSc, Environmental Management: Distinction.** University of Nottingham

Thesis title: An Assessment of the suitability of the Incidence Function Model for use in planning and assessing Environmental Stewardship Schemes

Modules included Ecosystem Services & Human Well-being, Foundations in Environmental Management, Frameworks for Environmental Management, Research Methods, Fundamentals of GIS, Geocomputation.

2002–2005 **BSc, Mathematics, First**; University of Southampton

Modules taken focussed on pure mathematics and statistics.

GRANTS OBTAINED

ESRC PhD studentship "*How Effective Are Environmental Stewardship Schemes with Regards to Wildlife Conservation?*" (£54,216 for fees, maintenance and research training grant)

PUBLICATIONS

Peer-reviewed Journal Articles

2018 **Graham, LJ,** Haines-Young RH, & Field R. (2018). *The incidence function model as a tool for landscape-scale ecological impact assessments.* Landscape and Urban Planning, 170, 187–194. https://doi.org/10.1016/j.landurbplan.2017.10.008

2017 **Graham, LJ,** Weinstein, B. G., Supp, S. R., & Graham, C. H. (2017). *Future geographic patterns of novel and disappearing assemblages across three dimensions of diversity: A case study with Ecuadorian hummingbirds.* Diversity and Distributions, 23, 944–954. https://doi.org/10.1111/ddi.12587

Graham, LJ, Haines-Young, RH, & Field, R. (2017). *Metapopulation modelling of long-term urban habitat-loss scenarios.* Landscape Ecology, 32, 989–1003. https://doi.org/10.1007/s10980-017-0504-0

2016 **Graham LJ,** Haines-Young RH, Field R. (2016). *Strengthening urban landscape*

planning: a metapopulation modelling framework. In Urban Landscape Ecology: Science, Policy and Practice. Routledge.

2015 **Graham LJ**, Haines-Young RH, Field R. *Using citizen science data for conservation planning: methods for quality control and downscaling for use in stochastic patch occupancy modelling.* Biological Conservation, 192, 65–73. https://doi.org/10.1016/j.biocon.2015.09.002

2014 **Graham LJ,** Bailey JJ, Algar AC, Field R. *Where next for macroecology: citizen macroecology?*. Frontiers of Biogeography. 6(1). http://escholarship.org/uc/item/43d114jb

Other publications

2017 **Graham LJ.** *Programming*. In A Guide to Reproducible Code. Eds. Cooper, N, Hsing, P-Y. British Ecological Society [peer reviewed]

TEACHING

2017–Present **Statistics and Programming.** University of Southampton

I have developed statistics and programming materials for the following courses:

- *Skills and Project work for GIS* MSc
- *Data Collection and Research Methods for Sustainability* MSc
- *Programming for GIS and Spatial Analyses* MSc
- *Spatial analysis workshop for ADVENT students* PhD

2015–Present **Software Carpentry Workshop Instructor**

Teaching coding skills to scientists. I have run workshops at the New York Academy of Sciences and assisted a workshop at Stony Brook University.

2011–2014 **Teaching Assistant.** University of Nottingham

I have provided teaching support for the following modules:

- *Interpreting Geographical Data* First year undergraduate statistics
- *Digital Explorers* Second year undergraduate GIS
- *Geographical Research Methods* Masters level statistics
- *Professional GIS* Masters level GIS
- *Lake District Field Trip* First year undergraduate field course. I developed and delivered a one day activity for this module
- *Tutorial Groups* First year undergraduate tutorial groups on biodiversity and ecosystem services

I also provided informal support for undergraduate and masters dissertation projects.

2013–2014 **Online Facilitator.** FutureLearn

I provided facilitation support for the massive online open courses *Sustainability, Society and You* and *Shale Gas and Fracking: the politics and science*.

SUPERVISION

2017–Present	**Nathan Fox**, SPITFIRE PhD, University of Southampton Thesis title: *The applications for geodiversity as a proxy measure of other environmental variables.* Primary Supervisor: Kate Parks. CASE funding: James Bullock, Centre for Ecology and Hydrology.
2015–2016	**Laura Gambino**, MA Ecology, Stony Brook University Thesis title: *North American hummingbird species distribution and richness in relation to the phenology of plant resources.* Primary Supervisor: Catherine Graham
2015	**Gillian Benson**, MSc Environmental Management, University of Nottingham Thesis title: *Testing downscaling methods for woodland bird species.* Primary Supervisor: Richard Field

ORAL PRESENTATIONS

- "A spatial modelling framework for predicting the effects of landscape structure on ecosystem services"
    - UN-FAO Social Ecological Systems Expert Workshop, Rome, Italy, 2018
    - Ecological Society of America Annual Meeting, Portland, Oregon, USA, 2017 (invited to organised session)
- "Taxonomic, phylogenetic and functional dimensions of no-analog assemblages"
    - British Ecological Society Annual Meeting, Liverpool, UK, 2017
    - Centre for Ecology and Hydrology, Oxford, UK, 2017 (invited seminar)
- "How to do Reproducible Research in R"
    - British Ecological Society Annual Meeting, Liverpool, UK, 2017 (invited)
    - British Ecological Society Macroecology SIG Meeting, Oxford, UK, 2016 (invited)
- "Metapopulation modelling of long-term urban habitat-loss scenarios"
    - European Ecosystem Services Conference, Antwerp, Belguim, 2016
    - Joint Annual Meeting BES and SFE, Lille, France. 2014
- "Quantitative landscape-scale ecological impact assessment: a method using the incidence function model"
    - EU Macro, Copenhagen, Denmark, 2015
    - IALE UK Annual Conference, London, UK, 2014
- "Hanski's incidence function model for urban biodiversity planning"
    - INTECOL Annual Meeting, London, UK, 2013
- "Modelling urban ecology: connecting ecological policy and theory"
    - RGS-IBG Postgraduate Mid-term Conference, Nottingham, UK, 2012

WORKSHOPS

- UN-FAO SES Expert Workshop: Applying social-ecological system frameworks to improve sustainable land-use and enhance resilient agro-food systems under water scarcity, Rome, Italy, 2018
- sLandserv: Linking Landscape Structure to Ecosystem Services, sDiv Synthesis Centre for Biodiversity Sciences, Leipzig, Germany, 2017 & 2018

ACADEMIC SERVICE

Peer review	Biological Conservation, Ecography, Ecological Informatics, Functional Ecology, Global Ecology and Biogeography, Journal of Biogeography, Landscape Ecology, Methods in Ecology and Evolution, Oikos, PeerJ, Wilson Journal of Ornithology. I am also a member of the British Ecological Society Review College
Committee	Co-Secretary of British Ecological Society Quantitative Ecology Special Interest Group.

REFERENCES

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