





BENJAMIN JOSHUA BURGESS

 benjamin.joshua.burgess[at]gmail.com

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 [benjburgess.github.io](https://github.com/benjburgess)

 London & Cambridge

PROFILE

Technically skilled researcher who has recently completed a PhD in Computational Ecology at University College London. Highly motivated, with extensive experience in using R for a wide range of analyses and regarded by colleagues as an adept troubleshooter. Seeking an analytical position which requires technical expertise, problem-solving skills, and the ability to work both independently and as part of a team.

EDUCATION

PhD 2017-21	<i>Computational Ecology</i> (Viva Date: 07/12/2021) University College London with studentship from DeepMind (Google) Thesis Topic: Multiple stressor interactions in aquatic ecosystems. Implemented computational and statistical techniques to determine how threats (e.g., climate change or pollution) combine to affect ecosystems.
MRes 2016-17 Distinction	<i>Computational Methods in Ecology and Evolution</i> Imperial College London Topics included: R, statistics, and a final project on modelling wildfires.
BSc (Hons) 2013-16 First Class	<i>Environmental Sciences</i> University of Nottingham Topics included: climate change science, Arctic fieldwork, statistics.

RELEVANT WORK EXPERIENCE

Dissertation Co-supervisor 2020-21	Co-supervised three undergraduate dissertation projects at UCL. Guided students through a research project, including convoluted statistical analyses. One student was awarded the prize for best third year dissertation in the School of Life and Medical Sciences.
Teaching Assistant 2017-19	Taught R, statistics, and data modelling to both undergraduates and postgraduates at UCL. Explained challenging concepts in simple and engaging ways, while also grading coursework.

INTERPERSONAL SKILLS & EXPERIENCE

Leadership	Over four years' experience developing and directing research projects, with findings published in scientific journals. Led senior colleagues in an international collaboration. This project resulted in high-impact findings which successfully answer one of the leading questions in the field of multiple stressor ecology.
Teamwork	Invited to join an external project, where I supported the lead researcher to restructure and improve their computational analyses.
Communication	Presented research findings to large audiences (50+ people) both internally and at various conferences and meetings.

KEY SKILLS

- R
- Data Visualisation
- Data Management
- Statistics & Data Modelling
- Delivering at Pace
- Teamwork
- Leadership
- Problem Solving

TECHNICAL SKILLS & EXPERIENCE

R	<p>More than six years' experience of conducting analyses in R (e.g., regression, meta-analyses, and machine learning).</p> <p>Written clear R code and reproducible workflows which have been used by collaborators for their analyses.</p> <p>Developed an R package (<i>multiplestressR</i>; available from CRAN) to simplify the statistical analysis of factorial datasets.</p>
Data Visualisation	<p>Created interactive dashboards, using either Tableau or Shiny (R), to showcase analyses or trends in multifaceted datasets.</p>
Statistics & Modelling	<p>Conducted simulations and statistical analyses to understand how multiple perturbations affect complex systems. Outlined that current assumptions are frequently erroneous and identified ramifications for future decision making.</p> <p>Derived formulae which allow researchers to consider both statistical power and resource costs when designing experiments.</p> <p>Illustrated that the contrasting conclusions of several published analyses are due to incorrect statistics and not differing patterns across these datasets.</p>
Data Management	<p>Standardised, cleansed, and merged eight datasets to form the single largest meta-analytical dataset in multiple stressor ecology.</p>

GENERAL SKILLS & ATTRIBUTES

Problem Solving	<p>Pragmatic approach to overcoming problems, such as devising a novel computational method to facilitate a complex analysis.</p>
Motivation	<p>Highly driven, regularly undertaking self-directed learning (e.g., Shiny or support vector machines) to improve and diversify skillsets.</p>
Delivering at Pace	<p>Submitted a high-quality PhD thesis within the expected timeframe, despite various obstacles (e.g., provided with flawed data, passing of supervisor), and competing priorities (e.g., overseeing students).</p>
Participation	<p>Highly involved within the workplace community, having organised fortnightly departmental activities in addition to social events.</p>
Software	<p>Experience in Microsoft Office and Windows, Mac, or Linux operating systems.</p>

PUBLICATIONS

Burgess, B. J., Purves, D., Mace, G., & Murrell, D. J. (2021). Classifying ecosystem stressor interactions: Theory highlights the data limitations of the additive null model and the difficulty in revealing ecological surprises. [Global Change Biology](#), 27, 3052-3065.

Burgess, B.J., & Murrell, D.J. (2021). *multiplestressR*: Additive and Multiplicative Null Models for Multiple Stressor Data. [R package v0.1.1](#).

Burgess, B. J., Jackson, M. C., & Murrell, D. J. (2021). Multiple stressor null models frequently fail to detect most interactions due to low statistical power. [bioRxiv](#).

Wilson, B., Dolotbakov, A., Burgess, B. J., Clubbe, C., Lazkov, G., Shalpykov, K., ... & Brockington, S. F. (2021). Central Asian wild tulip conservation requires a regional approach, especially in the face of climate change. [Biodiversity and Conservation](#), 30(6), 1705-1730.

TECHNICAL EXAMPLES

R Package

[multiplestressR](#)

Data Visualisation

[Dashboard \(Shiny / R\)](#)

[Dashboard \(Tableau\)](#)

Statistics & Data Modelling

[Meta-analyses](#)

[SVMs](#)