BENJAMIN JOSHUA BURGESS

benjamin.joshua.burgess[at]gmail.com
+447########2
benjburgess.github.io
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 trouble-shooter. 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 *Computational Ecology* (Viva Date: December 2021)
2017-21 **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 *Computational Methods in Ecology and Evolution*
2016-17 **Imperial College London**
Distinction Topics included: R, statistics, and a final project on modelling wildfires.

BSc (Hons) *Environmental Sciences*
2013-16 **University of Nottingham**
First Class 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	More than six years' experience of conducting analyses in R (e.g., regression, meta-analyses, and machine learning). Written clear R code and reproducible workflows which have been used by collaborators for their analyses. Developed an R package (*multiplestressR*; available from CRAN) to simplify the statistical analysis of factorial datasets.
Data Visualisation	Created interactive dashboards, using either Tableau or Shiny (R), to showcase analyses or trends in multifaceted datasets.
Statistics & Modelling	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. Derived formulae which allow researchers to consider both statistical power and resource costs when designing experiments. Illustrated that the contrasting conclusions of several published analyses are due to incorrect statistics and not differing patterns across these datasets.
Data Management	Standardised, cleansed, and merged eight datasets to form the single largest meta-analytical dataset in multiple stressor ecology.

GENERAL SKILLS & ATTRIBUTES

Problem Solving	Pragmatic approach to overcoming problems, such as devising a novel computational method to facilitate a complex analysis.
Motivation	Highly driven, regularly undertaking self-directed learning (e.g., Shiny or support vector machines) to improve and diversify skillsets.
Delivering at Pace	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).
Participation	Highly involved within the workplace community, having organised fortnightly departmental activities in addition to social events.
Software	Experience in Microsoft Office and Windows, Mac, or Linux operating systems.

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