

NATALIE Z. KERR

Data Scientist & Quantitative Biologist

EDUCATION

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| 2023 | ● Massachusetts Institute of Technology
Certificate of Applied Data Science |  Cambridge, MA, USA |
| 2014–2019 | ● Tufts University
PhD Candidate in Biology |  Medford, MA, USA |
| 2008–2012 | ● University of Queensland
Bachelor of Environmental Science |  St Lucia, QLD, Australia |



EXPERIENCE

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|--------------|---|---|---|
| 2024–present | ● Data Analytics Consultant
Pocket Prep |  Durham, NC | <ul style="list-style-type: none">• Consultant for local company that develops an exam preparation app.• Built random forest models to evaluate lead indicators of users' passing their exams. |
| 2022–present | ● Assistant Research Professor
Duke University |  Durham, NC | <ul style="list-style-type: none">• Lead scientist on a US federal grant.• Coordinate funded research among 11 scientists across six institutions.• Taught tertiary-level courses (e.g. Human Health, Disease Ecology).• Member of several Duke board and department committees.• Advised four undergraduate students in data science projects.• Statistics consultant for graduate and postdoctoral researchers.• Awarded several fellowship awards. |
| 2019–2022 | ● Postdoctoral Researcher
Duke University |  Durham, NC | <ul style="list-style-type: none">• Built predictive spatial models for at-risk species under future climate.• Produced quarterly and annual reports to stakeholders.• Produced statistical analysis plans.• Invited to give five University seminars to a diverse audience with both analytical and non-analytical backgrounds.• Statistics consultant for graduate and postdoctoral researchers. |
| 2014–2019 | ● Graduate Researcher
Tufts University & UC Davis |  Medford, MA | <ul style="list-style-type: none">• Data wrangling and analysis for projects with large longitudinal datasets.• Developed novel statistical and modeling techniques for exploring high dimensional systems to solve optimization problems.• Published six peer-reviewed publications; four were first author. |

CONTACT INFO

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SKILLS

- Advanced R (+16 years)
Python & SQL (+1 years)
Git / GitHub
Advanced Statistics
Data Analytics & Visualization
Population Modeling
Science Communication

PACKAGES

R: tidyverse, glmnet, lme4, msm, glmmTMB, gammit, MASS, mgcv, bbmle, sp, among many more.

Python: Pandas, NumPy, scipy, matplotlib, seaborn, Scikit-learn.

*Last updated on 2024-03-06.
Resume completed using RMarkdown.*

SELECTED WORKSHOPS & TEACHING

- 2020 ● **Frequentist approaches to data analytics in R**
Two-day workshop series funded by the EntSoc Early Careers Professionals initiative. [GitHub](#)  Virtual online
- 2019 ● **Ecological Models and Statistics**
Undergraduate and graduate tertiary-level course covering Frequentist and Bayesian statistics.  Tufts University
- 2018 ● **Exploiting the Dynamism of R Software**
Half-day workshop at the Entomological Society of America Joint Annual Meeting  Vancouver, Canada
- 2018 ● **Implementing the Delta Method and bootstrapping to estimate variance in covarying model coefficients**
Half-day workshop series exploring *msm::deltamethod* and *MASS::mvrnorm* functions and applications.  UC Davis, California

SELECTED PUBLICATIONS

- 2023 ● **Inclusive fitness may explain some but not all benefits derived from social behavior in a cooperative breeding bird.**
American Naturalist. (2023). [doi:10.1086/728670](#)
NZ Kerr, WF Morris, JR Walters.
- 2021 ● **Larger workers outperform smaller workers across resource environments: An evaluation of demographic data using functional linear models.**
Ecology & Evolution. (2021). [doi:10.1002/ece3.7239](#)
NZ Kerr, RL Malfi, NM Williams, EE Crone.
- 2020 ● **Developmental trap or demographic bonanza? Opposing consequences of earlier phenology in a changing climate for a multivoltine butterfly.**
Global Change Biology. (2020). [doi:10.1111/gcb.14959](#)
NZ Kerr, T Wepprich, FS Grevstad, EB Dopman, FS Chew, EE Crone.
- 2019 ● **Using statistics to design and estimate vital rates in matrix population models for a perennial herb**
Population Ecology. (2019). [doi:10.1002/1438-390X.12024](#)
S Ramula, NZ Kerr, EE Crone
- 2016 ● **Prioritizing management actions for invasive populations using cost, efficacy, demography and expert opinion for 14 plant species world-wide**
J. Applied Ecology (2016). [doi:10.1111/1365-2664.12592](#)
NZ Kerr, PWJ Baxter, R Salguero-Gómez, GM Wardle, YM Buckley.