

# Fabian R. Ketwaroo

Room 243, Statistical Ecology @ Kent, School of Mathematics, Statistics and Actuarial Science University of Kent,  
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## Research Interests

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Ecological statistics, Spatial and spatio-temporal modelling, Spatial Capture-Recapture models, N-mixture models, Dynamic Occupancy models, Objective priors, Bayesian Model and Variable selection, Bayesian Non-parametric methods, Theory and Applications, Computational Methods.

## Education

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### PhD in Statistics

United Kingdom

UNIVERSITY OF KENT

2019 – 2023

- Title: Bayesian hierarchical models for ecological data; estimating population size, spatial and temporal patterns.
- Supervisor: Dr. Eleni Matechou

### International MSc Statistics

United Kingdom

UNIVERSITY OF KENT

2017 – 2019

- Distinction
- MSc dissertation title: N-Mixture models from a Bayesian perspective.
- Relevant modules: Statistical learning, Advance regression modelling, Pratical statistics and computing.

### BSc. Mathematics

Guyana

UNIVERSITY OF GUYANA

2011 – 2015

- Distinction (3.6/4.0 GPA).

## Academic Qualifications

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### Associate Fellow

United Kingdom

Advanced Higher Education

2021

### Graduate Statistician

United Kingdom

Royal Statistical Society

2019–2021

## Computing skills

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### Programming

R (advanced), Rshiny (advanced), NIMBLE (advanced), C/C++ (intermediate), Python (intermediate)  
Stan (beginner), JavaScript (beginner), GitHub (beginner), Google Earth Engine (beginner)

### Typesetting system

LaTeX (advanced), Quarto (beginner), Tableau (beginner)

## Awards & Scholarships

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2020	<b>Research grant</b> , University of Kent	United Kingdom
2019	<b>Vice Chancellor's Research Scholarship</b> , University of Kent	United Kingdom
2019	<b>School prize in MSc Statistics for highest examination results, including best MSc project</b> , University of Kent	United Kingdom
2019	<b>RSS prize for best MSc Statistics student</b> , University of Kent	United Kingdom
2012	<b>3rd Place</b> , P.A.N.A.M. Powerlifting Championship	Orlando, U.S.A

## Experience

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### Research Associate Instituto Pirenaico De Ecologia (CSIC)

United Kingdom

UNIVERSITY OF KENT

May 2023 - Jul 2023

- Applying Bayesian Hierarchical modelling techniques to develop dynamic occupancy models to predict species range dynamics incorporating Bayesian variable selection in software R, based on NIMBLE.

### Statistics Clinic Lead

United Kingdom

UNIVERSITY OF KENT

Sep 2022 - Jun 2023

- Employed by the Student Learning Advisory Service to assist undergraduate/postgraduate students from across the university with their understanding of statistics.

### Graduate Teaching Assistant

United Kingdom

UNIVERSITY OF KENT

Sep 2019 - Mar 2023

- Marked assessments and provided assistance in computer classes and tutorials in modules such as Mathematical Statistics, Statistical Learning, Advanced Regression modelling, Data Science with R.
- Created online quizzes for the module Applied Statistical Modelling 1.

### Senior Ambassador

United Kingdom

UNIVERSITY OF KENT

Sep 2018 - Mar 2023

- Math Tutor for GCSE students at a mixed secondary school in Ramsgate.
- Ambassador team member for
  - guided tours on University of Kent open days,
  - Outreach event: Statistics Gone Wild,
  - Royal Institution Masterclasses.

### Research Assistant

United Kingdom

UNIVERSITY OF KENT

Nov 2019 - Aug 2020

- Developed and implemented Rshiny app to model Caste-Specific Demography and Phenology in Bumblebees using citizen science data.

### Part-time Tutor (On-Line Programme)

Guyana

UNIVERSITY OF GUYANA

Mar 2017 - Jul 2017

- Promoted discussions, monitored students' progress and assessed students' work for modules: Introducing Statistics and Essential Mathematics.

### Lecturer in Mathematics

Guyana

UNIVERSITY OF GUYANA

Sep 2015 - Jun 2017

- Taught and evaluated modules such as Calculus, Groups Rings and Field, Linear Algebra and Applied Mathematics.

## Professional Development

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### Asymptotic Methods and Statistical Applications

London Taught Course Centre

United Kingdom

2020

### Advanced Computational Methods in Statistics

London Taught Course Centre

United Kingdom

2019

### Maximum Entropy Models for Complex Networks

London Taught Course Centre

United Kingdom

2019

## Projects

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### Modelling Disease Dynamics from Spatially-Explicit Capture-Recapture Data

*Spatio-temporal modelling of European badgers to better understand how disease (bovine tuberculosis (TB)) dynamics are linked to population dynamics within a spatial context.* SUBMITTED TO ENVIRONMETRICS. DRAFT:

BLOGS.KENT.AC.UK/FKETWAROO/RESEARCH/SCR-DISEASE-UNCERTAINTY/

University of Kent

2019-2023

### Specifying, Assessing and Selecting N-mixture Models in a Bayesian framework

*Implementing objective priors for N-mixture models and investigating model selection and identifiability of N-mixture model within a Bayesian framework.* TO BE SUBMITTED TO METHODS IN ECOLOGY AND EVOLUTION. DRAFT:

BLOGS.KENT.AC.UK/FKETWAROO/RESEARCH/N-MIXTURE-MODELS-IN-A-BAYESIAN-FRAMEWORK/

University of Kent

2019-2023

### A New Modeling Framework for Roost Count Data

*Novel modelling framework that can be used to estimate population size at a site, while accounting for observation error and temporary emigration parametrically and non-parametrically, including efficient variable selection algorithms for identifying important predictors of observation error.* SUBMITTED TO ANNALS OF APPLIED STATISTICS.

DRAFT: BLOGS.KENT.AC.UK/FKETWAROO/RESEARCH/MODELLING-FRAMEWORK-FOR-ROOST-COUNT-DATA/

University of Kent

2021-2023

## Bayesian Caste-Specific Demography and Phenology in Bumblebees: Modeling BeeWalk Data

University of Kent

New Bayesian model for Bumblebee citizen science data in the U.K. This model produces estimates of key demographic parameters such as caste-specific phenology and average nest productivity, in the wild. I implemented the model into an R shiny app, allowing users without prior knowledge of R to fit the model to their data. TO BE

SUBMITTED TO THE JOURNAL OF THE ROYAL STATISTICAL SOCIETY: SERIES C (APPLIED STATISTICS) OR JOURNAL OF AGRICULTURAL, BIOLOGICAL AND ENVIRONMENTAL STATISTICS.

Nov 2020- Aug 2021

DRAFT: [BLOGS.KENT.AC.UK/FKETWAROO/RESEARCH/4-BAYESIAN-CASTE-SPECIFIC-DEMOGRAPHY-AND-PHENOLOGY-IN-BUMBLEBEES/](https://blogs.kent.ac.uk/fketwaroo/research/4-bayesian-caste-specific-demography-and-phenology-in-bumblebees/)

## Conferences and Workshops

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2023	<b>National Centre for Statistical Ecology</b> , In-person	Swansea, Wales
2023	<b>EURING Analytical Meeting &amp; Workshop</b> , Online	France
2022	<b>International Statistical Ecology Conference</b> , Online	South Africa
2021	<b>National Centre for Statistical Ecology</b> , Online	United Kingdom
2021	<b>EURING Analytical Meeting &amp; Workshop</b> , Online	CANADA
2021	<b>Bayesian Young Statisticians Meeting, j-ISBA</b> , Online	United Kingdom
2020	<b>NIMBLE workshop</b> , Online	U.S.A
2020	<b>International Statistical Ecology Conference</b> , Online	Australia

## Presentations

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### National Centre for Statistical Ecology

TALK: A New Modelling Framework for Roost Count Data.

In-person  
June. 2023

### EURING Analytical Meeting & Workshop

TALK: How to Walk the BeeWalk: Modelling Bumblebee Citizen Science Data

Online  
April. 2023

### International Statistical Ecology Conference

POSTER PRESENTATION: A New Modelling Framework for Roost Count Data.

Online  
July. 2022

### National Centre for Statistical Ecology

TALK: Spatially Explicit Capture-Recapture Disease Uncertainty Models

Online  
June. 2021

### PGR Statistics Seminar, University of Kent

TALK: How to Walk the BeeWalk: Modelling Bumblebee Citizen Science Data

Online  
Mar. 2021

### International Statistical Ecology Conference

TALK: Objective Priors from Scoring rules for N-mixture models

Online  
June. 2020

## References

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**Dr. Eleni Matechou**

*School of Mathematics, Statistics and Actuarial Science*  
*e.matechou@kent.ac.uk*

*Senior Lecturer in Statistics*  
*University of Kent*

**Dr. Matt Silk**

*INSTITUTE OF ECOLOGY AND EVOLUTION*  
*matthewsilk@outlook.com*

*Research Fellow*  
*University of Edinburgh*

**Dr. Rebecca Biddle**

*rebecca.biddle@twycrosszoo.org*

*Director of Conservation*  
*Twycross Zoo, UK*