

BEN C. STEVENSON

Lecturer · University of Auckland

PERSONAL DETAILS

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EDUCATION

PhD in Statistics *2012–2016*
University of St Andrews
Thesis title: *Methods in spatially explicit capture-recapture*

MSc in Statistics *2010–2011*
First Class Honours
University Graduate Scholar
University of Auckland
Thesis title: *Assessment of lunar and indigenous fishing calendar predictions using catch data of snapper*

BSc (Hons) in Statistics *2009–2010*
First Class Honours
University of Auckland

BSc in Statistics and Psychology *2006–2009*
University of Auckland

EMPLOYMENT

University of Auckland *2017–Present*
Lecturer

University of St Andrews *2016*
Research Fellow

University of Auckland *2011–2012*
Research assistant

AWARDS

Departmental Teaching Award *2017, 2018*
Awarded by the Department of Statistics at the University of Auckland to recognise teaching excellence.

Dean's Teaching Commendation *2017, 2018*
Awarded by the Dean of Science at the University of Auckland for exceptional levels of student satisfaction.

Worsley Early-Career Award

2017

Awarded by the New Zealand Statistical Association, recognising outstanding recent published research from a New Zealand statistician in the early stages of their career.

EPSRC Doctoral Fellowship Prize

2015

Awarded funding for a one-year research fellow post at the University of St Andrews.

American Statistical Association Student Paper Prize

2015

A winner in the Statistical Computing Section with a manuscript entitled *An R package for the estimation of animal density from a fixed array of remote detectors*; invited to present this work at the Joint Statistical Meetings, Seattle, USA, August 2015.

Research Students' Conference Prize

2013

Awarded third-best talk with a presentation entitled *Spatially explicit capture-recapture with imperfect information on animal location*; invited to present this work at the Royal Statistical Society International Conference, Newcastle, UK, September 2013.

PEER-REVIEWED PUBLICATIONS

Jones-Todd, C. M., Caie, P., Illian, J. B., **Stevenson, B. C.**, Savage, A., Harrison, D. J., and Bown, G. L. (in press) Identifying prognostic structural features in tissue sections of colon cancer patients using point pattern analysis. *Statistics in Medicine*.

Stevenson, B. C., Borchers, D. L., and Fewter, R. M. (in press) Cluster capture-recapture to account for identification uncertainty on aerial surveys of animal populations. *Biometrics*.

Baron, H. R., Phalen, D. N., Sabater Gonzalez, M., **Stevenson, B. C.**, and Leung, K. C. L. (in press) Evidence of Amphotericin B resistance in *Macrorhabdus ornithogaster* in Australian cage-birds. *Medical Mycology*.

Measey, G. J., **Stevenson, B. C.**, Scott, T., Altwegg, R., and Borchers, D. L. (2017) Counting chirps: Acoustic monitoring of cryptic frogs. *Journal of Applied Ecology*, 54(3), 894–902.

Kidney, D., Rawson, B. M., Borchers, D. L., **Stevenson, B. C.**, Marques, T. A., and Thomas, L. (2016) An efficient acoustic density estimation method with human detectors applied to gibbons in Cambodia. *PLoS ONE*, 11(5), e0155066.

Fewster, R. M., **Stevenson, B. C.**, and Borchers, D. L. (2016) Trace-contrast models for capture-recapture without capture histories. *Statistical Science*, 31(2), 245–258.

Borchers, D. L., **Stevenson, B. C.**, Kidney, D., Thomas, L., and Marques, T. A. (2015) A unifying model for capture-recapture and distance sampling surveys of wildlife populations. *Journal of the American Statistical Association*, 110(509), 195–204.

Stevenson, B. C., Borchers, D. L., Altwegg, R., Swift, R. J., Gillespie, D. M., and Measey, G. J. (2015) A general framework for animal density estimation from acoustic detections across a fixed microphone array. *Methods in Ecology and Evolution*, 6(1), 38–48.

Stevenson, B. C., and Millar, R. B. (2013) Promising the moon? Evaluation of indigenous and lunar fishing calendars using semiparametric generalized mixed models of recreational catch data. *Environmental and Ecological Statistics*, 20(4), 591–608.

OTHER PUBLICATIONS

Rankin, S., Sakai, T., and **Stevenson, B. C.** (2018) Passive acoustic density estimation of baleen whales: Using sonobuoys to estimate whale density. *Final report by the US National Oceanic and Atmospheric Administration for the US Navy.*

Stevenson, B. C. (2015) An R package for the estimation of animal density from a fixed array of remote detectors. *A winning entry to the American Statistical Association Student Paper Prize in the Statistical Computing section.*

INVITED TALKS

Estimation of animal density from acoustic detections *December 2017*
Joint International Association for Statistical Computing (Asia Regional Section)
and New Zealand Statistical Association Conference
Auckland, NZ

Spatial capture-recapture methods for acoustic detection data *October 2015*
The Wildlife Society Annual Conference
Winnipeg, Canada

An R package for the analysis of spatially explicit capture-recapture data *August 2015*
Joint Statistical Meetings
Seattle, USA

Spatially explicit capture-recapture with imperfect information on animal location *September 2013*
The Royal Statistical Society International Conference
Newcastle, UK

OTHER CONFERENCE TALKS, SEMINARS, AND PRESENTATIONS

Cluster capture-recapture to account for identification uncertainty on aerial surveys of animal populations *June 2019*
International Centre for Mathematical Sciences Summer Meeting
Edinburgh, UK

Spatial capture-recapture methods for passive acoustics *October 2018*
DENMOD Working Group Meeting
La Jolla, USA

Understanding animal populations via passive acoustics *September 2018*
University of Auckland Computer Science, Mathematics, and Statistics Alumni Day
Auckland, NZ

Statistics: One weird trick to having an awesome career *August 2018*
University of Auckland Courses and Careers Open Day
Co-presented with Liza Bolton
Auckland, NZ

Putting the ‘spatial’ in spatial capture-recapture *July 2018*
International Statistical Ecology Conference
St Andrews, UK

- Spatial capture-recapture models for passive acoustic surveys** *June 2018*
National Institute of Water and Atmospheric Research
Hamilton, NZ
- Adventures in statistical ecology** *April 2018*
Southwest University
Chongqing, China
- Advancing capture-recapture methods to better understand animal populations** *March 2018*
School of Biological Sciences, University of Auckland
Auckland, NZ
- Putting the ‘spatial’ in spatial capture-recapture** *December 2017*
Statistics in Ecology and Environmental Monitoring Conference
Queenstown, NZ
- Estimating animal density with spatial capture-recapture** *October 2017*
Department of Statistics, University of Auckland
Auckland, NZ
- Statistics: One weird trick to having an awesome career** *September 2017*
University of Auckland Courses and Careers Open Day
Co-presented with Liza Bolton
Auckland, NZ
- The spatial structure of capture histories in spatial capture-recapture** *July 2017*
EURING Analytical Meeting
Barcelona, Spain
- Acoustic spatial capture-recapture: All creatures great and small** *June 2017*
Southwest Fisheries Science Center
La Jolla, USA
- Second-order spatial dependence in spatial capture-recapture** *November 2016*
St Andrews Spatial Statistics Discussion Group
St Andrews, UK
- Trace-contrast methods: Capture-recapture without animal identification** *July 2016*
University of Cape Town
Cape Town, South Africa
- Trace-contrast models to account for identification uncertainty in aerial surveys of cetacean populations** *June 2016*
International Statistical Ecology Conference
Seattle, USA
- Trace-contrast models in ecology for inference without animal identification** *January 2016*
University of St Andrews School of Mathematics and Statistics Research Day
St Andrews, UK

- Spatially explicit capture-recapture methods for cue directionality and strength heterogeneity** *June 2015*
National Centre for Statistical Ecology Summer Meeting
Falmouth, UK
- Studying for a PhD, and onwards into academia** *March 2015*
University of St Andrews Mathematics Employability Event
St Andrews, UK
- Estimation of animal population density using spatially explicit capture-recapture methods** *January 2015*
University of St Andrews Postgraduate Intra-Disciplinary Mathematics Symposium
Edzell, UK
- Using AD Model Builder for spatially explicit capture-recapture inference with passive detectors** *July 2014*
International Statistical Ecology Conference
Montpellier, France
- Running jobs on the servers at CREEM** *June 2014*
St Andrews R Users' Group
St Andrews, UK
- An introduction to synthetic likelihoods** *May 2014*
St Andrews CREEMcrackers Discussion Group
St Andrews, UK
- Estimating whale abundance by accounting for identification uncertainty in two-plane aerial surveys** *April 2014*
Research Students' Conference in Probability and Statistics
Nottingham, UK
- Spatially explicit capture-recapture using acoustic detection data** *December 2013*
University of Auckland
Auckland, NZ
- An introduction to AD Model Builder** *September 2013*
St Andrews R Users' Group
St Andrews, UK
- Estimating population density of *Arthroleptella lightfooti* using spatially explicit capture-recapture methods** *July 2013*
University of Cape Town
Cape Town, South Africa
- Spatially explicit capture-recapture with imperfect information on animal location** *March 2013*
Research Students' Conference in Probability, Statistics and Social Statistics
Lancaster, UK
Awarded third-best speaker
- An introduction to Github** *November 2012*

St Andrews R Users' Group
St Andrews, UK

The admbsecr package
RUWPA Research Presentations
St Andrews, UK

October 2012

Predicting daily fishing success: The assessment of lunar and indigenous fishing calendars
University of Waikato
Hamilton, NZ

September 2011

Predicting daily fishing success: The assessment of lunar and indigenous fishing calendars
New Zealand Statistical Association Conference
Auckland, NZ

August 2011

Predicting daily fishing success: The assessment of lunar and indigenous fishing calendars
University of Auckland
Auckland, NZ

August 2011

Screening for isomorphism in two-level fractional factorial designs
University of Auckland Graduate Student Presentations
Auckland, NZ
Awarded best speaker

July 2010

RESEARCH GRANTS

Principal Investigator, FRDF New Staff Grant—\$30 000
Putting the 'spatial' in 'spatial capture-recapture': Accounting for spatial structure in ecological processes for robust estimation of population density

2018–2020

Associate Investigator, Marsden Grant—\$680 000
Cells and whistles: supercharging our biodiversity monitoring toolkit using genetic and acoustic records

2018–2021

RESEARCH VISITS

Southwest Sciences Fisheries Centre, USA
DenMod Working Group Meeting
Funded by the OPNAV N45 and the SURTASS LFA Settlement Agreement

October 2018

University of St Andrews
Prof David Borchers
Funded by 2018–2021 Marsden grant

July 2018

University of St Andrews
Gibbon Survey Workshop
Invited participant
Funded by the International Union for Conservation of Nature

July–August 2017

Southwest Sciences Fisheries Centre, USA *June 2017*
 Dr Shannon Rankin
Funded by the US National Oceanic and Atmospheric Administration

University of Stellenbosch *July 2016*
 Dr John Measey

University of Auckland *November–December 2013*
 Dr Rachel Fewster
Part-funded by the University of Auckland

Marine Research Institute, Reykjavík, Iceland *September 2013*
 AD Model Builder Developers' Meeting
 Invited participant
Funded by the University of Bergen

University of Cape Town *July 2013*
 Drs Res Altwegg and John Measey
Part-funded by the National Geographic Society

TEACHING

Lecturing

STATS 330: Statistical modelling *Semester 1, 2018*
Semester 1, 2017

STATS 201/208: Data analysis *Semester 2, 2018*
Southwest University, China, 2018
Semesters 1 & 2, 2017

Workshops

Spatially explicit capture-recapture concepts and methods

University of St Andrews, UK *August 2016*
 University of Stellenbosch, South Africa *July 2016*
 International Statistical Ecology Conference; Seattle, USA *June 2016*

Introduction to statistical modelling

Namibia University of Science and Technology, Namibia *August 2016*
 University of Ghana, Ghana *July 2014*
 University of Limpopo, South Africa *July 2014*
 University of St Andrews, UK *January 2014*
 University of St Andrews, UK *January 2013*

Spatially explicit capture-recapture models

International Statistical Ecology Conference; Montpellier, France *June 2014*

RESEARCH SUPERVISION

David Chan, PhD *due to complete 2022*
Advancing spatial capture-recapture methods for acoustic surveys of cetacean populations
 Co-supervisor: Rachel Fewster

Markus Gronwald, PhD *due to complete 2019*
Behaviour of invasive rat species in low population densities on islands
 Primary supervisor: James Russell

Zhenni Chao , BSc (Hons) <i>Predicting E. coli concentrations at freshwater swimming sites</i>	<i>due to complete 2019</i>
Janice Seo , BSc (Hons) <i>Robustness of spatial capture-recapture models to detection function misspecification</i>	<i>completed 2018</i>
Rishika Chopara , Summer research student <i>Species distribution maps from spatial capture-recapture models</i>	<i>completed 2018</i>
Callum Young , MSc (research) <i>Spatial capture-recapture models for detection counts and clustered activity centres</i>	<i>completed 2018</i>
Yi Ding , Summer research student <i>A spatial capture-recapture model for camera-trap data of leopards in Kruger Park</i> Primary supervisor: David Borchers	<i>completed 2016</i>

SERVICE

Manuscript reviewing

Reviewer of manuscripts submitted to the following journals:

Biology Letters
Biometrics
Conservation Biology
Ecological Applications
Ecology and Evolution
Journal of Agricultural, Biological, and Environmental Statistics
Journal of Statistical Software
Journal of the Acoustical Society of America
Journal of the American Statistical Association
Methods in Ecology and Evolution (×2)
PLoS ONE
Population Ecology

Other reviewing

Reviewer of a Project Monitoring Plan for the New South Wales Office of Environment and Heritage

Intra-departmental

Chair of the Department of Statistics Staff-Student Consultative Committee	<i>2018–present</i>
Member of the Department of Statistics Research Committee	<i>2018–present</i>
Coordinator of the Summer Research Scholarships Program	<i>2017–present</i>
Co-presenter at the University of Auckland Courses and Careers Open Day	<i>2017, 2018</i>
Presenter at the Mathematics, Computer Science, and Statistics Alumni Day	<i>2018</i>
Organiser of the annual Department of Statistics Teaching Symposium	<i>2017</i>
Presenter at the University of St Andrews Mathematics Employability Event	<i>2015</i>

Other

Session chair at the International Statistical Ecology Conference	<i>2016, 2018</i>
Student presentation judge at the New Zealand Statistical Association Annual Conference	<i>2017</i>

PROFESSIONAL MEMBERSHIPS

Member of the New Zealand Statistical Association

International member of the National Centre for Statistical Ecology (UK)