Scott William Forrest

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I am a quantitative ecologist who is motivated to address important conservation, ecological and behavioural questions with real-world impact. I value teaching and mentoring highly alongside my research and would be committed to incorporating te ao Māori into teaching in Aotearoa. I strive to create and work in collaborative teams, and I have existing collaborations in Europe, UK, USA, Australia and Aotearoa/New Zealand.

Education

PhD (Mathematical Sciences) — **2022-present**
Queensland University of Technology, CSIRO, Australia — (expected completion August 2025)
Thesis: *Modelling animal movement with stochastic simulations and deep learning*
I am developing novel methodologies for modelling animal movement, with a focus on simulating animal movement trajectories and emerging approaches such as deep learning. I am applying these methods to introduced water buffalo (*Bubalus bubalis*) and feral cattle (*Bos indicus*) in Northern Australia's tropical savannas.

Master of Science (Wildlife Management) — **2020-2021**
University of Otago, Dunedin, New Zealand — GPA: 9/9
Thesis: *Operation Kākā Repopulation: Using GPS tracking and spatial modelling to restore a flagship species*

Postgraduate Diploma (Wildlife Management) — **2018-2019**
University of Otago, Dunedin, New Zealand — GPA: 7.7/9

Bachelor of Engineering (Naval Architecture) (Hons) — **2012-2016**
Australian Maritime College, Launceston, and Flinders University, Adelaide — GPA: 5.9/7
Thesis: *Ship-generated solitons and the dynamic vessel response due to blockage* — (Class IIA)

Teaching and Academic Employment

Queensland University of Technology — 2025
Co-investigator and Research Assistant
- Waterhole health check: Using computer vision to identify and assess waterholes in Northern Australia for ecosystem health

Queensland University of Technology — 2023-2024
Research Assistant
- Using Value of Information Theory to Inform the Development of Crucial Indicators of Biodiversity Change in Antarctica

Queensland University of Technology — 2023
Tutor - Work Integrated Learning for Applied and Computational Mathematics (MXB328)

University of Otago — 2020-2021
Teaching Fellow
Animal Biology (BIOL112)
- Key tasks included creating online content for teaching laboratory classes during COVID-19 lockdowns through the Open edX platform, xOtago, as well as typical teaching roles such as running labs, course administration and marking.

University of Otago — 2019-2021
Statistics Advisor for Postgraduate Students
- Projects included spatial ecology (home range estimation, resource selection, species distribution modelling), GLM/GLMM, model selection and multi-model inference, and animal growth data and nesting success.

University of Otago — 2018-2021
Senior Demonstrator - Animal Biology (BIOL112)
Demonstrator - Biological Data Analysis and Computing (ZOOL316/WILM404), Conservation Biology (ZOOL319), Animal Biology (BIOL112), Cell Biology (CELS191)

Peer-Reviewed Publications

Citations (Google scholar): 37, h-index: 3

Forrest, S. W.*, Cowan, M. A.*, Hofmann, D. D., Potts, J. R., Klappstein, N. J., Michelot, T., Fieberg, J., Signer, J., Hoskins, A, J, Börger, L., & Nimmo, D. G. Patterns to predictions: movement ecology as a predictive science. (*In preparation*).

Forrest, S. W., Pagendam, D., Patterson, C.R., Potts, J. R., Bode, M., Drovandi, C., Golchin, M., & Hoskins, A. J. (2025). Landscape-scale predictions with deepSSF: transferring across space and species. (*In preparation*).

Maryam Golchin, Drew E. Terasaki Hart, **Scott W. Forrest**, John McEvoy, Eric Vanderduys, Justin Perry, Andrew J. Hoskins. Mapping accessibility: leveraging landscape spatial characteristics to model a routing cost layer from a point of origin. (*In preparation*).

Pike, K. N., **Forrest, S. W.**, McEvoy, J., Perry, J., Vanderduys, E., Arnould, P. Y., & Hoskins, A. J. Seasonal Drivers of Feral Buffalo Resource Selection and Movement in the Northern Territory: Implications for Management. (*Landscape Ecology - In review*). (**IF: 4.0**)

Westaway, D. M., Cowan, M. A., **Forrest, S. W.**, & Nimmo, D. G. Remnant native vegetation key for connectivity: movement ecology of shingleback lizards (*Tiliqua* rugosa) in a fragmented agricultural landscape. (*Landscape Ecology - In review*). (**IF: 4.0**)

Cowan, M. A., **Forrest, S. W.**, Setterfield, S. A., Dunlop, J. A., Gibson, L. A., Moore, H. A., & Nimmo, D. G. The impact of mining on animal movement and landscape connectivity revealed through simulations and scenarios. (*Ecological Applications - In Review*). (**IF: 4.3**)

Forrest, S. W., Pagendam, D., Hassan, C., Drovandi, C., Potts, J. R., Bode, M., & Hoskins, A. J. (2025). Predicting animal movement with deepSSF: a deep learning step selection framework. In *bioRxiv* (p. 2025.02.13.638055). https://doi.org/10.1101/2025.02.13.638055 (*Methods in Ecology and Evolution – in review*). (**IF: 6.2, Citations: 1**).

Forrest, S. W., Pagendam, D., Bode, M., Drovandi, C., Potts, J. R., Perry, J., Vanderduys, E., & Hoskins, A. J. (2024). Predicting fine-scale distributions and emergent spatiotemporal patterns from temporally dynamic step selection simulations. *Ecography*. https://doi.org/10.1111/ecog.07421 (**IF: 4.7, Citations: 3**).

Forrest, S. W., Rodríguez-Recio, M., & Seddon, P. J. (2024). Home range and dynamic space use reveals age-related differences in risk exposure for reintroduced parrots. *Conservation Science and Practice*, e13119. https://doi.org/10.1111/csp2.13119 (**IF: 2.8, Citations: 6**).

Forrest, S. W., Rodríguez-Recio, M., & Seddon, P. J. (2022). Moving wildlife tracking forward under forested conditions with the SWIFT GPS algorithm. *Animal Biotelemetry 2022 10:1*, *10*(1), 1–11. https://doi.org/10.1186/S40317-022-00289-9 (**IF: 2.4, Citations: 26**).

* joint first authorship

Grants and Funding

total to date $194,334 AUD/NZD

Research Training Program (RTP) PhD scholarship	**$107,659**	2022-present
CSIRO PhD top-up scholarship with operational funds ($10K/year + $5K)	**$35,000**	2022-present
Waterhole health check: Using computer vision to identify and assess waterholes in Northern Australia for ecosystem health, QUT Centre for Data Science First Byte	**$10,000**	2025
Travel funding for research visits in Europe and ISEC 2024 attendance, QUT Centre for Data Science	**$2,000**	2024
Travel funding for Ecological Society of Australia and MODSIM conferences, and PhD fieldwork in Arnhem Land, QUT Centre for Data Science	**$2,000**	2023
Australian Mathematical Sciences Institute Summer School Travel Funding	**$1,551**	2023
Travel funding for Ecological Society of Australia / Society for Conservation Biology Oceania conference attendance, QUT Centre for Data Science	**$2,000**	2022

Integrating MOOC platform xOtago into the teaching of Zoology papers for future flexibility and resilience, University of Otago Teaching and Development Grant	**$10,124**	2021-2022
GPS tracking kākā from Orokonui Ecosanctuary, Dunedin City Council Parks and Reserves	**$15,000**	2020
GPS tracking kākā from Orokonui Ecosanctuary, OSPRI	**$7,000**	2020
GPS tracking kākā from Orokonui Ecosanctuary, High Country Contracting	**$2,000**	2020

Awards

Runner up 'Tjanpi Award' for best Student paper in Environmental Statistics - Statistical Society of Australia	2025
Faculty of Science 'High Achiever Award' - Queensland University of Technology	2025
Best student presentation award - Applied Mathematical Ecology Group Symposium, Brisbane, Australia	2025
Runner-up student poster award - QUT Centre for Data Science Showcase, Brisbane, Australia	2024
Best student presentation award - International Statistical Ecology Conference, Wales, UK	2024
Runner-up student presentation award - International Biologging Society Conference (BLS7), online	2021

Presentations and Workshops

Gordon Research Conference – Movement Ecology of Animals, *poster*	July 2025
Gordon Research Seminar – Movement Ecology of Animals, *presentation and poster*	July 2025
International Congress for Conservation Biology (ICCB 2025), **workshop presenter**	June 2025
Applied Math Ecology Group – Websites with Quarto and GitHub, **workshop presenter**	2025
evokeAG Next generation robotics and AI, Brisbane, Australia	2025
Applied Mathematical Ecology Group Symposium, Brisbane	2025
Ecological Society of Australia Conference, Melbourne, Australia	2024
QUT Centre for Data Science Showcase, Brisbane, Australia, *presentation and poster*	2024
International Society for Behavioural Ecology Congress, Melbourne, Australia, *poster*	2024
Max Planck Institute of Animal Behaviour Research Visit, Konstanz, Germany	2024
University of Zurich Research Visit, Zurich, Switzerland	2024
ETH Zurich Research Visit, Zurich, Switzerland	2024
IFREMER Research Visit, Brest, France	2024
International Statistical Ecology Conference, Wales, UK, *presentation and poster*	2024
University of Potsdam Research Visit, Potsdam, Germany	2024
University of Göttingen Research Visit, Göttingen, Germany	2024
QUT Centre for Data Science Bayesian Research and Applications Group	2024
QLD and New Zealand Institute of Applied Mathematics Conference, Brisbane, Aus	2024
QUT and UQ Centre for Biodiversity and Conservation Science ECR event, Brisbane	2024
Geospatial Share Workshop - Animal Movement Modelling, **workshop presenter**	2024
QUT Time-Series Modelling Workshop, **organiser and presenter**, Brisbane, Australia	2024
International Biologging Society Conference (BLS8), online, *poster*	2024
Applied Mathematical Ecology Group Symposium, Brisbane	2024
Australasian Ornithological Conference, Brisbane, Australia	2023
QUT Centre for Data Science Bayesian Research and Applications Group	2023
CSIRO Living Landscapes Science Hour, online	2023
International Congress on Modelling and Simulation Conference, Darwin, Australia	2023
Ecological Society of Australia Conference, Darwin, Australia	2023
Applied Mathematical Ecology Group Symposium, Brisbane, Australia	2023
Ecological Society of Aus / Society for Cons. Biology Oceania Conference, Wollongong	2022
QUT Centre for Data Science Bayesian Research and Applications Group	2022
International Biologging Society Conference (BLS7), online	2021
University of Otago Zoology Departmental Seminar	2021
Birds NZ Conference, Thames, New Zealand	2021
Australasian Wildlife Management Society Conference, online	2020
Otago Postgraduate Research Symposium, Dunedin, New Zealand	2019

Workshop Attendance

Introduction to Machine Learning and Deep Learning (with Professor Benoit Liquet)	2025
GAMs for animal movement, International Statistical Ecology Conference, Wales, UK	2024
Australian Mathematical Sciences Institute Summer School, Melbourne, Australia - Spatial Statistics (equivalent of an Honours-level class)	2023
Dynamic models in behavioural ecology, Ecological Society of Australia Conference, Wollongong, Australia	2022
Practical Deep Learning for Coders (a UQ collaboration with fast.ai), Brisbane, Australia	2022

Academic Leadership

Ecological Society of Australia Movement Ecology Special Interest Network (co-founder)	2025-present
Bayesian Research and Applications Seminar Series (co-chair)	2022-2024
I have reviewed manuscripts for the *Journal of Animal Ecology*, *Movement Ecology* and *Animal Biotelemetry*	

Society Membership

Statistical Society of Australia	2025-present
Society for Conservation Biology	2022-present
Ecological Society of Australia	2022-present
International Biologging Society	2021-present
New Zealand Ornithological Society	2020-2021

Volunteering, Outreach and Community Engagement

CSIRO and Queensland University of Technology: PhD fieldwork, Arnhem Land, Australia	2023
University of Otago: MSc fieldwork, Orokonui Ecosanctuary, Dunedin, New Zealand	2020-2021
Orokonui Ecosanctuary: Education Outreach Team, Dunedin, New Zealand	2020-2021
University of Otago: Zoology Tertiary Open Day Coordinator, Dunedin, New Zealand	2020
Otago Museum: Science Fair Judge, Dunedin, New Zealand	2020
Department of Conservation: Kākā (Nestor meridionalis) Recovery Team, Fiordland National Park, New Zealand	2019
Department of Conservation: Kākāpō (*Strigops habroptilus*) Recovery Team, Whenua Hou (Codfish Island), New Zealand	2019
Department of Conservation: Takahē (*Porphyrio hochstetteri*) Recovery Team, Kahurangi National Park, New Zealand	2018
Montana Fish, Wildlife and Parks: Gray Wolf (*Canis lupus*) Program, Western Montana, USA	2017
Comunidad Inti Wara Yassi (CIWY): Puma/Jaguar Caretaker, Parque Ambue Ari, Bolivia	2014

References

Professor Michael Bode School of Mathematical Sciences Queensland University of Technology	PhD Supervisor	michael.bode@qut.edu.au
Dr Daniel Pagendam Senior Research Scientist Data61, CSIRO	PhD Supervisor	dan.pagendam@data61.csiro.au
Dr Andrew Hoskins Senior Research Scientist North Australian Indigenous Land and Sea Management Alliance Ltd (NAILSMA)	PhD Supervisor	andrew.hoskins@nailsma.org.au
Dr Andrew Digby Science Advisor Kākāpō/Takahē Department of Conservation	Collaborator	adigby@doc.govt.nz
Professor Philip Seddon Department of Zoology University of Otago	MSc Supervisor	philip.seddon@otago.ac.nz