

Jake Williams

Ecosystem Scientist at the Institute of Zoology

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Interests

-  Ecosystem science
-  Ecosystem governance
-  Conservation strategy
-  Next-generation biomonitoring
-  Environmental economics

Skills

Technical:

Scientific programming

Bioinformatics

Satellite remote sensing

Machine learning, HPC

Programming:

R, Bash, PBS

Google earth engine

Python, LaTeX

Modelling:

GLMM, SEM, NLLS

Multi-model inference

Network analysis

Tools:

Git

Education

- 2020 – 2024

PhD Ecosystem Science Imperial College London

Thesis title: "Not Just Corals and Fishes: seeking general ecosystem collapse in multiomic data from coral reefs"

Supervisors: Dr Emma Ransome, Prof. Nathalie Pettorelli, Dr Chris Meyer.

Funding Awards: Studentship at NERC Centre for Doctoral Training in Quantitative and Modelling Skills in Ecology and Evolution
- 2013 – 2014

MSc Biodiversity, Conservation and Management University of Oxford

Thesis title: "Impacts of megafaunal extinctions and reintroductions on ecosystem properties in a General Ecosystem Model"

Supervisors: Dr Richard Grenyer, Dr Michael Harfoot

Funding Awards: Oxford University Centre for the Environment Bio-diversity Research Grant (£1000); Leathersellers Foundation Award (£5000)
- 2010 – 2013

BSc Politics, Philosophy and Economics University of York

1st: Graduated top of class in economics (>85%)

Relevant Experience

- 2024

Post Doctoral Research Assistant Institute of Zoology

Researching ecosystem collapse, with a focus on African tropical forests as a study system.
- 2020 – 2024

Conservation Strategy Consultant ZSL

Support to ZSL teams in development of strategic impact evaluation, and designing major conservation projects worth > £10million.
- 2019 – 2020

Deputy Conservation Design and Impact Manager ZSL

Technical and strategic support to teams across the Conservation and Policy Department in the design and evaluation of conservation. Exceptionally, over 70% of funding applied for was awarded.
- 2016 – 2019

Assistant Programme Manager - Asia ZSL

Delivery of a multi-million pound tiger conservation project, securing long-term project funding.
- 2015 – 2016

Policy Adviser and Economist HM Treasury

Policy lead on single market and better regulation agendas within the European Union Institutions and Policy Team.
- 2014 – 2016

Scientific Consultant Wild Business Ltd.

Natural capital assessments, and support in implementing the mitigation hierarchy for private and public sector clients.

Publications

- Williams J**, Pettorelli N, Dowell R, MacDonald K, Meyer C, Steyaert M, Tweedt S, Ransome E. (2024) "SimpleMetaPipeline: Breaking the bioinformatics bottleneck in metabarcoding". *Methods in Ecology and Evolution*
- Williams J**, Sandom C, Pettorelli, N. (2024) "Active management is required to regenerate the Caledonian forest: Alladale as a case study". *Ecological Solutions and Evidence*
- Williams J**, Pettorelli N, Hartmann A, Quinn R, Plaisance L, O'Mahoney M, Meyer C, Fabricius K, Knowlton N, Ransome E. (2024) "Decline of a distinct coral reef holobiont community under ocean acidification". *Microbiome*
- Crowson M, **Williams J**, Pettorelli N. "Challenges for monitoring the growth of artificial turf with satellite remote sensing". *Environmental Monitoring and Assessment*
- Pettorelli N, **Williams J**, Schulte To Buhne H, Crowson M. "Deep learning and satellite remote sensing for biodiversity monitoring and conservation". *Remote Sensing in Ecology and Conservation*
- Langhammer PF, ... **Williams J**, Woodley S, Brooks TM. (2024) "The positive impact of over a century of conservation actions". *Science*

- Dowell R, Dunn N, Ransome E, Yesson C, **Williams J**, Head C. (2024) "Environmental DNA captures diurnal fluctuations of surface eukaryotes on a tropical coral reef". *Environmental DNA*
- Sandom CJ, Faurby S, Svenning JC, Burnham D, Dickman A, Hinks AE, Macdonald EA, Ripple WJ, **Williams J**, Macdonald DW. (2018) "Learning from the past to prepare for the future: felids face continued threat from declining prey". *Ecography*
- Sandom CJ, **Williams J**, Burnham D, Dickman AJ, Hinks AE, Macdonald EA, Macdonald DW. (2017) "Deconstructed cat communities: quantifying the threat to felids from prey defaunation". *Diversity and Distributions*

Publications in Review and Preparation

- **Williams J**, Pettorelli N. "An ecological equation of state generates an emergent measure of ecosystem condition". *Current Biology*
- **Williams J**, ... Ransome E. "Macrobes mediate microbial macroecology: evidence from Pacific coral reefs". *PNAS*
- **Williams J**, Pettorelli N, Ransome E. "Evidence for an ecosystem microbiome from Pacific mesofauna communities", *The ISME Journal*
- Hartmann AC, Ransome E, Timmers MA, Cahyani DN, Anggoro AW, **Williams J**, ... Rohwer F. "Indo-Pacific metabolite biogeography reveals localized chemical diversification and adaptation potential". *Science*

Other Academic Activities

- Associate Editor - Remote Sensing in Ecology and Conservation
- Advocacy Committee Member - Society for Open, Reliable, and Transparent Ecology and Evolutionary biology (SORTEE)