

Dr Lewis A. Jones

NERC Independent Research Fellow

Department of Earth Sciences
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Research summary

Palaeobiologist examining the macroecological and macroevolutionary history of reef-building organisms, and marine invertebrate biodiversity more broadly, through the integration of interdisciplinary tools and diverse sources of information, such as ecological modelling, Earth System modelling, and fossil and extant occurrence datasets. An additional significant theme of research has been evaluating the influence of data incompleteness on perceptions of the geological past, such as biodiversity trends, and the development of software tools for the research community. Current research focus is investigating the drivers of marine biodiversity hotspots throughout the Cenozoic and reconstructing their evolutionary history.

Macroecology and biodiversity | Fossil record bias | Corals and reef ecosystems | Palaeoclimate | R programming

Education

PhD in Palaeobiology (2016–2020)

Department of Earth Science and Engineering, Imperial College London, London, UK

Research advisors: Prof. Philip D. Mannion & Prof. Peter A. Allison

Thesis title: On the detectability of latitudinal biodiversity gradients in deep time

MPhysGeog in Physical Geography (2011–2015)

Department of Geography and Earth Science, University of Hull, Hull, UK

Research advisor: Prof. David P.G. Bond

Thesis title: The End-Triassic mass extinction. An investigation of the British Geological Record: testing for the role of volcanism and ocean anoxia

Chartered Management Institute (Level 5) in Management and Leadership (2012–2015)

Leeds University Officer Training Corps, Leeds, UK

Employment

NERC Independent Research Fellow (2024–current)

Department of Earth Sciences, University College London, London, UK

Juan de la Cierva Postdoctoral Research Fellow (2023–2024)

Mapas Lab, Centro de Investigación Mariña, Universidade de Vigo, Vigo, Spain

European Research Council Postdoctoral Research Assistant (2021–2022)

Mapas Lab, Centro de Investigación Mariña, Universidade de Vigo, Vigo, Spain

Graduate Teaching Assistant (2016–2021)

Department of Earth Science and Engineering, Imperial College London, London, UK

Student Hall's Warden (2016–2021)

Woodward Buildings, Imperial College London, London, UK

British Army Officer Cadet (2012–2015)

Leeds University Officer Training Corps, Leeds, UK

Sales Assistant (2010–2012)

Republic Ltd, Grimsby and Hull, UK

Baker (2008–2010)

Muffin Break, Grimsby, UK

Research visits

University of Vienna, Vienna, Austria (April–June, 2023)

Visiting researcher in the Conservation Palaeobiology and Historical Ecology Lab (PI: Prof. Martin Zuschin)

Publications

Peer-reviewed publications

1. Christopher D. Dean, Alfio A. Chiarenza, Jeffrey W. Doser, Alexander Farnsworth, **Lewis A. Jones**, Sinéad J. Lyster, Charlotte L. Outhwaite, Paul J. Valdes, Richard J. Butler, and Philip D. Mannion (2025). The structure of the end-Cretaceous dinosaur fossil record in North America. *Current Biology*. DOI: [10.1016/j.cub.2025.03.025](https://doi.org/10.1016/j.cub.2025.03.025).
2. Theres Koch, Angelina Ivkić, **Lewis A. Jones**, Victor S. Scharnhorst, Constanze M. Stix, Antonia Auer, Theda Schöchtner, Gözde Özer, Simon Steinwender, Joseph W. Daurella, and Martin Zuschin (2025). Quantifying diversity and growth form distribution of scleractinian corals, in Mangrove Bay, El Qoseir, Egypt. *Biodiversity Data Journal* 13, e134282. DOI: [10.3897/BDJ.13.e134282](https://doi.org/10.3897/BDJ.13.e134282).
3. **Lewis A. Jones**, Christopher D. Dean, William Gearty, and Bethany J. Allen (2024). rmacrostrat: An R package for accessing and retrieving data from the Macrostrat geological database. *Geosphere* 20(6), 1456–1467. DOI: [10.1130/GES02815.1](https://doi.org/10.1130/GES02815.1).
4. **Lewis A. Jones** and Mathew Domeier (2024). A Phanerozoic gridded dataset for palaeogeographic reconstructions. *Scientific Data* 11 (710), 1–7. DOI: [10.1038/s41597-024-03468-w](https://doi.org/10.1038/s41597-024-03468-w).
5. Alfio A. Chiarenza, Juan L. Cantalapiedra, **Lewis A. Jones**, Sara Gamboa, Sofía Galván, Alexander Farnsworth, Paul J. Valdes, Graciela Sotelo, and Sara Varela (2024). Early Jurassic origin of avian endothermy and thermophysiological diversity in dinosaurs. *Current Biology* 34, 1–11. DOI: [10.1016/j.cub.2024.04.051](https://doi.org/10.1016/j.cub.2024.04.051).
6. Kilian Eichenseer and **Lewis A. Jones** (2024). Bayesian multi-proxy reconstruction of early Eocene latitudinal temperature gradients. *Climate of the Past* 20, 349–362. DOI: [10.5194/cp-20-349-2024](https://doi.org/10.5194/cp-20-349-2024).
7. Lucas Buffan, **Lewis A. Jones**, Mathew Domeier, Christopher R. Scotese, Sabin Zahirovic and Sara Varela (2023). Mind the uncertainty: Global Plate Model choice impacts deep-time palaeobiological studies. *Methods in Ecology and Evolution* 14 (12), 3007–3019. DOI: [10.1111/2041-210X.14204](https://doi.org/10.1111/2041-210X.14204).

8. William Gearty and **Lewis A. Jones** (2023). rphylopic: An R package for fetching, transforming, and visualising PhyloPic silhouettes. *Methods in Ecology and Evolution* 14 (11), 2700–2708. DOI:[10.1111/2041-210X.14221](https://doi.org/10.1111/2041-210X.14221).
9. **Lewis A. Jones**, William Gearty, Bethany J. Allen, Kilian Eichenseer, Christopher D. Dean, Sofía Galván, Miranta Kouvari, Pedro L. Godoy, Cecily Nicholl, Lucas Buffan, Erin M. Dillon, Joseph T. Flannery-Sutherland and A. Alessandro Chiarenza (2023). palaeoverse: A community-driven R package to support palaeobiological analysis. *Methods in Ecology and Evolution* 14 (9), 2205–2215. DOI:[10.1111/2041-210X.14099](https://doi.org/10.1111/2041-210X.14099).
10. **Lewis A. Jones**, Philip D. Mannion, Alexander Farnsworth, Fran Bragg, Daniel J. Lunt (2022). Climatic and tectonic drivers shaped the tropical distribution of coral reefs. *Nature Communications* 13 (3120), 1–10. DOI:[10.1038/s41467-022-30793-8](https://doi.org/10.1038/s41467-022-30793-8).
11. **Lewis A. Jones** and Kilian Eichenseer (2022). Uneven spatial sampling distorts reconstructions of Phanerozoic seawater temperature. *Geology* 50 (2), 238–242. DOI:[10.1130/G49132.1](https://doi.org/10.1130/G49132.1).
12. **Lewis A. Jones**, Christopher D. Dean, Philip D. Mannion, Alexander Farnsworth, Peter A. Allison (2021). Spatial sampling heterogeneity limits the detectability of deep time latitudinal biodiversity gradients. *Proceedings of the Royal Society B* 288 (1945), 20202762. DOI:[10.1098/rspb.2020.2762](https://doi.org/10.1098/rspb.2020.2762).
13. **Lewis A. Jones**, Philip D. Mannion, Alexander Farnsworth, Paul Valdes, Sarah-Jane Kelland, and Peter A. Allison (2019). Coupling of palaeontological and neontological reef coral data improves forecasts of biodiversity responses under global climatic change. *Royal Society Open Science* 6 (4), 182111. DOI:[10.1098/rsos.182111](https://doi.org/10.1098/rsos.182111).
14. Alfio Alessandro Chiarenza, Philip D. Mannion, Daniel Lunt, Alexander Farnsworth, **Lewis A. Jones**, Sarah-Jane Kelland, and Peter A. Allison (2019). Ecological niche modelling does not support climatically-driven dinosaur diversity decline before the Cretaceous/Paleogene mass extinction. *Nature Communications* 10 (1091), 1–14. DOI:[10.1038/s41467-019-08997-2](https://doi.org/10.1038/s41467-019-08997-2).

Submitted and in-preparation manuscripts

1. **Lewis A. Jones**, Christopher D. Dean, Bethany J. Allen, Harriet B. Drage, Joseph T. Flannery-Sutherland, William Gearty, Alfio A. Chiarenza, Erin M. Dillon, Bruna M. Farina, and Pedro L. Godoy (In review). Ten simple rules to follow when cleaning occurrence data in palaeobiology. *Palaeontology*. Preprint DOI: [10.32942/X2FS8M](https://doi.org/10.32942/X2FS8M).
2. **Lewis A. Jones**, William Gearty, Lucas Buffan, and Bethany J. Allen (In review). Global plate model choice impacts reconstructions of the latitudinal biodiversity gradient. *Royal Society Open Science*. Preprint DOI: [10.1101/2025.01.09.632144](https://doi.org/10.1101/2025.01.09.632144).
3. Angelina Ivkić, **Lewis A. Jones**, Andreas Kroh, Abbas Mansour, Mohamed Osman, Mohamed Hassan, and Martin Zuschin (In prep.). Reconstructing ecosystem baselines using Pleistocene data: insights from an Egyptian coral reef.
4. **Lewis A. Jones**, Danijela Dimitrijević, Markus Aretz, Francesca R. Bosellini, Juan C. Braga, Clara Diaz, Elizabeth Dowding, Kenneth Johnson, Wolfgang Kiessling, Bernard Lathuilière, Anna Merkel, Kyle Morgan, Michele Morsilli, John M. Pandolfi, Mikołaj K. Zapalski, and Nadia Santodomingo (In prep.). The potential of mesophotic environments to provide refugia for coral communities during times of crises.

Theses

1. **Lewis A. Jones** (2020). On the detectability of latitudinal biodiversity gradients in deep time. PhD Thesis. Imperial College London. Supervisors: Prof. Philip D. Mannion and Prof. Peter A. Allison. DOI:[10.25560/100239](https://doi.org/10.25560/100239).
2. **Lewis A. Jones** (2015). The end-Triassic mass extinction. An investigation of the British geological record: testing for the role of volcanism and ocean anoxia. Master Thesis. Supervisor: Prof. David Bond.

Other works

1. **Lewis A. Jones**, Christopher D. Dean, and Harriet B. Drage (2025). **Introducing the Palaeoverse**. *The Palaeontological Association Newsletter* 118.
2. **Lewis A. Jones** (2024). **Meeting report: R for Palaeobiologists: Workshop and Hackathon**. *The Palaeontological Association Newsletter* 116.
3. **Lewis A. Jones** (2023). **Palaeontology's greatest ever graphs: The absence of evidence: spatial sampling bias in the fossil record**. *The Palaeontological Association Newsletter* 114.
4. **Lewis A. Jones** (2022). **Book review: Timefulness: How thinking like a geologist can help save the world**. *The Palaeontological Association Newsletter* 110.
5. Michael Stevens, Yiqiao Chen, Alex Stringer, Caitlin Clemmow, and **Lewis A. Jones** (2020). **Key factors driving obesity in the UK**. *GISRUUK* 2020.
6. **Lewis A. Jones** (2020). **Meeting report: 13th International Symposium of Fossil Cnidaria and Porifera**. *The Palaeontological Association Newsletter* 102.

Published software

1. **palaeoverse**: A community-driven R package to support data preparation and exploration for palaeobiological analyses. CRAN: <https://cran.r-project.org/web/packages/palaeoverse/>. GitHub: <https://github.com/palaeoverse/palaeoverse>.
2. **rphylopic**: An R package for fetching, transforming, and visualising PhyloPic silhouettes. CRAN: <https://cran.r-project.org/web/packages/rphylopic/>. GitHub: <https://github.com/palaeoverse/rphylopic>.
3. **sepkoski**: A data R package of Sepkoski's Fossil Marine Animal Genera Compendium (Sepkoski, 2002). CRAN: <https://cran.r-project.org/web/packages/sepkoski/>. GitHub: <https://github.com/lewisajones/sepkoski>.
4. **rmacrostrat**: An R package to fetch geologic data from the Macrostrat database. CRAN: <https://cran.r-project.org/web/packages/rmacrostrat/>. GitHub: <https://github.com/palaeoverse/rmacrostrat>.

Academic awards and grants

Dorothy Bishop Award (2025)

Early Career Researcher award for promoting and improving open research practices

Elucidating diversity dynamics in marine tropical hotspots (2024)

Natural Environment Research Council Independent Research Fellowship, UK

Role: applicant, value: 874,978 GBP

Addressing the origins of marine invertebrate diversity in computer simulations (INDICiOS) (2024)

Proyectos de Generación de Conocimiento (Knowledge Generation Projects), Spain

Role: co-applicant, value: 345,000 EUR

Reconstructing the diversity dynamics and drivers of Cenozoic marine biodiversity hotspots (2024)

Norman Newell grant from the Paleontological Society, USA

Role: applicant, value: 5000 USD

rmacrostrat R package development workshop (2024)

Scientific Exchange grant from the Swiss National Science Fund, Switzerland

Role: co-applicant, value: 5800 CHF

MURKY: Mesophotic and turbid reefs as key ecosystems for the future? (2023)

Research workshop grant from the Paleosynthesis project, Friedrich-Alexander-Universität, Germany

Role: co-applicant, value: 10,000 EUR

R for Palaeobiologists: Workshop and Hackathon (2023)

Meeting support grant from The Paleontological Society, USA

Role: co-applicant, value: 1000 USD

R for Palaeobiologists: Workshop and Hackathon (2022)

Grant-in-Aid from The Palaeontological Association, UK

Role: applicant, value: 2000 GBP

Juan de la Cierva Fellowship (2022)

Agencia Estatal de Investigación, Spain

Role: applicant, value: 64,800 EUR

Doctoral Summer School for Advanced Spatial Modelling - Hackathon award (2019)

Awarded for best hackathon project, Centre for Advanced Spatial Analysis, University College London, London

Value: 250 GBP

13th International Symposium on Fossil Cnidaria and Porifera - Travel grant (2019)

Travel grant from The Palaeontological Association, UK

Role: applicant, value: 220 EUR

President's PhD Scholarship (2016)

Imperial College London, London, UK

Role: applicant, value: 70,000 GBP

Roger Ward thesis award (2015)

Awarded for best Master's thesis, University of Hull, Hull, UK

Value: 50 GBP

Invited presentations

Department of Earth Sciences, University College London, London, UK (2025)

Talk: Open Science, Software and Coding

Centre for Biodiversity and Environment Research, University College London, London, UK (2024)

Talk: Mind the Gap: Reconstructing marine biodiversity through time and space

Computational Palaeobiology Mini-Symposium (2024)

Department of Biosystems Science and Engineering, ETH Zürich, Basel, Switzerland

Talk: Mind the uncertainty: Global Plate Model choice impacts deep-time palaeobiological studies

Methods in Ecology and Evolution: Live! (2023)

British Ecological Society, Online workshop

Talk: Introduction to rphylopic: An R package for fetching, transforming, and visualising PhyloPic silhouettes

Department of Palaeontology, University of Vienna, Austria (2023)

Talk: Into the palaeoverse: a community-driven R package

PalaeoSIG (British Ecological Society): Masterclass in R (2022)

Talk: Into the palaeoverse: a community-driven R package

Getech PLC (2018)

Talk: Ecological modelling in Geosciences

Selected conference presentations

68th Annual Meeting of the Palaeontological Association (Erlangen, Germany, 2024)

Poster: rmacrostrat: An R package for retrieving data from the Macrostrat geological database

12th North American Paleontological Convention (Ann Arbor, Michigan, USA, 2024)

Talk: Mind the uncertainty: Global Plate Model choice impacts deep-time palaeobiological studies

Poster: palaeoverse: A community-driven R package to support palaeobiological analyses

Poster: rmacrostrat: An R package for retrieving data from the Macrostrat geological database

14th International Fossil Coral and Reef Society symposium (Chęciny, Poland, 2023)

Talk: Inverse latitudinal diversity gradients in Last Interglacial coral reef communities

The Palaeontological Association: Annual Meeting (Cork, Ireland, 2022)

Poster: Niche characterisation is biased by limited and heterogeneous spatial sampling

Simposio de Paleontologia del noroeste peninsular (A Coruña, Spain, 2022)

Poster: palaeoverse: a community-driven R package

The Palaeontological Association: Annual Meeting (Valencia, Spain, 2019)

Talk: Poor spatial sampling coverage obscures our understanding of the latitudinal biodiversity gradient in deep time

Poster: Uneven spatial sampling in Phanerozoic palaeoclimate curves

13th International Symposium on Fossil Cnidaria and Porifera (Modena, Italy, 2019)

Talk: The evolution of the latitudinal biodiversity gradient in zooxanthellate corals

The past is a foreign country: how much can the fossil record actually inform conservation? (London, UK, 2019)

Poster: Looking through the palaeontological window: reducing geographical and environmental bias in forecasting biodiversity responses

Crossing the Palaeontological–Ecological Gap (Leeds, UK, 2018)

Talk: Absence of evidence is not evidence of absence: quantifying reef coral range shifts under global climatic change

British Ecological Society - Macroecology (St. Andrews, UK, 2018)

Talk: Anthropogenic climate change and transitional distribution ranges of reef corals: insights from the last Pleistocene interglacial

The Palaeontological Association: Progressive Palaeontology (Manchester, UK, 2018)

Talk: Coupling palaeontological and neontological data: transitional distribution ranges of reef corals under global

climatic change

The Palaeontological Association: Annual Meeting (London, UK, 2017)

Poster: Ecological niche modelling in deep time: constraining the transitional distribution ranges of reef corals

European Coral Reef Symposium (Oxford, UK, 2017)

Poster: Anthropogenic climate change and transitional distribution ranges of reef corals: insights from the last Pleistocene interglacial

The Palaeontological Association: Progressive Palaeontology (Leicester, UK, 2017)

Poster: PalaeoENM: Ecological Controls on Triassic/Jurassic Coral Reefs

Fieldwork experience

El Qoseir, Egypt (2023)

Modern and fossil (Last Interglacial) coral reef data collection via line-intercept transects

León, Spain (2022)

Logging and bulk sampling of Devonian sequences

Colorado and New Mexico, USA (2016)

Logging, sampling, and fossil prospecting across the Cenomanian/Turonian boundary

Somerset, Lyme Regis, and Newark, UK (2015)

Logging, sampling, and geochemical analysis across the Triassic/Jurassic boundary

Koh Rong, Cambodia (2012)

Marine biological surveys as part of Koh Rong's (Cambodia) coral reef monitoring project

Professional development

Fair and Inclusive Recruitment (2024)

University College London, London, UK

Introduction to Research Supervision (2024)

University College London, London, UK

Macroevolution and Phylogenies (2022)

Transmitting Science, Online

Introduction to GEN3SIS (2022)

Universidade de Vigo, Vigo, Spain

Towards more equitable marine research (2021)

Centro de Investigación Mariña (led by Transmitting Science), Universidade de Vigo, Spain

Data Manipulation and Statistical Analysis in Palaeoecology (2021)

Palaeoecology Group, British Ecological Society, Online

Doctoral Summer School for Advanced Spatial Modelling (2019)

The Centre for Advanced Spatial Analysis, University College London, London, UK

Species distribution modelling: fundamentals and the future workshop (2019)

University of Nottingham, Nottingham, UK

Advanced ecological niche modelling (2018)

University of Porto, Porto, Portugal

Introduction to ecological niche modelling (2017)

Transmitting Science, Barcelona, Spain

Introduction to coral identification (2017)

European Coral Reef Symposium, Oxford, UK

Introduction to larval dispersal modelling (2017)

European Coral Reef Symposium, Oxford, UK

Student supervision

Xiaoli Ma (2024–2025)

Nanjing University, China

PhD project: Palaeogeographic reconstructions shape understanding of deep-time climate change

Die (Wendy) Wen (2024–2025)

University College London, UK

PhD project: Reconstructing Palaeozoic marine latitudinal diversity gradients

Theres Koch (2024)

University of Vienna, Austria

Master's project: Checklist of scleractinian species in Mangrove Bay, El Qoseir, Egypt

Miranta Kouvari (2019–2023)

University College London, London, UK

Master's project: The latitudinal biodiversity gradient of South American eutherians

Lucas Buffan (2021–2022)

University of Vigo, Vigo, Spain

Master's project: Spatial discrepancies in palaeogeographic reconstructions

Teaching and pastoral care

Tutor (2024–Current)

Department of Earth Sciences, University College London, UK

- Advanced Biodiversity and Macroevolutionary Studies (GEOL0036)
- The Earth - Meet Your Researcher (GEOL0007)

R for Paleobiologists: Getting Started with the palaeoverse R Package (2024)

12th North American Paleontological Convention, Ann Arbor, Michigan, USA

Organised and ran a workshop on using R in Palaeobiology

Lab Assistant (2024)

Universidade de Vigo, Vigo, Spain

- Computational Tools in Biology

R for Palaeobiologists: Workshop and Hackathon (2023)

University College London, UK

Organised and ran a workshop on using R in Palaeobiology

Graduate Teaching Assistant (2016–2021)

Imperial College London, London, UK

- Palaeobiology I
- Palaeobiology II
- Dorset (UK) geology field course
- Almería (Spain) geology field course

Student Hall's Warden (2016–2021)

Woodward Buildings, Imperial College London, London, UK

Professional appointments, service, and outreach

Generation Hope, Natural History Museum, London, UK (2025)

Outreach science stall on coral resilience

Scientific Associate, Natural History Museum, London, UK (2025–Current)

Palaeontology, Department of Earth Sciences

Handling Editor for *Open Palaeontology* (2024–Current)

Open Palaeontology is a new international Diamond Open Access journal promoting open science in the field of palaeontology

68th Annual Meeting of the Palaeontological Association (Erlangen, Germany, 2024)

Session chair: Climate Change

Recent Advances in Computational Paleobiology symposium (Ann Arbor, Michigan, USA, 2024)

Co-organised and ran a symposium at the 12th North American Paleontological Convention

Palaeoverse Lecture Series (2024–Current)

Monthly lecture series on recent advances in computational tools and methods in palaeobiology

<https://www.youtube.com/@ThePalaeoverse/>

14th International Fossil Coral and Reef Society symposium (Chęciny, Poland, 2023)

Session chair: Research Methods

IFCRS Internet Officer (2023–current)

Committee member of the International Fossil Coral and Reef Society (IFCRS)

IFCRS Early Career Researcher Representative (2021–2023)

Committee member of the International Fossil Coral and Reef Society (IFCRS)

IFCRS Lecture Series (2022)

International Fossil Coral and Reef Society, Online

Co-organised and ran a lecture series on fossil corals and reefs

IFCRS Early Career Researcher Symposium (2021)

International Fossil Coral and Reef Society, Online

Co-organised and ran an early career researcher meeting on fossil corals and reefs

Fossil Fact or Fiction stall (2019)

Einstein's Garden, Green Man Festival, Brecon Beacons, Wales

Co-ran a stall on fossil record bias over the course of the festival

Ecological niche modelling workshop (2018)

Imperial College London, London, UK

Co-organised and ran a workshop on ecological niche modelling

Palaeontological Association meeting (2017)

Imperial College London, London, UK

Co-organised and ran the annual meeting of the Palaeontological Association

Peer-review experience

Publications

Big Earth Data Journal (1)

Ecological Monographs (1)

Global Ecology and Biogeography (3)

Journal of Biogeography (1)

Palaeontology (2)

Paleobiology (3)

Methods in Ecology and Evolution (4)

Nature Communications (1)

Science Advances (1)

Scientific Reports (1)

Trends in Ecology and Evolution (1)

Research proposals

Daphne Jackson Fellowship (1)

Skills

R programming

Advanced proficiency in data analysis, data visualization, writing functions and developing packages

Geocomputation

Proficient in spatial analysis and the use of R spatial packages (e.g. raster, terra, sf, sp)

Languages

Spanish (CEFR B1)

Mandarin Chinese (HSK1)

SCUBA diver

BSAC-accredited Ocean and Sports Diver

Workplace qualifications

Emergency first-aid at work & automated external defibrillator

Outdoors emergency first-aid

Mental health first-aid

Fire safety and warden

Active-bystander

Driving

Full EU driving license

Memberships

Member of the International Fossil Coral and Reef Society (2018–present)

Member of the Palaeontological Association (2017–present)

Member of the Paleontological Society (2023–present)

Member of the Conservation Paleobiology Network (2019–present)

Member of the British Ecological Society (2017–present)