Professor Richard J. Butler
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EDUCATION

2002–2006. University of Cambridge. PhD Earth Sciences (Palaeobiology).
1999–2002. University of Bristol. BSc Geology (First Class Honours).

TRACK RECORD

2017–. **Professor of Palaeobiology** (personal chair), School of Geography, Earth and Environmental Sciences (GEES), University of Birmingham.
2020–. **Director of Global Engagement**, College of Life & Environmental Sciences, University of Birmingham.
2021–. **Honorary Research Professor**, Evolutionary Studies Institute, University of the Witwatersrand, Johannesburg.

2013–2018. **Academic Keeper, Lapworth Museum of Geology**, University of Birmingham.
2015–2017. **Senior Birmingham Fellow,** GEES, University of Birmingham.
2013–2015. **Birmingham Fellow,** GEES, University of Birmingham.
2011–2013. **Junior Research Group Leader (DFG Emmy Noether Programme),** GeoBio-Center, Ludwig-Maximilians-Universität München, Munich, Germany.
2009–2011. **Alexander von Humboldt Foundation Research Fellowship,** Bayerische Staatssammlung für Paläontologie und Geologie, Munich, Germany.
2006–2009. **NERC PDRA,** Natural History Museum, London.

CURRENT RESEARCH INTERESTS

I am a palaeobiologist specialising in the deep time evolution of land vertebrates. I conduct specimen-based research, quantitative analysis of large databases, and exploratory fieldwork to address two key themes: (1) understanding the origins and evolutionary success of archosaurs (birds, crocodilians, dinosaurs and their kin) and dinosaurs following the largest mass extinction in Earth history at the end of the Palaeozoic; (2) testing the patterns and elucidating the Earth system drivers of global and regional diversity of land and marine animals through the Phanerozoic.

SELECTED RECENT AND CURRENT RESEARCH GRANTS

Total funding as PI exceeds £3m since 2011.

Marie Curie Global Fellowship, “ECODIV: Ecological diversity of land vertebrates through the largest extinction in Earth history”. 2021–2024. €272k (**host PI**).
Marie Curie European Fellowship, “Using avian bone histology to trace back the evolution of flight-related locomotor ontogeny in the dinosaur–bird transition”. 2020–2022. €213k (**host PI**).
Leverhulme Trust Research Project Grant, “Resolving the dietary ecology and evolution of the earliest dinosaurs”. 2020–2023. £187k (**PI**).
Leverhulme Trust Research Project Grant, “Climate as a driver in the evolution and macroecology of dinosaurs and their kin”. 2020–2023, £228k (**PI**).
Royal Society International Exchange Grant (Russia), "The rise of reptilian apex predators following the Permo-Triassic mass extinction". 2018–2020 (**PI**).
Palaeontological Association Engagement Grant, “Gesture control technologies and palaeontology: exploring innovative outreach and education approaches using 3D fossil models”. 2017–2018. £4,624 (**PI**).
European Research Council (ERC) Starting Grant, “TERRA - 375 Million Years of the Diversification of Life on Land: Shifting the Paradigm?”. 2015–2010, €1.495 million (**PI**).

Marie Curie Actions, Career Integration Grant, "The early Mesozoic rise of archosaurs: New insights into an exemplar evolutionary radiation". 2014–2018, €100k **(PI)**.
German Research Foundation (DFG) Emmy Noether Programme, "Dawn of the Dinosaurs: Archosauromorph Evolution in the Terrestrial Triassic". 2011–2016, €873k **(PI)**.
German Research Foundation (DFG) Research Grant, "Terrestrial Vertebrates from Near the Triassic-Jurassic Boundary in Portugal: Excavation, Geological Context, and Faunal Change". 2010–2011. €11,425 (**PI**).
Alexander von Humboldt Foundation Research Fellowship, "Late Triassic Mass Extinction Events on Land and the Rise of Dinosaurs: A Re-Evaluation of Competing Macroevolutionary Hypotheses". 2009–2011. c. €80,000 (**PI**)
NERC Small Grant, "Origin of the Avian Respiratory System: a CT-study of Postcranial Pneumaticity in Basal Archosaurs". 2008. £62,576 (**Researcher CI**).

MUSEUM GRANTS
Arts Council National Portfolio Organisation, Lapworth Museum of Geology. 2018–2022. £419k (**co-applicant**).
HEFCE Museums Fund application, Lapworth Museum of Geology. 2017–2022. £250k (**co-applicant**).
Heritage Lottery Fund, redevelopment of the Lapworth Museum of Geology. 2014–2015, £1.56m (**co-applicant**).
DCMS Wolfson redevelopment of the Lapworth Museum of Geology. 2014–2015, £100k (**co-applicant**).

SELECTED PEER-REVIEWED PAPERS
148 peer-reviewed papers and book chapters published since 2005, including in *Nature*, *Science*, *Nature Communications*, *Nature Ecology & Evolution*, *PLoS Biology,* and *Proceedings of the Royal Society B*. Citations: >6500 (Google Scholar). H-index: 47 (Google Scholar).

Bestwick J, Unwin DM, **Butler RJ**, Purnell MA. 2020. Dietary diversity and evolution of the earliest true flying vertebrates revealed by dental microwear texture analysis. *Nature Communications* **11**:5293.
Close RA, Benson RBJ, Saupe EE, Clapham ME, **Butler RJ.** 2020. The spatial structure of Phanerozoic marine animal diversity. *Science* **368**:420–424**.**
Close RA, Benson RBJ, Alroy J, Carrano MT, Cleary TJ, Dunne EM, Mannion PD, Uhen MD, **Butler RJ**. 2020. The apparent exponential radiation of Phanerozoic land vertebrates is an artefact of spatial sampling biases. *Proceedings of the Royal Society B* **287**:20200372.
Close RA, Benson RBJ, Alroy J, Behrensmeyer AK, Benito J, Carrano MT, Cleary TJ, Dunne EM, Mannion PD, Uhen MD, **Butler RJ.** 2019. Diversity dynamics of Phanerozoic terrestrial tetrapods at the local-community scale. *Nature Ecology & Evolution* **3**:590–597.
Close RA, Alroy J, Evers SW, **Butler RJ**. 2018. How should we estimate diversity in the fossil record? Testing richness estimators using sampling-standardised discovery curves. *Methods in Ecology & Evolution* **9**:1386–1400.
Button DJ, Lloyd GT, Ezcurra MD, **Butler RJ**. 2017. Mass extinctions drove global faunal cosmopolitanism on the supercontinent Pangaea. *Nature Communications* **8**:733.
Close RA, Benson RBJ, Upchurch P, **Butler RJ.** 2017. Controlling for the species-area effect supports constrained long-term Mesozoic terrestrial vertebrate diversification. *Nature Communications* **8**:15381.
Nesbitt SJ, **Butler RJ** *et al*. 2017. The earliest bird-line archosaurs and the assembly of the dinosaur body plan. *Nature* **544**:484–487.
Benson RBJ, **Butler RJ** *et al*. 2016. Near-stasis in the long-term diversification of Mesozoic tetrapods. *PLoS Biology* **14**:e1002359.
Mannion PD, Benson RBJ, Carrano MT, Tennant JP, Judd J, **Butler RJ**. 2015. Climate constrains the evolutionary history and biodiversity of crocodylians. *Nature Communications* **6**:8438.
Benson RBJ, Frigot RA, Goswami A, Andres B, **Butler RJ**. 2014. Competition and constraint drove Cope's rule in the evolution of giant flying reptiles. *Nature Communications* **5**:3567.
Brusatte SL, **Butler RJ** *et al*. 2012. Dinosaur morphological diversity and the end-Cretaceous extinction. *Nature Communications* **3**:804.
Butler RJ *et al*. 2011. Sea-level, dinosaur diversity, and sampling biases: investigating the 'common cause' hypothesis in the terrestrial realm. *Proceedings of the Royal Society B* **278**: 1165–1170.

Ősi A, **Butler RJ**, Weishampel DB. 2010. A Late Cretaceous ceratopsian dinosaur from Europe with Asian affinities. *Nature* **465**:466–468.

AWARDS

2019. Founders' Award for Academic Excellence, University of Birmingham.
2016. Award for Excellence in Doctoral Research Supervision, University of Birmingham.
2011. Palaeontological Association Hodson Award.
2005. Society of Vertebrate Paleontology Predoctoral Fellowship.

PROFESSIONAL SERVICE

Member of the Jurassic Coast Collection Working Group (2021–).
Vice-President, Palaeontological Association (2021–2022).
REF lead, Unit of Assessment 7, University of Birmingham (2018–2021).
Scientific Advisory Board, Institut Català de Paleontologia Miquel Crusafont, Barcelona (2021–).
Editorial board member for *Journal of Systematic Palaeontology* (2021–), *Acta Palaeontologica Polonica* (2013–), *Journal of Vertebrate Paleontology* (2013–2018), *Scientific Reports* (2015–2016), *PLOS ONE* (2012–2014), *Paläontologische Zeitschrift* (2010–2013), *Zootaxa* (2008–2011).
Member of Council, Palaeontological Association (2014–2016).
Member of Program Committee, Society of Vertebrate Paleontology (2012–2017).
Chair of Steering Group (2015–2018), Symposium on Vertebrate Palaeontology and Comparative Anatomy (SVPCA).
Member of Executive Committee (2013–2017), *The Paleobiology Database*.
Convenor & Chair of Host Committee. 65th Symposium on Vertebrate Palaeontology and Comparative Anatomy (SVPCA), Birmingham, September 2017.
Grant reviewer: NSF, NERC, Leverhulme Trust, DFG, European Research Council, Alexander von Humboldt Foundation, Natural Sciences and Engineering Research Council of Canada, National Geographic, South African National Research Foundation, Palaeontological Association, Swiss National Science Foundation, National Science Centre (Poland), Ser Cymru, Belgian Federal Science Policy Office.
Peer reviewer for >40 different journals, including *Science*, *Nature Ecology & Evolution*, *Nature Communications*, *TREE*, *Proc Roy Soc B*, *Geology*, *Biol Letters*, *Current Biology*.

FIELD PROJECTS

2021–(ongoing). **Dinosaur ecosystems from the Cretaceous of the Isle of Wight, England**. Collaboration with the Natural History Museum, London.
2016–(ongoing). **Vertebrates from the Middle Jurassic of the Isle of Skye, Scotland**. Collaboration with University of Oxford and National Museums Scotland.
2014–(ongoing). **Triassic vertebrates from South Africa and the early archosaur radiation**. Collaboration with Wits University, University of Oxford and the Natural History Museum.
2015. **Triassic vertebrates from India and the recovery from the Permo-Triassic mass extinction**. Collaboration with the Indian Statistical Institute (Kolkata).
2010–2012. **Triassic vertebrates of Poland and dinosaur origins**. Collaboration with American Museum of Natural History, Polish Academy of Sciences.
2009–2012. **Triassic vertebrates of Lithuania**. Collaboration with American Museum of Natural History, Polish Academy of Sciences, Geological Survey of Lithuania.
2009–2011. **Triassic/Jurassic vertebrates of southern Portugal in relation to the end-Triassic mass extinction**. Collaboration with New University of Lisbon, American Museum of Natural History, Brown University and MNHN Paris.
2008. **Early dinosaurs from the Late Triassic–Early Jurassic of South Africa**. Collaboration with Wits University, Bavarian State Collection for Palaeontology, Natural History Museum London.

RESEARCH GROUP AND SELECTED TEACHING

Supervision and management since 2011: 11 postdocs, 20 PhD students (9 completed, 9 as lead supervisor), 1 research assistant, >30 Master's and BSc students.
Module lead, University of Birmingham: Palaeontology Field & Museum Skills, Earth Sciences Advanced Project. Module contributor: Evolution of Vertebrates, Palaeoecology, Year 2 Field Skills.