

DR ROGER A. CLOSE

CURRENT EMPLOYMENT

PERIOD **January 2013 to Present**
JOB TITLE **Postdoctoral Research Associate**
INSTITUTION **Department of Earth Sciences, University of Oxford**
PI **Professor Matt Friedman**
Research associate for Leverhulme-funded project studying patterns of functional and morphological disparity in teleost crania during the Late Cretaceous–Paleogene. Responsibilities have included:

- sourcing suitable specimens at many museums around the UK and Europe;
- acquiring and processing tomographic data for over 150 fossil fish specimens;
- collection of functional and 3D geometric-morphometric data from CT datasets;
- quantitative analysis using cutting-edge comparative methods; and
- authoring manuscripts.

While at Oxford I also have pursued several side-projects, including a description of a new fossil tetraodontiform (incorporating an analysis of evolutionary rates in this group); the discovery and description of new Middle Jurassic mammal material; and a study quantifying rates of evolution and disparity in Mesozoic mammals.

In addition to my research duties, I have also delivered statistics tutorials and participated in the fourth-year palaeobiology seminar series.

TERTIARY EDUCATION

PERIOD **October 2008 to January 2013**
DEGREE **Doctor of Philosophy**
INSTITUTION **Science Faculty, Monash University** Melbourne, Australia
SUPERVISORS **Professor Patricia Vickers-Rich & Dr Emily Rayfield**
TITLE **Transformation of a Functional Complex: Early Evolution of the Flight Apparatus of Birds**

Funded from October 2008 to April 2012 by full-time scholarship (Faculty of Science Dean's Postgraduate Research Scholarship). January 2009 – October 2010 at University of Bristol visiting external co-supervisor, Dr Emily Rayfield, and examining specimens at other palaeontological institutions in the UK, China, Spain, Germany and USA.

PERIOD **2005-2007**
DEGREE **Graduate Diploma of Science (Zoology)**
INSTITUTION **Monash University** Melbourne, Australia
Focus on anatomy, ecology and evolution, with semester on exchange at the University of California, Santa Barbara.

PERIOD **1999-2005**
DEGREE **Bachelor of Arts/Science (Hons)**
INSTITUTION **Monash University** Melbourne, Australia
Double-major in Geosciences; major in Archaeology and Ancient History; minor in Geography and Environmental Sciences. Honours in Archaeology and Ancient History.

KEY SKILLS

Comparative anatomy; functional morphology and biomechanics; tomographic data acquisition and processing; geometric morphometrics; quantitative statistical and macroevolutionary analyses.

SELECTED PAST EMPLOYMENT

EMPLOYER	School of Biological Sciences, Monash University	Melbourne, Australia
PERIOD	February 2008 to December 2012	
POSITION	Sessional Demonstrator	
	Laboratory demonstrator in first-year biology practicals, including report- and essay-marking. Hiatus between mid-2009 and mid-2012 due to travel and focus on research.	
EMPLOYER	School of Geosciences, Monash University	Melbourne, Australia
PERIOD	July 2008 to December 2012	
POSITION	Sessional Demonstrator	
	Laboratory demonstrator in third-year palaeobiology practicals, including report-marking. Hiatus between mid-2009 and mid-2012 due to travel and focus on research.	
EMPLOYER	Museum Victoria	Melbourne, Australia
PERIOD	April to June 2012	
POSITION	Contract Work Processing 3D Scan Data	
	Processing high-resolution synchrotron mCT scans of Mesozoic mammal specimens, from raw CT stacks to finished surface files suitable for 3D printing. Developed novel techniques for removing high densities of fractures.	

ADDITIONAL EXPERIENCE

Outreach	Communicated with public on-site at Dinosaur Dreaming fossil excavations (1999-2012) Presented 'PhD Student of the Week' segment on ABC Radio National's Science Show (2012) Presentation to Year 10 students at Strathcona Baptist Girls Grammar School (2012) Communicated research at Leverhulme Trust headquarters, London (2013) Lectured to secondary-school students at UNIQ Summer School, University of Oxford (2013) Lectured at Leicester Literature and Philosophical Society (2014) Outreach activity at Medway Fossil and Mineral Society, Rochester (2014)
Training	'Communicating Science' postgraduate workshop with ABC Catalyst presenter Graham Philips; Monash University, Australia (2012) 'Survey Illustrator: Further Techniques' graphic-design course; University of Oxford (2015) 'Get That Grant' introductory funding workshop; University of Oxford (2015)
Field Work	Dig-crew member, Dinosaur Dreaming, Australia (1999-2012) Excavations with Adelaide Museum at Lake Palankarinna (1999) Excavations with Flinders University at the Naracoorte Caves (2000) Fieldwork with University of Oxford on Isles of Skye and Eigg (2014)

GRANTS AND AWARDS

October 2008	Monash University Faculty of Science Dean's Postgraduate Scholarship (3.5 years)
August 2009	Monash University Travel Grant (AU\$2500)
September 2009	Jackson School of Geosciences Student Member Travel Grant (US\$600).

PUBLICATIONS

Close, R.A., Vickers-Rich, P., Trusler, P., Chiappe, L.M., O'Connor, J.K., Rich, T.H., Kool, L. & Komarower, P. (2009) Earliest Gondwanan bird from the Cretaceous of southeastern Australia. *Journal of Vertebrate Paleontology* **29**: 616-619.

Close, R.A. & Rayfield, E.J. (2012) Functional Morphometric Analysis of the Furcula in Mesozoic Birds. *PLoS ONE* **7**: e36664.

Close, R.A., Friedman, M., Lloyd, G.T. & Benson, R.B.J. (in press) Evidence for a mid-Jurassic adaptive radiation in mammals. *Current Biology*.

Friedman, M., Beckett, H.T., Close, R.A. & Johanson, Z. (in review). The English Chalk and London Clay: two remarkable British bony fish Lagerstätten. *Geological Society Special Publications*.

Close, R.A., Davis, Brian M., Wolniewicz, A., Walsh, S., Friedman, M. & Benson, R.B.J. (2015). A dentary of the stem therian *Palaeoxonodon* from the Isle of Skye, Scotland, is a 'Rosetta Stone' for understanding Middle Jurassic British mammal diversity. *Palaeontology*, in prep. (near submission).

Close, R.A., Johanson, Z., Tyler, J.C., Harrington, R.C. & Friedman, M. (2015) Mosaicism in new pufferfish family highlights accelerated character evolution near origin of crown tetraodontiforms. *Palaeontology*, in prep. (near submission).

Close, R.A. & Friedman, M.F. (2015). Probing the third dimension: are morphospaces derived from 2D and 3D fossil fish crania congruent? *Paleobiology*, in prep.

Close, R.A. & Rayfield, E. (2015). The ecomechanics of the avian furcula. *PNAS*, in prep.

Close, R.A., Johanson, Z., Wainwright, P. & Friedman, M. (2015). Patterns of morpho-functional disparity during the explosive radiation of acanthomorph fishes. *Proceedings of the Royal Society B*, in prep.

Close, R.A., Johanson, Z., Wainwright, P. & Friedman, M. (2015). Are morphological and functional disparity correlated across the largest radiation of bony fishes? *Evolution*, in prep.

ABSTRACTS

Close, R.A. (2008) Earliest Gondwanan bird from the Cretaceous of southeastern Australia. Society of Avian Palaeontology and Evolution, Sydney 2008.

Close, R.A. (2009) Australia's Mesozoic Birds: New Material from the Early Cretaceous of Victoria. [Poster] Society of Vertebrate Paleontology Annual Meeting, September 2009, Bristol.

Close, R.A. (2010) Modelling the mechanical behaviour of the avian furcula. [Poster] Progressive Palaeontology, Bristol.

Close, R.A. & Rayfield, E.J. (2012) Functional morphometric analysis of the furcula in Mesozoic birds. The Palaeontological Association 55th Annual Meeting, 17th-20th December 2011, Plymouth.

Close, R.A. & Evans, A.R. (2012). High-resolution synchrotron microCT of fossils: 3D printing and analysis. Avizo Workshop, August 28 2012, Australian Synchrotron, Clayton.

Close, R.A., Beckett, H., MacLeod, N., Johanson, Z. & Friedman, M. (2013). Getting inside the heads of Cretaceous-Palaeogene teleosts: new morphological and functional data from the exceptional fish fossils of the English Chalk and London Clay. Symposium on Vertebrate Palaeontology and Comparative Anatomy, Aug. 27-30 2013, Edinburgh.

Friedman, M., Close, R., Fowler, W. & Johanson, Z. (2013). Early pufferfishes and kin (Percomorpha: Tetraodontiformes) from the Eocene London Clay: new anatomical insights from computed tomography. 22nd Symposium on Vertebrate Palaeontology and Comparative Anatomy, Aug. 27-30 2013, Edinburgh.

Close, R.A., Beckett, H., MacLeod, N., Johanson, Z. & Friedman, M. (2014). Getting inside the heads of Cretaceous-Paleogene teleosts: new morphological and functional data from the exceptional fish fossils of the English Chalk and London Clay. Society of Integrative and Comparative Biology Annual Meeting, Jan. 3-7 2014, Austin, TX.

Close, R.A., Johanson, Z., Tyler, J., & Friedman, M. A remarkable new beaked tetraodontiform fish from the Early Eocene London Clay Formation. Society of Vertebrate Paleontology Annual Meeting, Nov. 5-8 2014, Berlin.

Close, R.A., Benson, R.B.J., Friedman, M., Walsh, S. & Wolniewicz, A. (2014). A new representative of stem-lineage Zatheria (Mammalia) from the Middle Jurassic (Bathonian) of the Isle of Skye. Symposium on Vertebrate Palaeontology and Comparative Anatomy, Sept. 2-5 2014, York.

Close, R.A. & Friedman, M. (2014). Probing the third dimension: are morphospaces derived from 2D and 3D fossil fish crania congruent? Symposium on Vertebrate Palaeontology and Comparative Anatomy, Sept. 2-5 2014, York.

Close, R.A., Friedman, M., Johanson, Z., Beckett, H. and Delbarre, D. (2014). Patterns of morpho-functional disparity during the explosive radiation of acanthomorph fishes. Palaeontological Association Annual Meeting, Dec. 16-19 2014, Leeds.