

# DR NATALIE COOPER

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## RESEARCH INTERESTS

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My research sits at the interface between macroecology and macroevolution, and aims to understand broad-scale patterns of biodiversity. I use cutting-edge phylogenetic comparative methods, morphological data collected from museum specimens, phylogenies, ecological data, species geographic range maps, fossils and various larger databases, to investigate a variety of topics including the influence of competition on macroevolution, rates and modes of evolution, convergent evolution in tenrecs, macroevolutionary analyses with fossil and living species, the evolutionary ecology of zoonotic diseases and vertebrate life-history.

## ACADEMIC CAREER

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2015-present	Researcher Life Sciences (Vertebrates), Natural History Museum, London, UK.
2012-2015	Assistant Professor School of Natural Sciences, Trinity College Dublin, Ireland.
2010-2011	Postdoctoral Fellow Human Evolutionary Biology, Harvard University, USA.
2009-2010	Postdoctoral Associate Ecology and Evolutionary Biology, Yale University, USA.

## EDUCATION

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2005-2009	Ph.D, <a href="#">Phylogenetic approaches for studying competition in mammals</a> Imperial College London & Institute of Zoology, London, UK. Supervisor: Prof. Andy Purvis; Co-supervisor: Prof. Kate Jones
2004-2005	M.Sc. (Distinction), Advanced Methods in Taxonomy and Biodiversity Imperial College London & Natural History Museum, London, UK.
2001-2004	B.Sc. (1st class honours), Biological Sciences University of Exeter, UK.

## GRANTS AND AWARDS

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2014	Society of Systematic Biologists (SSB) funding for symposium at Evolution 2014 on <i>The Dark Side of Phylogenetic Comparative Methods</i> .	\$4,000
2012	Marie Curie Career Integration Grant (CIG) for project <i>Evolutionary Ecology and Fossil Primates</i> .	€100,000
2012	Irish Research Council Embark Initiative Postgraduate Scholarship for project <i>Convergent Evolution in Malagasy Tenrecs</i> for Sive Finlay.	€72,000
2009	Seessel Postdoctoral Fellowship for <i>Innovative Research in Biological Sciences</i> .	\$37,000

## PROFESSIONAL SERVICE

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2015	PhD External Examiner, Kevin Arbuckle, University of Liverpool.
2015-present	Associate Editor at <i>Methods in Ecology &amp; Evolution</i> .
2015-present	Deputy Secretary of BES Macroecology Special Interest Group committee.
2014-present	Member of BES Publications Committee.
2014	Assistant at BES Macroecology Software Carpentry workshop.
2013-2015	Organiser of #MacroJC, a tri-continental online macroevolution journal club.
2013-2015	Co-chair of School of Natural Sciences INTEGER and Athena SWAN <a href="#">Gender Equality</a> committees, achieving <b>Bronze accreditation</b> in 2015.
2013-2015	Evolutionary Biology & Ecology seminar series organiser at TCD.
2012-2015	Staff administrator and developer of the <a href="#">EcoEvo@TCD</a> blog at TCD.
2012-2015	Organiser of NERD club, a weekly Ecology and Evolution research group meeting for staff and PhD students across the School of Natural Sciences at TCD.
2013	Organiser of “Spatial Analysis in R” workshop for BES Macroecology and Computational Ecology Special Interest Groups.
2013-present	Grant reviewer for UK Natural Environment Research Council (NERC).
2013-present	Grant reviewer for Canadian National Science Foundation (NSERC).
2012-present	Member of British Ecological Society (BES) including Macroecology Group.
2013-present	Member of Society of Systematic Biologists.

## INTERNATIONAL CONFERENCE PRESENTATIONS

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2015	MEE	Methods in Ecology & Evolution 5th anniversary symposium: The limitations of PCMs (invited)
2014	Linnaean Society	Radiations & Extinctions meeting: Reproducibility in macroevolution (invited).
2014	Evolution	The “Dark Side” of phylogenetic comparative methods (symposium).
2013	ESEB	Ecological correlates of extrinsic mortality in mammals and birds (poster).
2013	Evolution	Ecological correlates of extrinsic mortality in mammals and birds.
2012	Evolution	Host phyllospecificity and parasite sharing in primates and humans.
2011	EEID	Methods for detecting phylogenetic host specificity in parasites (poster).
2010	Evolution	Phylogenetic niche conservatism in mammals.
2008	Evolution	A common pattern of overdispersion in mammalian assemblages.

## INVITED SEMINARS

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2015	Biological Sciences Seminars, University of Lausanne, Switzerland.
2015	LERN: London Evolutionary Research Network (guest speaker).
2015	BLAM: Biology at Lund Annual Postgraduate Symposium (plenary speaker). Lund University, Sweden.
2015	Bioscience Seminars, Dublin City University, Dublin.
2014	Biosciences Seminar Series, Swansea University.
2014	Centre for Ecology & Conservation Seminar Series, University of Exeter.
2014	Ecology, Evolution, Behaviour & Environmental Economics Seminar Series, Queens University, Belfast.
2014	Biology & Environmental Science Seminar Series, University College Dublin.
2013	Ecology & Environment Seminar Series, University of Southampton.
2013	Ecology, Evolution & Environment Seminar Series, University of Sheffield.
2013	Biological Sciences Seminar Series, University of Liverpool.
2013	Evolutionary Morphology (EvMorph) Seminar Series, University of Chicago.
2013	Earth & Environment Seminar Series, Trinity College Dublin.
2011	Museum of Comparative Zoology Seminar Series, Harvard University.

## INVITED PANEL MEMBER FOR PANEL DISCUSSIONS

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2015	The Future of Data Archiving. British Ecological Society (BES) annual meeting, Edinburgh.
2015	The Future of the Publications Circus. EUMacro meeting, Copenhagen, Denmark.
2014	Applying for Postdoctoral Jobs. BES Macro meeting, Nottingham.

## PUBLIC ENGAGEMENT AND OUTREACH

2015	Science Uncovered at the Natural History Museum (participant).
2014	Organiser of <a href="#">SoapBox Science Ireland</a> - an outreach event featuring women in science explaining their research in an interactive way.
2014	Talk for Dublin University Zoological Society on <i>Gender Inequality in Science &amp; the Media</i> .
2014	Interviewed on "The Morning Edition" on RTE1 and "FutureProof" on NewsTalk FM about our paper <i>Dying without wings</i> . See press release <a href="#">here</a> .
2013	Arranged filming of <a href="#">Research Profiles</a> for female staff and students as part of the INTEGER Gender Equality project. My video is on my <a href="#">website</a> .
2013	Organised a <a href="#">Three Minute Thesis</a> video competition for PhD students.
2013 & 2014	Organiser and tour guide for <a href="#">Discover Research Dublin</a> at the TCD Zoology Museum, as part of European Researcher's Night.
2013 & 2014	Presented a session on <i>What can we learn from skeletons?</i> for Transition Year students (16-17 years).
2013-2015	<a href="#">EcoEvo@TCD blog</a> developer and contributor. The blog has had over 65,000 views and won Best Science & Technology blog in 2014 at the Irish Blog Awards.
2012-present	Active Twitter user ( <a href="#">@nhcooper123</a> ) with over 1800 followers and over 8000 tweets.
2013 & 2014	Blog post contributor at <a href="#">SoapBoxScience</a> and <a href="#">Science Policy and Outreach Online</a> .

## TEACHING EXPERIENCE

### POSTGRADUATE STUDENT SUPERVISION

PhD	2012-2015	Thomas Guillerme	Macroevolution in living & fossil species	TCD
MRes	2012-2015	Sive Finlay	Morphological disparity in tenrecs	TCD
MSc	2013	Marta Capolei	Host phylospecificity in parasites	TCD
MSc	2008	Paddy Brock	Co-supervised with Andy Purvis	Imperial
MSc	2007	Peter Hayward	Co-supervised with Andy Purvis	Imperial
MSc	2007	Jack Lighten	Co-supervised with Andy Purvis	Imperial

### UNDERGRADUATE AND TAUGHT POSTGRADUATE

2012-2015	Intro to Biodiversity, Evolution & the Environment	Year 1	TCD
2012-2015	Comparative Physiology (Vertebrate Biomechanics)	Year 3	TCD
2013-2015	Research Comprehension (module coordinator)	Year 4	TCD
2013-2014	Tropical Ecology Field Course	Year 4	TCD
2012-2015	Final Year Research Projects	Year 4	TCD
2009	Biodiversity & Conservation	Year 3	Imperial
2012-2014	Taxonomy & Systematics	MSc	TCD

## POSTGRADUATE, POSTDOCS AND STAFF

2014	Linnaean Society Radiations & Extinctions workshop	All	-
2013-2015	Computer Skills (LaTeX, R, git etc.)	All	TCD
2013	Introduction to R for the terrified!	Staff	TCD
2012-2015	Transferable Skills at NERD club	All	TCD
2010-2012	AnthroTree Phylogenetic Comparative Methods workshop	All	-
2010-2011	R (& Statistics) Help Hour	All	Harvard

## JOURNAL REVIEWING

The American Naturalist, Animal Conservation, BMC Evolutionary Biology, Conservation Biology, Ecology, Ecology and Evolution, Ecology Letters, Evolution, Global Ecology & Biogeography, International Journal of Primatology, Journal of Animal Ecology, Journal of Applied Ecology, Journal of Biogeography, Journal of Evolutionary Biology, Methods in Ecology & Evolution, Oecologia, Philosophical Transactions of the Royal Society: B, PLoS One, Proceedings of the National Academy of Sciences USA, Proceedings of the Royal Society: B, Proceedings of the Royal Society: Interface, Trends in Ecology & Evolution.

## PUBLICATIONS LIST

I have 22 peer-reviewed papers in internationally recognised journals, two in press and three currently in review (10 first authored, two joint first authored, five last/senior authored and 19 without my PhD supervisor Prof. Andy Purvis). My h-index is 14 on [Google Scholar](#) and 13 on [ISI Web of Science](#).

## PEER-REVIEWED PUBLICATIONS

### In review

Guillerme, T. & **Cooper, N.** in review. Morphological data are lacking for living mammals. Biology Letters. **xxx**, **xxx**. doi: **xxx**.

Guillerme, T. & **Cooper, N.** in review. Mammalian morphological diversity does not increase in response to the Cretaceous-Paleogene mass extinction. Current Biology. **xxx**, **xxx**. doi: **xxx**.

### In press

**Cooper, N.**, Thomas, G.H., Venditti, C., Meade, A. & Freckleton, R.P. in press. A cautionary note on the use of Ornstein Uhlenbeck models in macroevolutionary studies. Biological Journal of the Linnaean Society. **xxx**, **xxx**. doi: **xxx**.

### 2016

Guillerme, T. & **Cooper, N.** 2016. Effects of missing data on topological inference using a Total Evidence approach. Molecular Phylogenetics and Evolution. **94**, 146158. doi:

[10.1016/j.ympev.2015.08.023](https://doi.org/10.1016/j.ympev.2015.08.023). See summary [here](#).

## 2015

Finlay, S. & **Cooper, N.** 2015. Morphological diversity in tenrecs (Afrosoricida, Tenrecidae): comparing tenrec skull diversity to their closest relatives. *PeerJ*. **3**, e927. doi: [10.7717/peerj.927](https://doi.org/10.7717/peerj.927). See summary [here](#).

Nunn, C.L., & **Cooper, N.** 2015. Investigating evolutionary lag using the species-pairs evolutionary lag test (SPELT). *Evolution*. **69**, 245253. doi: [10.1111/evo.12520](https://doi.org/10.1111/evo.12520).

## 2014

Healy, K., Guillerme, T., Finlay, S., Kane, A., Kelly, S.B.A., McClean, D., Kelly, D.J., Donohue, I., Jackson, A.L., & **Cooper, N.** 2014. Ecology and mode-of-life explain lifespan variation in birds and mammals. *Proceedings of the Royal Society of London Series B: Biological Sciences*. **281**, 20140298. doi: [10.1098/rspb.2014.0298](https://doi.org/10.1098/rspb.2014.0298). See summary [here](#).

Kelly, S.B.A, Kelly, D.J., **Cooper, N.**, Bahrn, A., Analuddin, K. & Marples, N. 2014. Molecular and phenotypic data reveal a cryptic species (Aves: *Dicaeum*) from the unique and understudied Sulawesi region. *PLoS ONE*. **9**, e98694. doi: [10.1371/journal.pone.0098694](https://doi.org/10.1371/journal.pone.0098694). See summary [here](#).

## 2013

**Cooper, N.**, & Nunn, C.L. 2013. Identifying future zoonotic disease threats: Where are the gaps in our understanding of primate infectious diseases? *Evolution, Medicine and Public Health*. **2013**, 26-37. doi: [10.1093/emph/eoto01](https://doi.org/10.1093/emph/eoto01). See summary [here](#).

Kamilar, J.M. & **Cooper, N.** 2013. Phylogenetic signal in primate behaviour, ecology, and life history. *Philosophical Transactions of the Royal Society of London Series B: Biological Sciences*. **368**, 20120341. doi: [10.1098/rstb.2012.0341](https://doi.org/10.1098/rstb.2012.0341).

Healy, K., McNally, L., Ruxton, G.D., **Cooper, N.**, & Jackson, A.L. 2013. Metabolic rate and body size are linked with perception of temporal information. *Animal Behaviour*. **86**, 685-696. doi: [10.1016/j.anbehav.2013.06.018](https://doi.org/10.1016/j.anbehav.2013.06.018). **F1000 recommended**.

## 2012

**Cooper, N.**, Griffin, R., Franz, M., Omotayo, M., & Nunn, C.L. 2012. Phylogenetic host specificity and understanding parasite sharing in primates. *Ecology Letters*. **15**, 1370-1377. doi: [10.1111/j.1461-0248.2012.01858.x](https://doi.org/10.1111/j.1461-0248.2012.01858.x). **F1000 recommended**.

**Cooper, N.**, Kamilar, J.M., & Nunn, C.L. 2012. Host longevity and parasite species richness in mammals. *PLoS ONE*. **7**, e42190. doi: [10.1371/journal.pone.0042190](https://doi.org/10.1371/journal.pone.0042190).

Davies, T.J., **Cooper, N.**, Diniz Filho, J.A.F, Thomas, G.H. & Meiri, S. 2012. Using phylogenetic trees to test for character displacement: a model and an empirical example from a desert mammal community. *Ecology*. **93**, S44-S51. doi: [10.1890/11-0400.1](https://doi.org/10.1890/11-0400.1).

**2011**

**Cooper, N.**, Freckleton, R.P. & Jetz, W. 2011. Phylogenetic conservatism of environmental niches in mammals. *Proceedings of the Royal Society of London Series B: Biological Sciences*. **278**, 2384-2391. doi: [10.1098/rspb.2010.2207](https://doi.org/10.1098/rspb.2010.2207).

Freckleton, R.P., **Cooper, N.** & Jetz, W. 2011. Comparative methods as a statistical fix: the dangers of ignoring an evolutionary model. *The American Naturalist*. **178**, E10-E17. doi: [10.1086/660272](https://doi.org/10.1086/660272).

Collen, B., McRae, L., Deinet, S., De Palma, A., Carranza, T., **Cooper, N.**, Loh, J. & Baillie, J.E.M. 2011. Predicting how populations decline to extinction. *Philosophical Transactions of the Royal Society of London Series B: Biological Sciences*. **366**, 2577-2586. doi: [10.1098/rstb.2011.0015](https://doi.org/10.1098/rstb.2011.0015).

**2010**

**Cooper, N.**, Jetz, W. & Freckleton, R.P. 2010. Phylogenetic comparative approaches for studying niche conservatism. *Journal of Evolutionary Biology*. **23**, 2529-2539. doi: [10.1111/j.1420-9101.2010.02144.x](https://doi.org/10.1111/j.1420-9101.2010.02144.x).

**Cooper, N.** & Purvis, A. 2010. Body size evolution in mammals: complexity in tempo and mode. *The American Naturalist*. **175**, 727-738. doi: [10.1111/j.1420-9101.2009.01714.x](https://doi.org/10.1111/j.1420-9101.2009.01714.x).

Belmaker, J., **Cooper, N.**, Lee, T.M. & Wilman, H. 2010. Specialization and the road to academic success. *Frontiers in Ecology and the Environment*. **8**, 514-515. All authors contributed equally. doi: [10.1890/10.WB.25](https://doi.org/10.1890/10.WB.25).

**2009**

**Cooper, N.** & Purvis, A. 2009. What factors shape rates of phenotypic evolution? A comparative study of cranial morphology of four mammalian clades. *Journal of Evolutionary Biology*. **22**, 1024-1035. doi: [10.1111/j.1420-9101.2009.01714.x](https://doi.org/10.1111/j.1420-9101.2009.01714.x).

Bielby, J., Cardillo, M. **Cooper, N.**, & Purvis, A. 2009. Modeling extinction risk in multispecies data sets: phylogenetically independent contrasts versus decision trees. *Biodiversity and Conservation*. **19**, 113-127. doi: [10.1007/s10531-009-9709.0](https://doi.org/10.1007/s10531-009-9709.0).

2008

**Cooper, N.**, Rodriguez, J. & Purvis, A. 2008. A common tendency for phylogenetic overdispersion in mammalian assemblages. *Proceedings of the Royal Society of London Series B: Biological Sciences*. **275**, 2031-2037. doi: [10.1098/rspb.2008.0420](https://doi.org/10.1098/rspb.2008.0420).

**Cooper, N.**, Bielby, J., Thomas, G.H. & Purvis, A. 2008. Macroecology and extinction risk correlates of frogs. *Global Ecology and Biogeography*. **17**, 211-221. doi: [10.1111/j.1466-8238.2007.00355.x](https://doi.org/10.1111/j.1466-8238.2007.00355.x).

Meiri, S., **Cooper, N.** & Purvis, A. 2008. The island rule: made to be broken? *Proceedings of the Royal Society of London Series B: Biological Sciences*. **275**, 141-148. doi: [0.1098/rspb.2007.1056](https://doi.org/10.1098/rspb.2007.1056).

Bielby, J., **Cooper, N.**, Cunningham, A., Garner, T. & Purvis, A. 2008. Predicting susceptibility to future declines in the world's frogs. *Conservation Letters*. **1**, 82-90. doi: [10.1111/j.1755-263X.2008.00015.x](https://doi.org/10.1111/j.1755-263X.2008.00015.x).

#### NON PEER-REVIEWED PUBLICATIONS

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**Cooper, N.** & Belmaker, J. 2010. Opinion: Habitat data resolution and the detection of species interactions. *Frontiers of Biogeography*. **2**, 46.