

Graham J. Slater

Curriculum Vitae

Department of Geophysical Sciences
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Professional Experience

July 1 2015 **Assistant Professor** Department of the Geophysical Sciences, University of Chicago
2012-2015 **Peter Buck Post-doctoral Fellow** Dept. of Paleobiology, Smithsonian Institution
2009-2012 **Post-doctoral researcher** Department of Ecology and Evolutionary Biology, UCLA

Affiliations

Faculty Member Committee on Evolutionary Biology, University of Chicago
Trainer Dept. of Organismal Biology and Anatomy, University of Chicago
Research Associate Field Museum of Natural History, Chicago

Education

2004-2009 **Ph.D** Ecology and Evolutionary Biology, University of California, Los Angeles
2002-2003 **M.Sc.** Advanced Methods in Taxonomy and Biodiversity, Imperial College, London
1998-2001 **B.Sc.** Zoology, University College, London

Publications

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|------|---|
| 2021 | Lloyd, G. T. and Slater, G. J. (2021). A total-group phylogenetic metatree for Cetacea and the importance of fossil data in diversification analyses. <i>Systematic Biology</i> . syab002 |
| 2020 | Guillerme, T., Cooper, N., Brusatte, S. L., Davis, K. E., Jackson, A. L., Gerber, S., Goswami, A., Healy, K., Hopkins, M. J., Jones, M. E. H., Lloyd, G. T., O'Reilly, J. E., Pate, A., Puttick, M. N., Rayfield, E. J., Saupe, E. E., Sherratt, E., Slater, G. J., Weisbecker, V., Thomas, G. H., and Donoghue, P. C. J. (2020). Disparities in the analysis of morphological disparity. <i>Biology Letters</i> , 16(7):20200199 |

- 2019 Presslee, S., **Slater, Graham J.**, Pujos, F., Forasiepi, A. M., Fischer, R., Molloy, K., Mackie, M., Olsen, J. V., Kramarz, A., Taglioretti, M., Scaglia, F., Lezcano, M., Lanata, J., Southon, J., Feranec, R., Bloch, J., Hajduk, A., Martin, F. M., Salas Gismondi, R., Reguero, M., de Muizon, C., Greenwood, A., Chait, B. T., Penkman, K., Collins, M., and MacPhee, R. D. E. (2019). Palaeoproteomics resolves sloth relationships. *Nature Ecology & Evolution*, 3(7):1121–1130
- Law, C. J., **Slater, G. J.**, and Mehta, R. S. (2019). Shared extremes by ectotherms and endotherms: Body elongation in mustelids is associated with small size and reduced limbs. *Evolution*, 73(4):735–749
- Slater, G. J. and Friscia, A. R. (2019). Hierarchy in adaptive radiation: A case study using the Carnivora (Mammalia). *Evolution*, 73(3):524–539
- 2018 Ogilvie, H. A., Vaughan, T. G., Matzke, N. J., Slater, G. J., Stadler, T., Welch, D., and Drummond, A. J. (2018). Inferring species trees using integrative models of species evolution. *bioRxiv*
- 2017 Slater, G. J., Goldbogen, J. A., and Pyenson, N. D. (2017). Independent evolution of baleen whale gigantism linked to plio-pleistocene ocean dynamics. *Proceedings of the Royal Society of London B: Biological Sciences*, 284(1855)
- Law, C. J., Slater, G. J., and Mehta, R. S. (2017). Lineage diversity and size disparity in musteloidea: Testing patterns of adaptive radiation using molecular and fossil-based methods. *Systematic Biology*, page syx047
- 2016 Hunt, G. and Slater, G. J. (2016). Integrating paleontological and phylogenetic approaches to macroevolution. *Annual Review of Ecology, Evolution, and Systematics*, 47:189–213
- Slater, G. J., Cui, P., Forasiepi, A. M., Lenz, D., Tsangaras, K., Voirin, B., de Moraes-Barros, N., MacPhee, R. D., and Greenwood, A. D. (2016). Evolutionary relationships among extinct and extant sloths: the evidence of mitogenomes and retroviruses. *Genome biology and evolution*, 8(3):607–621
- 2015 Slater, G. J. (2015a). Iterative adaptive radiations of fossil canids show no evidence for diversity-dependent trait evolution. *Proceedings of the National Academy of Sciences*, 112(16):4897–4902
- Slater, G. J. (2015b). Not-so-early bursts and the dynamic nature of morphological diversification. *Proceedings of the National Academy of Sciences*, 112:3595–3595
- Revell, L. J., Mahler, D. L., Reynolds, R. G., and **Slater, G. J.** (2015). Placing cryptic, recently extinct, or hypothesized taxa into an ultrametric phylogeny using continuous character data: A case study with the lizard *Anolis roosevelti*. *Evolution*, 69(4):1027–1035

- 2014 Slater, G. J. (2014). Correction to "phylogenetic evidence for a shift in the mode of mammalian body size evolution at the Cretaceous-Palaeogene boundary" and a note on fitting macroevolutionary models to comparative paleontological datasets. *Methods in Ecology and Evolution*, 5:714–718
- Martin-Scheel, D., **Slater, G. J.**, Kolokotronis, S.-O., Potter, C. W., Rotstein, D. S., Tsangaras, K., Greenwood, A. D., and Helgen, K. M. (2014). Ancient DNA and morphology characterize a new genus for New World monk seals. *ZooKeys*, 409:1–33
- Pennell, M. W., Eastman, J. M., **Slater, G. J.**, Brown, J. W., Uyeda, J. C., FitzJohn, R. G., Alfaro, M. E., and Harmon, L. J. (2014). geiger v2.0: an expanded suite of methods for fitting macroevolutionary models to phylogenetic trees. *Bioinformatics*, 30:2216–2218
- Tseng, Z. J., Wang, X., **Slater, G. J.**, Takeuchi, G. T., Li, Q., Liu, J., and Xie, G. (2014). Himalayan fossils of oldest known pantherine establish ancient origin of big cats. *Proceedings of the Royal Society B-Biological Sciences*, 281:1–7
- Slater, G. J.** and Pennell, M. W. (2014). Robust regression and posterior predictive simulation increase power to detect early bursts of trait evolution. *Systematic Biology*, 63:293–308
- 2013 **Slater, G. J.** (2013). Phylogenetic evidence for a shift in the mode of mammalian body size evolution at the Cretaceous-Palaeogene boundary. *Methods in Ecology and Evolution*, 4(8):734–744
- Slater, G. J.** and Harmon, L. J. (2013). Unifying fossils and phylogenies for comparative analyses of diversification and trait evolution. *Methods in Ecology and Evolution*, 4(8):699–702
- Fabre, A.-C., Cornette, R., **Slater, G. J.**, Argot, C., Peigné, S., Goswami, A., and Pouydebat, E. (2013). Getting a grip on the evolution of grasping in musteloid carnivorans: a three-dimensional analysis of forelimb shape. *Journal of Evolutionary Biology*, 26(7):1521–1535
- Frédérich, B., Sorenson, L., Santini, F., **Slater, G. J.**, and Alfaro, M. E. (2013). Iterative ecological radiation and convergence during the evolutionary history of damselfishes (Pomacentridae). *The American Naturalist*, 181(1):94–113
- 2012 **Slater, G. J.**, Harmon, L. J., and Alfaro, M. E. (2012a). Integrating fossils with molecular phylogenies improves inference of trait evolution. *Evolution*, 66(12):3931–3944
- Rabosky, D. L., **Slater, G. J.**, and Alfaro, M. E. (2012). Clade age and species richness are decoupled across the eukaryotic tree of life. *PLoS Biology*, 10(8):e1001381

- Meloro, C. and **Slater, G. J.** (2012). Covariation in the skull modules of cats: the challenge of growing saber-like canines. *Journal of Vertebrate Paleontology*, 32(3):677–685
- Slater, G. J.**, Harmon, L. J., Wegmann, D., Joyce, P., Revell, L. J., and Alfaro, M. E. (2012b). Fitting models of continuous trait evolution to incompletely sampled comparative data using approximate bayesian computation. *Evolution*, 66(3):752–762
- 2011 Jaffe, A. L.*, **Slater, G. J.**, and Alfaro, M. E. (2011). The evolution of island gigantism and body size variation in tortoises and turtles. *Biology Letters*, 7(4):558–561
- * Alexander Jaffe was a high school senior at the time of publication
- Van Valkenburgh, B., Curtis, A., Samuels, J. X., Bird, D., Fulkerson, B., Meachen-Samuels, J., and **Slater, G. J.** (2011). Aquatic adaptations in the nose of carnivorans: evidence from the turbinates. *Journal of Anatomy*, 218(3):298–310
- 2010 **Slater, G. J.**, Figueirido, B., Louis, L.*, Yang, P. *, and Van Valkenburgh, B. (2010a). Biomechanical consequences of rapid evolution in the polar bear lineage. *PLoS ONE*, 5(11):e13870
- * denotes undergraduate authors
- Figueirido, B., Serrano-Alarcon N, F. J., and **Slater, G. J.** and Palmqvist P. (2010). Shape at the cross-roads: homoplasy and history in the evolution of the carnivoran skull towards herbivory. *Journal of Evolutionary Biology*, 23(12):2579–2594
- Slater, G. J.**, Price, S. A., Santini, F., and Alfaro, M. E. (2010b). Diversity versus disparity and the radiation of modern cetaceans. *Proceedings of the Royal Society B-Biological Sciences*, 277(1697):3097–3104
- 2009 **Slater, G. J.**, Thalmann, O., Leonard, J. A., Schweizer, R. M., Koepfli, K.-P., Pollinger, J. P., Rawlence, N. J., Austin, J. J., Cooper, A., and Wayne, R. K. (2009b). Evolutionary history of the Falklands wolf. *Current Biology*, 19(20):R937 – R938
- Slater, G. J.** and Van Valkenburgh, B. (2009). Allometry and performance: the evolution of skull form and function in felids. *Journal of Evolutionary Biology*, 22(11):2278–2287
- Slater, G. J.**, Dumont, E. R., and Van Valkenburgh, B. (2009a). Implications of predatory specialization for cranial form and function in canids. *Journal of Zoology*, 278(3):181–188
- Dumont, E., Grosse, I., and **Slater, G. J.** (2009). Requirements for comparing the performance of finite element models of biological structures. *Journal of Theoretical Biology*, 256(1):96 – 103

- 2008 Koepfli, K.-P., Deere, K., **Slater, G. J.**, Begg, C., Begg, K., Grassman, L., Lucherini, M., Veron, G., and Wayne, R. (2008). Multigene phylogeny of the Mustelidae: Resolving relationships, tempo and biogeographic history of a mammalian adaptive radiation. *BMC Biology*, 6(1):10
- Slater, G. J.** and Van Valkenburgh, B. (2008). Long in the tooth: evolution of sabertooth cat cranial shape. *Paleobiology*, 34(3):403–419

Awards & Honors

- 2010: Robert E. Lasiewski award for outstanding research accomplishments by a graduate student in organismal biology
- 2009: Certificate of Distinction in Teaching, Life Sciences core curriculum, UCLA
- 2008: Special Faculty Award in Recognition of Outstanding Service to the Department of Ecology and Evolutionary Biology, UCLA
- 2005: Certificate of Distinction in Teaching, Life Sciences core curriculum, UCLA

Grants

Current External Support N/A

Integrating Approaches to Macroevolution: Combining Fossils and Phylogenies
NESCent Catalysis Grant. Samantha Price, Lars Schmitz, and Graham Slater Co-PIs. (2013)

Peter Buck Post-doctoral Fellowship Smithsonian Institution, (2012–2015)

UCLA Graduate Division Dissertation Year Fellowship (2008)

UCLA Dissertation Completion Fellowship (2008)

National Science Foundation Doctoral Dissertation Improvement Grant(2007)

UCLA Departmental Research Grant(2006)

UCLA Dissertation Completion Fellowship (2006)

Sigma Xi Grant in Aid of Research (2005)

The Natural History Museum London, Systematics and Evolution Grant in Aid of Research (2001)

Invited Talks

2019	Melbourne Museum, Boden Conference on Ecological transitions in vertebrate history (keynote speaker). Yale University Prairie State College Darwin Day speaker
2018	Geological Society of American annual meeting (keynote speaker) 1st AsiaEvo Conference (keynote speaker) Marshall University
2017	Museum of Paleontology, University of California Berkeley
2016	Duke University
2015	Systematics Association, Oxford University
2014	Linnean Society, London 61st Annual Systematics Symposium, Missouri Botanical Gardens
2012	Early Career Scientists Symposium, University of Michigan
2010	San Diego State University
2009	University of California, Riverside

Activities

2019	Invited Instructor, Midwest Phylogenetics Workshop (Itasca, MN, organiser Emma Goldberg)
2015	Invited Instructor, AnthroTree workshop (NESCent, Durham, North Carolina)
2014	NESCent Academy co-organizer: Paleobiological and Phylogenetic Approaches to Macroevolution.
2014	Symposium co-convenor: Reuniting fossil and extant approaches to macroevolution. (Evolution meeting, Raleigh, North Carolina). Modeling morphological evolution workshop (Linnean Society, London)
2013	NESCent Catalysis Meeting co-convenor (with S. A. Price and L. Schmitz): Integrating Approaches to Macroevolution: combining fossils and phylogenies. Methods in Ecology and Evolution Special Volume Editor: Unifying Fossils and Phylogenies for Comparative Analyses of Diversification and Trait Evolution.
2012	Symposium co-convenor: Phylogenetic and Comparative Paleobiology: New Quantitative Approaches to the Study of Vertebrate Macroevolution. (Society of Vertebrate Paleontology annual meeting. Raleigh, North Carolina)
2010-12	Instructor Comparative Methods in R workshop (NCEAS, Santa Barbara).
2009-11	Instructor, R for Dummies Workshop (Society of Integrative and Comparative Biology annual meeting).

Teaching

GEOS 26100/ 36100: Phylogenies and the Fossil Record.
 GEOS 36050: Models of Morphological Evolution.
 GEOS 36900: Topics in Paleobiology (Graduate Seminar).

Professional Service

Associate Editor: *Evolution* (2018–2021), *The American Naturalist* (2019 –)

Reviewer: The American Naturalist, Biological Journal of the Linnaean Society, BMC Evolutionary Biology, Current Biology, Ecology Letters, Evolution, Functional Ecology, Genetics, Journal of Animal Ecology, Journal of Biogeography, Journal of Evolutionary Biology, Journal of Mammalogy, Journal of Morphology, Journal of Vertebrate Paleontology, Methods in Ecology and Evolution, Nature Communications, Nature Ecology and Evolution, Naturwissenschaften, Paleobiology, Proceedings of the National Academy of Sciences, Proceedings of the Royal Society London B, PLoS ONE, Science, Systematic Biology, Systematic Palaeontology, Zoological Journal of the Linnaean Society, National Science Foundation, Cambridge University Press.

Advising at the University of Chicago

Post-Doctoral Fellows

2021 – 2023 : Jonathan Nations (NSF BIO post-doctoral Fellowship)

Graduate

2025 (expected): Melissa Wood (Co-advised with Susan Kidwell)
 2023 (expected): Anna Wisniewski.
 2023 (expected): David Černý
 2023 (expected): Alexa Lamprecht (via Integrative Biology)
 2022 (expected): Rossy Natale (via Integrative Biology)
 2017: Sarah Tulga (Masters Thesis: “Do ontogenetic trajectories affect the generation of morphological disparity? A case study with emydid turtle shells (Testudinoidea, Emydidae”).

Undergraduate

2020–: Morgan Williams, Xiaoni Xu
 2018: Robert Higgins (now MS at Edinburgh)
 2017: Darian Edvalson
 2015-2016: Mark Juhn (now PhD student at UCLA)

High School

2017 – Corey Rowland, Hasan Rahim (via UC Collegiate Scholars)

Last updated: April 16, 2021