

MELANIE JANE HOPKINS  
DIVISION OF PALEONTOLOGY  
AMERICAN MUSEUM OF NATURAL HISTORY  
NEW YORK NY USA

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**CURRENT POSITIONS**

Associate Curator of Invertebrate Paleontology, AMNH (2019-present)  
Associate Professor, Richard Gilder Graduate School, AMNH (2019-present)  
Science Faculty, Masters in the Arts of Teaching Program, AMNH (2015-present)

**AREA OF SPECIALIZATION**

Morphological evolution of marine arthropods, quantitative methods in paleobiology

**EDUCATIONAL EXPERIENCE**

Ph.D. in Paleontology, Dept. of Geophysical Sciences, University of Chicago, 2010  
B.Sci. in Geology, Dept. of Geological and Environmental Sciences, Stanford University, 2002

**PREVIOUS APPOINTMENTS**

Assistant Curator of Invertebrate Paleontology, AMNH (2014-2018)  
Assistant Professor, Richard Gilder Graduate School, AMNH (2014-2018)  
Postdoctoral Researcher, GeoZentrum Nordbayern, University of Erlangen-Nürnberg, Germany, 2013  
Postdoctoral Researcher, Museum für Naturkunde, Leibniz Institute for Research on Evolution and Biodiversity at the Humboldt University Berlin, Germany, 2012  
John Caldwell Meeker Postdoctoral Fellow, Field Museum of Natural History, Chicago, 2010-2011

**TEACHING AND ADVISING**

AMNH RGGS PROGRAM COURSES

Co-instructor, “Geometric Morphometrics”, 2015-2019  
Co-instructor, “Extinctions Science”, 2018  
Co-instructor, “Evolution”, 2014-2019  
Co-instructor, “RGGS Comparative Biology Seminar Series”, 2014-2017

POSTDOCTORAL MENTORING

David F. Wright, AMNH Lerner-Gray/Gerstner Fellow, 2018-present  
Selina Cole, AMNH MAT Program, 2018-present  
James Lamsdell, AMNH Lerner-Gray Fellow, 2016

GRADUATE STUDENT MENTORING

Alexandra Buczek, AMNH RGGS Program, expected 2020

UNDERGRADUATE MENTORING (2014-PRESENT)

Esteban Lopez Murillo, AMNH internship (2019)  
Opal Perron-Feller, AMNH internship (2018)  
Reid Alber, University of Northern Iowa (2018, co-advised with Carl L. Thurman)

Nick Watters, University of Northern Iowa (2018, co-advised with Carl L. Thurman)  
Paige Funkhouser, AMNH internship (2016-2017)  
Margaret Rubin, AMNH REU summer program (2016, co-advised with James Lamsdell and Lorenzo Prendini)  
Kelsey Barnhill, AMNH microfossil grant intern (2016)  
J. Kirk Pearson, AMNH summer volunteer (2015)  
Katharyn Padavano, AMNH REU summer program (2014)

#### RESEARCH GRANT SUPPORT

PI, National Science Foundation, “CAREER: A comparative study of two trilobite diversification events to advance understanding of early animal evolution”, 2019-2024, \$617,419.

#### PUBLICATIONS

- 2018 **Hopkins MJ**, and K St John. 2018. A new family of dissimilarity metrics for discrete character matrices that include inapplicable characters and its importance for disparity studies. *Proceedings of the Royal Society B: Biological Sciences* 285(1892):20181784.
- 2018 Thurman CL, **Hopkins MJ**, Brase AL, Shih H-T. The unusual case of the widely distributed fiddler crab *Minuca rapax* (Smith, 1870) from the western Atlantic: an exemplary polytypic species. *Invertebrate Systematics* 36: 1465-1490.
- 2018 **Hopkins MJ**, Bapst DW, Simpson C, Warnock RCM. The inseparability of sampling and time and its influence on attempts to unify the molecular and fossil records. *Paleobiology* [accepted 21 June 2018]
- 2017 **Hopkins MJ**, Chen F, Hu S, Zhang Z. The oldest known digestive system consisting of both paired digestive glands and a crop from exceptionally preserved trilobites of the Guanshan Biota (Early Cambrian, China). *PLoSone* 12(9): e0184982. doi: 10.1371/journal.pone.0184982
- 2017 Kröger B, Finnegan S, Franek F, **Hopkins MJ**. The Ordovician succession adjacent to Hinlopenstretet, Ny Friesland, Spitsbergen. *American Museum Novitates* 3882: 28 p. doi: 10.1206/3882.1.
- 2017 Rubin M, Lamsdell JC, Prendini L, **Hopkins MJ**. Exocuticular hyaline layer of sea scorpions and horseshoe crabs suggests cuticular fluorescence is plesiomorphic in chelicerates. *Journal of Zoology* 303: 245-253.
- 2017 **Hopkins MJ**, Sylvain G. Morphological disparity. In Nuño de la Rosa, Müller, Erwin (eds). *Evolutionary Developmental Biology – a Reference Guide*. Springer. doi:10.1007/978-3-319-33038-9\_132-1.
- 2017 **Hopkins MJ**. Development, trait evolution, and the evolution of development in trilobites. *Integrative and Comparative Biology* 57:488-498.
- 2017 Lamsdell JC, Congreve CR, **Hopkins MJ**, Krug AZ, Patzkowsky M. Phylogenetic paleoecology: tree-thinking and ecology in deep time. *Trends in Ecology and Evolution* 32:452-463.
- 2017 **Hopkins MJ**. How well does a part represent the whole? A comparison of cranial shape evolution with exoskeletal character evolution in the trilobite family Pterocephaliidae. *Palaeontology* 60:309-318.
- 2017 Bapst DW, **Hopkins MJ**. Comparing cal3 and other a posteriori time-scaling approaches in a case study with the pterocephaliid trilobites. *Paleobiology* 43: 49-67.
- 2016 **Hopkins MJ**, Pearson JK. Non-linear ontogenetic shape change in *Cryptolithus tessellatus* (Trilobita) using three-dimensional geometric morphometrics. *Palaeontologia Electronica* 19.3.42A.

- 2016 **Hopkins MJ**, Lidgard S. Fossil species lineages and their defining traits—taxonomic usefulness and evolutionary modes. In Allmon, W.D., and Yacobucci, M.M. (eds.), *Species and Speciation in the Fossil Record*. University of Chicago Press, pp. 366-388.
- 2016 **Hopkins MJ**, Haber A, Thurman CL. Constraints on geographic variation in fiddler crabs (Ocypodidae: *Uca*) from the western Atlantic. *Journal of Evolutionary Biology*, 29:1553-1568.
- 2016 **Hopkins MJ**. Magnitude versus direction of change and the contribution of macroevolutionary trends to morphological disparity. *Biological Journal of the Linnean Society*, 118: 116-130.
- 2015 **Hopkins MJ**, Lidgard S. Gradualism, in Losos, J. B., ed., *Oxford Bibliographies on Evolutionary Biology*: New York, Oxford University Press. DOI:10.1093/OBO/9780199941728-0072
- 2015 Hunt G, **Hopkins MJ**, Lidgard S. Simple versus complex models of trait evolution, and stasis as a response to environmental change, *Proceedings of the National Academy of Sciences USA*, v. 112, no. 16, p. 4885-4890.
- 2015 **Hopkins MJ**, Smith AB. Dynamic evolutionary change in post-Paleozoic echinoids, and the importance of scale when interpreting rates of evolution: *Proceedings of the National Academy of Sciences USA*, v. 112, no. 2, p. 3758-3763.
- 2015 Lidgard S, **Hopkins MJ**, Stasis, in Losos, J. B., ed., *Oxford Bibliographies on Evolutionary Biology*: New York, Oxford University Press. DOI:10.1093/OBO/9780199941728-0067
- 2014 **Hopkins MJ**. Environmental patterning of trilobite morphological disparity. *Paleobiology* 40:352-373.
- 2014 **Hopkins MJ**, Simpson C, Kiessling W. Differential niche dynamics among major marine invertebrate clades, *Ecology Letters* 17: 314-323.
- 2014 Seddon AWR, +68 others including **Hopkins MJ**. Looking forward through the past. Identification of fifty priority research questions in palaeoecology. *Journal of Ecology* 102: 256-267.
- 2014 Hampton KR, **Hopkins MJ**, McNamara JC, Thurman CL. Intraspecific variation in carapace morphology among eight Species of Fiddler Crabs (Genus *Uca*) from the Atlantic coast of Brazil. *Aquatic Biology* 20: 53-67.
- 2014 Wieman AC, Berendszen PB, Hampton KR, Jang J, **Hopkins MJ**, Jurgenson J, McNamara JC, Thurman CL. A panmictic fiddler crab from the coast of Brazil? Impact of divergent ocean currents and larval dispersal potential on genetic and morphological variation in *Uca maracoani*. *Marine Biology* 161: 173-185.
- 2013 Korn D, **Hopkins MJ**, Walton, SA. Extinction space—a method for the quantification and classification of changes in morphospace across extinction boundaries. *Evolution* 67: 2795-2810.
- 2013 **Hopkins MJ**. Decoupling of taxonomic diversity and morphological disparity during decline of the Cambrian trilobite family Pterocephaliidae. *Journal of Evolutionary Biology* 26:1665-1676.
- 2012 **Hopkins MJ**, Lidgard S. Evolutionary mode varies amongst morphological traits in fossil species lineages. *Proceedings of the National Academy of Sciences* 109: 20520-20525.
- 2011 **Hopkins MJ**. How species longevity, intraspecific morphological variation, and geographic range size are related: a comparison using late Cambrian trilobites. *Evolution* 65: 3252-3273.
- 2011 Gerber S, **Hopkins MJ**. Mosaic heterochrony and evolutionary modularity: The trilobite genus *Zacanthopsis* as a case study. *Evolution* 65: 3241-3252.
- 2011 **Hopkins MJ**. Species-level phylogenetic analysis of the Pterocephaliidae (Trilobita) from the Great Basin, western USA. *Journal of Paleontology* 85: 1128-1153.

- 2010 **Hopkins MJ**, Thurman CL. The geographic structure of morphological variation in eight species of fiddler crabs (Ocypodidae: genus *Uca*) from the eastern United States and Mexico. *Biological Journal of the Linnean Society* 100: 248-270.
- 2009 **Hopkins MJ**, Webster M. Ontogeny and geographic variation of a new species of the corynexochine trilobite *Zacanthopsis* (Dyeran, Cambrian). *Journal of Paleontology* 83: 524-547.
- 2008 **Hopkins MJ**, Webster M. Morphological and ontogenetic change in the “Early” Cambrian trilobite *Zacanthopsis* during an interval of environmental change. Pp. 185-187 in Rábano, I., Gozalo, R., and García-Bellido, D (eds.), *Advances In Trilobite Research*. Cuadernos del Museo Geominero 9. Instituto Geológico y Minero de España, Madrid.
- 2007 Ludington S, Moring BC, Miller RJ, Stone PA, Bookstrom AA, Bedford DR, Evans JG, Haxel GA, Nutt CJ, Flynn KS, **Hopkins MJ**. Preliminary integrated geologic map databases for the United States. *USGS Open-File Report* 2005-1305. <https://pubs.usgs.gov/of/2005/1305/>
- 2006 Dusel-Bacon C, **Hopkins MJ**, Mortensen JK, Williams I, Helsop K, Dashevsky SS, Bressler JR, Day WD. Paleozoic tectonic and metallogenic evolution of the Yukon-Tanana terrane, east-central Alaska, in, Colpron, Nelson, and Thompson, eds., *Paleozoic Evolution and Metallogeny of Pericratonic Terranes at the Ancient Pacific Margin of North America*, Canadian and Alaskan Cordillera: Geol. Assoc. of Canada, Spec. Paper, 45, p. 25-74.
- 2004 Dusel-Bacon C, Wooden J, **Hopkins, MJ**. U-Pb zircon and geochemical evidence for bimodal mid-Paleozoic magmatism and syngenetic base-metal mineralization in the Yukon-Tanana terrane, Alaska: *GSA Bulletin* 116: 989-1015.
- 2004 Glen JMG, McKee EH, Ludington S, Ponce DA, Hildenbrand TG, **Hopkins MJ**. Geophysical terranes of the Great Basin and parts of surrounding provinces: *USGS Open-File Report* 04-1008. <https://pubs.usgs.gov/of/2004/1008/>
- 2003 Sloan J, Henry CD, **Hopkins MJ**, Ludington S. revised, National Geochronological Database: *USGS Open-File Report* 03-236, <http://wrgis.wr.usgs.gov/open-file/of03-236/>.