

# John M. Grady, PhD

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## CURRENT POSITION (2022–PRESENT)

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Postdoctoral Fellow at Living Earth Collaborative

Washington University in St. Louis

St. Louis, MO, USA

Co-Mentors Keith Hengen, PhD at Washington University in St. Louis and

Anthony I. Dell, PhD at National Great Rivers Research & Education Center

## PREVIOUS POSTDOCTORAL RESEARCH (2017–2022)

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Postdoctoral Researcher, National Great Rivers Research & Education Center

East Alton IL, USA

Supervisor: Anthony Dell, PhD

Postdoctoral Researcher, Bryn Mawr College, Bryn Mawr, PA, USA

Supervisors: Sydne Record, PhD: Bryn Mawr College, Bryn Mawr, PA, USA

Phoebe Zarnetske, PhD: Michigan State University, East Lansing, MI USA

## EDUCATION

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**PhD** University of New Mexico, Biology May 2016

Albuquerque, NM

Dissertation: *Energetics Across Ecological Scales*

Committee: Felisa A. Smith (advisor), James H. Brown, Richard Sibly

**MS** North Carolina State University, Plant Biology Dec 2010

Raleigh, NC

Thesis: *Inside The Persistence Niche: Recurring Fire Creates Stable Size Equilibria In Woody Resprouters*

Advisor: William Hoffmann

**BS** University of Arizona, Ecology & Evolutionary Biology May 2006

Tucson, AZ

*Cum Laude*

**BA** University of Delaware, Psychology (Philosophy Minor) May 2001

Newark, DE

## PUBLICATIONS

## Preprint

- Brunwasser, S.J., C. Farris, H. Elmore, E.L. Dyer, K.B. Nair, **J.M. Grady**, J.D. Whitesell, J.A. Harris, K.B. Hengen. Circuit specific selective vulnerability in the DMN persists in the face of widespread amyloid burden. <https://www.biorxiv.org/content/10.1101/2022.11.14.516510v3>
1. **Grady, J.M.**, Q.D. Read, S. Record, N. Rüger, P.L. Zarnetske, A.I. Dell, S.P. Hubbell, S.T. Michaletz, B.J. Enquist. Life history scaling in a tropical forest. *Journal of Ecology*, 2024.
  2. Gibert, J.P., **J.M. Grady\***, A.I Dell. Food web consequences of thermal asymmetries. *Functional Ecology*. 2022. 00:1–13. \*co-first author
  3. Cloyd, C.S., **J.M. Grady**, V.M. Savage, J.C Uyeda, A.I Dell. The allometry of locomotion. *Ecology*. 2021. 102(7) e03369.
  4. Read, Q.D., P. Zarnetske, S. Record, K.M. Dahlin, A.O. Finley, **J.M. Grady**, M.L. Hobi, S.L. Malone, J.K. Costanza, A.M Wilson, A.M. Latimer, K.D. Gaddis, S. Pau, S.V Ollinger. Beyond counts and averages: How are different levels and dimensions of biodiversity connected to geodiversity? *Global Ecology and Biogeography*. 2020. 29(4) 696-710.
  5. Jevon, F.V., S Record, **J.M. Grady**, AK Lang, DA Orwig, MP Ayres, JH Matthes. Seedling survival declines with increasing conspecific density in a common temperate tree. 2020. *Ecosphere* 11 (11) e03292.
  6. Record, S., K.M. Dahlin, P. Zarnetske, Q.D. Read, Sparkle L. Malone, K.D. Gaddis, S. Record, **J.M. Grady**, J.K. Costanza, M.L. Hobi, A.M. Latimer, S. Pau, A.M Wilson, S.V Ollinger, A.O. Finley, Erin Hestir. Remote sensing of geodiversity as a link to biodiversity. *Remote Sensing of Plant Diversity*. 2020. Springer.
  7. **Grady, J.M.**, B.S. Maitner, A.S. Winter, K. Kaschner, D.P. Tittensor, S. Record, F.A. Smith, A.M. Wilson, A.I. Dell, P.L. Zarnetske, H.J. Wearing, B. Alfaro, J.H. Brown. Metabolic asymmetry and the global diversity of marine predators. 2019. *Science*. 363 (6425), eaat4220.
  8. Zarnetske, P.L., Q.D. Read, S. Record, K. Gaddis, S. Pau, S.L. Malone, J. Costanza, K. Dahlin, A.M. Latimer, A.M. Wilson, **J.M Grady**, S.V. Ollinger, A.O. Finley.

- Towards connecting biodiversity and geodiversity across scales with satellite remote sensing. 2019. *Global Ecology and Biogeography*. 28 (5): 548-556.
9. Read, Q., **J.M. Grady**, P.L. Zarnetske, S. Record, B. Baiser, J. Belmaker, M. Tuanmu, A. Strecker, L. Beaudrot, K. Thibault. Among-species overlap in rodent body size distributions predicts species richness along a temperature gradient. 2018. *Ecography*. 41: 1718 – 1727.
  10. Read, Q., B. Baiser, **J.M. Grady**, P.L. Zarnetske, S. Record, J. Belmaker. Tropical bird species have less variable body sizes. 2018 *Biology Letters*. 14: 20170453.
  11. **Grady, J.M.**, Q.R Read, S. Record, P.L. Zarnetske, B. Baiser, K. Thorne, J. Belmaker. Size, niches, and the latitudinal diversity gradient. 2018 *Teaching Issues in Ecology and Evolution*. 14: Figure Set #1.
  12. Edmunds, P.M., S. Comeau, L. Coulson, A. Andersson, C. Briggs, A. Cohen, J.P. Gattuso, **J.M. Grady**, K. Gross, M. Johnson, E.B. Muller, J.B. Ries, S. Tambutté, E. Tambutté, A. Venn, R. Carpenter. Integrating the effects of ocean acidification across functional scales on tropical coral reefs. 2016. *Bioscience*. 66 (5), 350-362.
  13. Sibly, R.M., J. Baker, **J. M. Grady**, S.M. Luna, A. Kodric-Brown, C. Venditti, J.H. Brown. Fundamental insights of ontogenetic growth from theory and fish. 2015. *Proceedings of the National Academy of Sciences*, 112 (45), 13934-13939.
  14. **Grady, J.M.**, B.J. Enquist, E. Dettweiler-Robinson, N.A. Wright, F.A. Smith. Response to Comments on ‘Evidence for mesothermy in dinosaurs’. 2015. *Science*. 348 (6238), 982.
  15. Schramski, J.R., A.I. Dell, **J.M. Grady**, R.M. Sibly, J.H. Brown. Metabolic theory predicts whole-ecosystem properties. *Proceedings of the National Academy of Sciences*. 2015. 112 (8), 2617-2622.
  16. **Grady, J.M.**, B.J. Enquist, E. Dettweiler-Robinson, N.A. Wright, F.A. Smith. Evidence for mesothermy in dinosaurs. 2014. *Science*. 344 (6189) 1268-1272.
  17. Sibly, R., **J.M. Grady**, J.H Brown. How body mass and lifestyle affect juvenile biomass production in placental mammals. 2014. *Proceedings of the Royal Society B*. 281, 20132818.
  18. **Grady, J.M.**, W.A. Hoffmann. Caught in a fire trap: Recurring fire creates stable size equilibria in wood resprouters. 2012. *Ecology*. 93 (9) 2052-2060.

**FUNDING**

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<b>Postdoctoral Fellow at Living Earth Collaborative</b> Washington University in St. Louis, MO	2022-2024 <b>Award: \$114,000</b>
<b>National Aeronautics and Space Administration:</b> <i>Research Opportunities in Space and Earth Sciences</i> <i>Senior Personnel</i> Washington University in St. Louis, MO “Scaling forest diversity across space and time in a non-equilibrium world” #80NSSCK0406.	2022–2025 <b>Award: \$572,000</b>
<b>National Science Foundation EAGER ‘Rules of Life’</b> <i>Co-Principal Investigator.</i> National Great Rivers Research & Education Center, East Alton, IL “Metabolic asymmetry: An energetic rule linking biology across scales” #1838346.	2018–2021 <b>Award: \$297,582</b>
<b>National Institute of Health</b> <i>Program of Interdisciplinary Biology &amp; Biomedical Science</i> <i>Fellow</i> University of New Mexico, Albuquerque, NM.	2013–2015 <b>Award: \$48,586</b>
<b>Graduate Research Fellow</b> North Carolina State University, Raleigh, NC.	2009–2011 <b>Award: \$45,230</b>

**SEMINARS**

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2022

*Invited speaker at International Biogeography Society Conference. Vancouver, Canada.*  
“Sharks, trees and dinosaurs: scaling metabolism to global diversity.”

2021

*Invited seminar at Dalhousie University, Department of Biology. Halifax, Nova Scotia, Canada.* “Global drivers of marine predator diversity.”

2019

Seminar at *Ecological Society of America* Conference. Louisville, KY, USA. “Endotherm diversity and dominance: from coasts to the open ocean.”

*Invited seminar, Washington University in St. Louis, MO, USA.* “Biological power and the diversity of life.”

2017

Session moderator at *Ecological Society of America* Conference. Portland, OR, USA.  
“Challenges and opportunities for investigating ecological communities across space and time: insights from coordinated research networks.”

Ignite session speaker at *Ecological Society of America* Conference. Portland, OR, USA.  
“Connecting remote sensing to biodiversity science in the Anthropocene.”

2016

*Invited seminar*, National Great Rivers Research & Education Center, St. Louis, MO, USA. “Vertebrate energetics and ecology, past and present.”

*Invited seminar* at *Gordon Research Conference: Unifying Ecology Across Scales*. Biddeford, ME, USA. “Variation in metabolic power drives the distribution of marine predators.”

2015

Seminar at *Society of Vertebrate Paleontology* Conference. Dallas, TX, USA “Dinosaur growth and energetics.”

Seminar at *Ecological Society of America* Conference. Baltimore, MD. “Sharks vs. seals: Metabolic power and diversity at sea.”

2014

Poster at *International Biogeography Society* Conference, Bayreuth, Germany. ‘Why marine endotherms dominate cold, productive waters.’

Seminar at *Gordon Research Conference: Unifying Ecology Across Scales*, Biddeford, ME. “Metabolic power and ecological dominance at sea.”

2013

Seminar at *The 11<sup>th</sup> International Mammalogical Congress*, Belfast, Northern Ireland. “The biogeography of apex marine predators.”

2012

Poster at *Gordon Research Conference: Metabolic Basis of Ecology*. Biddeford, ME. “Dinosaur growth and energetics.”

#### SELECTED TEACHING AND MENTORING EXPERIENCE

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Washington University in St. Louis, MO

2022–Present

- Mentor PhD student (PI: Keith Hengen, neuroscience lab)
  - Taught predator-prey and cognition experimental design

- Taught coding language and data analysis in R
- Taught code sharing and version control in Github
- Mentor Undergraduate
  - Provided experience in running predator-prey experiments
  - Taught data entry and plotting in R
- Designed a high-school level STEM summer program
  - Co-designed a research project with student studying vertebrate biodiversity
  - Provided experience in running predator-prey experiments
  - Taught data entry and plotting in R
  - Met weekly for 1:1 discussions and project review

**Harvard Forest**, Petersham, MA 2017–2018

- Summer Research Undergraduate Experience (REU) Mentor
  - Oversaw undergraduate research on seedling demographics and tests of metabolic scaling theory in forests
  - Developed research protocol for undergraduates
  - Assisted students in scientific analysis and communication, R coding skills
  - Mentored undergraduates in plant demography project at Harvard Forest

**Bryn Mawr College**, Bryn Mawr, PA 2017

**Instructor**, Undergraduate *Ecology 201*

- Lecturer on ecological niches and diversity
- Published teaching issue in ecology with an undergraduate, stemming from lectures (K. Thorne in Grady *et al*, 2018)

**Contributed to Howard Hughes Medical Institute Teaching Materials** 2016

- Developed exercises on understanding dinosaur physiology for undergraduates
- <https://www.biointeractive.org/sites/default/files/media/file/2020-02/DinosaurThermoregulation-Educator-act.pdf>
- <https://www.biointeractive.org/classroom-resources/thermoregulation-dinosaurs>

**University of New Mexico**, Albuquerque, NM 2012– 2016

**Teaching Assistant:** Genetics, Anatomy & Physiology, Diversity of Life, Evolutionary Medicine

- Developed lectures and lab curriculum
- Lectured on laboratory material for genetics and biodiversity

**North Carolina State University**, Raleigh, NC 2009– 2010

**Teaching Assistant:** Ecology & Evolution

- Lectured on ecological laboratory material
- Mentored an undergraduate who assisted with savanna tree field work

**SERVICE AND OUTREACH**

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**Reviewer for:**

*Science, Proceedings of the National Academy of Sciences, Biological Reviews, Nature Ecology & Evolution, Nature Geoscience, PLOS Biology, Ecology, Basic and Applied Ecology, Mammalogy, Ecology and Evolution, Philosophical Transactions B, Global Ecology and Biogeography, The American Naturalist*

**Wrote article for public** at the *Science Breaker*

<https://thesciencebreaker.org/breaks/evolution-behaviour/sharks-seals-and-the-balance-of-power-at-sea>

**Interviews:**

- *The Atlantic*  
“Why whales, seals, and penguins like their food cold.” Ed Yong, 2019.  
<https://www.theatlantic.com/science/archive/2019/01/why-whales-seals-and-penguins-thrive-cold/581149>
- *National Public Radio: All Things Considered*  
“Maybe dinosaurs were a coldblooded, warmblooded mix.” Christopher Joyce, 2014.  
<https://www.npr.org/2014/06/12/320803925/maybe-dinosaurs-were-a-cold-blooded-warm-blooded-mix>
- *National Geographic*  
“Why dinosaurs were like tuna, great whites, and echidnas.” Ed Yong, 2014.  
<https://www.nationalgeographic.com/science/article/dinosaurs-tuna-great-whites-echidnas>
- *Canadian Broadcasting Corporation: Quarks and Quirks*  
“Why warm-blooded predators thrive in the coldest places on earth.” 2019  
<https://www.cbc.ca/radio/quirks/jany-26-2019-the-power-of-super-poop-preventing-ptsd-counting-down-to-apollo-11-and-more-1.4991136/why-warm-blooded-predators-thrive-in-the-coldest-places-on-earth-1.4991140>
- *British Broadcasting Corporation*  
“Dinosaurs ‘neither warm nor cold blooded.’” Jonathan Webb, 2014.  
<https://www.bbc.com/news/science-environment-27794723>

**PRESS COVERAGE**

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- *Nature*  
“Dinosaurs neither warm-blooded or cold-blooded.” Alexandra Witze, 2014.  
<https://www.nature.com/articles/nature.2014.15399>

- Science  
“Dinosaur metabolism neither hot nor cold, but just right.” Michael Balter, 2014.  
<https://www.science.org/doi/10.1126/science.344.6189.1216>  
  
“Where to find fantastic beasts at sea.” Nicholas Pyenson, 2019.  
<https://www.science.org/doi/10.1126/science.aav9156>
- *The Atlantic* (PBS)  
“Why whales, seals, and penguins like their food cold.” Ed Yong, 2019.  
<https://www.theatlantic.com/science/archive/2019/01/why-whales-seals-and-penguins-thrive-cold/581149>
- *Public Broadcasting Service* (PBS)  
“Dinosaurs were neither cold-blooded nor warm-blooded, study says.” Justin Scuiletti, 2014.  
<https://www.pbs.org/newshour/science/dinosaurs-neither-cold-blooded-warm-blooded-study-says>
- *Los Angeles Times*  
“Dinosaurs were neither cold-blooded nor warm-blooded, study finds.” Amina Khan, 2014. <https://www.latimes.com/science/sciencenow/la-sci-sn-dinosaur-cold-blooded-warm-mesothermic-metabolism-20140613-story.html>
- *Washington Post*  
“Wait – dinosaurs weren’t cold-blooded?” Justin Moyer, 2014.  
<https://www.washingtonpost.com/news/morning-mix/wp/2014/06/16/wait-dinosaurs-arent-cold-blooded/>

#### PROFESSIONAL AFFILIATIONS

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Member of *Ecological Society of America*

Member of *International Biogeography Society*

Member of *Society of Vertebrate Paleontology*

References available upon request.