

Jenny L. McGuire
Spatial Ecology & Paleontology Lab
Georgia Tech

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Jenny L. McGuire
Spatial Ecology & Paleontology Lab
<http://www.mcguire.gatech.edu>

Associate Professor, Cullen-Peck Fellow
School of Biological Sciences (75%)
School of Earth & Atmospheric Sciences (25%)
Georgia Institute of Technology

Contact information:
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311 Ferst Drive
Atlanta, Georgia 30332

Research program: My research explores how plants and animals dynamically respond to global change. My lab uses spatiotemporal modeling and ecomorphology to recreate species and community dynamics across landscapes and through time in response to climate and anthropogenic changes. We test our ecological models by integrating empirical data from natural history museums, fossil specimens, scientific databases, and our own fieldwork.

I. Earned Degrees

- 2010 **PhD in Integrative Biology**
University of California, Berkeley
Advisor: Anthony Barnosky
Dissertation: The effects of Quaternary environmental changes on *Microtus* distribution and morphology
- 2002 **Bachelor of Sciences in Earth & Ocean Sciences, Highest Distinctions**
Duke University, Advisor: Bruce Corliss
Thesis: The distribution of marsh foraminifera in Beaufort, NC: implications for sea level studies **Bachelor of Sciences in Biological Anthropology & Anatomy**
Duke University, Mentor: Steve Churchill

II. Employment History

- 2023- **Associate Professor**
School of Biological Sciences (75%), School of Earth and Atmospheric Sciences (25%)
Georgia Institute of Technology
- 2017-2023 **Assistant Professor**
School of Biological Sciences (75%), School of Earth and Atmospheric Sciences (25%)
Georgia Institute of Technology
- 2014-2017 **Independent Research Scientist II**
School of Biological Sciences, Georgia Institute of Technology

- 2012-2014 **Postdoctoral Research Associate**
Landscape Ecology and Conservation Lab
School of Environmental and Forest Sciences, University of Washington
Advisor: Joshua Lawler
Projects: Tracing climate connectivity on a fragmented landscape; Using landscape diversity to conserve biodiversity
- 2010-2012 **Postdoctoral Research Fellow**
National Evolutionary Synthesis Center (NESCent), Durham, NC
Mentors: V. Louise Roth & Todd Vision
Projects: Improving the performance of distribution models using the paleontological record

III. Honors and Awards

- 2024 Georgia Tech Cullen-Peck Fellow (Chaired)
2023 Georgia Tech Brook Byers Institute for Sustainable Systems (BBISS) Fellow
2020 NSF CAREER Award
2018 Georgia Tech Class of 1969 Teaching Fellow
2018 Georgia Tech Grand Challenges Faculty Fellow
2018 Georgia Tech Climate Change Fellow
2018 Georgia Tech Thank-a-Teacher Certificate
2010 National Evolutionary Synthesis Center Postdoctoral Fellowship
2009 George D. Lauderback Award for outstanding graduate research and fieldwork.
2010 Junea W. Kelly Museum of Vert. Zoology Research Fellowship
2006 & 2009 National Science Foundation GK-12 Graduate Fellow (06-07 & 08-09)
2008 Gray Endowment Summer Research Fellowship
2008 National Sigma Xi Grant
2007 Berkeley Sigma Xi Grant.
2007 UC Museum of Paleontology Welles Fund Grad. Student Research Award
2007 Teaching Effectiveness Award. UC Berkeley.
2007 Outstanding Graduate Student Instructor Award. UC Berkeley.
2002 Graduation with Highest Distinctions in Earth and Ocean Sciences.
2002 Estwing Award for outstanding achievement in earth and ocean sciences.

IV. Research, Scholarship, and Creative Activities

A. Published Books, Book Chapters, and Edited Volumes

List all books or parts of books published. Include only those accepted or in-press and indicate their status.

A1. Books- No Data

A2. Refereed Book Chapters- No Data

A3. Edited Volumes- No Data

B. Refereed Publications and Submitted Articles

* completed at ^{PD} postdoc ^{GS} grad student ^{UG} undergrad ^{LT} lab tech
GT

h-index: 21 7723 citations since 2010 (as of 8 November 2024)

i10: 27 4545 citations since 2019 (as of 8 November 2024)

Lab website: <http://www.mcguire.gatech.edu>

Google Scholar Profile:

<https://scholar.google.com/citations?user=ARE8TKQAAAAJ&hl=en>

ORCID: <https://orcid.org/0000-0002-0663-6902>

ResearchGate: https://www.researchgate.net/profile/Jenny_Mcguire2

B1. Published and Accepted Journal Articles (44 total, 32 from GT)

44. *2024 Siciliano-Martina, L.^{PD}, **McGuire, J.L.**, Hurtado-Materon^{GS}, M.A., Short, R.A.^{PD}, Lauer, D.A.^{GS}, Schap, J.A.^{GS}, Müller, J., Manthi, F.K., Head, J.J. and Lawing, A.M. Ecometrics demonstrates that the functional dental traits of carnivoran communities are filtered by climate. *Ecology and Evolution*. 10.1002/ece3.70214
43. *2024 Schap, J.A.^{GS}, **McGuire, J.L.**, Lawing, A.M., Manthi, F.K., & Short, R.A. Ecometric models of small mammal hypsodonty can estimate paleoprecipitation across eastern Africa. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 643, 112181. [10.1016/j.palaeo.2024.112181](https://doi.org/10.1016/j.palaeo.2024.112181)
42. *2024 Shipley, B.R.^{GS} & **McGuire, J.L.** The environmental conditions of endemism hotspots shape the functional traits of mammalian assemblages. *Proceedings of the Royal Society B*. [10.1098/rspb.2023.2773](https://doi.org/10.1098/rspb.2023.2773).
41. *2024 Whitford, A.^{UG}, Shipley, B.R.^{GS,¶}, & **McGuire, J.L.** The influence of the number and distribution of background points in presence-background species distribution models. *Ecological Modelling*. <https://doi.org/10.1016/j.ecolmodel.2023.110604>
- ¶Benjamin Shipley is the corresponding author
40. *2023 Lauer, D.A.^{GS}, Lawing, A.M., Short, R.A., Manthi, F.K., Müller, J., Head, J.J., **McGuire, J.L.** Disruption of trait-environment relationships

in African megafauna occurred in the middle Pleistocene. *Nature Communications*. <https://doi.org/10.1038/s41467-023-39480-8>

39. *2023 Lauer, D.A.^{GS} & **McGuire, J.L.** Africa's ecosystems exhibit a tradeoff between resistance and stability following disturbances. *Environmental Research Letters*. 10.1088/1748-9326/acde90
38. *2023 Lauer, D.A.^{GS}, Shipley, B.R.^{GS}, & **McGuire, J.L.** Habitat and not topographic heterogeneity constrains the range sizes of African mammals. *Journal of Biogeography*. <https://doi.org/10.1111/jbi.14576>
37. *2023 Shipley, B.R.^{GS} & **McGuire, J.L.** Disentangling the drivers of continental mammalian endemism. *Global Change Biology*. <https://doi.org/10.1111/gcb.16628>
36. *2023 **McGuire, J.L.**[¶], Lawing, M.[¶], Diaz, S.M., Stenseth, N.C. The past as a lens for biodiversity conservation on a dynamically changing planet. *PNAS*. <https://doi.org/10.1073/pnas.2201950120>
- [¶]AL and JM are co-corresponding authors
35. *2023 Short, R.^{PD}, **McGuire, J.L.**, Polly, P.D., Lawing, M. Trophically integrated ecometric models as tools for demonstrating spatial and temporal functional changes in mammal communities. *PNAS*. <https://doi.org/10.1073/pnas.2201947120>
34. *2023 Wang, Y.^{PD}, Pineda Munoz, S.^{PD}, **McGuire, J.L.** Plant migrations maintain climate fidelity in the face of dynamic climate change. *PNAS*. <https://doi.org/10.1073/pnas.2201946119>
33. *2023 **McGuire, J.L.**, Woodruff, A.^{LT}, Iacono, J.^{GS}, Sethna, J.^{UG}, Schap, J.^{GS}, Redman, C., Meachen, J. Evaluating the taphonomic consistency of microvertebrate assemblages at Natural Trap Cave, Wyoming, USA. *Quaternary International*. <https://doi.org/10.1016/j.quaint.2022.02.009>
32. *2023 Meachen, J.A. & **McGuire, J.L.** Natural Trap Cave, Wyoming, USA records a detailed faunal, floral, aDNA, isotopic, and geologic record of the late Quaternary. *Quaternary International*. <https://doi.org/10.1016/j.quaint.2023.01.007>
31. *2023 Schap, J.^{GS}, Meachen, J.A., **McGuire, J.L.** Microfauna relative abundance since the Late Pleistocene at Natural Trap Cave, Wyoming, USA. *Quaternary International*. <https://doi.org/10.1016/j.quaint.2021.11.018>
30. *2023 Lovelace, D., Redman, C., Minkley, T., Schubert, B., Mahan, S., Wood, J.R., **McGuire, J.L.**, Laden, J., Bitterman, K., Heiniger, H., Fenderson, L., Cooper, A., Mitchell, K.J., Meachen, J.A. An age-depth model and revised stratigraphy of vertebrate-bearing units in Natural Trap Cave, Wyoming. *Quaternary International*. <https://doi.org/10.1016/j.quaint.2022.02.008>

29. *2023 Mahan, S., Wood, J.R., Lovelace, D., Laden, J., **McGuire, J.L.**, and Meachen, J.A. Luminescence ages and new interpretations of the timing and deposition of Quaternary sediments at Natural Trap Cave, Wyoming. *Quaternary International*. <https://doi.org/10.1016/j.quaint.2022.01.005>
28. *2022 **McGuire, J.L.** and B. R. Shipley^{GS}. Dynamic priorities for conserving species: Animals' ranges must be conserved while allowing movement for sustaining biodiversity. *Conservation Perspectives*. *Science*. <https://doi.org/10.1126/science.abq0788>
27. *2022 Shipley, B.R.^{GS}, Bach, R.^{UG}, Do, D.^{UG}, Strathearn, H.^{UG}, **McGuire, J.L.**[¶], Dilkina, B.[¶] megaSDM: integrating dispersal and time-step analyses into species distribution models. *Ecography*. <https://doi.org/10.1111/ecog.05450>
- [¶]*JM & BD are co-senior authors, both having contributed significant mentorship on this project.*
26. *2021 Shipley, B.R.^{GS} & **McGuire, J.L.** Interpreting and integrating multiple endemism metrics to identify hotspots for conservation priorities. *Biological Conservation*. <https://doi.org/10.1016/j.biocon.2021.109403>
25. *2021 Lawing, A.M.[¶], Blois, J., Maguire, K., Goring, S., Wang, Y.^{PD}, **McGuire, J.L.**[¶] Occupancy models reveal regional differences in detectability and improve relative abundance estimations in fossil pollen assemblages. *Quaternary Science Reviews*. 253:106747. <https://doi.org/10.1016/j.quascirev.2020.106747>
- [¶]*AL and JM contributed equally to the paper and are co-corresponding authors*
24. *2021 Pineda-Munoz, S.^{PD}, Wang, Y.^{PD}, Lyons, K., Tóth, A.B., **McGuire, J.L.** Mammal species occupy different climates following the expansion of human impacts. *Proceedings of the National Academy of Sciences*. 118(2): e1922859118. <https://doi.org/10.1073/pnas.1922859118>
23. *2021 Wang, Y.^{PD}, Widga, C., Graham, R.W., **McGuire, J.L.**, Porter, W., Wårlind, D., & Williams, J.W. Caught in a bottleneck: habitat loss for woolly mammoths in central North America and the ice-free corridor during the last deglaciation. *Global Ecology and Biogeography*. 30: 527– 542. <https://doi.org/10.1111/geb.13238>
22. *2020 Cook-Patton, S.C., Gopalakrishna, T., Daigneault, A., Leavitt, S.M., Platt, J., Scull, S.M., Amarjargal, O., Ellis, P.W., Griscom, B.W., **McGuire, J.L.**, Yeo, S.M., Fargione, J.E. Lower cost and more feasible options to restore forest cover in the contiguous United States for climate mitigation. *One Earth*. 3(6): 739-752. <https://doi.org/10.1016/j.oneear.2020.11.013>

21. *2020 Wang, Y.^{PD}, Shipley, B.R.^{GS}, Lauer, D.A.^{GS}, Pineau, R.^{GS}, **McGuire, J.L.** Plant biomes demonstrate that landscape resilience today is the lowest it has been since end-Pleistocene megafaunal extinctions. *Global Change Biology*. 26: 5914– 5927. <https://doi.org/10.1111/gcb.15299>
20. *2020 **McGuire, J.L.** & Lauer, D.A.^{GS} Linking patterns of intraspecific morphology to changing climates. *Journal of Biogeography*. <https://doi.org/10.1111/jbi.13954>
19. *2019 Wang, Y.^{PD}, Goring, S., **McGuire, J.L.** Bayesian ages for pollen records since the last glaciation in North America. *Scientific Data*. 6: 176. <https://doi.org/10.1038/s41597-019-0182-7>
18. *2017 Badgley, C., Smiley, T.M., Davis, E.B., DeSantis, L.R.G., Fox, D.L., Hopkins, S.B., Jezkova, T., Matocq, M.D., Matzke, N., **McGuire, J.L.**, *et al.* Biodiversity and topographic complexity: Modern and geohistorical perspectives. *Trends in Ecology and Evolution*. 32(3): 211-226. doi:[10.1016/j.tree.2016.12.010](https://doi.org/10.1016/j.tree.2016.12.010)
17. *2016 **McGuire, J.L.**, Lawler, J., McRae, B., Nuñez, T., and Theobald, D. Achieving climate connectivity in a fragmented landscape. *Proceedings of the National Academy of Sciences*. 113(26): 7195-7200. doi:[10.1073/pnas.1602817113](https://doi.org/10.1073/pnas.1602817113)
16. *2015 Orzechowski, E.A., Lockwood, R., Byrnes, J.E., Anderson, S.C., Finnegan, S., Finkel, Z.V., Harnik, P.G., Lindberg, D.R., Liow, L.H., Lotze, H.K., McClain, C.M., McGuire, J.L., O’Dea, A., Pandolfi, J.M., Simpson, C., Tittensor, D.P. Marine extinction risk shaped by trait–environment interactions over 500 million years. *Global Change Biology*. 21(10): 3595-3607. doi:[10.1111/gcb.12963](https://doi.org/10.1111/gcb.12963)
15. 2015 Krosby, M., Wilsey, C.B., **McGuire, J.L.**, Duggan, J.M., Noguire, T.M., Heinrichs, J.A., Tewksbury, J.J., Lawler, J.J. Climate-induced range overlap among closely-related species. *Nature Climate Change*. 5:883-886. doi:[10.1038/nclimate2699](https://doi.org/10.1038/nclimate2699)
14. *2015 Finnegan, S., Anderson, S.C., Harnik, P.G., Simpson, C., Tittensor, D.P., Byrnes, J.E., Finkel, Z.V., Lindberg, D.R., Liow, L.H., Lockwood, R., Lotze, H.K., McClain, C.M., **McGuire, J.L.**, O’Dea, A., Pandolfi, J.M. Paleontological baselines for evaluating extinction risk in the modern oceans. *Science*. 348(6234): 567-570. doi:[10.1126/science.aaa6635](https://doi.org/10.1126/science.aaa6635)
13. *2015 Gill, J., Benito, B., Dobrowski, S., Hunter, M., Goring, S., Blois, J., and **McGuire, J.L.** A 2.5-million-year perspective on coarse-filter strategies for conserving nature’s stage. *Conservation Biology*. 29(3): 640-648. doi: [10.1111/cobi.12504](https://doi.org/10.1111/cobi.12504)

12. 2014 **McGuire, J.L.** & Davis, E.B. Conservation Paleobiogeography: the past, present, and future of species distributions. *Ecography*. 37(11): 1092-1092. [doi:10.1111/ecog.01337](https://doi.org/10.1111/ecog.01337).
11. 2014 Davis, E.B., **McGuire, J.L.**, Orcutt, J. Ecological niche models of mammalian glacial refugia show consistent bias. *Ecography*. 37(11): 1133-1138. [doi:10.1111/ecog.01294](https://doi.org/10.1111/ecog.01294).
10. 2013 Dawson, M. N., Algar, A. C., Antonelli, A., Dávalos, L., Davis, E., Early, R., Guisan, A., Jansson, R., Lessard, J-P., Marske, K.A., **McGuire, J.L.**, *et al.* An horizontal scan of biogeography. *Frontiers of Biogeography*. 5(2): 130-157. [fb 18854](https://doi.org/10.1111/18854)
9. 2013 **McGuire, J.L.** and Davis, E.B. Using the paleontological record of *Microtus* to tests species distribution models and reveals responses to climate change. *Journal of Biogeography*. 40: 1490-1500. [doi:10.1111/jbi.12106](https://doi.org/10.1111/jbi.12106)
8. 2012 Harnik, P.G., Lotze, H.K., Anderson, S.C., Byrnes, J.E., Finkel, Z.V., Finnegan, S., Lindberg, D.R., Liow, L.H., Lockwood, R., McClain, C.M., **McGuire, J.L.**, *et al.* Extinctions in ancient and modern seas. *Trends in Ecology and Evolution*. 27(11): 608-617. [doi:10.1016/j.tree.2012.07.010](https://doi.org/10.1016/j.tree.2012.07.010)
7. 2011 **McGuire, J.L.** Identifying California *Microtus* species using geometric morphometrics documents Quaternary geographic range contractions. *Journal of Mammalogy*. 92(6):1383-1394. [doi:10.1644/10-MAMM-A-280.1](https://doi.org/10.1644/10-MAMM-A-280.1)
6. 2011 Tomiya, S., **McGuire, J.L.**, *et al.* A report on late Quaternary vertebrate fossil assemblages from the eastern San Francisco Bay region, California. *PaleoBios*. 30(2): 50-71. [ucmp_paleobios_21791](https://doi.org/10.1111/ucmp.paleobios.21791)
5. 2011 Barnosky, A.D., Matzke, N., Wogan, G., Tomiya, S. Swartz, B. Quental, T., Marshall, C., **McGuire, J.L.**, *et al.* Has the Earth's sixth mass extinction already arrived? *Nature*. 471: 51-57. [doi:10.1038/nature09678](https://doi.org/10.1038/nature09678)
4. 2010 Blois, J., **McGuire, J.L.**, and E. Hadly. Small mammal diversity loss in response to late-Pleistocene climate change. *Nature*. 465: 771-774. [doi:10.1038/nature09077](https://doi.org/10.1038/nature09077)
3. 2010 **McGuire, J.L.** Geometric morphometrics of vole (*Microtus californicus*) dentition as a new paleoclimate proxy: shape change along geographic and climatic clines. Quaternary changes of mammalian communities across and between continents. *Quaternary International*. 212(2): 198-205. [doi:10.1016/j.quaint.2009.09.004](https://doi.org/10.1016/j.quaint.2009.09.004)
2. 2006 DeBlieux, D.D., Kirkland, J.I., Smith, J.A., **McGuire, J.L.**, and Santucci, V.L. An overview of the paleontology of Upper Triassic and Lower Jurassic rocks in Zion National Park, Utah. *The Triassic-*

Jurassic Terrestrial Transition. NMMNH and Science Bulletin. 37: 490-501.

1. 2006 Mickelson, D. L., A. Milner, D. D. DeBlieux, and **McGuire, J.L.** The oldest known Early Triassic fossil vertebrate footprints in North America, from Zion National Park, Utah. *Fossils from Federal Lands. New Mexico Museum of Natural History and Sciences Bulletin. 34:* 141-144.

B2. Conference Presentation with Proceedings (Refereed)-No Data

B3. Other Refereed Material- No Data

B4. Submitted Journal Articles (with Date of Submission)

- *In Revision Wang, Y.^{PD} & **McGuire, J.L.** Plant biomes shift and expand their climate niche through time. *Journal of Biogeography*. Submitted 3 October 2022.
- *Re-review Shipley, B.R.^{GS}, Shah, N.B.^{UG}, and **McGuire, J.L.** Relatedness, trait evolution, and climatic niche divergence in mammalian island endemics. *Oikos*. Submitted 10 September 2024.

B5. Manuscripts in Preparation

- *In prep Lauer, D.A.^{GS}, **McGuire, J.L.**, Lawing, A.M., Short, R.A., Manthi, F.K., Müller, J., Head, J.J. Habitat connectivity can facilitate ecological function as climates change. Draft Available.
- *In prep Gibert Bret, C.^{PD}, Shipley, B.^{GS}, Wang, Y.^{PD}, Pineda-Muñoz, S.^{PD}, **McGuire, J.L.** Past climate fidelity demonstrates differential climate vulnerabilities and sensitivities to land use for plants and mammals. Draft Available.

C. Other Publications and Creative Products

- *2022 Reid, R. E. B., **McGuire, J. L.**, Svenning, J.-C., Wingard, G. L., and Moreno-Mateos, D. Review of ESA SYMP 7: A Dynamic Perspective on Ecosystem Restoration—Establishing Temporal Connectivity at the Intersection Between Paleoeecology and Restoration Ecology. *Bulletin of the Ecological Society of America*. 103(1):e01954. <https://doi.org/10.1002/bes2.1954>
- *2016 **McGuire, J.L.** [Can ‘climate corridors’ help species adapt to warming world?](#) *The Conversation*.
- 2013 **McGuire, J.L.** [Extinction and the fossil record](#). *McGraw-Hill Yearbook of Science and Technology & AccessScience*. McGraw-Hill.
- 2012 Schloss, C., **McGuire, J.L.**, and Lawler, J. [Land facets for conservation planning](#). Prepared as a funding report for *Yale Mapping Framework: Integrating Climate Adaptation and Landscape Conservation Planning*.

- 2005 DeBlieux, D.D, Smith, J.A., **McGuire, J.L.**, Kirkland, J.I., and Santucci, V.L. Zion National Park Paleontological Survey. NPS Technical Report TIC# D-177, 75 p.

D. Presentations

⁺presenting author ^{PD}postdoc ^{GS} grad student ^{UG} undergrad ^{LT}lab tech
Bolded names indicate McGuire Lab (SEPL) GT Trainee

D1. Invited Campus Presentations

- 2024 McGuire, J.L. ⁺ Bridging Temporal Scales: Using Climate Fidelity and Trait-Environment Relationships to Identify Vulnerability. Ecological Acclimation Working Group (virtual).
- 2024 McGuire, J.L. ⁺ Conserving for change: Maintaining the fabric of life as the human footprint expands. Emory Students for One Health Organization. Rollins School of Public Health. Emory University.
- 2024 McGuire, J.L. ⁺, Freeman, B. ⁺, Stroud, J. ⁺ 2024 Frontiers in Science: Climate Action Conference and Symposium. College of Sciences. Georgia Tech.
- 2023 McGuire, J.L. ⁺ Using the fossil record as a lens for biodiversity conservation on a dynamically changing planet. Physics Colloquium. Morehouse College.
- 2022 McGuire, J.L. ⁺ Paleoecology reveals dynamic ecological responses to global change: the case for conserving for change. Tenure Promotion Talk. Schools of Biological Sciences and Earth and Atmospheric Sciences. Georgia Institute of Technology, Atlanta, GA
- 2022 McGuire, J.L. ⁺ Paleoecology reveals dynamic ecological responses to global change: the case for conserving for change. University of California Museum of Paleontology Student Invited Speaker. University of California, Berkeley, CA.
- 2022 McGuire, J.L. ⁺ Paleoecology reveals dynamic ecological responses to global change: the case for conserving for change. Geology Department Colloquium. University of Georgia, Athens, GA.
- 2022 McGuire, J.L. ⁺ Paleoecology reveals dynamic landscapes: the case for conserving for change. Funk Lecture Series. International Biogeography Society (virtual).
- 2022 McGuire, J.L. ⁺ Paleoecology reveals dynamic ecological responses to global change. Center for Macroecology, Evolution and Climate. University of Copenhagen, Copenhagen, Denmark.
- 2021 McGuire, J.L. ⁺ Exploring dynamic ecological responses to rapid global change using the Quaternary record. Paleontology Seminar. University of Texas, Austin, TX.

- 2021 McGuire, J.L.⁺ Paleo-dynamics: Exploring how plants and animals will respond to climate change. Earth Sciences Department Seminar. University of Oregon, Eugene, OR.
- 2021 McGuire, J.L.⁺ Paleo-dynamics: How species move as climate changes. Paleo Talks. Gray Fossil Site Eastern Tennessee State University, TN.
- 2021 McGuire, J.L.⁺ Planning for connected and resilient landscapes using past ecosystem dynamics. Ecology & Environmental Biology Department Seminar. University of Michigan, Ann Arbor, MI.
- 2019 McGuire, J.L.⁺ Past ecosystem dynamics demonstrate why we must conserve for change. *Margaret H. Lloyd Distinguished Speaker*. The Department of Forestry and Environmental Conservation. Clemson University, Clemson, SC.
- 2018 McGuire, J.L.⁺ Using an historical perspective to plan for dynamic responses to environmental change. Student Invited Speaker: Ecology and Evolutionary Biology Seminar Series at Texas A&M University, College Station, TX.
- 2018 McGuire, J.L.⁺ Conservation paleobiology: using an historical perspective to predict responses to climate change. *University Museum of Zoology Seminar Series*. Cambridge University, Cambridge, Cambridgeshire, U.K.
- 2017 McGuire, J.L.⁺ Spatial and climatic drivers of species variation and distributions through time. Earth and Environmental Science seminar series. Vanderbilt University, Nashville, TN.
- 2017 McGuire, J.L.⁺ Spatial and climatic drivers of species variation and distributions through time. Biological Sciences seminar series. Clemson University, Clemson, SC.
- 2017 McGuire, J.L.⁺ Spatial and climatic drivers of species variation and distributions through time. Population Biology, Ecology, and Evolution (PBEE) seminar series. Emory University, Atlanta, GA.
- 2017 McGuire, J.L.⁺ Using the Quaternary record to determine how species will respond to global change. Florida Museum of Natural History Speaker Series, Gainesville, FL.
- 2016 McGuire, J.L.⁺ Spatial and climatic drivers of species variation, connectivity, and distributions through time. School of Earth & Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA.
- 2016 McGuire, J.L.⁺ Using the fossil record to examine species responses to climate change. School of Geography, Earth, and Environmental Sciences, University of Birmingham, United Kingdom.
- 2015 McGuire, J.L.⁺ How far can they go? Species responses to climate change through time. Department Seminar, Department of Geosciences, Georgia State University, Atlanta, GA.

- 2015 McGuire, J.L.⁺ How far can they go? Species responses to climate change through time. Student invited speaker: Department Seminar, Department of Ecology & Evolutionary Biology, University of Tennessee, Knoxville, TN.
- 2014 McGuire, J.L.⁺ Testing conservation hypotheses using the Quaternary record. Department Seminar, Department of Geosciences, Eastern Tennessee State University, Johnson City, TN.
- 2013 McGuire, J.L.⁺ Movement, change, and extinction in the face of climate change: a paleoecological perspective. Department Seminar, Department of Biology, Georgia Institute of Technology, Atlanta, Georgia.
- 2011 McGuire, J.L.⁺ Mammalian responses to climate change: a paleontological perspective. Lunch Bunch Seminar, Department of Biology, University of North Carolina, Chapel Hill.
- 2011 McGuire, J.L.⁺ Mammalian responses to climate change: a paleontological perspective. Department Seminar, Department of Earth and Atmospheric Sciences, University of Nebraska at Lincoln.
- 2010 McGuire, J.L.⁺ Small mammal reactions to climate change: a paleontological perspective. Department of Integrative Biology Department Seminar, University of California, Berkeley.
- 2010 McGuire, J.L.⁺ Small mammal reactions to climate change: a paleontological perspective. Department of Geology Department Seminar, University of Oregon, Eugene, OR.
- 2010 McGuire, J.L.⁺ Small mammal reactions to climate change: a paleontological perspective. Paleontology Seminar, Burke Museum, Department of Biology, University of Washington, Seattle, WA.

D2. Invited Conference Presentations

- 2024 McGuire, J.L.⁺ Bridging Temporal Scales: Using Climate Fidelity and Trait-Environment Relationships to Identify Vulnerability. Unifying Ecology Across Scales: Toward a Predictive Ecology of the Anthropocene. Gordon Research Conference. Manchester, NH.
- 2024 McGuire, J.L.⁺ The past as a lens for biodiversity conservation on a dynamically changing planet. National Conference for Ecosystem Restoration (NCER). Albuquerque, NM. *canceled for medical reasons
- 2024 McGuire, J.L.⁺, **Daniel A. Lauer**^{GS}, A. Michelle Lawing, Rachel Short^{PD}, Leila Siciliano Martina^{PD}, Silvia Pineda-Muñoz^{PD}, Maria Alejandra Hurtado Materon^{GS}, Jason Head, Johannes Müller, and Fredrick Manthi. Pleistocene disruptions of trait-environment relationships informs the future conservation of African megafauna. North American Paleontological Convention. Ann Arbor, MI.

- 2022 McGuire, J.L.⁺, Wang, Y.^{PD}, Pineda Munoz, S.^{PD} Plants and animals vary in their climatic niche fidelity during the late Quaternary. Geological Society of America, Denver, CO. Session keynote: Modeling Ecological Niches and Species Distributions in the Fossil Record: Approaches and Applications
- 2022 McGuire, J.L.⁺ Landscape connectivity and climate change. American Society of Mammalogy. Symposium: Mammal Diversification in Dynamic Landscapes. *turned down for medical reasons.
- 2022 McGuire, J.L.⁺ Keynote: Paleoecology reveals dynamic landscapes: the case for conserving for change. International Biogeography Society, Vancouver, BC, Canada. *turned down for medical reasons- converted to Funk Lecture (see above).
- 2021 McGuire, J.L.⁺ Keynote: Paleoecology reveals dynamic landscapes: the case for conserving for change. Crossing the Palaeontological-Ecological Gap, Berlin, Germany. Virtual oral presentation.
- 2021 McGuire, J.L.⁺ Conservation Paleobiology in Africa. IUBS Scientific Programs Briefing. National Academy of Sciences. Virtual oral presentation.
- 2021 McGuire, J.L.⁺ Creating resilient landscapes through connectivity: lessons learned from the past. Ecological Society of America. Symposium: A Dynamic Perspective on Ecosystem Restoration: Establishing Temporal Connectivity at the Intersection Between Paleoecology and Restoration Ecology. Virtual Conference.
- 2020 McGuire, J.L.⁺ What does changing climate mean for Georgia's ecosystems? Georgia Climate Project. Virtual webinar.
- 2020 McGuire, J.L.⁺ (Moderator) Panel on Climate and Ecosystems. Global Climate Action Symposium. Atlanta, Georgia.
- 2020 McGuire, J.L.⁺ Small mammal taphonomy and paleoecology at Natural Trap Cave, Wyoming. Natural Trap Cave Virtual Symposium.
- 2020 **Schap, J.**^{GS+} Natural Trap Cave small mammal paleoecology informs responses to environmental change. Natural Trap Cave Virtual Symposium.
- 2019 McGuire, J.L.⁺ Terrestrial range shifts are amplified by climate change but hindered by human land use and fragmentation: a paleoecological perspective. International Union of Biological Sciences. Oslo, Norway.
- 2019 McGuire, J.L.⁺ A paleontological perspective to conserving for change. Invited talk in Conservation Paleobiology: natural systems in a human world. North American Paleontological Convention. Riverside, CA.
- 2018 McGuire, J.L.⁺ How well can we predict future distributions? Using paleoecology to inform conservation models. Invited talk in Inspire Section: The Future of Studying the Past: New Directions, Themes, and Techniques in Paleoecology. Ecological Society of America. New Orleans, LA.

- 2017 McGuire, J.L.⁺ Collections data as an historical experiment. NSF Advancing Digitization of Biodiversity Collections (ADBC) Summit. Invited presentation in Workshop on Collections Data in Ecological and Conservation Research. University of Florida, Gainesville, FL.
- 2017 McGuire, J.L.⁺, Lawler, J., McRae, B., Nuñez, T., and Theobald, D. Achieving climate connectivity in a fragmented landscape. The Wildlife Society Conference, Albuquerque, NM. Presented in invited symposium: Conserving Nature's Stages and Helping Wildlife Move Between Them.
- 2017 McGuire, J.L.⁺ Using niche dynamics and paleontological movement patterns to interpret the failings of species distribution models (and improve them). Traits past, present, and future: quantitative approaches to paleontology, conservation, and climate change biology in Africa. Integrating Climate Change Biology, National Museum of Kenya, Nairobi, Kenya.
- 2017 McGuire, J.L.⁺ Using the historic record to test principles underlying conservation practices. Paleoecology & Community Ecology (PACE) to link temporal scales in community dynamics. Population & Community Ecology (PCE) NSF-funded workshop. Schoodic Institute, Schoodic Peninsula, ME.
- 2016 McGuire, J.L.⁺ Climate-linked morphotypes identify populations vulnerable to changing climate. 96th Annual Meeting of the American Society of Mammalogists, Minneapolis, MN. Presented in invited symposium: Morphometric approaches to studying mammalian evolution and ecology.
- 2016 McGuire, J.L.⁺ Evolution and epigenetics: unraveling error in niche models. The Evolution Conference, Austin, TX. Presented in invited symposium: Putting evolution into ecological niche modeling: Building the connection between phylogenies, paleobiology, and species distribution models.
- 2015 McGuire, J.L.⁺ Poster: Using a conservation framework to examine landscape diversity, climate, and vertebrate richness. 75th Annual meeting, Society of Vertebrate Paleontology, Dallas, TX. Presented in invited symposium: Conservation paleobiology: insights into modern ecosystems from vertebrate records.
- 2011 McGuire, J.L.⁺ How Quaternary climate change patterns morphological variation in *Microtus californicus*. 71st Annual Meeting, Society of Vertebrate Paleontology, Las Vegas, NV. Presented in invited symposium: Symposium II- Climate Change and Vertebrate Response in the Evolving Arid West of Plio-Pleistocene North America.
- 2010 McGuire, J.L.⁺ Interpreting recent small-mammal range shifts in Yosemite in light of the Quaternary fossil record. 70th Annual Meeting, Society of Vertebrate Paleontology, Pittsburgh, PA. Romer Student Prize Session.
- 2007 McGuire, J.L.⁺, Barnosky, A.D., and Carrasco, M. Species-area curves & morphoclimate models as tools in forecasting effects of climate change on vertebrate communities. 17th Quadrennial Congress, International Union for Quaternary Research, Cairns, Queensland, AU.

D3. Contributed Conference Presentations (last 2 years)

- 2024 Wingard, G.L., Dillon, E., McGuire, J.L. Miller, J., Stackhouse, B. and Gibert-Bret, C.^{PD} The Past is Important – Conservation Paleobiology Data in Restoration and Conservation (poster). National Conference for Ecosystem Restoration (NCER). Albuquerque, NM.
- 2024 **Shipley, B.R.**^{GS}, **Shah, N.**^{UG}, and McGuire, J.L. Climatic niche divergence in mammalian island endemics. 11th Biennial Conference of the International Biogeography Society: Prague, Czechia. 6-10 Jan 2024.
- 2024 **Shipley, B.R.**^{GS}, McGuire, J.L. The ecology and biogeography of mammalian endemism. 11th Biennial Conference of the International Biogeography Society: Prague, Czechia. 6-10 Jan 2024. (Best Dissertation Award talk)
- 2024 McGuire, J.L. +, **Daniel A. Lauer**^{GS}, A. Michelle Lawing, Rachel Short^{PD}, Leila Siciliano Martina^{PD}, Silvia Pineda-Muñoz^{PD}, Maria Alejandra Hurtado Materon^{GS}, Jason Head, Johannes Müller, and Fredrick Manthi. Combining ecometrics and landscape connectivity to inform the future conservation of African mammals. 11th Biennial Congress of the International Biogeography Society. Prague, Czech Republic.
- 2024 Siciliano-Martina, L.^{PD+}, McGuire, J.L., **Shipley, B.R.**^{GS}, Short, R.A.^{PD}, Hurtado-Materon, M.A.^{GS}, Müller, J., Head J.J., Lawing, A.M. Community-wide trends in carnivoran carnassial morphology as an indicator of ecosystem disruption over time. American Society of Mammalogists, Boulder, Colorado.
- 2024 **Schap, J. A.**^{GS+}, Meachen, J. A., McGuire, J. L. Using the functional traits of small mammals to estimate past environments at Natural Trap Cave, Wyoming, U.S.A. North American Paleontological Conference. Ann Arbor, Michigan.
- 2024 **Schap, J. A.**^{GS+}, McGuire, J. L., Lawing, M., Manthi, F., Short, R. A.^{PD} I estimate the rains down in Africa: Building ecometric models using small mammal hypsodonty to estimate paleoprecipitation across eastern Africa. International Biogeography Society. Prague, Czechia.
- 2024 Gibert Bret, C.^{PD+}, **Shipley, B.**^{GS}, McGuire, J., 2024 Plants always have higher climate fidelity than mammals, and it gets worse after industrialization. North American Paleontological Convention. Ann Arbor, MI.
- 2024 Gibert Bret, C.^{PD+}, **Shipley, B.**^{GS}, McGuire, J. Do mammals track climate better than plants? 11th Biennial Congress of the International Biogeography Society. Prague, Czech Republic. (poster)
- 2024 **Slenker, KW**^{GS+}. JL McGuire, MT Clementz. Evaporation sensitivity of large-bodied North American mammalian herbivores. North American Paleontological Convention. Ann Arbor, MI.
- 2024 Short, RA^{PD+}, JL McGuire, NS Fox, **CP Bruce**, and AM Lawing. Advancing conservation paleobiology through ecometrics: Integrating functional traits and

- environments of past, present, and future fauna. North American Paleontological Convention. Ann Arbor, MI. Invited Symposium: Lessons learned and future visions for conservation paleobiology.
- 2024 Short, RA^{PD+}, JL McGuire, NS Fox, **CP Bruce**, and AM Lawing. Integrating functional traits and environments across spatial and temporal scales for conservation. American Society of Mammalogists. Boulder, CO.
- 2024 Bruce, CP^{GS+}, L Siciliano-Martina^{PD}, AM Lawing, JL McGuire, **JA Schap^{GS}**, **MA Hurtado-Materon**, and RA Short^{PD}. Ecometric models for body mass and temperature within global terrestrial carnivoran communities. North American Paleontological Convention. Ann Arbor, MI. (poster)
- 2024 Bruce, CP^{GS+}, L Siciliano-Martina^{PD}, AM Lawing, JL McGuire, **JA Schap^{GS}**, **MA Hurtado-Materon**, and RA Short^{PD}. Ecometric models for body mass and temperature within global terrestrial carnivoran communities. American Society of Mammalogists. Boulder, CO. (poster)
- 2024 Lawing, A. Michelle⁺, **Maria A. Hurtado Materon**, Leila Siciliano-Martina^{PD}, Rachel A. Short^{PD}, **Daniel A. Lauer^{GS}**, **Julia A. Schap^{GS}**, **Charles P. Bruce**, Silvia Pineda-Munoz^{PD}, Johannes Müller, Fredrick K. Manthi, Jason J. Head, and Jenny L. McGuire. Broadening Participation in Ecometrics Research: An Initiative to Expand the Collection of Functional Trait Data. 11th Biennial Congress of the International Biogeography Society. Prague, Czech Republic.
- 2023 McGuire, J. M. ⁺ Past climate fidelity demonstrates differential climate vulnerabilities and sensitivities to land use for plants and mammals. International Union for Quaternary Sciences. Rome, Italy. July 2023.
- 2023 **Schap, J. A.^{GS+}**, McGuire, J. L., Lawing, A. M., Short, R. A.^{PD} Building ecometric models using small mammal hypsodonty to estimate paleoprecipitation across eastern Africa. International Union for Quaternary Sciences. Rome, Italy. July 2023.
- 2023 **Schap, J. A.^{GS+}**, Meachen J. A., McGuire, J. L. Changes in small mammal communities over the last 25,000 years show a complex relationship between composition, traits, and aridity. International Union for Quaternary Sciences. Rome, Italy. July 2023.
- 2023 **Lauer, D. A.^{GS+}**, Lawing, A. M., Short, R. A.^{PD}, Manthi, F. K., Müller, J., Head, J. J., and McGuire, J. L. Disruption of trait-environment relationships in African megafauna occurred in the middle Pleistocene. Talk presented at the XXI Congress of the International Union for Quaternary Sciences, Rome, Italy. July 2023
- 2023 Short, RA^{PD+}, **M Sketel^{UG}**, JM Martin, **JA Schap^{GS}**, JL McGuire, and AM Lawing. Presence of domestic and non-native species shifts trait-environment relationships in herbivorous mammal communities. American Society of Mammalogists. Anchorage, AK. Invited Symposium: *Emerging Leaders in the Study of Mammalian Responses to Changing Climates*. July 2023

- 2023 Siciliano-Martina, L.^{PD+}, McGuire, J., Lawing, A.M. Carnivoran dietary traits as an ecometric to evaluate ecosystem disruption. American Society of Mammalogists, Anchorage, AK. Jul 2023.
- 2023 **Shipley, B.R.**^{GS+}, McGuire, J.L. Range size matters: The ecology and biogeography of endemic mammal species. 13th International Mammalogical Congress. Presentation. Anchorage, AK. 14-20 Jul 2023.
- 2023 McGuire, J. L. ⁺, Lawing, M. A., Díaz, S., Stenseth, N. C. The past as a lens for biodiversity conservation on a dynamically changing planet. Conservation Paleobiology Network. Gainesville, FL.
- 2023 **Shipley, B.**^{GS}, **Bach, R.**^{UG}, **Do, Y.**^{UG}, **Strathern, H.**^{UG}, McGuire, J. L., Dilkina. B. megaSDM: Modelling species range shifts in the past and future. Conservation Paleobiology Network. Gainesville, FL.
- 2023 Short, R. A.^{PD}, Sketel, M.^{UG}, Martin, J. M., Schap, J.A.^{GS}, McGuire, J. L., Lawing, A. M. Assessing impact of domestic and non-native species on trait-environment relationships using hypsodontology and precipitation since the late Pleistocene. Conservation Paleobiology Network. Gainesville, FL.
- 2023 Schap, J. A.^{GS}, Meachen, J. A., McGuire, J. L. Changes in small mammal communities over the last 25,000 years show a complex relationship between composition, traits, and aridity. Conservation Paleobiology Symposium. Gainesville, FL.
- 2023 Gibert, C.^{PD}, Escarguel, G., Vilmi, A., Jianjun, W., McGuire, J. L. PER-SIMPER, an innovative method for identifying community assembly processes within modern, recent and deep-time paleontological assemblages. Conservation Paleobiology Symposium. Gainesville, FL.
- 2023 **Lauer, D. A.**^{GS}, Lawing, A. M., Short, R. A.^{PD}, Manthi, F. K., Muller, J., Head, J. J., & McGuire, J. L. Pleistocene disruption of trait-environment relationships informs the future conservation of African megafauna. Conservation Paleobiology Symposium. Gainesville, FL.
- 2023 **Turner, L.**^{UG}, McGuire, J. L., **Schap, J. A.**^{GS}. Small mammal hypsodontology index does not track precipitation changes at Natural Trap Cave, WY. Conservation Paleobiology Symposium. Gainesville, FL.
- 2023 **Sketel, M.**^{UG}, **Schap, J.A.**^{GS}, Short, R.^{PD}, McGuire, J.L. Describing a newly excavated packrat midden near Natural Trap Cave, WY to help assess biases in fossil microfaunal accumulation. Conservation Paleobiology Symposium. Gainesville, FL.

E. Grants and Contracts (Total: ~\$2.5 million; ~\$1.6 million to SEPL)

E1. As Principal Investigator

Currently funded:

Title of Project: **Identifying and amplifying Georgia Tech's research strengths in conserving Georgia's biodiversity in the face of rapid global change**

Agency: Georgia Tech Sustainability Next Research seed grant

Total Amount: \$20,000

Role: PI

Collaborators: James Stroud, Asst. Prof., BioSci
Benjamin Freeman, Asst. Prof., BioSci
Emily Weigel, Sr. A.P., BioSci
Lauren Speare, Asst. Prof., BioSci
Saad Bhamla, Assoc. Prof, ChBE
Matthew Swarts, Branch Head, GTRI
Allen Hyde, Assoc. Prof., History and Sociology
Jenny Hirsch, Senior Director of SCoRE

Contract Period: 2024-2025

Candidate's Share: 100%

Share:

Status: Funded

Title of Project: **Vertebrate functional traits as indicators of ecosystem function through deep and shallow time**

Agency: NSF GEO-NERC (joint program with the UK)

Total Amount: \$1,200,000

Role: PI

Collaborators: Michelle Lawing (collaborative PI; Texas A&M); Jason Head (collaborative PI; Cambridge); Fredrick Kyalo Manthi (Co-PI; National Museums of Kenya)

Contract Period: 2020-2022

Candidate's Share: \$400,000

Share:

Status: Funded

Title of Project: **CAREER: Do species track climate? Using paleoecology to disentangle niche dynamics**

Agency: NSF GEO EAR SGP CAREER; co-funded by NSF BIO DEB PCE CAREER

Total Amount: \$636,409 + 60,000 supplement

Role: PI

Collaborators: None

Contract Period: February 2020-2025

Candidate's Share: 100%
Status: Funded

Previously funded:

Title of Project: **Characterizing climate-resilient landscapes**
Agency: NSF DEB PCE
Total Amount: \$368,260
Role: PI
Collaborators: Jessica Blois (Senior Personnel; UC Merced)
Contract Period: 2017-2020
Candidate's Share: 100%

Title of Project: **An integrated analysis of climate resilience in social-ecological systems in the southeastern United States**
Agency: Climate Change Fellows Interdisciplinary Research Seed Grant
Total Amount: \$13,500
Role: PI
Collaborators: Allen Hyde (Sociology at GT)
Contract Period: 2018
Candidate's Share: \$8,350

Title of Project: **Examining Paleontological Extinction Patterns to Predict Modern Extinction Vulnerability**
Agency: National Evolutionary Synthesis Center (NSF-funded research center)
Total Amount: \$94,700
Role: PI
Collaborators: None
Contract Period: 2010-2012
Candidate's Share: 100%

E2. As Co-Principal Investigator

Previously funded:

Title of Project: **Fieldwork at Natural Trap Cave**
Agency: David B. Jones Foundation Grant
Total Amount: \$46,597
Role: Co-PI
Collaborators: Julie Meachen (PI; Des Moines U.)
Contract Period: 2018-2022

Candidate's Share: Not designated- funds fieldwork

Title of Project: **Conservation Palaeobiology in Africa (CPiA)**
Agency: International Union of Biological Sciences (IUBS)
Total Amount: ~\$32,600 (30,000 €)
Role: Co-PI
Collaborators: Johannes Muller (collaborative PI; Berlin NHM); Fredrick Kyalo Manthi (Co-PI; National Museums of Kenya)
Contract Period: 2020-2022
Candidate's Share: Not designated- funds travel

Title of Project: **Integrated Climate Change Biology (iCCB)**
Agency: International Union of Biological Sciences (IUBS)
Total Amount: ~\$11,100 (10,000 €)
Role: Co-PI
Collaborators: Johannes Muller (PI; Berlin NHM), Jussi Eronen (co-PI; U. Helsinki), Jason Head (co-PI; Cambridge), Michelle Lawing (co-PI; Texas A&M)
Contract Period: 2018
Candidate's Share: Not designated- funds travel

Title of Project: **The Effects of Environmental Change on Gorilla Carrying Capacity in the Virunga Mountains**
Agency: Elizabeth Smithgall-Watts Grant, GT School of Biological Sciences
Total Amount: \$7,000
Role: Co-PI
Collaborators: Tara Soinski (President and CEO and Chief Scientific Officer for the Dian Fossey Gorilla Fund, Zoo Atlanta)
Contract Period: 2017-2018
Candidate's Share: \$5,500

E3. As Senior Personnel or Contributor

NA

E4. Pending Proposals (~\$3.8 million total; ~\$1.5 million to SEPL)

Title of Project: **Collaborative Research: BoCP-Implementation: Degradation of trait-environment relationships of mammalian communities across spatiotemporal scales**
Agency: NSF DEB BOCP (Biodiversity on a Changing Planet)

Total Amount: \$2,479,320 (GT: \$1,168,943)
Role: PI
Collaborators: Dr. A. Michelle Lawing (TAMU); Dr. Leila Siciliano (Texas State U.)
Contract Period: 2025-2030

Title of Project: **Collaborative Proposal: Tracking megafauna responses to aridity over time in the temperate, seasonal climates of North America using stable isotopes, biomarkers, and morphology**

Agency: NSF GEO
Total Amount: \$1,300,000 (GT: \$404,790)
Role: PI
Collaborators: Dr. Mark Clementz (U. Wyoming); Dr. Julie Meachen (DMU)
Contract Period: 2025-2028

Title of Project: **Identifying climate-sensitive taxa using the terrestrial and marine fossil records.**

Agency: NSF GEO-NERC (joint program with the UK)
Total Amount: LOI Approved
Role: PI
Collaborators: Dr. Erin Saupe (Oxford)
Contract Period: 2023-2026

E5. Proposals Submitted but Not Funded (Last Two Years)

No Data

F. Other Scholarly and Creative Accomplishments

No Data

G. Societal and Policy Impacts

G1. Policy Impacts: conservation consultation

2016-2019 Consultant for Eastern Wildways Project, organized by the Wildlands Network

G2. Societal impacts: select media coverage

2024 *Adirondack Explorer*. March 24. "[Adirondack Park's role in animal migration.](#)" By Chloe Bennett.

2024 *Nature Africa*. February 15. "[Data shows disruptions in mammal trait-environment relationships.](#)" By Abdulrahman Olagunju.

- 2023 *Knowable Magazine* and *The Atlantic*. August 3. "[Conservation paleobiology: Eyeing the past to restore today's ecosystems.](#)"
- 2023 *Time*. February 16. "[Migrating Could Help Plants Escape Climate Change. But They Need Our Help.](#)"
- 2023 National Science Foundation Research News. March 6. "[Plants seek climate refuge across our changing planet: When plants move, they take entire ecosystems with them.](#)"
- 2023 *Georgia Tech News Center*. February 6. "[The plants seeking refuge across our dynamically changing planet.](#)"
- 2022 *Georgia Tech Alumni Magazine*. August 18. "[Tech's fossil hunters. 'Citizen Scientists' are welcome during Fossil Fridays at Georgia Tech.](#)"
- 2021 *Georgia Tech News Center*. December 23. "[Focus on Fossils: Paleobiologists to Unearth Ancient Megafauna in East Africa, Forecast How Humans and Climate Affect Wildlife.](#)"
- 2021 *Billings Gazette* (& AP). July 18. "[Pack rats assist paleontologists in exploration of Wyoming cave's fossils.](#)"
- 2021 *Billings Gazette*. July 17. "[Cave paleontology camping isn't exactly glamping.](#)"
- 2021 *Powell Tribune*. July 22. "[Secrets of the Trap Cave: Scientists from across the nation converge on 'important' site outside of Lovell.](#)"
- 2021 *Phys.org*. January 5. "[Researchers uncover unequal effects of human activity on mammals.](#)"
- 2021 *Georgia Tech News Center*. January 4. "[Survival of the Smallest: Georgia Tech Researchers Uncover Unequal Effects of Human Activity on Mammals](#)" By Audra Davidson.
- 2020 *Georgia Tech News Center*. August 24. "[Fossil Pollen Record Suggests Vulnerability to Mass Extinction Ahead](#)" By John Toon.
- 2020 *The Daily Mail*. August 31. "[Declining resilience of North America's plant biomes may be a sign of a mass extinction last seen nearly 13,000 years ago, experts warn.](#)" By Stacy Liberatore
- 2020 *The Washington Post*. March 18. "[Safe Passages.](#)" By Ben Guarino.
- 2019 *Georgia Tech Research Horizons*. Issue 1. "Cool Solutions: In search of climate refugia." By T.J. Becker.
- 2018 *Lost in the Stacks*. "[Citizen Science in the Fossil Lab.](#)" on WREK radio.
- 2018 *Main Street Wyoming*. "[Natural Trap Cave.](#)" By Wyoming PBS.
- 2018 *Science Matters Podcast*. "[Can lessons from fossils guide Earth's future?](#)" by Renay San Miguel, GT College of Sciences.
- 2016 *Georgia Tech Research Horizons*. Issue 3. "Highway to the survival zone." By John Toon.
- 2016 *The Nature Conservancy*. "[Migrations in motion.](#)" By Dan Majka

- 2016 *Business Insider*. June 13. "[Scientists think 'little plant and animal highways' could help wildlife escape climate change.](#)" By Simone Scully.
- 2016 *Climate Central*. June 13. "[A simple idea could help wildlife survive climate change.](#)" By Brian Kahn.
- 2016 *WABE NPR Atlanta*. June 13. "[Habitat corridors could help animals adapt to climate change.](#)" By Molly Samuel.
- 2016 *Inside the Black Box*. February 10. "Are we in the Sixth Mass Extinction?" on WREK radio.
- 2015 *Live Science*. September 2. "[#JunkOff: Why Animal Genitals Are Important to Science.](#)" By Stephanie Pappas.
- 2015 *Science 2.0*. July 9. "[Previous claims of interbreeding due to climate change exaggerated.](#)"
- 2014 *The Daily Telegraph* (and many others) August 11. "[Hundreds of Ice Age fossils found in ancient sinkhole in Wyoming.](#)" By Rosa Prince.
- 2012 *Huffington Post*. October 12. "[Earth's Oceans 'Facing A Man-Made Major Extinction Event.'](#)" By Ted Thornhill.
- 2012 *US News & World Report*. February 2. "[Bringing Evolutionary Science to the Community.](#)" By Marlene Cmons, NSF.
- 2011 *Miller-McCune*. May 15. "[Scientists take Charles Darwin on the road.](#)" By Craig McClain
- 2011 *Radio In Vivo*. May 4. "[Dr. Jenny McGuire discusses conservation paleontology, the sixth mass extinction, and organisms' responses to climate change.](#)" By Ernie Hood
- 2011 *NY Times*. February 14. "[A nationwide day for honoring Charles Darwin, but handled with caution.](#)" By Amy Harmon.
- 2010 *Science News*. October 15. "[Climate changes, and there goes the neighborhood.](#)" By Susan Milius.
- 2007 *Berkeley Science Review*. Spring. "[Metropolitan Mammoth.](#)" By Nicholas Pyenson.

H. Other Professional Activities

No Data

V. Education

A. Courses Taught

Fall 2024	BIOL/EAS 4813/8813	Biodiversity on a Changing Planet	11 students
Spring 2024	BIOL 8802	Climate Change & Physiology	8 students
Fall 2023	BIOL 2335	General Ecology (co-taught)	135 students
Spring 2022	BIOL 8802	The Sixth Mass Extinction	6 students
Fall 2021	BIOL 2300	General Ecology (co-taught)	102 students
Spring 2021	EAS 1601	Habitable Planet (co-taught)	257 students
Fall 2020	BIOL 8802	Data Science in Conservation	9 students
Spring 2020	BIOL/EAS 4813/8813	Biodiversity on a Changing Planet (same as Spring 2018 course)	12 students
Fall 2019	BIOL 2335	General Ecology (co-taught)	82 students
Spring 2019	EAS 1601	Habitable Planet (co-taught)	176 students
Fall 2018	BIOL/EAS 8802	Climate Resilience	15 students (+5 observers)
Spring 2018	BIOL/EAS 4813/8813	Landscape ecology, biogeography, & GIS methods (created from scratch; renamed Biodiversity on a Changing Planet)	9 students

B. Individual Student Guidance

B1. Ph.D. Students

Katherine Slenker	PhD	School of Biological Sciences		2022-present
Tucker Lancaster	PhD	Quant. Biosciences Program		2021 rotation
Julia Schap	PhD	School of Biological Sciences		2019 – present
Daniel Lauer	PhD	Quant. Biosciences Program	QBios Paper Award (2x)	2018 – 2023
Benjamin Shipley	PhD	School of Biological Sciences	IBS Doctoral Dissertation Award; Sigma Xi	2018 – 2023

B2. M.S. Students (Indicate Thesis Option for Each Student)- no data

Sydney Marks	Masters (nonthesis)	School of Biological Sciences		Fall 2023 rotation
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B3. Undergraduate Students

40.	2024-	Ryan Arrazcaeta	Biological Sciences	Georgia Tech
39.	2024	Nikita Takalkar	Biomedical Eng.	Georgia Tech
38.	2024-	Jefferson Edge	Biological Sciences	Georgia Tech
37.	2024-	Emily White	Biological Sciences	
36.	2023-	Ashley Zheng	Env. Sciences	Georgia Tech
35.	2023-2024	Shreyas Arashanapalli	Biological Sciences	Georgia Tech
34.	2023-2024	Neha Shah	Biological Sciences	Georgia Tech
33.	2023-	Logan Kofod	Earth & Atmospheric Sciences	Georgia Tech
32.	2022-2023	Hadley Mueller-Hill	Biological Sciences	Georgia Tech
31.	2023	Anna Gibbs <i>ECSEL Program</i>	Biological Sciences	Georgia Tech
30.	2021	Nia Gladden <i>ECSEL Program</i>	Biological Sciences	Georgia Tech
29.	2021-2023	Eli Vasquez <i>ECSEL Program</i>	Biological Sciences	Georgia Tech
28.	Summer 2021	Angelica Chukwudebe	Biology	Brown U.
27.	2021- 2023	Michael Sketel Senior thesis	Biological Sciences	Georgia Tech
26.	2020- Present	Hannah Payne <i>ECSEL Program</i>	Biological Sciences	Georgia Tech
25.	2020- 2021	Megan Wright	Biological Sciences	Georgia Tech
24.	2020- 2022	Amna Amir Senior thesis	Biological Sciences	Georgia Tech
23.	2020- Present	Anna Whitford	Industrial & Systems Eng.	Georgia Tech
22.	2019-2022	Audrey Dods	Biological Sciences	Georgia Tech
21.	2019-2020	Manuel Regalado <i>Pura Award</i>	Materials Sciences & Eng.	Georgia Tech
20.	2019-2023	Lily Turner Senior thesis <i>ECSEL Program,</i> <i>McCallum Scholar</i>	Biological Sciences	Georgia Tech
19.	2018-2021	Jadyn Sethna <i>McCallum Scholar</i>	Biological Sciences	Georgia Tech
18.	2018-2020	Kathryn Mccarthy <i>ECSEL Program</i> <i>McCallum Scholar</i>	Biological Sciences	Georgia Tech
17.	2017—2018	Joe Miles	Biological Sciences	Georgia Tech
16.	2015—2018	Amanda Meadows	Biological Sciences	Georgia Tech
15.	2017—2018	Riannon Colton	Earth & Atmospheric Sciences	Georgia Tech
14.	2017	Heather Strathearn	Civil Engineering	Perdue U.

Co-advised w. Bistra Dilkina: Bee Inspired REU Program; thesis: “Effect of dispersal rates on species’ abilities to track viable habitats given predicted climate change”

13.	2016-2017	Daniel Do	College of Computing	Georgia Tech
		<i>Co-advised w. Bistra Dilkina; thesis: “Computational framework for spatial connectivity under climate change and dispersal constraints”</i>		
12.	2015-2016	Renee Bach	College of Computing	Georgia Tech
		<i>Co-advised w. Bistra Dilkina; thesis: “Computational framework to analyze the spatial connectivity of species in Southeastern US under climate change”</i>		
11.	2015-2016	Molly Guthrie	Biological Sciences	Georgia Tech
10.	2015-2016	Victoria Contreras	Biological Sciences	Georgia Tech
9.	2015-2016	Simone Siriani	Dept. of Geosciences	Georgia State
8.	2015-2016	Matthew Toro	Dept. of Geosciences	Georgia State
7.	2014-2015	Morgan Ganues	Biological Sciences	Georgia Tech
6.	2014-2015	Tong Yu	Biological Sciences	Georgia Tech
5.	2014-2015	Alissa Schlossberg	Biological Sciences	Georgia Tech
4.	2009-2011	Sue Kim	Integrative Biology	UC Berkeley
3.	2007-2009	Lily Li	Integrative Biology	UC Berkeley
2.	2007-2008	Yamile Colque	Integrative Biology	UC Berkeley
1.	2006-2007	Nathan Shih	Molecular & Cell Biology	UC Berkeley

B4. Service on Thesis or Dissertation Committees

Years	Student	Degree	Advisor
2024- Present	Pranav Gokhale	PhD: Biological Sciences	Benjamin Freeman
2023- Present	Yiping Zuo	PhD: Biological Sciences	Lin Jiang
2022- Present	Maria-Alejandra Hurtado-Materon	PhD: Ecology and Evolutionary Biology Program (Texas A&M)	Michelle Lawing
2021-Present	Sarah Roney	PhD: Ocean Sciences & Engineering	Marc Weissburg
2019-2023	Rozenn Pineau	PhD: Biological Sciences	Will Ratcliff
2019	Yuhan Yang	PhD: Earth & Atm. Sci. (quals)	Rodney Weber
2018	Miguel Neve	PhD: Earth & Atm. Sci. (quals)	Zhigang Peng
2018-2021 (complete)	Minda M. Monteagudo	PhD: Ocean Sciences & Eng.	Jean Lynch- Stieglitz
2015-2018 (complete)	John Eric Williams	PhD: Environmental Systems (UC Merced)	Jessica Blois

B5. Mentorship of Postdoctoral Fellows or Visiting Scholars

Years	Trainee	Position/Role	Current Position
2024-	Dr. Amanda Hampton	Visiting Assistant Professor, School of Math, GATech (informal)	
2023-2024	Dr. Julia Schap	Postdoctoral fellow	
2022- 2024	Dr. Corentin Gibert	Postdoctoral fellow	Lecturer at U. de Lille
2022- 2024	Dr. Leila Siciliano Martina	Postdoctoral fellow (co-advised with A. Michelle Lawing, Texas A&M)	Asst. Prof. at Texas State U.
2020- 2022	Dr. Rachel Short	NSF Postdoctoral fellow (co-advised with A. Michelle Lawing, Texas A&M)	Asst. Prof. at SDSU
2017-2021	Dr. Yue Wang	Postdoctoral fellow	Assoc. Prof at Sun Yat-sen U.
2018-2020	Dr. Silvia Pineda-Muñoz	Postdoctoral fellow	Env. Scientist at FERC (OEP)
2019	Abba Parker	Visiting Grad. Student, Cambridge U., Advisor: Jason Head	Postdoc. U. Helsinki

B6. Mentorship of Lab Technicians

Years	Trainee	Position/Role	Current Position
2017-2018	Rukumani Rimal	Lab Technician	GIS Lead Inspire Brands
2016-2018	Aaron Woodruff	Lab Technician	Collections Manager FL MNH

C. Educational Innovations and Other Contributions

2021 Hosted Georgia Tech GIFT Program teacher, Vanessa Boone, who developed 2 curriculum modules for 3rd and 5th grade classrooms related to the experience.

VI. Service

A. Professional Contributions

2024-present International Biogeography Society Board: Director at Large

2023-present Georgia Tech Liason for PROGRESS (PROmoting Geoscience Research Education and Success) program.

2023-present	Diversity and Membership Committee, International Biogeography Society
2022-present	Conservation Paleobiology Network Working Group Panel
2021	Co-organizer (along with A. Michelle Lawing, TX A&M; Sandra Diaz, U. Cordoba; Nils Chr. Stenseth, U. Oslo) of PNAS Special Feature Virtual Symposium and Round Table: "The past as a lens for biodiversity conservation on a dynamically changing planet"
2021	Co-organizer (along with Rachel Reid, VT) of Ecological Society of America symposium: "A Dynamic Perspective on Ecosystem Restoration: Establishing Temporal Connectivity at the Intersection Between Paleoecology and Restoration Ecology"
2021- 2023	Co-organizer and co-editor (along with A. Michelle Lawing, TX A&M; Sandra Diaz, U. Cordoba; Nils Chr. Stenseth, U. Oslo) of <i>Proceedings of the National Academy of Sciences</i> Special Feature: "The past as a lens for biodiversity conservation on a dynamically changing planet"
2021-2023	Co-organizer and co-editor (along with Julie Meachen, DMU) of <i>Quaternary International</i> Special Issue: "Natural Trap Cave"
2021-present	Chair of the Paleoecology Section of the Ecological Society of America (ESA)
2020	Co-organizer (along with Julie Meachen, DMU) of the Natural Trap Cave Virtual Symposium.
2020-present	Leadership committee of Conservation Palaeobiology in Africa (CPiA) Programme.
2018	Vice Chair of the Paleoecology Section of the Ecological Society of America (ESA)
2017-2019	Leadership committee of Integrating Climate Change Biology (iCCB) program.
2016	Guest editor for <i>Proceedings of the National Academy of Sciences</i> .
2016-2023	Associate Editor at <i>Journal of Biogeography</i> .
2016	Co-organizer of Geological Society of America 65 th Annual Meeting of the Southeastern 2016 session "Fossil vertebrates of the southeastern United States"
2015	International Biogeography Society Symposium Selection Committee (for 2017)

- 2014 Guest editor of invited special issue of *Ecography* resulting from IBS Symposium
- 2010-2013 Co-organizer of International Biogeography 2013 symposium “The convergence of conservation paleontology and biogeography”
- 2008 Integrative Biology University of California Museum of Paleontology Director Search Committee, Student Member
- 2006-2007 Integrative Biology Graduate Student Association Co-President, UC Berkeley
- 2004-2005 Graduate Assembly Delegate, served on Academic Affairs Committee, UC Berkeley

Scientific Working Groups, Catalysis Meetings & Workshops

- 2025 Working Group: Prediction and Identification of Mass Extinctions (PRIME), PaleoSynthesis Institute, Erlangen, Germany
- 2024 Workshop: Mammalian diversification and distribution dynamics on evolving landscapes. North American Rodents: Landscapes, Ecology and Evolution (NARLEE). Ann Arbor, MI. NSF-funded RCN
- 2023 Workshop: Biosphere2 Biogeography (B2B). NSF-funded RCN. Biosphere2, Sonora, AZ.
- 2022 Workshop: Ecological Models Applied to Fossil Data: The Paleontological Society (PS) Short Course at Geological Society of America, Denver, CO. Instructor.
- 2021 Workshop: North American Rodents and Landscape Ecology and Evolution (NARLEE). NSF-funded RCN.
- 2020 Workshop: Functional Trait Resource for Environmental Studies (FuTRES). NSF-funded workshop.
- 2018 Workshop: Conservation Paleontology in Africa. Leadership Committee. Funded by the International Union of Biological Sciences. Berlin, Germany.
- 2018 Workshop: Taphonomy Workshop. NSF-funded workshop. Cincinnati, OH.
- 2018 Workshop: Conservation Paleontology in Africa. Leadership Committee. Funded by the International Union of Biological Sciences. Cambridge, UK.
- 2017 Forum: The National Forum on Landscape Conservation. Invited Participant. National Conservation Training Center, Shepherdstown, WV.
- 2017 Workshop: Conservation Paleontology in Africa. Leadership Committee. Funded by the International Union of Biological Sciences. Berlin, Germany.
- 2017 Workshop: Collections Data in Ecological and Conservation Research. NSF Advancing Digitization of Biodiversity Collections (ADBC) Summit. University of Florida, Gainesville, FL.
- 2017 Workshop: Paleoecology & Community Ecology (PACE) to link temporal scales in community dynamics. Population & Community Ecology (PCE) NSF-funded workshop. Schoodic Institute, Schoodic Peninsula, ME.

- 2017 Workshop: Traits past, present, and future: quantitative approaches to paleontology, conservation, and climate change biology in Africa. Integrating Climate Change Biology, National Museum of Kenya, Nairobi, Kenya.
- 2017- Working Group: Integrating Collections & Ecological Research (ICER). Integrated Digitized Biocollections (iDigBio), Gainesville, FL.
- 2013 Catalysis Meeting: [Integrating historical biogeography and phylogeography with the fossil record and landscape history](#). Organizers: Catherine Badgley & Brett Riddle National Evolutionary Synthesis Center (NESCent), Durham, NC.
- 2010-2 Working Group: [Determinants of extinction in ancient and modern seas](#). Organizers: Paul Harnik, Rowan Lockwood, & Seth Finnegan. National Evolutionary Research Synthesis Center (NESCent), Durham, NC.
- 2012 Doris Duke Foundation Steering Committee Meeting. Organizer: Steve Buttrick. The Nature Conservancy in Oregon, Portland, OR
- 2012 Western Governors Association Technical Modeling Workshop. Organizers: John Pierce, David Theobald, & Pat Comer. Colorado State, Fort Collins, CO.
- 2010 Catalysis Meeting: [Earth surface processes in the evolution of mammalian tooth shape](#). Organizers: Richard Madden, Caroline Stromberg, & Matthew Kohn. National Evolutionary Research Synthesis Center (NESCent), Durham, NC.

Scientific Reviewer

External reviewer for NSF
NSF Panelist (2018, 2020, 2021, 2022, 2024)
Axios
BioLetters
Biological J. of the Linnaean Society
BMC Evolutionary Biology
Conservation Biology
Diversity & Distributions
Ecography
Ecology
Ecology Letters
Ecosphere
Environmental Research Letters
Evolution
Evolutionary Ecology Research
Frontiers of Biogeography
Functional Ecology
Global Change Biology
Global Ecology & Biogeography

Global Environmental Change
Journal of Biogeography
Journal of Paleontology
Nature Climate Change
Nature Communications
One Earth
Open Quaternary
Paleobiology
Palaeo-3
Palaios
PeerJ
PLoS One
Proc. of the National Academy of Sciences
Proceedings of the Royal Society B
Quaternary International
Science
Science Advances
Scientific Report

Professional Society Memberships

American Society of Mammalogists	Int. Quaternary Research Assoc.
Ecological Society of America	The Paleontological Society
Geological Society of America	Society for the Study of Evolution
International Assoc. of Landscape Ecology	Society of Vertebrate Paleontology
International Biogeography Society	The Wildlife Society
Society of Conservation Biology	UT Friends of Paleontology-Hon. Member

B. Public and Community Service

2020 Georgia Public Broadcasting [interview](#) & discussion for preview of “The Age of Nature” documentary.

2019- Present Fossil Fridays- open labs every Friday to sort fossil specimens & learn about paleontology

2019 Lecture at the Paleontological Association of Georgia (PAG), Atlanta, Georgia

2017 Lecture at Atlanta Geologic Society

2017 Lecture at Alabama Paleontological Society

2017 Lecture at Dogwood City Grotto (Speleological Group)

2017 Program co-Chair for the March for Science Atlanta, which attracted over 10,000 attendees

2016-2019 Fossil Wednesdays- open labs every Wednesday to sort fossil specimens & learn about paleontology

2012 Highlighted scientist for Sally Ride Science textbook on climate change

2012 Speaker for NESCent’s Darwin Day Road Show- Takoma, WA and Banks, OR

2011 Speaker for NESCent’s Darwin Day Road Show to Ringgold, VA

2005-2010 Museum Docent, University of California Museum of Paleontology, 2005-2010.

2005-2010 Cal Day Graduate Student Participant

2009 Expert interview for *Animal Planet* show about end-Pleistocene extinctions

2005 Designed material used in expert testimony for *Tammy Kitzmiller, et al. v. Dover Area School District, et al.* trial

2005 Publicly [excavated](#) “Lupé,” the San Jose Mammoth, with public Q&A sessions and local news station interviews

C. Institute Contributions

2025 Mentor for Rising Tides Program

2024-Present	Integrative Physiology Search Committee
2024-Present	Brook Byers Institute for Sustainable Systems Director Search Committee
2023-2024	Undergraduate awards subcommittee
2023-2024	Quantitative BioSciences Faculty Search Committee
2023-Present	Health and well-being of people and communities Steering Committee
2021-Present	PROGRESS (PROmoting Geoscience, Research, Education and Success) Collaborator: bringing program to Atlanta
2021-Present	School of Biological Sciences Strategic Hiring Committee
2020	Facilitator in GT 17-Rooms Sustainable Development Forum
2019	Highlighted in Georgia Tech's Research Magazine (2x)
2018-2023	School of Biological Sciences Elizabeth Smithgall Watts Chair in Ecology & Conservation search committee member
2018-2024	Undergraduate Curriculum Committee, School of Biological Sciences
2017-2018	School of Biological Sciences Retreat Committee co-chair
2018-2020	Global Change Faculty Advisory Council
2017-Present	Member of the Quantitative Biosciences Graduate Program (advising 2 Ph.D. students)
2017	Mentor for the GT NSF Bee-Inspired REU program