

CURRICULUM VITAE

JORDAN G. OKIE

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EDUCATION

- 2006-2011 Ph.D. in Biology, University of New Mexico (UNM), Albuquerque, NM.
Dissertation: *Metabolic ecology and allometric scaling of microorganisms and major evolutionary transitions*. Committee: James H. Brown (chair), Melanie Moses, Bob Sinsabaugh, Cristina Takacs-Vesbach, and Richard Michod (external).
- 1999-2003 B.A. in Biology with Distinction, *Magna Cum Laude*, Carleton College, MN. Senior thesis: *Managing for the resilience of ecosystems*.
- 2000 School for International Training, semester abroad, Tanzania. Field studies on conservation, ecology, and ethnography.
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RESEARCH POSITIONS

- 2017-current Fellow, ASU-Santa Fe Institute Center for Biosocial Complex Systems.
- 2015-current Assistant Research Professor of the School of Earth & Space Exploration, Affiliated Faculty of the School of Life Sciences, School for the Future of Innovation in Society, and Center for Biodiversity Outcomes, Arizona State University.
- 2014-2015 Visiting Scholar and Assistant Research Professor, Elser Lab, School of Life Sciences, Arizona State University.
- 2012-2014 NASA Astrobiology Institute Postdoctoral Fellow, School of Earth and Space Exploration, Arizona State University. Advisors: Everett Shock and Tori Hoehler.
- 2011-2012 Exploration Postdoctoral Fellow, School of Earth and Space Exploration, Arizona State University. Advisors: Everett Shock and Jason Raymond.
- 2010-2011 Research Assistant, Takacs-Vesbach's molecular microbial ecology lab, McMurdo Dry Valleys, Antarctica & Univ. of New Mexico.
- 2006-2008 Howard Hughes Medical Institute Interfaces Scholar, Univ. of New Mexico.
- 2005-2006 Lab and Field Assistant, Jennifer King's terrestrial biogeochemistry and ecosystem ecology lab, Univ. of Minnesota.
- 2004 Desert Biological Monitor, Bureau of Land Management, CA.

- 2003 Research and policy intern, Save America's Forests, Washington, D.C.
- 2001 Ecology intern, Cedar Creek Natural History Area, Univ. of Minnesota.

BOOKS

Cockerill, K., M. Armstrong, J. Richter, **J.G. Okie**. 2017. *Environmental Realism – Challenging Solutions*. Palgrave Macmillan, London. (Team-written book on sustainability and environmental studies with social scientists).

JOURNAL ARTICLES & SELECTED MANUSCRIPTS

In prep or in review

32. Okie, J.G, V.H. Smith, and M. Martin-Cereceda. Cell size and the number and size of mitochondria and chloroplasts. *Scientific Data* (**In prep**).
31. Jiang, X, D.J. Van Horn, **J.G. Okie**, H.N. Buelow, E. Schwartz, D.R. Colman, K. Feeser, C.D. Takacs-Vesbach. Limits to the Three Domains of Life: Lessons from an Antarctic Salinity Gradient. *Extremophiles*. (**Submitted**).
30. **Okie, J.G.**, P. Canovas, T.M. Hoehler, and E.L. Shock. Quantitative theory of thermodynamic constraints on ecosystem and microbiome metabolic diversity patterns. (**In prep**).
29. **Okie, J.G.**, J.H. Brown, J.R. Burger, T.P. Flanagan, T.S. Fristoe, Hammond, S., N. Mercado-Silva, J.C. Nekola, and A. Kodric-Brown. Transformative technological innovations: when, where, and who. (**In revision**).

Published

28. **Okie, J.G.**, A.T. Poret-Peterson, Z.M.-P. Lee, L. Eguiarte, A. Richter, L.D. Alcaraz-Peraza, L.E. Eguiarte, J.L. Siefert, V. Souza, C.L. Dupont, and J.J. Elser. 2020. Genomic adaptations in information processing underpin trophic strategy in a whole-ecosystem nutrient experiment. *eLife* 9:e49816. DOI: 10.7554/eLife.49816.
27. Storch, D.E., and **J.G. Okie**. 2019. The carrying capacity for species richness. *Global Ecology and Biogeography* 28:1519-1532.
26. Feeser, K.L., D.J. Van Horn, H.N. Buelow, D.R. Colman, T. McHugh, **J.G. Okie**, E. Schwartz, and C.D. Takacs-Vesbach. 2018 Local and regional scale heterogeneity drive bacterial community diversity and composition in a polar desert. *Frontiers in Microbiology* 9:1929.
25. Storch, D., E. Bohdalková, and **J.G. Okie**. 2018. The more-individuals hypothesis revisited: the role of community abundance in species richness regulation and the productivity-diversity relationship. *Ecology Letters* 21:920-937.

24. Zhang, C., D. Niu, M. Song, J.J. Elser, **J.G. Okie**, and H. Fu. 2018. Effects of rainfall manipulations on carbon exchange of cyanobacteria and moss-dominated biological soil crusts. *Soil Biology & Biochemistry* 124:24-31.
23. Bo Wu, F. Liu, M. D. Weiser, D. Ning, **J. G. Okie**, L. Shen, B. Chai, J. Li, Y. Deng, K. Feng, L. Wu, S. Chen, J. Zhou, and Z. He. 2018. Temperature delimits the diversity and structure of N₂O-reducing microbial assemblages. *Functional ecology* 32:1867-1878.
22. **Okie, J.G.**, V.H. Smith, and M. Martin-Cereceda. 2016. Major evolutionary transitions of life, metabolic scaling, and the number and size of mitochondria and chloroplasts. *Proceeding of the Royal Society B* 283:20160611.
21. Hammond, S., J.H. Brown, J.R. Burger, T.P. Flanagan, T.S. Fristoe, N. Mercado-Silva, J.C. Nekola, and **J.G. Okie**. 2015. Food spoilage, storage, and transport: Implications for a sustainable future. *Bioscience* 65:758-768.
20. **Okie, J.G.**, D.J. Van Horn, D. Storch, M. N. Gooseff, J. E. Barrett, L. Kopsova, C.D. Takacs-Vesbach. 2015. Niche and metabolic principles explain patterns of diversity and distribution: theory and a case study with soil bacterial communities. *Proceeding of the Royal Society B* 282:20142630.
19. Marquet, P.A., A.P. Allen, J.H. Brown, J. Dunne, B.J. Enquist, J.F. Gillooly, P.A. Gowaty, J.L. Green, D. Storch, J. Harte, S.P. Hubbell, **J.G. Okie**, A. Ostling, M. Ritchie, D. Storch, and G.B. West. 2015. On the importance of first principles in ecological theory development. *Bioscience* 64:701-710.
18. Van Horn, D.J., **J.G. Okie**, H.N. Buelow, M.N. Gooseff, J.E. Barrett, and C.D. Takacs-Vesbach. 2014. Soil microbial responses to increased moisture and organic resources along a salinity gradient in a polar desert. *Applied and Environmental Microbiology* 80:3034-43.
17. Schwartz, E., D.J. Van Horn, H.N. Buelow, M.N. Gooseff, J.E. Barrett, **J.G. Okie**, C.D. Takacs-Vesbach. Characterization of Growing Bacterial Populations in McMurdo Dry Valley Soils through Stable Isotope Probing with ¹⁸O-water. *FEMS Microbial Ecology* 89:415-425.
16. Marquet, P.A., A.P. Allen, J.H. Brown, J. Dunne, B.J. Enquist, J.F. Gillooly, P.A. Gowaty, J.L. Green, D. Storch, J. Harte, S.P. Hubbell, J. O'Dwyer, **J.G. Okie**, A. Ostling, M. Ritchie, D. Storch, and G.B. West. 2014. On theory in ecology. *Bioscience* 64:701-710.
15. Saarinen, J.J., A.G. Boyer, J.H. Brown, D.P. Costa, S.K.M. Ernest, A.R. Evans, M. Fortelius, M.J. Hamilton, L.E. Harding, K. Lintulaakso, S.K. Lyons, **J.G. Okie**, R.M. Sibly, F.A. Smith, P.R. Stephens, J. Theodor, M.D. Uhen, and J.L. Gittleman. 2014. Patterns of maximum body size evolution in Cenozoic land mammals: intrinsic biological processes and extrinsic forcing. *Proc. Roc. Soc. B.* 281:20132049.

14. Brown, J.H., C.D. Allen, W.R. Burnside, M. Chang, A.D. Davidson, T.S. Fristoe, M.J. Hamilton, S.T. Hammond, A. Kodric-Brown, N. Mercado-Silva, J.C. Nekola, and **J.G. Okie**. 2014. Macroecology Meets Macroeconomics: Resource Scarcity and Global Sustainability. *Ecological Engineering* 65:24-32.
13. Hammond, S.T., J.H. Brown, J.R. Burger, M. Chang, T.P. Flanagan, T.S. Fristoe, A. Kodric-Brown, and **J.G. Okie**. 2013. Bankrupting nature for the (temporary) wealth of nations. *Trends in Ecology and Evolution* 28:576-577.
12. **Okie, J.G.**, A.G. Boyer, J.H. Brown, D.P. Costa, S.K.M. Ernest, A.R. Evans, M. Fortelius, J.L. Gittleman, M.J. Hamilton, L.E. Harding, K. Lintulaakso, S.K. Lyons, J.J. Saarinen, F.A. Smith, P.R. Stephens, J. Theodor, M.D. Uhen, and R.M. Sibly. 2013. Effects of allometry, productivity, and lifestyle on rates and limits of body size evolution. *Proceeding of the Royal Society B* 280:20131007.
11. Nekola, J.C., J.H. Brown, A. Kodric-Brown, and **J.G. Okie**. 2013. Global sustainability versus the Malthusian-Darwinian dynamic: A response to Rull. *Trends in Ecology and Evolution* 28:444.
10. **Okie, J.G.** 2013. General models for the spectra of surface area scaling strategies of cells and organisms: fractality, geometric dissimilitude, and internalization. *American Naturalist* 181:421-439.
9. Nekola, J.C., C.D. Allen, J.H. Brown, J.R. Burger, A.D. Davidson, T.S. Fristoe, M.J. Hamilton, S.T. Hammond, A. Kodric-Brown, N. Mercado-Silva, and **J.G. Okie**. 2013. The Malthusian-Darwinian dynamic and the trajectory of civilization. *Trends in Ecology and Evolution* 28:127-130.
8. Burger, J.R., C.D. Allen, J. H. Brown, W.R. Burnside, A.D. Davidson, T.S. Fristoe, M.J. Hamilton, N. Mercado-Silva, J.C. Nekola, **J.G. Okie**, and W. Zuo. 2012. The macroecology of sustainability. *PLOS Biology* 10:e1001345.
7. Collins, S.L., S.E. Koerner, J.A. Plaut, **J.G. Okie**, D. Brese, L.B. Calabrese, A. Carvajal, R.J. Evansen, and E. Nonaka. 2012. Functional redundancy buffers tallgrass prairie from long-term increases in growing season precipitation. *Functional ecology* 26:1450-1459.
6. Evans, A.R., D.O. Jones, A.G. Boyer, J.H. Brown, D.P. Costa, S.K.M. Ernest, E.M.G. Fitzgerald, M. Fortelius, J.L. Gittleman, M.J. Hamilton, L.E. Harding, K. Lintulaakso, S.K. Lyons, **J.G. Okie**, J.J. Saarinen, R.M. Sibly, F.A. Smith, P.R. Stephens, J. Theodor, and M.D. Uhen. 2012. The maximum rate of mammal evolution. *Proc. Natl. Acad. Sci. U.S.A.* 109:4187-4190.
5. Brown, J.H., W.R. Burnside, A.D. Davidson, J.P. DeLong, W.C. Dunn, M.J. Hamilton, N. Mercado-Silva, J.C. Nekola, **J.G. Okie**, W.H. Woodruff, and W. Zuo. 2011. Energetic Limits to Economic Growth. *Bioscience* 61:19-26.

4. Smith, F.A., A.G. Boyer, J.H. Brown, D.P. Costa, T. Dayan, S.K.M. Ernest, A.R. Evans, M. Fortelius, J.L. Gittleman, M.J. Hamilton, L.E. Harding, K. Lintulaakso, S.K. Lyons, C. McCain, **J.G. Okie**, J.J. Saarinen, R. Sibly, P.R. Stephens, J. Theodor, and M.D. Uhen. 2010. The evolution of maximum body size of terrestrial mammals. *Science* 330:1216-1219.
3. DeLong, J.P., **J.G. Okie**, M.E. Moses, R.M. Sibly, and J.H. Brown. 2010. Shifts in metabolic scaling, production, and efficiency across major evolutionary transitions of life. *Proc. Natl. Acad. Sci. U.S.A.* 107:12941-12945.
2. Sandel, B., L.J. Goldstein, N.J.B. Kraft, **J.G. Okie**, M.I. Shuldman, D.D. Ackerly, E. E. Cleland and K.N. Suding. 2010. Contrasting trait responses in plant communities to experimental and geographic variation in precipitation. *New Phytologist* 188:565-575.
1. **Okie, J.G.**, and J.H. Brown. 2009. Niches, body sizes, and the disassembly of mammal communities on the Sunda Shelf islands. *Proc. Natl. Acad. Sci. U.S.A.* 106:19679-19684.

BOOK CHAPTERS

2. Elser, J.E., **J.G. Okie**, Z. Lee, and V. Souza. 2018. The Effects of Nutrients and N:P Ratio on Microbial Communities: Testing the Growth Rate Hypothesis and Its Extensions in Lagunita Pond (Churince). In: *Ecosystem Ecology and Geochemistry of Cuatro Ciénegas* (García-Oliva F., Elser J., Souza V., editors). Springer, Cham.
1. **Okie, J.G.** 2012. Microorganisms. In: *Metabolic ecology: A scaling approach* (J. H. Brown, R. M. Sibly, and A. Kodric-Brown, editors). Wiley-Blackwell, Oxford, England.

PUBLICATIONS IN NON-SCHOLARLY JOURNALS AND MAGAZINES

Brown, J.H., J.R. Burger, W. Burnside, M. Chang, A. Davidson, T. Fristoe, M. Hamilton, S. Hammond, A. Kodric-Brown, N. Mercado-Silva, J. Nekola, and **J.G. Okie**. 2013. Gasoline and fertility. *Nautilus* 001: <http://nautil.us/issue/1/what-makes-you-so-special/gasoline-and-fertility>.

SELECTED PUBLICATION IMPACTS AND BIBLIOMETRICS

- Total number of citations: 1594; H-index: 19 ([Google Scholar Profile](#))
- Results and figures from several papers (Okie and Brown, 2009; DeLong et al., 2010; Brown et al., 2011; Burger et al., 2012; Okie 2012; Okie 2013; Hammond et al., 2015; Cockerill et al., 2017) cited in textbooks and incorporated into course syllabi in several American and European universities
- Faculty of 1000 Biology recommended my *Bioscience* (2014), *PLoS Biology* (2012), and *Bioscience* (2011) papers.
- Research on human energetics and macroecology featured in [Scientific American online article](#)

- Editorials featuring my work: *PLoS Biology* (2012) article featured in [PLoS Biology editorial by Georgina Mace](#); *Functional Ecology* (2012) paper featured in [Spotlight by Alan Knapp, John Briggs, and Melinda Smith](#), [PNAS Commentary piece by David Polly](#) on *PNAS* (2012) paper

GRANTS, FELLOWSHIPS, AND SCHOLARSHIPS

Total of \$1,168,023 awarded

- 2019 Czech Science Foundation. PI: David Storch; formal external collaborator: J. Okie. Five years of funding with budget for five month-long trips to the Center for Theoretical Studies, Prague. Title: *The equilibrium theory of biodiversity dynamics – the macroecological perspective*. **Awarded.**
- 2017 National Science Foundation, Division of Polar Programs. Lead PI: B. Hall (ASU); co-PIs: J. Okie and D. Van Horn. Budget: \$343,736.00. Title: *Collaborative Research: Resistance and resilience of soil microbial community structure and biogeochemical function in response to water track expansion in the McMurdo Dry Valleys*: Pending review for shared funding by NASA and NSF.
- 2017 NASA, Exobiology and Evolutionary Biology Program, ROSES. Lead PI: C. Kempes, co-Is: J. Okie and E. Libby. *The Energetic, Organizational, and Evolutionary Consequences of Eukaryotes*. Contributed material on endosymbionts, evolutionary transitions, and allometric scaling. Rejected, preparing for resubmission.
- 2017 NASA, CAN 8. Lead PI: H. Hartnett; co-Is: J. Okie and many other ASU faculty. Budget: \$9,981,225.00. *Signs of Life on Anoxic Worlds*. Contributed material on bioenergetics, thermodynamics, and microbial ecology. Rejected.
- 2017 NASA, Can 8. Lead PI: S. Walker; co-Is: J. Okie and many others at ASU, Santa Fe Institute and elsewhere. Budget: \$9,064,801.00. *Laws of Life: Constraints and Contingency in the Emergence and Evolution of Biospheres*. Contributed material on allometric scaling and major evolutionary transitions in individuality. Rejected.
- 2016, 2017 National Science Foundation, Division of Polar Programs. Lead PI: D. Van Horn; ASU PI: J. Okie; co-PI: C. Takacs-Vesbach; Budget: \$481,221. Title: *Collaborative research: Integrating metagenomics and metabolic ecology to understand the activity and biogeography of the cryosphere*. First and second submission rejected with favorable reviews. Co-wrote proposal with D.V.H.
- 2016 NASA Exobiology and Evolutionary Biology Program, ROSES. PI: Everett Shock; co-Is: Jordan Okie and Jason Raymond, **\$852,867**. Title: *Geochemical and biochemical changes at the transition to photosynthesis*. **Awarded** (1/1/2016-12/31/2018). Co-wrote proposal, contributing substantial revisions and material on eco-evolutionary modeling and analyses.
- 2016 Czech Science Foundation. PI: David Storch; Formal external collaborator: J. Okie. Title: *Are there limits to diversity? Towards an equilibrium theory of diversity*. **Awarded.**

- 2014, 2015 National Science Foundation, Division of Polar Programs. lead PI: Jordan G. Okie; co-PIs: James P. O'dwyer, Jason Raymond, and David J. Van Horn \$1,332,954 (**\$590,219 to J.G.O at ASU, including support for a three-year postdoctoral position and undergraduate researchers**). Title: *Collaborative research: Untangling niche and neutral controls on community assembly using local-to-global scale experiments and modeling*. First and second submission declined with highly favorable reviews.
- 2012 Postdoctoral Research Grant, School of Earth and Space Exploration, \$2.2k.
- 2011 NASA Astrobiology Institute Postdoctoral Program Fellowship, **\$144.6k** (two years of salary & benefits + \$16k in travel funds). Title: *Thermodynamic and kinetic constraints on metabolic diversity: Quantifying the biogeochemical niche space of life*. **Awarded.**
- 2011 Exploration Postdoctoral Fellowship, School of Earth and Space Exploration, Arizona State University, **\$110.2k** (two years of support, 2nd year declined). Title: *Thermodynamic and kinetic constraints on metabolic diversity: Quantifying the biogeochemical niche space of life*. **Awarded.**
- 2008, 2010 Two different Student Research Allocation Committee Grants, UNM, \$1k total.
- 2008, 2010 Two different Student Enrichment Opportunity Awards, Program in Interdisciplinary Biological and Biomedical Sciences (PIBBS), UNM, \$1.6k total.
- 2009, 2010 Melinda Bealmer Memorial Scholarship and Grove Research Scholarship, Biology Department, \$2k total, UNM.
- 2006-2009 Three different NSF Student Travel Grants, \$4.4k total.
- 2007-2008 Howard Hughes Medical Institute Interfaces Initiative Graduate Fellowship through PIBBS, UNM, **\$30.5k** (one-year stipend).
- 2006-2007 Howard Hughes Medical Institute Interfaces Initiative Graduate Fellowship through PIBBS, UNM, **\$30.5k** (one-year stipend).
- 2006 President's Fellowship, University of Virginia, **\$60k** (two-year stipend, declined).

ACADEMIC AWARDS AND HONORS

- 2015 Fellow, International Mobility Fund of Charles University in Prague (awarded two-month stipend and travel support to visit the Center for Theoretical Study).
- 2014 [*American Naturalist* 2014 Student Paper Award](#) for my 2013 paper (selected from over 70 papers by the editorial board, J. Bronstein, T. Day, and S. Kalisz).
- 2010 Best Graduate Student Oral Presentation, 19th Annual Research Day, Department of Biology, UNM.
- 2008 Honorable Mention, NSF Graduate Research Fellowship Program.
- 2007 Best Student Poster in session entitled "An Integrative View of Ecogeographic Rules", International Biogeography Society Biennial Meeting.

- 2007 Honorable Mention, NSF Graduate Research Fellowship Program.
- 2003 Distinction in Biology major, Distinction in senior thesis, Carleton College.

INVITED WORKING GROUPS AND WORKSHOPS

- 2019 Invited speaker and participant: *Life and Systems in Closed Worlds*, Biospere 2, International Laboratory iGLOBES, Centre National de la Recherche Scientifique (Ecole Normale Supérieure and Paris Sciences & Lettres University) and University of Arizona (AZ). Organizers: Regis Ferriere, Perig Pitrou, Joffrey Becker.
- 2018 Invited participant: *Network for Ecological Theory Integration*, Center for Theoretical Study, Prague. Organizer: David Storch.
- 2018 Invited team member: *What fundamental rules govern the self-sustainability of ecosystems for long-term space settlement*, Interplanetary Initiative, Arizona State University. Leader: Hikaru Furukawa.
- 2016 Invited speaker and participant: *Network for Ecological Theory Integration*, Santa Fe Institute, with support from the ASU-SFI Center for Biosocial Complex Systems (NM). Organizers: Jennifer Dunne and Pablo Marquet.
- 2015 Invited speaker and participant: *Bio-inspired environmental sustainability: Lessons for environmental management, planning, and policy from 3.8bn years of evolution*, University of Liverpool (UK). Organizers: David Atkinson, Sue Kidd, Andy Morse, and Joe Spenser.
- 2015 Invited speaker and participant: *Cities as Organisms: Scaling and Networks in Urban, Social, and Biological Systems*, University of Maribor (Slovenia). Organizers: D. Korošak, M. Marhl, C. Říha, and D. Storch.
- 2014 Invited speaker and participant: *Network for Ecological Theory Integration*, Millennium Science Initiative, in affiliation with the Institute of Ecology and Biodiversity, the Center for Stochastic Analysis and Applications, and the Santa Fe Institute (Chile). Organizer: P. Marquet.
- 2013 Invited participant: *Engines of Life: Thermodynamic Pathways to Metabolism*, Beyond Center for Fundamental Concepts in Science, Arizona State University, in association with NASA Astrobiology Institute's Focus Group on Thermodynamics, Disequilibrium, and Evolution (Tempe, AZ). Organizers: P. Davies, S.I. Walker, and L. Barge.
- 2009-2012 Invited speaker and participant: *Integrating Macroecological Pattern and Processes across Scales*, NSF Research Coordination Network (yearly meetings; Santa Fe, NM). Organizers: F. Smith, M. Ernest, and S. Lyons.

- 2009-2010 Invited speaker and participant: *Universal Diversity Patterns Across the Sciences*, Santa Fe Institute and Center for Theoretical Studies (Santa Fe, NM and Prague, Czech Republic). Organizers: J. Nekola, A. Sizling, and D. Storch.
- 2008 *Ushering in a new functional ecology: dynamics in a changing environment*, National Center for Ecological Analysis and Synthesis, Distributed Graduate Seminar Synthesis Meeting (Santa Barbara, CA).
- 2007 *Complex Systems Summer School*, Santa Fe Institute (one-month long, Beijing, China).

SERVICE AND PUBLIC OUTREACH

Reviewer of 37 journal manuscripts

Applied Soil Ecology (2), *American Naturalist* (3), *Biology Letters* (1), *Biological Journal of the Linnean Society* (1), *Ecography* (2), *Ecological Applications* (1), *Ecology* (1), *Ecology Letters* (9), *Environmental Microbiology* (1), *Environmental Microbiology Reports* (1), *Evolution* (1), *Frontiers in Cell and Developmental Biology* (2), *Global Ecology and Biogeography* (1), *Journal of Evolutionary Biology* (1), *Journal of Theoretical Biology* (1), *Nature Communications* (2), *Nature Microbiology* (1), *Proceedings B* (1), *Physica A* (1), *PNAS* (8), *South African Journal of Animal Science* (2).

Reviewer of 6 NSF/NASA grant proposals

National Science Foundation Geobiology and Low-Temperature Geochemistry program (2), NSF EPSCoR (1), NASA Exobiology program (3 as primary reviewer, 3 more as secondary reviewer).

- 2017 Invited 1-hr-long interview used as video content for two new online courses for educators and the public entitled *What Is Science* (Sustainability Science Education, ASU).
- 2017 Invited panelist for seminar of Masters of Environmental Management Program, Western State Colorado University (invited by Dr. Melanie Armstrong).
- 2017 Invited 1-hr long interview with journalist from top French population science magazine *Science & Vie* about my research on body size evolution and gigantism, to be included in article on body size.
- 2016 Served on 5-day proposal review panel on evolutionary biology for the NASA Exobiology program.
- 2016 Invited 1-hr-long interview about my research, the scientific process, microbiology, evolution, astrobiology, and sustainability on ASU Connections Podcast: <http://conklinradio.com/?s=okie>.
- 2013 Invited radio talk and podcast on macroecology of body size evolution, *The Academic Minute*, Northeast Public Radio, September 18th: <http://wamc.org/post/dr-jordan->

[okie-arizona-state-university-evolution-size](#). Broadcast throughout the US and Canada.

- 2013 Wrote widely-distributed press release covering research in Okie et al. (2013, *Proceedings B*), Arizona State University.
- 2013 Session chair of Evolutionary Theory session at Evolution 2013 conference.
- 2009-2010 Graduate and Professional Student Association Representative for Biology Department, UNM.
- 2009 Poster judge, Biology Research Day, UNM.
- 2006 Grant reviewer, Graduate Research Allocation Committee, UNM.
- 2006-2007 Leader of UNM Complex Systems Group, a campus organization supporting complex systems education, research, discussion groups, and collaborations.
- 2003 Program Assistant at environmental non-profit organization, Save America's Forests, D.C.

TEACHING EXPERIENCE

- 2019 **Instructor** of self-designed Exploration Learning 2-credit course *Universal Space Ecology* (SESE 494/598), ASU.
- 2018 Weekly mentoring of PhD student Hikaru Furukawa, ASU.
- 2015 Informal weekly mentoring of PhD student Tucker Ely, ASU.
- 2010 Teaching Assistant, developed biology lab curricula, UNM.
- 2010 Teaching Assistant, Biogeography (Biol. 494), UNM.
- 2009 Teaching Assistant, Intro. to Mathematical Biology (Biol. 492/592), UNM.
- 2008-2009 Teaching Assistant, every semester running 3 lab courses and lecturing to ~90 students per semester, Intro. to Biology for Non-majors Lab (Biol. 112L), UNM.
- 2007 **Instructor and founder** of self-designed, new 3-credit course entitled *Perspectives in Human Ecology* (Biol. 402/502, Anth. 450/550), UNM.
- 2003-2006 Tutored students in high school biology, college chemistry, college calculus, high school Spanish, high school French, and piano (Minneapolis and D.C.).

PHD COMMITTEES & MENTORING

- In progress Pilar Vergeli (member: J.G. Okie; 2019-current, ASU)
- In progress Hikaru Furukawa (member: J.G. Okie; 2018-current, ASU)
- Passed Hikaru Furukawa (qualifying exam chair: J.G. Okie; 2019, ASU)

Passed	Aishawarya Iyer (qualifying exam chair: J.G. Okie; 2019, ASU)
Passed	Theresa Fisher (qualifying exam chair: J.G. Okie; 2018, ASU)
Defended	Harrison Smith (member: J.G. Okie; 2018, ASU)

SELECTED PRESENTATIONS

- 2020 Okie, J.G. *The Anthropocene and human niche: a story of technological evolution*. Modeling the Human Niche, workshop hosted by Bridging Biodiversity and Conservation Science at University of Arizona (invited talk).
- 2020 Okie, J.G. *Metabolic and ecological rules of living systems along the insularity spectrum*. Life and Systems in Closed Worlds, workshop at Biosphere 2 co-organized by Centre National de la Recherche Scientifique and University of Arizona (invited talk).
- 2019 Burger, R., M. Tallavaara, T. Fristoe, M. Luoto, J. Schramski, V. Weinberger, J.G. Okie. *Energetic origins of the Anthropocene: modeling human abundance, distribution, and energy use in space and time*. America Geophysical Union Fall Meeting, San Francisco (poster).
- 2019 Hartnett, H.E., N.R. Hinkel, A.D. Anbar, S.J. Desch, T. Fisher, H. Furukawa, D. Glaser, J.G. Okie, C.T. Unterborn, P. Vergeli, S. Walker, and P. Young. *The biogeosciences are a critical step on the path toward detecting life on exoplanets*. America Geophysical Union Fall Meeting, San Francisco (talk).
- 2018 Okie, J.G. and E. Shock. *Theory on thermodynamic constraints to metabolic and biogeochemical diversity*. International Symposium on Biomathematics and Ecology Education and Research, Intercollegiate Biomathematics Alliance, Tempe, AZ (talk).
- 2018 Storch, D. and J.G. Okie. *Is there a carrying capacity for species richness: Revisiting the more-individuals hypothesis*. Ecological Society of America Annual Meeting, New Orleans (talk).
- 2018 *Jiang, X., *D. Van Horn, J.G. Okie, E. Schwartz, D. Coleman, K. Feeser, C. Takacs-Vesbach. *Limits to the Three Domains of Life: Lessons from an Antarctic Salinity Gradient*, POLAR2018 Open Science Conference by the Scientific Committee on Antarctica Research, Switzerland (poster). *Shared first authorship.
- 2018 Furukara, H., S. Walker, and J.G. Okie. *Agency-steered Ecosystems on Planetary Bodies*, AbGradCon Astrobiology Graduate Conference, Atlanta (talk).
- 2017 Cockerill, K., M. Armstrong, J. Richter, J.G. Okie. *No Solutions: Resisting Certainty in Water Supply Management*. AGU Fall Meeting, San Francisco (talk).
- 2016 Okie, J.G. *Major evolutionary transitions of life, metabolic scaling, and the number and size of mitochondria and chloroplasts*, Gordon Research Conference on “Unifying Ecology Across Scales: Linking the Levels from Physiological to Ecosystem Ecology”, Maine (invited talk).

- 2016 Okie, J.G., A.T. Poret-Peterson, Z.M.-P. Lee, L. Eguiarte, L.D. Alcaraz-Peraza, C.L. Dupont, J.L. Siefert, V. Souza, and J.J. Elser. *Role of information processing traits and genome size in microbial community responses to a whole-ecosystem nutrient enrichment experiment*, Gordon Research Conference on “Unifying Ecology Across Scales: Linking the Levels from Physiological to Ecosystem Ecology”, Maine (poster).
- 2016 Okie, J.G. *Quantifying constraints on metabolic and taxonomic diversity patterns*, NASA Astrobiology Institute Postdoctoral Program Alumni Seminar Series, online (**invited seminar**).
- 2015 Okie, J.G. *Integrating macroecology and metabolic ecology across domains of life*, Department of Ecology seminar, Charles University, Prague (**invited seminar**).
- 2015 Okie, J.G., D.J. Van Horn, D. Storch, M. N. Gooseff, J. E. Barrett, L. Kopsova, C.D. Takacs-Vesbach. 2015. *Niche and metabolic principles explain patterns of diversity and distribution: theory and a case study with soil bacterial communities*. EU Macroecology 2015 conference, Copenhagen (poster).
- 2015 Okie, J.G. *From microbes to monsters 2.0: Biological scaling across evolutionary transitions*. Biology Thursdays, Charles University, Prague (**invited public lecture**).
- 2015 Okie, J.G. *Transitions in individuality, geometric organization, and shifting constraints on the scaling of metabolic systems*. Cities as Organisms: Scaling and Networks in Urban, Social, and Biological Systems workshop, University of Maribor, Slovenia (**invited talk**).
- 2014 Okie, J.G. *Diversity theory: Expanding and integrating niche, metabolic, and thermodynamics principles*. Network for Ecological Theory Integration, Chile (**invited talk**).
- 2014 Okie, J.G. *Thermodynamic constraints on metabolic diversity patterns*. Gordon Research Conference, “Unifying Ecology Across Scales: the Role of Nutrients, Metabolism, and Physiology”, Maine (poster).
- 2014 Okie, J.G. *Metabolic scaling across major evolutionary transitions in individuality*. Multidisciplinary Astrophysics Seminar, Embry-Riddle Aeronautical University, Prescott, Arizona (**invited talk**).
- 2013 Okie, J.G. *Quantifying constraints on the distribution and evolution of functional diversity*. Hugh Hansen Ecology and Evolution Seminar, Arizona State University (**invited talk**).
- 2013 Okie, J.G. *Dangers of relying on scientific and technological innovations for a sustainable future*. Annual Meeting of the Society for the Social Study of Science, San Diego (**invited talk**).
- 2013 Okie, J.G., D.R. Colman, P. Xiaoben, E. Shock, D.J. Van Horn, J. Zhou, C. Takacs-Vesbach. 2013. *Contrasting diversity-temperature relationships between domains of life along extreme thermal gradients*. Ecological Society of America 2013 Annual Meeting (contributed talk).

- 2013 Okie, J.G., P. Canovas, E.L. Shock. 2013. *Theory quantifying thermodynamic constraints on ecosystem metabolic diversity patterns*. Goldschmidt 2013 conference, Italy (poster).
- 2013 Okie, J.G. *General models for the spectra of surface area scaling strategies: geometric dissimilitude, fractality, and internalization*. Evolution 2013 conference, Utah (contributed talk).
- 2012 Okie, J.G., A.G. Boyer, J.H. Brown, D.P. Costa, S.K.M. Ernest, A.R. Evans, M. Fortelius, J.L. Gittleman, M.J. Hamilton, L.E. Harding, K. Lintulaakso, S.K. Lyons, J.J. Saarinen, F.A. Smith, P.R. Stephens, J. Theodor, M.D. Uhen, and R.M. Sibly. *Theory on the rates and limits of body size evolution: the effects of allometry, production, and lifestyle*. Gordon Conference: The Metabolic Basis of Ecology, Maine (poster).
- 2012 Okie, J.G. *On a metabolic theory of community ecology in microorganisms*. BrownFest Scientific Symposium, University of New Mexico (**invited talk**).
- 2012 Okie, J.G. *Metabolism, scaling, and major evolutionary and ecological transitions of life*. Astrobiology Science Conference, Atlanta (contributed talk).
- 2010 Okie, J.G. *Surface area scaling strategies in unicellular organisms: fractality, organelles, and geometric dissimilitude*. Gordon Conference: The Metabolic Basis of Ecology, Maine (poster).
- 2010 Okie, J.G. *Towards a general theory of metabolic scaling across the major evolutionary transitions of life*. Biology Research Day, University of New Mexico (contributed talk).
- 2009 Okie, J.G. *Shifts in metabolic scaling across major evolutionary transitions of life*. Biology Department, University of New Mexico (**invited talk**).
- 2009 Okie, J.G., and J.H. Brown. *Niches, body sizes, and the disassembly of mammal communities on the Sunda Shelf islands*. Ecological Society of America Annual Meeting (poster).
- 2009 Okie, J.G., and J.H. Brown. *Niches, body sizes, and the disassembly of mammal communities on the Sunda Shelf islands*. Program in Interdisciplinary Biological and Biomedical Sciences, University of New Mexico (**invited talk**).
- 2009 Okie, J.G., W. Zuo, and J.H. Brown. *From islands to continents: species body size distributions and macroecological scaling theory*. International Society of Biogeography Biennial Meeting, Mexico (poster).
- 2008 Okie, J.G., W. Zuo, and J.H. Brown. *On the power law shape and spatial scaling of species body size distributions*. National Academy of Sciences Sackler Colloquium: Biogeography, Changing Climates, and Niche Evolution, Los Angeles (poster and **invited talk**).
- 2008 Okie, J.G. *Scaling the variation in ecosystem carbon flows*. Gordon Conference: The Metabolic Basis of Ecology, Maine (poster).

- 2008 Okie, J.G. *Surface-area scaling strategies and allometry in unicells: fractality, organelles, and geometric dissimilitude*, Gordon Conference Graduate Research Seminar: The Metabolic Basis of Ecology, Maine (contributed talk).
- 2007 Burnside, W.* and J.G. Okie. *Cultural ecogeography: environmental determinants of hunter-gatherer territory sizes*. The International Biogeography Society Biennial Meeting, Canary Islands (poster). *Authors contributed equally.