

Joseph R Burger, PhD

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PROFESSIONAL APPOINTMENTS

(Fall 2021-Current) Assistant Professor, University of Kentucky

Primary: Department of Biology

Affiliate: Lewis Honors College

(2019-2021) Postdoctoral Fellow

Bridging Biodiversity and Conservation Science (BBCS), University of Arizona

(2018-2019) Postdoctoral Fellow

Social Science Research Institute, Departments of Evolutionary Anthropology & Biology, Duke University

(2016-2018) Research Associate

North Carolina Museum of Natural Sciences, Raleigh, NC

(2015-2017) Postdoctoral Fellow

Department of Biology, University of North Carolina at Chapel Hill

EDUCATION

(2015) PhD – Biology, University of New Mexico

Program in Interdisciplinary Biological and Biomedical Sciences

Dissertation title: Macroecology and sociobiology of humans and other mammals

(2010) MS – Biology, University of Louisiana at Monroe

Thesis title: Sociality, parasites, and fitness in the caviomorph rodent, *Octodon degus*

(2006) BA – Economics & International Studies, Francis Marion University (Florence, SC)

Minor: Biology; Concentrations: Latin America & Environmental Studies

FUNDING & AWARDS (current review period in bold)

Under review – 2026-2029. NSF-Environmental Science and Innovation Laboratory Working Group.

~70,000; PI: J. LaMontagne, Co-PIs: Burger, JR & Elmendorf, S. *Title: Beyond Moran effects: Dipoles as a unifying theory of continental scale biology.*

Under review – 2026-2029. NSF-Division of Behavioral and Cognitive Sciences (SBE/BCS);

Human-Environment Geographical Sciences (HEGs). ~\$402,000; Burger Sole PI. *Title: Disentangling socio-environmental drivers of urban biodiversity from local to global scales.*

Under review – 2026-2028. NSF – EPSCoR Research Infrastructure Improvement (RII): Research Fellows.

Burger Sole PI. \$300,000.

Not funded – 2025-2026. *Human Macroecology Workshop Series.* ~\$60,000. The Finnish Foundation. (Co-PI w/ Miikka Tallavaara, Archaeology, University of Helsinki)

Not funded – 2024-2025. UKinSPIRE: Seeding Partnerships International Research Engagement. \$15,000. *Human Macroecology Workshop Series.* (collab w/ Miikka Tallavaara, Archaeology, University of Helsinki)

Current – 2020-2025. NSF Award #2002202-Division of Environmental Biology(DEB)-Population & Community Ecology Cluster: \$300,000; Co-PI w/ R. Anderson, City College of New York & American Museum of Natural History. *Title: Predicting mammalian communities in Mesoamerican 'sky islands' using species traits and spatiotemporal patterns of environmental suitability.* Additional REU Supplemental \$9,000/1 year for undergraduate research assistant at UK.

2023 – 2024. UK Broadening our Funded Research Base in Arts & Sciences \$20,000

Not Funded – 2022-2023. Proposal to write a Princeton Monograph in Population Biology on the Equal Fitness Paradigm. Eppley Foundation. ~\$25,000.

Not funded – 2022-2027. NSF Biology Integration Institutes (BII) Program: \$15 million total (\$1.7 million to UK) Co-PI with D. Shain (PI) and A. Gonzalez (Co-PI), Rutgers University; S. Louca (Co-PI) and Q. Jin (Co-PI) University of Oregon. *Title: Biology Integration Institute: Bioenergetics at Extreme Environments*

2022. Highlands Biological Station, NC. Grant-In-Aid of Research ~\$7,000

2021. Highlands Biological Station, NC. Grant-In-Aid of Research (~\$2,000/3 weeks in residency)

2015-17. UNC Chapel Hill Postdoctoral Fellowship for Faculty Diversity (~\$100,000 + benefits)

2015-17. President's Postdoctoral Fellowship, University of California, Berkeley (declined)

2016. 2nd Place Graduate Student Oral Presentation, UNM Biology Annual Research Day (coauthored paper)

2015. 1st Place Graduate Student Poster Award, UNM Biology Annual Research Day (lead authored paper)

2015. 2nd Place Graduate Student Poster Award, UNM Biology Annual Research Day (coauthored paper)

2014. Joseph Gaudin Scholarship in Mammalogy, UNM Biology (\$2,500)

2013. Shadle Fellowship of the American Society of Mammalogists (\$5,000 + books)

2013. American Society of Mammalogists Travel Award (\$500)

2011, 2012, 2013. UNM-PIBBS Student Enrichment Opportunity Grants (~\$5,000 total)

2012. UNM Graduate Research Project Travel Grant (~\$200)

2012. American Society of Mammalogists Shadle Fellowship – Honorable Mention

2012. American Society of Mammalogists Grant-in-Aid of Research (~\$1,500)

2012. Tinker Foundation & Latin American Institute Field Research Grant (\$2,500)

2011. UNM Graduate Student Research Travel Grant (\$500)

2010-12. NIH-Program in Interdisciplinary Biological & Biomedical Sciences Fellowship (\$50,000 + benefits)

2011. International Biogeography Society Travel Grant to Attend Conference (~\$2,500)

2010. American Society of Mammalogists Student Travel Grant (\$500)

2009. UM-St. Louis, Dept. of Biology, Graduate Recruitment Enhancement Fellowship (4 years; declined)

2009. Elected *Phi Kappa Phi* academic honors society (declined)

2009. Association of Southeastern Biologists Student Support Grant (\$400)

2007. *Sigma Xi* Grant-In-Aid of Research (\$400)

2006. President's Undergraduate Research Award, FMU (Best undergraduate researcher campus wide)

2005. South Carolina Wildlife Federation Scholarship (\$500)

2004-05. Aiken Business Administration Scholarship (\$500)

2002-05. South Carolina LIFE Scholarship (\$15,000/3 years)

STUDENT FUNDING & AWARDS (*undergraduate and **graduate student)

- **Kimberly J Cook: UK Merit Fellowship; Highlands Biological Station GIAR; American Society of Mammalogists GIAR, UK Morgan Fellowship
- **Binaya Adhikari: UK Merit Fellowship
- *Charles Baumann: Science Honors Program Summer Research Fellowship (Georgetown College)
- *Harrison Guy York: CAFE Undergraduate Research Award
- *Brianna Bryant: UK First Generation Finish Line Fund; 5-min fast track research finalist
- *Valeria Calderon Triana: Funding: Commonwealth Undergraduate Research Experience (CURE) Fellowship
- *Trinity Johnson: Ribble Undergraduate Research Fellow; NSF-Research Experience for Undergraduates (REU)
- *Mary Christina Obeng: UK START Program: STEM Through Authentic Research Training
- *Ashaki George: McNair Scholar (UNC)

SYNERGISTIC ACTIVITIES

- Current. *Lead organizer*: SIMoNA: Sky Island Mammals of North American, a collection of 10 *Feature Articles* in the *Journal of Mammalogy* (Capstone of NSF Award #2002202; anticipated publication early 2026)
2025. *Participant*: NSF-funded National Ecological Observatory Network (NEON) Convergence Summit. Advancing Continental-Scale Biology.
- 2023-2028. *Network Advisory Team*: NSF Research Coordination Network (RCN) – Macrosystems Ecology For All (MEFA). PI Laurel Anderson, Ohio Wesleyan University (Monthly Zoom, annual in-person meetings; Burger leads data project using community/citizen science data (eBird, iNaturalist, GBIF))
- 2022-2023. *Research topics editor*: 'Urban biodiversity and scale'. *Frontiers in Conservation Science*
2022. *Symposium Co-organizer*: Biodiversity and Conservation of Madrean Pine-Oak Sky Island Mammals in the US and Mexico. 101st meeting of American Society of Mammalogists, Tucson, Arizona
2021. *Symposium Co-organizer*: Urban biodiversity and scale. International Conservation Biology Meeting.
2021. *Co-organizer 3-part webinar*: 'Sky island biodiversity and conservation in US and Mexico'. Binational webinar series. Bridging Biodiversity & Conservation Science Program, Arizona Institutes for Resilience, U Arizona.
- <https://live-azs-bbcs.pantheonsite.io/events/sky-island-biodiversity-and-conservation>
2020. *Invited webinar speaker*: 'Extreme heatwaves and ecosystems', Arizona Institutes of Resilience, University of Arizona. <https://youtu.be/SpF2bel-LW8>
2020. *Workshop Organizer/Speaker*. Modeling the Human Niche to Forecast Future Operating Environments. Bridging Biodiversity and Conservation Science, University of Arizona
- <https://live-azs-bbcs.pantheonsite.io/events/modeling-human-niche-workshop>
2019. *Symposium speaker*: 'Ecology in the Anthropocene', Bridging Biodiversity and Conservation Science Program, Depts of Geography & Ecology and Evolutionary Biology, University of Arizona
- <https://live-azs-bbcs.pantheonsite.io/events/biodiversity-and-ecology-anthropocene>

2018–2020. *Postdoc participant*: NC Triangle Working Group: Social & Biological Determinants of Health & Survival

PUBLICATIONS

(*undergraduate and **graduate)

–JH Brown, W Zuo & I Žliobaitė, JG Okie, **JR Burger**. Energy and fitness: power is not all-powerful in evolution. **In review**.

–Okie, JG, JH Brown, A Kodric-Brown, **JR Burger**, TP Flanagan, TS Fristoe, ST Hammond, N Mercado-Silva, JC Nekola, J Richter. Three centuries of technological inventions: Opportunity is the mother of innovation. **In review**.

–Weyhenmeyer, GA, . Šigut, L Hörtnagl, N Buchmann, T Vesala, G Posse, J Boike, **JR Burger**. Life-history strategies at the ecosystem level: Aligning with the sun's position in the sky. **In review**.

– **Cook, KJ, D Webster, *J Stowe, *Trinity Johnson, *AJ Hopkins, L Gatens, T Knowles, J Krupa, R Petric, **JR Burger**. Missing the mammals for the trees: comparative biogeography of southern Appalachian sky island biodiversity. **In review** – *J of Mammalogy (Feature Article)*

– **Adhikari, B, J Alston, **JR Burger**. Patchy distribution of a Madrean sky island squirrel shaped by historical habitat configuration. **Accepted pending revision** – *J of Mammalogy (Feature Article)*

– **Burger, JR**, *E Duncil, **KJ Cook, TS Fristoe. How to scale a mammal: metabolism, life history and equal fitness. **In review**

-- **Burger, JR**, C Hou, W Zuo, JH Brown. The economy of nature: life history, death and the ecosystem tax. Preprint: DOI: [10.22541/au.169755407.76315585/v1](https://doi.org/10.22541/au.169755407.76315585/v1).

49. **Burger, JR**. – **In press** – Metabolic scaling, life history and the equal fitness paradigm. Chapter in *Biological scaling: Toward a universal theory (Anticipated 2025 publication)*. Editors: BJ Enquist, M O'Connor, C Kempes. Santa Fe Institute Press.— arXiv preprint: [q-bio > arXiv: 2412.18745](https://arxiv.org/abs/2412.18745).

48. **Cruz, A, BJ Enquist, JR Burger 2025. Scaling COVID-19 rates with population size in the United States. Journal of the Royal Society Interface. 2220240839. [http://doi.org/10.1098/rsif.2024.0839](https://doi.org/10.1098/rsif.2024.0839)

47. Brown, JH¹, C Hou, CAS Hall, **JR Burger**¹. 2024. Life, death and energy: what does nature select? *Ecology Letters*. 27: e14517. <https://doi.org/10.1111/ele.14517>. ¹co-corresponding authors.

46. Xiao, F, AT Peterson, LJ Aguirre-López, **JR Burger**, X Chen, M Papes. **2024**. Rethinking ecological niches and geographic distributions in the face of pervasive human-influenced BAM (HiBAM). *Biological Reviews*. 99: 1481-1503. <https://doi.org/10.1111/brv.13077>.
45. Day, JD, CAS Hall, J Gunn, K Klitgaard, J-Y Ko, **JR Burger**. **2023**. The Coming Perfect Storm: Diminishing Sustainability of Coastal Human-Natural Systems in the Anthropocene. *Cambridge Prisms: Coastal Futures*. 1: e35. DOI: <https://doi.org/10.1017/cft.2023.23>.
44. *Hughes, H, DD Breshears, **KJ Cook, L Keith, **JR Burger**. **2023**. Household energy use response to extreme heat evaluated with a biophysical model of temperature regulation. *PLoS Climate*. 2(4): e0000110. doi.org/10.1371/journal.pclm.0000110.
43. Blumstein, DT, M Alberti, J Beninde, RV Blakey, **JR Burger**, DS Cooper, C Kelty, CA Niesner, CJ Schell, M Soga, and K Uchida. **2023**. Editorial: Urban biodiversity and scale. *Frontiers in Conservation Science*. doi.org/10.3389/fcsc.2023.1149088.
42. **Burger, JR**, JG Okie, I Hatton, VP Weinberger, M Shrestha, **KJ Liedtke, *T Be, **AR Cruz, X Feng, C Hinojo-Hinojo, AS Kibria, KC Ernst, BJ Enquist. **2022**. Global city densities: re-examining urban scaling theory. *Frontiers in Conservation Science*. doi.org/10.3389/fcsc.2022.879934.
41. Dunn, R.R, **JR Burger**, EJ Carlen, AM Koltz, JE Light, RA Martin, J Munshi-South, L Nichols, EL Vargo, S Yitbarek, Y Zhao, A Cibrian-Jaramill. **2022**. Urban Archipelagos: A theory of urban biogeography and the origin of species. *Frontiers in Conservation Science*. DOI:10.3389/fcsc.2022.761449. [Research topic on urban biodiversity and scale](https://doi.org/10.3389/fcsc.2022.761449).
40. JH Brown, **JR Burger**, C Hou, CAS Hall. **2022**. The pace of life: Energy, time and life history. *Integrative and Comparative Biology*. icac058, <https://doi.org/10.1093/icb/icac058>.
39. Harrison, JF, A Biewener, JR Bernhardt, **JR Burger**, JH Brown, ZN Coto, ME Duell, M Lynch, ER Moffett, T Norin, AK Pettersen, FA Smith, U Somjee, JFA Traniello, TM Williams. **2022**. White paper: An integrated perspective on the causes of hypometric metabolic scaling in animals. *Integrative and Comparative Biology*. icac136, <https://doi.org/10.1093/icb/icac136>.
38. Feng, X, BJ Enquist, DS Park, B Boyle, DD Breshears, RV Gallagher, A Lien, E Newman, **JR Burger**, BS Maitner, Y Li, KM Huynh, K Ernst, E Baldwin, S Echeverría-Londoño, W Foden, L Hannah, PM Jørgensen, NJB Kraft, JC Lovett, PA Marquet, BJ McGill, C Merow, N Morueta-Holme, DM Neves, MM Núñez-Regueiro, AT Oliveira-Filho, RK Peet, M Pillet, P Roehrdanz, B Sandel, JM Serra-Diaz, I Šimová, J-C Svenning, C Violle, TD Weitemier, S Wiser, L López-Hoffman. **2022**. Opportunities and

challenges for a synthesized global biodiversity knowledge base. *Global Ecology and Biogeography*. 1-19.
<https://doi.org/10.1111/geb.13497>.

37. ¹Weinberger, VP & ¹**JR Burger**. **2022**. Human macroecology, energy use scaling and the sustainability of cities: A look at Latin America. *Conference Proceedings on Science, Health, Engineering, Policy and Diplomacy: Sustainable Development in the Americas*. Eds. W Colglazier, HA Vafai, KE Lansey, MD. Bryson. University of Arizona. CRC Press. ISBN 9781032115719. Pages 394.

<https://osf.io/preprints/socarxiv/gnkva/> ¹equal contribution

36. Feng, X, C Merow, B Maitner, DS Park, P Roehrdanz, Z Liu, B Boyle, EA Newman, MM Pires, PM Brando, A Lien, **JR Burger**, MB Bush, L Hannah, DM Neves, CNH McMichael, DD Breshears, T Evans, JR Soto, K Ernest, BJ Enquist. **2021**. How deregulation, drought and increasing fire impact Amazonian biodiversity. *Nature*. 597 (7874) 1-6. <https://doi.org/10.1038/s41586-021-03876>

35. Jung, M, A Arnell , X de Lamo , S García-Rangel , M Lewis , J Mark , C Merow , L Miles , I Ondo , S Pironon, C Ravilious, M Rivers , D Schepashenko , O Tallowin, A van Soesbergen , R Govaerts , BL Boyle, BJ Enquist, X Feng, RV Gallagher, B Maitner , S Meiri, M Mulligan, G Ofer, JO Hanson, W Jetz, M Di Marco, J McGowan, DS Rinnan , JD Sachs, M Lesiv, V Adams, SC Andrew, **JR Burger**, L Hannah, PA Marquet, JK McCarthy, N Morueta-Holme, EA Newman, DS Park, PR Roehrdanz, J-Christian Svenning, C Violle, JJ Wieringa, G Wynne, S Fritz, BBN Strassburg, M Obersteiner, V Kapos, N Burgess , G Schmidt-Traub, P Visconti. **2021**. Areas of global importance for terrestrial biodiversity, carbon and water. *Nature Ecology & Evolution*. **5**, 1499–1509 (2021). doi.org/10.1038/s41559-021-01528-7

34. Day, JW, J Gunn, **JR Burger**. **2021**. Diminishing opportunities for sustaining coastal cities in the Anthropocene: A review. *Frontiers in Environmental Science*. 9, 300. doi.org/10.3389/fenvs.2021.663275

33. Breshears, DD, JB Fontaine, K Ruthrof, JP Field, X Feng, **JR Burger**, DJ Law, J Kala, GE St.J. Hardy. **2021**. Underappreciated plant vulnerabilities to heat waves. *Invited ‘Tansley Insight’*. *New Phytologist*. 231: 32-39. <https://doi.org/10.1111/nph.17348>

32. **Burger, JR**, C Hou, CAS Hall, JH Brown. **2021**. Universal rules of life: metabolic rates, biological times and the equal fitness paradigm. *Ecology Letters*. 24: 1262–1281. doi: 10.1111/ele.13715

31. ¹Uchida, K, ¹R Blakely, ¹D Cooper, ¹C Alexander, ¹**JR Burger**, ¹DT Blumstein. **2021**. Urban biodiversity and the importance of scale. *Trends in Ecology & Evolution*. 36, 2. 123-131.
<https://doi.org/10.1016/j.tree.2020.10.011> ¹equal contribution

30. **Burger, JR**. **2020**. Malthus on Population. *Encyclopedia of Evolutionary Psychological Science*. T.K. Shackelford, V.A. Weekes-Shackelford (eds.) Springer-Nature.

29. Snyder-Mackler, N, **JR Burger**, L Gaydosh, D Belsky, GA Noppert, FA Campos, A Bartolomucci, YC Yang, AE Aiello, A O'Rand, K Mullan Harris, CA Shively, SC Alberts, J Tung. **2020**. Social determinants of health and survival in humans and other animals. *Science*. 368, 6493. eaax9553. doi: 10.1126/science.aax9553
28. **Burger, JR**, C Hou, JH Brown. **2019**. Toward a metabolic theory of life history. *Proceedings of the National Academy of Sciences*. 26653–26661, 116:52. doi:10.1073/pnas.1907702116
27. Enquist, BJ, X Feng, B Boyle, B Maitner, EA Newman, P Møller Jørgensen, PR Roehrdanz, BM Theirs, **JR Burger**, R Corlett, JC Donoghue, W Foden, JC Lovett, P Marquet, C Merow, G Midgley, N Morueta-Holme, NJB Kraft, DS Park, RK Peet, M Pillet, JM Serra-Diaz, B Sandel, M Schildhauer, I Šímová, C Violle, S Wiser, L Hannah, J-C Svenning, BJ McGill. **2019**. The commonness of rarity: Global and future distribution of rarity across land plants. *Science Advances*. 5, 11. Eaaz0414.. doi:10.1126/sciadv.aaz0414 (*'Special Issue' on climate change for United Nations COP 25*).
26. **Burger, JR**, RP Anderson, MA Balk, TS Fristoe. **2019**. A Constraint-based model of Dynamic Island Biogeography: environmental history and species traits predict hysteresis in populations and communities. *Frontiers of Biogeography*. 11, 3. e44383. doi:10.21425/F5FBG44383.
25. **Burger JR**, *A George, *C Leadbetter, *F Shaikh. **2019**. The allometry of brain size in mammals. *Journal of Mammalogy*. 276–283, 100:2. doi.org/10.1093/jmammal/gyz043 *Feature Article*
24. **Burger JR**, JH Brown, JW Day Jr., TP Flanagan, E Roy. **2019**. The central role of energy in the urban transition: Challenges for global sustainability. *BioPhysical Economics and Resource Quality*. 1–13, 4:1. doi:10.1007/s41247-019-0053-z.
23. **Burger, JR**, TS Fristoe. **2018**. Hunter-gatherer populations inform modern ecology. *Proceedings of the National Academy of Sciences*. 201721726. 115:6.1137–1139. doi.org/10.1073/pnas.1721726115
22. **Burger, JR**. **2018**. Modeling humanity's predicament. *Nature Sustainability*. 1, 15–16.
21. **Burger, JR**, VP Weinberger, PA Marquet. **2017**. Extra-metabolic energy use and the rise in human hyper-density. *Scientific Reports*. 7, doi:10.1038/srep43869.
20. Maher, CR, **JR Burger**. **2016**. Diversity of social behavior in caviomorph rodents. In Sociobiology of caviomorph rodents: an integrative view. Ebensperger, LA & Hayes, LD. Eds. *Wiley-Blackwell*. 408 pages ISBN-10: 1118846494.

19. *Murthy, A, TS Fristoe, **JR Burger**. **2016**. Homogenizing effects of cities on North American winter bird diversity. *Ecosphere*. 7:1 doi.org/10.1002/ecs2.1216.

18. Fristoe, TS, **JR Burger**, AM Balk, I Khaliq C Hof, JH Brown. **2015**. Metabolic heat production and thermal conductance are body size independent adaptations to thermal environments in birds and mammals. *Proceedings of the National Academy of Sciences*. 112:15934–15939.

17. Hammond, ST, JH Brown, **JR Burger**, TS Fristoe, N Mercado-Silva, JC Nekola, T Paz, JG Okie. **2015**. Food spoilage, storage and transport: Implications for a sustainable future. *BioScience*. 65:758-768.
<https://doi.org/10.1093/biosci/biv081> **Cover Article**

16. Brown, JH, **JR Burger**, WR Burnside, M Chang, AD Davidson, TS Fristoe, MJ Hamilton, ST Hammond, A Kodric-Brown, N Mercado-Silva, JC Nekola, JG Okie. **2014**. Macroecology meets macroeconomics: Resource scarcity and global sustainability. *Ecological Engineering*. 65:24-32. **Special Issue Article following 'EcoSummit meeting'**

15. Wey, TW, **JR Burger**, LA Ebensperger, LD Hayes. **2013**. Reproductive correlates of social network variation in plural breeding degus (*Octodon degus*). *Animal Behaviour*. 85:1407–1414.

14. Nekola, JC, CA Allen, JH Brown, **JR Burger**, AD Davidson, TS Fristoe, MJ Hamilton, ST Hammond, A Kodric-Brown, N Mercado-Silva, JG Okie. **2013**. The Malthusian-Darwinian dynamic and the trajectory of civilization. *Trends in Ecology and Evolution*. 28:127-130.

13. **Burger, JR**, CA Allen, JH Brown, WR Burnside, AD Davidson, TS Fristoe, MJ Hamilton, N Mercado-Silva, JC Nekola, JG Okie, W Zuo. **2012**. The macroecology of sustainability. *PLoS Biology*. 10: e1001345. **Recommended as a “must read” and “good for teaching” by Faculty of 1000**

12. Ebensperger, LA, F Vargas, RA Castro, L Ortiz Tolhuysen, R Sobrero, V Quirici, **JR Burger**, RA Vásquez, M Soto-Gamboa, LD Hayes. **2012**. Ecological drivers of group living in two populations of the communal breeding rodent, *Octodon degus*. *Behavioral Ecology and Sociobiology*. 66:261-274.

11. **Burger, JR**, AS Chesh, P. Muñoz, F. Fredes, LA Ebensperger, LD Hayes. **2012**. Sociality, exotic ectoparasites, and fitness in the plural breeding rodent *Octodon degus*. *Behavioral Ecology and Sociobiology*. 66:57-66.

10. Ebensperger, LA, J Ramírez-Estrada, C León, RA Castro, L Ortiz Tolhuysen, R Sobrero, V Quirici, **JR Burger**, M Soto-Gamboa, & LD Hayes. **2011**. Sociality, glucocorticoids and direct fitness in the communal breeding rodent, *Octodon degus*. *Hormones and Behavior*. 60:346-352.

9. Hayes, LD, **JR Burger**, M Soto-Gamboa, R Sobrero, LA Ebensperger. **2011**. New directions in the study of caviomorph rodent sociality. *Journal of Mammalogy*. 92:65-77. **Special Feature Article**
8. Maher, CR, **JR Burger**. **2011**. Intraspecific variation in group size, space use, and mating systems of caviomorph rodents. *Journal of Mammalogy*. 92:54-64. **Special Feature Article**
7. Ebensperger, LA, AS Chesh, RA Castro, L Ortiz Tolhuysen, V Quirici, **JR Burger**, R Sobrero, LD Hayes. **2011**. Burrow limitations and group living in the communally rearing rodent, *Octodon degus*. *Journal of Mammalogy*. 92:21-30.
6. Blumstein, DT, LA Ebensperger, LD Hayes, R Vasquez, TH Ahern, **JR Burger**, A Dolezal, A Dosmann, G González-Mariscal, B Harris, EA Herrera, EA Lacey, J Mateo, L McGraw, D Olazábal, M Ramenofsky, DR Rubenstein, S Sakhai, W Saltzman, C Sainz-Borgo, M Soto-Gamboa, ML Stewart, TW Wey, JC Wingfield, L Young. **2010**. Towards an integrative understanding of social behavior: new models and new opportunities. *Frontiers in Behavioural Neuroscience*. 4:1-9.
5. Quirici, V, RA Castro, L Ortiz-Tolhuysen, AS Chesh, **JR Burger**, E Miranda, A Cortés, LD Hayes, LA Ebensperger. **2010**. Seasonal variation in the range areas of the diurnal rodent *Octodon degus*. *Journal of Mammalogy*. 91:458-466.
4. **Burger, JR**, AS Chesh, RA Castro, L Ortiz Tolhuysen, I Torre, LA Ebensperger, LD Hayes. **2009**. The influence of trap type on evaluating population structure of the semifossorial and social rodent *Octodon degus*. *Acta Theriologica*. 54:311-320.
3. Hayes, LD, AS Chesh, RA Castro, L Ortiz Tolhuysen, **JR Burger**, J Bhattacharjee, LA Ebensperger. **2009**. Fitness consequences of group-living in the degu (*Octodon degus*), a plural breeding rodent with communal care. *Animal Behaviour*. 78:131-139.
2. Ebensperger, LA, AS Chesh, RA Castro, L Ortiz Tolhuysen, V Quirici, **JR Burger**, LD Hayes. **2009**. Instability rules social groups in the communal breeding rodent *Octodon degus*. *Ethology*. 115:540-554.
1. Knowles, TW, **JR Burger**. **2008**. Predominant use of windthrows by nesting Eastern Woodrats (*Neotoma floridana*) in the South Carolina coastal plain. *American Midland Naturalist*. 160:209-219.

NON-PEER REVIEWED

9. **Burger, JR**, JH Brown. 2024. Does nature select to maximize power? Invited Review of *The Evolution of Power: A New Understanding of the History of Life*. By G Vermeij (2023) 238 pgs. Princeton University Press. *BioScience*, biae105, DOI: <https://doi.org/10.1093/biosci/biae105>

8. **Cook, KJ, **JR Burger**. 2023. Invited Review of *The Species-Area Relationship: Theory and Application (Ecology, Evolution, Biodiversity)*. Edited by TJ Matthews, KA Triantis and RJ Whittaker. *The Quarterly Review of Biology*. <https://doi.org/10.1086/723926>
7. **Burger, JR**. 2021. Invited Review of *What Is a Complex System?* By J Ladyman and K Wiesner. *The Quarterly Review of Biology*. <https://doi.org/10.1086/717365>
6. **Burger, JR**, Hou, C, CAS Hall, JH Brown. 2020. A metabolic life table illustrated with sockeye salmon data. bioRxiv preprint: [www.biorxiv.org/content/10.1101/2020.03.13.990986v2](https://doi.org/10.1101/2020.03.13.990986v2)
5. **Burger, JR**. 2020. Urban ecology: taking it back to the H.T. Odum school of systems ecology. *BioScience*. 70; 10. 933-955. <https://doi.org/10.1093/biosci/biaa075>
4. **Burger, JR**. 2019. Fueling fertility *is* emptying the planet's resources. Invited book review of *Empty Planet: The Shock of Global Population Decline*. *BioScience*.. <https://doi.org/10.1093/biosci/biz084>
3. Brown, JH, **JR Burger**, W Burnside, M Chang, A Davidson, T Fristoe, M Hamilton, S Hammond, A Kodric-Brown, N Mercado-Silva, J Nekola, and JG Okie. 2013. Gasoline and fertility: we consume unlike any other. *Nautilus Magazine*. medium.com/s/nautilus-special/gasoline-and-fertility-2651eccfb9a5
2. Hammond, ST, JH Brown, **JR Burger**, M Chang, TS Fristoe, A Kodric-Brown, T Paz, JG Okie. 2013. Bankrupting nature for the (temporary) wealth of nations. Book review of *Bankrupting Nature: Denying Our Planetary Boundaries* by Anders Wijkman and Johan Rockström. *Trends in Ecology and Evolution*. <https://doi.org/10.1016/j.tree.2013.06.008>
1. **Burger, JR**. 2012. What's missing from Rio? Putting humans under the microscope. *Ecology Global Network*. (www.ecology.com)

INVITED SEMINARS & OTHER TALKS

- 2025. International Association for Landscape Ecology (IALE) symposium speaker.
- 2024. 'Senescence of Social Systems' Working Group, the Santa Fe Institute.
- 2024. Honors College Science Colloquium, Georgetown College (KY).
- 2024. Chinese Forests Biodiversity Monitoring Network, Chinese Academy of Sciences.
- 2024. Gordon Research Conference, Unifying Ecology Across Scales.
- 2024. Department of Forestry and Natural Resources, University of Kentucky.
- 2024. Department of Biological Sciences, Ohio University.
- 2024. Senckenberg Centre for Human Evolution and Paleo-environments & U. of Tübingen, Germany.
- 2023. Webinar: Macrosystems Ecology for All ([MEFA](#)). NSF—Research Coordination Network.
- 2022. American Society of Mammalogists symposium speaker.

2022. Society for Integrative and Comparative Biology (SICB) symposium speaker.

2021. International Conference on Conservation Biology symposium speaker.

2021. Northern New Mexico College, Honors Science Colloquium.

2021. Honors College Science Colloquium. Georgetown College (KY).

2020. Webinar for Instituto de Ecología, Universidad Mayor de San Andrés, La Paz, Bolivia.

2020. Webinar Series on Extreme Heat & Ecosystems. Co-hosted by Southwest Climate Adaptation Science Center and Center for Climate Adaptation Science and Solutions, University of Arizona.

2020. Behavior, Evolution, & Culture Speaker Series. UCLA. (Cancelled due to COVID-19 pandemic).

2020. Department of Biology Ribble Seminar. University of Kentucky.

2019. Biodiversity and Ecology in the Anthropocene Symposium, University of Arizona.

2019. Department of Biosciences, Vanzant Lecture Series. Rice University.

2019. Department of Biology and Environment Science Program. Northern Kentucky University.

2019. Department of Ecology and Evolutionary Biology, University of Arizona.

2019. Evolution and Social Science Group, University of Missouri-Columbia.

2018. Anthropology Colloquium, University of North Carolina at Chapel Hill.

2018. Gordon Research Conference: Unifying Ecology Across Scales.

2018. ACS Special Session on “The Nexus of Food, Energy, Water, and Economy”, New Orleans, LA.

2018. Department of Natural Sciences. Baruch College, City University of New York.

2018. College of Global Sustainability & Depart. of Integrative Biology. University of South Florida.

2017. Department of Biology, City College of New York, City University of New York.

2017. Elected Postdoc Speaker, Biology Annual Symposium, University of North Carolina - Chapel Hill.

2017. Carolina Population Center Workshop Series. University of North Carolina - Chapel Hill.

2016. Lunch Bunch Seminar. Dept of Biology, University of North Carolina - Chapel Hill.

2016. Gordon Research Seminar: Unifying Ecology Across Scales.

2015. Curriculum in Ecology and the Environment. University of North Carolina - Chapel Hill.

2014. Depart. of Biological and Environmental Sciences Seminar Series. Univ. of Tennessee at Chattanooga.

2014. American Society of Mammalogists Annual Meeting. OK City. (Shadle Fellowship Plenary Talk)

2014. American Mathematical Society, Western Spring Sectional Meeting.

2013. Brown box seminar series. Dept. of Biology, University of New Mexico.

2013. Brown Bag Lecture Series. The Student Organization for Latin American Studies (SOLAS).

2011. Brown bag seminar series. Dept. of Biology, University of New Mexico.

2011. Center for Theoretical and Evolutionary Immunology. University of New Mexico.

2010. Science colloquium, Francis Marion University, Florence, SC.

2010. Department of Biology, University of Louisiana at Monroe. (MS Thesis defense)

2009. US-South America workshop: intraspecific variation in social systems. P. Universidad Catolica de Chile.

TEACHING EXPERIENCE

Instructor of Record

Fall 2026 (Scheduled)—Biology 380 Course-based Undergraduate Research Experience (CURE): Urban biodiversity

Spring 2026 (Scheduled)—Biology 325 Ecology. Biology, University of Kentucky.

Fall 2025—Biology 770: Graduate Seminar: Biological Scaling.. Biology, University of Kentucky.

Fall 2024—Biology 325 Ecology. Biology, University of Kentucky.

Spring 2023; 2024—Biology 325: Honors Ecology. Biology, University of Kentucky.

Fall 2023—Biology 425: The Evolution of Culture. Biology, University of Kentucky.

Fall 2022—Biology 770: Graduate Seminar: Metabolic Ecology. Biology, University of Kentucky.

Spring 2022—Biology 425: What makes humans unique? Biology, University of Kentucky.

Fall 2017—Biology 495: Advanced topics in Human Evolutionary Ecology. Biology, UNC-Chapel Hill.

Guest Lectures

2025. Parade of Faculty. Bio 770. First year graduate students. (Instructors: J Santollo, P. Skipwith)

2022. Parade of Faculty. Bio 770. First year graduate students. (Instructors: J Santollo, A. Seifert)

2021. STEMCats first-year undergrad research seminar in Biology, UK (Instructor V. Cassone).

2021. Biological Scaling: Graduate Course Ecology & Evolutionary Biology (Instructor B. Enquist, UArizona).

2018. The Great American Biotic Interchange. Course: Comparative Temperate-Tropical Ecology & Biogeography. Highlands Biological Station of UNC. (Instructors J. Costa and T.W. Knowles).

2017. Ecological analyses and application. Curriculum in the Environment and Ecology Graduate Seminar. (Instructor C. West, UNC Anthropology).

2016. Human macroecology: because humans are mammals too. Course: Global Biodiversity and Macroecology, Dept. of Biology, University of North Carolina. (Instructor A. Hurlbert).

2016. A tale of two city dwellers: urban humans and urban birds. Course: Institute for the Environment taught at the Highlands Biological Station of UNC. (Instructor J. Costa)

2015. Human macroecology and sustainability. Course: Global Biodiversity and Macroecology, Dept. of Biology, University of North Carolina. (Instructor A. Hurlbert).

2015. Human ecology: because humans are mammals too. Course: Global Biodiversity and Macroecology, Dept. of Biology, University of North Carolina. (Instructor A. Hurlbert).

2014. Social networks and fitness in the Chilean rodent, *Octodon degus*. Course: Ethology: Animal Behavior, Dept. of Biology, University of New Mexico. (Instructor K. Buckholz).

2011. Gradients in biodiversity. Course: Tropical Field Biology. Sumaco Biological Station, Ecuador. (Instructor T.W. Knowles).

Other Invited Appearances

2021. Undergraduate Biology Seminar 425: Diversity, Equity and Inclusivity, University of Kentucky.

2021. Panel Participant: Taxonomic Databases Working Group (TDWG), Interdisciplinary data informatics.

2016. Discussion participant for “Professional Development Skills in Biology” course at UNC.

2016. Roundtable speaker for “Young Innovators Program” by The Eshelman Institute for Innovation (UNC).

2012; 2013. Skype discussion for “The Biology of Sustainability” class. University of St. Thomas (Minnesota).
2010. Forum participant for "Skepticism and the environmental world view". Francis Marion University.

Teaching Assistant, Department of Biology, University of New Mexico, USA

2015. Anatomy and Physiology labs
2014. Evolution of Human Sexuality (Facilitated student discussion labs)
2014. Ethology: Animal Behavior (Designed and carried out field ant foraging lab)
2013. Molecular and Cell Biology lecture & lab
2009-10. Plant and Animal Form and Function lecture & lab

Teaching Assistant, Department of Biology, The University of Louisiana at Monroe, USA

2007. Human Anatomy and Anatomy & Physiology Labs

MENTORING

Data Research Assistant

2025-present. Ethan Duncil, (UK Biology 2024 graduate; now MS student at Case Western Reserve University) – Managing life history and macroecology data

Graduate students

2023-present. Binaya Adhikari (UK, Ph.D. Student Biology) – Comparisons of large mammal niches
2021-present. Kimberly Cook (UK, Ph.D. Candidate Biology) – Macroecology of ‘island’ mammals

Graduate committees

Current. Tania Rojas Carbajal, UK Ph.D. Student Biology
Current. David Weisenbeck, UK Ph.D. Student Biology (Qualifying exam chair)

Undergraduate students

([†]Co-advised w/ Dr. Rada Petric, UNC-Highlands Biological Station)

2025-present. Aydin Khosrowshahi (NRE 399) – interactive tools for urban biodiversity visualization
2025-present. Tiffany Zhang (BIO 199) – sky island beetle assembly in the southern Appalachians
2025-present. Amie Bojang (BIO 199) – Kentucky green spaces and biodiversity
2025-present. Charles Baumann (Georgetown Honors Scholar, Biology) – urban species-area relationships
2024-2025. AJ Hopkins (UK, Environmental Science) – southern Appalachian spruce-fir forests
2024-2025. Casey Hall (UK, Natural Resources) – island biogeography of Lexington city parks
2023-2025. Jules Stowe (UK Biology/Entomology) – bottle surveys for beetles and shrew/rodent skeletons
2023-2024. Ethan Duncil (UK Biology) – comparing mammal life history databases
2024. Kendall McGarvey (UK, Natural Resources) – island biogeography of Lexington city parks
2024. Kavya Vasudevan (UK Biology & Neuroscience) – the sensory niche in Felids
2024. Ariane Rodrigues Patrus Almeida (UK, International, Environmental & Sustainability Studies)

2023-2024. Brianna Bryant (UK Biology & Political Science) – human macroecology and sustainability
 2023. Devin Thompson (UK Biology) – human macroecology and sustainability
 2023. [†]Danielle Mou (UNC, Environmental Studies) – small mammal ecology
 2023. [†]Niya Friday (UNC, Biology) – small mammal ecology
 2021-2023. Valeria Calderon Triana (UK, Computer Science) – Scaling urban green space tropical cities
 2021-2023. Trinity Johnson (UK, Biology' NSF/REU) – Ecology of whales, rodents and shrews
 2022-2023. Harrison York (UK, Natural Resources) – Biogeography and ecology of small mammals
 2021-2022. Tam Be (UA, Computer Science) – City scaling and the geography of disease and poverty
 2020-2022. Halley Hughes (UA, Global Change/Urban Planning) – Adapting to extreme heat
 2022. [†]Marie Young (UNC, Environmental Science) – Microhabitat use by small mammals
 2022. [†]Cole Prezant (UNC, Environmental Science & Neuroscience) – Microhabitat use by small mammals
 2020. Anna McCarson (UA, Environmental Engineering/Honors College) – Adapting to extreme heat
 2020. Lyndon Shaw Guy (UA, GIS) – Adapting to climate change in the Apache-White mountain reservation
 2016-17. Claire Leadbetter (UNC-CH, Biology) – Social group reproductive effort in mammals (Ind. Research)
 2016-17. Ashaki George (UNC-CH, Psychology) – Do social mammals have big brains? (McNair Scholar)
 2016-17. Farhin Shaikh (UNC-CH, Biology) – Comparing mammal life history datasets
 2013. Adeline Murthy (UNM) – Urbanization and winter bird communities using citizen science data
 2012. Kelsie LaSharr (UA) – Degu field research, Fray Jorge National Park, Chile
 2012. Rebecca Bagwell (UT-Chattanooga) – Degu field research, Fray Jorge National Park, Chile
 2009. Ashley Maxwell (ULM) – Degu field research, Fray Jorge National Park, Chile
 2008. Charles Battaglia (ULM) – Degu field research, Fray Jorge National Park, Chile
 2007. Nicole Schaferkötter (ULM) – Degu field research, Estación Experimental Rinconada de Maipú, Chile

High School

2022-23. Mary-Christina Obeng (STEAM Public Academy, Lexington, KY; UK START Program: STEM Through Authentic Research Training) – A global island mammal database; cataloging lab references

SELECT CONFERENCE PRESENTATIONS (*undergraduate and **graduate student)

- *Baumann, C, **B Adhikari, **JR Burger**. 2025. Comparing species area relationships of urban areas to protected areas in Kentucky and across the U.S. Kentucky Academy of Sciences. (Student presentation)
- **Adhikari, B, **JR Burger**. 2025. Patchy distribution of a madrean sky island squirrel is shaped by historical habitat configuration. Student Conference on Conservation Science. American Museum of Natural History, NY. (Student presentation)
- **Cook, KJ, D Webster, *J Stowe, *Trinity Johnson, *AJ Hopkins, L Gatens, T Knowles, J Krupa, R Petric, **JR Burger**. 2025. Missing the mammals for the trees: comparative biogeography of southern Appalachian

spruce-fir sky island biodiversity. Student Conference on Conservation Science. American Museum of Natural History, NY. (Student presentation)

Burger, JR, **B Adhikari, *E Duncil, **KJ Cook, X Feng, TS Fristoe, M Luoto, M Tallavaara, V Weinberger. 2025. Energetic origins of the Anthropocene. American Society of Mammalogists Annual Meeting. (presentation)

****Cook, KJ, *AJ Hopkins, JR Burger. 2025. Missing the mammals for the trees: comparative biogeography of southern Appalachian small mammals. American Society of Mammalogists Annual Meeting. (Student presentation)**

****Adhikari, B, JR Burger. 2025. Patchy distribution of a madrean sky island squirrel is shaped by historical habitat configuration. American Society of Mammalogists Annual Meeting. (Student presentation)**

****Cook, KJ, D Webster, *J Stowe, *Trinity Johnson, *AJ Hopkins, L Gatens, T Knowles, J Krupa, R Petric, JR Burger. 2025. Biogeography of southern Appalachian spruce-fir sky island mammals. International Association of Landscape Ecologists Annual Meeting. (Student poster)**

****Adhikari, B, JR Burger. 2025. Disentangling the social and ecological drivers of urban biodiversity from local to global scales International Association of Landscape Ecologists-North America Annual Meeting. (Student poster)**

Burger, JR, **KJ Cook, **B Adhikari. 2025. Islands, sky islands and cities: comparative biogeography in the Anthropocene. International Association of Landscape Ecologists-North America Annual Meeting. (Invited symposium talk)

****Cook, KJ, D Webster, *J Stowe, *Trinity Johnson, *AJ Hopkins, L Gatens, T Knowles, J Krupa, R Petric, JR Burger. 2025. Missing the mammals for the trees: comparative biogeography of southern Appalachian sky island mammals. Association of Southeastern Biologists. (Student presentation)**

***Hopkins, AJ, **KJ Cook, JR Burger. 2025. "Moving" mountains: modeling the distribution of southern Appalachian spruce-fir sky islands in space and time. Association of Southeastern Biologists. (Student poster)**

***Stowe, J, **KJ Cook, JR Burger. 2025. Garbology: A Passive Survey Technique with Entomological Applications. Association of Southeastern Biologists. (Student poster)**

- *Duncil, E, **KJ Cook, **JR Burger**. 2025. Mammal Life History Databases Compared. Association of Southeastern Biologists. (Student poster)
- *Cook, KJ, D Webster, **J Stowe, **Trinity Johnson, **AJ Hopkins, L Gatens, T Knowles, J Krupa, R Petric, **JR Burger**. 2025. Missing the mammals for the trees: comparative biogeography of southern Appalachian sky island mammals. 30th Meeting of the Southeastern Bat Diversity Network & 35th Colloquium on the Conservation of Mammals in the Southeastern United States. (Student talk)
- *Cook, KJ, **JR Burger**. 2024. Trait filtering and selection in island mammals revisited. Gordon Research Seminar and Conference. Unifying Ecology Across Scales (Student poster).
- *Adhikari, B, **JR Burger**. 2024. Squirrels of the Madrean Sky Island Archipelago: Past, present and future distributions. 103rd Annual Meeting of the American Society of Mammalogists (Student poster).
- *Cook, KJ, **JR Burger**. 2024. Energy, area and traits of island mammals. 103rd Annual Meeting of the American Society of Mammalogists (Student presentation)
- *Duncil, E, **Cook, KJ, **JR Burger**. 2024. Mammal life history databases compared. 103rd Annual Meeting of the American Society of Mammalogists (Student poster).
- **Cook, KJ, **JR Burger**. 2023. Trait filtering of mammals on islands revisited. 102nd Annual Meeting of the American Society of Mammalogists. (Student presentation)
- **Liedtke, KJ, *V Calderon Triana, **JR Burger**. 2023. Scaling global urban green space. Ecological Society of America. (Student poster)
- Anderson, RP, **Burger, JR**, TS Fristoe. 2023. Expanding the Constraint-based model of Dynamic Island Biogeography via trait-space plots and simulations for fragmented landscapes under global change. Ecological Society of America Annual Meeting. Portland, OR. (Presentation).
- *Johnson, TA, **Cook, KJ, **JR Burger**. 2023. Islands in the sky: evaluating a Constraint-based model of Dynamic Island Biogeography in southern Appalachian spruce-fir forests. Association of Southeastern Biologists. (Student poster)
- **Liedtke, KJ, *V Calderon Triana, **JR Burger**. 2023. Scaling global urban green space. Association of Southeastern Biologists. (Student poster)
- Brown, JH, **JR Burger**, C Hou, CAS Hall. 2022. The equal fitness paradigm and the pace of life. Gordon Research Conference on Unifying Ecology Across Scales. (Invited presentation)

- Burger, JR**, C Hou, CAS Hall, JH Brown. 2022. Metabolic rates, biological times and the equal fitness paradigm. Gordon Research Conference on Unifying Ecology Across Scales. (Poster)
- Burger, JR**. 2022. A constraint-based model of dynamic island biogeography in the face of global change. 101st meeting of American Society of Mammalogists. Tucson, AZ. (Invited symposium talk)
- *Cook, KJ, **TA Johnson, **JR Burger**. 2022. How much data are needed? Testing an island biogeography model in the southern Appalachians. 101st meeting of American Society of Mammalogists. Tucson, AZ. (Student poster)
- Burger, JR**, C Hou, CAS Hall, JH Brown. 2022. Metabolic rates, biological times and the Equal Fitness Paradigm. Gordon Conference on Unifying Ecology Across Scales. University of Southern New Hampshire. (Poster)
- Burger, JR**, and TS Fristoe. 2022. Darwinian Demons, brain size and the allometry of pace of life in birds and mammals. Society for Integrative and Comparative Biology, Tempe, AZ. (Presentation)
- **Cook, KJ, H Hughes, DB Brashears, **JR Burger**. 2022. Challenges to predicting heatwave impacts on biodiversity. Society for Integrative and Comparative Biology, Tempe, AZ. (Student poster)
- *Hughes, H, DB Brashears, **JR Burger**. 2022. Projecting household extra-metabolic energy use for thermoregulation in response to extreme heat. Society for Integrative and Comparative Biology, Tempe, AZ. (Student presentation)
- Burger, JR**, JG Okie, I Hatton, VP Weinberger, M Shrestha, X Feng, BJ Enquist, KC Ernst, KJ Liedtke, K Cook, T Be, AR Cruz, J Navarro, C Hinojo, ASMG Kibria. 2021. Human density as a driver of urban biodiversity. Invited symposium 'Urban biodiversity and scale'. International Conference on Conservation Biology. (Presentation)
- Uchida, K, R Blakely, D Cooper, C Alexander, **JR Burger**, DT Blumstein. 2021. Urban biodiversity and the importance of scale. Invited symposium 'Urban biodiversity and scale'. International Conference on Conservation Biology. (Presentation)
- Day, JW, Gunn, JD, **JR Burger**. 2021. Is a 'Great Deceleration' thermodynamically inevitable? International Society for BioPhysical Economics Conference. (Presentation)

Gunn, JD, JW Day, **JR Burger**. 2021. Past Crises, Present Crisis: Past Civilizations' Decision Paths Through Times of Disruption. International Society for BioPhysical Economics Conference. (Presentation)

****Engleman, R and JR Burger**. 2021. Convergence in encephalization, diet and habitat model in rodents. 101th Meeting of the American Society of Mammalogists, Virtual. (Presentation)

Burger, JR, and TS Fristoe. 2021. Darwinian Demons, brain size and the allometry of pace of life in birds and mammals. 101th Meeting of the American Society of Mammalogists, Virtual. (Presentation)

Burger, JR, JG Okie, VP Weinberger, I Hatton, M Shrestha, Xiao Feng, BJ Enquist, K Ernst. 2020. Scaling densities of cities worldwide with implications for contact rates. American Geophysical Union. Online Everywhere Conference, Dec 2020. (Poster)

Feng, X, C Merow, B Maitner, DS Park, P Roehrdanz, Z Liu, B Boyle, EA Newman, MM Pires, PM Brando, A Lien, **JR Burger**, MB Bush, L Hannah, DM Neves, CNH McMichael, DD Breshears, T Evans, JR Soto, K Ernest, BJ Enquist. 2020. How deregulation, drought, and increasing fire impact Amazonian biodiversity. American Geophysical Union. Online Everywhere Conference, Dec 2020. (Presentation)

Enquist, BJ, X Feng, B Boyle, B Maitner, EA Newman, P Møller Jørgensen, PR Roehrdanz, BM Theirs, **JR Burger**, R Corlett, JC Donoghue, W Foden, JC Lovett, P Marquet, C Merow, G Midgley, N Morueta-Holme, NJB Kraft, DS Park, RK Peet, M Pillet, JM Serra-Diaz, B Sandel, M Schildhauer, I Šímová, C Violle, S Wiser, L Hannah, J-C Svenning, BJ McGill. 2020. The commonness of rarity: Global and future distribution of rarity across land plants. Ecological Society of America. Virtual meeting.

Breshears, D, JP Field, DJ Law, G Barron-Gafford, K Acuna, ML Barnes, X Feng, K Ruthrof, JB Fontaine, **JR Burger**, ALS Swann, SC Stark, SR Saleska, JC Villegas, A Martinez-Yrizar, A Búrquez, J Kala, GE. St. J. Hardy. 2020. From chronic warming to acute heat waves: An under-appreciated threat of climate change? Ecological Society of America. Virtual meeting.

Burger, JR, Tallavaara, M, TS Fristoe, M Luoto, J Schramski, V Weinberger, JG Okie, BJ Enquist. 2020. Energetic origins of the Anthropocene. Ecological Society of America. Virtual meeting.

Anderson, RP, GE Pinilla, TS Fristoe, **JR Burger**. 2020. Testing the Constraint-based Model of Dynamic Island Biogeography: Species traits and environmental trajectory predict the small mammals of a fragmented Venezuelan cloud forest. International Society of Landscape Ecology - North America virtual meeting.

- Hall, CAS, JH Brown, C Hou, **JR Burger**. 2020. Life history of sockeye salmon: a reflection of EROI (Energy Return On Investment). American Society of Naturalist Asilomar Meeting. Pacific Grove, CA.
- Brown, JH, **JR Burger**, C Hou, CAS Hall. 2020. The equal fitness paradigm: A useful tautology. American Society of Naturalist Asilomar Meeting. Pacific Grove, CA.
- Burger, JR**, C Hou, JH Brown. 2020. Toward a metabolic theory of life history. American Society of Naturalist Asilomar Meeting. Pacific Grove, CA.
- Burger, JR**, Tallavaara, M, TS Fristoe, M Luoto, J Schramski, V Weinberger, JG Okie, BJ Enquist. 2019. Energetic origins of the Anthropocene: modeling human abundance, distribution, and energy use in space and time. American Geophysical Union, Fall Meeting, San Francisco.
- Burger, JR**, VP Weinberger 2019. The central role of energy in the global rise of urban hyper-density. Science, Health, Engineering Policy and Diplomacy: Sustainable Development for the Americas. University of Arizona.
- Burger, JR**, Tallavaara, M, TS Fristoe, M Luoto. 2018. Human energetics across space and time scales. Gordon Research Conference on Unifying Ecology Across Scales. University of New England, Maine.
- Burger, JR**, VP Weinberger, PA Marquet. 2017. The Malthusian-Darwinian Dynamic and the rise in human hyper-density. Urbanics 3 Workshop. Pucón, Chile.
- Burger, JR**, RP Anderson, MA Balk, TS Fristoe. 2017. A trait-based model of dynamic island biogeography. International Biogeography Society Conference. Tucson, AZ.
- Balk, MA, RP Anderson, **JR Burger**, TS Fristoe. 2016. Hysteresis in island biogeography: the role of the past in community assembly. American Quaternary Association, 24th Biennial Meeting, Santa Fe, NM.
- Anderson, RP, MA Balk, **JR Burger**, TS Fristoe. 2016. A trait-based model of dynamic island biogeography: applying hysteresis to community biogeography. 96th Annual meeting of American Society of Mammalogists. University of Minnesota.
- Burger, JR**, VP Weinberger, PA Marquet. 2015. Ecological energetics of population densities in humans and other land mammals. Conference on Complex Systems. Tempe, Arizona.
- Burger, JR**. 2015. Brain size allometry and socio-ecological lifestyles in mammals. Duke University Triangle Center for Evolutionary Medicine Symposium Mechanisms of Social Behavior and Human Health.

- Fristoe, TS, AC Murthy, **JR Burger**. 2014. Homogenizing effects of urbanization on winter bird communities. American Ornithological Union Annual Meeting. Estes Park, Colorado.
- Burger, JR**. 2014. Urban density and energy use: insights from human macroecology. Eco² Ecology and Economics Symposium. London School of Economics.
- Burger, JR**. VP Weinberger 2014. Urban density and energy use: an exception to the ecological energetic equivalence rule. Gordon Conference: Unifying Ecology Across Scales. U. New England, Maine.
- Wey TW, **JR Burger**, LA Ebensperger, and LD Hayes. 2013. Reproductive costs of within-group social variation in female degus (*Octodon degus*). Annual Meeting Animal Behavior Society. Boulder, CO.
- *Murthy, A, TS Fristoe, **JR Burger** 2013. The influence of urbanization on avian diversity across North America. Annual meeting of the Ecological Society of America. Minneapolis, MN. (Student presentation)
- Burger, JR**, AD Davidson, MJ Hamilton, JH Brown. 2013. Multiple predictors of brain size in mammals. 93rd Annual Meeting of the American Society of Mammalogists. Philadelphia, PA.
- Balk, MA, **JR Burger**, TS Fristoe. 2013. Thermal physiologies reveal fundamental vs. realized niches: a test of the Dobzhansky-MacArthur hypothesis. International Society Biogeography Conference. Miami, FL.
- Burger, JR**. 2012. Estudio comparativo sobre las estrategias de historia de vida en roedores. II Congreso Latinoamericano y las XXV Jornadas Argentinas de Mastozoología. Buenos Aires, Argentina.
- Burger, JR**. 2012. The Macroecology of *Homo urbanus*: social and environmental consequences of the urban transition. 4th International EcoSummit. Columbus, Ohio.
- Brown, Allen, CA, **JR Burger**, *et al.* 2012. Metabolic ecology of the contemporary economy. Gordon Research Conference: Metabolic Basis of Ecology. University of New England.
- Knowles, TW, L Engelhardt, **JR Burger**, PD Weigl. 2012. An agent-based model of plant-herbivore dynamics in temperate, montane grasslands. 92nd Meeting of American Society of Mammalogists. Reno, Nevada.
- Burger, JR**, AD Davidson, MJ Hamilton, JH Brown. 2012. Brain size allometry and life styles in mammals. 92nd Annual Meeting of the American Society of Mammalogists. Reno, Nevada.

- Burger, JR.** 2011. Human macroecology and sustainability. Feza Gürsey Institute–Imperial College summer school & complexity workshop. Istanbul, Turkey.
- Burnside, WR, JH Brown, **JR Burger**, AD Davidson, TS Fristoe, MJ Hamilton, N Mercado-Silva, JC Nekola, JG Okie, W Zuo. August 2011. Towards a macroecology of sustainability. Ecological Society of America. Austin, Texas.
- Burger, JR** 2011. Comparative life histories in rodents. 91st Annual Meeting of the American Society of Mammalogists. Portland State University.
- Burnside, WR, JH Brown, **JR Burger**, AD Davidson, TS Fristoe, MJ Hamilton, N Mercado-Silva, JC Nekola, JG Okie, W Zuo. 2011. Towards a macroecology of sustainability. The American Association for the Advancement of Science (AAAS). Washington DC, USA.
- Brown, JH, **JR Burger**, WR Burnside, AD Davidson, TS Fristoe, MJ Hamilton, N Mercado-Silva, JC Nekola, JG Okie, W Zuo. 2011. The ecology and biogeography of sustainability. 5th International Society of Biogeography Conference. Crete, Greece.
- Burger, JR**, LA Ebensperger, LD Hayes. 2010. Exotic ectoparasite decreases direct fitness but is not a cost of group living in the South American rodent *Octodon degus*. 90th Annual Meeting of the American Society of Mammalogists. Univ. of Wyoming.
- Vanderhoff, EN, AM Hodge, BS Arbogast, **JR Burger**, JD Camper, TW Knowles. 2010. The margay (*Leopardus wiedii*) as a flagship species for conservation in the foothills of the tropical Andes. 71st Annual Association of Southeastern Biologists Meeting. Asheville, NC.
- Hodge, AM, BS Arbogast, EN Vanderhoff, **JR Burger**, TW Knowles. 2010. Inventory of a mid-elevation assemblage of mammals in Ecuador's eastern Tropical Andes hotspot. Society for Integrative and Comparative Biology Annual Meeting. Seattle, WA.
- Burger, JR**, AS Chesh, RA Castro, L Ortiz Tolhuysen, I Torre, LA Ebensperger, LD Hayes. 2009. La influencia del tipo de trampa en la evaluacion de la estructura poblacional del roedor *Octodon degus* en Chile central. IX Jornadas de la Sociedad Española para la Conservación y Estudio de Los Mamíferos.
- Knowles, TW, BS Arbogast, EN Vanderhoff, JD Camper, **JR Burger**, L Soetens. 2009. Mammal inventory of a new wildlife sanctuary in Ecuador's tropical Andes hotspot. 89th Annual Meeting of the American Society of Mammalogists. Univ. of Alaska Fairbanks.

Burger, JR, AS Chesh, RA Castro, L Ortiz Tolhuysen, P Muñoz, F Fredes, LA Ebensperger, & LD Hayes. 2009. Parasitism and fitness in the social South American rodent, *Octodon degus*. 70th Annual Association of Southeastern Biologists Meeting. Birmingham, SC.

Ebensperger, LA, V Quirici, **JR Burger**, LD Hayes. 2008. Altas tasas de recambio caracterizan la dinámica de los grupos sociales en el roedor caviomorfo, *Octodon degus*. XII Congreso Nacional y IX Iberoamericano de Etología. Valencia, Spain.

Burger, JR, RA Castro, L Ortiz Tolhuysen, AS Chesh, LA Ebensperger, LD Hayes. 2008. A general island model of social hosts and parasitism. 93rd Meeting of the Ecological Society of America. Milwaukee.

Burger, JR, JJ Pompe, TW Knowles. 2008. An analysis of three programs involved in Carolina bay wetland conservation. 22nd Annual Meeting of the Society for Conservation Biology. Chattanooga, TN.

Burger, JR, AS Chesh, RA Castro, L Ortiz Tolhuysen, LA Ebensperger, LD Hayes. 2008. Island theory of social hosts and parasitism. Annual Association of Southeastern Biologists Meeting. Spartanburg, SC.

Hayes, LD, AS Chesh, **JR Burger**, RA Castro, L Ortiz Tolhuysen, LA Ebensperger. 2008. Fitness consequences of sociality in the South American rodent, *Octodon degus*. 69th Annual Association of Southeastern Biologists Meeting, Spartanburg, SC.

Knowles, TW, **JR Burger**. 2006. Microhabitat analysis of *Neotoma floridana* (Eastern Woodrat) nest sites in the South Carolina coastal plain. 86th Meeting of the American Society of Mammalogists. UMass.

Burger, JR 2006. Conservation economics of Carolina bay wetlands. Student Conference on Conservation Science. Nichols School of the Environment and Earth Sciences. Duke University, Durham, NC.

ADDITIONAL PROFESSIONAL EXPERIENCE

Study Abroad

2004. Biology & Geography Tropical Field Study. Costa Rica & Nicaragua

2003. Intensive Spanish Program, Universidad Internacional. Cuernavaca, Mexico

Short Courses

2016. Santa Fe Institute, Complex Systems Summer School. Social Systems & Economics, New Mexico

2013. Santa Fe Institute, Complex Systems Summer School. Zapallar, Chile

2010. Santa Fe Institute, Global Sustainability Summer School, Santa Fe, New Mexico

2011. Feza Gürsey Institute–Imperial College, Summer School on Complexity, Istanbul, Turkey

Field Research Experience

2021-Present. Appalachian biodiversity studies at Highlands Biological Station

2007-2009; 2012. Social behavior of wild mammal populations in central Chile

2008, 2011. Mammal camera trapping. Sumaco Napo-Galeras National Park, Ecuador

2007. Migrating warblers of the Black Bayou National Wildlife Refuge, LA. Report prepared for refuge

2006. Mammal field surveys in the Great Smoky Mountains National Park

2004-2005. Water snake (*Nerodia fasciata* and *N. erythrogaster*) radio-telemetry in South Carolina coastal plain

2004-2006. Microhabitat use by the eastern woodrat (*Neotoma floridana*) in South Carolina coastal plain

PROFESSIONAL SERVICE

University of Kentucky

Biology Committees – Seminar (Since 2021), Graduate Affairs (2022-2024), Faculty Hiring Plan (Since 2022), Faculty Merit & Evaluation Review (Since 2024)

External

2025-present. Chair – Grants and Fellowships Committee, American Society of Mammalogists

(Oversees review process and distribution of committee funds (~\$100,000 annually), for Grants-in-Aid of Research (~100 proposals annually) and 2 graduate student fellowship awards.

2016-present. Member, Student Grants and Fellowships Committee, American Society of Mammalogists

2023-2028. Network Advisory Team: NSF Research Coordination Network (RCN) – Macrosystems Ecology For All (MEFA). (Monthly Zoom, annual in-person meetings)

2022. Reviewer, *Presentation of Learning*, STEAM Public Academy, Lexington, Kentucky

2022. Judge, 2nd annual Sustainability Research Poster competition, University of Kentucky

2021. American Society of Mammalogists Annual Meeting 1-on-1 Virtual Student Mentoring Sessions

2015. Science Fair Judge, Hugh M Cummings Public High School, Burlington, NC

2013-2014. Graduate Student Representative, UNM Biology Department Seminar Committee

2013. Rio Grande Public High School (ABQ, NM) led field trip to Valle del Oro National Wildlife Refuge

2012-2014. Human Diversity Committee, American Society of Mammalogists

2009-present. Audubon's Society, Christmas bird-count

2009. US-South American workshop assistant coordinator (Santiago, Chile)

2008. Ecological Society of America meeting student volunteer

2005-06. Southern Appalachian Highlands Conservancy volunteer

2004-2005. Student Government Vice-President, Francis Marion University

***Ad hoc* Reviewer**

2025 (n): *Science* (1), *Nature Cities* (2), *Biology Letters* (2), *Nature Communications* (2), *Global Ecology and Biogeography* (2), *Proceedings of the Royal Society B* (1), *Ecology Letters* (1), *Oikos* (1), *Paleobiology* (1),

Behavioral Ecology & Sociobiology (1), *Princeton University Press – graduate textbook proposal* (1), *NSF – Biological Oceanography Program* (1), *UK Neuroscience Research Priority Area (NRPA) Pilot Grants* (1)

2021-2024 (n): *Global Ecology and Biogeography* (3), *Proceedings of the Royal Society B* (3), *Nature Ecology & Evolution* (2), *PNAS* (2), *PLoS ONE* (1), *Ecology Letters* (1), *Philosophical Transactions of the Royal Society B* (1), *The American Naturalist* (1), *Functional Ecology* (1), *Earth System Dynamics* (1), *Evolution* (1), *Santa Fe Institute, Book Chapter: Towards an Universal Biological Scaling Theory* (1), *NSF CAREER Award-Division of Environmental Biology* (1), *NSF-Division of Environmental Biology-Ecosystem Dynamics ad hoc* (1), *NSF-Division of Geography and Spatial Sciences* (1), *Leibniz-Science Campus Proposal (Germany)* (1), *National Ecological Center for Ecological Analysis and Synthesis (NECEAS) Long Term Ecological Research (LTER) synthesis panel* (1).

Before 2020 (n): *Journal of Mammalogy* (9), *PNAS* (7), *PLoS Biology* (3), *Scientific Reports* (3), *Trends in Ecology and Evolution* (2), *Ecosphere* (2), *PLoS ONE* (2), *Royal Society Open Science* (2), *Oikos* (2), *Ecology* (2), *Proceedings of the Royal Society, B* (1), *Philosophical Transactions of the Royal Society* (1), *Nature Communications Biology* (1), *Behavioral Ecology and Sociobiology* (1), *Ethology* (1), *Canadian Journal of Zoology* (1), *Frontiers in Zoology* (1), *Annales Zoologici Fennici* (1), *Journal of Arid Environments* (1), *Encyclopedia of Ecology new edition proposal* (1), *Elsevier book chapter* (1), *Wiley & Sons book chapter* (1), *National Graduate Women in Science Fellowships* (1), *NSF CAREER Award-Division of Environmental Biology* (1)

Active Memberships in Professional Societies

American Society of Mammalogists (life member since 2014)

Ecological Society of America

International Biogeography Society

Society for Integrative and Comparative Biology

Association of Southeastern Biologists

International Association for Landscape Ecology