

David Murray-Stoker

Ph.D. Candidate

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[Google Scholar](#)

Research Interests (Meta)community Ecology — Evolutionary Ecology — Pedagogy — Mutualisms — Plant-Microbe Interactions — History & Philosophy of Science

Education	University of Toronto Ph.D. in Ecology & Evolutionary Biology	2018–Present
	University of Georgia B.S. in Ecology <i>cum laude</i>	2011–2016
	University of North Georgia, Gainesville Campus Formerly Gainesville State College Prerequisites while dual-enrolled in high school and community college	2010–2011

Publications

12. **D. Murray-Stoker**, and M. T. J. Johnson. 2023. Mosaic of local adaptation between white clover and rhizobia along an urbanization gradient. bioRxiv. DOI: [10.1101/2023.08.16.553632](https://doi.org/10.1101/2023.08.16.553632) — [Data & Code](#) — [NCBI BioProject](#). Accepted at *Journal of Ecology*.
11. Murray-Stoker, K., J. V. McHugh, A. C. Benke, K. A. Parsons, **D. Murray-Stoker**, A. D. Rosemond, S. J. Wenger, and D. P. Batzer. 2023. Long-term comparison of invertebrate communities in a blackwater river reveals taxon-specific biomass change. *Freshwater Biology* 68: 632-644. DOI: [10.1111/fwb.14052](https://doi.org/10.1111/fwb.14052) — [Data & Code](#)
10. **D. Murray-Stoker**, K. M. Murray-Stoker, F. P. Kong*, and F. Amanat*. 2022. Environmental filtering and habitat (mis)matching of riverine invertebrate metacommunities. *Journal of Biogeography* 12: 2105-2119. DOI: [10.1111/jbi.14501](https://doi.org/10.1111/jbi.14501) — [Data & Code](#) — Selected as Editor's Choice
9. Miles, L. S.⁺, **D. Murray-Stoker**⁺, V. J. Nhan, and M. T. J. Johnson. 2022. Effects of urbanization on specialist herbivorous insect communities of milkweed are mediated by spatial and temporal variation. *Ecosphere* 13: e4222. DOI: [10.1002/ecs2.4222](https://doi.org/10.1002/ecs2.4222) — [Data & Code](#)
8. Barnum, T., R., J. T. Wootton, R. J. Bixby, J. M. Drake, **D. Murray-Stoker**, C. Colon-Gaud, A. T. Rugenski, T. C. Frauendorf, S. Connelly, S. S. Kilham, M. R. Whiles, K. R. Lips, and C. M. Pringle. 2022. Mechanisms underlying lack of functional compensation by insect grazers after tadpole declines in a Neotropical stream. *Limnology & Oceanography* 67: S198-S210. DOI: [10.1002/lno.11904](https://doi.org/10.1002/lno.11904)
7. **Murray-Stoker, D.**, and M. T. J. Johnson. 2021. Ecological consequences of urbanization on a legume-rhizobia mutualism. *Oikos* 130: 1750-1761. DOI: [10.1111/oik.08341](https://doi.org/10.1111/oik.08341) — [Data & Code](#)

6. **Murray-Stoker, D.** 2021. On the efficacy of restoration in stream networks: comments, critiques, and prospective recommendations. *Peer Community Journal* 1: e52. DOI: [10.24072/pcjournal.52](https://doi.org/10.24072/pcjournal.52) — [Data & Code](#)
5. **Murray-Stoker, D.**, and K. M. Murray-Stoker. 2020. Consistent metacommunity structure despite inconsistent drivers of assembly at the continental scale. *Journal of Animal Ecology* 89: 1678-1689. DOI: [10.1111/1365-2656.13220](https://doi.org/10.1111/1365-2656.13220) — [Data & Code](#)
4. Santangelo J. S., L. S. Miles, S. T. Breitbart, **D. Murray-Stoker**, L. R. Rivkin, M. T. J. Johnson, and R. W. Ness. 2020. Urban environments as a framework to study parallel evolution. In: *Urban Evolutionary Biology*. Edited by Marta Szulkin, Jason Munshi-South and Anne Charmantier: Oxford University Press. DOI: [10.1093/oso/9780198836841.003.0003](https://doi.org/10.1093/oso/9780198836841.003.0003)
3. Murray-Stoker, K. M., D. P. Batzer, **D. Murray-Stoker**, and J. V. McHugh. 2020. Shifts in the community composition of caddisflies (Insecta: Trichoptera) in a subtropical river over three decades. *Ecological Entomology* 45: 514-524. DOI: [10.1111/een.12822](https://doi.org/10.1111/een.12822) — [Data & Code](#)
2. Murray, K. M., **D. Stoker**, C. M. Pringle, and T. N. Simon. 2018. Is spatial variation in population size structures of a stream-dwelling caddisfly due to the altered effects of a predator by a third-party species? *Hydrobiologia* 820: 65-77. DOI: [10.1007/s10750-018-3674-0](https://doi.org/10.1007/s10750-018-3674-0) — [Data & Code](#)
1. **Stoker, D.**, A. J. Falkner, K. M. Murray, A. K. Lang, T. R. Barnum, J. Hepinstall-Cymerman, M. J. Conroy, R. J. Cooper, and C. M. Pringle. 2017. Decomposition of terrestrial resource subsidies in headwater streams: Does consumer diversity matter? *Ecosphere* 8: e01868. DOI: [10.1002/ecs2.1868](https://doi.org/10.1002/ecs2.1868) — [Data & Code](#) — Undergraduate Senior Thesis

+ Equal contributors

* Undergraduate co-author

Manuscripts (In Prep)

1. **D. Murray-Stoker**, J. S. Santangelo, M. Szulkin, and M. T. J. Johnson. Comparing approaches to quantify urbanization on a multicontinental scale. In prep.
2. **D. Murray-Stoker**, L. Rossi, and M. T. J. Johnson. Diversity and assembly of the microbiome of a leguminous plant along an urbanization gradient. In prep.

Honours & Awards

Rustom H. Dastur Graduate Scholarship in Ecology & Evolutionary Biology	2018—2023
University of Toronto Faculty of Arts & Science Program-Level Fellowship	2018—2023
Josh Laerm Memorial Outstanding Undergraduate Award	2015
Zell Miller Scholarship	2011—2016

Funding

University of Toronto Doctoral Completion Award (4000 CAD)	2023
University of Toronto Ecology & Evolutionary Biology Research Grant (2000 CAD)	2021
American Society of Naturalists Student Research Award (2000 USD)	2021
Centre for Urban Environments Research Fund (2000 CAD)	2021
CURO Undergraduate Research Assistantship (2000 USD)	2015
Society for Freshwater Science Undergraduate Travel Award (600 USD)	2015
Thelma Richardson & Frank Golley Undergraduate Support Award (500 USD)	2013

Teaching & Mentoring

Teaching Experience

Course Instructor

BIO205: Ecology (90 students)	2023
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Teaching Assistantships

Teaching Roles

BIO205: Ecology (24 students/lab)	2018—2020, 2023
BIO342: Evolutionary Biology (25 students/lab)	2023
BIO360: Biometrics I (48 students/lab)	2019-2021, 2023

Administrative Roles

BIO205: Ecology (c. 300 students)	2021—2022
BIO153: Diversity of Organisms (c. 900 students)	2022

Guest Lectures

BIO205: Ecology	2022
Lecture: “How communities change”	
Case study: “Looking back in time”	

Mentoring Experience

Fan Peng Kong and Fathima Amanat, Undergraduate Students, Independent Research	2020-2022
Project: <i>Environmental filtering and habitat (mis)matching of riverine invertebrate metacommunities</i>	
Elana Maria, Undergraduate Student, Research Opportunity Program	2021
Project: <i>Evo-eco feedbacks in a legume-rhizobia mutualism</i>	

Pedagogical Training

Advanced University Teaching Preparation Certificate

2021—2023

University of Toronto, Teaching Assistant Training Program

Workshops (36 hours)

Equity & Access

Identify, Assist, Refer Plus (IAR+) Training
Identifying and Addressing Microaggressions in the University Classroom
Cultural Humility in Teaching
Re-Envisioning Discomfort in the Classroom
Contemplative Strategies in an Anti-Oppressive Classroom
Personalizing Your Land Acknowledgement
Dialoguing with Indigenous Perspectives on Reconciliation Education

Reflective Practice & Teaching Skills

Fundamentals of Course and Assessment Design
Avoiding Crickets: Discussion Strategies and Activities
Undergraduate Mentorship and Training in the Research Laboratory
Teaching & Learning in Uncertainty: The Role of Care and Kindness in the Classroom
Personal & Pedagogical Value of Failure
Building a Learning Community in Your Classroom

Educational Technology

Engaging in Quantitative and Qualitative Data Interpretation
Online, In-Person, and In Between: Navigating the Changing Educational Landscapes
Building Community in Online Learning Environments

Open Category

Introduction to Active Learning: Theory & Strategy
Grading Strategies for Teaching Assistants

Practicum (6 hours)

Two sessions, each consisting of presenting a 10-minute lesson, listening to and participating in other lessons, and giving and receiving feedback.

Teaching in Higher Education Course

2022

THE500, Woodsworth College, University of Toronto

12-week course focused on the practice of teaching in higher education, with coverage and discussion on topics such as syllabus design, effective learning experiences, universal design for learning, teaching technologies, and accessibility. Included a peer observation and evaluation of teaching practices.

Ecological Society of America Short Courses

2021

Annual Meeting of the Ecological Society of America

Incorporating Diversity, Equity, Inclusion, and Social Justice into Ecology Curricula
Bringing Computational Data Sciences to Undergraduate Ecology Classroom

Academic Service & Engagement

Co-Founder , EEB Pedagogy Reading Group	2023—Present
Co-Vice President , UTM Biology Graduate Student Society	2023—Present
Co-President , UTM Biology Graduate Student Society	2022—2023
Secretary , UTM Biology Graduate Student Society	2021—2022
Departmental Steward , Canadian Union of Public Employees 3902	2021—2022
Handled grievances by union members in the department	
Liaised between the department and the Local	
Member , UTM Biology Equity, Diversity, & Inclusion Committee	2020—2022
Founding graduate student member	
Led the development, analysis, and report on EDI in the department	
Led qualitative and mixed-method analyses on survey responses	
Member , EEB Wellness Committee, University of Toronto	2020—2021
Assisted with developing the EDI survey	
Led qualitative and mixed-method analyses on survey responses	

Presentations

- Murray-Stoker, D.** 2023. Evolutionary ecology of plant-microbe interactions in urban environments. University of Toronto Mississauga Department of Biology Seminar Series, Mississauga, ON. (*Oral*)
- Murray-Stoker, D.**, J. S. Santangelo, M. Szulkin, and M. T. J. Johnson. 2022. Quantifying urban environmental gradients across varying climates on a global scale. Joint Meeting of the Canadian Society for Ecology and Evolution and the Ecological Society of America, Montreal, QC. (*Oral*)
- Murray-Stoker, D.**, and M. T. J. Johnson. 2022. Local adaptation between white clover and rhizobia in the urban mosaic. Annual Meeting of the Society for the Study of Evolution, Cleveland, OH. (*Oral*)
- Elana Maria*, **D. Murray-Stoker**, and M. T. J. Johnson. 2022. Evo-eco feedbacks in a legume-rhizobia mutualism. Summer Undergraduate Research Fair, Mississauga, ON. (*Poster*)
- Murray-Stoker, D.**, and M. T. J. Johnson. 2021. Ecological consequences of urbanization on a legume-rhizobia mutualism. Annual Meeting of the Ecological Society of America, Virtually Anywhere. (*Oral*)
- Stoker, D.**, A. J. Falkner, K. M. Murray, A. K. Lang, T. R. Barnum, J. Hepinstall-Cymerman, M. J. Conroy, R. J. Cooper, and C. M. Pringle. 2016. Decomposition of terrestrial resource subsidies in headwater streams: Does consumer diversity matter? Odum School of Ecology Graduate Student Symposium, Athens, GA. (*Poster*)
- Stoker, D.**, A. J. Falkner, K. M. Murray, A. K. Lang, T. R. Barnum, J. Hepinstall-Cymerman, M. J. Conroy, R. J. Cooper, and C. M. Pringle. 2015. Decomposition of terrestrial resource subsidies in headwater streams: Does consumer diversity matter? Annual Meeting of the Society for Freshwater Science, Milwaukee, WI. (*Poster*)

Stoker, D., A. J. Falkner, K. M. Murray, A. K. Lang, T. R. Barnum, J. Hepinstall-Cymerman, M. J. Conroy, R. J. Cooper, and C. M. Pringle. 2015. Decomposition of terrestrial resource subsidies in headwater streams: Does consumer diversity matter? Annual Southeastern Ecology and Evolution Conference, Athens, GA. (*Oral*)

Barnum, T. R., J. T. Wootton, R. J. Bixby, J. M. Drake, C. Colon-Gaud, **D. Stoker**, A. T. Rugenski, T. C. Frauendorf, S. J. Connelly, S. S. Kilham, M. R. Whiles, K. R. Lips, and C. M. Pringle. 2014. Examining why grazing mayflies do not functionally compensate for the top-down control of algal communities following disease-driven tadpole declines in a Neotropical stream. Annual Meeting of the Ecological Society of America, Sacramento, CA. (*Oral*)

* Undergraduate mentee presenter

Professional Experience

Lab Manager , Odum School of Ecology University of Georgia Supervised by Catherine Pringle, Ph.D.	1/2013—7/2016
Research Assistant , Odum School of Ecology University of Georgia Supervised by Amanda Rugenski Ph.D.	1/2016—5/2016
Lab Technician , Odum School of Ecology University of Georgia Supervised by Andrea Silletti, M.Sc. and John Drake, Ph.D.	11/2014—8/2015
Field Technician , Odum School of Ecology University of Georgia	5/2013

Professional Engagement

Reviews: Ecology (1), Ecology Letters (2), Ecosphere (2), Hydrobiologia (2), Journal of Animal Ecology (3), Journal of Urban Ecology (1), Oecologia (2), Oikos (1), Peer Community in Ecology (6), Peer Community in Evolutionary Biology (2), Proceedings of the Royal Society B: Biological Sciences (2), Soil Biology & Biochemistry (2)

Member: Society for the Study of Evolution, Ecological Society of America, Canadian Society for Ecology & Evolution, Society for the Advancement of Biology Education Research, Sigma Xi