

David Murray-Stoker

Assistant Professor of Biology
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[Google Scholar](#)

Research Interests (Meta)community Ecology — Evolutionary Ecology — Urbanization — Species Interactions — STEM Pedagogy — Statistics & Data Science Education

Positions **Assistant Professor of Biology** 2024–Present
School of Sciences
Clayton State University

Education **University of Toronto** 2018–2024
Ph.D. in Ecology & Evolutionary Biology

University of Georgia 2011–2016
B.S. in Ecology *cum laude*

University of North Georgia, Gainesville Campus 2010–2011
Formerly Gainesville State College
Prerequisites while dual-enrolled in high school and community college

Publications

14. **D. Murray-Stoker**, J. S. Santangelo, M. Szulkin, and M. T. J. Johnson. Comparing approaches to quantify urbanization on a multicontinental scale. *bioRxiv* preprint. DOI: [10.1101/2024.04.30.591983](https://doi.org/10.1101/2024.04.30.591983) — [Data & Code](#).
13. **D. Murray-Stoker**, L. Rossi, and M. T. J. Johnson. Diversity and assembly of the microbiome of a leguminous plant along an urbanization gradient. *bioRxiv* preprint. DOI: [10.1101/2024.06.10.598260](https://doi.org/10.1101/2024.06.10.598260) — [Data & Code](#) — [NCBI BioProject](#) — In revision at *Urban Ecosystems*.
12. **D. Murray-Stoker**, and M. T. J. Johnson. 2024. Mosaic of local adaptation between white clover and rhizobia along an urbanization gradient. *Journal of Ecology* 112: 1150–1163. DOI: [10.1111/1365-2745.14292](https://doi.org/10.1111/1365-2745.14292) — [Data & Code](#) — [NCBI BioProject](#).
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

Teaching

Clayton State University

Lectures

BIOL2251: Anatomy & Physiology I 2024

Labs

BIOL2251L: Anatomy & Physiology I Lab 2024

University of Toronto

Course Instructor

BIO205: Ecology (90 students) 2023

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

Mentoring

Fan Peng Kong and Fathima Amanat, Undergraduate Students, Independent Research 2020-2022

Project: *Environmental filtering and habitat (mis)matching of riverine invertebrate metacommunities*

2021

Elana Maria, Undergraduate Student, Research Opportunity Program

Project: *Evo-eco feedbacks in a legume-rhizobia mutualism*

Pedagogical Development

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

Presentations

- Richter, C., **D. Murray-Stoker**, and M. den Hollander 2024. Lowering barriers without scaffolds: how to introduce ecology students to hypotheses and R. Annual Meeting of the Ecological Society of America, Long Beach, CA, USA. (*Poster*)
- Murray-Stoker, D.** 2023. Evolutionary ecology of plant-microbe interactions in urban environments. University of Toronto Mississauga Department of Biology Seminar Series, Mississauga, ON, CA. (*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, CA. (*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, USA. (*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, CA. (*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, USA. (*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, USA. (*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, USA. (*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, USA. (*Oral*)

* Undergraduate mentee presenter

Academic Service

Member , School of Sciences Experiential Learning Committee	2024—Present
Member , School of Sciences New Programs Committee	2024—Present
Volunteer , School of Sciences Welcome Picnic	2024
Co-Founder , U of T EEB Pedagogy Reading Group	2023—2024
Co-Vice President , UTM Biology Graduate Student Society	2023—2024
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
Member , UTM Biology Equity, Diversity, & Inclusion Committee	2020—2022
Member , U of T EEB Wellness Committee, University of Toronto	2020—2021

Honors & 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

Professional Engagement

Peer Reviews: Ecology (1), Ecology & Evolution (1), Ecology Letters (2), Ecosphere (2), Hydrobiologia (2), Journal of Animal Ecology (7), Journal of Urban Ecology (2), Oecologia (2), Oikos (2), Peer Community in Ecology (6), Peer Community in Evolutionary Biology (2), Proceedings of the Royal Society B: Biological Sciences (3), Scientific Reports (1), Soil Biology & Biochemistry (2)

Member: Society for the Study of Evolution, Ecological Society of America, Society for the Advancement of Biology Education Research, Human Anatomy and Physiology Society, Sigma Xi