

L. Ruth Rivkin

CURRICULUM VITAE

SUMMARY OF CV

Research Statement

I am a broadly trained evolutionary ecologist, studying the effects of anthropogenic environmental change in plants and animals. My research program leverages experimental, genomic, and climate datasets to evaluate the effects of global change on ecological and evolutionary processes across species. Findings from my research informs conservation and management efforts by identifying critical habitats and populations necessary for species survival.

Summary of Excellence in Research

- 15 manuscripts in peer-reviewed journals (9 first-author, 1 mentee co-author)
- 652 citations (Google Scholar h-index = 11)
- \$250,000 in external scholarship and award funding
- 14 research presentations and 3 best talk awards
- 6 seminars and invited talks (5 invited, 1 departmental seminar)
- Course Instructor for University of Toronto Mississauga
- 2 undergraduate research projects supervised

ACADEMIC HISTORY

Research Appointments

NSERC Postdoctoral Research Fellow	2022-2025
Conservation genomics of polar bears under climate change University of Manitoba, Polar Bears International, and San Diego Zoo Wildlife Alliance	
<i>*Parental leave (1 year)</i>	2022-2023
Data Scientist	2023
Genetically-informed species distribution modeling of polar bears Independent sole-source contract Environment and Climate Change Canada	
Postdoctoral Researcher	2021-2022
Conservation genomics of polar bears under climate change Polar Bears International and San Diego Zoo Wildlife Alliance	

Education

- Ph.D. Ecology and Evolutionary Biology 2015-2021
 University of Toronto
Thesis: The effects of urbanization on the ecology and evolution of species interactions
Supervisor: Marc Johnson
- Hon. B.Sc. Wildlife Biology-Statistics 2010-2015
 University Guelph

SCHOLARLY AND PROFESSIONAL WORK**Refereed Publications** (*Total = 15; h = 11; Citations = 652*)

15. **Rivkin LR**, AC Andrade. 2023. Increased herbivory but not cyanogenesis is associated with urbanization in a tropical wildflower. *Austral Ecology*. <https://doi.org/10.1111/aec.13274>
14. **Rivkin LR**, MTJ Johnson. 2022. The impact of urbanization on mating system and population genetic variation in the native wildflower, *Impatiens capensis*. *Journal of Urban Ecology*. juac009. <https://doi.org/10.1093/jue/juac009>.
13. Verrelli, BC, A Alberti, S Des Roches, NC Harris, AP Hendry, MTJ Johnson, AM Savage, A Charmantier, KM Gotanda, L Govaert, LS Miles, **LR Rivkin**, KM Winchell, KI Brans, Cn Correa, SE Diamond, B Fitzhugh, NB Grimm, S Hughes, JM Marzluff, J Munshi-South, C Rojas, JS Santangelo, CJ Schell, JA Schweitzer, M Szulkin, MC Urban, Y Zhou, C Ziter. 2022. A global horizon scan for urban evolutionary ecology. *Trends in Ecology and Evolution*. 37:1006-1019. <https://doi.org/10.1016/j.tree.2022.07.012>
12. KM Winchell, KJ Aviles-Rodriguez, EJ Carlen, LS Miles, A Charmantier, LF De León, KM Gotanda, **LR Rivkin**, M Szulkin, and BC Verrelli. 2022. Moving past the challenges and misconceptions in urban adaptation research. *Ecology and Evolution*. 12:ee9552. <http://doi.org/10.1002/ece3.9552>
11. **Rivkin LR**, RA Johnson, JA Chaves, MTJ Johnson. 2021. Urbanization alters ecological and evolutionary interactions between Darwin's finches and *Tribulus cistoides* on the Galápagos Islands. *Ecology and Evolution*. 11:15754–15765. <http://doi.org/10.1002/ece3.8236>
10. **Rivkin, LR**, V Nhan⁺, AE Weis, MTJ Johnson. 2020. Variation in pollinator-mediated plant reproduction across an urbanization gradient. *Oecologia*. 192:1073–1083. <https://doi.org/10.1007/s00442-020-04621-z>
⁺ Undergraduate researcher
9. Des Roches, S, K Brans, M Lambert, **LR Rivkin**, A Savage, C Schell, C Correa, L De Meester, S Diamond, N Grimm, N Harris, A Hendry, L Goevart, MTJ Johnson, J Munshi-

- South, E Palkovacs, M Szulkin, M Urban, B Verrelli, M Alberti. 2020 Socio-eco-evolutionary dynamics in cities. In *Evolutionary Applications*. 14:248–267.
<https://doi.org/10.1111/eva.13065>
8. Santangelo JS, **LR Rivkin**, C Advenard, KA Thompson. 2020 Multivariate phenotypic divergence along an urbanization gradient. *Biology Letters*. 16:20200511.
<https://doi.org/10.1098/rsbl.2020.0511>
 7. Santangelo, JS, LS Miles, ST Breitbart, D Murray-Stoker, **LR Rivkin**, MTJ Johnson, RW Ness. 2020. Urban environments as a framework to study parallel evolution. In Szulkin, M, Munshi-South, J, Charmantier, A, eds. *Urban Evolutionary Biology*. Oxford University Press.
 6. **Rivkin, LR**, JS Santangelo, M Alberti, MF Aronson, CW de Keyzer, SE Diamond, M Fortin, LJ Frazee, AJ Gorton, AP Hendry, Y Liu, JB Losos, JS MacIvor, RA Martin, M McDonnell, LS Miles, J Munshi-South, R Ness, AE Newman, MR Stothart, P Theodorou, KA Thompson, BV Verrelli, A Whitehead, KM Winchell, and MTJ Johnson. 2019. A roadmap for urban evolutionary ecology. *Evolutionary Applications*. 12:384–398.
<https://doi.org/10.1111/eva.12734>
 5. Miles, LM, **LR Rivkin***, MTJ Johnson, J Munshi-South, BC Verrelli. 2019. Gene flow and genetic drift in urban environments. *Molecular Ecology*. 28:4138-4151.
<https://doi.org/10.1111/mec.15221>
 *Co-first author
 4. **Rivkin, LR**, SCH Barrett, MTJ Johnson. 2018. The effects of plant sexual system and latitude on resistance to herbivores. *American Journal of Botany*. 105:977-985.
<https://doi.org/10.1002/ajb2.1098>
 3. Santangelo, JS, **LR Rivkin**, MTJ Johnson. 2018. The evolution of city life. *Proceedings of the Royal Society B*. 20181529. <https://doi.org/10.1098/rspb.2018.1529>
 2. **Rivkin, LR**, AL Case, CM Caruso. 2016. Why is gynodioecy a rare but widely distributed sexual system? Lessons from the Lamiaceae. *New Phytologist*. 211:688-696.
<https://doi.org/10.1111/nph.13926>
 1. **Rivkin, LR**, AL Case, CM Caruso. 2015. Frequency-dependent fitness in gynodioecious *Lobelia siphilitica*. *Evolution*. 69:1232-1243. <https://doi.org/10.1111/evo.12654>

Manuscripts in Review (Total: 4)

Rivkin LR, ES Richardson, JM Miller, TC Atwood, S Baryluk, EW Born, C Davis, M Dyck, E de Greef, KL Laidre, NJ Lunn, R Malenfant, S McCarthy, ME Obbard, MA. Owen, NW Pilfold, A Roberto-Charron, Ø Wiig, AP Wilder, CJ Garroway. Assessing the risk of climate maladaptation for Canadian polar bears. *In review at Ecology Letters*. Submission ID ELE-00187-2024.

Newediuk L, ES Richardson, B Biddlecombe, H Kassim, L Kathan, N Lunn, **LR Rivkin**, O Salama, C Schmidt, M Jones, CJ Garroway. Climate change, age acceleration, and the erosion of fitness in polar bears. *In review at Nature*. Submission ID 2024-02-02361.

Miller JM, RM Malenfant, **LR Rivkin***, TC Atwood, S Baryluk, EW Born, R Dietz, KL Laidre, J Pongracz, ES Richardson, Ø Wiig, CS Davis. Development of an 8K SNP chip to assess adaptive diversity and hybridization in polar bears. *In review at Conservation Genetics Resources*. Submission ID f8646da7-cb6c-438f-91d1-1533307db97d.

**Corresponding author*

Urban, MC, M Alberti, L De Meester, Y Zhou, BC Verrelli, M Szulkin, C Schmidt, P Roberts, **LR Rivkin**, EP Palkovacs, J Munshi-South, A Melesis, NC Harris, KM Gotanda, CJ Garroway, SE Diamond, S Des Roches, A Charmantier, KI Brans. Interactions between climate change and urbanization will shape the future of biodiversity. *In review at Nature Climate Change*. Submission ID NCLIM-23030509B.

Refereed Special Issues as Guest Editor

Santangelo, JS, **LR Rivkin**, MTJ Johnson. 2018. The evolution of city life. Special Issue in *Proceedings of the Royal Society B*.

Honours, Awards, and Scholarships (Total funding: \$250,000; Academic (A); Leadership (L))

McCall MacBain 10 Minute Postdoctoral Research Talks Finalist	2024
NSERC Postdoctoral Research Fellowship (\$90,000; A)	2022-2025
UTM Graduate Student Research Award (\$2,500; A)	2021
EEB Department Harold Harvey Award Honorable Mention (\$250; L)	2021
Roberta Bondar Graduate Student Excellence Award (\$1,126.43; L/A)	2020
CSEEE Excellence in Doctoral Research Award (\$500; L/A)	2020
EEB Department Peter Abrams Award Honorable Mention (\$250; A)	2020
QEII Graduate Scholarship in Science and Technology (\$15,000; A)	2019-2020
EEB Department Ramsay-Wright Award Honorable Mention (\$250; A)	2019
UTM Graduate Training Award (\$500; A)	2018
NSERC Canada Graduate Scholarship Doctoral (\$105,000; A)	2016-2019
Sigma Xi Grant-in-Aid of Research (\$900; A)	2016
Best Graduate Talk, CSEE (\$500; A)	2016
UTM Conference Travel Grant (\$400/year; A)	2016-2019
UTM Biology Travel Award (\$1000/year; A)	2016-2019
NSERC Canada Graduate Scholarships – Master’s Program (\$17,500; A)	2015-2016
Botanical Society of America Young Botanist Award (A)	2015
Best Undergraduate Talk, OE3C (\$150; A)	2014

Papers Presented at Meetings, Symposia, and Institutions (Total: 16)

Invited Talks and Seminars

- Rivkin LR.** 2024. Can polar bears adapt to climate change? Insights from genetics. Appetizers for the Mind. Department of Psychology, Neuroscience, and Behaviour, McMaster University. Hamilton, ON.
- Rivkin LR.** 2023. Conservation genetics of polar bears in the Canadian Arctic. Government of Canada Genomic Resilience and Adaptation to Climate Change Project Seminar Series. Virtual.
- Rivkin LR.** 2021. The effects of urbanization on the ecology and evolution of species interactions University of Toronto Mississauga Biology Department Seminar Series. Virtual
- Rivkin LR.** 2020. The effects of urbanization on the ecology and evolution of species interactions. Doctoral Excellence Award Talk. Canadian Society for Ecology and Evolution. [Virtual](#).
- Rivkin LR.** 2020. A roadmap for urban evolutionary ecology. Caribaea Initiative Research & Conservation Conference. Bridgetown, Barbados. Plenary.
Cancelled due to COVID-19
- Rivkin LR, V Nahn, AE Weis, MTJ Johnson.** 2019. The strength of plant-pollinator interactions varies along an urbanization gradient. Urban Eco-Evolutionary Dynamics Workshop. Seattle, WA.
- Contributed Conference Presentations (Oral presentation (T), Poster presentation (P))*
- Rivkin LR*.** 2024. Can polar bears adapt to climate change? Insights from Genetics. McCall MacBain 10 Minute Postdoctoral Research Talks. Hamilton, ON. (T) [Recorded](#).
**Finalist*
- Rivkin LR.** 2023. Conservation genetics of polar bears in the Canadian Arctic. International Polar Bear Genetics Meeting. Winnipeg, MB. (T)
- Rivkin LR, Richardson, E, Garroway, C.** 2023. Genetic vulnerability of polar bears to sea ice loss. Canadian Society for Ecology and Evolution. Winnipeg, MB. (T)
- Rivkin LR, RA Johnson, JA Chaves, MTJ Johnson.** 2021. Urbanization alters ecological and evolutionary interactions between Darwin's finches and *Tribulus cistoides* on the Galápagos Islands. Society for the Study of Evolution (Evolution). Virtual. (T)
- Rivkin LR, V Nahn, AE Weis, MTJ Johnson.** 2019. The strength of plant-pollinator interactions varies along an urbanization gradient. Society for the Study of Evolution (Evolution). Providence, RI. (T)
- Miles LS, **Rivkin LR, Johnson MTJ, J Munshi-South, BC Verrelli.** 2020. Gene flow and genetic drift in urban environments. Evolution. Providence, RI. (T)
- Rivkin LR, V Nhan, MTJ Johnson.** 2018. The influence of urbanization on plant fitness and pollinator communities. II Joint Congress on Evolutionary Biology. Montpellier, FR. (P)
- Rivkin LR, MTJ Johnson.** 2017. The role of urbanization on the evolution of selfing and population genetic structure in *Impatiens capensis*. Evolution. Portland, OR. (P)

Rivkin LR*, SCH Barrett, MTJ Johnson. 2016. The role of sexual system and latitude on insect herbivory in *Sagittaria latifolia* (Alismataceae). Canadian Society for Ecology and Evolution. St. John's, NL. (T)

**Best Graduate Talk*

Rivkin LR, SCH Barrett, MTJ Johnson. 2016. The role of sex-biased herbivory on the evolution of dioecy in *Sagittaria latifolia* (Alismataceae). Ontario Ecology, Ethology and Evolution Colloquium. Toronto (OE3C), ON. (T)

Rivkin LR, AL Case, CM Caruso. 2015. Why is gynodioecy a rare but widespread sexual system? Lessons from the Lamiaceae. OE3C. Toronto, ON. (T)

Rivkin LR, AL Case, CM Caruso. 2014. Mechanisms of frequency dependent fitness in gynodioecious *Lobelia siphilitica*. Evolution. Raleigh, NC. (T)

Rivkin LR*, AL Case, CM Caruso. 2014. Mechanisms of frequency dependent fitness in gynodioecious *Lobelia siphilitica*. OE3C. (T)

**Best Undergraduate Talk*

TEACHING AND SUPERVISORY EXPERIENCE

Undergraduate Course Instructor

Evolutionary Biology (BIO342; 150 students; sole instructor) 2021

Teaching Assistantships and Course Development

Teaching Assistantships

Ecology (BIO205) 2020

Evolution (BIO152) 2019

Biology behind the news (BIO201) 2018

Ecology (BIO205) 2017

Evolutionary Biology (BIO342) 2016-2020

Biometrics II (BIO361) 2015-2018

Course Development

Biometrics II (BIO361) 2019

Supervisory Experience

Vanessa Nhan, Honors Thesis (BIO481) 2018

Zahra Sina, Research Project (BIO299) 2016

ACADEMIC SERVICE

Academic and Community Service

Symposium organizer; 3 rd Joint Congress of Evolutionary Biology	2024
Organizer; International Polar Bear Genetics Meeting	2023
Steering Committee; NSF-RCN: Urban Eco-Evo Dynamics	2022-2023
Advisory Council, NSF-DCL LTER Urban Evolution Workshop	2021-2022
Lead organizer, NSF-RCN: Urban Eco-Evo Dynamics Workshop Series	2021-2022
Panel Judge, Global Undergraduate Awards	2020
Volunteer, St. John's Ambulance Therapy Dog Program	2020
Graduate student representative, Canadian Society for Ecology and Evolution	2018-2020
Co-organizer, The evolution of city life. Special Issue in <i>Proceedings of the Royal Society B</i> .	2017-2018
Executive, Synthesis in the City: Urban Evolutionary Ecology of Plants	
Workshop Organizing Committee	2016-2017
Executive, OE3C	2015-2016

Departmental and University Service

Graduate representative, UTM Biology Executive Committee	2020
Graduate Representative, UTM Health and Counselling Committee	2019
Founder, Path to Resilience: UTM Graduate Peer Support Group	2018-2020
Organizer, Path to Resilience: UTM Grad Wellness Workshop Series	2018-2020
Treasurer, UTM Association of Graduate Students	2018-2020
President, UTM Biology Graduate Student Society	2016-2017
Graduate representative, UTM Biology Executive Committee	2016-2017
Graduate representative, UTM Biology faculty meetings	2016-2017
Graduate representative, IT Student Advisory Committee	2015-2016

External reviews

Botany	New Phytologist	Frontiers in Ecology and Evolution
Ecology and Evolution	Urban Ecosystems	Industrial Crops and Products
Plant Ecology	American Journal of Botany	Journal of Evolutionary Biology
Scientific Reports	Evolutionary Applications	Molecular Ecology
Journal of Ecology	PeerJ	Frontiers in Ecology and Evolution
Bioscience	New Phytologist	Industrial Crops and Products
Evolution Letters		

RELEVANT EXPERIENCE**Media Appearances**

Polar Bear Science Steps Forward, Tundra Connections. 2023. Guest Expert.

<https://www.youtube.com/watch?v=OzHztaAAPwA>

City Animals. 2022. Frick, I love Nature. Season 1, Episode 2. CBC Gem. Guest Expert.

<https://gem.cbc.ca/media/frick-i-love-nature/s01e02>

Ruth Rivkin wins Excellence in PhD Research Award. 2020. U of T Celebrates.

<https://www.utoronto.ca/celebrates/ruth-rivkin-wins-excellence-phd-research-award>

Why house sparrows can eat starch: the evolution of city wildlife. 2018. The Environment

Report. Michigan NPR Radio. <https://www.michiganradio.org/post/why-house-sparrows-can-eat-starch-evolution-city-wildlife>

Research Experience

Technician, EvoEco Lab University of Toronto Mississauga (Dr. Marc Johnson)	2015
Technician, Plant Evolutionary Ecology Research University of Guelph (Dr. Christina Caruso)	2013-2015
Technician, Marine Benthic Lab Research Memorial University (Dr. Paul Snelgrove)	2012, 2010
Technician, Laboratoire Environnemental de Géochimie Organique Research Concordia University (Dr. Yves Gelinás)	2011