

L. Ruth Rivkin

CURRICULUM VITAE

SUMMARY OF CV

Research and Teaching Statement

I am a broadly trained evolutionary ecologist, studying the conservation of species experiencing anthropogenic environmental change. My research program leverages experimental, genomic, and climate datasets to evaluate the effects of climate change and urbanization on biodiversity. Findings from my research informs conservation and management efforts by identifying critical habitats and populations necessary for species survival. I have experience teaching biology undergraduate courses and had an 90% teaching satisfaction score from students as the course instructor for a 3rd year Evolutionary Biology course.

Summary of Excellence in Research and Teaching

- 18 manuscripts in peer-reviewed journals
- \$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 at University of Toronto Mississauga (4.5/5 course rating)
- 2 undergraduate research projects supervised

ACADEMIC HISTORY

Research Appointments

NSERC Postdoctoral Research Fellow	2022-2025
Conservation genomics of polar bears threatened by 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 = 18; h = 12; Citations = 818*)

18. **Rivkin LR**, ES Richardson, JM Miller, TC Atwood, S Baryluk, EW Born, C Davis, M Dyck, E de Greef, KL Laidre, NJ Lunn, S McCarthy, ME Obbard, MA. Owen, NW Pilfold, A Roberto-Charron, Ø Wiig, AP Wilder, CJ Garroway. 2024. Assessing the risk of climate maladaptation for Canadian polar bears. *Ecology Letters*. 27:e14486. <https://doi.org/10.1111/ele.14486>
17. Miller JM, RM Malenfant, **LR Rivkin***, TC Atwood, S Baryluk, EW Born, R Dietz, KL Laidre, J Pongracz, ES Richardson, Ø Wiig, CS Davis. 2024. Development of an 8K SNP chip to assess adaptive diversity and hybridization in polar bears. *Conservation Genetics Resources*. 16: 237-249. <https://doi.org/10.1007/s12686-024-01359-1>
- *Corresponding author
16. 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. 2024. Interactions between climate change and urbanization will shape the future of biodiversity. *Nature Climate Change*. 14:436–447. <https://doi.org/10.1038/s41558-024-01996-2>
15. **Rivkin LR**, AC Andrade. 2023. Increased herbivory but not cyanogenesis is associated with urbanization in a tropical wildflower. *Austral Ecology*. 48:388-398 <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*. 8: 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 mentee

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:2)

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 2024-02-02361B.
<https://doi.org/10.1101/2024.01.05.574416>

de Greef E, C Müller, AA Snead, **LR Rivkin**, SH Ferguson, CA Watt, M Marcoux, SD. Petersen, CJ Garroway. Identifying areas of potential risk based on future genetic adaptability in three Arctic whale species. *In review at American Naturalist*. Submission ID 62411.

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 (A)	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
CSEE 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. San Diego Zoo Wildlife Alliance Postdoctoral Seminar Series. Virtual.

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,** ES Richardson, CJ Garroway. 2024. Assessing the risk of climate maladaptation for Canadian polar bears. International Association for Bear Research and Management (IBA) 28th Conference. Edmonton, AB. (P)
- Rivkin LR.** 2024. Assessing the risk of climate maladaptation for Canadian polar bears. 3rd Joint Congress on Evolutionary Biology. Montreal, QC. (T)
- 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)

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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, Conservation Genetics Across Multiple Species Symposium
3rd 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 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 *Proceedings of the Royal Society B*. 2017-2018

Executive, Synthesis in the City: Urban Evolutionary Ecology of Plants

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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 and Public Appearances

Radio and Television Interviews

Grolar bears and climate change. CBC Radio syndicated interviews (13 afternoon talk show interviews).

Arctic Hybrids. 2024. Global News 640 Toronto This Weekend with Ben Mulroney.

How common at grolar bears? 2024. CBC Radio. <https://www.cbc.ca/player/play/video/9.6432675>

Polar Bear Science Steps Forward. 2023. Tundra Connections. 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>

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>

Print Media

- Study paints grim picture of polar bear survival in the Arctic. 2024. CTV Winnipeg.
<https://winnipeg.ctvnews.ca/mobile/study-paints-grim-picture-of-polar-bear-survival-in-the-arctic-1.6992299?cache=?autoplay=true/7.319866/7.319866/7.319866/7.393958>
- Certains ours polaires de l'Arctique s'adaptent mieux que d'autres, selon une étude [Some polar bears in the Arctic are adapting better than others, study finds]. 2024. Radio-Canada. <https://ici.radio-canada.ca/nouvelle/2096520/population-decroissante-arctique-glace-recherche>
- Some polar bears may be able to survive climate change, U of M researcher reports in co-authored study. 2024. Winnipeg Free Press.
<https://www.winnipegfreepress.com/breakingnews/2024/08/08/some-polar-bears-may-be-able-to-survive-climate-change-u-of-m-researcher-reports-in-co-authored-study>
- Polar bears in Canada's high Arctic are most vulnerable to climate change, research shows. 2024. Winnipeg Sun. <https://winnipeg.sun.com/news/provincial/polar-bears-in-canadas-high-arctic-are-most-vulnerable-to-climate-change-research-shows>
- Pizzlies, grolars, and narlugas: Why we may soon see more Arctic hybrids. 2024. National Geographic <https://www.nationalgeographic.com/animals/article/arctic-hybrid-polar-grizzly-bear-genetics-climate?loggedin=true&rnd=1723027142398>
- 'Grolar' hybrid of grizzlies and polar bears remains rare in wild, study finds. 2024. The Guardian. <https://www.theguardian.com/environment/article/2024/jun/20/grolar-hybrid-grizzly-polar-bears-study>
- Grolar bear hybrids in N.W.T. all traced back to same 'strange' female polar bear. 2024. CBC North. <https://www.cbc.ca/news/canada/north/polar-bear-grizzly-study-1.7239850>
- Grizzly-polar bear hybrids extremely rare but predicted to rise with global warming, say scientists. 2024. BBC Wildlife Magazine. <https://www.discoverwildlife.com/animal-facts/pizzly-grolar-bears>
- Unchecked climate change could render Hudson Bay polar bears extinct by 2030s, report warns. 2024. Winnipeg Free Press. <https://www.winnipegfreepress.com/breakingnews/2024/06/13/unchecked-climate-change-could-render-hudson-bay-polar-bears-extinct-by-2030s-report-warns>
- 'Grolar' hybrid bears confirmed in Canadian study. 2024. Times Colonist. <https://www.timescolonist.com/animal-stories/grolar-hybrid-bears-confirmed-in-canadian-study-9080567>
- Hybridization Extremely Rare Between Grizzly and Polar Bears, Study Finds. 2024. Polar Bears International. <https://polarbearsinternational.org/news-media/articles/hybridization-extremely-rare-between-grizzly-and-polar-bears-study-finds>
- Grolar Bear Hybrids Are “Extremely Rare”, With Just 8 Confirmed Individuals. IFL Science. <https://www.iflscience.com/grolar-bear-hybrids-are-extremely-rare-with-just-8-confirmed-individuals-74652>
- UM researcher helps to track Grolar or Pizzly bears. 2024. UM News Today. <https://news.umanitoba.ca/um-researcher-helps-to-track-grolar-or-pizzly-bears/>
- Decoding Polar Bears by Ruth Rivkin. 2023. Polar Bears International Annual Newsmagazine. <https://polarbearsinternational.aflip.in/2023newsmagazine#page/27>
- Can polar bears adapt to climate change? Insights from genetics. 2024. Appetizers for the Mind. Department of Psychology, Neuroscience, and Behaviour, McMaster University. Hamilton, ON.

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Can polar bears adapt to climate change? Insights from genetics. 2024. Royal City Men's Club.
Guelph, ON.

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>

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 Gelinas)	2011