

Chris Brimacombe

Email: cbrimaco@uoguelph.ca

Current Position

University of Guelph
Dept. Integrative Biology
Postdoctoral Research Associate
Supervisor: McCann KS

2025–

Education

University of Toronto (UofT)
PhD in Ecology and Evolutionary Biology
Supervisor: Fortin M-J

2019–2024

University of Western Ontario (UWO)
BSc (Hons) in Applied Mathematics *with distinction*
Supervisors: Zamir M and Corless RM

2015–2018

University of Ottawa
BSc (Hons) in Biology with a Specialization in Ecology
Supervisors: Leroux S and Findlay CS

2008–2012

Publications

Under Review Articles

1. Banville F, Strydom T, Blyth P, **Brimacombe C**, Catchen MD, Dansereau G, Higino G, Malpas T, Mayall H, Norman K, Gravel D, Poisot T. *Deciphering probabilistic species interaction networks*.

Published Peer Reviewed Articles

13. **Brimacombe C**, Bodner K, Gravel D, Leroux SJ, Poisot T, Fortin M-J. *Publication-driven consistency in food web structures: Implications for comparative ecology*. Ecology, 2025, 106(1):e4467.
12. **Brimacombe C**, Bodner K, Fortin M-J. *Applying a method before its proof-of-concept: A cautionary tale using inferred food webs*. Global Change Biology, 2024, 30(6):e17360.
11. Gelmi-Candusso TA, **Brimacombe C**, Ménard GC, Fortin M-J. *Building urban predator-prey networks using camera traps*. Food Webs, 2023, 37:e00305.
10. **Brimacombe C**, Corless RM, Zamir M. *Elliptic cross sections in blood flow regulation*. AIMS Mathematics, 2023, 8(10):23108–23145.
9. **Brimacombe C**, Bodner K, Michalska-Smith M, Poisot T, Fortin M-J. *Shortcomings of reusing species interaction networks created by different sets of researchers*. PLOS Biology, 2023, 21(4):e3002068.
8. **Brimacombe C**, Bodner K, Michalska-Smith MJ, Gravel D, Fortin M-J. *No strong evidence that modularity, specialization, or nestedness are linked to seasonal climatic variability in empirical bipartite networks*. Global Ecology and Biogeography, 2022, 31(12):2510–2523.
7. **Brimacombe C**, Bodner K, Fortin M-J. *How network size strongly determines trophic specialization: A technical comment on Luna et al. (2022)*. Ecology Letters, 2022, 25(8):1914–1916.

6. Bodner K, **Brimacombe C**, Fortin M-J, Molnár P. *Why body size matters: How larger fish ontogeny shapes ecological network topology*. *Oikos*, 2022, 2022(3):e08569.
5. **Brimacombe C**, Corless RM, Zamir M. *Computation and applications of Mathieu functions: A historical perspective*. *SIAM Review*, 2021, 63(4):653–720.
4. Fortin M-J, Dale MRT, **Brimacombe C**. *Network ecology in dynamic landscapes*. *Proceedings of the Royal Society B*, 2021, 288(1949):20201889.
3. **Brimacombe C**, Bodner K, Fortin M-J. *Inferred seasonal interaction rewiring of a freshwater stream fish network*. *Ecography*, 2021, 44(2):219–230.
2. Bodner K, **Brimacombe C**, Chenery ES, Greiner A, McLeod AM, Penk SR, Vargas Soto JS. *Ten simple rules for tackling your first mathematical models: A guide for graduate students by graduate students*. *PLOS Computational Biology*, 2021, 17(1):e1008539.
1. Leroux SJ, **Brimacombe C**, Khair S, Benidickson J, Findlay CS. *Legislative correlates of the size and number of protected areas in Canadian jurisdictions*. *Biological Conservation*, 2015, 191:375–382.

Non-Peer Reviewed Articles

2. Bodner K, **Brimacombe C**, Fortin M-J. *Re-examining evidence for birds optimizing fruit size near their geographic limits*. *Science*. 2024. <https://www.science.org/doi/10.1126/science.adj1856#elettersSection>.
1. **Brimacombe C**. *PLOS Biology's behind the paper: Why we cannot tell different types of species interaction networks apart*. 2024. <https://biologue.plos.org/2024/04/22/behind-the-paper-why-we-cannot-tell-different-types-of-species-interaction-networks-apart>.

Book Chapters

1. Filotas É, Aquilué N, **Brimacombe C**, Drapeau P, Keeton W, Kneeshaw D, Messier C, Witté I, Fortin M-J. Editors: Girona MM, Morin H, Gauthier S, Bergeron Y. In *Boreal forests in the face of climate change. Network framework for forest ecology and management*. pp. 685–717. Springer, 2023.

Presentations

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| 11. <i>On the nature of structure in collections of freely available food webs</i>
Brimacombe C
Atwood Graduate Research Conference, Toronto, Ontario | 2024 |
| 10. <i>Shortcomings of reusing species interaction networks created by different sets of researchers</i>
Brimacombe C , Bodner K, Michalska-Smith M, Poisot T, Fortin M-J
Ecological Society of America, Portland, Oregon | 2023 |
| 9. <i>Seasonal interactions and rewiring in freshwater stream fish networks</i>
Brimacombe C , Bodner K, Fortin M-J
Gordon Conference, Easton, Massachusetts | 2023 |
| 8. <i>Shortcomings of reusing species interaction networks created by different sets of researchers</i>
Brimacombe C , Bodner K, Michalska-Smith M, Poisot T, Fortin M-J
Species Interaction Journal Club (UofT), Toronto, Ontario | 2023 |
| 7. <i>Empirical networks are messy: Inferential networks and their use across space and time</i>
Brimacombe C
Ecological Society of America, Montréal, Québec | Invited—2022 |

6. *Are modularity, specialization, or nestedness linked to seasonal climatic variability in bipartite networks across large spatial extents?* 2022
Brimacombe C, Bodner K, Michalska-Smith MJ, Gravel D, Fortin M-J
 Ecological Society of America, Montréal, Québec
5. *Do bipartite networks exhibit structural patterns across large spatial extents?* 2021
Brimacombe C, Bodner K, Michalska-Smith MJ, Gravel D, Fortin M-J
 Canadian Society for Ecology and Evolution Annual Meeting, Online
4. *The importance of ecological networks* 2021
Brimacombe C
 Atwood Graduate Research Conference, Toronto, Ontario
3. *Seasonal interactions and rewiring in freshwater stream fish networks* 2020
Brimacombe C, Bodner K, Fortin M-J
 Ecological Society of America, Online
2. *Blood flow in tubes of elliptic cross section* 2018
Brimacombe C, Corless RM, Zamir M
 UWO Undergraduate Applied Math Research Conference, London, Ontario
1. *Blood flow in tubes of elliptic cross section* 2017
Brimacombe C, Corless RM, Zamir M
 UWO Undergraduate Applied Math Research Conference, London, Ontario

Honours and Awards

Ontario Graduate Scholarship (\$15,000)	2024
Peter Abrams Prize (\$500)	2023
Ontario Graduate Scholarship (\$15,000)	2023
School of Graduate Studies Conference Grant (\$460)	2022
Queen Elizabeth II Graduate Scholarship (\$15,000)	2022
Ontario Graduate Scholarship (\$15,000)	2021
NSERC Canada Graduate Scholarship-Master's (\$22,333)	2020
Best poster at Undergraduate Applied Math Research conference	2018
UWO Science undergraduate pre-thesis award (\$4,500)	2016

Invited Working Group

Predicting Networks Over Space (Université de Montréal)	2022
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Workshops

Complex Networks Winter Workshop (University of Vermont @ Québec City)	2019
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Teaching (TA)

EEB365H1 S: Topics in Applied Conservation Biology (UofT)	2019–2023
EEB430H: Modeling in Ecology and Evolutionary Biology (UofT)	Fall 2019
BIO2244: Analysis and Interpretation of Biological Data (UWO)	2014–2015

Volunteer Service

Steering committee member for the Canadian Ecological Forecasting Initiative	2025-
Organizer for the short course on forecasting and decision-making (UofT)	Summer 2023
Health and safety representative (UofT)	2020–2021
Representative of the undergraduate society of applied math (UWO)	2016–2018

Reviewer

Methods in Ecology and Evolution	Ecology Letters
Global Ecology and Biogeography	Communications Biology
Food Webs	Oecologia
Arthropod-Plant Interactions	Basic and Applied Ecology

Skills

Programming: Maple, R, Matlab, and Python
Document presentation: Microsoft Office, \LaTeX , and the Adobe suite