

CURRICULUM VITAE

Nicole Mideo

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ACADEMIC POSITIONS

2019 – present **Associate Professor**, Department of Ecology and Evolutionary Biology
University of Toronto, Canada

2013 – 2019 **Assistant Professor**, Department of Ecology and Evolutionary Biology
University of Toronto, Canada

EDUCATION AND TRAINING

2012 – 2013 **Research Fellow**, Center for Infectious Disease Dynamics, Pennsylvania State University

2009 – 2011 **Research Fellow**, Centre for Immunity, Infection and Evolution, University of Edinburgh

2004 – 2009 **PhD in Biology**, Queen's University [Advisor: Professor Troy Day]

2000 – 2004 **Honours BSc in Zoology**, University of Toronto, Canada

RESEARCH FUNDING

Current Grants as Principal Investigator

2018 – 2023 Natural Sciences and Engineering Research Council of Canada (NSERC), Discovery
Grant: *Causes and consequences of variation in parasite traits* (\$275,000)

2018 – 2021 NSERC, Discovery Accelerator Supplement (\$120,000)

Current Grants as Co-Investigator

2019 – 2022 Royal Society, International Exchange: *Understanding within-host interactions and
predicting population-level outcomes of helminth-microparasite interactions* (Co-I: A.
Pedersen, University of Edinburgh; £12,000)

Past Grants

2015 – 2020 National Institutes of Health, R01 Project Grant: *Variation in resistance and fitness to
Artemisinins in African malaria* (PI: J. Juliano, University of North Carolina;
US\$3,300,000)

2014 – 2019 National Science Foundation Research Coordination Network: *Infectious Disease
Evolution Across Scales* (Co-applicant. PI: A.L. Graham, Princeton University;
US\$500,000)

2016 – 2017 Connaught New Researcher Award: *The importance of ecology for understanding and
detecting the evolution of drug resistance* (PI: Mideo; \$19,000)

2013 – 2018 NSERC, Discovery Grant: *Explaining the complex lives of parasites: within-host
dynamics, parasite plasticity, and life history evolution* (\$155,000)

2014 – 2017 Canadian Foundation for Innovation, Leaders Opportunity Fund Award: *Laboratory for
evolution and ecology of disease* (\$150,000)

2013 – 2017 Human Frontier Science Program (HFSP), Program Grant: *Evolutionary ecology of
chronobiology in host-parasite interactions* (PI: Sarah Reece, University of Edinburgh;
US\$1,200,000)

2011 NESCent: Catalysis Meeting: *Evolution of Infectious diseases: integrating empirical &
modeling approaches* (PIs: N. Mideo, S.E. Reece, A.F. Read, N.J. Savill)

FELLOWSHIPS AND AWARDS

- Fulbright Canada Scholar, 2019 (US\$12,500)
- NIMBioS Short Term Visit Award, University of Tennessee, 2014
- NSERC Post-Doctoral Fellowship (\$80,000)
- Research Fellowship at the Wellcome Trust Centre for Immunity, Infection and Evolution, University of Edinburgh (£80,000)
- NSERC Post-Graduate Scholarship and other graduate scholarships (~\$65,000 total)
- NSERC Undergraduate Research Award and other undergraduate scholarships (>\$30,000 total)

PUBLICATIONS

According to Google Scholar: Total times cited > 2700. H-index = 23. i10-index =37.

(Underlined names are trainees from my lab, including long-term visitors.)

56. Pandey A., **Mideo N.**, & Platt T. Virulence evolution of pathogens that can grow in reservoir environments, *The American Naturalist*, *accepted*.
55. Whitlock A.O.B., Juliano J.J., & **Mideo N.** (2021) Immune selection suppresses the emergence of drug resistance in malaria parasites but facilitates its spread. *PLoS Computational Biology*, 17: e1008577. doi:10.1371/journal.pcbi.1008577
54. Wait L.F., Kamiya T., Fairlie-Clarke K., Metcalf C.J.E., Graham A., & **Mideo N.** (2021) Differential drivers of intraspecific competition during malaria-helminth co-infection. *Parasitology*, 148: 1030-1039. doi:10.1017/S003118202100072X
53. Peters M., Greischar M.A., & **Mideo N.** (2021) Challenges of forming inferences from limited data: A case study of malaria parasite maturation. *Journal of the Royal Society Interface*, 18: 20210065.
52. Kirk D., Greischar M.A., **Mideo N.**, & Krkosek M. (2021) Environmental variability affects optimal trade-offs in ecological immunology. *Ecosphere* 12: e03654.
51. Krkosek M., Jarvis-Cross M., Wadhawan K., Berry I., Soucy J-P. R., Bodner K., Greiner A., Krichel L., Penk S., Shea D., Vargas Soto J.S., Tekwa E.W., **Mideo N.**, & Molnár P.K. (2021) Establishment, contagiousness, and initial spread of SARS-CoV-2 in Canada. *FACETS* 6: 180-194.
50. Kamiya T., Greischar M.A., Schneider D.S., & **Mideo N.** (2020) Uncovering drivers of dose dependence and individual variation in malaria infection outcomes. *PLoS Computational Biology*, 16: e1008211.
49. Hoi A.G., Gilbert B., & **Mideo N.** (2020) Deconstructing the impact of malaria vector diversity on disease risk. *The American Naturalist*, 196: E61-E70.
48. Price T.A.R., Windbichler N., Unckless R.L., Sutter A., Runge J.-N, Ross P.A., Pomiankowski A., Nuckolls N.L., Montchamp-Moreau C., **Mideo N.**, Martin O.Y., Manser A., Legros M., Larracuent A.M., Holman L., Godwin J., Gemmell N., Courret C., Buchman A., Barrett L.G., & Lindholm A.K. (2020) Resistance to natural and synthetic gene drive systems. *Journal of Evolutionary Biology*, 33: 1345-1360.
47. Greischar M., Alexander H., Bashey F., Bento A., Bhattacharya A., Bushman M., Childs L., Daversa D., Day T., Faust C., Gallagher M., Gandon S., Glidden C., Halliday F., Hanley K., Kamiya T., Read A., Schwabl P., Sweeny A., Tate A., Thompson R., Wale N., Wearing H., Yeh P., & **Mideo N.** (2020) Evolutionary consequences of feedbacks between within-host competition and disease control. *Evolution, Medicine, and Public Health* 2020: 30-34.
46. Guy C., Ratcliffe J., & **Mideo N.** (2020) The influence of bat ecology on viral diversity and reservoir status. *Ecology and Evolution*, 10: 5748-5758.

45. Kamiya T., Greischar M.A., Wadhawan K., Gilbert B., Paaijmans K., & Mideo N. (2020) Temperature-dependent variation in the extrinsic incubation period elevates the risk of vector-borne disease emergence. *Epidemics*, 30: 100382.
44. Greischar M.A., Beck-Johnson L.M. & Mideo N. (2019) Partitioning the influence of ecology across scales on parasite evolution. *Evolution*, 73: 2175-2188.
43. Greischar M.A., Reece S.E., Savill N.J., & Mideo N. (2019) The challenge of quantifying synchrony in malaria infections. *Trends in Parasitology*, 35: 341-355.
42. Guy C., Thiagavel J., Mideo N. & Ratcliffe J. (2019) Phylogeny matters: revisiting ‘a comparison of bats and rodents as reservoirs of zoonotic viruses’. *Royal Society Open Science* 6: 181182.
41. Schneider P., Greischar M.A., Birget P.L.G., Repton C., Mideo* N. & Reece* S.E. (2018) Adaptive plasticity in the gametocyte conversion rate of malaria parasites. *PLoS Pathogens* 14:e1007371.
*equal contribution
40. Hall M.D. & Mideo N. (2018) Inking sex differences to the evolution of infectious disease life-histories. *Philosophical Transactions of the Royal Society B* 373: 20170431.
39. Kamiya T., Mideo N. & Alizon S. (2018) Coevolution of virulence and immunosuppression in multiple infections. *Journal of Evolutionary Biology* 31: 995-1005.
38. Greenspoon P.B., Banton S. & Mideo N. (2018) Immune system handling time may alter the outcome of competition between pathogens and the immune system. *Journal of Theoretical Biology* 447: 25-31.
37. Birget P.L.G., Greischar M.A., Reece S.E. & Mideo N. (2018) Altered life-history strategies protect malaria parasites against drugs. *Evolutionary Applications* 11: 442-455.
36. Kamiya T., Greischar M.A. & Mideo N. (2017) Epidemiological consequences of immune sensitization by pre-exposure to vector saliva. *PLoS Neglected Tropical Diseases* 11: e0005956.
35. Greenspoon P.B. & Mideo N. (2017) Evolutionary rescue of a parasite population by mutation rate evolution. *Theoretical Population Biology* 117: 64-75.
34. Greenspoon P.B. & Mideo N. (2017). Parasite transmission among relatives halts Red Queen dynamics. *Evolution* 71: 747-755.
33. Smith D.R.M. & Mideo N. (2017) Modeling the evolution of HIV-1 virulence in response to imperfect therapy and prophylaxis. *Evolutionary Applications* 10: 297-309.
32. Reece S.E., Prior K.F. & Mideo N. (2017) The life and times of parasites: rhythms in strategies for within-host survival and between-host transmission. *Journal of Biological Rhythms* 32: 516-533.
31. Wilson A.J., Morgan E., Booth M., Norman R., Perkins S.E., Hauffe H.C., Mideo N., Antonovics J., McCallum H & Fenton A. (2017) What is a vector? *Philosophical Transactions of the Royal Society B* 372: 20160085.
30. Ramiro R., Pollitt L.C., Mideo N., & Reece S.E. (2016) Facilitation through altered resource availability in malaria parasites. *Ecology Letters* 19: 1041-1050.
29. Greischar M.A., Mideo N., Read A.F., & Bjørnstad O. (2016) Predicting optimal transmission investment in malaria parasites. *Evolution* 70: 1542-1558.
28. Mideo N., Bailey J.A., Hathaway N.J., Saunders D., Lon C., Kharabora O., Jamnik A., Björkman A., Ngasala B., Mårtensson A., Meschnick S.R., Read A.F., & Juliano J.J. (2016) A deep sequencing tool for partitioning clearance rates following antimalarial treatment in polyclonal infections. *Evolution, Medicine, and Public Health* 2016: 21-36.

27. Greischar M.A., **Mideo N.**, Read A.F., & Bjørnstad O. (2016) Quantifying transmission investment in malaria parasites. *PLoS Computational Biology* 12: e1004718.
26. Greischar M.A., Reece S.E., & **Mideo N.** (2016) The role of models in translating within-host dynamics to parasite evolution. *Parasitology* 143: 905-914.
25. Reece S.E. & **Mideo N.** (2014) Malaria parasites prepare for flight. *Trends in Parasitology* 30: 551-553.
24. Kouyos R.D., Metcalf C.J.E., Birger R., Klein E.Y., zur Wiesch P.A., Ankomah P., Arinaminpathy N., Bogich T.L., Bonhoeffer S., Brower C., Chi-Johnston G., Cohen T., Day T., Greenhouse B., Huijben S., Metlay J., **Mideo N.**, Pollitt L.C., Read A.F., Smith D.L., Standley C., Wale N. & Grenfell B. (2014) The path of least resistance: aggressive or moderate treatment? *Proceedings of the Royal Society B* 281: 20140566.
23. Pollitt L.C., Mackinnon M.J., **Mideo N.**, & Read A.F. (2013) Mosquito transmission, growth phenotypes and the virulence of malaria parasites. *Malaria Journal* 12: 440.
22. O'Donnell A.J., **Mideo N.**, & Reece S.E. (2013) Disrupting rhythms in *Plasmodium chabaudi*: costs accrue quickly and independently of how infections are initiated. *Malaria Journal* 12: 372.
21. Huijben S., Bell A.S., Sim D.G., Tomasello D., **Mideo N.**, Day T., & Read A.F. (2013) Aggressive chemotherapy and the selection of drug resistant pathogens. *PLoS Pathogens* 9: e1003578.
20. **Mideo N.**, Kennedy D.A., Carlton J.M., Bailey J.A., Juliano J.J., & Read A.F. (2013) Ahead of the curve: Next-generation estimators of drug resistance in malaria infections. *Trends in Parasitology* 29: 321-328.
19. Carter L.M., Kafsack B.F.C., Llinás M., **Mideo N.**, Pollitt L.C., & Reece S.E. (2013) Stress and sex in malaria parasites: why does commitment vary? *Evolution, Medicine, and Public Health* 2013: 135-147.
18. Read A.F. & **Mideo N.** (2013) The vector as protector. *Nature* 498: 177-178.
17. **Mideo N.**, Reece S.E., Smith A.L., & Metcalf C.J.E. (2013) The Cinderella Syndrome: Why do malaria-infected cells burst at midnight? *Trends in Parasitology* 29: 10-16.
Top 10 Editorial Board Favorite Articles of 2013.
16. **Mideo N.**, Acosta-Serrano A., Aebischer T., Brown M.J.F., Fenton A., Friman V.-P., Restif O., Reece S.E., Webster J.P. & Brown S.P. (2013) Life in cells, hosts, and vectors: parasite evolution across scales. *Infection, Genetics, & Evolution* 13: 344-347.
15. Brown S.P., Cornforth D., & **Mideo N.** (2012) Evolution of virulence in opportunistic pathogens: generalism, plasticity, and control. *Trends in Microbiology* 20: 336-342.
14. Metcalf C.J.E., Long G.H., **Mideo N.**, Forester J.S., Bjørnstad O.N., Graham A.L. (2012) Revealing mechanisms underlying variation in malaria virulence: effective propagation and host control of uninfected red blood cell supply. *Journal of the Royal Society Interface* 9: 2804-2813.
13. Pollitt L.C., Reece S.E., **Mideo N.**, Nussey D.H., & Colegrave N. (2012) The problem of autocorrelation in parasitology. *PLoS Pathogens* 8: e1002590.
12. **Mideo N.**, & Reece S.E. (2012) Plasticity in parasite phenotypes: evolutionary and ecological implications for disease. *Future Microbiology* 7: 17-24.
11. **Mideo N.**, Savill N.J., Chadwick W., Schneider P., Read A.F., Day T., & Reece S.E. (2011) Causes of variation in malaria infection dynamics: insights from theory and data. *American Naturalist* 178: 174-188.
10. **Mideo N.**, Nelson W.A., Reece S.E., Bell A.S., Read A.F., & Day T. (2011) Bridging scales in the evolution of infectious disease life histories: Application. *Evolution* 65: 3298-3310.

9. Day T., Alizon S., & Mideo N. (2011) Bridging scales in the evolution of infectious disease life histories: Theory. *Evolution* 65: 3448-3461.
8. Pollitt L.C., Mideo N., Drew D.R., Schneider P., Colegrave N., & Reece S.E. (2011) Competition and the evolution of reproductive restraint in malaria parasites. *American Naturalist* 177: 358-367.
7. Mideo N. (2009) Parasite adaptations to within-host competition. *Trends in Parasitology* 25: 261-268.
6. Alizon S., Hurford A., Mideo N., & van Baalen M. (2009) Virulence evolution and the trade-off hypothesis: history, current state of affairs and future. *Journal of Evolutionary Biology* 22: 245-259.
5. Mideo N., Read A.F., & Day T. (2008) Modelling malaria pathogenesis. *Cellular Microbiology* 10: 1947-1955.
4. Mideo N., Barclay V.C., Chan B.H.K., Savill N.J., Read A.F., & Day T. (2008) Understanding and predicting strain-specific patterns of pathogenesis in the rodent malaria, *Plasmodium chabaudi*. *American Naturalist* 172: E214-238.
3. Mideo N., Alizon S., & Day T. (2008) Linking within- and between-host dynamics in the evolutionary epidemiology of infectious diseases. *Trends in Ecology and Evolution* 23: 511-517.
2. Mideo N., & Day T. (2008) On the evolution of reproductive restraint in malaria. *Proceedings of the Royal Society B* 275: 1217-1224.
Nature Research Highlight (Evolutionary biology).
1. Day T., Mideo N., & Alizon S. (2008) Why is HIV not insect-borne? *Evolutionary Applications* 1: 17-27.

TEACHING

Current Undergraduate Teaching

- EEB325 – Evolutionary Medicine (yearly since 2014; enrollment ~150)
- BIO220 – From Genomes to Ecosystems in a Changing World (yearly since 2015; enrollment ~1200)
- EEB495 – Seminar in Evolutionary Biology (2017, 2020; enrollment ~15)

Current Graduate Teaching

- EEB1456 – Special Topics in EEB: Bias and Diversity in STEM, May-June 2021

Previous Contributions to Undergraduate Teaching

- Evolution and Ecology of Hosts and Parasites, U. Edinburgh, 2009-2010
- Population and Community Ecology, U. Edinburgh, 2011

Previous Contributions to Graduate Teaching

- EEB1451 – Special Topics in EEB: Parasites in Communities, U. Toronto Fall 2016 & Winter 2017

RESEARCH SUPERVISION / MENTORING

Current graduate and postdoctoral mentoring

Postdocs

Max Farrell (awarded a competitive EEB Postdoctoral Fellowship; started Sept 2019)

PhD students

Gigi Hoi (since Jan 2016)

Madeline Peters (since Sept 2017)

Youngseo Jeong (since Sept 2020)

Previous graduate and postdoctoral mentoring

Postdocs

Alexander Whitlock (2018-2021; now postdoc at the University of Idaho)

Megan Greischar (EEB Postdoctoral Fellow, 2014-2020; now Assistant Professor at Cornell University)
Philip Greenspoon (EEB Postdoctoral Fellow, 2015-2017; now postdoc at the University of Otago, NZ)
Tom Platt (EEB Postdoctoral Fellow, 2014-2015; now Assistant Professor at Kansas State University)

MSc students

Antonio Lorenzo (completed 2019)
Benjamin Mayers (completed 2017; now attending Medical School)
David Smith (completed 2016; now pursuing PhD in France)

PhD students

Tsukushi Kamiya (completed 2020; soon to take up a postdoctoral fellowship in Montpellier, France)
Cylita Guy (completed 2019; now working in industry, following a data-science fellowship)

Undergraduate mentoring

Since 2013, I have supervised sixteen undergraduate students, three of which are co-authors on published papers (#28, 38, and 45 on above list). Of those who have already graduated, at least five continued on to relevant graduate programs, including MSc in Biology (2), PhD in Biology (2), Master of Public Health (1). Two have gone on to medical school and one to law school.

INVITED SEMINARS AND CONFERENCE PRESENTATIONS

Seminars

- 2021 University of Nebraska, School of Biological Sciences (to be held October 2021)
University of Saskatchewan, Department of Veterinary Microbiology (virtual)
- 2020 *Trinity College, Dublin, Department of Zoology; Ecology, Evolution, and the Environment Seminar Series – Cancelled due to COVID19*
University of Edinburgh, Institute of Evolutionary Biology – Cancelled due to COVID19
Institute Pasteur, Paris – Cancelled due to COVID19
CNRS Montpellier, Séminaires en écologie et evolution de Montpellier
- 2019 Indiana University, Department of Biology; Ecology & Evolutionary Biology Seminar Series
Stanford University, School of Medicine; Microbiology & Immunology Seminar Series
Princeton University, Department of Ecology & Evolutionary Biology; Colloquium on the Biology of Populations Seminar Series
University of Kansas, Department of Ecology & Evolutionary Biology
- 2018 University of Michigan, Department of Ecology & Evolutionary Biology
Arizona State University, Center for Evolution and Medicine
Arizona State University, School of Mathematical and Statistical Sciences
University of Rochester, Department of Biology
University of Toronto, Computational Biology Discussion Group
University of Ottawa, Department of Biology
- 2017 Virginia Tech, Department of Biological Sciences; Ecology, Evolution, and Behavior seminar series
Harvard School of Public Health, Center for Communicable Disease Dynamics,
- 2016 Wilfrid Laurier University, Department of Biology
Queen's University, Department of Biology; Ecology, Evolution, and Behaviour seminar series
- 2015 Laurentian University, Department of Biology
University of Toronto, Scarborough, Department of Biology

- 2014 Princeton University, Department of Ecology & Evolutionary Biology; Disease Group Seminar Series, USA
 University of Toronto, Mississauga, Department of Biology
 Montpellier, L'Institut de Recherche pour le développement, France
 Imperial College Silwood Park, UK; Ecology & Evolution Seminar Series
 University of Tennessee, NIMBioS; Mathematical Biology Seminar Series
- 2011 University of Liverpool, Institute of Integrative Biology
 Montpellier, France, L'Institut de Recherche pour le développement
- 2010 University of Oxford, Department of Zoology
 Imperial College London, Department of Infectious Disease Epidemiology
- 2008 Emory University, Center for Disease Ecology
- 2006 University of Edinburgh, Malaria Biology Research Seminars

Conferences and Symposia

- 2019 Fields Institute funded symposium on *Modeling Structured Populations*, Queen's University
 Fields Institute funded symposium on *Evolutionary Genetics of Infectious Diseases*, Carleton University
- 2018 Instituto Gulbenkian de Ciência Symposium 2018: *Microbial Eco-Evolutionary Dynamics*, Oeiras, Portugal, <https://microbial.eco-evo.science>
 Ecological Society of America, Session on *Novel Modeling Approaches in Disease Ecology*, New Orleans
- 2016 Centre for Genomic Regulation Symposium on *Evolution and Medicine*, Barcelona, Spain
<http://www.crg.eu/en/content/events/15th-crg-symposium-evolution-and-medicine-6-7-october-2016-barcelona-spain>
 International Symposium of the International Society of Microbial Ecology, Session on *Pathogen ecology & evolution*, Montreal, QC
- 2015 British Ecological Society, Special Symposium on *Integrating ecology and evolution to understand infectious diseases*, Edinburgh, UK
 Ecological Society of America, Session on *Parasites in Trophic Networks: Complex Life Cycles, Coinfection Dynamics, and Community Structure*, Baltimore, MD
 Ecology & Evolution of Infectious Diseases, Keynote Speaker, University of Georgia
 Woods Hole Immunoparasitology Conference. Woods Hole, MA
- 2014 12th International Conference on Molecular Epidemiology and Evolutionary Genetics of Infectious Disease. Bangkok, Thailand
 Canadian Mathematical Society Meeting, Session on *Dynamics of Biological Systems*. Hamilton, ON
 63rd Annual Meeting of the American Society of Tropical Medicine and Hygiene. New Orleans, LA
 Jacques Monod Conference, *Infectious diseases as drivers of evolution: the challenges ahead*. Roscoff, France
 Ontario Ecology, Ethology and Evolution Colloquium, Plenary Speaker, University of Guelph, May
 York University AGSBS Graduate Symposium, *Human Intervention in Biology: the good, the bad, and the ugly*
- 2013 Vienna Biocenter PhD Symposium, *Biology of Time*

- 2012 European Sciences Open Forum panel discussion on *Can we use genomic tools to select healthier livestock?* Dublin, Ireland
- 2011 British Ecological Society Annual Meeting, Special session on ‘*Systems Ecology*’ *Approaches to Infectious Diseases*
British Society for Parasitology Spring Meeting

INVITED INTERNATIONAL MEETINGS AND WORKING GROUPS

- 2020 Women in Malaria Virtual Conference, Keynote in session on *Epidemiology and modeling of malaria infections* <https://womeninmalaria.com>
- 2019 Western University Research in Teams, week-long research workshop on *Disease Evolution*
- 2018 Mathematical Biosciences Institute (MBI) workshop on *Host-Pathogen Dynamics*, Ohio State University
European Society of Evolutionary Biology workshop on *Resistance to Gene Drive*, Arolla Switzerland
- 2016 Research and Policy in Infectious Disease Dynamics (RAPIDD) workshop on *Synchrony and rhythms in host-parasite interactions*, Princeton University
- 2015 NESCent Catalysis Meeting on *Ecological Immunology Applied to Vector Biology and Vector-Borne Diseases*, Durham NC
RCN: Infectious Disease Evolution Across Scales workshop on *Immune Selection*, Wood’s Hole, MA
- 2012 RAPIDD workshop on *Coinfection and the evolution of drug resistance*, Princeton University
MBI workshop on *Evolution and Spread of Disease*, Ohio State University

PROFESSIONAL SERVICE

Editorial board membership

American Naturalist, 2018 to present

Declined invitations: Associate Editor, Evolutionary Applications, Proceedings of the Royal Society B; reviewing Editor, Journal of Evolutionary Biology; Academic Editor, PLoS ONE.

Grant panel membership

French National Research Agency (ANR), 2020-2021

Grant reviews

Ad hoc reviewer for: Natural Sciences and Engineering Research Council of Canada, Swiss National Science Foundation, French National Research Agency, Wellcome Trust, Research Foundation Flanders (FWO; Belgium) Tropical Diseases Modeling Network Travelling Fellowship Scheme

Manuscript reviews

Ad hoc reviewer for: American Naturalist, Biology Letters, Canadian Journal of Zoology, Ecology Letters, Epidemics, Evolution, Evolutionary Applications, Evolution Letters, Evolution Medicine and Public Health, Infection Genetics and Evolution, International Journal for Parasitology, ISME, Journal of Animal Ecology, Journal of Evolutionary Biology, Journal of Infectious Diseases, Journal of Theoretical Biology, Journal of Parasitology, Journal of the Royal Society Interface, Malaria Journal, Molecular Biology & Evolution, Molecular Ecology, Nature Communications, Nature Ecology & Evolution, Oikos, PCI Evolutionary Biology, PLoS Biology, PLoS Computational Biology, PLoS Neglected Tropical Diseases, PLoS Pathogens, PLoS ONE, Philosophical Transactions of the Royal Society B, Proceedings of the National Academy of Sciences, Proceedings of the Royal Society B, Theoretical Population Biology, Trends in Ecology & Evolution, Trends in Parasitology, Vaccine.

Other reviews

- Rating Reviewer for South Africa's National Research Foundation; research output appraisal (2020)
- External examiner for PhD thesis, Morgan Kain (Bolker Lab), McMaster University (2019)
- External pre-examiner for PhD thesis, Hanna Susi (Laine Lab), University of Helsinki (2014)

Symposia and workshops organized

- RCN-IDEAS workshop on *Evolutionary consequences of feedbacks between within-host competition and disease control*. Co-organized with Megan Greischar (Princeton University, June 2019)
- ESEB Symposium on *Parasite evolution in response to treatment*. Co-organized with Sébastien Lion. (Groningen, Netherlands, August 2017)
- *Game theory and evolutionary biology: Exploring novel links*. Co-organized with Katerina Stanková, Hans Metz, Frank Thuijsman. (Lorentz Center, Leiden Netherlands, April 2016)
- *Understanding host defence & parasite offence: the coevolution of circadian rhythms*. Co-organized with Sarah Reece, Frank Jiggins, Jess Metcalf, Gerben van Ooijen. (Kavli Royal Society International Centre, Buckinghamshire UK, August 2013)
- *Life in cells, hosts and vectors: how do parasites optimize fitness across scales?* Co-organized with Sam Brown. Centre for Immunity, Infection, and Evolution (CIIE, Edinburgh UK, November 2011)
- *Translating disease ecology and evolution research to policy*. Co-organized with Petra Schneider. (CIIE, May 2011)

Positions held and service on committees outside of the University of Toronto

- Modeling Advisory Group for Canada's COVID Immunity Task Force (since April 2021)
- Advisory Board Member for NSF funded *Evo-Med-Ed: An integrative approach for teaching and learning human evolution in undergraduate biology* (from September 2020)

Positions held and service on committees within the University of Toronto

- Elected to Governing Council, starting July 2020
- Member of Governing Council Planning & Budget Committee, since 2020
- SGS Chair of PhD Defenses (3 total: 2019, 2018, 2016)
- SGS Ontario Trillium Scholarship Committee (2013-2014)
- Chair Search Committee for Dept. of Ecology and Evolutionary Biology (2018)
- Faculty Advisor for First Year Learning Community, Woodsworth College (2020-2021)
- Faculty Mentor for President's Scholars of Excellence Program (2015-2017)
- Expert Reviewer for UTSC's Clusters of Scholarly Prominence Program (2020)
- EEB Executive Committee (2020-2021)
- EEB Hiring Committee – Computational biology position (2020-2021)
- EEB Hiring Committee – Teaching-stream position (2018-2019)
- EEB Hiring Committee – Disease ecology & evolution (2017-2018)
- EEB Hiring Committee – Disease ecology & evolution (2016-2017)
- EEB Hiring Committee – Disease ecology & evolution / Biodiversity and Conservation (2013-2014)
- EEB Atwood Colloquium Organizer (2013-2017)
- EEB PTR Committee (2014-2016)
- EEB Undergraduate Affairs Committee (2014-2016)
- EEB Undergraduate careers and research workshop selection committee (2013-2015)
- EEB Undergraduate careers and research workshop co-organizer (2013-2015)
- EEB Graduate Academic Appeals Committee (2016-2017)
- EEB Workload Policy Committee (2015-2016)
- EEB Graduate Affairs Committee (2013-2014)
- EEB Vision Committee (2017)

SCIENCE OUTREACH

- TEDxUofT, March 2019 <https://www.tedxuoft.com/events/spectrum>
- Story Collider, January 2018 <https://www.storycollider.org/shows/2018/1/17/toronto-on>
- Café Scientifique on Evolutionary Medicine, Laurentian University and Science North Darwin Week, February 2015 <https://www.youtube.com/watch?v=YmAmJLNu5gc>
- TedEd lesson on virulence evolution, developed in collaboration with an undergraduate student, 2014 <http://ed.ted.com/lessons/how-do-germs-spread-and-why-do-they-make-us-sick-yannay-khaikin-and-nicole-mideo>
- Science Literacy Week, Public Seminar, September 2014 <http://guides.library.utoronto.ca/scienceliteracy>
- Café Scientifique Brunch, Toronto Science Festival, September 2013

DIVERSITY, EQUITY, AND INCLUSION

In 2016, along with a PhD student, a postdoc, and another faculty member, I co-founded a departmental group called [*Broadening Representation and Equity With Science*](#) (BREWS) with the aim of promoting inclusion and equity through community-building tea breaks and data-driven discussions. Our core idea was that we scientists are well-suited to disentangling the forces driving complicated patterns of diversity (or lack thereof). The obstacles to recruiting, retaining, and supporting a diverse talent pool in the sciences often seem overwhelming, so BREWS focuses on quantifying the scope of the problem and identifying evidence-based strategies for making departmental life more equitable. Summaries of many of our data-driven discussions are [available online](#), as is our [2020 report](#) on – and recommendations for confronting – persistent EDI shortcomings in our own department. Our activities have inspired the formation of another [BREWS chapter at the University of Minnesota](#).