

Jean-François (Jeff) Doherty

NSERC Postdoctoral Fellow, Postdoctoral Teaching Fellow
Department of Zoology, The University of British Columbia
4207-6270 University Boulevard, Vancouver, Canada, V6T 1Z4
Tel.: +1 (778) 288-3257

jeff.doherty@ubc.ca
www.jeff-doherty.com

APPOINTMENTS

2024-current	Postdoctoral Teaching Fellow, Ecology and Evolution of Parasites (BIOL 328), Department of Zoology, The University of British Columbia (UBC)
2023-current	NSERC Postdoctoral Fellow, Matthews Lab and Foster Lab, Department of Zoology, UBC
2022-2023	Postdoctoral Research Fellow, Matthews Lab and Foster Lab, Department of Zoology, UBC

EDUCATION

2018-2021	Ph.D., Zoology, University of Otago <i>Elucidating the hidden infection dynamics between hairworms and their aquatic and terrestrial hosts</i> (featured on Radio New Zealand) Supervisor: Robert Poulin
2014-2017	M.Sc., Biology, Université Laval <i>Phénologie et modèles prévisionnels d'éclosion printanière pour trois arthropodes ravageurs en plantation commerciale d'arbres de Noël dans un contexte de changements climatiques</i> Supervisor: Conrad Cloutier
2011-2014	B.Sc. International Profile, Biology, Université Laval and University of Oslo

QUALIFICATIONS

Ecology and evolution of host-parasite interactions; parasite conservation; host behavioral manipulation; disease ecology; large-scale and multiyear field studies; long- and short-term laboratory experiments; controlled observational studies; high-resolution phenotype assays; comparative analyses and meta-analyses; creating novel host-parasite model systems; molecular ecology methods (DNA, RNA, and protein extractions, environmental DNA, PCR, and qPCR); Bayesian and frequentist statistical analyses; invertebrates and vertebrates from aquatic and terrestrial environments.

PUBLICATIONS

[Google Scholar Profile](#)

h-index \geq 10, total number of citations \geq 295, 2023 average JIF = 3.5

Underline: Me as corresponding author.

*Student co-author that I mentored.

Manuscripts in preparation

3. **Doherty, J.-F.**, *Milroy, L., and Milotic, M. Current state of parasitological knowledge and potential correlates driving its evolution. In preparation for *Nature Ecology and Evolution*.
2. **Doherty, J.-F.**, *Rossouw, B., Foster, L.R., and Matthews, B.J. Behaviour, immunity, and development of a "dead-end" host. In preparation for *International Journal for Parasitology*.

1. **Doherty, J.-F.**, Schmidt-Rhaesa, A., Bennett, J., Poulin, R., and Park, E. Hairworms around the world: phylogenetics of the phylum Nematomorpha. In preparation for *Molecular Phylogenetics and Evolution*.

Manuscripts under review

1. Filion, A. and **Doherty, J.-F.** Can't see the forest for the trees: statistical considerations for disease macroecology. Under review in *Trends in Parasitology*. (JIF 5.0, Q1)

Peer-reviewed publications

29. **Doherty, J.-F.**, Ames, T., Brewster, L.I., Chiang, J., Cyr, E., Kelsey, C.R., Lee, J.P., *Liu, B., Lo, I.H.Y., Nirwal, G.K., Mohammed, Y.G., Phelan, O., Seyfourian, P., Shannon, D.M., Tochor, N.K., and Matthews, B.J. 2024. An update and review of arthropod vector sensory systems: potential targets for behavioural manipulation by parasites and other disease agents. *Advances in Parasitology* 124, 57-89. (JIF 3.1, Q2)
28. **Doherty, J.-F.**, Bhattarai, U.R., Ferreira, S., Poulin, R., Gemmell, N.J., and Dowle, E.J. 2023. The proof is in the poo: non-invasive method to detect endoparasitic infection. *Molecular Ecology Resources* 23(5), 990-1001. (JIF 5.5, Q1)
27. Hasik, A.Z., de Angeli Dutra, D., **Doherty, J.-F.**, Duffy, M.A., Poulin, R., and Siepielski, A.M. 2023. Resetting our expectations for parasites and their effects on species interactions: a meta-analysis. *Ecology Letters* 26(1), 184-199. (JIF 7.6, Q1)
26. **Doherty, J.-F.**, Filion, A., and Poulin, R. 2022. Infection patterns and new definitive host records for New Zealand gordiid hairworms (phylum Nematomorpha). *Parasitology International* 90, 102598. (JIF 1.5, Q3)
25. **Doherty, J.-F.** and Matthews, B.J. 2022. Host manipulation, gene editing, and non-traditional model organisms: a new frontier for behavioral research? *Frontiers in Insect Science* 2, 938644. (JIF 2.4, Q1)
24. *Ni, S. and **Doherty, J.-F.** 2022. Species-specific tidal locomotion linked to a parasitic infection in sympatric sea snails. *Marine Biology* 169(7), 88. (JIF 2.1, Q2)
23. Filion, A., **Doherty, J.-F.**, Poulin, R., and Godfrey, S.S. 2022. Building a comprehensive phylogenetic framework in disease ecology. *Trends in Parasitology* 38(6), 424-427. (JIF 7.0, Q1)
22. **Doherty, J.-F.** and Poulin, R. 2022. Come with me if you want to live: sympatric parasites follow different transmission routes through aquatic host communities. *International Journal for Parasitology* 52(5), 293-303. (JIF 3.7, Q1) (featured as [Editors' Choice](#))
21. **Doherty, J.-F.**, Milotic, M., Filion, A., and Eriksson, A. 2022. Host specificity and the reproductive strategies of parasites. *Parasitology* 149(4), 534-541. (JIF 2.1, Q2)
20. **Doherty, J.-F.** and Poulin, R. 2022. The return to land: association between hairworm infection and aquatic insect development. *Parasitology Research* 121(2), 667-673. (JIF 1.8, Q3)
19. **Doherty, J.-F.**, *Chai, X., Cope, L.E., de Angeli Dutra, D., Milotic, M., *Ni, S., Park, E., and Filion, A. 2021. The rise of big data in disease ecology. *Trends in Parasitology* 37(12), 1034-1037. (JIF 7.0, Q1)
18. *Ni, S., **Doherty, J.-F.**, and Poulin, R. 2021. Convergent drivers of body size evolution in distinct parasite taxa with convergent life cycles. *Global Ecology and Biogeography* 30(12), 2382-2392. (JIF 6.3, Q1)
17. **Doherty, J.-F.**, Filion, A., Bennett, J., Bhattarai, U.R., *Chai, X., de Angeli Dutra, D., Donlon, E., Jorge, F., Milotic, M., Park, E., Sabadel, A.J.M., Thomas, L.J., and Poulin, R. 2021. The people vs science: can passively crowdsourced internet data shed light on host-parasite interactions? *Parasitology* 148(11), 1313-1319. (JIF 2.1, Q2)

16. Bhattarai, U.R., **Doherty, J.-F.**, Dowle, E., and Gemmell, N.J. 2021. The adaptiveness of host behavioural manipulation assessed using Tinbergen's four questions. *Trends in Parasitology* 37(7), 597-609. ([JIF 7.0, Q1](#))
15. Poulin, R., Bennett, J., Filion, A., Bhattarai, U.R., *Chai, X., de Angeli Dutra, D., Donlon, E., **Doherty, J.-F.**, Jorge, F., Milotic, M., Park, E., Sabadel, A., and Thomas, L.J. 2021. iParasitology: mining the internet to test parasitological hypotheses. *Trends in Parasitology* 37(4), 267-272. ([JIF 7.0, Q1](#))
14. **Doherty, J.-F.** 2020. When fiction becomes fact: exaggerating host manipulation by parasites. *Proceedings of the Royal Society B: Biological Sciences* 287(1936), 20201081. ([JIF 3.8, Q1](#)) ([featured in Nature Index](#))
13. **Doherty, J.-F.** and Ruehle, B. 2020. An integrated landscape of fear and disgust: the evolution of avoidance behaviors amidst a myriad of natural enemies. *Frontiers in Ecology and Evolution* 8, 564343. ([JIF 2.4, Q2](#))
12. Milotic, M., Lymbery, A., Thompson, A., **Doherty, J.-F.**, and Godfrey, S. 2020. Parasites are endangered by the conservation of their hosts: meta-analyses of the effect of host captivity on the odds of parasite infection. *Biological Conservation* 248, 108702. ([JIF 4.9, Q1](#))
11. Poulin, R., Bennett, J., de Angeli Dutra, D., **Doherty, J.-F.**, Filion, A., Park, E., and Ruehle, B. 2020. Evolutionary signature of ancient parasite pressures, or the ghost of parasitism past. *Frontiers in Ecology and Evolution* 8, 195. ([JIF 2.4, Q2](#))
10. Eriksson, A., **Doherty, J.-F.**, Fischer, E., Gracioli, G., and Poulin, R. 2020. Hosts and environment overshadow spatial distance as drivers of bat fly species composition in the Neotropics. *Journal of Biogeography* 47(3), 736-747. ([JIF 3.4, Q2](#))
9. Herbison, R., Evans, S., **Doherty, J.-F.**, Algie, M., Kleffmann, T., and Poulin, R. 2019. A molecular war: convergent and ontogenetic evidence for adaptive host manipulation in related parasites infecting divergent hosts. *Proceedings of the Royal Society B: Biological Sciences* 286(1915), 20191827. ([JIF 3.8, Q1](#)) ([featured in The New York Times](#))
8. **Doherty, J.-F.**, *Chai, X., and Poulin, R. 2019. Varying levels of melanotic encapsulation of gordiid hairworm cysts (Nematomorpha) by aquatic insect larvae: seasonal and host effects. *Journal of Invertebrate Pathology* 168, 107258. ([JIF 3.6, Q1](#))
7. Herbison, R.E.H., Evans, S., **Doherty, J.-F.**, and Poulin, R. 2019. Let's go swimming: mermithid-infected earwigs exhibit positive hydrotaxis. *Parasitology* 146(13), 1631-1635. ([JIF 2.1, Q2](#))
6. Selbach, C., Jorge, F., Dowle, E., Bennett, J., *Chai, X., **Doherty, J.-F.**, Eriksson, A., Filion, A., Hay, E., Herbison, R., Lindner, J., Park, E., Presswell, B., Ruehle, B., Sobrinho, P.M., Wainwright, E., and Poulin, R. 2019. Parasitological research in the molecular age. *Parasitology* 146(11), 1361-1370. ([JIF 2.1, Q2](#))
5. Guay, J.-F., *Bernier-Desmarais, A., **Doherty, J.-F.**, and Cloutier, C. 2018. Bionomics of the pine needle scale (Hemiptera: Diaspididae), an emerging pest in Christmas tree (Pinaceae) plantations in southern Québec, Canada. *The Canadian Entomologist* 150(5), 632-636. ([JIF 1.1, Q3](#))
4. **Doherty, J.-F.**, Guay, J.-F., and Cloutier, C. 2018. Embryonic stage of obligatory diapause and effects of abiotic conditions on egg hatching in the balsam twig aphid, *Mindarus abietinus*. *Entomologia Experimentalis et Applicata* 166(8), 628-637. ([JIF 1.4, Q2](#))
3. **Doherty, J.-F.**, Guay, J.-F., and Cloutier, C. 2018. Novel temperature-dependent development rate models for postdiapause egg eclosion of three important arthropod pests found in commercial Christmas tree plantations of southern Québec, Canada. *Environmental Entomology* 47(3), 715-724. ([JIF 1.8, Q2](#))
2. **Doherty, J.-F.**, Guay, J.-F., and Cloutier, C. 2018. Early springtime water absorption by overwintering eggs of *Mindarus abietinus* (Hemiptera: Aphididae): possible implications for cold hardiness and diapause termination. *The Canadian Entomologist* 150(2), 174-179. ([JIF 1.1, Q3](#))

1. **Doherty, J.-F.**, Guay, J.-F., and Cloutier, C. 2017. Temperature-manipulated dynamics and phenology of *Mindarus abietinus* (Hemiptera: Aphididae) in commercial Christmas tree plantations in Québec, Canada. *The Canadian Entomologist* 149(6), 801-812. (JIF 1.1, Q3)

Research reports

1. Flores-Mejia, S., Guay, J.-F., **Doherty, J.-F.**, and Cloutier, C. 2015. Dépistage et contrôle naturel des ravageurs émergents en framboise et fraise à l'Île d'Orléans. NSERC Engage Grant #469122-14, Canada.

Technical leaflets

2. **Doherty, J.-F.**, Guay, J.-F., and Cloutier, C., 2019. Forecast models for springtime hatching of three Christmas tree pests. Agri-Réseau (online).
1. Guay, J.-F., Bernier-Desmarais, A.*, **Doherty, J.-F.**, and Cloutier, C. 2019. Pine needle scale: an emerging pest in Christmas tree plantations in Québec. Agri-Réseau (online).

FUNDING AND AWARDS

Bold: Principal applicant selected from a competitive pool of applicants.

Research and travel grants (total as principal applicant ~3,250 USD)

2023	Biology Undergraduate Diversity in Research (BUDR) Micro-Experience Program, UBC	750 CAD
2023	Postdoctoral Fellows Travel Award, UBC	975 CAD
2023	BUDR Micro-Experience Program, UBC	750 CAD
2022	BUDR Micro-Experience Program, UBC	750 CAD
2020-2021	Hutton Fund , Royal Society Te Apārangi, New Zealand Principal applicant and investigator: <i>Quantifying the seasonal distribution of hairworm cysts in freshwater macroinvertebrates of New Zealand</i>	1,000 NZD
2019	V.H. Jolly Travel Grant , New Zealand Freshwater Sciences Society	500 NZD
2019	Zoology Postgraduate Conference Grant, University of Otago	500 NZD
2018	Zoology Postgraduate Conference Grant, University of Otago	500 NZD
2018	Student Travel Grant, New Zealand Society for Parasitology	500 NZD
2016-2021	Marsden Fund #16-UOO-152, Royal Society Te Apārangi Co-investigator: <i>Parasitic Puppeteers - How do They Pull the Strings?</i>	830,000 NZD
2013-2016	Programme Innov'Action agroalimentaire #IA113043, Ministère de l'agriculture, des pêcheries et de l'alimentation du Québec Co-investigator: <i>Dépistage et aménagement des plantations d'arbres de Noël visant à optimiser le contrôle naturel des ravageurs</i>	109,320 CAD

Awards, fellowships, and scholarships (total ~184,400 USD)

2023	BUDR Micro-Experience Program Supervisor Honorarium, UBC	400 CAD
2023	BUDR Micro-Experience Program Supervisor Honorarium, UBC	400 CAD
2023-2025	Postdoctoral Fellowship, Natural Sciences and Engineering Research Council of Canada (NSERC)	110,833 CAD
2021	Doctoral Postgraduate Publishing Bursary, University of Otago	6,750 NZD
2019	People's Choice Award, Three Minute Thesis Grand Final, University of Otago	250 NZD
2019	Best Doctoral Presentation, Three Minute Thesis Sciences Heat, University of Otago	300 NZD

2019-2021	Postgraduate Scholarship – Doctoral, NSERC	63,000 CAD
2018-2021	Doctoral Scholarship, University of Otago	83,833 NZD
2013	International Office Scholarship, Université Laval	3,250 CAD

PRESENTATIONS

Bold: Presenter and first author.

Conference talks

14. **Doherty, J.-F.**, Liu, B., Hanelt, B., Dowle, E.J., Gemmell, N.J., Poulin, R., Foster, L.J., and Matthews, B.J. 2024. Apple-bobbing crickets: parasitic hairworms induce erratic behaviours in their terrestrial hosts. Entomological Society of British Columbia Annual Meeting, Vancouver, Canada.
13. **Doherty, J.-F.**, Liu, B., Hanelt, B., Dowle, E.J., Gemmell, N.J., Poulin, R., Foster, L.J., and Matthews, B.J. 2024. Exploring the sensory landscape of hairworm-infected crickets. Australian Society for Parasitology and New Zealand Society for Parasitology (NZSP) Joint Conference and Annual Meeting, Auckland, New Zealand.
12. **Doherty, J.-F.**, Liu, B., Hanelt, B., Dowle, E.J., Gemmell, N.J., Poulin, R., Foster, L.J., and Matthews, B.J. 2024. Exploring the sensory landscape of hairworm-infected crickets. 99th American Society of Parasitologists (ASP) Annual Meeting, Denver, Colorado, United States of America.
11. **Doherty, J.-F.**, Liu, B., Hanelt, B., Dowle, E.J., Gemmell, N.J., Poulin, R., Foster, L.J., and Matthews, B.J. 2023. To “drive” a landlubbing insect into deadly waters: a hairworm story. Oral presentation. 98th ASP Annual Meeting, Kansas City, Missouri, United States of America.
10. **Doherty, J.-F.**, Bhattarai, U.R., Poulin, R., Gemmell, N.J., and Dowle, E.J. 2022. The truth is in the poo: non-invasive method to detect endoparasitic infection. Oral presentation. 2022 ESA, ESC, and ESBC Joint Annual Meeting, Vancouver, Canada.
9. **Doherty, J.-F.**, Dowle, E.J., and Poulin, R. 2020. To “drive” a land-loving insect into deadly waters: a hairworm story. Oral presentation. 69th Entomological Society of New Zealand Conference, Dunedin, New Zealand. **Conference cancelled due to COVID-19.*
8. **Doherty, J.-F.**, Chai, X., and Poulin, R. 2019. Hidden interactions between hairworms and their intermediate freshwater hosts. Oral presentation. Australian Freshwater Sciences Society and New Zealand Freshwater Sciences Society Joint Conference, Geelong, Australia.
7. **Doherty, J.-F.**, Filion, A., Milotic, M., and Eriksson, A. 2019. The impact of host specificity on the reproductive strategies of parasitic copepods infecting fish or coral. Oral presentation. 30th Zoology Postgraduate Symposium, Orokonui Ecosanctuary, New Zealand.
6. **Doherty, J.-F.**, Filion, A., Milotic, M., and Eriksson, A. 2019. Contrasting effects of host specificity and host mobility on the reproductive strategies of parasites. Oral presentation. 47th New Zealand Society for Parasitology Conference and Annual Meeting, Dunedin, New Zealand.
5. **Doherty, J.-F.**, Poulin, R., and Dowle, E.J. 2018. Non-invasive detection of hairworm infections in insects using eDNA. Oral presentation. 21st New Zealand Molecular Ecology Conference, Pohangina, New Zealand.
4. **Doherty, J.-F.** and Poulin, R. 2018. Natural hairworm infections in paratenic and definitive insect hosts. Oral presentation. 29th Zoology Postgraduate Symposium, Orokonui Ecosanctuary, New Zealand.
3. **Doherty, J.-F.** and Poulin, R. 2018. Host-parasite interactions of insects and hairworms. Oral Presentation. 46th New Zealand Society for Parasitology Conference and Annual Meeting, Palmerston North, New Zealand.
2. **Doherty, J.-F.**, Guay, J.-F., and Cloutier, C. 2016. Phénologie du puceron des pousses du sapin soumise à un environnement expérimental semi-protégé dans une plantation

commerciale de sapins baumier. Oral presentation. 143rd Société d'entomologie du Québec Annual Reunion, Nicolet, Canada.

1. **Doherty, J.-F.**, Guay, J.-F., and Cloutier, C. 2014. La phénologie du puceron des pousses du sapin et du tétranyque de l'épinette soumise aux changements climatiques dans les plantations commerciales de sapins de Noël. Poster. 141st Société d'entomologie du Québec Annual Reunion, Wendake, Canada.

Invited talks

3. **Doherty, J.-F.** 2024. Sensory and molecular ecology of hairworm-induced positive hydrotaxis in crickets. Host-Parasite Supergroup Inaugural Meeting, Vancouver, Canada.
2. **Doherty, J.-F.**, Guay, J.-F., and Cloutier, C. 2017. Nouveaux modèles prévisionnels du développement des ravageurs en plantation d'arbres de Noël. Oral presentation. APANQ Christmas Tree Convention 2017, Orford, Canada.
1. **Doherty, J.-F.**, Guay, J.-F., and Cloutier, C. 2015. Changements climatiques et ravageurs en plantation d'arbres de Noël : impacts à prévoir sur le dépistage et les infestations (partie 1). Oral presentation and poster. APANQ Christmas Tree Convention 2015, Orford, Canada.

Invited seminars

3. **Doherty, J.-F.** 2024. Taking a dip with house crickets and hairworms. Friday: Comparative Physiology Invited Speaker Seminar, Department of Zoology, UBC.
2. **Doherty, J.-F.** 2023. Parasites: cryptic actors playing crucial roles. Biodiversity Research Seminar Series, Department of Zoology, UBC.
1. **Doherty, J.-F.** 2022. Parasites and behaviour: an inescapable interaction. Wednesday: Evening Comparative Physiology Seminar, Department of Zoology, UBC.

TEACHING

2024-current Postdoctoral Teaching Fellow, Ecology and Evolution of Parasites, UBC
Course leader: development and teaching

2017 Full-Time Lecturer, Entomology, Université Laval

Teaching assistant or demonstrator*

Behavioural and Evolutionary Ecology (University of Otago); Animal Designs for Living (University of Otago); Animal Biology (University of Otago); Entomology (Université Laval); Biodiversity II (Université Laval) Entomology (Université Laval); Invertebrate Zoology (Université Laval)

*Equivalent to teaching assistant at University of Otago.

MENTORING

Program [number of students]

UBC Directed Studies Students [4]; UBC Undergraduate Student Volunteers [7]; UBC BUDR Micro-Experience Program Mentees [3]; UBC BUDR Mentees [3]; University of Otago Summer Research Students [2]; Université Laval Research Assistants [3]

ACADEMIC SERVICES

Application reviews

2024 Adjudicator, Postdoctoral Fellows Travel Award Adjudication Committee, UBC

Editorial roles

2022-current Review Editor, *Frontiers in Parasitology* (Epidemiology and Ecology)

Journal peer reviews [number of reviews]

Animals [2]; *Arthropod-Plant Interactions* [1]; *Biology Letters* [2]; *Comparative Parasitology* [1]; *Current Biology* [1]; *Diseases* [1]; *Ecology and Evolution* [1]; *Freshwater Biology* [1]; *Journal of Animal Ecology* [1]; *Journal of Helminthology* [1]; *Microorganisms* [1]; *Molecular Ecology* [1]; *Parasitology International* [1]; *Parasitology Research* [1]; *Pathogens* [1]; *PNAS Nexus* [1]; *Proceedings B* [1]; *Royal Society Open Science* [1]; *Tropical Medicine and Infectious Disease* [1]

Scientific society contributions

- 2024 Adjudicator, Poster Presentations, Multidisciplinary Undergraduate Research Conference, UBC, Vancouver, Canada
2023 10-min Paper Judge, MUVE/PBT: Behavior and Ecology Session, 2022 ESA, ESC, and ESBC Joint Annual Meeting, Vancouver, Canada

SCHOLARLY ACTIVITIES

Professional development

- 2023 Applying for faculty positions part 2: site-visit interview, BMB/MSL Postdoc Workshop, UBC
2023 Applying for faculty positions part 1: application package and Zoom interview, BMB/MSL Postdoc Workshop, UBC
2022 Basics of crafting your teaching philosophy statement, Biology TA Development & Advancement, UBC
2019 Research Bazaar, Otago Carpentries, University of Otago

Related experience

- 2016 Research Assistant, Université Laval
Project on invasive thrips (Thysanoptera: Thripidae) of strawberry plants
2009-2018 Technical Adviser in Pest Management, Maheu&Maheu Inc., Canada

Scientific outreach

- 2023 Interviewee, "Meet the B.C. scientist trying to solve the mystery of mind-controlling parasitic worms" written by Kaija Jussinoja for *CTV News Vancouver*
2023 Interviewee, "Parasitic worms may control minds of insects with 'borrowed' genes" written by Christie Wilcox for *Science*
2021 Interviewee, "The winding paths of science" from the series Our Changing World, *Radio New Zealand*
2021 Interviewee, "Rise of the zombie ants" written by Gemma Conroy for *Nature Index*
2016 Volunteer Scientific Judge, Hydro-Québec Science Fair Finals, Sorel-Tracy, Canada
2015 Scientific Kiosk, APANQ Field Day 2015, Courcelles, Canada

Professional memberships

- 2022-current Entomological Society of British Columbia
2023-current American Society of Parasitologists
2018-2021 New Zealand Society for Parasitology
2019-2021 Entomological Society of New Zealand
2019-2021 New Zealand Freshwater Sciences Society
2014-2019 Société d'entomologie du Québec
2017 Entomological Society of America