

# Jean-François (Jeff) Doherty

Postdoctoral Research Fellow

Department of Zoology, University of British Columbia

[jeff.doherty@ubc.ca](mailto:jeff.doherty@ubc.ca)  
[www.jeff-doherty.com](http://www.jeff-doherty.com)

---

## PROFESSIONAL APPOINTMENTS

---

- 2023-2025 **NSERC Postdoctoral Fellow**, Department of Zoology, University of British Columbia (Matthews Lab and Foster Lab)
- 2022-current **Postdoctoral Research Fellow**, Department of Zoology, University of British Columbia (Matthews Lab and Foster Lab)

---

## EDUCATION

---

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

---

## PUBLICATIONS

---

[Google Scholar Profile](#)

h-index  $\geq$  8, total number of citations  $\geq$  180, 2022 average JIF = 5.1

\*Student co-author that I mentored.

### Manuscripts in preparation

5. **Doherty, J.-F.** and Poulin, R. Drivers of parasitic hairworm cyst distribution in South Island, New Zealand. In preparation for *Oecologia* (JIF 3.3, Q2).
4. **Doherty, J.-F.**, Liu, B.\*, Yin, A.\*, Hanelt, B., Foster, L.J., and Matthews, B.J. Bypassing the aquatic host in experimental nematomorph infections. In preparation for *International Journal for Parasitology* (JIF 4.3, Q1).
3. Fillion, A., Stephens, P.R., and **Doherty, J.-F.** Can't see the forest for the trees: statistical considerations for disease macroecology. In preparation for *Methods in Ecology and Evolution* (JIF 8.3, Q1).
2. Ni, S.\* and **Doherty, J.-F.** The island rule: conflicting patterns in insects (Orthoptera). In preparation for *Biology Letters* (JIF 3.9, Q2).
1. **Doherty, J.-F.**, Bennett, J., Poulin, R., and Park, E. Hairworms around the world: phylogenetics of the phylum Nematomorpha. In preparation for *Molecular Phylogenetics and Evolution* (JIF 5.0, Q1).

### Manuscripts under review

1. **Doherty, J.-F.**, UBC Zoology Mosquito Lab, and Matthews, B.J. Sensory mechanisms underpinning vector manipulation by disease agents. Under review in *Trends in Parasitology* (JIF 10.5, Q1).

### Peer-reviewed publications

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* (JIF 8.7, Q1) 23(5), 990-1001.
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* (JIF 11.3, Q1) 26(1), 184-199.
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* (JIF 2.1, Q3) 90, 102598.
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.
24. Ni, S.\* and **Doherty, J.-F.** 2022. Species-specific tidal locomotion linked to a parasitic infection in sympatric sea snails. *Marine Biology* (JIF 2.9, Q2) 169(7), 88.
23. Filion, A., **Doherty, J.-F.**, Poulin, R., and Godfrey, S.S. 2022. Building a comprehensive phylogenetic framework in disease ecology. *Trends in Parasitology* (JIF 10.5, Q1) 38(6), 424-427.
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* (JIF 4.3, Q1) 52(5), 293-303.
21. **Doherty, J.-F.**, Milotic, M., Filion, A., and Eriksson, A. 2022. Host specificity and the reproductive strategies of parasites. *Parasitology* (JIF 3.2, Q2) 149(4), 534-541.
20. **Doherty, J.-F.** and Poulin, R. 2022. The return to land: association between hairworm infection and aquatic insect development. *Parasitology Research* (JIF 2.4, Q3) 121(2), 667-673.
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* (JIF 10.5, Q1) 37(12), 1034-1037.
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* (JIF 6.9, Q1) 30(12), 2382-2392.
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* (JIF 3.2, Q2) 148(11), 1313-1319.
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* (JIF 10.5, Q1) 37(7), 597-609.
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* (JIF 10.5, Q1) 37(4), 267-272.
14. **Doherty, J.-F.** 2020. When fiction becomes fact: exaggerating host manipulation by parasites. *Proceedings of the Royal Society B: Biological Sciences* (JIF 5.5, Q1) 287(1936), 20201081.  
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* (JIF 4.5, Q2) 8, 564343.
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* (JIF 7.5, Q1) 248, 108702.

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* (JIF 4.5, Q2) 8, 195.
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* (JIF 4.8, Q1) 47(3), 736-747.
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* (JIF 5.5, Q1) 286(1915), 20191827.  
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* (JIF 2.8, Q1) 168, 107258.
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* (JIF 3.2, Q2) 146(13), 1631-1635.
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* (JIF 3.2, Q2) 146(11), 1361-1370.
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* (JIF 1.1, Q3) 150(5), 632-636.
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* (JIF 2.4, Q2) 166(8), 628-637.
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* (JIF 2.4, Q2) 47(3), 715-724.
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* (JIF 1.1, Q3) 150(2), 174-179.
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* (JIF 1.1, Q3) 149(6), 801-812.

#### 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).

---

**RESEARCH AND TRAVEL GRANTS**

---

2023	<b>Biology Undergraduate Diversity in Research (BUDR) Micro-Experience Program</b> University of British Columbia	750 CAD
2022	<b>BUDR Micro-Experience Program</b> University of British Columbia	750 CAD
2020-2021	<b>Hutton Fund</b> Royal Society Te Apārangi Principal applicant and investigator: <i>Quantifying the seasonal distribution of hairworm cysts in freshwater macroinvertebrates of New Zealand</i>	1,000 NZD
2019	<b>V.H. Jolly Travel Grant</b> New Zealand Freshwater Sciences Society	500 NZD
2019	<b>Zoology Postgraduate Conference Grant</b> University of Otago	500 NZD
2018	<b>Zoology Postgraduate Conference Grant</b> University of Otago	500 NZD
2018	<b>Student Travel Grant</b> New Zealand Society for Parasitology	500 NZD
2016-2021	<b>Marsden Fund #16-UOO-152</b> Royal Society Te Apārangi Co-investigator: <i>Parasitic Puppeteers - How do They Pull the Strings?</i>	830,000 NZD
2013-2016	<b>Programme Innov'Action agroalimentaire #IA113043</b> 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**

---

2023	<b>Biology Undergraduate Diversity in Research Micro-Experience Program Supervisor Honorarium</b> University of British Columbia	400 CAD
2023-2025	<b>Postdoctoral Fellowship</b> Natural Sciences and Engineering Research Council of Canada Principal applicant and investigator: <i>Integrating experimental infections, genetic and proteomic analyses, and genome editing to uncover the proximate molecular mechanisms of host behavioural manipulation and parasite transmission</i>	90,000 CAD
2021	<b>Doctoral Postgraduate Publishing Bursary</b> University of Otago	6,750 NZD
2019	<b>People's Choice Award, Three Minute Thesis Grand Final</b> University of Otago	250 NZD
2019	<b>Best Doctoral Presentation, Three Minute Thesis Sciences Heat</b> University of Otago	300 NZD
2019-2021	<b>Postgraduate Scholarship - Doctoral</b> Natural Sciences and Engineering Research Council of Canada Principal applicant and investigator: <i>Ethology and interactions of insects harbouring hairworms (Nematomorpha)</i>	52,500 CAD

2018-2021	<b>Doctoral Scholarship</b> University of Otago	83,833 NZD
2013	<b>International Office Scholarship</b> Université Laval	3,250 CAD

---

## PRESENTATIONS

---

### Conference talks

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. 98<sup>th</sup> American Society of Parasitologists 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. 69<sup>th</sup> 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. 30<sup>th</sup> 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. 47<sup>th</sup> 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. 21<sup>st</sup> 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. 29<sup>th</sup> Zoology Postgraduate Symposium, Orokonui Ecosanctuary, New Zealand.
3. **Doherty, J.-F.** and Poulin, R. 2018. Host-parasite interactions of insects and hairworms. Oral Presentation. 46<sup>th</sup> 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. 143<sup>rd</sup> 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. 141<sup>st</sup> Société d'entomologie du Québec Annual Reunion, Wendake, Canada.

### Invited talks

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.

#### Departmental seminars

1. **Doherty, J.-F.** 2022. Parasites and behaviour: an inescapable interaction. Comparative Physiology Seminar, Department of Zoology, University of British Columbia.

---

### TEACHING

---

#### Lecturer

Fall 2017 **Entomology**, Université Laval

#### Teaching assistant or demonstrator\*

Fall 2021 **Behavioural and Evolutionary Ecology**, University of Otago  
Fall 2020 **Behavioural and Evolutionary Ecology**, University of Otago  
Fall 2019 **Behavioural and Evolutionary Ecology**, University of Otago  
Fall 2019 **Animal Designs for Living**, University of Otago  
Spring 2018 **Animal Biology**, University of Otago  
Fall 2016 **Entomology**, Université Laval  
Spring 2016 **Biodiversity II**, Université Laval  
Spring 2015 **Entomology**, Université Laval  
Fall 2014 **Invertebrate Zoology**, Université Laval

\*Equivalent to teaching assistant at University of Otago.

---

### MENTORING

---

2023 **Ben Rossouw**, Directed Studies Student (BIOL 448), University of British Columbia (UBC)  
2023 **Rachel Tan**, Research Assistant, Biology Undergraduate Diversity in Research (BUDR) Micro-Experience Program, UBC  
2023 **Sam N. Thorne**, Student Mentee, BUDR Program, UBC  
2022 **Annie Yin**, Research Assistant, BUDR Micro-Experience Program, UBC  
2022 **Mobeen Faiz**, Student Mentee, BUDR Program, UBC  
2022 **Anne Fuertes**, Student Mentee, BUDR Program, UBC  
2022-2023 **Bingzong Liu**, Directed Studies Student (BIOL 448), UBC  
2020-2021 **Steven Ni**, Summer Research Student, University of Otago  
2018-2019 **Xuhong Chai**, Summer Research Student, University of Otago  
2016-2017 **Amy Bernier-Desmarais**, Research Assistant, Université Laval (ULaval)  
2014-2015 **William Champagne-Cauchon**, Research Assistant, ULaval  
2014-2015 **Simon-Charles Blouin**, Research Assistant, ULaval

---

### ACADEMIC SERVICES

---

#### 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* [1]; *Diseases* [1]; *Journal of Helminthology* [1]; *Microorganisms* [1]; *Molecular Ecology* [1]; *Parasitology Research* [1]; *Pathogens* [1]; *Tropical Medicine and Infectious Disease* [1]

#### Scientific society contributions

2023 **10-min Paper Judge**, MUVE/PBT: Behavior and Ecology Session, 2022 ESA, ESC, and ESBC Joint Annual Meeting, Vancouver, Canada

---

## RESEARCH EXPERIENCE

---

2016 **Research Assistant**, Université Laval  
Exploratory research on invasive thrips (Thysanoptera: Thripidae) of strawberry plants

---

## SCIENTIFIC OUTREACH

---

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

---

## RELATED EXPERIENCE

---

2009-2018 **Technical Adviser in Pest Management**, Maheu&Maheu Inc., Canada

---

## SCIENTIFIC SOCIETIES

---

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

---

## REFERENCES

---

**Robert Poulin**      Doctoral supervisor, Department of Zoology, University of Otago,  
[robert.poulin@otago.ac.nz](mailto:robert.poulin@otago.ac.nz)

**Ben Matthews**      Postdoctoral adviser, Department of Zoology, University of British  
Columbia, [ben.matthews@zoology.ubc.ca](mailto:ben.matthews@zoology.ubc.ca)

**Leonard Foster**      Postdoctoral adviser, Department of Biochemistry & Molecular Biology,  
University of British Columbia, [foster@msl.ubc.ca](mailto:foster@msl.ubc.ca)

**Eddy Dowle**          Research collaborator, Department of Anatomy, University of Otago,  
[eddy.dowle@otago.ac.nz](mailto:eddy.dowle@otago.ac.nz)