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# CURRICULUM VITAE – MAEGWIN PILAR MUÑOZ BONAR

**Citizenship:** Canadian

**Institutional Address:**

Department of Philosophy  
University of Guelph  
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## PROFESSIONAL APPOINTMENTS

2025-present: **Postdoctoral Scholar**  
*Department of Philosophy*  
*University of Guelph*

2024-2025: **Postdoctoral Associate**  
*Department of Anthropology*  
*Yale University*

2023-2025: **Postdoctoral Associate**  
*Department of Ecology and Evolutionary Biology*  
*Yale University*

## EDUCATION

2018-2023: **Ph.D. – Environmental and Life Sciences**  
*Department of Environmental and Life Sciences*  
*Trent University, Peterborough, ON, Canada*

2015-2018: **M.Sc. – Biology**  
*Department of Biology*  
*Memorial University of Newfoundland, St. John's NL, Canada*

2009-2014: **B.Sc. (Honours) – Biology**  
*Department of Biology*  
*University of Winnipeg, Winnipeg, MB, Canada*

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### CAREER HIGHLIGHTS

- > \$310,000 in competitive scholarships, grants, and awards including the **Vanier Canada Graduate Scholarship**
- **15** peer-reviewed articles including first author articles in *Proceedings of the Royal Society B*, and *Ecology Letters*
- >**20** public outreach presentations on a variety of STEM topics to youth K-12 in Newfoundland and Ontario
- Current and past mentees: 3 PhD, 1 MSc, 3 BSc

**PEER REVIEWED PUBLICATIONS**

H-Index = 8; i10-Index = 7, Google Scholar

<sup>1</sup>Contributed equally**Pre-prints**

15. **Bonar M.**, Blumenfeld, A., Fusco, N.A., Campagna, L., Timpson, A., Thomas, M., Cosentino, B.J., Gibbs, J.P., Caccone, A. Urban refuge? Squirrel pigmentation clines maintained by strong natural selection beyond city limits. *Research Square* doi: <https://doi.org/10.21203/rs.3.rs-6967993/v1> (in review at *Proc. Roy. Soc. B.*)
14. **Bonar, M.**, Wootton, E., Anderson Jr., C.A., Wittemyer G., Northrup, J.M., Shafer, A.B.A. The heritability of migration behaviours in a wide-ranging ungulate. *BioRxiv* doi: <https://doi.org/10.1101/2025.01.28.635302> (in review at *J. Anim. Ecol.*)
13. **Bonar, M.**, Northrup, J.M., and Shafer, A.B.A. Proximate drivers of migration propensity: a meta-analysis across species. *Authorea Preprints* doi:10.22541/au.171355881.18519829/v1

**2024**

12. Webber Q.M.R, Laforge M.P., **Bonar M.**, Vander Wal, E. (2022) The adaptive value of density-dependent habitat specialization and social network centrality. *Nature Communications* 15:4423

**2022**

11. **Bonar M.**, Anderson, S.J., Anderson Jr., C.A., Wittemyer G., Northrup, J.M., Shafer, A.B.A. (2022) Genomic correlates for migratory direction in a free-ranging cervid. *Proceedings of the Royal Society B* 289:20221969
10. Northrup J, Vander Wal, E., **Bonar, M.**, Fieberg, J., Laforge, M.P., Leclerc, M., Prokopenko, C.M., Gerber, B.D. (2022) Conceptual and methodological advances in habitat selection modeling: guidelines for ecology and evolution. *Ecological Applications* 32(1):e02470

**2021**

9. Rheault, H, Anderson Jr., C.R., **Bonar, M.**, Marrotte, R.R., Ross, T., Wittemyer, G., Northrup, J.M. (2021) Some memories never fade: Inferring multi-scale memory effects on habitat selection of a migratory ungulate using step-selection functions. *Frontiers in Ecology and Evolution* 9:702818.
8. Huang RKK, Webber Q.M.R., Laforge M.P., **Bonar M.**, Robitaille A.L., Balluffi-Fry J., Zabihi-Seissan S., Vander Wal, E. (2021) Coyote diet and spatial co-occurrence with caribou. *Canadian Journal of Zoology* 99:391-399.
7. Laforge, MP, **Bonar, M.**, Vander Wal, E. (2021) Tracking snowmelt to jump the green wave: Phenological drivers of migration in a northern ungulate. *Ecology* 102:e3268.

**2020**

6. **Bonar M**, Lewis K.P., Webber Q.M.R., Dobbin M., Laforge M.P., Vander Wal, E. (2020) Geometry of the ideal free distribution: individual behavioural variation and annual reproductive success in aggregations of a social ungulate. *Ecology Letters* 23:1360-1369.
5. Webber QMR, Laforge M.P., **Bonar M.** Robitaille A.L., Hart C., Zabihi-Seissan S., Vander Wal, E. (2020) The ecology of individual differences empirically applied to space-use and movement

tactics. *The American Naturalist* 196, E1-E15.

### **2018 and earlier**

4. **Bonar, M**, Ellington, E. H., Lewis, K.P., Vander Wal, E. (2018). Implementing a novel movement-based approach to inferring parturition and neonate calf survival. *PLoS ONE* 13: 1-16.
3. **Bonar, M<sup>1</sup>**, Laforge, M.<sup>1</sup>, Vander Wal, E. (2017). Observation of a  $p < 10^{-9}$  life history event: implications of record-late caribou parturition on ungulate reproductive ecology and field studies. *Canadian Journal of Zoology* 2:133–137
2. **Bonar, M**, Manseau, M., Geisheimer, J., Bannatyne, T. Lingle, S. (2015) The effect of terrain and female density on survival of neonatal white-tailed deer and mule deer fawns. *Ecology and Evolution* 6:4387–4402
1. Kadkhodayan, R., Colette, N., **Bonar, M**, Friel, J., Giles, L.B. (2007). Prenatal Administration of an Antioxidant Cocktail Alters Postnatal Expression of Superoxide Dismutase and Catalase in Rat Lung. *Free Radical Biology and Medicine* 43:S93.

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### **SUBMITTED FOR PEER-REVIEW**

16. Bannatyne, T., Koper, N., **Bonar, M.**, Lingle, S. Population density, prey vulnerability and climate influence the use of safe terrain during winter by mule deer. *Ecology and Evolution, in revision*.

### **MANUSCRIPTS IN PREPARATION**

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### **FUNDING AND AWARDS**

Total value of funding and awards > \$310,000

<b><u>Award</u></b>	<b><u>Value</u></b>	<b><u>Location Held</u></b>	<b><u>Period Awarded</u></b>
(13) Eileen Allemand Bursary	\$1,000	Trent University	April 2023
(12) Best Oral Presentation Trent Graduate Student Symposium	\$250	Trent University	Mar 2019
(11) NSERC Vanier Canada Graduate Scholarship	\$150,000	Trent University	Sep 2018-Jan 2022 (includes 1 year of parental leave)
(10) Trent University Dean's PhD Scholarship	\$16,000	Trent University	2018-2022
(9) NSERC Alexander Graham Bell Canada Graduate Scholarship	\$105,000	N/A	<i>declined</i>
(8) NSERC CGS-M Canada Graduate Scholarship	\$17,000	Memorial University of Newfoundland	Sep 2016-Sep 2017
(7) Memorial University of Newfoundland Dean's MSc Scholarship	\$5,000	Memorial University of Newfoundland	Sep 2016-Sep 2017

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(6) ACEnet Research Fellowship	\$10,000	Memorial University of Newfoundland	Sep 2016-Sep 2017
(5) Canadian Section The Wildlife Society Travel Award	\$1,000	Memorial University of Newfoundland	May 2017
(4) Canadian Society for Ecology and Evolution Student Travel Award	\$500	Memorial University of Newfoundland	May 2017
(3) 1 <sup>st</sup> Place Three Minute Thesis Faculty of Science Competition	\$500	Memorial University of Newfoundland	Nov 2016
(2) University of Winnipeg Undergraduate Travel Award	\$700	University of Winnipeg	June 2013
(1) University of British Columbia Millennium Entrance Scholarship	\$4,000	University of British Columbia	Sep 2009-May 2010

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**CONFERENCE PRESENTATIONS († local, ‡ national, \* presenter,)**
**2024**

P18. **Bonar, M.\***, AJ Blumenfeld, NA Fusco, L Campagna, BJ Cosentino, JP Gibbs, A Caccone (2024) Genomic insights into the local adaptation of eastern gray squirrels (*Sciurus carolinensis*) to urban and rural environments. 3rd Joint Congress on Evolutionary Biology, Montreal, QC. *Oral presentation* ‡

**2023**

P17. **Bonar, M.\***, JM Northrup, ABA Shafer (2023) Quantifying the heritability of migration behaviours in a wide-ranging ungulate. Joint Annual Meeting of the Canadian Society of Ecology and Evolution and the Canadian Botanical Association, Winnipeg, MB. *Poster presentation* ‡

**2022**

P16. **Bonar, M.\***, E Wootton, CR Anderson Jr., G Wittemyer, JM Northrup, ABA Shafer (2022) Quantifying the heritability of migration behaviours in a facultatively migrating ungulate. Joint Ecological Society of America & Canadian Society for Ecology and Evolution Conference, Montreal, QC. *Oral presentation* ‡

**2019**

P15. **Bonar, M.\***, J.M Northrup, ABA Shafer (2019) What controls animal migration behaviour? A meta-analysis. Canadian Society for Ecology and Evolution Conference, Fredericton, NB. *Poster presentation* ‡

**2018 and earlier**

P14. Vander Wal, E\*, QMR Webber, MP Laforge, **M Bonar** C Hart, AL Robitaille, S Zabihi-Seissan (2018) The ecology of individual differences applied to resource selection and movement tactics. Integrated Ecology and Evolution Section Symposium, Canadian Society of Zoologists Conference, St. John's, NL. *Invited Oral presentation* ‡

P13. Webber QMR\*, MP Laforge, **M Bonar** C Hart, AL Robitaille, S Zabihi-Seissan, E Vander Wal (2017) An empirical integration of movement ecology and animal personality reveals an unexpected trade-off in space-use and foraging strategies. Animal Behavior Society Conference, Toronto, ON. *Poster presentation* ‡

P12. **Bonar, M\***, E Vander Wal, KP Lewis, EH Ellington (2017) Evaluating a movement-based method for inferring calving and calf survival. Canadian Society for Ecology and Evolution Conference, Victoria, BC. *Oral presentation* ‡

P11. **Bonar, M\***, E Vander Wal, KP Lewis, (2017) Implications of declining population size on seasonal aggregation in a gregarious ungulate. Canadian Society for Ecology and Evolution Conference, Victoria, BC. *Poster presentation* ‡

P10. Webber QMR\*, MP Laforge, **M Bonar** C Hart, AL Robitaille, S Zabihi-Seissan, E Vander Wal (2017) An empirical integration of movement ecology and animal personality reveals an unexpected trade-off in space-use and foraging strategies. Canadian Society for Ecology and Evolution Conference, Victoria, BC. *Poster presentation* ‡

P9. **Bonar, M\***, E Vander Wal, KP Lewis, EH Ellington (2017) Evaluating a movement-based method for inferring calving and calf survival. Memorial University Biology Graduate Student Symposium. St. John's, NL. *Oral presentation* †

P8. Webber QMR\*, MP Laforge, **M Bonar** C Hart, AL Robitaille, S Zabihi-Seissan, E Vander Wal (2017) An empirical integration of movement ecology and animal personality reveals an unexpected trade-off in space-use and foraging strategies. Memorial University Biology Graduate Student Symposium. St. John's, NL. *Oral presentation* †

P7. **Bonar, M\***, E Vander Wal, KP Lewis, EH Ellington (2016) Retrospective movement rate analysis of female woodland caribou as a stand-alone technique to infer calving and neonate survival. Canadian Society for Ecology and Evolution Conference, St. John's, NL. *Poster presentation* ‡

P6. **Bonar, M\***, E Vander Wal, KP Lewis, EH Ellington (2016) Retrospective movement rate analysis of female woodland caribou as a stand-alone technique to infer calving and neonate survival. Memorial University Biology Graduate Student Symposium. St. John's, NL. *Poster presentation* †

P5. **Bonar, M\***, Manseau M, Geisheimer, J, Bannatyne, T, Lingle, S. (2015) Steep terrain and increased mule deer female density reduce predation on neonatal white-tailed and mule deer fawns. The Wildlife Society Conference, Winnipeg, MB. *Oral presentation* ‡

P4. **Bonar, M\***, Manseau M, Geisheimer, J, Bannatyne, T, Lingle, S. (2014) Habitat and social traits relative to survival of white-tailed deer and mule deer fawns. The Wildlife Society Manitoba Chapter Winter Getaway, Riding Mountain National Park, MB. *Oral presentation* †

P3. **Bonar, M\***, Manseau M, Geisheimer, J, Bannatyne, T, Lingle, S. (2013) Habitat and social traits relative to survival of white-tailed deer and mule deer fawns: a predator evasion perspective. Canadian Society for Ecology and Evolution Conference, Kelowna, BC. *Oral presentation* ‡

P2. **Bonar, M\***, Lingle, S. (2013) Habitat and social traits relative to survival of white-tailed deer and mule deer fawns: a predator evasion perspective. Prairie Universities Biological Symposium. Winnipeg, MB. *Oral Presentation* †

P1. **Bonar, M\***, Giles, L. (2009) Administration of an antioxidant cocktail alters injury in developing rat lung. Sanofi-Aventis Biotalent Challenge, Winnipeg, MB. *Poster presentation* †

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## ACADEMIC MENTEES

### Women in Science at Yale Mentorship Program

2023: Haysun Choi (PhD) –mentorship and guidance for non-thesis related topics in academia

2023: Paulina Tolosa Tort (PhD) –mentorship and guidance for non-thesis related topics in academia

### PhD. Project supervision

2024: Jonathan Pertile – thesis mentor (officially supervised by Dr. Eduardo Fernandez-Duque)

### MSc. Project supervision

2024: James LeVier – internship supervisor (officially supervised by Dr. Adalgisa Caccone)

### BSc. Project supervision

2024: Nyla McGill – senior thesis supervisor (officially supervised by Dr. Adalgisa Caccone)

2023: Ingrid Ellis – senior thesis supervisor (officially supervised by Dr. Adalgisa Caccone)

2017: Maria Dobbin – honours thesis supervisor (officially supervised by Dr. Eric Vander Wal)

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## TEACHING EXPERIENCE

2023 – 2024: Certificate of College Teaching Preparation at Yale

- 45-hour course provides training for college teaching theory and practice
- Development of course syllabi
- Instruction for developing course material for a variety of learning modalities
- Observation of teaching and reflection
- Participation in learning communities on teaching pedagogy

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## GUEST LECTURES

2019: Applied Population Genetic (Undergraduate), *Trent University, Peterborough, ON*

- “Applications to Wildlife II”

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## TEACHING ASSISTANTSHIPS

2022-23: **Outreach Site Coordinator:** Let's Talk Science Trent University

2021: **Teaching Assistant:** Introduction to Genetics

2019: **Teaching Assistant:** Scientific Methodology Forensic Science

2018: **Teaching Assistant:** Applied Population Genetics

2015: **Teaching Assistant:** Introductory Biology, Ecology, and Botany

2013: **Laboratory Demonstrator:** Comparative Chordate Zoology

## PROFESSIONAL EXPERIENCE

2015: **Research Assistant** *International Polar Bear Conservation Centre*, Winnipeg MB

- Supervisor: Dr. Stephen Petersen

2013: **Research Assistant** (mule deer & white-tailed deer research) University of Winnipeg, Winnipeg MB

- Supervisor: Dr. Susan Lingle

2012: **Research Assistant** (ground squirrel research) University of Winnipeg, Winnipeg MB

- Supervisor: Dr. Susan Lingle

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## ACADEMIC JOURNAL REVIEWER

Total reviews: 12

American Naturalist (1); Animal Biotelemetry (1); Behaviour Ecology and Sociobiology (1); Canadian Field Naturalist (1); Conservation Genetics (1); Ecological Applications (2); Landscape Ecology (1); Mammal Research (1); Movement Ecology (1); Scientific Reports (1); The Wildlife Professional (1)

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## COMMITTEES AND SERVICE

2023: **University Ambassador**, Support Our Science

2023: **Co-organizer**, Support Our Science Walkout 2023

2022: **Founder** of Let's Talk Science Trent University Outreach Site

2021-2023: **Migration Mapping Team Member**, Global Initiative on Ungulate Migration

2021: **Abstract Coordinator**, Trent Graduate Student Symposium

2018-2019: **Abstract Selection Committee member**, Trent University Symons Seminar Series

2017-2018: **Co-Founder & Secretary Treasurer**, The Wildlife Society Newfoundland and Labrador Chapter

2016: Academic Program **Committee member**, Canadian Society for Ecology and Evolution Conference

2016-2017: **Seminar Coordinator**, Biology Graduate Student Association

2016: **Organizing member**, Memorial University Biology Graduate Student Symposium

2015: Quiz-Bowl **Committee member**, The Wildlife Society Conference

2015-2016: **Co-Founder & Vice-President**, The Wildlife Society University of Winnipeg Student Chapter

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## PUBLIC SERVICE AND OUTREACH PRESENTATIONS

2022-2023: **Outreach volunteer**, *Let's Talk Science Trent University* (>50 hours delivering STEM outreach presentations to youth K-12), Peterborough, ON and surrounding regions

2018-2019: **Volunteer judge**, *Peterborough Regional Science Fair*, Peterborough ON

2017-2018 **Volunteer**, *Nature NL's "Nature Nook" at The Rooms Museum* (10 outreach presentations), St. John's, NL

2016-2017: **Outreach volunteer**, *Let's Talk Science MUN* (>75 hours, delivering STEM outreach presentations to youth K-12), St. John's, NL

2012-2015: **Volunteer coach** *Kelvin High School Women's Rugby*, Winnipeg, MB

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## PROFESSIONAL SOCIETIES

2023: Society for the Study of Evolution

2022: Ecological Society of America

2015-Present: Canadian Society for Ecology and Evolution

2015-2018: The Wildlife Society (TWS) Canadian, Manitoban, University of Winnipeg, Newfoundland Chapters

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## CERTIFICATIONS

2021: Mental Health First Aid Training

2018: Wilderness First Aid Course and CPR Training

2016: Memorial University of Newfoundland Animal Care Training

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## MEDIA FEATURES

2023: Peterborough Examiner: "Trent University students holding walkout Monday to demand more research funding" – link to story [here](#).

2023: Arthur Newspaper: "Support our science! Graduate student walkout demands increase to federal funding" – link to story [here](#).

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## REFEREE INFORMATION

### **Dr. Adalgisa Caccone** – Postdoctoral Mentor

Senior Research Scientist and Lecturer, Department of Ecology & Evolutionary Biology, Yale

University

Director, YIBS Center for Genetic Analysis of Biodiversity

Lab Website: <https://caccone.yale.edu/>

Email: [adalgisa.caccone@yale.edu](mailto:adalgisa.caccone@yale.edu)

Phone: 203-432-5259

### **Dr. Joseph Northrup** – PhD Co-Supervisor

Research Scientist, Ontario Ministry of Natural Resources and Forestry

Adjunct Professor, Trent University

Lab Website: <https://www.joenorthrup.com/>

Email: [joseph.northrup@ontario.ca](mailto:joseph.northrup@ontario.ca)

Phone: 705-313-3259

### **Dr. Eric Vander Wal** – MSc Supervisor

Professor, Department of Biology, Memorial University of Newfoundland

Lab Website: <https://weel.gitlab.io/>

Email: [eric.vanderwal@mun.ca](mailto:eric.vanderwal@mun.ca)

Phone: 709-864-7946