

Matteo Rizzuto

POSTDOCTORAL ASSOCIATE · SCHOOL OF THE ENVIRONMENT, YALE UNIVERSITY

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Pronouns: he/him/his

Education

DOCTOR OF PHILOSOPHY, BIOLOGY

Memorial University of Newfoundland and Labrador

2016–2021

St. John's, NL, Canada

- Thesis title: From elements to landscapes: the role of terrestrial consumers in ecosystem functioning
- Advisor: Dr. Shawn J. Leroux

MASTER OF RESEARCH (DISTINCTION), ECOLOGY, EVOLUTION, AND CONSERVATION

Imperial College London

2013–2014

London, UK

MASTER OF SCIENCE, EVOLUTION OF ANIMAL AND HUMAN BEHAVIOUR

University of Turin

2009–2012

Turin, Italy

BACHELOR OF SCIENCE (HONOURS), BIOLOGY

University of Turin

2004–2009

Turin, Italy

Research Appointments

POSTDOCTORAL ASSOCIATE

Schmitz Lab, School of the Environment, Yale University

Present

New Haven, USA

- Developing new mathematical models to assess how animals influence carbon budgets and nutrient cycling in terrestrial ecosystems

VISITING ASSISTANT IN RESEARCH

Schmitz Lab, School of the Environment, Yale University

Feb.–Apr. 2019

New Haven, USA

- Developed a meta-ecosystem model capturing the effects of animal-mediated nutrient transport across ecosystem boundaries

RESEARCH ASSISTANT

Pawar Lab, Department of Life Sciences, Imperial College London—Silwood Park

Jan.–Mar. 2016

Ascot, UK

- Collected and managed data for a meta-analysis of published studies of plant thermal responses

RESEARCH ASSISTANT

Tsaobis Baboon Project, Zoological Society of London

Jun.–Oct. 2015

London, UK

- Field-based placement to collect behavioral, dietary, and population data from wild *Chacma* baboons in the Namib Desert

RESEARCH ASSISTANT

Roe & Red Deer in Trentino and Technology Project, Fondazione Edmund Mach

Jun.–Sept. 2013

Trento, Italy

- Field-based placement to collect data on roe deer movement data, plant phenology, and pellet decay rate in the Eastern Alps

GRADUATE INTERN

Piedmont Wolf Project, Maritime Alps Nature Park

Jun.–Dec. 2011

Entracque (CN), Italy

- Designed and led a mixed laboratory and field-based study of wolves-chamois predator-prey interactions in the Western Alps

UNDERGRADUATE INTERN

Ethology Lab, University of Turin

2008–2009

Turin, Italy

- Bio-acoustic study of an individual's contribution to their family group song among *Indri* lemurs

Publications

Peer reviewed. [†] stands for equal contribution.

11. Heckford, T.R., Leroux, S.J., Vander Wal, E., [Rizzuto, M.](#), Balluffi-Fry, J., Richmond, I.C., Wiersma, Y.F. 2022. **Ecoregion and community structure influences on the foliar elemental niche of balsam fir (*Abies balsamea* (L.) Mill.) and white birch (*Betula papyrifera* Marshall).** *Ecology and Evolution* **12**, e9244.

10. Little, C.J.[†], [Rizzuto, M.[†]](#), Luhring, T.M., Monk, J.D., Nowicki, R.J., Paseka, R.E., Stegen, J.C., Symons, C.C., Taub, F.B., Yan, J.D.L. 2022. Movement with Meaning: Integrating Information into Meta-Ecology. *Oikos* **8**, e08892. **Editor's Choice**
9. Balluffi-Fry, J., Leroux, S.J., Wiersma, Y.F., Richmond, I.C., Heckford, T.R., [Rizzuto, M.](#), Kennah, J.L., Vander Wal, E. 2022. Integrating plant stoichiometry and feeding experiments: state-dependent forage choice and its implications on body mass. *Oecologia* **198**(3), 579–591.
8. Richmond, I.C., Balluffi-Fry, J., Vander Wal, E., Leroux, S.J., [Rizzuto, M.](#), Heckford, T.R., Kennah, J.L., Riefesel, G.R., Wiersma, Y.F. 2022. Individual snowshoe hares manage risk differently: integrating stoichiometric distribution models and foraging ecology. *Journal of Mammalogy* **103**(1), 196–208.
7. Heckford, T.R., Leroux, S.J., Vander Wal, E., [Rizzuto, M.](#), Balluffi-Fry, J., Richmond, I.C., Wiersma, Y.F. 2022. Spatially explicit correlates of plant functional traits inform landscape patterns of resource quality. *Landscape Ecology* **37**, 59–80.
6. [Rizzuto, M.](#), Leroux, S.J., Vander Wal, E., Richmond, I.C., Heckford, T.R., Balluffi-Fry, J., Wiersma, Y.F. 2021. Forage stoichiometry predicts the home range size of a small terrestrial herbivore. *Oecologia* **197**(2), 327–338. **Winner, Hanski Prize 2021**
5. Ellis-Soto, D.[†], Ferraro, K.M.[†], [Rizzuto, M.](#), Briggs, E., Monk, J.D., and Schmitz, O.J. 2021. A methodological roadmap to quantify animal-vectored spatial ecosystem subsidies. *Journal of Animal Ecology* **90**(7), 1605–1622. **Winner, Sidnie Manton Award 2021**
4. Richmond, I.C., Leroux, S.J., Vander Wal, E., Heckford, T.R., [Rizzuto, M.](#), Balluffi-Fry, J., Kennah, J., Wiersma, Y.F. 2021. Temporal variation and its drivers in the elemental traits of four boreal plant species. *Journal of Plant Ecology* **14**(3), 398–413.
3. Balluffi-Fry, J., Leroux, S.J., Wiersma, Y.F., Heckford, T.R., [Rizzuto, M.](#), Richmond, I.C., Vander Wal, E. 2020. Quantity-quality trade-offs revealed using a multiscale test of herbivore resource selection on elemental landscapes. *Ecology and Evolution* **10**(24), 13847–13859.
2. [Rizzuto, M.](#), Leroux, S.J., Vander Wal, E., Wiersma, Y.F., Heckford, T.R., Balluffi-Fry, J. 2019. Patterns and potential drivers of intraspecific variability in the body C, N, and P composition of a terrestrial vertebrate, the snowshoe hare (*Lepus americanus*). *Ecology and Evolution* **9**(24), 14453–14464.
1. [Rizzuto, M.](#), Carbone, C., and Pawar, S. 2018. Foraging constraints reverse the scaling of activity time in carnivores. *Nature Ecology and Evolution* **2**(2), 247–253. **Cover Story**

In progress

- [Rizzuto, M.](#), Leroux, S. J., Schmitz, O. J., Vander Wal, E., Wiersma, Y. F., Heckford, T. R. 2023. Animal-vectored nutrient flows across resource gradients influence the nature of local and meta-ecosystem functioning. *bioRxiv preprint*.
- McLeod, A.M., Leroux, S.J., [Rizzuto, M.](#), Leibold, M.A., Schiesari, L. Integrating ecosystem and contaminant models to study the spatial dynamics of contaminants. In review, *Ecosphere*, manuscript id: ECS23-0188.

Outreach

- Wiersma, Y.F., Catto, N., Deal, C., Edinger, E., Evans, R., Geissinger, E., Hearn, C., Sun Lim, K., McCann, N., MacDonald, K., Meyer, A., Prosser, J., Quinn, D., Richmond, I.C., [Rizzuto, M.](#), Roncal, J., Swain, M. 2020. The classroom goes virtual—experiences at Memorial University. *Blog post*.
- Cagnacci, F., Rocca, M., Nicoloso, S., Ossi, F., Peters, W., Mancinelli, S., Valent, M., [Rizzuto, M.](#), Hebblewhite, M. 2013. Il progetto 2C2T. *Il Cacciatore Trentino*, 93, 4–15.

Presentations

Conference Talks

- **Rizzuto, M.**, Leroux, S.J., Schmitz, O.J. *Modeling the zoogeochemical effects of herbivores on ecosystem carbon cycles*. 6th Yale Postdoc Association Annual Symposium, New Haven, CT, USA. 25 May 2023
- **Rizzuto, M.**, Leroux, S.J., Schmitz, O.J., Vander Wal, E., Wiersma, Y.F., Heckford, T.R. *Movers and shakers: Animal-vectored nutrient flows across resource gradients influence local and meta-ecosystem functioning*. “Ecological Models for Tomorrow’s Solutions” The International Society for Ecological Modelling Global Conference 2023, Toronto, ON, Canada. 2–6 May 2023
- **Rizzuto, M.**, Leroux, S.J., Schmitz, O.J., Vander Wal, E., Wiersma, Y.F., Heckford, T.R. *Going against the flow: non-diffusive organismal movement influences local and meta-ecosystem functioning*. “Vital Connections in Ecology” Ecological Society of America Virtual Annual Meeting, Long Beach, CA, USA. 2–6 Aug. 2021
- **Rizzuto, M.**, Leroux, S.J., Vander Wal, E., Wiersma, Y.F., Heckford, T.R., Balluffi-Fry, J. *Ontogeny and Ecological Stoichiometry of Snowshoe hares (*Lepus americanus*) in the Boreal Forests of Newfoundland*. Canadian Society for Ecology and Evolution Annual General Meeting, Guelph, ON, Canada. 18–21 Jul. 2018
- **Rizzuto, M.**, Carbone, C., and Pawar, S. *Bio-mechanical constraints on foraging reverse the scaling of activity rate among carnivores*. Canadian Society for Ecology and Evolution Annual General Meeting, St. John’s, NL, Canada. 7–11 Jul. 2016

Conference Posters

- **Rizzuto, M.**, Leroux, S.J., Vander Wal, E., Wiersma, Y.F., Heckford, T.R., Balluffi-Fry, J. *Beyond Diffusion: Animal-Mediated Nutrient Transport at Different Spatial Scales*. “Unifying Ecology Across Scales” Gordon Research Seminar and Conference, Biddeford, ME, USA. 21–27 Jul. 2018

Workshops

- **Rizzuto, M.** *Grammar of Graphic: ggplot2*. Part of SPRY: A Learning Community for Quantitative Skill-Sharing Yale University, School of the Environment. 4 Nov. 2022
- **Rizzuto, M.** *(R)markdown: a brief tour*. Part of SPRY: A Learning Community for Quantitative Skill-Sharing Yale University, School of the Environment. 14 Oct. 2022

Outreach

- **Rizzuto, M.** *Skype-a-Scientist*, Hope Township Elementary School. 22 Mar. 2023

Honors & Awards

Note: *Memorial University* stands for Memorial University of Newfoundland and Labrador.

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| Hanski Prize , Oecologia | 2021 |
| Awarded by the journal’s Editorial Board to the best student-authored paper in animal ecology | |
| Mitacs Research Training Award , Mitacs, St. John’s, Canada | 2020 |
| Awarded to graduate students to conduct research during the COVID-19 pandemic | |
| First Place–H5P Maker Session , Memorial University, St. John’s, Canada | 2019 |
| Awarded by the Centre for Innovation in Teaching & Learning to the creator of the best HTML5 interactive learning object | |
| Mitacs Globalink Research Award , Mitacs, St. John’s, Canada | 2019 |
| Awarded to senior graduate students to conduct research abroad | |
| Dean’s Doctoral Award , Memorial University, St. John’s, Canada | 2016–2020 |
| Awarded to Ph.D. students based on academic excellence and research potential | |
| Graduated with Distinction , Imperial College London, London, UK | 2014 |
| Awarded to the top 5% of all Master’s students in a cohort | |
| Erasmus-LLP Scholarship , University of Turin, Turin, Italy | 2010 |
| Awarded to students to take part in the Erasmus exchange program of the European Union | |

Teaching

YALE UNIVERSITY
Guest Lecturer

2022
New Haven, USA

INDUSTRIAL ECOLOGY, Graduate course

Fall 2022

- Crafted and delivered a lecture weaving the concept of metabolism from ecology into urban ecology

MEMORIAL UNIVERSITY OF NEWFOUNDLAND AND LABRADOR

2017–2020

Teaching Assistant and Guest Lecturer

St. John's, Canada

MODELS IN BIOLOGY, Graduate and Undergraduate course

Winter 2020

- Designed and delivered lectures on classical models in Ecology, models of species interactions, and meta-ecology models

PRINCIPLES OF ECOLOGY, Undergraduate course

Fall 2018

- Managed the online learning part of the course, provided administrative and academic support to students

GRADUATE CORE SEMINAR, Graduate course

Fall 2018

- Developed and delivered a seminar on Student-Supervisor Communications

PRINCIPLES OF BIOLOGY, Undergraduate course

Winter 2017

- Assisted during lab-based lectures, marked lab reports, midterms, and invigilated final exams

IMPERIAL COLLEGE LONDON

2014–2015

Teaching Assistant

London, UK

ECOLOGY, Undergraduate course

Spring 2015

- Demonstrator for the course's field trip, helped students design, collect data, and run analyses for their final projects

BEHAVIORAL ECOLOGY, Undergraduate course

Winter 2015

- Assisted with lab-based lectures, from experiment setup to helping students with lab data analysis

INTRODUCTION TO BIOLOGICAL STATISTICS, Undergraduate course

Fall 2014

- Helped students learn base and advanced R language, facilitated Q&A sessions ahead of final exams

STATISTICS, Graduate course

Fall 2014

- Helped students in developing and coding statistical analyses in R

MACROECOLOGY AND CLIMATE CHANGE, Graduate course

Fall 2014

- Assisted students using the species distribution software Maxent

Service

Manuscript Reviewer *Biological Conservation, Science of the Total Environment, Ecology and Evolution*

Professional Development

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Courses

MENTORSHIP TRAINING PROGRAM FOR YALE POSTDOCS

March 2023

Office for Postdoctoral Affairs

Yale University

CAREER DEVELOPMENT LEADERS PROGRAM

Jan.–Mar. 2023

Office of Career Strategy

Yale University

BECOMING A MORE EQUITABLE EDUCATOR: MINDSETS AND PRACTICES

Mar.–Jun. 2020

MIT Teaching Systems Lab

Attended online at edX.org

TEACHING SKILLS ENHANCEMENT PROGRAM

Sept. 2019–Aug. 2020

Centre for Innovation in Teaching and Learning

Memorial University

Workshops

HOW TO HELP: TIPS FROM MENTAL HEALTH FIRST AID

1 Mar. 2023

Being Well at Yale

Yale University

ALT-ACADEMIC CAREER Q&A I

8–9 Feb. 2023

Early Career Section

Ecological Society of America

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| HOW TO WRITE AN EFFECTIVE DIVERSITY STATEMENT Graduate Writing Lab | 11 Oct. 2022 Yale University |
| BUILDING YOUR BRAND WORKSHOP Beyond the PhD | 8 Sept. 2022 Attended online |
| REPRODUCIBLE RESEARCH THROUGH OPEN SCIENCE Canadian Institute for Ecology and Evolution & NSERC-CREATE “Living Data Project” | 11 Jun. 2020 Attended online at osf.io |
| TEACHING INCLUSIVELY & EQUITABLY ONLINE American Society for Engineering Education & NSF INCLUDES Aspire Alliance | 21 May 2020 Attended online |
| H5P MAKER SESSION Centre for Innovation in Teaching and Learning | 24 Oct. 2019 Memorial University |
| COMMUNITY OF INQUIRY COFFEE BREAK: OPEN ACCESS Centre for Innovation in Teaching and Learning | 23 Oct. 2019 Memorial University |
| OPEN ACCESS AND SCHOLARLY PUBLISHING Centre for Innovation in Teaching and Learning | 22 Oct. 2019 Memorial University |
| FOUR THINGS TO CONSIDER FOR GRADUATE STUDENT TEACHING Enhanced Development of the Graduate Experience | 8 Nov. 2018 Memorial University |
| AARMS CRG SOFTWARE CARPENTRY WORKSHOP The Carpentries | 27 May 2017 Memorial University |

Extracurricular Activity

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| SYMPOSIUM COMMITTEE CO-COORDINATOR Yale Postdoctoral Association | Present Yale University |
| <ul style="list-style-type: none"> Co-coordinated the activities of the YPA Symposium Committee and organized the Annual Yale Postdoc Symposium Member of the Yale Postdoctoral Association Executive Board, participating in monthly meetings to steer the Association's activities | |
| SYMPOSIUM COMMITTEE MEMBER Yale Postdoctoral Association | 2022–2023 Yale University |
| <ul style="list-style-type: none"> Leader of the Scheduling subcommittee Developed the Symposium's schedule, planned and organized outreach and social activities, coordinated the search for the keynote speaker and panelists | |
| COMMUNICATIONS OFFICER Biology Graduate Student Association | 2019–2020 Memorial University |
| <ul style="list-style-type: none"> Managed the Association's weekly newsletter, website, event advertisement campaigns, and social media presence | |
| CHAIRPERSON Biology Graduate Student Association | 2018–2019 Memorial University |
| <ul style="list-style-type: none"> Coordinated the activities of the Executive Committee, focusing on fundraising, the welfare and mental health of graduate students, and community outreach Liaised with the Head of the Department of Biology to coordinate activities and events | |
| SEMINAR CO-COORDINATOR Biology Graduate Student Association | 2017–2018 Memorial University |
| <ul style="list-style-type: none"> One-third of the Seminar team, in charge of approaching, scheduling, and managing internal and visiting speakers for the weekly seminar series of the Biology Department | |
| EDUCATOR Associazione O.A.S.I.—Operazione Mato Grosso di Torino | 2000–2013 Turin, Italy |
| <ul style="list-style-type: none"> Designed, scheduled, and run educational activities and community outreach events with and for children, teenagers, and young adults in Turin, Italy, and at the Hospital São Julião in Campo Grande, Mato Grosso do Sul, Brazil | |
| TEAM LEADER XX Winter Olympic and IX Paralympic Games | 2005–2006 Turin, Italy |
| <ul style="list-style-type: none"> Led, scheduled, and supervised the daily activities of a ten-strong team of volunteers within the International Relations and Services Protocol Crew at the Ice Hockey, Curling, and Ceremonies Olympic venues | |

Professional Affiliations

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| INTERNATIONAL SOCIETY FOR ECOLOGICAL MODELLING | 2023–2025 |
| ECOLOGICAL SOCIETY OF AMERICA | 2021–2023 |
| CANADIAN SOCIETY FOR ECOLOGY AND EVOLUTION | 2016–2021 |

Conferences

Organized

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| YALE POSTDOC ASSOCIATION 6 th Annual Symposium | 25 May 2023 New Haven, CT, USA |
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Attended

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| ECOLOGICAL MODELS FOR TOMORROW'S SOLUTIONS The International Society for Ecological Modelling Global Conference 2023 | 2–6 May 2023 Toronto, ON, Canada |
| VITAL CONNECTIONS IN ECOLOGY Ecological Society of America, Virtual Annual Meeting | 2–6 Aug. 2021 Long Beach, CA, USA |
| UNIFYING ECOLOGY ACROSS SCALES Gordon Research Seminar and Conference | 21–27 Jul. 2018 Biddeford, ME, USA |
| ANNUAL GENERAL MEETING Canadian Society for Ecology and Evolution | 18–21 Jul. 2018 Guelph, ON, Canada |
| ANNUAL GENERAL MEETING Canadian Society for Ecology and Evolution | 7–11 Jul. 2016 St. John's, NL, Canada |
| FROM ENERGETICS TO MACRO ECOLOGY: CARNIVORE RESPONSES TO ENVIRONMENTAL CHANGE Zoological Society of London | 14–15 Nov. 2013 London, UK |
| ESOF—EUROSCIENCE OPEN FORUM Euroscience | 2–7 Jul. 2010 Turin, Italy |
| XIX CONGRESS Italian Primatological Society | 1–3 Apr. 2009 Asti, Italy |

Skills

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| Programming | R, Wolfram Mathematica, LaTeX, Bash, HTML |
| Software | Version Control (Git, GitHub), RStudio, Atom, Sublime Text, QGIS, Inkscape |
| Platforms | macOS, Windows |
| Languages | Italian (Native), English (Fluent), French (Basic), Spanish (Basic), Polish (Basic) |

Certificates

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| WILDERNESS AND REMOTE FIRST AID Canadian Red Cross | 2016–2019 St. John's, NL, Canada |
| WHMIS AND LAB SAFETY Memorial University of Newfoundland and Labrador | 2017 St. John's, NL, Canada |
| BASIC OUTDOOR FIRST AID Marlin Training Ltd. | 2014 London, UK |
| INTERNATIONAL ENGLISH LANGUAGE TESTING SYSTEM British Council Grade: 8.5 | 2013 Turin, Italy |
| INTERNATIONAL COMPUTER DRIVING LICENCE University of Turin | 2007 Turin, Italy |

Interests

Hiking, Photography, Yoga, Watercolor painting