

Matteo Rizzuto

POSTDOCTORAL ASSOCIATE · SCHOOL OF THE ENVIRONMENT, YALE UNIVERSITY

🏠 <https://matteorizzuto.github.io> | 📞 0000-0003-3065-9140 | 🐦 @MatteoRiz | 🎓 Matteo Rizzuto

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, United Kingdom

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 a mathematical model tracking animals influence on carbon budget 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

Jan.–Mar. 2016

Silwood Park, Ascot, UK

- Data collection, management, and cleanup 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 placement to collect behavioral and population data from wild, habituated *Chacma* baboons, and conduct plant phenology survey

RESEARCH ASSISTANT

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

Jun.–Sept. 2013

Trento, Italy

- Field placement to collect roe deer radio-tracking data, as well as conduct plant phenology surveys and pellet decay rate analyses

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 the *Indri* lemur to isolate individual contributions to a family group song

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. Animal-vectored nutrient flows across resource gradients influences the nature of local and meta-ecosystem functioning. In review, *The American Naturalist*, manuscript id: 61395.
- 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, *The American Naturalist*, manuscript id: 60949.

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., 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

Honors & Awards

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

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 , Centre for Innovation in Teaching & Learning, Memorial University, St. John’s, Canada	2019
Awarded 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	2022
Guest Lecturer	New Haven, USA
GUEST LECTURER, Industrial Ecology	Fall 2022
<ul style="list-style-type: none"> • Crafted and delivered a lecture weaving the concept of metabolism from ecology into urban ecology 	

GUEST LECTURER, Models in Biology

Winter 2020

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

TEACHING ASSISTANT, Principles of Ecology

Fall 2018

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

TEACHING ASSISTANT, Principles of Biology

Winter 2017

- Demonstrator, invigilator, and marker for lab-based lectures, lab reports, midterms, and final exams

IMPERIAL COLLEGE LONDON

2014–2015

Teaching Assistant

London, United Kingdom

UNDERGRADUATE TEACHING ASSISTANT, Ecology

Spring 2015

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

UNDERGRADUATE TEACHING ASSISTANT, Behavioral Ecology

Winter 2015

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

UNDERGRADUATE TEACHING ASSISTANT, Introduction to Biological Statistics

Fall 2014

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

GRADUATE TEACHING ASSISTANT, Statistics

Fall 2014

- Helped students in developing and coding statistical analyses in R

GRADUATE TEACHING ASSISTANT, Macroecology and Climate Change

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

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

Courses

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

REPRODUCIBLE RESEARCH THROUGH OPEN SCIENCE

11 Jun. 2020

Canadian Institute for Ecology and Evolution & NSERC-CREATE “Living Data Project”

Attended online at osf.io**TEACHING INCLUSIVELY & EQUITABLY ONLINE**

21 May 2020

American Society for Engineering Education & NSF INCLUDES Aspire Alliance

Attended online

H5P MAKER SESSION

24 Oct. 2019

Centre for Innovation in Teaching and Learning

Memorial University

COMMUNITY OF INQUIRY COFFEE BREAK: OPEN ACCESS

23 Oct. 2019

Centre for Innovation in Teaching and Learning

Memorial University

OPEN ACCESS AND SCHOLARLY PUBLISHING

22 Oct. 2019

Centre for Innovation in Teaching and Learning

Memorial University

FOUR THINGS TO CONSIDER FOR GRADUATE STUDENT TEACHING

8 Nov. 2018

Enhanced Development of the Graduate Experience

Memorial University

AARMS CRG SOFTWARE CARPENTRY WORKSHOP

27 May 2017

The Carpentries

Memorial University

Extracurricular Activity

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

SYMPOSIUM COMMITTEE MEMBER

Yale Postdoctoral Association

- Led the Scheduling subcommittee, in charge of planning and organizing the annual YPA symposium

Present

Yale University

COMMUNICATIONS OFFICER

Biology Graduate Student Association

- Managed the Association's weekly newsletter, website, event advertisement campaigns, and social media presence

2019–2020

Memorial University

CHAIRPERSON

Biology Graduate Student Association

- Coordinated the activities of the Executive Committee, focusing on fundraising, graduate students' welfare and mental health, and community outreach
- Liaised with the Head of the Department of Biology to coordinate activities and events

2018–2019

Memorial University

SEMINAR COORDINATOR

Biology Graduate Student Association

- One-third of the Seminar team, in charge of approaching, scheduling, and managing internal and external speakers for the weekly seminar series of the Biology Department

2017–2018

Memorial University

YOUTH EDUCATOR

Associazione O.A.S.I.—Operazione Mato Grosso di Torino

- 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

2000–2013

Turin, Italy

TEAM LEADER

XX Winter Olympic and IX Paralympic Games

- 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

2005–2006

Turin, Italy

Professional Affiliations

ECOLOGICAL SOCIETY OF AMERICA

2021–2022

CANADIAN SOCIETY FOR ECOLOGY AND EVOLUTION

2016–2021

Conferences Attended

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

CANADIAN SOCIETY FOR ECOLOGY AND EVOLUTION

Annual General Meeting

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

Programming	R, Bash, Wolfram Mathematica, LaTeX, HTML
Software	VCS (Git, GitHub), RStudio, Atom, Sublime Text, QGIS, Inkscape
Platform	macOS, Windows
Languages	Italian, English

Certificates

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