

Matteo Rizzuto

POSTDOCTORAL ASSOCIATE · SCHOOL OF THE ENVIRONMENT, YALE UNIVERSITY

+1 (203) 627-5825 | matteomrizzuto@gmail.com | matteorizzuto.github.io | 0000-0003-3065-9140 |  Matteo Rizzuto |

Pronouns: he/him/his

Current position

POSTDOCTORAL ASSOCIATE

Schmitz Lab, School of the Environment, Yale University

- Building mathematical models to investigate and quantify animal influences on ecosystem carbon cycling, and inform and expand nature-based climate change solutions

Present

New Haven, USA

Education

DOCTOR OF PHILOSOPHY, BIOLOGY

Memorial University of Newfoundland and Labrador

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

2016–2021

St. John's, NL, Canada

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

Highlights

- Published 11 peer-reviewed papers, of which 3 as first author, and have an additional 3 in various stages of review (2 as first author) with a combined 136 citations and an h-index of 7 (i10-index of 5).
- Winner of *Oecologia*'s 2021 Hanski prize for best student-authored paper in animal ecology (as first author) and of the *Journal of Animal Ecology*'s 2021 Sidnie Manton award for best early-career contribution (as co-author).

Publications

A † marks equal contributions. When listed as 2nd or 3rd author, I contributed to ideas, design, data collection and analysis, interpretation, and writing. When listed as 4th author or later, I contributed to ideas, data collection, and writing.

Peer reviewed.

- 13.** [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. Accepted, *Ecological Modelling*, manuscript id: ECOMOD-23-431R2. *bioRxiv preprint*.
- 12.** McLeod, A.M., Leroux, S.J., [Rizzuto, M.](#), Leibold, M.A., Schiesari, L. 2023. Integrating ecosystem and contaminant models to predict the effects of ecosystem fluxes on contaminant dynamics. Accepted, *Ecosphere*, manuscript id: ECS23-0511. *bioRxiv preprint*.
- 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. 2023 Rewiring the carbon cycle: a theoretical framework for animal-driven ecosystem carbon sequestration. In revision, *Journal of Geophysical Research: Biogeosciences*, manuscript id: 2023JG007714. *bioRxiv preprint*.

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.

Research Appointments

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

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

Jun.–Oct. 2015

London, UK

RESEARCH ASSISTANT

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

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

Jun.–Sept. 2013

Trento, Italy

GRADUATE INTERN

Piedmont Wolf Project, Maritime Alps Nature Park

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

Jun.–Dec. 2011

Entracque (CN), Italy

UNDERGRADUATE INTERN

Ethology Lab, University of Turin

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

2008–2009

Turin, Italy

Presentations

Conference Talks

- **Rizzuto, M.**, Leroux, S.J., Schmitz, O.J. *Modeling the zoogeographical effects of herbivores on ecosystem carbon cycles*. “For All Ecologists” Ecological Society of America Annual Meeting, Portland, OR, USA. 6–11 Aug. 2023
Invited talk
- **Rizzuto, M.**, Leroux, S.J., Schmitz, O.J. *Modeling the zoogeographical 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 Graphics: 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.

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	2022–Present
Guest Instructor	New Haven, USA
ECOSYSTEMS AND LANDSCAPES , Graduate course	Fall 2023
• Lead instructor on one of five course modules, focused on linking biodiversity to biogeochemistry	
INDUSTRIAL ECOLOGY , Graduate course	Fall 2022
• Crafted and delivered a lecture introducing ideas and theories from metabolic ecology to 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

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

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

SYMPOSIUM COMMITTEE CO-COORDINATOR

Present

Yale Postdoctoral Association

Yale University

- 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

BUDDY PROGRAM MENTOR

Present

Yale Postdoctoral Association

Yale University

- Offered advice and help to incoming international postdocs

SYMPOSIUM COMMITTEE MEMBER

2022–2023

Yale Postdoctoral Association

Yale University

- 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

2019–2020

Biology Graduate Student Association

Memorial University

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

CHAIRPERSON

2018–2019

Biology Graduate Student Association

Memorial University

- 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

2017–2018

Biology Graduate Student Association

Memorial University

- 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

2000–2013

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

Turin, Italy

- 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

2005–2006

XX Winter Olympic and IX Paralympic Games

Turin, Italy

- 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 Development

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

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

ADVANCED TEACHING WORKSHOPS: WRITING THE TEACHING STATEMENT Yale Poorvu Center for Teaching and Learning	September 2023 Yale University
INCLUSIVE LEADERSHIP TRAINING Yale Postdoc Association and Yale DEI Office	30 Aug. 2023 Yale University
BYSTANDER INTERVENTION TRAINING Yale Postdoc Association	13 Jun. 2023 Yale University
HOW TO HELP: TIPS FROM MENTAL HEALTH FIRST AID Being Well at Yale	1 Mar. 2023 Yale University
ALT-ACADEMIC CAREER Q&A I Early Career Section	8-9 Feb. 2023 Ecological Society of America
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

Professional Affiliations

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

Conferences

Organized

6TH ANNUAL SYMPOSIUM Yale Postdoc Association	25 May 2023 New Haven, CT, USA
--	-----------------------------------

Attended

FOR ALL ECOLOGISTS Ecological Society of America, Annual Meeting	6–11 Aug. 2023 Portland, OR, USA
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

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

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