Rayna Benzeev

Environmental Science, Policy, and Management
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EDUCATION

Ph.D., Environmental Studies **Sept. 2022**
University of Colorado Boulder, Boulder, CO

B.A. Environmental Science, Minor: Mathematical Modeling **May 2015**
Colorado College, Colorado Springs, CO

RESEARCH INTERESTS

Tropical forests, socio-environmental systems, forest landscape restoration, political ecology, geospatial modeling, land use change, interdisciplinary science, data analytics, spatial conservation prioritization, science communication

PUBLICATIONS

Peer reviewed journal articles published or submitted

Benzeev, R., Zhang, S., Rauber, M., Vance, E., Newton., P. Under Review. Formalizing tenure of Indigenous lands improved forest outcomes in the Atlantic Forest of Brazil. *PNAS Nexus*.

Benzeev, R., Weins, A., Piotto, D., Newton, P. *Revised & resubmitted*. Property size and forest cover were key determinants of forest restoration in the Atlantic Forest of Brazil. *Land Use Policy*.

Benzeev, R., Wilson, B., Butler, M., Massoca, P., Paudel, K., Redmore, L., & Zarbá, L. (2022). What's governance got to do with it? Examining the relationship between governance and deforestation in the Brazilian Amazon. *PloS one*, 17(6), e0269729.

Tanure, T., Campos, R., dos Reis, J., **Benzeev, R.**, Newton, P., Rodrigues, R., de Oliveira, A. *Submitted*. Farmers' perceptions of climate change affect their adoption of sustainable agricultural technologies in the Brazilian Amazon and Atlantic Forest biomes. *Climatic Change*.

Newton, P., & **Benzeev, R.** (2018). The role of zero-deforestation commitments in protecting and enhancing rural livelihoods. *Current Opinion in Environmental Sustainability, 32, 126-133*.

Benzeev, R., Hutchinson, N., & Friess, D. A. (2017). Quantifying fisheries ecosystem services of mangroves and tropical artificial urban shorelines. *Hydrobiologia, 803(1), 225-237*.

In Preparation

Benzeev, R., Bráz, C., Scanlan Lyons, C., Newton, P. The impact of land tenure on deforestation and reforestation for *Quilombola* territories in Brazil. *World Development Perspectives*.

GRANTS and FELLOWSHIPS

NSF SBE Postdoctoral Research Fellowship ($148,000) **Oct. 2022-Present**
Title: "Spatial Distribution and Drivers of Forest Restoration Reversals and Successes"

Fulbright US Student Research Grant ($7,790) **Mar. 2021-Sept. 2022**
Title: "Targeting forest restoration potential: applying spatial prioritization in Bahia, Brazil"

Nature, Environment, Science & Technology (NEST) Fellowship ($10,000) **Mar. 2020-Dec. 2020**
Title: "From Doom and Gloom to Laughing with a Boom—A Climate Comedy Video Experiment"

National Socio-Environmental Synthesis Center (SESYNC) Grad. Pursuit ($2,000) **Sept. 2018-Sept. 2020**
Title: "What's governance got to do with it? Examining the role of governance in forest conservation"

Latin America Study Center Tinker Travel Grant ($500), University of Colorado Boulder **Nov. 2018**

Cynthia H. Schultz Graduate Student Grant ($2,000), University of Colorado Boulder **March 2018**

NSF Graduate Research Fellowship Honorable Mention **March 2017**

Sustainable Socio-Environmental Systems Graduate Fellowship ($30,000) **March 2017**

Fulbright US Student Research Grant ($27,000) **Oct. 2015-July 2016**
Title: "Quantifying fisheries ecosystem services of mangroves and tropical artificial urban shorelines"

Colorado College Leadership Scholarship ($40,000) **Aug. 2011-May 2015**
Competitive scholarship, awarded based on outstanding academic, leadership, and extracurricular achievement

Colorado College Mary Stearns Barkalow Award ($1,089), Colorado College **May 2015**
Awarded to a senior undergraduate woman making significant contributions to campus life through leadership

Undergraduate Climate Change Research Fellowship ($5,000) **June-Aug. 2014**

Research Experience for Undergraduates (REU) ($4,000) **June-Aug. 2013**

RESEARCH EXPERIENCE

Doctoral Researcher, Environmental Studies Program, CU Boulder **Aug. 2017-Sept. 2022**
Conducted three standalone scientific research articles for a doctoral dissertation, including 1) testing the spatial relationships between property-level variables and forest restoration, 2) conducting a causal analysis on the relationship between Indigenous land tenure and forest change, and 3) evaluating the relationship between land tenure and forest outcomes in Brazilian *Quilombola* territories, with a focus on the Atlantic Forest of Brazil.

Research Assistant, Governor's Climate & Forests Task Force, CU Boulder **Feb.-May 2021**
Applied geospatial and data visualization techniques in R to create a map of southern Bahia, Brazil, for the book *Running After Paradise: Hope, Survival, and Activism in Brazil's Atlantic Forest* by Dr. Colleen M. Scanlon Lyons. Integrated data on forest cover, protected areas, roads, rivers, cities, land settlements, and other attributes.

Research Assistant, Environmental Studies Program, CU Boulder **Jan.-May 2021**
Conducted research on inclusive pedagogy in the Environmental Studies Program. Prepared a departmental report on attracting and retaining undergraduates and preventing barriers to success. Analyzed quantitative and qualitative survey data in R and Nvivo to provide recommendations.

Research Assistant, Center for Sustainable Landscapes and Communities **May-Oct. 2020**
Conducted statistical analysis, data visualization, and key informant interviews for a report on Boulder's local ecosystem indicators, including biodiversity, carbon, soil, land cover, climate, water quality, and air quality metrics. Developed spatial maps, graphs, and other data visualization plots to be accessible for public audiences.

Co-leader, National Socio-Environmental Synthesis Center (SESYNC) **Sept. 2018-Sept. 2020**
Strengthened leadership skills as a co-leader of an interdisciplinary Graduate Pursuit team of seven diverse graduate students for 18 months. Collaborated to model the predictive capacity of municipal-level governance indicators in the Brazilian Amazon. Worked an average of eight hours per week on remote collaboration and attended three intensive four-day synthesis meetings at SESYNC.

Leader, Nature, Environment, Science & Technology (NEST) Center for the Arts **Mar.-Dec. 2020**
Led a seven-person team combining climate change science and comedy through a social media campaign. Facilitated weekly meetings, taught climate change science to non-academic team members, organized interviews with climate experts, and created comedic video content.

Research Assistant, Environmental Studies Program, CU Boulder **Jan.-May 2020**
Conducted statistics in R using International Forestry Resources and Institutions (IFRI) data to analyze changes in carbon, biodiversity, and livelihoods outcomes as a multi-country temporal assessment.

Research Assistant, Environmental Studies Program, CU Boulder **Oct.-Nov. 2019**
Assisted the process of submitting an NSF CNH2 Dynamics of Integrated Socio-Environmental Systems grant. Organized all documents, created conceptual diagrams, and contributed paragraphs to the application.

Principal Investigator, Atlantic Forest Spatial Restoration Case Study, Bahia, Brazil **June-Aug. 2019**
Conducted key informant interviews to inform a spatial conservation prioritization model for thesis research. Data will be used to improve decision-making for forest restoration based on socio-environmental attributes.

Research Assistant, Environmental Studies Program, CU Boulder **Oct. 2018**
Conducted summary statistics as one of ten scientists writing a letter to California Governor Brown with the Center for International Forestry Research (CIFOR). Contributed to providing recommendations for the California Tropical Forest Standard REDD+ program.

Research Assistant, Environmental Studies Program, CU Boulder **May-Aug. 2018**
Independently conducted regression modeling in R on a robust dataset of experimental REDD+ policy interventions. Assessed policy implications of as part of a collaborative project on deforestation and livelihoods in Acre, Brazil.

Principal Investigator, Semi-structured Descriptive Case Study, Acre, Brazil **May 2018**
Designed and conducted a set of semi-structured interviews with 14 stakeholders. Assessed the viability of aquaculture as a low emissions development alternative for reducing Amazon deforestation.

Graduate Field Course Planning Assistant, Environmental Studies Program, CU Boulder **May 2018**
Assisted in planning an interdisciplinary graduate field course for Masters' students. Visited rural communities with a team of researchers and educators to identify problem-solving opportunities.

Data Analyst and Co-author, Environmental Studies Program, CU Boulder **Nov. 2017-Mar. 2018**
Reviewed the peer-reviewed and gray literature to evaluate social criteria of zero-deforestation commitments. Assessed company compliance with these criteria to better understand the social dimensions of these commitments. Resulted in one paper and one conference poster presentation.

Fulbright US Student Researcher, The Mangrove Lab, National University of Singapore **Oct. 2015-July 2016**
Hosted by Prof. Dan Friess in the Geography Department at National University of Singapore (NUS). Studied the geographical context of mangrove deforestation, restoration, and land use change in Southeast Asia. Conducted independent research collaborating with local fish farmers to survey mangrove fish populations. Resulted in one paper and one conference poster.

Research Assistant, Mapping Ocean Wealth, The Nature Conservancy **June-Aug. 2016**
Consulted as one of 15 experts to complete Delphi questionnaires on global mangrove fish densities.

Research Assistant, The Mangrove Lab, Fieldwork in Ban Yong Star, Thailand **Feb. 2016**
Conducted elevation surveys using rod surface elevation tables to measure mangrove sea level rise.

Researcher, Sinervo Lab, University of California Santa Cruz **June-Aug. 2014**
Hosted by Prof. Barry Sinervo for an Undergraduate Climate Change Research Fellowship. Developed a model predicting future extinctions of California amphibian species using R and spatial modeling. Designated as a leader and mentor for Research Experience for Undergraduates (REU) students.

Researcher, Research Experience for Undergraduates (REU), UC Santa Cruz **June-Aug. 2013**
Hosted by Dr. Marm Kilpatrick in the Kilpatrick Lab. Modeled mosquito abundances and disease prevalence; developed model using R.

TEACHING EXPERIENCE

Graduate Teaching Assistant, University of Colorado Boulder
Served as teaching assistant for intro and upper level courses in the Environmental Studies Program, preparing and delivering lectures, developing and grading assignments, essays, and exams. Designed and facilitated class participation methods using a variety of technologies and platforms, managed course content online, communicated with students regarding course content, assignments, and grades, and provided concept assistance and student advising in weekly office hours.

Governing the Environment (enrollment 86) **Fall 2020**
Climate Politics and Policy (grading assistant, enrollment 30) **Summer 2020**
Sustainable Food Systems (enrollment 74) **Fall 2019**
Colorado Natural Resources (enrollment 56) **Spring 2019**
Sustainable Food Systems (enrollment 62) **Fall 2018**
Intro to Applied Ecology (enrollment ~65) **Spring 2018**
- Taught three recitations per week

Sustainable Food Systems (enrollment 79) **Fall 2017**

Center for Teaching and Learning Workshops, University of Colorado Boulder **Fall 2017-Fall 2020**

Attended five teaching workshops on pedagogy, inclusive practices, course design, and technology in the classroom

CONFERENCE ACTIVITY

Oral presentations

Benzeev, R. *Spatial Distribution and Drivers of Forest Restoration Reversals and Successes.* Forests and Livelihoods: Assessment, Research, and Engagement (FLARE) eighth annual meeting. Rome, Italy. October 7-10, 2022.

Benzeev, R. *What makes farms feasible for forests? Prioritizing for property-level forest landscape restoration in the Atlantic Forest of Brazil.* Forests and Livelihoods: Assessment, Research, and Engagement (FLARE) sixth annual meeting. Twitter Conference. October 26-30, 2020.

Benzeev, R. *Targeting forest restoration potential: applying spatial prioritization in Bahia, Brazil.* International Society of Tropical Foresters (ISTF) conference. New Haven, CT, USA. January 30-February 1, 2020.

Benzeev, R., Wilson, B., Redmore, L., Butler, M., Paudel, K., Zarba, L., Massoca, P. *What's governance got to do with it? Examining the role of governance in forest conservation*. Forests and Livelihoods: Assessment, Research, and Engagement (FLARE) fifth annual meeting. Ann Arbor, MI, USA. August 23-25 2019.

Benzeev, R. *Quantifying fisheries ecosystem services of mangroves and tropical artificial urban shorelines*. Fulbright US Student Research Conference. Jakarta, Indonesia. March 2016.

Poster presentations

Benzeev, R., & Newton, P. Poster presentation (sole presenter). *The role of zero-deforestation commitments in protecting and enhancing rural livelihoods.* Forests and Livelihoods: Assessment, Research, and Engagement (FLARE) fourth annual meeting. Copenhagen, Denmark. October 17-20, 2018.

Benzeev, R., Hutchinson, N., & Friess, D. A. Poster presentation (sole presenter). *Quantifying fisheries ecosystem services of mangroves and tropical artificial urban shorelines*. Mangrove and Macrobenthos meeting (MMM4). St. Augustine, FL, USA. July 18-22, 2016.

WORKSHOPS ATTENDED

Interactive Web-Based Visualizations and Decision Support Tools in Shiny/R for Quantitative Scientists, SESYNC, Online **Feb. 2021**
Attended five three-hour online workshops on the creation of decision support web-based tools in RShiny. Learned techniques to communicate through public outreach and facilitate stakeholder engagement.

Leadership Meeting in Socio-Environmental Synthesis, SESYNC, Annapolis, MD **Oct. 2018**
Spent four days receiving intense leadership training in statistical collaboration and managing diverse teams. Gained professional proficiency in leadership strategies and problem-solving in collaborative research processes.

Graduate Workshop on Socio-Environmental Synthesis, SESYNC, Annapolis, MD **Jan. 2018**
Deliberated for four days on interdisciplinary skill building, proposal writing, and collaboration. Gained experience

in innovative, team-based socio-environmental synthesis research.

SERVICE

Expedition Leader, Putney Student Travel, Namibia **July 2021**
Served as one of two conservation ecologists and one of three leaders for 22 high school students studying conservation and photography in Namibia for three weeks. Supervised students during international travel activities and mentored students in developing and presenting their own independent conservation projects.

Justice, Equity, Diversity, and Inclusion (JEDI) Leadership Team Member **Sept. 2020-May 2021**
Participated in the leadership team of faculty, graduate students, and undergraduates in the Environmental Studies Program to restructure the JEDI committee, improve recruitment and retention, and to track progress on JEDI-related actions.

Leader of the Inclusive Hiring and Retention JEDI Action Group **Sept. 2020-May 2021**
Created objectives, measures of success, and action items for departmental faculty and staff hiring practices. Organized a team of faculty and graduate students to improve recruitment of underrepresented faculty and staff.

Faculty and Staff Communication and Collaboration Working Group Member **June 2020-May 2021**
Participated in the six-person working group of graduate students in the Environmental Studies Program that aims to establish anti-racist norms and clear communication between faculty, staff, and students.

Panel Moderator for Indigenous Celebration Week **Jan.-March 2021**
Worked with the Latin American Studies Center (LASC) to organize a panel on indigenous social movements. Recruited two panelists from Brazil and prepared questions to co-moderate a panel of five speakers.

Latin American Studies Center Research (LASC) Cluster Member **April 2020-May 2021**
Participated in a graduate research team that hosts events, speakers, panels, and film series' relating to research, teaching, and discussion on Latin America and Latinx studies at University of Colorado Boulder.

Paper Reviewer for Non-Native Language Scholars **July 2018-Aug. 2020**
Conducted English language proofreading to assist Brazilian scholars improve their manuscripts in order to raise them to the quality of international peer-reviewed articles. Assisted in fighting barriers to non-native language speakers by reviewing four manuscripts.

Expedition Leader, National Geographic Student Expeditions, Madagascar **Cancelled due to COVID-19**
Served as one of two conservation experts, leaders, and guides for high school students conducting community service projects in Madagascar for one month.

Environmental Studies Graduate Social Co-chair, CU Boulder **Sept. 2017-May 2018**
Planned social events and happy hours, and sent weekly emails for Environmental Studies graduate students.

Restoration Volunteer, Madagascar Biodiversity Partnership (MBP), Madagascar **Mar.-June 2017**
Supervised Malagasy workers and laborers in planting 120,000 trees in three months. Worked with a team of three to pay laborers, supervise tree planting, manage program funds and budget, transport seedlings between nurseries and sites, and communicate with local people.

Restoration Volunteer, Restore Ubin Mangroves Initiative (RUM), Singapore **Sept. 2015-July 2016**
Collaborated in conducting community-based mangrove restoration in abandoned aquaculture ponds. Worked with stakeholders (5 groups) to plan Ecological Mangrove Rehabilitation (EMR). Attended monthly meetings and

outreach events to organize communications between stakeholders.

PROFESSIONAL SKILLS

Software proficiencies: RStudio, GitHub, ArcGIS, Microsoft Office Suite

Quantitative skills: Spatial analysis, causal analysis, bayesian multilevel modeling, multivariate regression, RShiny applications

***Relevant Graduate Coursework*:** Quantitative Survey Methodology, Earth Analytics, Earth Analytics Applications, Data Science in Biology, Intro to Quantitative Ecology & Evolution, Intro to Geographic Information Systems (GIS), Quantitative Methods in Geography, Theory and Methods in Environmental Studies, Policy, Science, and the Environment, Portuguese 1.1, Portuguese 1.2

LANGUAGES

English (fluent)
Portuguese (advanced)
Thai (beginner)
Hebrew (conversational)