

Rachel Fovargue

CURRENT POSITION

The University of Oklahoma

Norman, OK/Reston, VA
Research Affiliate, Dept of Geography & Env Sustainability

EDUCATION

The University of Tennessee Knoxville

PhD, August 2017

Knoxville, TN

The College of William and Mary

BS in Biology, with Honors, May 2009

BS in Chemistry, May 2009

Williamsburg, VA

PUBLICATIONS

Fovargue, RE, S Rezapour, DH Rosendahl, A Wootten, HZ Sabzi, H Moreno, TM Neeson. "Planning for water sustainability in the face of climate uncertainty". *Nature Scientific Reports*. In submission.

Pinnschmidt, AA, R **Fovargue**, M Fisher, J Harris, D LeBouille, MA Hoogstra-Klein, PR Armsworth. "Protecting land leads to increased philanthropic giving to conservation". *Ecological Economics*. In submission.

Wineland, S, R **Fovargue**, S Rezapour, T Neeson. "Identifying projects that remain valuable and feasible across future climate scenarios". *Conservation Biology*. In submission.

Farzaneh MA, S Rezapour, R **Fovargue**, TM Neeson. "Balancing social and environmental water needs in drought-prone river basins under hydrological uncertainty". *OMEGA: The International Journal of Management Science*. In review.

Gill, KC, RE **Fovargue**, TM Neeson. "Hotspots of species loss do not vary across future climate scenarios in a drought-prone river basin". *Ecology and Evolution*. In review.

Armsworth, PA, A Benefield, D Bistra, R **Fovargue**, H Jackson, D Le Bouille, C Nolte. "Prioritizing land protection over large spatial scales: biodiversity conservation in the United States". *Ecological Applications*. In press.

Sabzi, HZ, H Moreno, RE **Fovargue**, X Xue, Y Hong, TM Neeson. " Comparison of projected water availability and demand reveals future hotspots of water stress in the Red River basin, USA". *Journal of Hydrology: Regional Studies*. **2019**.

Sabzi, HZ, S Rezapour, RE **Fovargue**, H Moreno, TM Neeson. "Strategic allocation of water conservation incentives to boost environmental flows and societal outcomes". *Ecological Engineering*. **2019**.

Fovargue, RE, J Harris, M Fisher, PA Armsworth. "The Landscape of Conservation Fundraising". *Conservation Biology*. **2018**.

Fovargue, RE, M Bode, PA Armsworth. "Size and spacing rules can balance conservation and fishery management objectives for marine protected areas". *Journal of Applied Ecology*. **2017**.

Fovargue, Rachel. "A National Park for Blue Whales?" Web log. *Ocean View*. National Geographic News Watch. 31 July, **2013**. <http://newswatch.nationalgeographic.com/2013/07/31/a-national-park-for-blue-whales/>

Cristol, DA, RL Brasso, AM Condon, RE **Fovargue**, SL Friedman, KK Hallinger, AP Monroe, AE White. The movement of aquatic mercury through terrestrial food webs. *Science* 320(5874):335. **2008**.

PUBLISHED ABSTRACTS AND PRESENTATIONS

Fovargue, Rachel; Atkinson, Carla; Julian, Jason; Vaughn, Caryn C.; Neeson, Thomas M. August 2019. “Reducing heat stress on freshwater mussels through reservoir management in a drying climate” Poster Presentation. *Ecological Society of America*. Louisville, KY

Fovargue, Rachel; Sabzi, Hamed Z.; Rezapour-Behnagh, Shabnam; Moreno, Hernan; Neeson, Tom. December 2018. “Balancing conflicting water usages under a changing climate by optimizing a network of reservoirs in the Red River Basin of the South, USA” Poster Presentation. *American Geophysical Union*. Washington, DC.

Fovargue, Rachel; Armsworth, Paul R.; Fisher, Maria; Harris, Jamal. August 2016. “Quantifying a conservation fundraising landscape and factors defining its spatial distribution” Contributed Oral Presentation. *Ecological Society of America*. Fort Lauderdale, FL

Fovargue, Rachel; Armsworth, Paul R.; Fargione, Joseph E. August 2015. “What is the real cost of conservation investments? Calculating the conservation opportunity cost of financing land protection” Poster. *International Congress for Conservation Biology*. Montpellier, France.

Fovargue, Rachel; Armsworth, Paul R.; Fargione, Joseph E. August 2015. “The true cost of conservation investments: Opportunity cost of financing land protection”. *Ecological Society of America*. Baltimore, Maryland.

Fovargue, Rachel; Armsworth, Paul; Bode, Michael. August 2013. “Size and Spacing Rules for Marine Protected Areas: Useful for Management?” Contributed oral presentation. *Ecological Society of America Annual Meeting*, Minneapolis, MN.

Fovargue, Rachel; Armsworth, Paul; Bode, Michael. August 2013. “Size and Spacing Rules for Marine Protected Areas: Useful or not?” Contributed oral presentation. *Society of Conservation Biology’s International Congress on Conservation Biology*, Baltimore, MD.

Fovargue, Rachel; Armsworth, Paul R.; Bode, Michael. "Size and Spacing of Marine Protected Areas Under Realistic Dispersal Conditions" Institute for Marine and Antarctic Studies. November 2012.

Fovargue, Rachel; Armsworth, Paul R.; Bode, Michael. "Managing Reef Fish under Stochastic Dispersal Conditions." Society for Mathematical Biology Annual Meeting. July 2012.

Fovargue, Rachel. “The Integration of Metapopulation Dynamics into Habitat Equivalency Analysis." National Institute for Mathematical and Biological Synthesis Undergraduate Research Conference. November 2009.

Fovargue, Rachel. [Integration of Source and Sink Dynamics into Habitat Equivalence Models](#). The 4th Annual University of North Carolina Greensboro Regional Undergraduate Mathematics Conference. May 2008.

GRANTS AND ACADEMIC AWARDS

UTK Graduate School’s Yates Dissertation Fellowship	2016-2017
▪ \$15,000	
UTK EEB Outstanding Outreach & Community Service Award	2016
▪ \$500	
NSF GRFP – Fellowship Awardee	2013-2016
▪ Over \$65,000 per year in tuition and stipend support	
NIMBIOS Graduate Research Assistantship - offer	2013
▪ Over \$40,000 per year in tuition and stipend support	
NSF GRFP – Honorable Mention	2012

Australian Research Council - CEED Overseas Visiting Fellowship	2012
▪ Centre of Excellence for Environmental Decisions, 3 mo, travel and housing expenses	
SCALE-IT IGERT Research Fellow	2011-2013
▪ Over \$40,000 per year in tuition and stipend support	
UTK EEB Summer Graduate Award	2012, 2013, 2014, 2015
▪ Over \$3000 total award	
Monroe Scholar	2005-2009
▪ Summer research grant based on academic excellence	
Member of Phi Beta Kappa Honors Fraternity	2009

TEACHING EXPERIENCE

Lead instructor with curriculum development:

University of Tennessee, BIO 167	Fall 2016
▪ Instructor for laboratory section in which honors biology students are taught basics of investigative science – experimental design, statistics, literature search techniques – and mentored in independent research	
University of Tennessee, LS 595: “Biology for Computational Researchers”	Spring 2013
▪ Developed and led 12 class periods on Ecology and Evolutionary Biology topics	
▪ Mixed graduate and undergraduate class	
University of Tennessee, Kids U, “The Unseen World”	Summer 2013
▪ Week-long, half-day curriculum on environmental sampling and microbiology	
▪ High-school level; active learning focus	
Non-profit Call of the Sea, Ecology & experimental design	Spring/Summer 2011
▪ Ecology and hydrology lessons for sailing classroom	
▪ Elementary to high-school level students	

Teaching assistant:

University of Tennessee, Landscape Ecology EEB 504	Spring 2017
▪ Organized a career discussion series with landscape ecology professionals from academic, private and public organizations	
University of Tennessee, BIO 158	Fall 2016
▪ Led recitation for introductory biology lecture	
USFWS/USGS: “Adaptive Management: SDM for Recurrent Decisions”	Fall 2015
▪ 6-week online course	
USFWS/USGS: “Decision Analysis for Climate Change”	Spring 2015
▪ 10-week online course	

OUTREACH AND SERVICE

• Volunteer Research assistant – National Climate Adaptation Science Center	2020
• SC CASC Working Group member - "Mapping Changes in Species Distributions"	2018-2019
• NIMBioS Working Group member - "Hierarchies in Conservation"	2018-2019
• AGU Outstanding Student Presentation Judge	Dec 2019
• Peer Reviewer – Animal Conservation	Spring 2018
• USFWS/USGS Structured Decision Making Workshop Coach	Jun 2014, May 2016
• Structured Decision Making Workshop Volunteer and Observer	Nov 2012, Feb 2014
• EEB Faculty Search committee member, Conservation Biology search	Oct 2015 - Apr 2016
• Chancellor-appointed Sexual Misconduct Task Force Member	Fall 2015
• Chancellor’s Excellence in Teaching committee member	Spring 2015
• Graduate Student Senate EEB Representative	2014-2015

- Graduate Student Senate Travel Awards Committee member 2014-2015
- GREBE Vice-President (Departmental grad representation) 2014-2015
- Graduate student panel for NIMBioS REU students July 2013
- Darwin Day volunteer 2012-2015

PROFESSIONAL & RESEARCH EXPERIENCES

Postdoctoral Research Fellow

University of Oklahoma, Norman, OK Jan 2018-Jan 2020

- Supported by the Department of Interior's South Central Climate Science Center
- Collaboration with hydrologists and engineers to model future water availability scenarios and impacts on biodiversity and instream flows

Structured Decision Making Workshop Coach

USFWS National Conservation Training Center, Shepherdstown, WV June 2014-2016

- Facilitated conservation practitioners during week-long focus groups
- Developed analytical prototypes and frameworks for future research needs on problems in conservation practice

National Science Foundation SCALE-IT and Graduate Research Fellow

University of Tennessee, Knoxville, TN August 2011-August 2016

- Collaborated with non-profit organizations to conduct high impact research on conservation fundraising and financing
- Active participant in Scientific Communication Workshops

Student Conservation Association Intern

USFWS National Conservation Training Center, Shepherdstown, WV Jan 2010-March 2011

- Assisted with the development and implementation of USFWS training courses
- Create classroom and education materials

Population Dynamics Summer Workshop Intern

Virginia Tech - NMFS, Blacksburg, VA June 2009-August 2009

- Researched social and scientific issues in the Gulf of Mexico fisheries through interviews with key figures in the region
- Developed materials for educational website framing and discussing the issues behind an ecosystem based fisheries management system

Honors Thesis Research

William and Mary Biology Department, Williamsburg, VA Aug 2008-April 2009

- Developed mathematical model to reflect non-migratory source-sink metapopulation
- Incorporated model into Natural Resource Damage Assessment's Habitat Equivalency Analysis to examine effects on cost estimations

Lab/Field Assistant

William and Mary Biology Department, Williamsburg, VA Summer 2006, 2007, 2008

- Analyzed biological samples for concentration of methyl-mercury contaminants
- Collected data, managed database and laboratory for avian study

SOFTWARE AND FIELD SKILLS

- MATLAB
- R statistical software
- ArcGIS
- QGIS
- Microsoft Excel
- Wildlife Handling (Avian)

OTHER TRAINING

South Central Climate Science Center

- Climate Science Early Career Researcher Professional Development Training August 2018

USFWS National Conservation Training Center:

- Decision Analysis: Elicitation and Facilitation March 2014
- USGS Structured Decision Making Observation Feb 2014
- Introduction to Structured Decision Making August 2013
- ArcGIS Introduction September 2010
- DOI Motorboat Operator Certification Course, *Annapolis, MD* June 2010