

Caitlin McDonough MacKenzie

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EDUCATION

- 2017 Ph.D. candidate Biology: Ecology, Behavior & Evolution
Boston University (advisor: Richard Primack)
- 2010 M.S. Ecological Planning, Rubenstein School of Natural Resources
University of Vermont
- 2006 B.A. Environmental Science and Public Policy
Harvard University

AWARDS & GRANTS

Awards

- 2014 Graduate Student Research Award, New England Botanical Club
- 2013 Graduate Student Policy Award, Ecological Society of America
- 2013 Science Café runner up, Ecological Society of America
- 2010 Graduate Student Research Award for Outstanding Scholarship, Rubenstein School of Natural Resources, University of Vermont

Grants

- 2016 PLOS Ecology ESA Reporting Fellowship, travel stipend (\$500)
- 2016 Schoodic Research Fellowship (\$2,500)
- 2015 National Science Foundation Doctoral Dissertation Improvement Grant (\$12,818)
- 2015 Waterman Fund Grant, Conserving the Alpine Areas of Northeastern North America (\$1,800)
- 2014 Boston University Women's Guild Scholarship (\$500)
- 2012 National Park Service Cooperative Agreement (\$61,000)
- 2012 Bechtel Grant Travel Award, SERC Institute (\$300)
- 2012 Phenology 2012 Travel Scholarship (\$500)
- 2011 George Melendez Wright Climate Change Fellowship (\$12,000)

TEACHING EXPERIENCE

Adjunct Faculty at Emerson College

- 2016: New England Forests (Designed and developed this new Spring course for 59 students)
- 2014: Climate Change (Hired to teach this existing course for the Spring (35 students) and Fall (62 students). Duties for both courses included:
- Curriculum development and lesson planning
 - Lecturing and leading class discussions
 - Facilitate semester-long projects on climate change/forest ecology and society
 - Create and grade homework, quizzes, exams, mid-semester and final projects

Teaching Assistant at Boston University, Biology Department

- 2011, 2012: Introduction to Biology
- Lectured and supervised two laboratory sections per week
 - Graded homework, lab reports, and lab final exams for 35 students
 - Mentored undergraduate Learning Assistants who assisted in the lab

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Guest Lectures

- 2013 Emerson College: Climate Change
- 2013 Colby College: Terrestrial Ecology (Biology Department)
- 2013 Boston University: Evolutionary Ecology (Biology Department)

Teaching Assistant at University of Vermont

- 2009, 2010: Applied Environmental Statistics
 - Supervised semester-long service-learning projects in collaboration with USFS
 - Graded homework assignments and exams, offered review sessions outside of class
 - Guest-lectured a case study on the importance of study design
 - Nominated by students for “Rubenstein School Teaching Assistant of the Year” in 2010
- 2010: Environmental Problem Solving & Impact Analysis
 - Planned and facilitated a weekend-long retreat for UVM seniors
 - Developed and presented a teaching model for the undergraduate course Power, Privilege, Diversity & Natural Resources
- 2009: Ecosystem Management: Integrating Science, Society & Policy
 - Facilitated group discussions, graded essays and exams, provided weekly office hours
 - Developed case studies for curriculum and guest-lectured on one case study
- 2008: Natural History and Field Ecology
 - Taught plant ecology and field methods as a lab instructor on weekly field trips
 - Graded lab reports and helped students revise work for a cumulative portfolio

RESEARCH EXPERIENCE

- 2011-2016 **PhD Research** at Acadia National Park
 - The ecological impacts of climate change on plant communities on Mount Desert Island, ME*
 - Installing and monitoring flowering phenology transects along three North-South ridges
 - Designing and building a reciprocal transplant experiment in raised beds on Cadillac
 - Mentoring College of the Atlantic undergraduate research assistants in the field & lab
 - Compiling historic records of plant populations from published flora & herbaria
 - Creating a database of historic and current species abundances on the island
 - Digitizing 5,000 Acadia National Park plant specimens at the COA herbarium
- 2012-2014 **Volunteer** with The Plants of Baxter State Park Project
 - Dedicated to the creation of a definitive flora for Baxter State Park, ME*
 - Documenting the distribution and habitats for vascular plants in Baxter State Park
 - Backpacking and canoeing to remote locations for field surveys
 - Identifying plants with dichotomous keys and field guides
 - Creating herbarium specimens of unknown species for preservation and identification
- 2009-2010 **Masters Project & Research Staff** with the Appalachian Mountain Club
 - A citizen science project devoted to monitoring alpine plant phenology in the White Mountains, NH*
 - Two field seasons monitoring permanent plots throughout the White Mountains
 - Installed and maintained plant cameras, downloaded data from temperature probes
 - Assessed the quality and reliability of volunteer-collected plant phenology data
 - Created ArcMap tools to model the date of first flower across the White Mountains
 - Trained hut naturalists and developed backcountry education programs
- Summer 2007 **Field Research Assistant** with the Nature Conservancy

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Characterization of the biological diversity, structure, and composition within old-growth forest refugia and young-managed forests in the Willapa Hills, Washington

Ascended trees using single-rope technique to collect arthropod biodiversity data on the ground and in the canopies of four pairs of old growth and young-managed forest stands
Designed and built a Berlese Funnel system able to process one hundred litter samples per day
Sorted, identified, prepared and pinned arthropod specimens at Oregon State University

Fall 2004 **Directed Research** at the School for Field Studies, Australia

A fifteen-year comparison of tooth-billed bowerbirds' traditional stage sites in old growth and regrowth rainforest

Mapped current stage sites using GPS and GIS software
Translated a fifteen year old hand-drawn map of stage sites into GIS
Observed and recorded male tooth-billed bowerbird behavior from bird blinds
Sorted seeds from bowerbird droppings to uncover dietary trends in different stands

PUBLICATIONS

McDonough MacKenzie, Caitlin, Georgia Murray, Richard Primack, and Doug Weihrauch. 2016. Lessons from Citizen Science: Assessing volunteer-collected plant phenology data with Mountain Watch. *Biological Conservation*. <http://dx.doi.org/10.1016/j.biocon.2016.07.027>

SCIENCE COMMUNICATION & OUTREACH

Mount Desert Island Historical Society

2016 Speaker, "Botany on MDI" Great Summer Adventure fundraiser
2016 MDI Half Marathon charity runner for MDI Historical Society
2016 Co-curator, "Before Acadia: Adventure & Discovery" at the Somesville Museum
2015 Author, "The Changing Flora of Mount Desert Island" in *Chebacco*
2014 MDI Marathon Relay, Team Herstory charity runner for MDI Historical Society
2013 MDI Marathon charity runner for MDI Historical Society

2016 *PLOS Ecology ESA Reporting Fellowship*, Fort Lauderdale, FL

Share dispatches from the Ecological Society of America annual meeting and the PLOS Ecological Impacts of Climate Change Collection through social media

2016 *SEEDS Meeting Mentor*, Fort Lauderdale, FL

Partnered with a SEEDS undergraduate at the Ecological Society of America Meeting

2015 *ComSciCon: The Communicating Science Workshop for Graduate Students*, Cambridge, MA

Three-day professional development experience in which students learn from professional communicators including journalists and educators, and produce original works of science communication for publication

2014 *American Institute of Biological Sciences Congressional District Visits*, Cambridge, MA

Meeting with Representative Katherine Clark's staff (MA 5th district)

2013 *Biological Ecological Sciences Coalition Congressional Visits Day*, Washington, DC

Training in policy engagement, Meetings with MA Congressional Delegation and staffers

2013- *Pierce Elementary School Climate Change Day*, Brookline, MA

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Attending the 6th grade's climate change day to share research from the Primack Lab and participate in the interactive student showcase

2012- *GWISE @ BU* (Graduate Women in Science and Engineering)
Board Member, Peer Mentoring Coordinator, Undergraduate Mentor, Parents' Group

2012- *BIOBUGS* (Biology Inquiry & Outreach with Boston University Graduate Students)
Teaching half-day lab experiences for visiting high school classes from the Boston area

2002- *Singing Eagle Lodge* summer camp for girls, Holderness, NH
Executive Board Member (2013-), Counselor-In-Training Program Leader, Junior Counselor Mentor

SYMPOSIA & PRESENTATIONS

Talks

March 2016 Mass Audubon Wachusett Meadow Lecture Series, Princeton, Massachusetts
Walden Warming How Climate Change Affects Plants, Animals, and the Timing of Seasons in Massachusetts (and Maine)

November 2015 Northeast Alpine Stewardship Gathering, Millinocket, Maine
Patterns of species loss and spring phenology in the plant communities of Acadia National Park, Maine

August 2015 Ecological Society of America, Baltimore, Maryland
Patterns of species loss and spring phenology in the plant communities of Acadia National Park, Maine

August 2014 College of the Atlantic Coffee & Conversations Series
Botany of Mount Desert Island

January 2014 American Society of Naturalists Meeting, Pacific Grove, California
Science in the attic: Studying spring phenology in Northern Maine with a hunting guide's journal

Sept 2013 Community Lecture Series, Eagle Hill Institute, Steuben, Maine
Timing is everything: Studying phenology and climate change with 19th century naturalists

June 2012 National Park Service Climate Change Webinar Series
120 years of changes in flora and flowering in Acadia National Park

July 2011 Acadia National Park & Josslyn Botanical Society Meeting
Changes in the Flora of Acadia National Park

November 2010 New England Regional Phenology Network Meeting, Durham, NH
Lessons from a Season with Plant Cameras: incorporating plantcams into a citizen science program

April 2010 & 2012 Bancroft High School School Earth Day Speaker Series (alumna speaker)
Climate Change in New England and the Glamorous Life of a Field Biologist

October 2009 UVM Graduate Student Research Symposium
Collaboration at High Elevations: monitoring alpine plant phenology in the White Mountains with citizen scientists

December 2004 Centre for Rainforest Studies Community Outreach Night
Assessing the use of traditional stage sites by Tooth-billed bowerbirds in old growth and regrowth rainforest over fifteen years

Posters

August 2016 Ecological Society of America Annual Meeting, Fort Lauderdale, FL
Plant Phenology and Vulnerability in Acadia National Park, Maine

October 2015 Acadia Science Symposium

Caitlin McDonough MacKenzie

Second author on a poster with COA student Ella Samuel

- Phenological Responses to Climate Change in Acadia National Park*
April 2015 Northeast Natural History Conference, Springfield, MA
The effects of elevation and genetic source population on leafing out times in a common garden experiment on Cadillac Mountain, Mount Desert Island, Maine
- March 2015 Boston University Graduate Research Symposium
The effects of elevation and genetic source population on leafing out times in a common garden experiment on Cadillac Mountain, Mount Desert Island, Maine
- October 2014 Acadia Science Symposium
The effects of elevation and genetic source population on leafing out times in a common garden experiment on Cadillac Mountain, Mount Desert Island, Maine
- April 2014 Acadia Science Symposium (held in April due to Oct 2013 gov't shutdown)
Changes in the flora of Acadia National Park
- April 2014 Northeast Natural History Conference, Springfield, MA
Changes in the flora of Acadia National Park
- August 2013 Ecological Society of America Annual Meeting Portland, OR
Science in the attic: Studying spring phenology in Northern Maine with a hunting guide's journal
- October 2012 Acadia Science Symposium
Climate Change in Acadia National Park and Beyond: Long-term Trends in Flowering Phenology and Floral Abundance
- Sept 2012 Phenology 2012 Meeting, Milwaukee, WI
Phenology and plant communities in a changing New England: comparing Acadia National Park, ME and Thoreau's Concord, MA
- August 2012 Ecological Society of America Annual Meeting, Portland, OR
Climate Change in Acadia National Park and Beyond: Long-term Trends in Flowering Phenology and Floral Abundance
- August 2012 Public Participation in Scientific Research workshop at ESA
Citizen Science Above Treeline: Assessing Volunteer Plant Identification Skills
- August 2010 Ecological Society of America Annual Meeting, Pittsburgh, PA
Collaboration at High Elevations: monitoring alpine plant phenology in the White Mountains with citizen scientists

Manuscript Reviewer

Biological Conservation, Global Change Biology, Northeastern Naturalist, Ecosystems

WORK EXPERIENCE

- 2007 **Sierra Club, Environmental Policy Intern** Chicago, IL
Supported the Chicago & Great Lakes Region Sierra Club office staff
Wrote and designed environmental legislation fact sheets for volunteer lobbyists
Composed press releases and summaries of scientific reports
- 2003, 2005, 2006 **Appalachian Mountain Club, Hut Naturalist** White Mountains, NH
Facilitated seasonal backcountry environmental education
Designed, developed & presented daily nature programs
Collected Mountain Watch flowering phenology and tropospheric ozone data
Helped to run the hut: served guests, cooked meals, and supported Search & Rescue missions
- 2002 **EcoTarium Museum of Science and Nature, Summer Staff** Worcester, MA
Designed, developed & presented environmental education programs on the museum floor

Caitlin McDonough MacKenzie

Led groups through the Tree Canopy Walkway, a hands-on exhibit 40 ft above the forest floor
Read and performed *The Lorax* and other environmentally-themed books at Story Time

Skills & Certifications

Certifications: Wilderness First Responder & CPR

Computer Proficiency: Excel, Access, PowerPoint, JMP, SAS, R