

# Catherine Chamberlain

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## EDUCATION

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<b>Harvard University</b> <i>Ph.D. in Organismic and Evolutionary Biology</i>	Cambridge, MA Expected May 2021
<b>Trinity College Dublin</b> <i>M.S. in Biodiversity and Conservation</i>	Dublin, Ireland November, 2015
<b>Michigan State University</b> <i>B.S. in Zoology, Concentration in Ecology Evolution and Organismal Biology</i> <i>Minor in Spanish</i>	East Lansing, MI May, 2013

## SKILLS

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**Quantitative:** Mixed-effects including Bayesian approaches, analysis of covariance, linear and logistic regression models, meta-analysis statistics, climate change analyses and model building

**Computer languages:** Git, LaTeX, R, Stan, Sweave, RMarkdown, Microsoft Office Suite, Machine Learning skills, basic Python and Shell skills

**Field and Mapping skills:** ArcGIS and QGIS, Trimble and Garmin GPS units, field surveys, ecological sampling methodologies, camera traps

## RESEARCH EXPERIENCE

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<b>PhD Researcher</b> Department of Organismic and Evolutionary Biology, Harvard University	September 2016-Present Cambridge, MA
<ul style="list-style-type: none"><li>• Use meta-analysis and gridded climate data to understand the effects of climate change on forest systems</li><li>• Run greenhouse experiments with 384 plants and assess forest and common garden phenology observations for 5 years</li><li>• Analyze results using Bayesian hierarchical models in R assist peers in statistical analysis leading to a publication in <i>Nature Climate Change</i> and <i>Tree Physiology</i></li><li>• Collaborate with an international team of researchers</li></ul>	
<b>Data Scientist</b> The Nature Conservancy	November 2018-Present Northampton, MA
<ul style="list-style-type: none"><li>• Provide volunteer support to develop a machine learning tool to identify camera trap images with a 12-member team</li><li>• Coordinate with camera trap users nationwide to implement a standardized output for collaboration</li></ul>	
<b>Data Scientist, Tree Spotters Citizen Science Project</b> Harvard University - Arnold Arboretum, through the National Phenology Network	May 2016-Present Boston, MA
<ul style="list-style-type: none"><li>• Analyze data for 75 individuals across 15 tree species at the Arnold Arboretum with over 300,000 observations</li><li>• Prepare reports and deliver results to 5-member team and to 80 active volunteers</li></ul>	
<b>Consultant</b> The Nature Conservancy	May 2020-August 2020 Northampton, MA
<ul style="list-style-type: none"><li>• Drafted landowner a handbook for the New England <i>Family Forest Carbon Program</i></li><li>• Edited and gathered information from primary and secondary literature</li></ul>	
<b>Research Technician</b> Harvard University - Arnold Arboretum	May 2016-August 2016 Boston, MA
<ul style="list-style-type: none"><li>• Developed linear and logistic Bayesian models using R and Stan to investigate the effects of climate change on temperate trees</li></ul>	

- Assisted researchers survey tree diversity, richness and age across 30-50 sites at four forest field stations

**Researcher**

Gorongosa National Park

May 2015-August 2015

Goinha, Mozambique

- Assisted the research team with various vegetation surveys
- Aided other researchers with behavioral studies of antelope in the park
- Contributed samples to the herbarium

**LEADERSHIP & TEACHING EXPERIENCE**

**Guest Lecturer**

Harvard Summer School

July 2020

Cambridge, MA

*International Environmental Governance, Policy, and Social Justice*

- Delivered 3 hour virtual lecture entitled *Phenology, Citizen Science and Climate Change* to 30 students ranging from high schoolers to professionals
- Co-delivered 3 hour virtual lecture on *Conservation Management, Human-Wildlife Conflict and Foreign Affairs* with international colleague

**Teaching Fellow**

Harvard University

Fall 2018-Present

Cambridge, MA

- Guide 18 first year PhD students on time management, teaching, grant writing and public outreach
- Led weekly discussion section and laboratory sessions virtually to 16 students in topics on Introduction to Organismic and Evolutionary Biology
- Advised 15 students in laboratory sessions on topics in Biology of Plants
- Assisted in teaching 30 students in topics of evolution and the history of evolutionary theory
- Supervised students in final projects and reports, graded assignments and exams

**Mentor**

Harvard University – Arnold Arboretum

May 2019-August 2019

Boston, MA

- Mentored 2 students on different research projects through 2 different programs
- Met weekly to advise students on experimental design, literature reviews, statistical analyses and presenting results

**Teaching Assistant**

Trinity College Dublin

April 2016

Limpopo, South Africa

- Guided 16 Masters students in Field Skills in Conservation
- Instructed students how to use dichotomous keys, run field surveys and assess management techniques at 2 conservation reserves

**SELECTED PUBLICATIONS**

**Chamberlain C. J.**, Cook B. I., Morales-Castilla I. & Wolkovich E. M. 2020. Climate change reshapes the drivers of false spring risk across European trees. *New Phytologist*

Ettinger A. K., **Chamberlain C. J.**, Morales-Castilla I., Buonaiuto D. M., Flynn D. F. B., Savas T., Samaha J. A. & Wolkovich E. M. 2020. Chilling dominates spring phenological responses to warming. *Nature Climate Change*

**Chamberlain C. J.**, Cook B. I., García de Cortázar-Atauri I. & Wolkovich E. M. 2019. Rethinking false spring risk. *Global Change Biology*.

**SELECTED PRESENTATIONS**

**Ecological Society of America**

August 2020

*False spring damage on temperate tree seedlings is amplified with warming winter temperatures*

*New Tools for Analyzing and Sharing Wildlife Camera Images: Machine Learning and Online*

*Databases to Minimize Time and Maximize Impact*

**European Geosciences Union, Talk**

May 2020

*Climate change reshapes the major drivers of false spring risk across European trees*