
# Alexandra Barry

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## EDUCATION

**Göteborgs Universitet – Gothenburg, Sweden**

*Ph.D. in Natural Science Specializing in Biology* **2024 – Present**
Thesis: Effects of Climate Warming on Plant Community Productivity in the Arctic Tundra
Related coursework: NBPE301 Plant-Atmosphere Interactions in a Changing Environment

**University of Maine – Orono, Maine, USA** ***GPA 4.00***

*M.Sc. in Forest Resources – Concentration Forest Ecosystem Science* **2021 – 2023**
Thesis: "Climate Interactions Drive Tree Physiology and Growth in a Northeastern Forest Ecotone"
Related coursework: SFR 507 Forest Ecology, SFR 520 Tree Physiology, SFR 521 Research Methods/Responsible Conduct of Research, SFR 557 Tree Pests and Disease, PSE 509 Statistics and Experimental Design, SFR 605 Special Topic: Dendrochronology

**Virginia Commonwealth University (VCU) – Richmond, Virginia, USA** ***GPA 3.76***

*B.Sc. in Biology (minor in Chemistry)* **2015 – 2019**
Thesis: "A comparison of two methods of quantifying mating success in low density [spongy] moth populations"
Related coursework: BIOL 307 Aquatic Ecology, BIOL 309 Entomology and Entomology Laboratory, BIOL 317 Ecology and Ecology Laboratory, BIOL 321 Plant Development, BIOL 492 Independent Study, CHEM 403 Biochemistry I

*B.Sc. in Psychology (dual major)* **2017 – 2019**
Related coursework: PSYC 214 Application of Statistics, PSYC 317 Experimental Methods

## AWARDS AND HONORS

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|---|---|
| George L. Houston Scholarship, University of Maine | 2022 – 2023 |
| Dean's Scholarship, Virginia Commonwealth University | 2015 – 2019 |
| Dean's List, Virginia Commonwealth University | 2016 – 2019 |
| Undergraduate Research Award, VCU Rice Rivers Center | 2017 – 2018 |
| Undergraduate Research and Creative Scholarship Fellowship, VCU | 2017 – 2018 |
| Invitation and Attendance, National Conference for Undergraduate Research | 2015 – 2016 |

## PRESENTATIONS

**Barry, Alexandra**, Bean Bein, Yong-Jiang Zhang, Jay W. Wason (2023). Differential sensitivity of three northeastern tree species to compounded climate extremes. Ecological Society of America Annual

Meeting. Portland, Oregon. Oral Presentation.

Bein, Bean, **Alexandra Barry**, Jay Wason (2023). Responses of photosynthesis to light and extreme heat in three temperate tree species. University of Maine Student Symposium. Orono, Maine. Poster Presentation.

Haber, Lisa, Jeff Atkins, Ben P Bond-Lamberty, Maxim S Grigri, **Alexandra Barry**, Laura J Hickey, Christopher M Gough (2020). Subcanopy leaf functional trait response to disturbance at different severities and implications for ecosystem production stability. American Geophysical Union 2020 Fall Meeting. Virtual. Oral Presentation.

Gough, Christopher Michael, Jeff Atkins, Ben P Bond-Lamberty, Alexey N Shiklomanov, Maxim S Grigri, Lisa Haber, Kayla C Mathes, **Alexandra Barry**, Laura Jane Hickey, Autym Shafer, and Forest Resilience Threshold Experiment (FoRTE) Team (2019). Does canopy structure affect carbon cycling resistance to disturbance?: Insights from an ecosystem experiment. American Geophysical Union 2019 Fall Meeting. San Francisco, California. Oral Presentation.

**Barry, Alexandra**, Hannah Byrne, Derek M Johnson (2019). Comparing two methods of quantifying an invasion-restricting component Allee effect in the defoliating pest *Lymantria dispar*. Virginia Commonwealth University Rice Rivers Center Research Symposium. Charles City, Virginia. Poster Presentation.

**Barry, Alexandra**, Hannah Byrne, Derek M Johnson (2019). Translating mate-finding ability to mating success in [spongy] moth across a vegetation gradient. Ecological Society of America ESA/USSEE Joint Meeting. Louisville, Kentucky. Poster Presentation.

**Barry, Alexandra**, Hannah Byrne, Derek M Johnson (2018). Comparing two methods of quantifying an invasion-restricting component Allee effect in the defoliating pest *Lymantria dispar*. Virginia Commonwealth University Undergraduate Research Opportunities Program Symposium. Richmond, Virginia. Poster Presentation.

**PUBLICATIONS**

**Barry, Alexandra,** Bean Bein, Yong-Jiang Zhang, Jay W Wason (2024). Linking physiological drought resistance traits to growth and mortality of three northeastern tree species. *Tree Physiology* 44(9). https://doi.org/10.1093/treephys/tpae095.

Schulz, Katlyn A, **Alexandra Barry**, Laura S Kenefic, Jay W Wason (2024). Contrasting survival strategies for two northern conifer trees to extreme drought and flood events. *Tree Physiology*. Accepted Manuscript. https://doi.org/10.1093/treephys/tpae117.

Clay, Cameron, Luke Nave, Knute Nadelhoffer, Cristoph Vogel, Brooke Propson, John Den Uyl, Laura J Hickey, **Alexandra Barry**, Christopher M Gough (2022). Fire after clear-cut harvesting minimally affects the recovery of ecosystem carbon pools and fluxes in a Great Lakes forest. *Forest Ecology and Management* 519.

Atkins, Jeff W, Elizabeth Agee, **Alexandra Barry** , Kalyn Dorheim, Lisa T Haber, Laura J Hickey, Maxim Grigri, Kayla Mathes, Catherine McGuigan, Evan Paris, Stephanie C Pennington, Carly Rodriguez, Autym Shafer, Alexey Shiklomanov, Jason Tallant, Christopher M Gough, Ben Bond-Lamberty (2021). The *fortedata* R package: open-science datasets from a manipulative experiment testing forest resilience. *Earth System Science Data* 13: 943-952.

**PEER REVIEW**

Anonymous reviewer for *Dendrochronologia* – **2022**

**SKILLS AND CERTIFICATIONS**

Proficiency in R programming language
Proficiency in Microsoft Excel for data entry, analysis, and visualization
Experience in training and delegating tasks to field and laboratory technicians, undergraduate research assistants
Experience working safely in adverse environmental conditions, including extreme heat, cold and snow, biting insects, and remote locations
Experience in planning and execution of season-long field and laboratory study, leading a team of 2-4 individuals
Proficiency in GPS navigation, use of forestry tools
Certification in CPR and Wilderness First Aid
Mid-Atlantic US, Northern Great Lakes, New England/Acadian Forest plant identification
Knowledge of forest safety skills and the ability to work safely and efficiently in a field team

**PROFESSIONAL AFFILIATIONS**

***Nordic Society OIKOS***
*Member – Sweden (2024-present)*

***Ecological Society of America***
*Member – Ecophysiology Chapter; Student Section (2019-present)*

***SWIFT (Supporting Women in Forestry Today)***
*Planning Committee (2022-2023)*
*Website Manager/Publicity (2022-2023)*
*Member (2021-2023)*

**RESEARCH EXPERIENCE**

***EDGE Ecology Group,*** *Göteborgs Universitet*
*Doctoral Student – Gothenburg, Sweden* **September 2024 – Present**

***Wason Forest Ecophysiology Lab,*** *University of Maine*
*Graduate Research Assistant – Orono, Maine* **July 2021 – August 2023**

- Designed and ran greenhouse experiment with 450 seedlings, investigating effects of climate extremes on tree physiology and growth, in fulfillment of Master of Science thesis
- Designed and ran field study of 60 mature trees to investigate relationships between climate, leaf physiology, and radial growth, in fulfillment of Master of Science thesis

- Led the establishment and initial measurements of a six-site, >1000-seedling study to examine the effects of environmental stressors on seedlings planted in intraspecific mesocosms along a 183-km geographic climate gradient
- Utilized R programming language to manage and analyze large ecological and physiological datasets
- Programmed, installed, and monitored potentiometer-based point dendrometers (TOMST, Czech Republic) on 30 mature trees for climate-radial growth field study
- Used compass/GPS and maps to navigate remote sites
- Measured leaf physiological parameters using LiCOR 6400/XT and LiCOR LI-600
- Operated and performed troubleshooting on thermocouple psychrometers, paired datalogger, and PC400 software in order to measure plant tissue water potential
- Operated PMS Instruments pressure chamber in order to measure leaf water potential
- Collaborated in the writing and review of manuscripts for publication
- Mentored two undergraduate students through design of research projects, data collection, and presentation of research in seminar/conference setting

Dr. Jay Wason: jay.wason@maine.edu (Supervising Faculty, Advisor)

***Gough Forest Ecology Lab,*** *Virginia Commonwealth University*
*Forest Field Technician – Richmond, Virginia and Pellston, Michigan* **Feb. 2018 – August 2020**

- Used compass/GPS and maps to navigate remote sites
- Identified plant species of the Great Lakes region
- Established and inventoried long-term study plots and nested vegetation plots at the University of Michigan Biological Station (Pellston, MI)
- Established and inventoried study sites at established chronosequences for assessment of regeneration and carbon pools post-harvesting and fire
- Measured leaf physiology using LiCOR 6400XT; leaf spectrometry with a CI-710
- Manufactured, installed, and repaired leaf litter traps and stainless steel band dendrometers
- Operated Zero Emission Canopy Access Vehicle (ZECAV) to collect canopy physiology measurements
- Performed data entry and organization via Microsoft Excel and Google Sheets
- Worked safely under adverse environmental conditions, including snow and extreme cold, heat and humidity, heavy rain, and risk of treefall
- Co-authored two publications (Atkins et al. 2021, Clay et al. 2022)

Dr. Chris Gough: cmgough@vcu.edu (Principal Investigator)

***Johnson Population Ecology Lab,*** *Virginia Commonwealth University*
*Undergraduate Research Fellow – Richmond, Virginia* **Feb. 2017 – May 2019**

- Designed and conducted invasive insect field experiment in forest settings across Central Virginia, USA using spongy moths (*Lymantria dispar* L.)
- Utilized R programming language for analysis of data and creation of graphs
- Reared spongy moths from pupae in lab setting
- Worked with team members to record data on moth behavior in field setting using delta traps and female moth tethering
- Dissected spongy moths to determine reproductive status using dissecting microscope
- Reviewed lab members' manuscripts and proposals
- Authored undergraduate thesis paper on results of experiment

Dr. Derek Johnson: dmjohnson@vcu.edu (Supervising Faculty, Advisor)

***Bulluck Avian Lab,*** *Virginia Commonwealth University*
*Summer Field Research Assistant – Fort AP Hill, Virginia* **June 2016 – August 2016**

- Assisted in foliage measurement and recording of field data
- Identified plant species of Central Virginia
- Measured tree and stem density using calipers and D-tape
- Observed and recorded presence of red-headed woodpeckers in wetland, savannah, and deciduous/pine forest settings of Fort AP Hill in Central Virginia, USA
- Used GPS, Forestry Pro rangefinder, and spherical densiometer to gather data

Dr. Lesley Bulluck: lpbulluck@vcu.edu (Principal Investigator)

**TEACHING EXPERIENCE**

***SFR 439 Biology of Woody Plants,*** *University of Maine*
*Guest Lecture* **Sept. 2022 – October 2022**

- Developed and ran teaching module on tree physiology for an audience of undergraduate and graduate students
- Developed pre- and post-curriculum assessments of students' learning
- Led in-field discussion on experimental design in plant biology, using my own study as a framework

Dr. Jay Wason: jay.wason@maine.edu (Supervising Faculty)

***Grade 7 Life Science,*** *AG Wright Middle School, Stafford, Virginia USA*
*Long-Term Substitute Teacher* **October 2020 – June 2021**

- Acted as primary instructor for in-person and virtual lessons in general biology and life sciences with 15-25 students
- Collaborated with instructor (on long-term medical leave) to develop and implement lesson plans in a junior high school classroom (11 to 13-year-old students)
- Administered coursework exams and standardized tests to students

Jasmin Guadalupe: guadalupej@staffordschools.net (Assistant Principal)

***PSYC 335 Psychology of Women,*** *Virginia Commonwealth University*
*Teaching Assistant* **Dec. 2018 – May 2019**

- Led discussion about class topics within a group of seven to ten students
- Collaborated with instructor and other teaching assistants to formulate lesson plans and discussion topics
- Provided feedback to students on written assignments, essays, and reflections
- Coordinated student service projects alongside a local community-oriented organization
- Interacted with students with consideration and appreciation of diverse life experiences and backgrounds
- Trained in performing community service with emphasis on social justice, empathy, and working with existing local initiatives

Dr. Kathleen Ingram: kingram@vcu.edu (Supervising Faculty)