

CALEB D. SOWERS

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142 Garren Road, Hendersonville, NC, 28792

EDUCATION

Kansas State University, Manhattan, KS

Anticipated Graduation: Dec 2022

Major: MSc in Entomology

Coursework: Advanced Insect Evolution, Advanced Deep Learning

Emory University, Atlanta, GA

August 2016 - May 2020

Oxford College of Emory University

Major: B.S. in Physics

Honors: Oxford College Academic Merit List: Fall 2016- Spring 2018; Paddison Family Foundation Scholar; Excellence in Environmental Science Departmental Award (2018)

Coursework: Multivariable Calculus, Differential Equations, Linear Algebra, Computational Modeling for Scientists, Field Botany

WORK EXPERIENCE

Graduate Research Assistant, Spiesman-Kim Lab

August 2020 - July 2022

Manhattan, KS

- Responsible for generating dataset for \$499,000 USDA-funded tool for automated bee identification
- Assisting in engineering large-scale convolutional neural networks to segment and classify images containing pollinators from hundreds of potential classes
- Developing field-deployable system for automated pollination monitoring

Researcher, Brosi Lab

October 2018 – August 2020

Atlanta, GA & Gothic, CO

- Worked under Berry Brosi, PhD, and Alva Curtsdotter, PhD, to understand how biological network architecture affects the function of ecological systems and how both are impacted by climatic changes
- Developed MATLAB models of theoretical ecological systems to study the relationship between pollinator removal and community stability
- Collected pollinator samples at Rocky Mountain Biological Laboratory from May- August 2019/2020 to validate mathematical ecological models

Lab Assistant, Birdbrain Lab

June 2018 – September 2018

Atlanta, GA

- Developed audio/visual system for computational neuroscience laboratory
- Wrote scripts to assist with the processing of thousands of scanned bird brain slices
- Performed time-sensitive brain transfers between failing laboratory freezers

Teaching Assistant: Fundamentals of Geology, Oxford College

August 2017 – December 2017

Oxford, GA

- Set up, managed, and maintained laboratory materials and equipment
- Provided supplemental instruction and answered student questions on course content

- Privately tutored students in more difficult topics (structural geology, mineralogy)

Mountaintop Removal Campaign Assistant, Appalachian Voices

May 2017 – August 2017

Boone, NC

- Drafted and submitted FOIA requests to acquire a broad range of stream quality data
- Combined GIS data on mine and stream location with stream biodiversity indices to analyze information with R and guide organization's conservation and litigation efforts
- Developed analytic models and reports to be used to inform Clean Water Act enforcement litigation

LEADERSHIP AND COMMUNITY INVOLVEMENT

Member, Emory University Sustainability Advisory Council

September 2017 - May 2020

Atlanta, GA

- Member of Monitoring and Evaluation and Alumni Outreach Sub-Committees
- Brought "Energy October" energy usage awareness and conservation program to Oxford Campus

Member, Emory University Committee on the Environment

April 2017 – May 2020

Atlanta, GA

- Work with a team of faculty, staff, and administrators to review and approve projects affecting the environment of Emory's campuses
- Canvas student, staff, and faculty populations to build awareness of Committee initiatives

Peer Assistance Leader, Oxford College of Emory University

April 2017 – December 2017

Oxford, GA

- Served as leader and mentor to group of 15 first-year students throughout Orientation Week
- Facilitated 12-week academic seminar on discovering personal success and fulfillment at Oxford College

PRESENTATIONS

Sowers, Caleb. 2020. Automating Mutualistic Network Generation. Talk at Integrative Conservation Conference.

Sowers, Caleb. 2018. Projecting Inland Flooding Changes in a Variety of Climate Change Scenarios. Talk at Emory Climate Analysis and Solutions Team Symposium.

Sowers, Caleb. 2018. Projecting Inland Flooding Changes in a Variety of Climate Change Scenarios. Talk at Universities for a Greener Georgia Conference.

MANUSCRIPTS IN PROGRESS

Morozumi, Connor, Curtsdotter, Alva, **Sowers, Caleb**, and Brosi, Berry. Interaction intensity structure interacts with network topology to affect robustness to species coextinctions in mutualistic networks. *In prep.*

OUTREACH

Big Brother, Big Brother Big Sister North Central Kansas. October 2020 – Present. Manhattan, Kansas.

Volunteer Outreach Scientist, Atlanta Science Festival: Laurel Ridge Elementary. March 5, 2020, Decatur, Georgia.

Volunteer, Fernbank Museum of Natural History Adventures in Science Day. November 2, 2019, Atlanta, Georgia.

Volunteer Assistant, 23rd Conference on Applied Climatology. June 26-28 2017, Asheville, North Carolina.

Project Coordinator; Sustainability, Volunteer Oxford. August 2016-May 2018, Oxford, Georgia.