Jackson Barratt Heitmann
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EDUCATION

College of Charleston, *Charleston, SC* Expected May 2023
M.S. Environmental and Sustainability Studies

- GPA: 3.9
- Thesis: Are ephemeral wetlands hotspots for avian biodiversity in pine savannah ecosystems?

Bard College, *Annandale-on-Hudson, NY* May 2018
B.A. Global and International Studies

- GPA: 3.5
- Senior Thesis: National Parks in Sub-Saharan Africa, an Examination of Social and Economic Program Effectiveness in the Development Paradigm

Relevant Coursework: BIO 311 Field Ornithology, BIO 244 Biostatistics, BIO 408 Advanced Conservation Biology, EVSS 695 Biodiversity Management, EVSS 624 Biometry, EVSS 695 Statistical Programming in R, EVSS 632 Managing Resilient Landscapes

PUBLICATIONS

Devin J. Fraleigh, Jackson Barratt Heitmann, Bruce A. Robertson. Ultraviolet polarized light pollution and evolutionary traps for aquatic insects. **Animal Behavior**. 2021.

In Preparation:
Robertson BA, Rothberg O, Barratt Heitmann J, Fraleigh D. Birds use polarized light to find food and water. For **Current Biology**.

Robertson BA, Barratt Heitmann J. Polarization properties of solar panels that trigger maladaptive water-seeking behavior in wildlife. For **Journal of the Royal Society Interface**.

Theses:
Barratt Heitmann, Jackson R., "National Parks and Development in Sub-Saharan Africa: An Examination of Social and Economic Program Effectiveness in the Development Paradigm" (2018). *Senior Projects Spring 2018*. 216. https://digitalcommons.bard.edu/senproj_s2018/216

AWARDS

South Carolina Sea Grant Consortium Biannual Research Award (*$112,000*) 2022-2023
2022 College of Charleston 1st Place Graduate Poster Session (*$500*) Spring 2022
EVSS Merit Research Assistantship Award (*$13,200*) Fall 2021- Spring 2022
Research Assistantship – McGlinn Biodiversity Lab (*$30,000*) 2022-present
Graduate Assistantship – Stono Preserve Student Garden (*$7,500*) Spring 2021
Andrew McCabe Memorial Award Spring 2018
Liberty League All-Academic Team Fall 2014-Fall 2018

PRESENTATIONS

South Carolina Sea Grant Research Symposium, May 11, 2022. Jackson Barratt Heitmann, Stacey Lance, Matt Rutter, Lisa Lord, and Daniel J. McGlinn. Are ephemeral wetlands hotspots for avian biodiversity in Pine Savanna ecosystems?

College of Charleston Student EXPO, April 7, 2022. Jackson Barratt Heitmann, Stacey Lance, Matt Rutter, Lisa Lord, and Daniel J. McGlinn. Are ephemeral wetlands hotspots for avian biodiversity in Pine Savanna ecosystems?

College of Charleston Student Graduate Poster Session, March 16, 2022. Jackson Barratt Heitmann, Stacey Lance, Matt Rutter, Lisa Lord, and Daniel J. McGlinn. Are ephemeral wetlands hotspots for avian biodiversity in Pine Savanna ecosystems?

North American Ornithological Conference, August 10, 2020. Poster presentation. Robertson BA, Barratt Heitmann J. Polarization properties of solar panels that trigger maladaptive water-seeking behavior in wildlife.

Animal Behavior Society, July 18, 2020. Poster Presentation. Robertson BA, Rothberg O, Barratt Heitmann J, Fraleigh D. Birds use polarized light to locate water bodies.

RESEARCH EXPERIENCE

Are ephemeral wetlands hotspots for avian biodiversity in pine savannah ecosystems?
Master's Thesis, *Charleston, SC* January 2021-present

- Conducting variable-radius point counts at 24 field sites (both ephemeral wetlands and uplands) and conducting wetland assessments at 18 ephemeral wetlands.
- Performing principal component analysis and calculating Shannon-Weiner Index of biodiversity in R for ephemeral wetlands in Longleaf Pine habitat.
- Performing LiDAR analysis in R using lidR package; calculating tree heights, canopy crown coverage, and means canopy height in 25m and 50m radius bands around wetland sites.
- Managing wetland assessment and avian point count databases in Excel and R.
- Preparing and writing manuscripts for publication targeted at *Ecology* and *Journal of Applied Ecology.*

Ultraviolet polarized light pollution impacts birds and insects, *Annandale-on-Hudson, NY*
Research Assistant December 2019-June 2020

- Imaging solar panels and acrylic plastics using specialized Canon cameras to determine the range of angles that solar panels mimic polarized light properties of natural water bodies.
- Processing imagery in Algonet software to determine the angle of polarization, and the degree of linear polarization and maintaining database for all field work imagery.

Long-Term Effects of Herbicides on Invasive Plant Species Cover and Distribution, *Augusta, ME*
Maine Natural Areas Program October 2018

- Performing One-ANOVA analysis with interactions on percent cover and species diversity data set in long-term invasive plant plots using R software to quantify effects of herbicide use.
- Tukey Test revealing statistically significant change in mean percent cover of invasive plant species over the course of 4 years from 2015-2018, but showing no significant difference in native tree regeneration.

Microhabitat preferences of Red-bellied Woodpeckers, *Annandale-on-Hudson, NY*
Undergraduate Research Project May 2018

- Performing T-test analysis on microhabitat locations, tree trunks and tree limbs in different sized trees, measured in DBH, of Red-bellied Woodpeckers in upland habitat.
- T-test analysis revealing statistically significant difference in Red-bellied Woodpecker microhabitats preferring the trunks of smaller trees and limbs of larger trees for different foraging and vocalizing behavior.

RELEVANT PROFESSIONAL EXPERIENCE

McGlinn Biodiversity Lab, College of Charleston, *Charleston, SC* January 2021-present
Research Assistant/MS Candidate

- Preparing winning grant concept letter and full proposal for submission to SC Sea Grant Consortium for biannual RFP.
- Conducting outreach with 55+ communities, with students and faculty of College of Charleston at Stono Preserve, and with 2-5th grade students at Title I schools.
- Coordinating with local landowners for property access, and coordinating research objectives with Longleaf Alliance, private land management companies, and researchers at the Savannah River Ecology Lab from the University of Georgia.
- Presenting at poster sessions at the College of Charleston and SC Sea Grant Consortium.

Bard College, Department of Biology, *Annandale-on-Hudson, NY* December 2019-June 2020
Research Assistant

- Designing scientific study and methodology with team of researchers to bridge theoretical gap and practical application of polarization properties of solar panels at large facilities in Mojave Desert.
- Independently managing weekly field schedule in variable weather conditions and maintaining large imaging database in Microsoft Excel.

Student Conservation Association, an AmeriCorps Program, *New York, NY*
serving at Audubon New York - *For the Birds!* Program January 2019 – November 2019
Environmental Educator

- Teaching a total of 610 students in-school and afterschool programs on Bird Adaptations, Biomes of New York, and Plants for Birds in 4 boroughs of New York City.
- Tabling 3 outreach events reaching a total of 214 people on the *For the Birds!* Program and mission of Audubon New York targeting public and private school educators, government, and non-governmental partners such as Brooklyn Botanical Garden, and NYC Parks Department.

Maine Conservation Corps, an AmeriCorps Program, *Augusta, ME*
serving at Maine Natural Areas Program May 2018-November 2018
Environmental Steward

- Collecting canopy gap, species composition, and tree height data using LIDAR imaging dataset to determine vernal pool distribution association with canopy gaps.
- Collecting forest inventory plot data: deadwood, tree DBH, seedling/sapling, and azimuth coordinates for Forest Inventory Project at the University of Maine-Orno to determine differences in forest composition between managed forests and unmanaged forests for both private sector logging companies and internal state of Maine use.
- Entering invasive plant data into iMapInvasives online mapping tool and creating maps in ArcGIS for state parks using GPS point files and shape files to create state wide invasive plant documentation.
- Preparing invasive plant management reports for Maine state parks while adhering to state herbicide application guidelines, and state endangered habitat assessments.

VOLUNTEER/OUTREACH EXPERIENCE

Audubon South Carolina – Bird Banding, *Harlyville, SC* *Summer 2021*
Audubon NY - Long Island Waterbird Survey, *Wantagh, NY* *Summer 2019*
Sam's Point Breeding Bird Survey, *Cragsmoor, NY* *Summer 2019*
American Eels monitoring in Hudson River, *Annandale-on-Hudson, NY* *January 2018*

COMPUTER SKILLS

Microsoft Office (proficient); G-suite (proficient); Outlook (proficient); Adobe Acrobat (proficient); iMapInvasives (proficient); R software (proficient); ArcGIS (intermediate); Microsoft Access (intermediate); Git (beginner)

LICENSES & CERTIFICATIONS

CPR/First Aid; Wilderness First Aid Responder; FEMA Volunteer Response Center; Commercial Herbicide Applicator's License 6b – Vegetation; NY State Driver's License Class D; Project WILD; Trained in Leave No Trace (LNT)

REFERENCES

Bruce Robertson Supervisor for Solar Panel Imaging Project and Former Professor broberts@bard.edu (845)-752-2332	Nancy Olmstead Supervisor at Maine Natural Areas Program nancy.olmstead@tnc.org (207)-607-4837	Dan McGlinn Master's Thesis Advisor at College of Charleston mcglinndj@cofc.edu (843)-953-0190