

Jackson Barratt Heitmann

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EDUCATION

College of Charleston, Charleston, SC
M.S. Environmental and Sustainability Studies

Expected December 2022

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

May 2018

- 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

COMPUTER SKILLS

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

RESEARCH EXPERIENCE

How does disturbance shape avian community composition and diversity in ephemeral wetlands?

Master's Thesis, *Charleston, SC* January 2021-present

- Designing experiment, forming hypotheses, and conducting literature review.
- Conducting variable-radius point counts at 24 field sites and conducting wetland assessments at 18 ephemeral wetlands.
- Preparing grant concept letter and full proposal for submission to SC Sea Grant Consortium.

Bird collisions with industrial solar facilities in Mojave Desert, 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.

Long-term monitoring of American Eels in Hudson River, Annandale-on-Hudson, NY

Volunteer January 2018

- Collecting glass eel counts, turbidity, precipitation, lunar cycle, and water velocity data in Sawkill tributary to determine causes of eel entrance into tributary habitat from Hudson River

RELEVANT PROFESSIONAL EXPERIENCE

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.

Audubon NY - Long Island Waterbird Survey, Wantagh, NY

Summer 2019

Volunteer

- Performing 3-minute behavior surveys with 10 second intervals for American Oystercatchers and Piping Plovers in nesting habitats, identifying foraging, incubating, and nest defending behavior.
- Preliminary results indicating skittish behavior of Piping Plovers resulting in further nesting distance from human use areas, while American Oystercatchers exhibiting far more relaxed foraging and nesting behavior in close proximity to human use areas along the beach.
- Performing strip transect disturbance surveys, collecting data on beachgoers, car disturbance, and garbage to determine interaction between bird behavior and human disturbance.

Buttercup Farm Audubon Sanctuary Grassland Bird Survey, Stanfordville, NY

Summer 2019

Volunteer

- Performing point count surveys at 4 sites for target grassland bird species: Eastern Meadowlark, Bobolink, and American Kestrel to determine population change and management targets.
- Collecting auditory and visual data of target species in 1-minute intervals for a total of five minutes per site.

Sam's Point Breeding Bird Survey, Cragmoor, NY

Summer 2019

Volunteer

- Performing point count surveys for breeding birds at 8 sites in Minnewaska State Park and Preserve to determine difference in bird abundance between burned and unburned high elevation dwarf Pitch Pine Woodland.
- Collaborating with New York State Parks wildlife unit, and state park managers to complete point count surveys in detailed and timely fashion for internal distribution within state infrastructure.

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

May 2018-November 2018

- 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-Orono 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.
- Navigating through river by canoe and FWD vehicles to conduct forest inventory assessments in rural settings across state of Maine.

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)

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 locate water bodies. 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

Unpublished reports:

Invasive Plant Management Report and Recommendations – Bradbury Mountain State Park, 2018. Prepared for Maine Bureau of Parks and Lands.

Invasive Plant Management Report and Recommendations – Warren Island State Park, 2018. Prepared for Maine Bureau of Parks and Lands.

Seasonal Invasive Plant Phenology Diagram – Maine Natural Areas Program, 2018.

PRESENTATIONS

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.

AWARDS

Research Assistantship II (\$13,200)	Fall 2021-Spring 2022
Graduate Assistantship – Stono Preserve Student Garden	Spring 2021
Andrew McCabe Memorial Award	Spring 2018
Liberty League All-Academic Team	Fall 2014-Fall 2018

REFERENCES

Bruce Robertson
Supervisor for Solar Panel
Imaging Project and
Former Professor

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Nancy Olmstead
Supervisor at Maine Natural
Areas Program

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