

Julia Warren

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Education

University of Wisconsin-Madison

Bachelor of Science

Major: Biology & Environmental Studies

GPA: 3.807

Madison, WI

May 2021

Scholarships and Awards

Vicky Lee Hirsch Academic Merit Award (\$3,000)

Cora I. Jayne Academic Merit Award (\$2,000)

College of Agriculture and Life Science Scholarship (\$2,000)

Dean's List • Fall and Spring (2017-2018); Fall and Spring (2018-2019); Fall and Spring (2019-2020); Fall and Spring (2020-2021)

Distinctive Scholastic Achievement • Student's GPA places them in the top 20% of their graduating class

Publications/Presentations

Abbey E. Williams, Erica Hoffmann, **Julia Warren**, Suzanne Ponik, and Lisa M. Arendt. 2021. Collagen density and obesity promote mammary gland inflammation. *Cancers*.

Research Experience

Department of Integrative Biology

Madison, WI

Post-Graduate Research Intern

November 2021- Present

- Build on my degree background by developing additional skills spanning the fields of terrestrial ecosystem and landscape ecology by receiving training in spatial data, study design, study implementation, and data analysis.
- Provide assistance on graduate students' projects, laboratory experiments, and general lab maintenance.

Field Research Technician

June 2021- August 2021

- This project is a 7-week field throughout Greater Yellowstone to quantify differences in post-fire lodgepole pine forests and fuels recovery across a range of fire return intervals and post-fire climate conditions. The projects study how interactions between fire return interval and post-fire drought affect forest recovery and how the herbaceous plant community varies with time.
- Collected field data on regenerating seedlings and saplings, live and dead forest fuels, and understory plants in 50 plots.
- Determined the percent abundance and richness of understory plants in varying forest densities. Identified over 70 species of herbaceous plants by utilizing previous knowledge, plant identification books, and dichotomous keys.
- Determined tree density, foliage cover, live fuels, and biomass of post-fire forests in different states of recovery. Identified over 5 species of coniferous and deciduous trees.
- Collected pilot field data on nitrogen levels in young post-fire forests by deploying resin bags, collecting sections of litter and soil to quantify mass and carbon/nitrogen percentages.
- Assisted in flying an unpersoned aerial system (UAS) and documented the steps involved in using UAS photos for science communication. (Person Operating Controls and Visual Observer)
- Interact with ecologists, graduate students, and park and forest service personnel to maintain good working relationships.
- Perform field research in backcountry and wilderness; hike off-trail with a 35lbs backpack to remote field sites in Greater Yellowstone.
- Participate in field research activities for up to 10 hours a day in variable weather conditions.

Supervisor: Dr. Monica Turner; Dr. Kristin Braziunas; Nathan Kiel, PhD

Department of Integrative Biology

Madison, WI

Undergraduate Researcher

September 2020 - May 2021

Mammalian Behavioral Response to Multiple Invasive Species

- This project examines if there are similar or contrasting behaviors of mammals living in different invasive-modified habitats and quantifies their impacts on native plant communities.
- Scored over 20,000 trail camera photos deployed in the University of Wisconsin-Madison Arboretum.
- Identified ten mammalian species and six avian species through photos taken by wildlife trail cameras.
- Scored and recorded foraging behaviors through trail camera photos of both nocturnal and diurnal species.
- Co-authoring a report on community comparison and temporal analysis on the activity of mammals in invasive habitats.
- Utilized Microsoft Excel to keep detailed database records.
- Analyzed over 150 minutes of video footage of white-footed mice behavioral responses to trap emergence and to an open field test.
- Scored mice behavior (vigilance, risk-allocation, stress) using Solomon Coder and visual/auditory behavioral cues.

Supervisor: Dr. John Orrock

Wisconsin Institute for Medical Research- Cell and Regenerative Biology

Madison, WI

Undergraduate Researcher - Research Intern

February 2019 - June 2021

Obesity Study Project

- This project studies how proteomic alterations in circulating exosomes are associated with high density or obesity-linked breast cancer, and determines tumor inflammatory signaling and stromal changes at early and late disease stage progression using two separate mouse models of mammary carcinoma- high tissue density and obesity.
- Executed the Obesity Study Project by managing mice in the study and scheduling/performing mammary gland and lung tissue harvest.
- Imaged mammary glands with a multiphoton microscope to determine collagen alignment around tumor cells.
- Interpreted mouse genotypes by a polymerase chain reaction and agarose gel electrophoresis.
- Performed extensive laboratory analyses on mouse DNA, RNA, and cell lines.
- Trained incoming undergraduates in lab techniques, data processing, and how to be successful in a fast-paced lab environment.
- Managed the mouse colony by breeding, weaning pups, maintaining dietary needs, and performing methods of euthanasia.
- Maintained detailed animal records and protocols, and partook in lab maintenance jobs (lab management, inventory, ordering, etc.)

Supervisor: Dr. Suzanne Ponik

University of Wisconsin-Madison Biochemistry Laboratory

Madison, WI

Animal Care Specialist

February 2018 - May 2019

- Lab animal husbandry: worked independently to tend to over 1,000 mice per day (cleaning, feeding, maintenance).
- Autoclave training and daily use to ensure sanitation against pathogens and diseases.
- Organized and prepared cages for the rodents with pathogens and diseases.

Supervisor: Dustin Irving

Relevant Coursework and Skills

Applied Statistics- Life Science

- Utilized R-Studio to run statistical analysis on provided scientific data in biological applications.
- Conducted exploratory data analysis, probability, and random variables; one-sample testing and confidence intervals, two-sample inference; analysis of variance, linear regression, goodness-of-fit.

Introduction to Geographic Information Systems (GIS)

- Proficient in ArcGIS 10.7.1 software.
- Learned methods of managing and processing geographic information, with emphasis placed on data models and structures for geographic information, data manipulation and data storage, spatial analytic and modeling techniques, and error analysis.

General Ecology (Biology Major Capstone)

- Conducted a capstone research project on the effect of acid rain on competition between two *Lactuca sativa* varieties. Red and green varieties of lettuce were used to mimic the effects of acid rain on competing plants. The average biomass per plant was

collected and analyzed (through R-Studio) to determine the overall success in the varying treatment conditions, and the results were expressed in a written report.

- Wisconsin plant and animal identification

Climate Change Ecology

- Gain experience in developing a climate change vulnerability assessment for a given species or community.
- Utilize existing climate models to display and analyze spatial and temporal changes in temperature and precipitation.
- Identify the ecological and evolutionary impacts of climate change on natural communities and wildlife populations (including changes in phenology and ranges, community dynamics, and altered trophic interactions).

Wildlife Management and Techniques

- Small mammal capture and immobilization; havahart trap and camera trap deployment.
- Track radio collared squirrels via radio telemetry and GPS over the course of two months.
- Process and present data gathered through Excel and ArcGIS (10.8.1) for analysis of squirrel home ranges and resource allocation.

Mouse Training- Research Animal Resources and Compliance

- Carbon dioxide euthanasia
- Ear notching, punching, and tagging
- Genotyping- tail snip
- Oral gavage
- Retro-orbital blood draws
- Subcutaneous injections

Surgery Fundamentals- Research Animal Resources and Compliance

- Lab Animal Surgery Certification
- Laboratory Animal Science Aseptic Technique Certification
- Rodent fur clipping and skin prep
- Simple continuous and simple interrupted suturing
- Skin staples, surgeons knot, and suture knot
- Surgical scrub and sterile gloving

Anesthesia- Research Animal Resources and Compliance

- Laboratory Animal Science Anesthesia Certification
- Isoflurane vaporizer used for induction and maintenance of general anesthesia.

Professional Societies and Outreach

Student Chapter of The Wildlife Society • University of Wisconsin-Madison

September 2018 - May 2021

- Regularly attended local meetings to listen to guest speakers and discuss the implications of current events on environmental issues.
- Participated in citizen science events; bird banding and data entry at Lakeshore Nature Preserve Biocore Bird Banding Station.

Nelson Ambassador • Nelson Institute for Environmental Studies

September 2020 - May 2021

- Coordinated and implemented Nelson Institute events and seasonal activities for prospective and current students.
- Mentored prospective students by promoting the different majors and certificates provided by the Nelson Institute and give advice on courses to take to accomplish their major or certificate.

Volunteer • Badger Volunteers

September 2017 - December 2020

- Organized evening activities through the CPC English Speaking program, focusing on teaching English to non-English speaking children in a safe and inviting environment.
 - Maintained the Black Hawk Community Church Food Pantry Garden to provide fresh, healthy food options for those in need.
 - Supervise 20 students at the Red Caboose Child Care Center and execute educational plans to prepare them for kindergarten.
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