Erin Bentley

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Education

PhD Botany, Program in Ecology and Evolution, University of Wyoming...Present
Advisor: Dr. David Tank

BS Animal and Veterinary Science, University of Wyoming.....2013—2017
Graduation Date: December, 2017
Declared Minors: Honors, Creative Writing

Research and Outreach Experience

Assessing public perception on transdisciplinary approaches to science. Supported by Established Program to Stimulate Competitive Research (EPSCoR) and the Microbial Ecology Collaborative at the University of Wyoming.....2022-Current

- Collaborated with the Metabolic Studios artist collective, and creative writing and film masters student to document the process and science of developing photos in the desiccated Owens Lakebed
- Collaborated with the University of Wyoming Art Museum to host a public SciArt student showcase with an upper level Microbiology Classroom, local Laramie High School 3D Art Class, documentary showing, and survey assessment
- Analyzing survey results and qualitatively coding short responses to the exhibit and documentary to assess public perception on SciArt transdisciplinary education and approaches to science
- Designing and implementing the Microbestiary Artist Residency in collaboration with the University of Wyoming Art Museum's Educational Curator to bring in three different artists to explore making the invisible world of microbes accessible through art

Assessing the effects of transdisciplinary education on collegiate microbiology students. Supported by Established Program to Stimulate Competitive Research (EPSCoR) and the Microbial Ecology Collaborative at the University of Wyoming.....2022-Current

- Completed an Institutional Review Board Exemption Requests to give surveys and interview students in a transdisciplinary art/science microbiology capstone class at the University of Wyoming
- Developed transdisciplinary curricula integrating art and science to address the ecological dynamics of the
- Analyzing survey results and qualitatively coding interviews with students to assess how art integration affected student learning

Howard Hughes Medical Institute (HHMI) Department of Science Education Undergraduate and Graduate Programs Inclusive Excellence 3 Initiative.
Supported by the Howard Hughes Medical Institute.....2022-Current

- Graduate student facilitator for community college outreach and project development
- Learning community member for best practices in Diversity, Equity, and Inclusion pedagogies and research methodologies to improve STEM transfer pathways between Northwest Community College and the University of Wyoming

Community Outreach Program for STEAM Engagement (COPSE). Supported by the Biodiversity Institute's Novel Outreach and Education Grant at the University of Wyoming.....2020-Current

- Successfully applied for the Novel Outreach and Education Grant to obtain funds to support the study of art, science, and education integration, and build an interdisciplinary outreach network at the University of Wyoming
- Working with a network of interdisciplinary graduate students to develop art/science education projects and novel assessment purposes for K-12 and undergraduate students
- Designing, developing and implementing a statewide conference for connecting K-12 educators with outreachers and resources at the University of Wyoming
- Attending trainings on assessment strategies, curriculum design, and community outreach

Genetics of Rarity in *Penstemon*. Supported by EPSCoR and the Microbial Ecology Collaborative at the University of Wyoming.....2018-Current

- Analyzing how genetic diversity and endemism is distributed across the *Penstemon* phylogeny
- Analyzing genetic variation of 41 *Penstemon* species to measure the effect of species rarity and range size on genetic diversity
- Performed GBS library prep for approximately 400 *Penstemon* samples

The Effect of Rarity on *Penstemon* Microbiomes. Supported by EPSCoR and the Microbial Ecology Collaborative at the University of Wyoming.....2018-Current

- Analyzing 16S and ITS data from approximately 40 Penstemon species to see the extent to which rarity affects the foliar microbiome
- Performed 16S and ITS DNA extractions

Microbestiary: Finding Thule. Art, Education and Outreach Concerning the Microbial Ecology of the Arctic Circle. Supported by EPSCoR and the Microbial Ecology Collaborative at the University of Wyoming.....April 2022

- Successfully applied for the Arctic Circle Residency Program to join other artists, scientists, and educators on an expedition to the arctic

- Represented the Microbestiary Outreach Project in characterizing microbial ecology in the arctic and developing programs and curricula centered around the generated data
- Forged connections with artists around the globe to further SciArt outreach partners

Impacts of Landscape Structure, Host Demography, and Management Interventions on Disease Dynamics: The Serious Game. Supported by National Science Foundation Research Experience for Undergraduates the NSF Ecology and Evolution of Infectious Diseases.....2017

- Responsible for designing a computer game that could be used at all education levels to teach habitat fragmentation and its consequences on population persistence, connectivity, and disease spread
- Designed game levels and in-game artwork
- Developed curricula for the elementary, middle, and high school levels

Frequency of PRNP genotypes in mule deer from Muddy Mountain and Sheep Mountain, captured February 2017 in Wyoming.....2017

- Responsible for genotyping samples and analyzing the PRNP gene from samples across the state
- Co-authored a report contracted by Wyoming Game and Fish for their use in determining management decisions for mule deer and disease containment

Optimizing DNA extraction methods from field-sampled mammalian blood on preservation paper for genetic and genomic analysis.....2016-2017

- Performed different DNA extraction protocols on various types of blood collection paper to determine the best method of extraction for genomic applications
- Co-authored a paper published in 2018

Publications

Love Stowell S. M., **Bentley E. G**., Gange R. B., Gustafson, K. D., Rutledge, L. Y., Ernest, H. B. (2018). Optimal DNA extractions from blood on preservation paper limits conservation genomic but not conservation genetic applications. Journal for Nature Conservation, 46, 89-96.

Love Stowell S. M., Bentley E. G., Ernest, H. B. (2017). Frequency of PRNP genotypes in mule deer from Muddy Mountain (HA 66) and Sheep Mountain (HA 76). Report to Wyoming Game and Fish.

Grants

Funded Projects as Co-PI

Why do bacteria make sterols? National Science Foundation Division of Integrative Organismal Systems, Award Number 1656637. $700,000

Awarded for Microbestiary outreach and education leadership, increasing public engagement in microbiology through artistic means.

Funded Projects as Microbestiary Project Lead

The Biodiversity Institute's Novel Outreach and Education Grant (University of Wyoming, 2019, $16,860)

Awarded for research on art/science education and development of novel assessment strategies.

Three EPSCoR RFP awards (University of Wyoming, 2019-2020, $19,153 total)

Awarded for travel, conference attendance, and contractor hire for the Microbestiary. Funds also awarded for the Arctic Circle Expedition in 2021.

Work Experience

The Microbestiary, *Project Coordinator and Outreach Consultant*.....2018-Present

- Designing and implementing the 2023 Microbestiary Artist Residency, bringing in three artists to conduct SciArt research and public outreach
- Developing classroom curriculum and engaging elementary, middle, and high school students in microbiology
- Designing a video game to teach concepts of microbiology and the functions of bacterial cells and bacteriophages
- Developing and implementing curricula for the Summer Research Apprentice Program
- Hiring and supervising graduate and undergraduate employees
- Maintaining the Microbestiary Webpage

Learning Assistant, *Co-teacher, Curriculum Designer, Learning Coach, Educational Researcher*.....2022-Present

- Designing and implementing active learning strategies in upper level undergraduate classrooms
- Training, grading, and conducting scholarship of teaching and learning with other Learning Assistants
- Conducting scholarship of teaching and learning on the effects of transdisciplinary education

Wildlife Genomics and Disease Ecology Laboratory, *Lab Technician*.....2018

- Organized and prepared samples for elk lymph node and mountain lion projects
- Performed DNA extractions and sample preparation

- Assisted the lab manager and graduate students on projects and lab maintenance

University of Wyoming Writing Center, *Professional Consultant and Writing Center Fellow*.....2018

- Assisted professors on drafting curriculum and assignments, assessing student learning, and leading in-class workshops
- Edited papers and tutoring writing structure for undergraduates, doctoral papers for publication, and application materials
- Administrative record keeping: kept track of number of visits per tutee and what was worked on during their consultations

Wildlife Genomics and Disease Ecology Laboratory, *Genomics Intern and Undergraduate Lab Technician*.....2016—2018

- Analyzed chronic wasting disease genotypes in mule deer
- Performed DNA extractions and sample preparation
- Maintained databases and lab operations

Honors/Leadership

Co-President, Program in Ecology and Evolution.....Current
Outreach Committee, Program in Ecology.....2021-2022
Secretary, Program in Ecology.....2020
Communications Chair, Community Outreach Program for STEAM Engagement (COPSE) 2019-Current
Payson Scholarship for "creative contribution to research, teaching, or the philosophy of botany".....2020
Renaissance Exposition, *That* Gallery, University of Wyoming.....2019
Aven Nelson Fellowship for Systemic Botany.....2018
National Science Foundation REU Recipient.....2017
University of Wyoming Women's Rugby Leadership Award.....2017
Campus Recreation Advisory Board, Club Sports Representative.....2017
ASUW Leadership Scholarship.....2017
Club Sports Council Representative, Special Programs Chair.....2016—2017
President/Founder Creative Writing Student Organization.....2015—2017
Captain of UW Women's Club Rugby Team.....2015—2017
Gamma Sigma Delta Agricultural Honor Society Member.....2016
Gene and Bonnie Simpson Zuech Scholarship recipient.....2016
Tillman E and Lucille W Boyd Scholarship for Study Abroad.....2015
Scholastic Achievement Award, American Society of Animal Science.....2015
President of Women's Club Rugby Team.....2014
Trustees Scholarship Recipient, University of Wyoming.....2013

Presentations

Program in Ecology and Evolution 2022 Symposium.....February 11th, 2022

- Provided a workshop on how to build and outreach/broader impacts project

Wyoming Innovations in Learning Conference.....October 1st, 2021

- Presented on transdisciplinary outreach project implementation and outcomes, and the process of integrating disparate fields to enhance learning.

Wyoming Education and Outreach Network (EON) Conference, Graduate Student Panelist.....August 7th, 2021

- Discussed effective outreach education strategies and fielded questions from educators from around the state of Wyoming concerning classroom activities, outreach experiences, and integrating my research into a classroom setting.

Wyoming Department of Education, Retaining Women in STEM, Invited Panelist.....July 20th, 2021

- Spoke with administrators, Career and technical education (CTE) teachers and Perkins Coordinators from across Wyoming on ways they can recruit and retain students in to fields of study that are non-traditional for their gender.

National Science Foundation Ecology and Evolution of Infectious Diseases Annual Meeting for Mountain Lion Genomics and Disease Ecology Project, Colorado State University.....2017

- Presented on the dynamics of the serious game, development of the accompanying curricula, and future directions of the project to members of the grant including professors, post-docs and undergraduates.

God Is an Elephant: A Creative Nonfiction Guide to Devotion, Friends, and Conservation.....2017

- Presented to a group of professors from various departments and peers about my Honor's thesis. Discussed the challenges facing Asian elephant conservation, the use of elephants in Thai industries and culture, effects the sanctuary had on me, and what can be done to aid the conservation of wild elephants and increase the welfare of captive elephants.

Teaching 'n Technology, University of Wyoming.....2015

- Presented to an audience of professors and university staff on the merits and applicability of videogames as a teaching supplement. Presentation focused specifically on the experiences from a teaching assistantship in General Microbiology and how those experiences apply across other fields.

Skills

- Sample tracking and organization
- DNA Extraction, PCR
- Data Entry
- Curricula and Project Development
- Library Prep for RAD-seq Style Genotyping Studies
- R Coding
- Creative Writing
- Communication
- Public Speaking
- Safe and Sterile Lab Technique and Biohazard Training
- Outreach Consulting and Implementation