JAMES N. KITCHENS

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EDUCATION

Warren Wilson College (WWC) Swannanoa, NC
Bachelor of Science in Biology, Honors December 2019
Bachelor of Science in Chemistry, Honors GPA: 3.93/4.00

PEER REVIEWED PUBLICATIONS

Whipple et al. Temporal analysis of fecal glucocorticoid metabolites to explore variation within and among territories of a climate-sensitive small mammal. *Conservation Physiology* (submitted).

Kim et al. An evaluation of remotely sensed and in-situ data sufficiency for SGMA-scale groundwater studies in the Central Valley, California. *Journal of the American Water Resources Association* (accepted with minor revisions).

Webb et al. (2017) Molecular Genetic Influences on Normative and Problematic Alcohol Use in a Population-Based Sample of College Students. *Frontiers in Genetics*, *8*. https://doi.org/10.3389/fgene.2017.00030

PRESENTATIONS

Warren Wilson College Conservation Exchange Zoom Webinar, Virtual. "Timing is everything! Using experimental gardens and citizen science to respond to climate change at Warren Wilson College" August 2020

NASA Develop Spring 2020 Closeout Presentation, Pasadena, CA. "Improving California Groundwater Assessments using GRACE and InSAR Datasets for Water Resource Management" April 2020

SACNAS: The National Diversity in STEM Conference, Honolulu, HI. "Topography and Behavior Based Movement Modeling for Missing Persons in Land-Wilderness Settings" November 2019

Society of Freshwater Science Annual Meeting, Salt Lake City, UT. "Using eDNA to Predict Sea Lamprey Population Size" May 2019

Warren Wilson College Senior Natural Science Seminar, Swannanoa, NC. "Genetic Sex Ratio Analysis of the American Pika (*Ochotona princeps*) in the Rocky Mountain Region" April 2019

RESEARCH EXPERIENCE

Improving California Groundwater Assessments using GRACE and InSAR Datasets for Water Resource Management Jan 2020 – Present

NASA Jet Propulsion Laboratory, *Research Intern*

- Testing feasibility of remote sensing data for use in modeling groundwater capacity within the California Central Valley to support the California Department of Water Resources' groundwater management efforts
- Performing geospatial analysis and data visualizations using Python and Esri products (ArcGIS, ArcMap)
- Developing an interactive map viewer to distribute research to managers and policymakers

Visualizing Bipolar Apr 2020 – Present

University of Washington's Visualization Studies Research Studio, *Research Assistant*

- Co-developing a lichen-inspired visualization model in JavaScript for use with mental health tracking data
- Implementing data abstraction to protect individual's privacy

Sex Ratio Analysis in a Climate Threatened Population of American Pika (*Ochotona princeps*) Sept 2017 – Dec 2019

WWC Genetics and Plant Physiology Research Laboratory, *Research Assistant*

- Performed genetic sexing from tissue and fecal samples of pikas collected in the Rocky Mountains
- Analyzed sex ratios to understand the effect that climate change may be having on this sensitive mammal
- Trained new lab members on lab procedures and best practices, including DNA extractions, PCR, and gel electrophoresis

Topography and Behavior Based Movement Modeling for Missing Hikers in Land-Wilderness Settings June 2019 – July 2019

Arizona State University's Mathematical and Theoretical Biology Institute Summer REU, *Research Intern*

- Utilized dynamic programming and cellular automata concepts to develop hiker movement simulations

- Improved understanding of how topography affects decision-making in humans for Search and Rescue applications
- Attained new proficiencies through intensive courses in dynamical systems and linear algebra

Using eDNA to Predict Sea Lamprey Population Size May 2018 – Aug 2018
University of Wisconsin - La Crosse Summer REU, *Research Intern*

- Cleaned and analyzed environmental DNA (eDNA) quantitative PCR data using R
- Scraped historic hydrometric data from USGS and Canadian Water Office websites
- Advised USGS employees on the efficacy of eDNA as a monitoring tool for invasive species management

Molecular Genetic Influences on Normative and Problematic Alcohol Use in a Population-Based Sample of College Students May 2014 – Feb 2016
Virginia Institute for Psychiatric and Behavioral Genetics, *Research Assistant*

- Wrote programs in Python to generate phenotypic risk scores for individuals based on single nucleotide polymorphisms
- Managed a dataset of over 6000 individuals who participated in the Spit for Science Project at Virginia Commonwealth University
- Performed quality control of statistical analysis processes as part of a larger research team

PROJECTS

TopoTable: Programmable 3D Elevation Visualization Sept 2017 – Present
Creator and Product Developer

- Designing a programmable table to approximate and dynamically display various raised relief maps through pillars
- Developing a user-friendly web application for searching for, downloading, and processing the elevation data for use with the table using Python and R, hosted at https://james-kitchens.com/topotable

Marine Tardigrades of the World Interactive Web Application Oct 2019 – Dec 2019
Application Designer

- Collaborated with Dr. Paul Bartels, WWC Vice President for Academic Affairs, supporting his research publication Kaczmarek, L., Bartels, P.J., Roszkowska, M. & Nelson, D. (2015). The Zoogeography of Marine Tardigrada, *Zootaxa* 4037:1-189.
- Created an interactive web application including map and data explorer using Shiny package from R and Google Sheets API, hosted at https://paul-bartels.shinyapps.io/marine-tardigrades/

SKILLS

Computational:	Python, R, Shiny, SQLite, Git, JavaScript, C++ (Arduino), UNIX, LINUX, OSX, Command Line Programming, SPSS, QGIS, ArcGIS, GRASS GIS, BaseCamp Project Management, Microsoft Office
Wet Laboratory:	DNA Extractions, Polymerase Chain Reaction Procedures and Electrophoresis, DNA Fragment Analysis, Field Sampling, NMR Spectroscopy

CERTIFICATIONS, HONORS & SCHOLARSHIPS

WWC: Excellence in Biology Award; Community Engagement Honor Roll; Pfaff Cup Finalist	2020
WWC: Dean's List; **Honor Scholarship**	2016 – 2019
Student Government Association Grant *TopoTable: Programmable 3D Elevation Visualization*	2017, 2018
Pugh Grant *Sex Ratio Analysis in a Climate Threatened Population of American Pika*	2017

RECENT SERVICE EXPERIENCES

Bounty and Soul *Market Volunteer*. Spoke Spanish with community members. Organized produce	2018 – 2019
WWC Creative Technologies Laboratory *Volunteer.* Assisted students with 3D printing	2017 – 2019
Spanish Classroom: High School & Elementary School *Volunteer/Teacher's Assistant*	2019

LIFE EXPERIENCES

Long Distance Backpacker John Muir Trail (~200 miles), Appalachian Trail (~2200 miles)	2016 – Present
Whitewater Kayaker Former *Site Director & Kayak Instructor* for Passages Adventure Camp	2010 – Present
Cellist & Guitarist *Classical, Orchestral & Gypsy Jazz, Irish Traditional Music*	2005 – Present