

JAMES N. KITCHENS

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EDUCATION

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| University of California, Davis (UCD) Ph.D., Population Biology Graduate Group | Davis, CA Sept 2021 |
| Warren Wilson College (WWC) B.S., Biology, Honors B.S., Chemistry, Honors | Swannanoa, NC 2016 - 2019 GPA: 3.93/4.0 |

PEER REVIEWED PUBLICATIONS

- Whipple et al. (2021) Temporal analysis of fecal glucocorticoid metabolites to explore variation within and among territories of a climate-sensitive small mammal. *Conservation Physiology*, Volume 9, Issue 1.
<https://doi.org/10.1093/conphys/coab024>
- Kim et al. (2020) An Evaluation of Remotely Sensed and In Situ Data Sufficiency for SGMA-Scale Groundwater Studies in the Central Valley, California, invited, *Journal of the American Water Resources Association*
<https://doi.org/10.1111/1752-1688.12898>
- 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

EXPERIENCE

- Spatial Ancestral Recombination Graph** Sept 2021 - Present
UCD Graham Coop Lab, *Graduate Student*
- Expanding theory for estimating ancestral locations using Brownian motion models
 - Reducing the computational complexity of these methods to improve applicability to larger sample sizes

Visualizing Bipolar

Apr 2020 - Aug 2021

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

Scientific Research Support to Pharmaceutical, Medical Device, & Analytics Companies

June 2020 - Nov 2020

Venebio Group, LLC, *Consultant*

- Cleaning and analyzing usage data for biotechnology and medical industry clients
- Preparing formal documentation to be submitted to government regulatory administrations

Improving California Groundwater Assessments using GRACE and InSAR Datasets for Water Resource Management

Jan 2020 - Apr 2020

Aug 2020 - Nov 2020

NASA Jet Propulsion Laboratory, *NASA DEVELOP Program 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

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>

Oct 2019 - Dec 2019

Marine Tardigrades of the World Interactive Web Application

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, Django, 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

CERTIFICATION, HONORS, & SCHOLARSHIPS

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

RECENT SERVICE EXPERIENCES

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| 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

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