Breanna Sipley (they/them)

NSF Graduate Research Fellow, University of Idaho
Bioinformatics and Computational Biology (BCB) · Moscow, ID, USA
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Useful to know

Computational biologist who likes coevolution · phylogenetic comparative methods · R Markdown hoping to explore non-ac graduate internship opportunities in affirming spaces

Non-binary (*they/them*) · first-gen · low-income · LGBTQ+ · Autistic

Education

Ph.D. Bioinformatics and Computational Biology, focus Math, *University of Idaho* Anticipated 2024

M.S. Biological Sciences, *Auburn University* 2019

B.S., summa cum laude, Zoology, *University of Florida* 2013

International Baccalaureate, *Seminole High School* 2009

Professional experience

Lab Manager, Evolutionary Genetics, Department of Biology, *University of Florida* 2015-2016

Collections Assistant · Molecular Lab Technician, Invertebrate Zoology, Florida Museum of Natural History, *University of Florida* 2012 - 2013

Publications

Peer-reviewed journal articles

Sipley BN, Michonneau F, & Paulay G. In preparation. "Surprisingly low genetic diversity despite considerable morphological variation in the sea cucumber genus *Opheodesoma*." Targeting *PeerJ*. Available upon request.

Whelan NV, Galaska MP, *Sipley BN*, Weber J, Johnson PD, Halanych KM, & Helms BH. 2019. "Population genomics of the federally threatened Round Rocksnail, *Leptoxis ampla*, reveal migration patterns, landscape genetic structure, and genetic influence on shell shape variation." *Molcular Ecology* 28(7): 1593-1610. DOI: https://doi.org/10.1111/mec.15032

Other publications and reports

Sipley BN. 2019. "Venom allergen-like protein diversification in flatworms." *Auburn University Electronic Theses and Dissertations*. URI: http://hdl.handle.net/10415/6830

Helms B, Whelan NV, Tolley-Jordan L, Halanych KM, *Sipley BN*, Wicker D, Weber J, Galaska MP. 2017. "Population structure of the Round Rocksnail (*Leptoxis ampla*) in the Cahaba River." Report, *Alabama Department of Conservation and Natural Resources*

Sipley BN. 2013. "Developing genetic markers to infer phylogenetic relationships in *Opheodesoma* (Echinodermata: Holothuroidea: Apodida: Synaptidae)." *University of Florida Undergraduate Honors Theses* http://ufdc.ufl.edu/AA00057336/00001

Presentations

Conferences

Sipley BN, Bullard SA, Oaks JR, & Halanych KM. (2018). "What's VAP got to do with it? The evolution of blood parasitism in flatworms." *Society of Systematic Biologists Standalone Meeting* (Columbus, OH). Lightning Talk. Slides: http://phyletica.org/ssb-recap/.

Helms B, Whelan N, *Sipley BN*, Weber J, Tolley-Jordan L, Halanych KM. (2018). "Population genetic structure and morphological variation of the round rocksnail (*Leptoxis ampla*) a federally threatened species in the Cahaba River of AL, USA." *Society for Freshwater Science Annual Meeting*. Talk. Abstract: https://sfsannualmeeting.org/Schedule/grid_details.cfm?aid=9225.

Sipley BN, Bullard SA, & Halanych KM. (2018). "The evolution of blood parasitism in trematodes: What's VAP (venom allergen-like protein) got to do with it?" *Society of Integrative & Comparative Biology* 58(1): E213 (San Francisco, CA). Talk. Abstract: https://doi.org/10.1093/icb/icy001.

Whelan NV, *Sipley BN*, Galaska MP, Helms BH, Johnson PD, & Halanych KM. (2018). "Populations of Round Rocksnail (*Leptoxis ampla*), a Federally Threatened Freshwater Snail, Are Surprisingly Distinct." *Integrative and comparative biology* 58(1): E250 (San Francisco, California). Talk. Abstract: https://doi.org/10.1093/icb/icy001.

Sipley BN, Bullard A, & Halanych KM. (2017). "How does endoparasitism evolve? Insights from Venom allergen-like proteins in blood flukes (Platyhelminthes: Trematoda: digenea)". *Evolution* (Portland, Oregon). Poster: https://doi.org/10.6084/m9.figshare.5131981.v1.

Sipley BN, Bullard A, & Halanych KM. (2017). "Evolution of Venom Allergen-Like Proteins in Fish Blood Flukes (Platyhelminthes: Trematoda: Digenea)." *Society of Systematic Biologists Standalone Meeting* (Baton Rouge, LA). Lighting talk.

Larsen M, Cortes-Hinojosa G, Lo R, *Sipley BN*, Eckert L, Tsang T, & Wayne M. (2016). "Potential Effects of *Wolbachia* on Male Transmission of Sigma in *D. melanogaster*. *SouthEast Ecology & Evolutionary Genetics* (Madison, FL). Poster.

Sipley BN, Michonneau F, & Paulay G. (2015). "Genetic markers reveal surprisingly low genetic variation in the sea cucumber genus *Opheodesoma*". *SouthEast Ecology & Evolutionary Genetics* (Eatonton, GA). Talk. **Awarded Best Talk.**

Seminars

Sipley BN, "What's VAP got to do with it? Venom allergen-like protein diversification in flatworms." *Masters Thesis Seminar* (Auburn, AL).

Sipley BN, Bullard SA, & Halanych KM. (2017). "Genomics of parasites: Investigating the evolution of blood parasitism in parasitic flatworms." *Sciences and Mathematics Interdisciplinary Colloquium* (Auburn, AL).

Sipley BN & McKeon CS. (2014). "Ecological drivers of benthic community assemblages in the St. Lucie Estuary & Southern Indian River Lagoon: Freshwater discharge from Lake Okeechobee results in major, predictable disturbance events." *Smithsonian Seminar* (Fort Pierce, FL).

Internal Symposia

Watson A, *Sipley BN*, & Halanych KM. (2018). Glutamate Decarboxylase Gene Family Evolution in Flatworms. *REU Poster Symposium*, Computational Biology (Auburn, AL). Poster. **Awarded runner up for Best Poster.**

Sipley BN, Bullard SA, Oaks JR, & Halanych KM. (2018) "What's VAP got to do with it? The evolution of blood parasitism in flatworms." *AU DBS graduate student recruitment welcome event* (Auburn, AL). Poster.

Sipley BN, Bullard SA, & Halanych KM. (2017). "Host-Parasite Coevolution: Blood flukes a good model?" *Biol Grad Research Poster Forum* (Auburn, AL). Poster.

Sipley BN, Michonneau F, & Paulay G. (2013). "Developing genetic markers to infer phylogenetic relationships in the sea cucumber genus *Opheodesoma*". *Undergraduate Research Symposium* (Gainesville, FL). Oral presentation.

Sipley BN, Crombie T, & Julian D. (2011). "Juglone-induced oxidative damage & temperature stress interact synergistically on survival in *C. elegans*." *Creativity in the Arts & Sciences Event* (Gainesville, FL). Poster.

Sipley BN & Julian D. (2010). "Combined salinity stress & simulated oil exposure on metabolic rate in the bivalve *Mercenaria mercenaria*." *REU Chalk Talks* (Salsbury Cove, ME). Chalk talk.

Sipley BN, Domsic T, & McKenna R. (2008). "Isolation & purification of human carbonic anhydrase VI: a structural study." *Student Science Training Program Symposium* (Gainesville, FL). Talk. **Awarded Best Paper.**

Teaching

Computational skills

Instructor, Software Carpentry, Remote Summer Boot Camp 2: Computing, Data, & Visualization, *Center for Advanced Energy Studies* (Virtual) https://jtvanleuven.github.io/2020-08-10-CAES/ 2020

Helper, Software Carpentry, Remote Summer Boot Camp: Computing, Data, & Visualization, *CAES/INL* (Virtual) https://bsurc.github.io/2020-06-08-inl-bootcamp/ 2020

Helper, Date Carpentry, Introduction to Geospatial Applications in R (BCB 503 03), *IMCI, University of Idaho* (Virtual) https://erichseamon.github.io/2020-03-26-uidaho-geospatial/ 2020

Helper, Software Carpentry, Introduction to R for Reproducible Science (BCB 503 02), *IMCI, University of Idaho* (Moscow, ID) https://dearmint.github.io/2020-02-27-uidaho/ 2020

Instructor, Software Carpentry: Unix, Git, and Python for Novices (BCB 503 01), *IMCI, University of Idaho* (Moscow, ID) https://astahlke.github.io/2020-01-30-uidaho/ 2020

Biology

Teaching Assistant, Genomic Biology (BIOL 3020), *Auburn University* (Auburn, AL) 2018

Teaching Assistant, Genetics (PCB 3063), *University of Florida* (Gainesville, FL) 2012

Broader Impacts

Alabama Prison Arts + Education Project

Coordinator, SPARKs STEM lecture series, Alabama Prison Arts + Education Project, *Staton Correctional Facility* (Elmore, AL) 2018

Tutor, Finite Mathematics (MATH 1100), *Draper Correctional Facility* (Elmore, AL), Alabama Prison Arts + Education Project Degree Program 2017

Student Science Training Program

Head Counselor, Student Science Training Program, Center for Precollegiate Education and Training, *University of Florida* 2015

Program Assistant, Student Science Training Program, Center for Precollegiate Education and Training, *University of Florida* 2012

Counselor, Student Science Training Program, Center for Precollegiate Education and Training, *University of Florida* 2011

Training

Research

NSF Graduate Research Fellow, BCB, *University of Idaho* (Moscow, ID) 2019-2021

NSF Graduate Research Fellow, Evolutionary Biology, *Auburn University* (Auburn, AL) 2018-2019

Cellular and Molecular Biosciences (CMB) Graduate Research Fellow, Evolutionary Biology, *Auburn University* (Auburn, AL) 2018

CMB Graduate Research Fellow, Evolutionary Biology, *Auburn University* (Auburn, AL) 2016-2017

Daybrook Fellow, Marine Field Ecology, *Science Under Sail Institute for Exploration* (Exuma, Bahamas) 2016

Smithsonian Intern, Marine Ecology, *Smithsonian Marine Station* (Fort Pierce, FL) 2014

NSF REU Fellow, Comparative Physiology, *Mount Desert Island Biological Laboratory* (Salsbury Cove, ME) 2010

HHMI Science for Life Fellow, Comparative Physiology, *University of Florida* (Gainesville, FL) 2010-2011

Student Science Training Program Scholar, Biochemistry and Molecular Biology, *University of Florida* (Gainesville, FL) 2008

Computational / Focus

Posterior Predictive Simulation, *The Ohio State University* (Columbus, OH) 2018

Workshop on Molecular Evolution, *Marine Biology Laboratory* (Woods Hole, MA) 2017

RevBayes, TreeScaper, & DendroPy, *Louisiana State University* (Baton Rouge, LA) 2017

R, *Auburn University* (Auburn, AL) 2016

Bioinformatics Bootcamp, *Auburn University* (Auburn, AL) 2016

Pedagogy / Mentoring

Risk Management Best Practices, *Palouse Pathways Mentoring Program* (Virtual) 2020

Mentoring Role & Responsibilities, *Palouse Pathways Mentoring Program* (Moscow, ID) 2020

Instructor Training, Software Carpentries, *The Carpentries* (Virtual) 2019

Mental Health and Substance Abuse

Peer Recovery Volunteer Training, *Latah Recovery Center* (Moscow, ID) 2020

Question Persuade Refer Suicide Prevention Training, *University of Idaho* (Virtual) 2020

Mental Health First-Aid Certification, *University of Idaho* (Moscow, ID) 2019

Diversity

Anti-Racism Workshop, Women's Center, *University of Idaho* (Virtual) 2020

Science Communication

Portal to the Public Science Communication Workshop *Auburn University* (Auburn, AL) 2017

Mentoring

Mentor, Katelynn, Palouse Pathways Scholar. Currently high school student. 2020-present

Research mentor, Alexia Watson, NSF REU in Computational Biology. Currently undergradate at Tuskegee University 2018

Research mentor, Rachel Lo, undergraduate researcher at University of Florida. Currently Researcher at USGS. 2015-2016

Service

Community

Recovery Peer Volunteer, Latah Recovery Center (Moscow, ID) 2020-present

Department / Program

BCB Student Representative to Faculty, *University of Idaho* (Moscow, ID) 2020-present

Host, DBS Seminar Series, *Auburn University* (Auburn, AL) 2019

Faculty search committee for Global Change Biologist in Marine Systems, *Auburn University* 2018-2019

Volunteer, Graduate Student Recruitment, Biol Sciences, AU 2018

Coordinator, Evolutionary Genetics and Genomics Seminar, *Auburn University* (Auburn, AL) 2017-2018

Graduate school

Graduate Student Representative for Biological Sciences to Associate Dean of Research for COSAM, *Auburn University* (Auburn, AL) 2018-2019

Group leader, Graduate Student Health Insurance Committee, Welfare and Continuous Improvement Committee, Graduate Student Council, *Auburn University* (Auburn, AL) 2018-2019

Member, Graduate Student Mental Health Committee, Welfare and Continuous Improvement Committee, Graduate Student Council, *Auburn University* (Auburn, AL) 2018-2019

Senator for Biological Sciences, Graduate Student Council, *Auburn University* (Auburn, AL) 2018-2019

Mentor for First Year Experience, Graduate Student Council, *Auburn University* (Auburn, AL) 2018-2019

Graduate / undergraduate students

Writing consultant for fellowship applications, espcially NSF GRFP and NSF PRFB 2018-present

Panel speaker, NSF GRFP Writing Workshop, College of Graduate Students (Moscow, Idaho) 2019

Vice President, Graduate Women in STEM, *Auburn University* (Auburn, AL) 2018-2019

Panel speaker, grad/professional schools for NSF REU in Computational Biology, AU 2018

Panel speaker, NSF GRFP Writing Workshop, Miller Writing Center and the Honors College, *Auburn University* (Auburn, AL) 2018

K-12

Volunteer, Project MEEM (Mosquito Education to Empower Malagasy Kids), (Madagascar) 2018

Volunteer, Jr Mad Scientist, Graduate Student Women in STEM, *Auburn University* (Auburn, AL) 2016 - 2018

Judge, Greater East Alabama Regional Science and Engineering Fair, *Auburn University* (Auburn, AL) 2017

Volunteer, Museum Open House, *Auburn Museum of Natural History* (Auburn, AL) 2016

Volunteer, community research lab visits, *Smithsonian Marine Station* (Fort Pierce, FL) 2014

Program assistant, Junior Science, Engineering, & Humanities Symposium, Center for Precollegiate Education and Training, *University of Florida* (Gainesville, FL) 2012

Program Assistant, Duke Talent Identification Program, Center for Precollegiate Eduction and Training, *University of Florida* (Gainesville, FL) 2011

Science Outreach Volunteer, low-income (Title 1) elementary school, Student Affiliates of the American Chemical Society (Gainesville, FL) 2009-2010

Volunteer, Family Science Night, *Mount Desert Island Biological Laboratory* (Salsbury Cove, ME) 2010

Professional Affiliations

SACNAS (since 2020) · *Society of Systematic Biologists* (since 2017)

American Science of Naturalists (2015-2017) · *Society of Integrative and Comparative Biologists* (2018)

Languages

From most to least proficient

English · R · Bash/Shell-Scripting · Spanish · Python · ASL · Malagasy

References

Available upon request. Depends upon nature of request, though likely would include Luke Harmon, Scott Nuismer, and Jamie Oaks.