

Samantha Smith

Department of Entomology, University of California, Riverside

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Education

Expected 2022 PhD, Entomology
University of California, Riverside
Advisor: Dr. Christiane Weirauch

August 2017 B.Sc., Biology
Brigham Young University
Major Professor: Dr. Seth Bybee
3.93 GPA, *Magna Cum Laude*

Research Experience

2017- current **Ph.D. Candidate**
Department of Entomology
University of California, Riverside

Thread-legged assassin bug systematics (*Emesinae sensu lato*)
AHE, transcriptome, genome and Sanger sequencing data
Evolution of spiderweb association

Salivary proteins in *Reduviidae*
Designed probes for Anchored Hybrid Enrichment

True bug systematics (*Heteroptera*)
Genome and transcriptome data
73 of 89 families included

Molecular evolution of sensory genes across *Heteroptera*

2015-2017 **Lab assistant**
Department of Biology, Bybee lab
Brigham Young University

Damselfly systematics (*Hetaerina*)
Brazilian internship 2016 - Collected and studied *Hetaerina*
Data analysis and interpretation: Geneious, IQ-TREE, Figtree,
BEAST2, Illustrator

Dragonfly larva rearing (*Anax junius*)
Different light treatments, established protocol for raising larva
Trained undergraduates in the protocol

Firefly conservation (*Pyroactomena dispersa*) - Comparing habitats of Utah
fireflies

Collected environmental and sample data
Hypothesized cause of population decline to be light pollution

2012-2014 **Lab assistant**
Department of Biology, Bybee lab
Brigham Young University

Collected aquatic insects; sorted samples for museum

Workshops attended

December 2019 **Reduviidae Workshop**
UC Riverside

Seven-day workshop
Studied Reduviidae morphology

May 2019 **Applied Phylogenetics Workshop**
Bodega Bay, California

Eight-day workshop
Trained in Bayesian phylogenetics theory and methods

Fall 2018 **aTRAM2 Workshop**
Champaign, Illinois

Quality trimming raw read files
Library construction and locus assembly
Post processing

July 2018 **Molecular Evolution Workshop**
Marine Biological Laboratory, Woods Hole, Massachusetts

Ten-day workshop
Trained in latest systematics software, principles of molecular evolution

Coursework relevant to Systematics

Evolutionary Biology (BIO420), High Throughput Biological Data (GEN220), Theory of Systematics (ENTM219), Systematic Entomology: Seminar (ENTM256)

Professional Service

Reviewer for Systematic Entomology, Annales de la Société Entomologique de France, Proceedings of the Entomological Society of Washington, Zootaxa

Outreach/Volunteer Work

Summer 2019 **Thread-legged assassin bug spider associations in Cameroon**

- Bouamir research station
- Presented research to local guides and children
Showed examples of Emesinae
Introduced predatorial behavior
- Summer 2019 **Little Entomologist Summer Camp Volunteer**
UC Riverside
- 5-day summer camp for 4th and 5th graders
Organized activities
- Summer 2019 **Summer camp science volunteer**
Riverside, California
- Taught 4th graders about insects
- Summer 2018 **Little Entomologist Summer Camp Volunteer**
UC Riverside
- 5-day summer camp for 4th and 5th graders
Organized activities
- Spring 2018 **Riverside insect fair participant**
Organized displays for lab booth

Work Experience

- Fall 2015 **Teaching assistant**
Bio230: Plant Diversity
Brigham Young University
- Taught lab once a week
Graded quizzes and lab reports
- Summer 2015 **Lab assistant**
Winter Wheat Breeding
Dr. Arron Carter
Washington State University
- Assisted PhD students with research, worked in wheat plots
- Winter 2015 **Teaching assistant**
Bio220A: Animal Diversity
Brigham Young University
- Graded reports; held reviews
- Fall 2014 **Teaching assistant**

Bio100: Intro to Biology

Graded research papers
Tutored students
Gave lab lectures

International fieldwork

Fall 2019	Panama Barro Colorado Island Research Station
Summer 2019	Cameroon Bouamir research station
Winter 2019	Gabon Lope national park, Ivindo national park, Crystal mountain
Summer 2017	Cameroon Bouamir research station
Summer 2017	Brazil Manaus, Belem, São Paulo
Spring 2016	Brazil Ubatuba

Fellowships

2019-2023	Graduate Research Fellowship Program (GRFP)
2017-2019	Provost Research Fellowship, UC Riverside
2017-2020	NICE NRT Fellow, National Science Foundation

Grants and awards

2019	National Geographic Research grant project member - <i>Predators become prey: untangling spider-associated behavior and morphology within true bugs (Heteroptera)</i>	\$27,505
2019	CNAS Dr. Janet M. Boyce Memorial Endowed Fund	\$2,000
2018	SysEB travel grant - <i>Life in the web: tracing the evolution of spider associated thread-legged assassin bugs</i>	\$1,025
2017	Robert M. Squires Evolution Fellowship 2017	\$2,200
2016	ORCA grant- <i>Phylogeny of Hetaerina (Odonata: Calopterygidae)</i>	\$1,500
2015	ORCA grant- <i>Assessment of biodiversity on Mount Timpanogos with a focus on flies, Diptera: Agromyzidae</i>	\$1,500

Presentations

- Oral Presentation, “Untangling the correlation of unique foreleg morphology and spiderweb association in thread-legged assassin bugs (Emesinae: Reduviidae)”, Evolution, Providence Rhode Island 2019
- Oral Presentation, “Life in the web: tracing the evolution of spider associated thread-legged assassin bugs (Emesinae: Reduviidae)”, Entomological Society of America, Vancouver Canada 2018
- Oral Presentation, “Unraveling the evolution of thread-legged assassin bugs (Emesinae: Reduviidae) and their spider-associated morphology”, Student Seminar Day, UC Riverside 2018
- Oral Presentation, “Solving the rubyspot mystery, a phylogeny of *Hetaerina* and *Mnesarete* (Odonata: Calopterygidae)”, Entomological Society of America, Denver Colorado 2017
- Oral Presentation, “Interspecific Competition in *Hetaerina* Damselflies”, II BecInt, II Behavioral Ecology and Conservation Symposium at Uberlandia, Brazil 2017
- Oral Presentation, “Phylogeny of *Hetaerina*, Rubyspotted Damselflies”, Dragonfly Association of the Americas 2016
- Poster, “Life in the web: tracing the evolution of spider associated thread-legged assassin bugs (Emesinae: Reduviidae)”, Student Seminar Day, UC Riverside
- Poster, Martin, G., C. Bills, R.A. Clement, **S. Smith**, S.M. Bybee. “Using citizen science to illuminate firefly (Coleoptera: Lampyridae) localities in Utah”, Entomology Society of America, Denver, CO 2017
- Poster, “Phylogeny of Rubyspot Damselflies (Calopterygidae: *Hetaerina*)”, Brigham Young University 2017
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Publications

- Smith, S., Hwang, W. S., & Weirauch, C. (2019). Synonymy of *Mangabea* and *Stenorhamphus*, with the description of two new species (Hemiptera: Reduviidae: Emesinae: Collartidini). *Raffles Bulletin of Zoology*, 67 (March), 135–149. <https://doi.org/10.26107/RBZ-2019-0011>
- Smith, S., M. Sanchez, J. Ware, R. Guillermo, J.P. Drury, S.M. Bybee “Discovering the evolutionary history of Rubyspot Damselflies (Calopterygidae: *Hetaerina*)”, in preparation
- Clement, R.A., P. Arnold, **S. Smith**, S.M. Bybee, “Using molecules and fossils to answer evolutionary questions about *Anax* dragonflies”, in preparation
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Mentorship

- Michael Anyakora, undergraduate, UC Riverside, 2018
- Alan Myrup, High School Teacher, Mountain View High School, UT, 2016
- Nathan Geary, High School Student, Mountain View High School, UT, 2016
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References

- Dr. Christiane Weirauch, Professor, UC Riverside, Department of Entomology, Entomology 125, Riverside, CA, 92521 USA, Phone (951) 827-5707, Email: christiane.weirauch@ucr.edu
- Dr. Seth Bybee, Assistant Professor, Brigham Young University, Department of Biology, 4102 LSB, Provo, Utah, 84602 USA, Phone: (801) 422-3152, Email: seth.bybee@gmail.com