

Samantha Standring

Department of Entomology, University of California, Riverside

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Education

Expected 2023 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*)
 - Reclassification of subfamilies and tribes, morphology matrix
 - AHE, transcriptome, genome and Sanger sequencing data
 - Evolution of spiderweb association
- True bug systematics (Heteroptera)
 - Genome and transcriptome data
 - 73 of 89 families included
- Molecular evolution of sensory genes across Heteroptera
- Salivary proteins in Reduviidae
 - Designed probes for Anchored Hybrid Enrichment

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 (*Pyroctomena 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, Nelson 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

October 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, Biological Journal of the Linnean Society

Outreach/Volunteer Work

11/10/2021

Spring 2021	Riverside virtual insect fair participant Riverside, California Organized video submitted by lab “Assassin bugs of Southern California” Created thread-legged assassin bug video Facilitated panels for live videos Gathered photos and background information of researchers for social media posts
Fall 2020	GRFP workshop and mock panel UC Riverside Organized and led workshop and mock panel Discussed GRFP requirements, deadlines, and best practices Provided feedback on students’ essays
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 4 th and 5 th graders Organized activities
Summer 2019	Summer camp science volunteer Riverside, California Taught 4 th graders about insects
Summer 2018	Little Entomologist Summer Camp Volunteer UC Riverside 5-day summer camp for 4 th and 5 th graders Organized activities
Spring 2018	Riverside insect fair participant Riverside, California Organized displays for lab booth

Work Experience

Winter 2021	Teaching assistant
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ENTM050: The Evidence for Evolution
UC Riverside

Developed and graded worksheets and final essay
Presented guest lecture on systematics

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

2022	ESA SysEB: Phylogenetics and Phylogenomics student talk competition 2nd Place	
2020	UCR Inclusive Excellence Travel Fund	\$500
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

Invited talks

Oral Presentation, "Phylogenomics of True Bugs (Heteroptera)", Pacific Branch of ESA, Spokane WA 2020 – cancelled due to Covid-19

Presentations

Oral Presentation, "Evolution of spiderweb association in thread-legged assassin bugs", ENTM 250 Series Webinar, UC Riverside 2020

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, “Evolution of thread-legged assassin bugs”, Student Seminar Day, UC Riverside September 2021
Poster, “Life in the web: tracing the evolution of spider associated thread-legged assassin bugs (Emesinae: Reduviidae)”, Student Seminar Day, UC Riverside September 2019
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

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>
Clement, R.A., Saxton, N., Standring, S., Arnold, P., Johnson, K., Bybee, D., Bybee, S. (2021). Phylogeny, migration and geographic range size evolution of *Anax* dragonflies (Anisoptera: Aeshnidae). *Zoological Journal of the Linnean Society*, (August), <https://doi.org/10.1093/zoolinnean/zlab046>
Standring, S., Zhang, J., Forero, D., & Weirauch, C. Untangling the web: relationships of and character evolution in the thread-legged assassin bugs (Hemiptera: Reduviidae: Emesinae), in preparation
Standring, S., M. Sanchez, J. Ware, R. Guillermo, J.P. Drury, S.M. Bybee. Discovering the evolutionary history of Rubyspot Damselflies (Calopterygidae: *Hetaerina*), in preparation
*Last name changed from Smith to Standring in 2020

Mentorship

Esra Suleiman, undergraduate, UC Riverside 2021: Science communication
Ryan Culhane, undergraduate, UC Riverside 2020-2021: Evolution of Harpactorinae egg diversity
Michael Anyakora, undergraduate, UC Riverside, 2018: Methods in systematics
Alan Myrup, High School Teacher, Mountain View High School, UT, 2016: DNA extraction and PCR
Nathan Geary, High School Student, Mountain View High School, UT, 2016: DNA extraction and PCR

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. John Heraty, Professor, UC Riverside, Department of Entomology, Entomology 138, Riverside, CA, 92521 USA, Phone (951) 827-6351, Email: john.heraty@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