

# 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*

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## 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

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**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

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**Coursework relevant to Systematics**

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

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**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

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**Outreach/Volunteer Work**

10/7/2021

Spring 2021	<b>Riverside virtual insect fair participant</b> 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	<b>GRFP workshop and mock panel</b> UC Riverside  Organized and led workshop and mock panel Discussed GRFP requirements, deadlines, and best practices Provided feedback on students’ essays
Summer 2019	<b>Thread-legged assassin bug spider associations in Cameroon</b> Bouamir research station  Presented research to local guides and children Showed examples of Emesinae Introduced predatorial behavior
Summer 2019	<b>Little Entomologist Summer Camp Volunteer</b> UC Riverside  5-day summer camp for 4 <sup>th</sup> and 5 <sup>th</sup> graders Organized activities
Summer 2019	<b>Summer camp science volunteer</b> Riverside, California  Taught 4 <sup>th</sup> graders about insects
Summer 2018	<b>Little Entomologist Summer Camp Volunteer</b> UC Riverside  5-day summer camp for 4 <sup>th</sup> and 5 <sup>th</sup> graders Organized activities
Spring 2018	<b>Riverside insect fair participant</b> Riverside, California  Organized displays for lab booth

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## Work Experience

Winter 2021	<b>Teaching assistant</b>
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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

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### **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

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### Fellowships

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

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### Grants and awards

2022	ESA SysEB: Phylogenetics and Phylogenomics student talk competition <b>2<sup>nd</sup> Place</b>	
2020	UCR Inclusive Excellence Travel Fund	<b>\$500</b>
2019	National Geographic Research grant project member - <i>Predators become prey: untangling spider-associated behavior and morphology within true bugs (Heteroptera)</i>	<b>\$27,505</b>
2019	CNAS Dr. Janet M. Boyce Memorial Endowed Fund	<b>\$2,000</b>
2018	SysEB travel grant – <i>Life in the web: tracing the evolution of spider associated thread-legged assassin bugs</i>	<b>\$1,025</b>
2017	Robert M. Squires Evolution Fellowship 2017	<b>\$2,200</b>
2016	ORCA grant– <i>Phylogeny of Hetaerina (Odonata: Calopterygidae)</i>	<b>\$1,500</b>
2015	ORCA grant– <i>Assessment of biodiversity on Mount Timpanogos with a focus on flies, Diptera: Agromyzidae</i>	<b>\$1,500</b>

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### 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

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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>

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

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>

\*Last name changed from Smith to Standring in 2020

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## 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

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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](mailto: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](mailto:seth.bybee@gmail.com)