

Samantha Standring

Department of Entomology, University of California, Riverside

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<https://samstandring.github.io/>

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
Divergence dating, biogeography
Synonymy of *Mangabea* and *Stenorhamphus*
Description of two new species of Collartidini

True bug systematics (Heteroptera)
Genome and transcriptome data
71 of 89 families included
1,447 loci
Orthology prediction in Alibaseq

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, BioGeoBEARS, R
Dragonfly larva rearing (*Anax junius*)

Different light treatments, established protocol for raising larva
Trained undergraduates in the protocol
Firefly conservation (*Pyrrhopyga 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

7/21/2022

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, Austral Entomology, Biological Journal of the Linnean Society

Outreach/Volunteer Work

Winter 2022	Skype a Scientist Zoom call to Belfry, Montana Introduced insect biodiversity Presented research on assassin bugs Discussed feeding behavior of different hemipterans
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 4th and 5th graders
Organized activities

Spring 2018 **Riverside insect fair participant**
Riverside, California

Organized displays for lab booth

Teaching Experience

Summer 2022 **Short Course Instructor**
Biodiversity of True Bugs (Hemiptera: Heteroptera)

Winter 2022 **Teaching assistant**
ENTM202: Insect Biodiversity and Evolution

Winter 2021 **Teaching assistant**
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

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	International Heteropterists' Society: Student talk competition 2nd Place
2022	Dr. Mir S. Mulla & Leila Mulla Endowed Scholarship Fund \$10,700
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)”, International Congress of Entomology, Helsinki 2022
- Oral Presentation, “Phylogenomics of True Bugs (Heteroptera)”, Pacific Branch of ESA, Spokane WA 2020 – cancelled due to Covid-19
- Oral Presentation, “Dragons of the Jungle”, Friends of the Entomology Research Museum (FERM), UC Riverside, 2018

Presentations

- Oral Presentation, “Evolutionary history and biogeography of thread-legged assassin bugs (Reduviidae: Emesinae)”, International Heteropterists’ Society
- Oral Presentation, “Evolutionary history and biogeography of thread-legged assassin bugs (Reduviidae: Emesinae)”, Entomological Society of America, Denver 2021
- 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

Peer-reviewed 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., M. Sanchez, R. Guillermo-Ferreira, J. Ware, Y. Vega-Sánchez, R. Clement, J.P. Drury, G. Grether, A. González-Rodríguez, L. Mendoza-Cuenca, C. Bota-Sierra, S.M. Bybee. Evolution and biogeographic history of rubyspot damselflies (Hetaerinae: Calopterygidae: Odonata), *Diversity*, in review
- 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

*Last name changed from Smith to Standring in 2020

Other Publications

Smith*, S. (2019). Assassins in the jungles of Gabon. Entomology Graduate Student Association at University of California, Riverside. Blog post.

Smith*, S. (2020). Barro Colorado collecting trip. Friends of the Entomology Research Museum. Newsletter.

Smith*, S. S.M. Bybee. (2018). Phylogeny of *Hetaerina* (Odonata: Calopterygidae). BYU Journal of Undergraduate Research.

Smith*, S., C.R. Nelson. (2016). Assessment of biodiversity on Mount Timpanogos with a focus on flies, Diptera: Agromyzidae. BYU Journal of Undergraduate Research.

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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

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