

Shayla Salzman

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I study the effects of species interactions on evolutionary trajectories utilizing the coevolved brood site pollination mutualism between endangered *Zamia* cycads and their *Rhopalotria* weevil pollinators. My research integrates across scientific disciplines to answer fundamental questions about the evolution of biodiversity and conservation biology.



Education

Harvard University 2019
Ph.D. in Organismic and Evolutionary Biology
Ecology and evolution of cycads and their symbionts
Advisors: Prof. Naomi Pierce and Prof. Robin Hopkins
Funding: National Science Foundation Graduate Research Fellowship

University of California, Berkeley 2012
B.S. in Genetics and Plant Biology
Alternative oxidase gene expression during Macrozamia lucida thermogenesis
Advisor: Prof. Chelsea Specht
Honors, High Distinction, Major Citation Award

Professional Experience

National Science Foundation Postdoctoral Research Fellow in Biology Specht and Raguso Labs, School for Integrative Plant Sciences and the Department of Neurobiology and Behavior, Cornell, 2019-present

Laboratory Technician Pierce Lab, Department of Organismic and Evolutionary Biology, Harvard, 2013

Staff Research Associate & Lab Manager Specht Lab, Department of Plant and Microbial Biology, University of California, Berkeley, 2012-2013

Undergraduate Laboratory Assistant Specht Lab under Dr. Tanya Renner, Department of Plant and Microbial Biology, University of California, Berkeley, 2011

Undergraduate Study Manager Altieri Lab under Dr. Albie Miles, Department of Environmental Science, Policy, and Management, University of California, Berkeley, 2010-2011

Senior Agriculture Research Assistant under Dr. Lucia Varella, Sonoma County University of California Cooperative Extension, 2006-2008

Honors and Awards

Schmidt Science Fellowship Finalist 2018
Distinction in Teaching Award, Derek Bok Center for Teaching at Harvard University 2018
Arthur K. Bell Award, Brain Chemistry Labs at the Institute for EthnoMedicine 2017
Grady L. Webster Plant Systematics Publication Award, American Society of Plant Taxonomist 2016
Major Citation Award, University of California Berkeley Genetics and Plant Biology 2012
Udall Scholar Honorable Mention, Udall Foundation 2011

Publications

Whitaker M, Baker CCM, **Salzman S**, Martins DJ, Pierce NE. 2019. Combining stable isotope analysis with DNA metabarcoding improves inferences of trophic ecology. *PloS one* 14: e0219070

Hua C, **Salzman S**, Pierce NE. 2018. A first record of *Anatrachyntis badia* (Hodges1962) (Lepidoptera: Cosmopterigidae) on *Zamia integrifolia* (Zamiaceae). *Florida Entomologist* 101: 335-338

- Salzman S**, Whitaker M, Pierce NE. 2018. Cycad-feeding insects share a core gut microbiome. *Biological Journal of the Linnean Society* 123: 728-738
- Bruenn R, Lavenburg V, **Salzman S**. 2017. Don't judge a plant by its flowers. *Frontiers for Young Minds* 5:31 Doi: 10.3389/frym.2017.00031
- Whitaker M, **Salzman S**, Sanders J, Kaltenpoth M, Pierce N. 2016. Microbial communities of Lycaenid butterflies do not correlate with larval diet. *Frontiers in Microbiology* 7:1920. Doi: 10.3389/fmicb.2016.01920
- André T, **Salzman S**, Wendt T, Specht CD. 2016. Speciation dynamics and biogeography of Neotropical spiral gingers (Costaceae). *Molecular Phylogenetics and Evolution* 103: 55-63
- Andre T, Specht CD, **Salzman S**, Palma-Silva C, Wendt T. 2015. Evolution of species diversity in the genus *Chamaecostus* (Costaceae): molecular phylogenetics and morphometric approaches *Phytotaxa* 204: 265-276
- Salzman S**, Driscoll HE, Renner T, André T, Shen S, Specht CD. 2015. Spiraling into History: a molecular phylogeny and investigation of biogeographic origins and floral evolution for the genus *Costus*. *Systematic Botany* 40:104-115
*Winner Grady L. Webster Award for best plant systematics publication for 2014-2015
- Espeland M, Hall JPW, DeVries PJ, Lees DC, Cornwall M, Hsu YF, Wu LW, Campbell DL, Talavera G, Vila R, **Salzman S**, Ruehr S, Lohman DJ, Pierce NE. 2015. Ancient Neotropical origin and recent recolonization: Phylogeny, biogeography and diversification of the *Riodinidae* (Lepidoptera: Papilionoidea). *Molecular Phylogenetics and Evolution* 93: 296-306

Manuscripts in Review

- Salzman S**, Crook D, Crall J, Hopkins R, Pierce NE. An ancient and obligate pollination mutualism in cycads. In Revision at *Science Advances*

Grants, Fellowships and Scholarships

National Science Foundation Postdoctoral Research Fellowship in Biology	\$207,000
Harvard Museum of Comparative Zoology Barbour Fund 2015	\$2,500
Society for the Study of Evolution 2015	\$500
Cycad Society 2015	\$500
National Science Foundation Graduate Research Fellowship 2014	\$96,000
Berkeley Scholarship 2012	\$14,212
Harry L. Wollenberg scholarship 2010	\$7072
Federal Smart Grant 2010	\$4000
Esta M. Rodkey Scholarship 2010	\$500
Rotary Club of Santa Rosa Foundation Scholarship 2010	\$1,500
American Association of University Women Scholarship 2010	\$2,500
Cal Alumni Club of Oakmont Scholarship 2010	\$1,500
SRJC Alumni and Friends Honoring Dr. Roy G. Mikalson Scholarship 2010	\$1,500
Paul Mancini Memorial Agriculture Scholarship 2010	\$600
Luther Burbank Botany Scholarship 2010	\$800
Clark Nattkemper Science Education Scholarship 2010	\$500
American Business Women's Association 2009	\$750
Luther Burbank Botany Scholarship 2009	\$450
Doyle Scholarship 2008	\$1,600
Dr. Pearl Konttas Continuing Student Scholarship 2008	\$500
Luther Burbank Botany Scholarship 2008	\$600
Doyle Scholarship 2007	\$1,600
Dr. Pearl Konttas Continuing Student Scholarship 2007	\$450
Doyle Scholarship 2006	\$1,600
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	\$348,734

Extracurricular Certifications

Mentor training certificate Harvard University Science Education 2019

Teaching and Mentoring

Evolution Teaching Fellow Harvard, 2017

*Harvard Distinction in Teaching Award

Math, Science Teaching Assistant Connelly Detention Center, Juvenile Justice, Department of Youth Services Boston, 2014–2015

Science and shaping policy Course Instructor Harvard, 2015

Writing fellowship and grant proposals for the biological sciences Teaching Fellow Harvard, 2014

Chemistry, Biology Teaching Assistant California College Preparatory Academy, 2010

Laboratory mentoring High school student Sophie Reuhr and undergraduate Catherine Hua, Harvard, 2013–present

Laboratory mentoring Undergraduates Olivia Cope, Colin Hill, Rose Radford, Anabel Rivas, and Camila Torres, University of California, Berkeley, 2010–2013

Service and Outreach

Cambridge Entomological Club: Elected Vice-president 2014–2015, President 2015–2016, Executive Board 2016–2017, Treasurer 2017–present

Harvard Science Policy Group: Executive Board 2014–2016

The Cycad Society: Board of Directors 2014–present

The Cycad Society: 2018 Article *Interview with Dennis Stevenson*

Cambridge Entomological Club: 2016 Presentation *The President's Address: Mechanisms of a Neotropical Coevolution: Plant-Insect Communication in a Cycad-Weevil Symbiosis*

Frontiers for Young Minds: 2016 Live Review Presentation *Don't Judge a Plant by its Flowers*

The Cycad Society: 2014 Article *Our New Board Member, Shayla Salzman Describes her Research*

Hobby Farms Magazine Online Edition: 2009 Article *Soil Contamination: A Farm Buyer's Primer*

Redwood Empire Nursery Growers Association: 2008 Presentation *Light Brown Apple Moth*

Invited Seminars

Salzman S. 2017. *Mechanisms of a gymnosperm pollinator coevolution: plant-insect communication in a cycad-weevil symbiosis* Organismic and Evolutionary Biology Symposium, Harvard University

Salzman S. 2015. *Mechanisms of a Neotropical coevolution: plant-insect communication and specificity of Zamia pollination* Herbarium Seminar, National Institute of Amazonian Research (INPA) Brazil

Salzman S. 2015. *Mechanisms of a gymnosperm pollinator coevolution: plant-insect communication in a cycad-weevil symbiosis* Evolution Seminar, Federal University of Pará State Santarém (UFOPA) Brazil

Salzman S. 2012. *Gene Expression during Macrozamia lucida Thermogenesis* College of Natural Resources Honor's Symposium, University of California

Conference Presentations

Salzman S, Whitaker M, Pierce NE. 2018. *Cycad-feeding insects share a core gut microbiome* Plant Biology Initiative at Harvard University 9^{1st} Annual Plant Biology Symposium (poster)

Salzman S, Whitaker M, Pierce NE. 2017. *Assessing the potential for bacterial degradation of BMAA in the guts of cycad feeding insects* International BMAA Conference (poster)

*Winner Arthur K. Bell Award

Hua C, **Salzman S**, Pierce NE. 2017. Is *Anatrachyntis* another insect radiation onto cycads? Harvard College's Undergraduate Research Spotlight (poster)

Salzman S. 2015. *Mechanisms of a Neotropical coevolution: plant-insect communication and specificity of Zamia pollination* Cycad X: 10th International Conference on Cycad Biology

- Salzman S.** 2015. *Plant-insect communication and Rhopalotria-Zamia mutualism* International Evolution Conference
- Salzman S,** Yockteng R, Terry I, Specht CD. 2014 *Varying alternative oxidase gene expression during Macrozamia lucida thermogenesis suggests transcriptional regulation* Plant Biology Initiative at Harvard University 9th Annual Plant Biology Symposium (poster)
- Salzman S,** André T, Specht CD. 2013. *Spiraling into History: A Molecular phylogeny, biogeography, and ancestral character state reconstruction of distribution and pollination syndrome for Costus (Costaceae)* Monocots V: 5th International Conference on Comparative Biology of Monocotyledons (poster)
- Salzman S.** 2009. *Bioremediation of Nitrate in Wastewater* MESA (Math, Engineering, and Science Achievement) poster session Santa Rosa Junior College (poster)

Cycad-Related Collaborators

Thiago André, Federal University of Pará, Brazil
Francisco Barona-Gomez, National Laboratory of Genomics for Biodiversity, Mexico
Michael Calonje, Montgomery Botanical Center, Florida
Angélica Cibrián-Jaramillo, National Laboratory of Genomics for Biodiversity, Mexico
Paul Cox, Brain Chemistry Labs at the Institute for EthnoMedicine
Damon Crook, United States Department of Agriculture
Dennis Stevenson, New York Botanical Garden
William Tang, United States Department of Agriculture
Alberto Taylor, University of Panama
Irene Terry, University of Utah
Melissa Whitaker, Swiss Federal Institute of Technology, Zurich

Cycad-Related Field Work

Florida, USA	Biannually 2014-2018
Mexico	2017
Panama	2015
Colombia	2015
Brazil	2015