ELIZABETH I. CASH PHD

EVOLUTION, BEHAVIOR, AND CHEMICAL ECOLOGY OF SOCIAL INSECTS

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APPOINTMENT

2023 **Research Assistant Scientist** (2023-present)
University of Florida
Department of Environmental Engineering Sciences

2022 **Assistant Project Scientist** (2022-2023)
University of California, Berkeley
Department of Environmental Science, Policy, and Management

2016 **Postdoctoral Research Scholar** (2016-2022)
University of California, Berkeley
Department of Environmental Science, Policy, and Management
Advisor: N. D. Tsutsui

EDUCATION

2016 **Ph.D. Biology**
Arizona State University
School of Life Sciences
Dissertation: Proximate and ultimate mechanisms of nestmate recognition in ants
Advisors: J. Gadau (primary), J. Fewell, B. Hölldobler, K. Kusumi, & J. Liebig

2009 **B.Sc. Biology**
The Ohio State University
Center for Life Sciences Education
Independent research: The function of pheromones in socially parasitic *Lasius* ants
Undergraduate research advisors: J. Raczkowski, S. Rissing, & J. Wenzel

PUBLICATIONS

Peer-reviewed

12 Ward P, **Cash EI**, Ferger K, Escalona M, Sahasrabudhe R, Miller C, Toffelmier E, Fairburn C, Seligmann W, Shaffer HB, and Tsutsui ND. (2023) Reference genome of the bicolored carpenter ant, *Camponotus vicinus*. *Journal of Heredity* esad055.

11 Whyte BA, Sandidge R, Buellesbach J, **Cash EI**, Scheckel KJ, Gibson JD, and Tsutsui ND. (2023) The role of body size and cuticular hydrocarbons in the desiccation resistance of invasive Argentine ants (*Linepithema humile*). *Journal of Experimental Biology* 226(16): jeb245578.

10 Pomerantz A, Siddique RH, **Cash EI,** Kishi Y, Pinna C, Hammar K, Gomez D, Elias M, Patel NH. (2021) Developmental, cellular, and biochemical basis of transparency in the glasswing butterfly *Greta oto. Journal of Experimental Biology* 224(10): jeb237917.

9 Dennis AB, Ballesteros GI, Robin S, Schrader L, ...**Cash E** (11/39 authors), ...and Gadau J. (2020) Functional insights from the GC-poor genomes of two aphid parasitoids, *Aphidius ervi* and *Lysiphlebus fabarum*. *BMC Genomics* 21: 376.

8 Oeyen JP, Benoit JB, Beukeboom L, ...**Cash E** (7/84 authors), …and Niehuis O. (2020) Draft genomes of two sawflies reveal evolutionary acquisitions that fostered the megaradiation of parasitoid and eusocial Hymenoptera. *Genome Biology and Evolution* evaa106.

7 Buellesbach, J, Whyte B, **Cash E**, Gibson JD, Scheckel KJ, Sandidge R, and Tsutsui N. (2018) Desiccation resistance and micro-climate adaptation: cuticular hydrocarbon signatures of different Argentine ant supercolonies across California. *Journal of Chemical Ecology* 44: 1101-1114

6 Helmkampf M[†], **Cash E**[†*], and Gadau J. (2015) Evolution of the insect desaturase gene family with an emphasis on social Hymenoptera. *Molecular Biology and Evolution* 32: 2366-2372.
[†] **These authors contributed equally to this work. *Corresponding author.**

5 Simola DF, Wissler L, Donahue G, …**Cash E** (18/38 authors), …and Gadau J. (2013) Social insect genomes exhibit dramatic evolution in gene composition and regulation while preserving regulatory features linked to sociality. *Genome Research* 23: 1235-1247.

4 Gibson JD, Niehuis O, Peirson BRE, **Cash EI**, and Gadau J. (2013) Genetic and developmental basis of F2 hybrid breakdown in *Nasonia*. *Evolution* 67: 2124-2132.

3 Smith CR, Smith CD, Robertson HM, …**Cash E** (11/45 authors), …and Gadau J. (2011) A draft genome of the red harvester ant, *Pogonomyrmex barbatus*: a model for reproductive division of labor and social complexity. *Proceedings of the National Academy of Sciences of the United States of America* 108: 5667-5672.

2 Smith CD, Zimin A, Holt C, …**Cash E** (6/50 authors), …and Tsutsui ND. (2011) The draft genome of the globally widespread and invasive Argentine ant (*Linepithema humile*). *Proceedings of the National Academy of Sciences of the United States of America* 108: 5673-5678.

1 Suen G, Teiling C, Li L, …**Cash E** (9/49 authors), …and Currie CR. (2011) The genome sequence of the leaf-cutter ant *Atta cephalotes* reveals insights into its obligate symbiotic lifestyle. *PLoS Genetics* 7: e1002007.

Book chapters

1 Buellesbach, J, **Cash E**, and Schmitt T. (2018) Communication, Insects. In Swanson P & Skinner MK (Eds.), *Encyclopedia of Reproduction*, 2nd Edition, Volume 6: Comparative Reproduction (pp. 78-83). Academic Press.

Manuscripts in prep

9 **Cash EI**, Ferger K, Ward P, Escalona M, Sahasrabudhe R, Miller C, Toffelmier E, Shaffer HB, and Tsutsui ND. The reference genome of the kidnapper ant, *Polyergus mexicanus. Journal of Heredity.*

8 Whyte BA, **Cash EI**, and Tsutsui ND. Colony discrimination and competition in the eusocial trematode, *Himasthla rhigedana*.

7 **Cash EI,** Hölldobler B, and Gadau J. Nasty neighbors: experience, cuticular hydrocarbons, and seasonality shape nestmate recognition and territorial aggression in the red harvester ant, *Pogonomyrmex barbatus*.

*Undergraduate student co-authors underlined.

6 **Cash El**, Halloran S, Millar J, Naughton I, and Tsutsui ND. The role of sex pheromones in early speciation of California *Polyergus* kidnapper ants.

5 **Cash El**, Setayesh A, Choe D-H, Wong M, Oh J, and Tsutsui ND. Antimicrobial properties of a multifunctional pheromone in the invasive Argentine ant, *Linepithema humile*.

4 Scheckel KJ, **Cash El**, and Tsutsui ND. Chemical ecology of host specificity and the differential sharing of recognition cues by the facultative kidnapper ant, *Formica aserva*, with its *Formica* hosts.

3 **Cash El**, Ferger K, Ward P, Escalona M, Sahasrabudhe R, Miller C, Toffelmier E, Shaffer HB, and Tsutsui ND. The reference genome of the winter ant, *Prenolepis imparis. Journal of Heredity.*

2 **Cash El**, Liebig J, and Gadau J. Genetic, developmental, and social factors shape cuticular hydrocarbon variation in the red harvester ant, *Pogonomyrmex barbatus*.

1 **Cash El**, Smith AA, Walden K, Drnevitch J, Adams SA, Hwang C, Pak N, Perez S, Weinberg R, Whyte BA, Tsutsui ND, and Suarez A. Genomic and transcriptomic characterization of reproductive traits in the Florida trap-jaw ant (*Odontomachus brunneus*).

*Undergraduate student co-authors underlined.

FUNDING & AWARDS

2023 UC Berkeley sponsored projects for undergraduate research (SPUR) award
2019 UC Berkeley sponsored projects for undergraduate research (SPUR) award
2018 North American Section of IUSSI and the USDA, conference travel award
2016 Graduate college dissertation fellowship, Arizona State University
2015 Graduate training award for the California Academy of Science's Ant Course, ASU
2015 USDA NIFA, Foundational Programs, CSHL conference travel award
2014 President's Prize, 2nd Place, Entomological Society of America, 62nd annual meeting
2014 Arizona State University, School of Life Sciences, conference travel award
2014 Graduate excellence award, Arizona State University, School of Life Sciences
2013 North American Section of IUSSI, conference travel award
2013 Graduate research scholarship, Arizona State University, School of Life Sciences
2012 University graduate fellowship, Arizona State University, School of Life Sciences
2011 Study abroad scholarship to attend a tropical field biology course at the Smithsonian Tropical Research Institute in Panama, Arizona State University, School of Life Sciences
2010 Arizona State University, School of Life Sciences, conference travel award
2009 Denman Undergraduate Research Forum, 3rd place in Biological Sciences, The Ohio State University
2007 National SMART grant, The Ohio State University, Center for Life Sciences Education

INVITED TALKS

2023 Seminar speaker, Scents of Sociality: Exploring the intersection of genetics, behavior, and chemical ecology in insect societies. *Biology Seminar, University of Florida*, Gainesville, FL.

2023 Symposium speaker, Using genomic tools to understand the evolution of chemical communication in ants. *Entomological Society of America Pacific Branch meeting*, Seattle, WA.

2022 Symposium speaker, Integrative approaches to understanding social insect recognition systems. *Entomological Society of America Pacific Branch meeting*, Santa Rosa, CA.

2021 Seminar speaker, Pheromone evolution and function in social insects. *Essig Museum Seminar*, University of California, Berkeley, CA.

2019 Symposium speaker, Evolutionary trade-offs shape functional cuticular hydrocarbon variation in the unicolonial Argentine ant (*Linepithema humile). Entomological Society of America annual meeting*, St. Louis, MO.

2019 Seminar speaker and panelist, Citizen Science can be an Extraordinary Gateway to STEM Learning and Engagement! *Coalition for Education & Outreach, University of California*, Berkeley, CA.

2018 Seminar speaker, Ant societies: studies of genetic and environmental influences on colony identity, *Eco/Evo Seminar, Stanford University*, Stanford, CA.

2017 Seminar speaker, The evolution of nestmate recognition and the ontogeny of territoriality in ants. *Essig Museum Seminar, University of California*, Berkeley, CA.

2016 Invited speaker, The evolution and ecology of nestmate recognition in ants. *Tsutsui Lab Group, University of California*, Berkeley, CA.

2015 Symposium speaker, The effects of non-nestmate experience and familiarity on territorial aggression in red harvester ants. *ASU-UWü International Symposium and Workshop on Frontiers in Insect Biology, Arizona State University*, Tempe, AZ.

2015 Symposium speaker, Genetics and gestalt: the grapples with understanding ant recognition, *3rd International Meredith Gould Conference, CICESE*, Ensenada, Mexico.

2014 Symposium speaker, Evolution of desaturases in ants, *ASU-UWü International Symposium and Workshop on Frontiers in Insect Behavior, Social Organization, and Evolution*. Würzburg, Germany.

2014 Seminar speaker, Nestmate recognition in *Pogonomyrmex barbatus*: Hydrocarbons, genes, and sociality, *Social Insect Research Group (SIRG), Arizona State University*, Tempe, AZ.

CONFERENCE PRESENTATIONS

2022 Argentine ant trail pheromone exhibits antimicrobial effects on bacteria and fungi. (Talk) *XIXth Congress of IUSSI*, San Diego, CA.

2019 Antimicrobial properties of a multifunctional pheromone in the Argentine ant, *Linepithema humile*. (Poster) *Microbiology Symposium, University of California,* Berkeley, CA.

2018 Functional genetic study of chemical recognition systems in Argentine ants. (Talk) *XVIIIth Congress of IUSSI,* Guarujá, SP, Brazil.

2016 Contextualizing combat: the effects of prior experience, cuticular hydrocarbons, and seasonality on territorial aggression in the red harvester ant, *Pogonomyrmex barbatus*. (Talk) *International Congress of Entomology*, Orlando, FL.

2015 Genomic and genetic patterns of desaturase gene functional variation in ants. (Talk) *Biology & Genomics of Social Insects*, Cold Spring Harbor Laboratory, NY.

2014 Developing the Gestalt: Nestmate recognition cues in the red harvester ant, *Pogonomyrmex barbatus*. (Poster) *62nd annual Entomological Society of America meeting*, Portland, OR. *President's prize runner-up in student poster competition.

2013 The evolution of desaturase genes in ants. (Talk) *Entomological Society of America annual meeting,* Austin, TX.

2013 Nasty neighbors: The effect of cuticular hydrocarbons and prior experience on nestmate recognition behavior in the red harvester ant, *Pogonomyrmex barbatus*. (Poster) *Entomological Society of America annual meeting*, Austin, TX.

2012 Capturing that air of distinction: Desaturase gene diversity as a contributor to nestmate recognition in seven newly sequenced ant species. (Talk and Poster) *Gordon Research Seminar on Genes & Behavior*, Galveston, TX.

2011 Uncovering the genetic basis of colony recognition: desaturase gene diversity in seven newly sequenced ant species. (Poster) *Evolution Meeting*, Norman, OK.

2010 The genetic basis of colony recognition: desaturase genes in the newly sequenced genomes of *Pogonomyrmex barbatus* and *Linepithema humile*. (Poster) *Fourth Annual Arthropod Genomics Symposium*, Kansas City, MO.

2009 The function of pheromones in worker ants: the parasitism of *Lasius alienus* by *Lasius claviger*. (Poster) The Richard J. and Martha D. *Denman Undergraduate Research Forum, The Ohio State University*, Columbus, OH.

2008 Comparison of annual changes in arthropod abundance and diversity in a central Ohio oldfield community. (Talk) *Conservation Biology, The Ohio State University*, Columbus, OH.

TEACHING & MENTORSHIP

Guest lecturer

Georgia Southern University

2023 Social Insects, Entomology, Fall

University of California, Berkeley

2018 - 2023 Insects and Human Society; Environmental Science, Policy & Management, Spring

2016 - 2020 Insect Behavior; Environmental Science, Policy & Management, Fall

2018 - 2019 Molecular Approaches to Environmental Problem Solving; Environmental Science, Policy & Management, Spring

Instructor

Arizona State University

2013 - 2015 InnovationSpace, Biomimicry co-instructor, The Design School, Spring & Fall

Teaching associate

Arizona State University

2014 - 2016 Organic Evolution, Online course, School of Life Sciences, Summer

2013 Organic Evolution, Lecture, School of Life Sciences, Summer

2011 - 2012 General Entomology, Lab, School of Life Sciences, Fall

2012 General Biology, Molecular and Cellular Lab, School of Life Sciences, Spring

2011 General Biology, Evolution and Ecology Lab, School of Life Sciences, Spring

2010 General Genetics, Lecture, School of Life Sciences, Fall

2009 Introductory Biology Lab for non-majors, Lab, School of Life Sciences, Fall

Research mentorship

University of California, Berkeley

2023 Alicia Rifkin*, Undergraduate research (2023-present), UCB, Molecular Environmental Biology
2023 James Oh*, ‡, Undergraduate research (2021-2023), UCB, Molecular Environmental Biology
2023 Atra Shahyari, Undergrad research (2022-2023), UCB, Molecular Environmental Biology
2023 Matthew Wong†, §, Undergrad research (2020-2023), UCB, Molecular Environmental Biology
2023 Erin Larmore‡, Undergraduate research (2023), UCB, Molecular Environmental Biology
2023 Ivan Yun, Undergraduate research (2023), UCB, Molecular Environmental Biology
2022 Sasha Wang, High school research experience (2022), Presentation High School
2021 Caleb Hwang*, †, ‡, §, Co-advisor, Undergrad honor's thesis (2021), UCB, Mol & Cell Biology
2020 Ali Setayesh*, †, ‡, §, Advisor, Undergrad honor's thesis (2017-2020), UCB, Conservation Studies
2020 Skyler Anderson‡, Undergraduate research (2019-2020), UCB, Conservation Studies
2020 Jasper Chao¶, ‡, Undergraduate research (2019-2020), UCB, Integrative Biology, Eco/Evo
2020 Gary Chen¶, Undergraduate research (2019-2020), UCB, Molecular Environmental Biology
2019 Emily Miles, Undergraduate research (2019), UCB, Molecular & Cell Biology
2019 Prabmehar Sodhi§, Undergraduate research (2019), UCB, Cell & Developmental Biology
2019 Emily Kinnaman‡, Undergraduate research (2019), UCB, Molecular Environmental Biology
2018 Charlotte Knopp*, ‡, ¶, Undergraduate intern (2018), Mount Holyoke College, Biology
2018 Buzz Chen*, ¶, Undergraduate research (2017-2018), UCB, Molecular Environmental Biology
2017 Emily Takeuchi, Undergraduate research (2017), UCB, Integrative Biology

Arizona State University

2016 David Contreras‡, Undergraduate research (2015-2016), ASU, Genetics
2015 Marie-Luise Hagitte, International high school student intern (2015), Biology
2015 Kathleen Fowler‡, Undergraduate research (2015), ASU, Genetics
2014 Rafael Testai*, ¶, ‡, Advisor, Undergraduate honor's thesis (2013-2014), ASU, Genetics
2013 Harry Grissom*, ¶, Co-advisor, Undergraduate honor's thesis (2012-2013), ASU, Biology
2012 Anna-Lena Roll, International high school student intern (2012), Biology
2012 Chad Allen‡, Undergraduate research (2012), ASU, Biology
2011 Bita Vaghari§, ‡, Undergraduate research (2010-2011), ASU, Biology
2010 Lakshmi Ghanta*, ‡, Co-advisor, Undergraduate honor's thesis (2009-2010), ASU, Biology

* Students working on independent or honor's thesis research. † Student co-authors. § Students accepted to medical, dental, or optometry school. ¶ Students accepted to graduate school. ‡ Students employed in scientific or medical fields.

PUBLIC OUTREACH

K-12 STEM education

2019 Co-organizer and instructor, *Backyard Biodiversity* summer camp activity; Designed and co-led insect diversity lesson & hands-on activities for 4th-6th grade students, UC Berkeley *Academic Talent Development Program* (ATDP), Richmond, CA

2019 Co-instructor, *Smell Me if You Can* science lesson; Conducted insect-themed hands-on, inquiry-based biology learning activities for 4th and 5th grade students, *Bay Area Scientists in Schools*, Community Resources for Science, Berkeley, CA and Richmond, CA

2018 Mentor, *Be A Scientist* research mentorship; Advised 7th grade students in a 6-week, independent, science research project, *Community Resources for Science*, Berkeley, CA

2018 Workshop co-organizer, *ANT-mazing: How females rule the social insect world* STEM workshop; Conducted hands-on, inquiry-based learning activities about social insect biology for 5th-8th grade girls, *Expanding Your Horizons*, University of California, Berkeley, CA

2017 Content co-creator, *ANT-vasion* at-home science lesson; Contributed to creation of an at-home, ant-themed biology activity for students of all ages, *SciStarter*, Backyard Biodiversity Project, online STEM resource

2017 Co-instructor, *Smell Me if You Can* science lesson; Conducted insect-themed, hands-on, inquiry-based biology learning activities for 4th and 5th grade students, *Bay Area Scientists in Schools*, Community Resources for Science, Oakland, CA

2016 Co-organizer and instructor, *STEM Day* weekly after-school program; Developed and conducted science learning activities for K-12 students in a weekly after-school education and assistance program, *Flight 33*, Pascua Yaqui Tribe, Guadalupe, AZ

2013 Co-organizer and instructor, *Animal Behavior* summer camp activity; Developed active learning exercises to teach camp attendees (grades 5-9) the process of using the scientific method while studying social insects, *BEST Summer Program*, Arizona State University, Tempe, AZ

2013 Content developer, *InsectARium* digital insect models; Created 3D insect models for use in an online learning & research tool, *BioKIC*, Arizona State University, Tempe, AZ

2010 Project consultant, *CompuGirls* logo design; Served as a design project consultant in a technology program for adolescent girls interested in computer sciences, *Center for Gender Equity in Science and Technology*, Arizona State University, Tempe, AZ

2000 Tutor, *Project Connect* after-school program; Volunteered as an after-school tutor for students (grades K-6), *Cincinnati Public Schools*, Cincinnati, OH

Community science

2019 Contributor, *Nature Nerd BioBlitz*; Served as an expert entomologist to survey and identify insects in a 4h BioBlitz, Pt. Molate Beach Park, Richmond, CA

2019 Contributor, *Jasper Ridge Ant Survey*; Surveyed and identified ants in a biological preserve, Stanford, CA

2019 Contributor, *Save Mt. Diablo BioBlitz*; Served as an expert entomologist to survey and identify insects in a 24h BioBlitz, Mt. Diablo regional area, CA

2018 Co-organizer, *City Nature Challenge*; Local/online biodiversity survey event, El Cerrito, CA

2018 Contributor, *Jasper Ridge Ant Survey*; Surveyed and identified ants in a biological preserve, Stanford, CA

2018 Co-organizer, *Undergraduate Engagement in Citizen Science*; Helped lead 15 undergraduate students in a 24h BioBlitz survey of insects, Save Mt. Diablo BioBlitz, Walnut Creek, CA

2017 Contributor, *Jasper Ridge Ant Survey*; Surveyed and identified ants in a biological preserve, Stanford, CA

2017 Contributor, *Save Mt. Diablo BioBlitz*; Served as an expert entomologist to survey and identify insects in a 24h BioBlitz, Mt. Diablo regional area, CA

Community events & service

2023 Co-organizer, *Tsutsui Lab* outreach exhibit; Created educational materials, displayed live ant colonies, and answered questions about research experience for accepted undergraduate students & family members at the annual UC Berkeley open house, *Cal Day*, Berkeley, CA

2021 Contributor (2020-2021), *IB Hand Sanitizer Project* public service; Worked monthly with a small team of graduate students, university research staff, and postdocs to batch-produce hand sanitizer for distribution throughout the Bay Area, CA community, 1,600+ gallons produced

2019 Co-organizer, *Insect and Spider Research at UC Berkeley* outreach exhibit; Created and implemented hands-on learning activities to teach attendees about the characteristics of ants and other insects, and how entomologists study them, Discovery Day at Oracle Park, *Bay Area Science Festival*, San Francisco, CA, 30,000 attendees

2019 Co-organizer (2 events), *Tiny* (ant themed) and *Women in Science* outreach exhibits; Presented videos, information displays, ant specimens, and experimental demonstrations to inform public attendees about ant behavior and ant diversity in the Bay Area, *NightLife*, California Academy of Sciences, San Francisco, CA, 1,000 attendees

2019 Co-organizer, *Tsutsui Lab* outreach exhibit; Created ant displays, AR "ant masks," and hands-on activities for annual UC Berkeley open house attendees, *Cal Day*, Berkeley, CA, 40,000 attendees

2018 Co-organizer, *The Ant Lab at UC Berkeley* outreach exhibit; Created exhibit displays and insect behavior demonstrations to teach attendees about the characteristics of ants and other insects, and how entomologists study them, Discovery Day at AT&T Park, *Bay Area Science Festival*, San Francisco, CA, 30,000 attendees

2018 Co-organizer, *Tsutsui Lab* outreach exhibit; Created ant displays, lab stickers, and hands-on activities for annual UC Berkeley open house attendees, *Cal Day*, 40,000 attendees

2018 Co-organizer (2 events), *Women in Science* and *Curious Creatures* outreach exhibits, *NightLife*, California Academy of Sciences, San Francisco, CA, 1,000 attendees

2017 Co-organizer (3 events), *Star Wars*, *80's Horror*, and *Sound* (all ant themed) outreach exhibits, *NightLife*, California Academy of Sciences, San Francisco, CA 1,500 attendees

2016 Co-organizer, *Insect Research at UC Berkeley* outreach exhibit; Created and implemented hands-on learning activities to teach attendees about the characteristics of ants and other insects, and how entomologists study them, Discovery Day at AT&T Park, *Bay Area Science Festival*, San Francisco, CA, 30,000 attendees

2016 Co-organizer, *Social Insect Research Group* outreach exhibit; Exhibited live insects and ant colony displays for university open house attendants, *Night of the Open Door*, Arizona State University, Tempe, AZ, 10,000 attendees

2016 Co-organizer, *School of Life Sciences* outreach exhibit; Presented live insects and ant colony displays for university homecoming attendants, *Homecoming Block Party*, Arizona State University, Tempe, AZ, 10,000 attendees

2014 Contributor (4 events), *Sonoran Desert Insects* outreach exhibit; Served as an expert entomologist to inform public attendees about insect diversity of the Sonoran Desert, *Summer Flashlight Tours*, Desert Botanical Garden, Phoenix, AZ, 1,000 attendees

2014 Guide, *SOLS Takes a Hike*; Led guided hikes to teach local attendees about insects of the Sonoran Desert, *School of Life Sciences*, Arizona State University, Gilbert Riparian Preserve, Gilbert, AZ, 100 attendees

2010 Co-organizer, *Ask-a-Biologist* outreach exhibit; Exhibited insect specimens, DIY activities, and informational displays for public attendees, *Social Insect Expo*, Desert Botanical Garden, Phoenix, AZ, 150 attendees

SCIENCE COMMUNICATION

Media coverage & interviews

2019 "Kidnapper Ants Steal Other Ants' Babies — And Brainwash Them," *KQED science*
2019 "Social Insects," Feature on citizen science in the Tsutsui Lab, *Breakthroughs*
2018 "Ant Speak," Spotlight on Argentine ant research, *The Berkeley Science Review*
2015 "Biomimicry center prompts discussion of nature as source for sustainable ideas," *ASU Now*
2012 "Shaking Hands with a Sloth," Article on biology and design, *Places Journal*

Television & video contributions

2019 "Nature's Cleanup Crew," *The Nature of Things,* CBC
2019 "Kidnapper Ants Steal Other Ants' Babies — And Brainwash Them," *Deep Look,* KQED
2016 "The Incredible Indian Jumping Ant," *Strange Truth*, National Geographic Channel
2015 "Why Does Ant Diversity Matter?" *Ant Course Presents*, California Academy of Sciences
2015 "Mark-Recapture Technique," *Ant Course Presents*, California Academy of Sciences
2014 "Tournament of the Ants," *Science Take*, The New York Times
2014 "Student Spotlight," *InnovationSpace*, The Design School, ASU Herberger Institute
2013 "SIRG & friends," *Social Insect Research Group*, Arizona State University
2012 "Flight of the Sexuals," *Social Insect Research Group*, Arizona State University

Photography contributions

2023 "The role of body size and cuticular hydrocarbons in the desiccation resistance of invasive Argentine ants (*Linepithema humile*)," *Journal of Experimental Biology,* (journal cover)
2022 "Naturalist's Austin," *Texas A&M University Press*, (figure in forthcoming book)
2021 "Non-kin cooperation in ants," *Frontiers in Ecology and Evolution*, (scientific figure)
2021 "Genome assembly and annotation of the California harvester ant *Pogonomyrmex californicus,*" *G3*: *Genes Genomes Genetics*, (journal cover)
2020 "Ant Colonies Speed Information Flow: Red harvester ant," *AskNature.org*, (online resource)
2020 "Big Picture: Resilience in Research," *Breakthroughs*, (article)
2020 "The evolution of species recognition labels in insects," *Philosophical Transactions of the Royal Society B,* (scientific figure)
2019 "Social Insects," *Breakthroughs*, (article)
2019 "Inquiline social parasites as tools to unlock the secrets of insect sociality," *Philosophical Transactions of the Royal Society B*, (scientific figure)
2018 "Ant Speak," *The Berkeley Science Review*, (article)
2016 "Genome of the Asian longhorned beetle (*Anoplophora glabripennis*), a globally significant invasive species, reveals key functional and evolutionary innovations at the beetle–plant interface" *Genome Biology*, (scientific figure)
2015 "Launch of ASU center prompts discussion of nature as source for sustainable ideas," *ASU Now*, (article)
2014 "Student Spotlight," *InnovationSpace*, The Design School, Arizona State University (article)
2014 "Battle of the sexes in sperm-parasite ants," Dispatches, *Frontiers in Ecology and the Environment*, (article)
2014 "Langzeitstudie aus den USA: Ameisen gegen den Klimawandel," *Berliner Zeitung*, (article)
2014 "Tropical Fire Ants," *Dutch Pest & Wildlife Expertise Center (KAD) magazine*, (magazine cover)

2014 “Can Ants Save the World from Climate Change?,” *Live Science*, (article)
2014 “The Power of Poison,” *American Museum of Natural History*, (museum exhibit)
2013 “Alum taps InnovationSpace for product development, improvements,” *ASU Now*, (article)
2013 “Finding 'Mr. Right': How insects sniff out the perfect mate,” *ASU Now*, (article)
2012 “Shaking Hands with a Sloth: What designers and biologists can learn from one another, and from nature,” *Places Journal*, (article)

Scientific illustration & digital designs

2023 “Tsutsui Lab ant stickers,” Promotional sticker sheets for outreach, *CalDay,* Berkeley, CA
2019 “Ant masks,” Augmented reality photo lenses for outreach events & beyond, *Snapchat*
2018 “Bearded Lady Club - Psammophores Rule!,” Promotional graphic design, *IUSSI 2018*
2016 “California Pools Project,” Project graphic design, *Backyard Biodiversity Project*
2016 “Tsutsui Lab,” Website and graphic design, *University of California, Berkeley*
2015 “Arizona Beekeepers Association,” Logo design
2015 “The Biomimicry Center,” Promotional poster series design, *Arizona State University*
2014 “MYRMEX Art,” Ant- and insect-assisted paintings, *SIRG*, Arizona State University
2014 “I heart ants” and “I heart bees,” Promotional graphic design, *SIRG*, Arizona State University
2013 “SIRG & friends,” Logo design, *Social Insect Research Group*, Arizona State University
2013 “Gadau Lab,” Website and graphic design, School of Life Sciences, Arizona State University

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ACADEMIC SERVICE

University service

2016 Biomimicry consultant, Senior undergraduate student capstone projects, InnovationSpace, The Design School, Arizona State University, Tempe, AZ

2015 Co-organizer, The Biomimicry Center launch symposium and exhibits, Arizona State University, Tempe, AZ, 20 speakers, 500 attendees

2014 Faculty hiring committee, Graduate student representative, School of Life Sciences, Arizona State University, Tempe, AZ

2013 Biomimicry consultant, Architectural design project, School of Life Sciences + The Design School, Arizona State University, Tempe, AZ

2012 Seminar co-organizer, “Social Insect Research Group,” Weekly seminar series, School of Life Sciences, Arizona State University, Tempe, AZ, 31 speakers (24 ASU, 3 other US institutions, 4 international)

Journal reviewer/referee

Biological Invasions, Comparative Biochemistry and Physiology - Part B: Biochemical and Molecular Biology, Insects, International Journal of Molecular Sciences, Nature Communications, Pest Management Science, *PLOS ONE, Revista Brasileira de Entomologia, Scientific Reports*

Professional memberships

Animal Behavior Society (ABS), Association for Women in Science (AWIS), International Union for the Study of Social Insects (IUSSI), The Entomological Society of America (ESA), The National Society of Collegiate Scholars (NSCS), The Society for Integrative and Comparative Biology (SICB), The Society for the Study of Evolution (SSE)

ADDITIONAL TRAINING & PROFESSIONAL EXPERIENCE

2023 Supergene Seminar, University of California, Berkeley, CA
2022 RNA interference (RNAi) Seminar, University of California, Berkeley, CA
2020 Chemical Ecology Seminar, University of California, Berkeley, CA
2019 Summer Institute for Preparing Future Faculty, University of California, Berkeley, CA
2019 Integrating Research with Education and Outreach, University of California, Berkeley, CA
2015 Ant Course, California Academy of Sciences, AMNH Southwest Research Station, Portal, AZ
2011 Biomimicry Traveling Studio, The Design School, ASU + STRI, Gamboa, Panama
2011 Tropical Field Biology, School of Life Sciences, ASU + STRI, Gamboa, Panama
2005 Design, Jones Apparel Group, New York, NY
2004 Design & Product Development, Ecko Unlimited, New York, NY
2002 Design & Product Development, Nesi Apparel Group, New York, NY
1999 Design Foundations, DAAP, University of Cincinnati, Cincinnati, OH

PROFESSIONAL REFERENCES

Dr. Neil Tsutsui
Professor and Abraham E. & Martha M. Michelbacher Chair of Systematic Entomology
Department of Environmental Science, Policy & Management
University of California, Berkeley
130 Mulford Hall # 3114
Berkeley, CA 94720-3114
Phone: 1(510)684-5572
Email: ntsutsui@berkeley.edu

Dr. Jürgen Gadau
Professor and Chair of the Molecular Evolution and Social Biology Group
Institute for Evolution and Biodiversity
University of Münster
Hüfferstraße 1, 48149 Münster, Germany
Phone: +49(0)251-83-21095
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