

## **Rick Overson**

Postdoctoral Researcher  
Chicago Botanic Garden  
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### **EDUCATION**

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#### **Ph.D. (Biology), Arizona State University, 2011.**

Major Advisor: Dr. Jürgen Gadau

#### **B.S. (Biology), *Magna Cum Laude*, Arizona State University, 2004.**

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### **RESEARCH EXPERIENCE**

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#### **Postdoctoral Researcher, Chicago Botanic Garden (Jan 2014-present)**

- Participating in a five-year, broadly collaborative project to understand the origins of biodiversity, driven by interactions among flowering plants (Onagraceae) and their insect pollinators and parasites in western North America. Research integrates, long-term ecological and common garden experiments, genome sequencing and assembly, wide-scale phylogenomics, and genome-wide association studies of important functional variation.

#### **Research Associate, California Academy of Sciences (2012-2013)**

- Utilizing morphological and genetic techniques to delineate species boundaries of ants, with aim to understand biogeographic patterns in the Malagasy and Afrotropical regions, using Madagascar as an island biogeography model.

#### **Doctoral Student, Gadau Laboratory, School of Life Sciences, Arizona State University (2005-2011)**

- Carried out extensive, 6-year population genetics study of the seed-harvester ant *Pogonomyrmex californicus*. Optimized primers for use with focal taxa, used enrichment and cloning techniques to develop novel microsatellite primers for paternity and *F<sub>ST</sub>* analyses, produced a large-scale biogeographic and phylogenetic analysis.
- Participated in a collaborative, year-long, international effort to both sequence and annotate the first published ant genomes. Collaborated in comparative genomics studies for gene/protein families across ant genomes.

#### **Research Assistant, Faeth Laboratory, School of Life Sciences, Arizona State University (2004-2005)**

- Developed independent project involving fungal endophytes and aphid feeding behavior.
- Assisted arthropod habitat sampling for a Central Arizona Long Term Ecological Research project.

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### **TEACHING EXPERIENCE**

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#### **Faculty Teaching Associate, Arizona State University, (June-Dec 2011)**

- Biomimicry Travel Studio: Co-instructed an interdisciplinary class of graduate students in biology, architecture, and industrial design, exploring biomimetic and sustainable design in Panama. Developed curriculum, arranged and organized a 2-week field excursion to the Smithsonian Tropical Research Institute in Panama.
- “Innovation Space”, Collaborative Design Development: Co-instructed an interdisciplinary, award-winning class for senior undergraduates. Lectured, led group activities, mentored students working on team-based projects to incorporate biological principles and sustainability in design.

#### **Teaching Associate, Arizona State University, (2005-2011)**

- Introductory Perl for Biologists: mentored students with projects analyzing biological data with Perl. (1 section).

- General Genetics: Graded student homework and instructed students during office hours (1 class section).
- General Entomology: Created lesson materials, lectured during labs, and refereed interactive lab exercises. Organized and led field trips. Expanded entomological teaching collection over a period of three years (8 class sections). Received teaching award for work in class.
- Introduction to Biology: Lectured in classroom setting and presented interactive lessons and scientific exploration (2 class sections).

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## PEER-REVIEWED JOURNAL ARTICLES

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- **Overson RP** and Gadau J. (in preparation) Intraspecific social variation in the California harvester ant *Pogonomyrmex californicus*.
- **Overson RP**, Gadau J, Clark RM, Pratt SC, and Fewell JH. 2013. Behavioral transitions with the evolution of cooperative nest founding by harvester ant queens. *Behavioral Ecology and Sociobiology*. DOI: 10.1007/s00265-013-1618-2.
- Johnson RA, **Overson RP** & Moreau CS. 2013. A new species of seed-harvester ant, *Pogonomyrmex hoelldobleri* (Hymenoptera: Formicidae), from the Mohave and Sonoran deserts of North America. *Zootaxa* 3646(3):201-227. DOI:10.11646/zootaxa.3646.3.1
- Holbrook CT, Eriksson TH, **Overson RP**, Gadau J, and Fewell JH. 2013. Colony-size effects on task organization in the harvester ant *Pogonomyrmex californicus*. *Insectes Sociaux* 60(2):191-201. DOI: 10.1007/s00040-013-0282-x
- Smith AA, **Overson RP**, Hölldobler B, Gadau J, Liebig J. 2012. The potential for worker reproduction in the ant *Aphaenogaster cockerelli* and its absence in the field. *Insectes Sociaux* 59 (3):411-416.
- Smith CD, Zimin A, Holt C, ...**Overson RP** (33/50)..., and Tsutsui ND. 2011. Draft genome of the globally widespread and invasive Argentine Ant (*Linepithema humile*). *Proceedings of the National Academy of Sciences*. DOI:10.1073/pnas.1008617108.
- Smith CR, Smith CD, Robertson HM, ...**Overson RP** (35/45)..., and Gadau J. 2011. Draft genome of the red harvester ant *Pogonomyrmex barbatus*. *Proceedings of the National Academy of Sciences* 108 (14):5667-72.
- Suen G, Teiling C, Li L, ...**Overson RP** (30/49)..., and Currie CR. 2011. The genome sequence of the leaf-cutter ant *Atta cephalotes* reveals insights into its obligate symbiotic lifestyle. *PLoS Genetics* 7 (2):587-604.
- Anderson KE, Zeltzer SL, **Overson RP**, and Clark WH. 2010. Identification of cryptic hosts for two inquiline parasites of the seed-harvester ant *Pogonomyrmex* and new localities for *P. anergismus* (Hymenoptera: Formicidae). *The Southwestern Naturalist* 55 (4):532-538.
- Holbrook CT, Clark RM, Moore D, **Overson RP**, Penick CA, and Smith AA. 2010. Social insects inspire human design. *Biology Letters* 6 (4):431.
- Johnson RA & **Overson RP**. 2009. A new North American species of *Pogonomyrmex* (Hymenoptera: Formicidae) from the Mohave Desert of eastern California and western Nevada. *Journal of Hymenoptera Research* 18 (2):305-314.

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## PRESENTATIONS AT SCIENTIFIC CONFERENCES

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### Oral Presentations

- Overson RP. Ants as complex adaptive systems. Managing the Hive: Organization of Work in Business and Eusocial Colonies. Tempe, AZ, May 2011.
- Overson RP and Jürgen Gadau. Causes and consequences of queen number variation in the California harvester ant *Pogonomyrmex californicus*. International Union for the Study of Social Insects (IUSSI) XVI Congress. Copenhagen, Denmark, Aug. 2010.

- Overson RP, Fewell J, Pratt SC, Clark RM, and Gadau J. From conflict to cooperation: colony founding by unrelated ant queens. International Union for the Study of Social Insects: North American Section (NAS-IUSSI). Arecibo, Puerto Rico, Oct. 2008.
- Gadau J, Johnson RA, Overson RP. Evolution of mating frequency and female and male reproductive characters in the harvester ant genus *Pogonomyrmex*. International Union for the Study of Social Insects (IUSSI) XV Congress, Washington, DC, July 2006.

#### **Poster Presentations**

- Overson RP, Fewell J, Pratt SC, Clark RM, and Gadau J. From conflict to cooperation: colony founding by unrelated ant queens. Communication and Cooperation: From Genes to Behavior: International Conference at the University of Konstanz. Konstanz, Germany, Sept. 2008.
- Overson RP, Fewell J, Pratt SC, Clark RM, and Gadau J. From conflict to cooperation: colony founding by unrelated ant queens. International Society for Behavioral Ecology (ISBE). Ithaca, NY, Aug 2008.
- Overson RP, Gadau J, Hölldobler B. Comparative study of male accessory gland size in the harvester ant genus *Pogonomyrmex*. International Union for the Study of Social Insects (IUSSI) XV Congress, Washington, DC, July 2006.

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### **GRANTS AND AWARDS**

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- Conference Grant: “Social Biomimicry: Conference on Insect Societies and Human Design,” National Science Foundation, 2010-2011 (\$16,838; with Fewell JH, Clark RM, Holbrook CT, Moore D, Penick CA, and Smith AA).
- Conference Grant: “Social Biomimicry: Insect Societies and Human Design,” School of Life Sciences, Arizona State University, 2009-2010 (\$29,975; with Clark RM, Holbrook CT, Moore D, Penick CA, and Smith AA).
- Event Grant: “Social Biomimicry: Insect Societies and Human Design,” Graduate and Professional Student Association, Arizona State University, 2009-2010 (\$2,000; with Clark RM, Holbrook CT, Moore D, Penick CA, and Smith AA).
- Award: Honorable Mention Teaching Associate of the Year, School of Life Sciences, Arizona State University, 2007-2008.
- Conference Travel Award, School of Life Sciences, Arizona State University, 2005-2010 (3 awards \$1050).
- Stipend for summer research assistantship, Biology Research Education for Undergraduates (BREU), School of Life Sciences, Arizona State University, 2004.

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### **MENTORING**

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#### **Undergraduates Mentored**

- Hoang Dang, Arizona State University. School of Life Sciences Undergraduate Researcher. 2010-2011
- Tresa Marchi, Arizona State University. Undergraduate research credit. Comparative study of gene-flow between behaviorally distinct populations of *Pogonomyrmex californicus*. 2009-2010.
- Julie Chunne, Arizona State University. Undergraduate research credit. 2009-2010.
- Daniel Sensenig, Arizona State University. Undergraduate research credit. Utilizing microsatellites to map the geographic extent of primary polygyny in *P. californicus*. 2008.
- Arman Parsa, Arizona State University. Undergraduate research credit. 2010.
- Benjamin Allen, Arizona State University. Undergraduate research credit. Field work and laboratory behavioral experiments of co-founding queen ants. 2006.
- Kori Parsy, Arizona State University. Undergraduate research credit. Field work and laboratory behavioral experiments of co-founding queen ants. 2006.
- Efrain Cubillo, Arizona State University. Undergraduate research credit. Queen-mating frequency of *P. californicus*. 2005.

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## SCIENCE OUTREACH

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- Presenter: “Night Life” California Academy of Sciences. Interacted with public, communicating the importance of basic research. May 2013.
- Tour Guide: “SOLS Takes a Hike” one-day public event. Led nature tours, instructed the public in entomology and desert ecology. Arizona State University, April of 2007, 2008, and 2011.
- Organizer: “Social Insect Science Expo!” Co-organized a community outreach event showcasing insects and their importance with live-animal exhibits and speakers. Desert Botanical Garden, Tempe, AZ, 20 Feb. 2010.
- Presenter: Summer Program for Early Literacy and Language (SPELL), Communicated insect behavior and life history and what it means to be a scientist to elementary school children utilizing live insect exhibits. Tempe, AZ, 17 June 2008.
- Volunteer: Multilevel Selection Workshop, Center for Social Dynamics and Complexity, Arizona State University, March 2008.
- Volunteer: Workshop on Social Insects as a Model System for Evolutionary Developmental Biology, Center for Social Dynamics and Complexity, Arizona State University, April 2006.
- Consultant/Writer: Ask a Biologist (<http://askbiologist.asu.edu>), 2005-2011.
- Assistant to Media Relations and Marketing Manager: Produced popular science articles and podcasts for public education. Arizona State University, 2008.

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## PROFESSIONAL EXPERIENCE AND TRAINING

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- Extensive experience using BLAST techniques, Apollo, MEGA, CLUSTALW, Sequencher, PAUP, MrBayes, etc.
- Member, Organizing Committee, “Social Biomimicry: Insect Societies and Human Design” conference. A three-day international conference bringing together biologists, designers, engineers, computer scientists, architects and businesspeople, with the dual aims of enriching biology and advancing biomimetic design. 2010. Tempe, AZ.
- Vice-President, School of Life Sciences Graduate Student Body, 2010-2011, Arizona State University.
- Ant Course, California Academy of Sciences, Southwestern Research Station, Portal, Arizona. 2005. An annual intensive course on ant taxonomy and diversity.

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## POPULAR MEDIA ARTICLES

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- “Sick flies shed light on human immunity.” *ASU Insight*. 18 Nov. 2008.
- “Scientists discover new target for anti-cancer drug screening.” *ASU Insight*. 30 March 2009.
- “Online tools make biodiversity more accessible to public.” *ASU Insight*. 16 Dec. 2008.

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## MEDIA COVERAGE

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- Coulombe, Peggy. “Tropical classroom inspires exhibit, Smithsonian field station...” *ASU News*. 13 Jan. 2012.  
[https://asunews.asu.edu/20120113\\_Panamadesign](https://asunews.asu.edu/20120113_Panamadesign)
- Penick, Clint. “Design Studio: Panama.” *SoLS Magazine*. Summer 2012.  
[https://sols.asu.edu/sites/default/files/magazines/files/sols\\_vol8\\_no1\\_2012.pdf](https://sols.asu.edu/sites/default/files/magazines/files/sols_vol8_no1_2012.pdf)
- Fischer, Adelheid. “Shaking Hands with a Sloth.” *The Design Observer Group*. 2 April 2012.  
<http://places.designobserver.com/feature/biomimicry-and-design-education/32848/>

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## LANGUAGE

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Spanish: fluent speaking and reading.