

**Rebecca M. Clark**  
Curriculum Vitae

**Integrative Biology**

University of California, Berkeley  
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Nutritional physiology, life history evolution, behavioral ecology, crickets, social evolution, social insects, leafcutter ants, R statistical software

**APPOINTMENTS**

- 2015- Postdoctoral Research Associate, University of California-Berkeley: Nutrition and metabolic flexibility in wing-dimorphic crickets (with Caroline Williams)
- 2015 Postdoctoral Research Associate, School of Biological Sciences, University of Nebraska-Lincoln: Nutrient regulation and physiological allocation in wing-dimorphic crickets (with Anthony Zera and Spencer Behmer)
- 2011-2015 Postdoctoral Research Associate, Department of Entomology, Texas A&M University: Nutrient regulation and physiological allocation in wing-dimorphic crickets (with Spencer Behmer and Anthony Zera)

**EDUCATION**

- 2011 Ph.D., Arizona State University (Biology; Supervisor: Jennifer H. Fewell)
- 2003 B.A., Tufts University (Bio-Psychology; Supervisor: Klaus Miczek)

**PUBLICATIONS**

**Refereed Articles**

12. Zera, A.J., Clark, R.M., and Behmer, S.T. (*in press*). Lipogenesis in a wing-polymorphic cricket: Canalization versus morph-specific plasticity as a function of nutritional heterogeneity. *Journal of Insect Physiology*.
11. Clark, R.M., Zera, A.J., and Behmer, S.T. (2016). Metabolic rate is canalized in the face of variable life history and nutritional environment. *Functional Ecology* 30:922-931.
10. Clark, R.M., Zera, A.J., and Behmer, S.T. (2015). Nutritional physiology of life history trade-offs: how food protein-carbohydrate content influences life-history traits in the wing-polymorphic cricket *Gryllus firmus*. *Journal of Experimental Biology* 218:298-308.
9. Clark, R.M., and Fewell, J.H. (2014). Transitioning from unstable to stable colony growth in the desert leafcutter ant *Acromyrmex versicolor*. *Behavioral Ecology and Sociobiology* 68:163-171.
8. Clark, R.M., and Fewell, J.H. (2014). Social dynamics drive selection in cooperative associations of ant queens. *Behavioral Ecology* 25:117-123.
7. Overson, R., Gadau, J., Clark, R.M., Pratt, S.C., and Fewell, J.H. (2014). Behavioral transitions with the evolution of cooperative nest founding by harvester ant queens. *Behavioral Ecology and Sociobiology* 68:21-30.

6. Clark, R.M., McConnell\*, A., Zera, A.J., and Behmer, S.T. (2013). Nutrient regulation strategies differ between cricket morphs that trade-off dispersal and reproduction. *Functional Ecology* 27:1126-1133.
5. Kang, Y., Clark, R., Makiyama, M., and Fewell, J. (2011). Mathematical modeling on obligate mutualism: Interactions between leaf-cutter ants and their fungus garden. *Journal of Theoretical Biology* 289:116-127.
4. Holbrook, C.T., Clark, R.M., Moore, D., Overson, R.P., Penick, C.A., and A.A. Smith. (2010). Social insects inspire human design. *Biology Letters* 6(4): 431-433.
3. Holbrook, C.T., Clark, R., Jeanson, R., Bertram, S., Kukuk, P., and Fewell, J.H. (2009). Emergence and consequences of division of labor in forced associations of the normally solitary halictine bee *Lasioglossum* (Ctenonomia) NDA-1. *Ethology* 115:301-310.
2. Jeanson, R., Clark, R., Holbrook, C.T., Bertram, S., Fewell, J.H., and Kukuk, P. (2008) Division of labour and socially-induced changes in response thresholds in associations of solitary Halictine bees. *Animal Behavior* 76:593-602.
1. Clark, R., Anderson, K.E., Gadau, J., Fewell, J.H. (2006) Behavioral regulation of genetic caste determination in a *Pogonomyrmex* population with dependent lineages. *Ecology* 87(9): 2201-2206.

### Book Chapters

1. Clark, R., Fewell, J.H. (2004) Eusociality. In: Beckoff, M., ed. *The Encyclopedia of Animal Behavior*. Greenwood Press: Connecticut. 992-993.

### Other Publications

*Ask-A-Biologist* is a learning resource tool for students, teachers, parents, and life-long learners, and is visited by over 22,000 people every day.

6. Clark, R.M. (2010) What's inside a leafcutter ant colony? *Ask-A-Biologist*  
<https://askabiologist.asu.edu/leafcutter-ant-colony>
5. Clark, R.M. and C.T. Holbrook. (2010) Ant Farm: Ask-a-Biologist activity for the classroom and home. *Ask-A-Biologist*  
[http://askabiologist.asu.edu/sites/default/files/resources/activities/ant\\_farm/ant\\_farm\\_activity\\_packet.pdf](http://askabiologist.asu.edu/sites/default/files/resources/activities/ant_farm/ant_farm_activity_packet.pdf)
4. Clark, R.M. and Dr. Biology (2009) Ant Farm. *Ask-A-Biologist*  
[http://askabiologist.asu.edu/explore/ant\\_farm](http://askabiologist.asu.edu/explore/ant_farm)  
Video instructions >150,000 views
3. Clark, R.M. (2009) Collecting Ants. *Ask-A-Biologist*  
<http://askabiologist.asu.edu/explore/collecting-ants>
2. Clark, R.M. (2009) Cool Ant Experiments. *Ask-A-Biologist* <http://askabiologist.asu.edu/ant-experiments>
1. Holbrook, C.T. and R.M. Clark. (2009) Secrets of a superorganism. *Ask-A-Biologist*  
<http://askabiologist.asu.edu/content/secrets-superorganism>

## INVITED TALKS

- 2016 Nutrient regulation in solitary and social insects. Sonoma State University  
2014 Communal nutrition and the division of labor in leafcutter ants.  
University of California at Riverside; University of Texas at Tyler  
2013 Nutrition in insects: A tale of two paradigms. Department of Entomology Seminar,  
Texas A&M University.  
2007 The sociality paradox: Social organization in *Pogonomyrmex* queen associations.  
HexaPodium, Center for Insect Science, University of Arizona and Arizona State  
University

## AWARDS AND HONORS

- 2010 First Place, Student Competition, Entomological Society of America Annual  
Meeting

## GRANTS AND FELLOWSHIPS

- 2013 NSF REU (supplement to NSF IOS-1121960) “Diet composition and feeding  
strategies of *Gryllus texensis* crickets,” Co-PI: Spencer Behmer; \$3200  
2010-2012 NSF IOS-1011171 “Dissertation Research: Regulation of colony growth in  
leafcutter ants,” Co-PI: Jennifer Fewell (\$13,334)  
2010-2011 NSF IOS-0964277 “Conference Grant: Social Biomimicry: Conference on  
Insect Societies and Human Design,” PI: Jennifer Fewell (\$16,838)  
2009-2010 Arizona State University, Frontiers in Life Sciences Conference Grant: “Social  
Biomimicry: Insect Societies and Human Design,” Co-PI with C.T. Holbrook,  
D. Moore, R.P. Overson, C.A. Penick, and A.A. Smith (\$29,975)  
2009-2010 Arizona State University, Graduate and Professional Students Association  
Event Grant, “Social Biomimicry: Insect Societies and Human Design,” Co-PI  
with C.T. Holbrook, D. Moore, R.P. Overson, C.A. Penick, and A.A. Smith  
(\$2,000)  
2007 Sigma Xi Grants-in-Aid of Research, “Nutritional dynamics of leafcutter ant  
colonies: Characterizing the relationship between the fungal substrate and  
fungus growth,” (\$400)  
2006 Arizona State University, Graduate and Professional Students Association,  
“Regulation of leafcutter and colony growth by its mutualist fungus: A  
stoichiometric approach,” (\$2000)

## TEACHING

### Biostatistics Short Course

Course materials at [www.acromyrmex.net/LearnR](http://www.acromyrmex.net/LearnR)

- 2014 *Introduction to R*, at Open-Source for Open Science in Evolution workshop for the  
Ecology and Evolutionary Biology Program at Texas A&M University.  
*Publication-Quality Graphics and Introduction to R*. Open-Source for Open  
Science workshop, co-organized with Michelle Lawing for the Ecology and  
Evolutionary Biology Program at Texas A&M University.  
2012 *Using R for Behavioral Analysis*, for the Social Insect Research Group at Arizona  
State University.

**Teaching Assistant, Arizona State University**

General Genetics (Summer 2010, Spring 2011).  
General Biology I (Fall 2006-2007, 2008-2010, Spring 2010).  
Honors Lab Instructor, General Biology I. (Fall 2008).  
Human Anatomy and Physiology (Fall 2004-2005, Spring 2005-2006, Summer 2009).  
Introductory Biology for Non-Majors (Fall 2003, Spring 2004).

**Tutor, Arizona State University**

American Indian Institute. (Fall 2005-Summer 2006) Writing, Biology, Psychology, and Statistics for undergraduate Native American students.

**Writing Fellow, Tufts University**

Writing, Thinking, and Speaking Center (Fall 2000 - Spring 2003) Writing and revision strategies for students in history, biology, psychology, and engineering.

**MENTORING**

**Honors Thesis**

- 2005-2010 Kimberly Shaffer, ASU, "Identification of an exudate produced by fungal gardens of the desert leafcutter ant *Acromyrmex versicolor*," (co-mentored with Jennifer Fewell); Master's of Business, ASU
- 2007-2009 Jennifer Hale, ASU, "Division of labor as a function of *A. versicolor* worker size," (co-mentored with Jennifer Fewell); Master's in Biology, The Ohio State University
- Leah Drake, ASU, "Division of labor scales with colony size in desert leafcutter ants," (co-mentored with Jennifer Fewell); Master's in Teaching, University of San Francisco
- 2004-2005 Eric Ovalle, ASU, "The division of labor in small social groups of the seed harvester ant *Pogonomyrmex barbatus*." (co-mentored with Jennifer Fewell)

**Research Students**

- 2016 Lauren Schlussel, Berkeley  
Paul Yun, Berkeley  
Katelyn Adam, Berkeley  
Annie Sompayrac, Berkeley
- 2015 Brittany Wordkemper, UNL  
Zoe Kaounas, UNL
- 2013 Lewis Sherer, TAMU; Ph.D. student in Biology, University of Montana
- 2012 Kerstin Alander, TAMU, "Diet composition and feeding strategies of *Gryllus texensis* crickets"  
Emily Franco, TAMU
- 2011 Matthew Barnard, ASU
- 2010 Daeho Pak, ASU
- 2009 Sarah Drayer, ASU  
Rini Parekh, ASU
- 2008 Aaron Bynum, ASU; now D.M.D.

2005 Carmenlita Chief, ASU; Master's of Public Health, University of Arizona  
Antonio Benavidez, ASU; Master's of Public Policy, Harvard Kennedy School of  
Government

### **SERVICE**

**Reviewer**, *Behavioral Ecology, Behavioral Ecology and Sociobiology, Behavioural Processes, Ecological Entomology, Evolution, Functional Ecology, Insectes Sociaux, the Journal of Insect Physiology, Oecologia, Philosophical Transactions of the Royal Society B, Physiological and Biochemical Zoology*

### **Grant Review**

Graduate and Professional Students Association, Arizona State University, 2005

### **Committees**

Awards Committee, North American Section of the International Union for the Study of Social Insects (NAS-IUSSI), 2016

North American Section to the International Committee, International Union for the Study of Social Insects (IUSSI), 2010

Research and Training Initiatives Committee, School of Life Sciences, 2005-2008

Animal Behavior Student Rep, School of Life Sciences, Arizona State University, 2004-2006

### **Web Administration**

Graduate Student Blackboard Site. Created and managed a site for over 200 graduate students in the School of Life Sciences, 2008-2009

Social Insect Research Group, Arizona State University, 2006-2009

### **PROFESSIONAL AFFILIATIONS**

Society for Integrative and Comparative Biology (SICB)

International Union for the Study of Social Insects, North American Section (NAS-IUSSI)

Entomological Society of America (EntSoc)

Association for Women in Science (AWIS)

Phi Beta Kappa National Honors Society