

Adam G. Dolezal, Ph.D.
Curriculum Vitae

Current Affiliation: Postdoctoral Researcher, Iowa State University

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Education

Arizona State University **2012**

Degree: Ph.D., Biology

Advisor: Prof. Gro Amdam

Dissertation: The Physiology of Division of Labor in the Ant, *Pogonomyrmex californicus*

University of Illinois Urbana-Champaign **2006**

Degree: BS, Integrative Biology, with distinction; minor in Chemistry

Academic Positions

Postdoctoral Research Associate, Iowa State University, Department of Ecology **2012-Present**
Evolution, and Organismal Biology

Publications

In preparation or submission (5):

Dolezal, A. G., Carrillo-Tripp, J., Miller, W. A., Bonning, B.C., Toth, A.L. Honey bees preferentially reject pollen contaminated with field-relevant levels of an insecticide. *Submitted to Journal of Economic Entomology.*

Dolezal, A. G., Carrillo-Tripp, J., Miller, W. A., Bonning, B.C., Toth, A.L. Intensely cultivated landscape is associated with reduced honey bee nutritional state. *In preparation*

Carrillo-Tripp, J., **Dolezal, A. G.**, Goblirsch, M. J., Miller, W. A., Bonning, B. C., Toth, A. L. Multiple Infection dynamics of honey bee viruses studied at organismal and cell culture level *in vivo* and *in vitro* infection dynamics of honey bee viruses. *In preparation*

Dolezal, A. G., Carrillo-Tripp, J., Miller, W. A., Bonning, B.C., Toth, A.L. Pollen diet diversity affects susceptibility to viral infection the honey bee, *Apis mellifera*. *In preparation for PNAS*

Dolezal, A. G., Carrillo-Tripp, J., O'Neal, M., Harris, M., Toth, A.L. Incidence and infection of wild and solitary bees with honey bee viruses. *In preparation for Journal of Insect Pathology*

Published research or review papers (11):

- Ligon, R. A., **Dolezal, A. G.**, Hicks, M. R., Butler, M. W., Morehouse, N. I., Tirupalavanam, G. 2014. Territorial Ants: Using ant colonies and the scientific process to engage students in the study of animal behavior. *Am Bio Teach.* 76,8:525-534.
- Miller, W.A., Carrillo-Tripp, J., Bonning, B.C., **Dolezal, A.G.**, Toth, A.L., 2014. Conclusive Evidence of Replication of a Plant Virus in Honeybees Is Lacking. *Mbio* 5.
- Dolezal, A.G.**, Toth, A.L., 2014. Honey bee sociogenomics: a genome-scale perspective on bee social behavior and health. *Apidologie* 45, 375-395
- Yamamoto, R., Bai, H., **Dolezal, A.G.**, Amdam, G., Tatar, M., 2013. Juvenile hormone regulation of *Drosophila* aging. *Bmc Biol* 11.
- Dolezal, A.G.**, Johnson, J., Hoelldobler, B., Amdam, G.V., 2013. Division of labor is associated with age-independent changes in ovarian activity in *Pogonomyrmex californicus* harvester ants. *J Insect Physiol* 59, 519-524.
- Dolezal, A.G.**, Brent, C.S., Holldobler, B., Amdam, G.V., 2012. Worker division of labor and endocrine physiology are associated in the harvester ant, *Pogonomyrmex californicus*. *J Exp Biol* 215, 454-460.
- Mutti, N.S., **Dolezal, A.G.**, Wolschin, F., Mutti, J.S., Gill, K.S., Amdam, G.V., 2011. IRS and TOR nutrient-signaling pathways act via juvenile hormone to influence honey bee caste fate. *J Exp Biol* 214, 3977-3984.
- Blumstein, D.T., Ebensperger, L.A., Hayes, L.D., Vasquez, R.A., Ahern, T.H., Burger, J.R., **Dolezal, A.G.**, Dosmann, A., Gonzalez-Mariscal, G., Harris, B.N., Herrera, E.A., Lacey, E.A., Mateo, J., McGraw, L.A., Olazabal, D., Ramenofsky, M., Rubenstein, D.R., Sakhai, S.A., Saltzman, W., Sainz-Borgo, C., Soto-Gamboa, M., Stewart, M.L., Wey, T.W., Wingfield, J.C., Young, L.J., 2010. Toward an integrative understanding of social behavior: new models and new opportunities. *Front Behav Neurosci* 4.
- Dolezal, A.G.**, Brent, C.S., Gadau, J., Holldobler, B., Amdam, G.V., 2009. Endocrine physiology of the division of labour in *Pogonomyrmex californicus* founding queens. *Anim Behav* 77, 1005-1010.
- Wang, Y., Mutti, N.S., Ihle, K.E., Siegel, A., **Dolezal, A.G.**, Kaftanoglu, O., Amdam, G.V., 2010. Down-Regulation of honey bee IRS gene biases behavior toward food rich in protein. *Plos Genet* 6.
- Tillberg, C.V., McCarthy, D.P., **Dolezal, A.G.**, Suarez, A.V., 2006. Measuring the trophic ecology of ants using stable isotopes. *Insect Soc* 53, 65-69.

Book Chapters and Published Protocols (7):

- Dolezal, A. G.**, Flores, K.B., Traynor, K.S., & Amdam, G.V. 2013. The Evolution and Development of Eusocial Insect Behavior, *In* Streelman, J.T. (ed.) *Advances in Evolution and Development*; Wiley-Blackwell, Hoboken, NJ, USA. ISBN: 978-1-118-13111-4
- Dolezal, Adam G.** 2010. Caste Determination in Arthropods (Chapter 334), *In* Breed, M. D. and Moore J. (eds.) *Encyclopedia of Animal Behavior*, pp 247-253, Oxford: Academic Press, **ISBN-13:** 978-0080453330
- Smith, C. R., **Dolezal, A. G.**, Eliyahu D., Holbrook C. T. & Gadau, J. 2009. Ants (Formicidae): Models for Social Complexity. *CSH Protocols*; doi:10.1101/pdb.emo125
- Dolezal, A. G.** , Brent, C. S. 2009. General Dissection of Female Ant Reproductive System and Brain. *CSH Protocols*; doi:10.1101/pdb.prot5244
- Brent, C. S., **Dolezal, A. G.** 2009. Juvenile Hormone Extraction, Purification, and Quantification in Ants. *CSH Protocols*; doi: 10.1101/pdb.prot5246

Brent, C. S., **Dolezal, A. G.** 2009. Radiochemical Assay of Juvenile Hormone Biosynthesis Rate in Ants. *CSH Protocols*; doi: 10.1101/pdb.prot5248

Research Highlights (2)

Inside Journal of Experimental Biology: Honey bee larvae need IRS and TOR to become queens. 2011. 214: i-ii

Animal Behaviour: In Focus: Separate Spheres. 2009. Volume 77, Issue 5, Pages 981-982

Grants and Awards

Research Grants (\$449,491)

North American Pollinator Protection Campaign (NAPPC; 2015). **Dolezal, A.** and A. Toth. *Do viruses manipulate honey bee behaviour in ways that increase their transmission?* \$10,000

Center for Global and Regional Environmental Research (2015). Toth, A. and **A. Dolezal.** *Effects of larval nutritional stress on honey bee disease susceptibility and immunocompetence,* \$30,000

Leopold Center for Sustainable Agriculture, competitive grant program 2015-2017 (renewable); Toth, A., **A. Dolezal,** M. O'Neal, E. Hodgson. *Impacts of landscape diversity and organic practices on the abundance and health of bee pollinators.,* \$103,626

United Soybean Board, (2014-2016); O'Neal, M., A. Toth, and **A. Dolezal.** *How much do soybeans benefit from honey bee pollination (and vice-versa)?,* \$300,665

Journal of Experimental Biology Travelling Fellowship (2012), \$3200

Research Grant, Graduate and Professional Students Association (2008), Arizona State University, \$2000

Travel Grants (\$11,490)

Professional Development Travel Grant (2011), Graduate Professional Students Association, ASU, \$950

Student Travel Grant (2010), Gordon Research Conferences, Genes and Behavior, \$890

Student Travel Grant (2009), Gordon Research Conferences, Ecological and Evolutionary Functional Genomics, \$500

Student Travel Grant (2008), International Union for the Study of Social Insects North American Section Meeting, \$200 + Registration

Conference Travel Grant (2006-2011, School of Life Sciences, ASU, awarded multiple times, totaling \$1950

Other Awards (\$7000)

Graduate Citizen Scholar Award, ASU Division of Graduate Studies (2011)

2nd Place, Competition for the President's Prize , 10-Minute papers, Meeting of the Entomological Society of America, San Diego, CA (2007)

Fellowship, Undergraduate Mentoring in Environmental Biology, University of Illinois Urbana-Champaign (2004-2005), \$7000

Total funding awarded: \$467,981

Submitted Proposals

USDA-AFRI: Plant Associate Insects and Nematodes. (In review) Toth, A., **Dolezal, A.**, Bonning, B. Viral hijackers: Can viral pathogens manipulate honey bee behavior to increase disease transmission?

USDA-AFRI: Postdoctoral fellowship (In review). **Dolezal, A.** Effects of larval nutritional stress on honey bee disease susceptibility and immune response

Scientific Presentations

Invited Symposium Presentations and Departmental Seminars (5)

Departmental Seminar, Entomology, Iowa State University, Ames, IA	2015
Entomological Society of America National Meeting, Portland, OR (<i>symposium</i>)	2014
Departmental Seminar, Entomology, Washington State University, Pullman, WA	2014
Entomological Society of America North Central Branch, Des Moines, IA (<i>symposium</i>)	2014
Entomological Society of America National Meeting, Reno, NV (<i>symposium</i>)	2011

Other Scientific Presentations (12; Oral presentations unless noted otherwise)

Symposium on Biodiversity Conservation for Food Security and Rural Development, Kunming, Yunnan Province, China	2014
Entomological Society of America National Meeting, Austin, TX	2013
International Union for the Study of Social Insects Meeting, North American Section, Greensboro, NC	2012
Gordon Research Conference on Genes and Behavior, Ventura, CA (<i>poster and selected student talk</i>)	2010
Frontiers in Life Sciences Conference: Social Biomimicry, Tempe, AZ (<i>poster</i>)	2010
Gordon Research Conference on Ecological and Evolutionary Functional Genomics, Tilton, NH (<i>poster</i>)	2009
NSF Workshop: Intraspecific variation and social systems, Santiago, Chile	2009
International Union for the Study of Social Insects Meeting, North American Section, Arecibo, Puerto Rico	2008
Graduates in Earth, Life and Social Sciences Symposium, Tempe, AZ	2008

Entomological Society of America National Meeting, San Diego, CA	2007
Entomological Society of America National Meeting, Indianapolis, IN	2006
Undergraduate Distinction Research Symposium, University of Illinois Urbana- Champaign	2006

University Teaching

Instructor , Bee Biology, Management, and Beekeeping, ENT 358X, Iowa State U.	Fall 2015
Instructor , Topics in Insect Physiology, EEB 590, Iowa State U.	Spring 2015
Instructor , Undergraduate Seminar, BIO 495, Iowa State U.	Spring 2015
Guest Lecturer	
Pollinator Biology, NREM 505, Iowa State U.	Spring 2012, 2014
Animal Behavior, BIO 354, Iowa State U.	Spring 2013, 2014
Genes and Behavior, EEB 497, BIO 495, Iowa State U.	Spring 2014
Endocrinology, Biology 355, Colgate U.	Spring 2012, 2013

Teaching Assistant, Arizona State University

Course curriculum design committee, Biology 181/182	Spring 2012
Animal Behavior Lecture, Biology 331	Fall 2012
Microbiology, Microbiology 206	Summer 2011
Animal Physiology, Biology 361	Fall 2009, Spring, Fall 2011
Animal Physiology Lecture, Biology 360	Fall 2008
The Living World, Biology 100	Fall 2006, Spring 2007, Spring 2009

Mentoring

Graduate Students

Alexander Walton : Effects of larval nutritional stress on adult phenotypic response to pathogens and chemical signals	2015
Amy Geffre : Virus manipulation of honey bee host behavior to enhance pathogen transmission	2015
Ashley St. Clair : Effects of agricultural landscape composition on native bee abundance, diversity, and physiology	2015
Ge Zhang : Utilization of soybean pollen by honey bee hives and the effects of landscape-level variation in pollen diet on honey bee health	2015

Undergraduates

Giselle Narvaez (McNair Scholar): *Effect of pollen nutritional diversity on honey bee colony-level foraging behavior, Effect of pollen nutritional diversity on honey bee virus-induced mortality	2013-2015
Amber Haritos (McNair Scholar): *Virus-mediated changes in honey bee host behavior	2014-2015
Zoe Pritchard: Effect of landscape on bee health and soybean yield	2015
Ivair Valmorbida: Effect of landscape on bee health and soybean yield	2015
Erin McCall: Effect of pollen nutritional diversity on honey bee colony-level foraging behavior	2015
Giselle Narvaez (McNair Scholar): *Effect of pollen nutritional diversity on honey bee colony-level foraging behavior, Effect of pollen nutritional diversity on honey bee virus-induced mortality	2013-2015
Desirae Fontes: Nutritional physiology differences due to pollen nutrition in honey bees	2014-2015
Arthur Cheng: Nutritional physiology differences due to pollen nutrition in honey bees	2014-2015
Catie Steinfadt: Effect of pollen nutritional diversity on honey bee colony-level foraging behavior	2014-2015
Nicole Schubert: Survey of Iowa honey bee hives kept in different landscapes	2014
Mara Cuebas (George Washington Carver Program): Determination of LD50 in adult honey bees orally infected with Israeli acute paralysis virus	2013
Carlos Vega-Melendez (George Washington Carver Program): Screening of honey bee juvenile and adult stages for viral infection	2012

Journal and Proposal Peer Reviewer

Apidologie	Agricultural Science Research Journal
Behavioral Ecology	Environmental Entomology
Insect Biochemistry and Molecular Biology	J. of Insect Physiology
J. of Insect Molecular Biology	Naturwissenschaften (Science of Nature)
Physiology and Behavior	PLoS ONE
Proceedings of the National Academy of Sciences	Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO (Research Foundation – Flanders)

Outreach and Extension

Selected Outreach and Extension Presentations

Field Day for Practical Farmers of Iowa and Iowa Fruit and Vegetable Growers Association, ISU Horticulture Station, Ames, IA	2015
Pollinator Fest, Reiman Gardens, Ames, IA	2015
Field Day for Iowa State University Agricultural Recruitment, ISU Horticulture Station, Ames, IA	2014
Iowa Back-to-Basics Bee Club, Oskaloosa, IA	2014
Jefferson Garden Club, Jefferson, IA	2014
Field Day for Iowa Master Gardeners, ISU Horticulture Station, Ames, IA	2014
Iowa Honey Producers Association, Marshalltown, IA	2013
Central Iowa Beekeeping Association, Des Moines, IA	2013
Iowa Fruit and Vegetable Growers Association Meeting, Ankeny, IA	2013
Center for Honeybee Research, Asheville, NC	2011
Audubon Society of Arizona Migration Celebration, Phoenix, AZ	2011
Summer Program for Early Literacy and Language (SPELL), Tempe, AZ	2010
Social Insect Science Expo, Phoenix, AZ	2010

Other Outreach and Extension Activities

Iowa Honey Producers Association newsletter article on ISU honey bee research	2014
Portal to the Public Scientist (science communicator to Science Center visitors), Science Center of Iowa, Des Moines, IA	2013
Judge; Arizona Junior Science and Humanities Symposium, Tempe, AZ	2010, 2011
Volunteer Scientist and Author of online outreach articles; ASU Ask a Biologist Program, http://askabiologist.asu.edu/	2009-present
Graduate Mentor: Graduate Partners in Science Education (GPSE), http://gpse.asu.edu/ , Arizona State U.	2010-2011

Society Membership and Service

Entomological Society of America
 2014 – Co-organizer of symposium at national meeting
 2014 – Co-organizer of symposium at North Central Branch meeting
 2013 – Judge for student poster competition
 International Union for the Study of Social Insects

Departmental Service

Introductory Biology Course Redesign Committee, Arizona State U.	2011
School of Life Sciences Facilities Committee, Arizona State U.	2009-2011
Graduate-invited seminar speaker nominator and host, Arizona State U.	2011

Professional References

Gro V. Amdam (Ph.D. advisor)

Professor

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Amy L. Toth (Postdoc advisor)

Assistant Professor

Iowa State University

Ecology, Evolution, and Organismal Biology

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Ames, IA 50011

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Bert Hoelldobler (Ph.D. co-advisor and co-author)

Professor

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