

Andrew M. Bouwma

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EDUCATION

University of Wisconsin–Madison Degree: Ph.D. (joint Entomology and Zoology; under Robert L. Jeanne)	2003
University of Wisconsin–Madison Degree: Teaching Certificate in Higher Education (TALS). (Department of Educational Administration)	2001
University of Wisconsin–Madison Degree: MS (Entomology; under Robert L. Jeanne)	1998
Calvin College Degree: BS (Biology)	1996

RESEARCH INTERESTS

Issues in STEM pedagogy. Discipline-based education research. Tropical ecology. Social insects and their parasites: Evolutionary, behavioral, and molecular ecology.

TEACHING INTERESTS

Evolutionary biology, ecology, animal behavior, entomology, general biology, laboratories, tropical ecology, inquiry-based methods, Calibrated Peer Review (scientific writing), meeting the Next Generation Science Standards at the postsecondary level.

ACADEMIC POSITIONS HELD

Instructor: Biology program, Oregon State University	Sept. 2012-present
HHMI Summer Institute--National Academy of Sciences Fellow	2010
Senior Academic Coordinator: Department of Biology, University of Kentucky	Jan. 2009- July 2012
University of Kentucky Secondary Science Program Faculty	2009- July 2012
Instructor: Department of Entomology and College of Agriculture, University of Kentucky	fall 2008
USDA NRI Postdoctoral Fellow: Department of Entomology and Nematology, University of Florida (with D. DeWayne Shoemaker as postdoctoral mentor)	2006 – 2008

Visiting scientist: Facultad de Ciencias Exactas, Químicas y Naturales, Universidad Nacional de Misiones, Posadas, Argentina Oct.-Dec. 2004

Postdoctoral Research Associate: Department of Entomology, University of Wisconsin–Madison 2004 – 2006

Predocctoral Fellow: Smithsonian Tropical Research Institute, Panama summer 2003

Project Assistant: Department of Curriculum & Instruction, University of Wisconsin–Madison 2003

NSF GK-12 Teaching Fellow: University of Wisconsin–Madison 2001-2002

PUBLICATIONS

Bouwma, P. E., **Bouwma, A.M.**, Jeanne, R. L. 2000. Social Wasp Swarm Emigration: Males Stay Behind. *Ecology Ethology and Evolution*. 12: 35-42.

Jeanne, R.L., **Bouwma, A.M.** 2002. Scaling in Nests of a Social Wasp: An Emergent Property of the Social Group. *The Biological Bulletin*. 202: 289-295.

Bouwma, A.M., Bouwma P.E., Nordheim, E.V., Jeanne, R.L. 2003. Adult Mortality Rates in Young Colonies of a Swarm-Founding Social Wasp. *The Journal of Zoology*. 260: 11-16.

Bouwma, A.M., Bouwma P.E., Nordheim, E.V., Jeanne, R.L. 2003. Founding Swarms in a Tropical Social Wasp: Adult Mortality, Emigration Distance, and Swarm Size. *The Journal of Insect Behavior*. 16: 439-452.

Jeanne, R.L., **Bouwma, A.M.** 2004. Divergent Patterns of Nest Construction in Eusocial Wasps. *Journal of the Kansas Entomological Society*. 77: 429-447.

Bouwma, A.M., Howard, K.J., Jeanne, R.L. 2005. Parasitism in a Social Wasp: Effect of Gregarines on Foraging Behavior, Colony Productivity, and Adult Mortality. *Behavioral Ecology and Sociobiology*. 59: 222-233.

Bouwma, A.M., Ahrens, M., DeHeer C.J., Shoemaker, D.D. 2006. Distribution and Prevalence of *Wolbachia* in Introduced Populations of the Fire Ant, *Solenopsis invicta* (Hymenoptera: Formicidae). *Insect Molecular Biology*. 15: 89-93.

Bouwma, A.M., Nordheim, E.V., Jeanne, R.L. 2006. Per-capita Productivity in a Social Wasp: No Evidence for an Effect of Colony Size. *Insectes Sociaux*. 53: 412-419.

Bouwma, A.M., Howard, K.J., Jeanne, R.L. 2007. Rates of Predation by Scouting-and-Recruiting Ants on the Brood of a Swarm-founding Wasp. *Biotropica*. 39: 719-724.

Ascunce, M.S., **Bouwma A.M.**, and Shoemaker D.D. 2009. Characterization of 24 microsatellite markers in eleven species of fire ants in the genus *Solenopsis* (Hymenoptera: Formicidae). *Molecular Ecology Resources*. Available: <http://www3.interscience.wiley.com/cgi-bin/fulltext/122313880/HTMLSTART>.

Bouwma, A.M., Shoemaker D.D. 2011. Wolbachia w*Sinivicta*A infections in natural populations of the fire ant, *Solenopsis invicta*: Testing for phenotypic effects. *Journal of Insect Science*. 11:11
Available: insectscience.org/11.11

Bouwma-Gearhart, J.L, **Bouwma A.M.** Meeting the Next Generation Science Standards: Exploring the Tensions Between Natural and Sexual Selection Through Modeling-based Inquiry. In Press, 2014, *American Biology Teacher*.

HONORS

George C. Eickwort Award (International Union for the Study of Social Insects) -student (current or recently graduated in North America) with the most distinguished record of research and scholarly activity in social insect biology.	2004
Nominated for university-wide Capstone Teaching Assistant Award (UW Zoology)	2003
Kinney Merit Award (UW Entomology) -research/travel award given to one student per semester based on scholarly merit.	spring & fall 2002
Bernard J. Ten Broek Excellence in Research Award (Calvin College) -distinction given to one member of graduating class for excellence in undergraduate research	1996
Dean's list (Calvin College)	1993-1996
Dean's scholarship (Calvin College)	1993-1996

RESEARCH & TRAVEL GRANTS

USDA National Research Initiative: "Genetic Structure in Populations of <i>Solenopsis daguerrei</i> , a Natural Enemy and Potential Biological Control Agent of the Red Imported Fire Ant <i>S. invicta</i> "	Aug. 2006 – 2008 \$125,000
Smithsonian Tropical Research Institute Short Term Fellowship	summer 2003
John T. Emlen Award for Research in Behavioral Sciences (UW Zoology)	summer 2002
Linnaean Team Travel Award (Entomological Society of America NCB)	2002
Vilas Travel Award (UW Graduate School)	2001
John Jefferson Davis Travel Award (UW Zoology)	2000/2001
Wisconsin Agriculture and Life Sciences Alumni Association Travel Grant	2000/2001
Summer Research Fellowship (NSF & Hope College)	summer 1995

TEACHING FELLOWSHIPS/ASSISTANTSHIPS

Insect Ambassadors Assistantship (UW Entomology community outreach)	2001- 2003
Project MUSE (Modeling for Understanding in Science Education) Assistantship (UW Department of Curriculum & Instruction)	spring 2003
National Science Foundation GK-12 Teaching Fellowship	2001 - 2002
Project Kaleidoscope Keystone Conference Fellowship (Science education reform)	summer 2000

PRESENTATIONS

Invited symposia

- AdvancED/UK College of Education Innovation Summit, Lexington, KY, Dec. 2011
“Meeting the New Science Standards: Engaging Students In Modeling-Based Inquiry Collaboration and Communication Via Instructional Technology” Jana Bouwma-Gearhart, Andrew Bouwma, & Molly Fisher. AdvancED/UK College of Education Innovation Summit, Lexington, KY, 2011.
- International Union for the Study of Social Insects Congress, Washington D.C. July 31, 2006
Body Size and Natural History: “Per-capita Productivity in a Swarm-founding Social Wasp: No Evidence for an Effect of Colony Size.” Andrew M. Bouwma-Gearhart, Erik V. Nordheim, & Robert L. Jeanne
- Entomological Society of America Annual Meeting Nov. 17, 2002
Parasites and Social Insects: “Effects of Gregarine (Protista:Apicomplexa) Infection in *Polybia occidentalis* (Hymenoptera: Vespidae).” Andrew Bouwma, Kenneth Howard & Robert Jeanne
- Entomological Society of America Annual Meeting Dec. 11, 2001
Entomology Education: “Insects as Tools in Outreach Education: Bridging the Gap between Formal and Informal Learning.” Andrew Bouwma & Kirsten Haberkern

Invited university colloquia

- University of Kentucky Department of Biology Dec 10, 2010
University of Wisconsin—Whitewater Department of Biology April 29, 2005
Universidad Nacional de Misiones, Argentina (given in Spanish) Dec. 3, 2004
University of Wisconsin—Madison Department of Entomology & Zoology Dec. 5, 2003
Smithsonian Tropical Research Institute Aug. 14, 2003
Madison Ecology Group March 7, 2003
Universidad de Costa Rica (given in Spanish) Nov. 12, 1999; Aug. 29, 2002
University of Nebraska—Lincoln Parasitology Group April 4, 2002
Behavior Interdisciplinary Association, UW—Madison April 27, 1999; Feb. 14, 2002
Calvin College Department of Biology March 15, 1996; April 28, 1999
Hope College Department of Biology Aug. 25, 1995

Contributed presentations

- American Educational Research Association, New Orleans, LA, April 2011
“Modeling-Based Curriculum and Instruction in the Undergraduate Classroom: Engagement of Students as Communities of Scientists” Sarah Adumat, Jennifer Collins, Jana Bouwma-Gearhart, David Little, Andrew Bouwma.
- National Science Teachers’ Association’s 2011 Research Dissemination Conference On Highly Effective Science Education “Effective Use of Technology In Modeling-based Inquiry Science Education” Jana Bouwma-Gearhart, Sarah Adumat, Andrew Bouwma-Gearhart. Presented at the National Science Teachers’ Association’s 2011 Research Dissemination Conference On Highly Effective Science Education: Integrating Science and Educational Technology In the Science Classroom, San Francisco, CA, 2011.
<http://modelingatnsta.wikispaces.com/Presentation+Handouts>

- Robert Noyce Teacher Scholarship Program Annual Conference: July 7, 2010
 Building Excellence in STEM Teaching “Engaging Aspiring Educators In Inquiry Curriculum Creation and Implementation Through An Interdisciplinary Field Course” Jana Bouwma-Gearhart, Sarah Adumat, David Little, Andrew Bouwma-Gearhart. Robert Noyce Teacher Scholarship Program Annual Conference: Building Excellence in STEM Teaching, Washington, DC, 2010
- Lilly Conference: College and University Teaching and Learning Sept. 26, 2009
 “Modeling-Based Curriculum and Instruction to Construct Meaningful Disciplinary Understanding Through the Engagement of Students as Communities of Investigator-Learners.” Jana L. Bouwma-Gearhart & Andrew M. Bouwma
- Imported Fire Ant Conference April 24, 2007
 “No Evidence for *Wolbachia* Phenotypic Effects in Newly Mated Queens of the Fire Ant, *Solenopsis invicta* (Hymenoptera: Formicidae). Andrew M. Bouwma & D.DeWayne Shoemaker
- Entomological Society of America Annual Meeting Dec. 7, 2005
 “Distribution and Prevalence of *Wolbachia* in Introduced Populations of the Fire Ant, *Solenopsis invicta* (Hymenoptera: Formicidae)” Andrew Bouwma & D. DeWayne Shoemaker
- Entomological Society of America Annual Meeting Dec. 11, 2001
 “Effects of Eugregarine Infection on Individual and Colony-Level Productivity in a Social Wasp.” Andrew Bouwma, Kenneth Howard & Robert Jeanne
- Entomological Society of America Annual Meeting Dec. 11, 2001
 “Costs of Nest Construction in a Social Wasp Vary with Physical Conditions.” Robert Jeanne & Andrew Bouwma
- Entomological Society of America Annual Meeting Dec. 3, 2000
 “Adult Mortality Rates and the Costs of Swarm Emigration in a Swarm-founding Social Wasp” Andrew Bouwma, Robert Jeanne, Peter Bouwma, & Kory Kramer.

TEACHING

Supervision and mentorship of graduate teaching assistants

Graduate teaching assistant training and supervision for undergraduate biology courses: spring 2009-2012
 > 60 graduate teaching assistants supervised

Instructor

Bi211, Bi212, Bi213 (Introductory Biology 1, 2, and 3)	fall 2012 - present
SED 596 College Science and Mathematics Teaching	Winter 2014
A&S 500 Tropical Ecology Field Course (Costa Rica)	summer 2010, 2012
BIO 155 (Introductory Biology Laboratory)	fall 2010-summer 2012
BIO 151 (Principles of Biology Laboratory)	spring 2009-spring 2012
BIO 153 (Principles of Integrative Biology Laboratory)	fall 2009-spring 2012
Gen 100 (Issues in Agriculture: University of Kentucky)	fall 2008

Guest Instructor

Ecologia (Universidade da Grande Dourados, Brasil)	spring, 2008
Zoology 410 (Evolutionary Biology: UW–Madison)	spring, 2003
Two-week Evolutionary Biology units as part of advanced biology course (Monona Grove High School; Madison West High School)	spring 2003

Biology 352 (Research Methods: Edgewood College)	spring/summer, 2002
Zoology / Entomology 530 (Insect Behavior: UW–Madison)	spring, 2001/spring, 2003
Biology 151 (Introductory Biology: Edgewood College)	fall, 2001/spring, 2002
Zoology 330 (Ethology: UW–Madison)	fall, 2001
Zoology 101 (Introduction to Zoology: UW–Madison)	summer, 2001

Teaching assistant

Zoology 531 (Ethology Laboratory, UW–Madison)	fall 2000 & 2003
Zoology 102 (Introduction to Animal Biology Lab, UW–Madison)	spring 2001

Informal education

Director of “Insect Ambassadors” UW Entomology outreach	2001 – 2003
-As director I developed presentation materials, coordinated a large group of graduate and undergraduate volunteers, and gave approximately 30 educational presentations about insect biology to school groups and community organizations, including five presentations for schools whose student bodies comprised primarily ethnic minorities.	
Zoology tutor for TRIO student support services (UW–Madison)	1998-1999
-TRIO program provides academic support for ethnic minorities and first generation college students.	

MEMBERSHIP AND PROFESSIONAL SERVICE

University of Kentucky Secondary Science Program Faculty	2009-2012
International Union for the Study of Social Insects (IUSSI)	2003-2008
Referee for <i>Insectes Sociaux & Behavioral Ecology</i> and <i>Sociobiology</i>	2002-2005
Referee for <i>American Biology Teacher</i>	2014
Vice President, UW Entomology Graduate Student Association	fall 2002
President, UW Entomology Graduate Student Association	2002-2003
Member of the UW Entomology Linnaean Team	2001-2003

FIELD RESEARCH EXPERIENCE

Eastern Paraguay & Mato Grosso do Sul, Brazil	May 2007, 2008
Buenos Aires Province, Argentina	May-June 2005, 2006 & 2007
Misiones Province, Argentina	Oct.-Dec. 2004
Northeastern Argentina	May-June 2004
Smithsonian Tropical Research Institute in Gamboa, Panama	June-Aug. 2003
Finca Las Pumas, Guanacaste Province, Costa Rica	Oct.-Dec. 1996, June-Aug. 1997-1999, 2002

