

## CURRICULUM VITAE

RONALD L. RUTOWSKI

### CONTACT POINTS

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### PERSONAL

Date and Place of Birth: 16 May 1949, Van Nuys, California  
Marital status: Married, two children

### EDUCATION

University of California at Santa Cruz, B.A. in Biology with highest honors, 1971  
Cornell University, Ph.D. (Neurobiology and Behavior), 1976  
Major professor: Dr. Thomas Eisner  
Thesis title: The Courtship of *Eurema lisa* (Lepidoptera, Pieridae): A Study of Visual and Chemical Communication

### RESEARCH AND PROFESSIONAL EXPERIENCE

1969 (summer) Research technician, Department of Biochemistry, Brandeis University, Boston, Massachusetts  
1970 (summer) NSF Undergraduate Research Participant, Oregon Institute of Marine Biology (University of Oregon)  
1971-1976 Graduate Training in Neurobiology and Behavior, Cornell University. NASA Training Fellowship (spring 1972), Graduate Summer Research Fellowship (1972, 1973, 1974), various graduate teaching and research assistantships. Field work at the Archbold Biological Station, Lake Placid, Florida.  
1976-1980 Assistant Professor of Zoology, Arizona State University  
1979 (summer) Field work at the Long Marine Laboratory, University of California, Santa Cruz  
1980-1988 Associate Professor of Zoology, Arizona State University  
1981-1982 Sabbatical Leave. Field work at the Archbold Biological Station (Lake Placid, Florida; July-Dec 1981) and at the Long Marine Laboratory (University of California, Santa Cruz; Jan-June 1982)  
1984 (fall) Invited instructor, course in animal reproductive strategies, University of Stockholm, Sweden (19-26 Sept)  
1987 (spring) Invited participant, Binational Workshop on Desert Ecology, Ben Gurion University of the Negev, Sede Boqer, Israel (14-20 Mar)  
1988-present Professor of Zoology, Arizona State University  
1989 (spring) Sabbatical leave, Visiting Professor, James Cook University, Townsville, Queensland, Australia (Dec 88 - July 89)  
1988-1992 Director of Undergraduate Programs, Department of Zoology, Arizona State University  
1992 Invited participant, Evolution Education Conference, Louisiana State University, Baton Rouge (4-5 Dec)  
1993 Invited conference participant, Biology In Action: New Approaches to Teaching and Learning in Biology, Radford University, Virginia (12-15 May)  
1993 Participant, Teaching Strategies Workshop, Arizona State University (June; sponsored by Howard Hughes Medical Institute)

1994 Substitute for ASU Representative to Board of Directors meeting, Organization for Tropical Studies, San Jose, Costa Rica (24-26 March)

1994 (summer) Visiting scientist, University of Stockholm, Sweden (15 May - 1 August)

1994- 1997 Associate Chair, Department of Zoology, Arizona State University

1995 (Sept - Dec) Acting Chair, Department of Zoology, Arizona State University

1996 Participant, NRC\NSF Regional Symposium on Undergraduate Education in Science, Math, Engineering, and Technology, Pomona College, CA (1 Feb)

1996 Panel Member, CAREERS Program, National Science Foundation (May)

1996 Invited participant, International Entomological Congress, Florence, Italy

1997-2000 Associate Editor, *Animal Behaviour*

1997-1999 Co-director, Biology and Society Program, Department of Biology Arizona State University

1997 Visiting Scientist, University of Lund, Sweden (June-July (3 weeks))

1998-2002 Panel Member, Animal Behavior Program, National Science Foundation

1998 Invited participant, 3<sup>rd</sup> International Butterfly Ecology and Evolution Symposium, Crested Butte, Colorado (August 16-19) (unable to attend)

1999 Visiting scientist, Department of Zoology, University of Lund, Sweden (January - July)

1999-2003 Managing Director, Undergraduate Biology Enrichment Program, Department of Biology, Arizona State University

1999 Opponent for PHD Defense, Department of Zoology, University of Lund, Sweden (December)

1998-2001 Associate supervisor, PHD supervisory committee for Darrell Kemp, James Cook University, Townsville, Queensland, Australia

2002 External reviewer, Departmental Self Study, Department of Biology, Northern Arizona University (March-May)

2003-2006 Associate Director for Undergraduate Programs, School of Life Sciences, Arizona State University

2005 Opponent for PHD Defense, University of Antwerp, Belgium

2006- Director, School of Life Sciences Undergraduate Research (SOLUR) Program

2007- 2008 Visiting Scientist, James Cook University, Cairns, Queensland Australia (December 2007 - May 2008)

#### TEACHING ACTIVITIES AT ASU

Comparative Invertebrate Zoology (ZOL 350/BIO 385) - 24 semesters

Research Techniques in Animal Behavior (ZOL 481) - 13 semesters

Marine Biology (ZOL 294) - 4 semesters (new course)

Advanced Animal Behavior - 1 semester (new course)

Introduction to Animal Behavior (ZOL 280) - one semester

Research Colloquium in Biology and Society (BIO 419) - 3 semesters (new course)

Special topics: Current Research in Zoology (ZOL 494) - 5 semesters (new course)

Animal Communication (ZOL 498) - one semester (new course)

Advanced Animal Behavior (BIO 494) - one semester (new course)

Seminar (BIO 394): BREU - four semesters (new course)

Seminar (BIO 294, 234, 494): For SOLUR participants - 7 semesters (new course)

Seminar (ZOL 591): Animal Communication - 3 semesters (new course)

Invertebrate Reproductive Behavior - one semester (new course)

Philosophy of Teaching - one semester (new course)

Teaching Biology Labs - six semesters (new course)

Vision and Visual Signals - two semesters

The Living World (BIO 100; non-majors biology) - one semester

PS: Marine Science (BIO 394) - 5 times

Guest Participation in classes

BIO 410 Professional Values in Science: Member of panel on mentoring  
BIO 194 Career Paths in Life Sciences: Lecture on Process of Science  
LIA 294 Freshman Seminar: Lecture on the discipline of life sciences  
BIO 386 General Entomology  
And others

AWARDS AND HONORS

Nominated for but did not receive College of Liberal Arts and Sciences Distinguished Teaching Award - 1987,1990  
Nominated for but did not receive Parent's Association Professorship - Spring 1994  
Nominated for but did not receive College of Liberal Arts and Sciences Advising Award - Spring 1999  
Special Recognition, Parents Associate Professorship, Spring 2005

UNDERGRADUATE, GRADUATE, AND POSTDOCTORAL TRAINEES

Undergraduate

Completed

Cruz Long	Emily Hayes	Kirsten Wier
Larry Marshall	Megan Kimball	Adam Scow
John Schaefer	Nell Lund	Ruth Vivas
George Gilchrist	Lee McCoy	Regina Ngo
Ashley Abbot	Mary Mendoza	Christina Murillo
Emily Cwengros	James O'Brien	Richard Hernandez
Aaron Frits	Meghan Radtke	Ian Sandhoe
Diann Gaalema	Cassandra Rauser	Swetha Patel
Kathryn Haupt	Mark Rivera	

Current

Alexandra Nahm

Graduate

Completed (Current position indicated if known)

Debra Ison, MS, May 1979, A reexamination of the function of house sparrow group display.  
Doug Conner, MS, May 1979, Geographic variation in the short call of the pika (Ochotona).  
Current position: Senior Research Associate/Statistician. Clinical Research Unit, Kaiser Permanente, Denver CO.  
Richard Vetter, MS, May 1979, Defensive behavior of the black widow spider, Latrodectus mactans. Current position: Research support staff in entomology, University California, Riverside.  
Joseph Rea, MS (non-thesis), May 1980.  
Larry Marshall, MS, May 1980, Paternal investment in Colias philodice-eurytheme butterflies (Lepidoptera: Pieridae). Last know position: Scientist, Canadian Forest Service.  
Nancy Clark, MS, May 1984, The relationship between the greater wax moth, Galleria mellonella, and the honey bee, Apis mellifera  
Ruth Stanford, MS, December 1989, Sex recognition in the gulf fritillary butterfly, Agraulis vanillae (Lepidoptera, Nymphalidae). Last known position: Ecologist, US Fish and Wildlife Service, Texas.  
Mark Newton, PHD, May 1990, (co-chair committee with A. Smith), The ecology, behavior, and evolutionary dynamics of the white throated woodrat (Neotoma albigula).

Terry Corbin, MS, May 1990, Heritability of size in alfalfa butterflies (*Colias eurytheme*). Current position: ASU bookstore staff.

Ofer Eitan, MS, December 1995, Sexual and natural selection on cheliped structure in fiddler crabs. Current position: Working for Israeli Government, Mitzpe Ramon, Israel.

Kristine Wallace, MS, December 1995, Morphological correlates of sexual dimorphism in eye size in the desert hackberry butterfly, *Asterocampa leilia*. Current position: MD-PHD student, University of Kentucky.

Barbara Terkanian, PHD, August 1997, Variation in the conspicuous coloration of a nymphalid butterfly, *Chlosyne lacinia*. Current position: Natural history artist and educator, Tucson, Arizona.

Michael Demlong, MS, May 1999, Intermating intervals in female *Euphydryas chalcedona* (Lepidoptera: Nymphalidae). Current position: Invertebrate specialist, Arizona Game and fish.

Knebel, Andrea, PHD, May 1999, (University of Bielefeld), Female and male influences on the mate-locating behavior of the desert hackberry butterfly *Asterocampa leilia* (Lepidoptera: Nymphalidae) (Associate Supervisor).

Damon Orsetti, MS, August 2000, Multiple mating by female Colorado potato beetles (*Leptinotarsa decemlineata*). Current position: PHD Student, University of Kentucky.

Darrell Kemp, PHD, March 2001, (James Cook University of North Queensland), Butterfly mating systems (Associate Supervisor). Current position: Australian Research Council Postdoctoral Researcher, James Cooks University, Cairns, Australia.

Jenny Drnevich, PHD, June 2001, Sperm utilization in the polyandrous beetle, *Tenebrio molitor*. Current position: Bioinformatics psecialist, University of Illinois, Urbana-Campaign.

Matt Kwiatkowski/Flowers, PHD (co-chair committee with B. Sullivan), June 2001, Interpopulation variation in color pattern in chuckwallas. Current position: Assistant Professor, Stephen F. Austin State University, Nacogdoches, Texas.

Randi Mendoza, PHD, August 2002, Mate choice in the butterfly, *Colias eurytheme*, with implications for reinforcement of premating isolation. Current position: Assistant Professor of Biology, Southwestern Illinois College, Belleville Campus

Kasey Yturralde, MS, June 2005, The adaptive nature of male courtship in *Colias eurytheme*. Current Position: Intern, National Science Foundation, Arlington, VA.

#### Current

Justin Merry, PHD, entered program August 2001  
 Nate Morehouse, PHD, entered program August 2002  
 Jon Douglas, PHD, entered program August 2005  
 Kimberly Vann, PHD, entered program August 2007

#### Postdoctoral

Dr. Janis Dickinson (Ph.D. Cornell University, 1987), Maytag Postdoctoral Fellow, Arizona State University, 1987-1988. Current position: Associate Professor of Natural Resources, Cornell University.

Dr. Ann Hedrick (Ph.D. UC Davis, 1990), Postdoctoral Fellow, Center for Insect Science, 1991-1992. I co-sponsored her application but her work was done at the University of Arizona. Current position: Assistant Adjunct Professor of Biology, University California, Davis.

Dr. Darrel Kemp (Ph.D. James Cook University of North Queensland, 2001), Maytag Postdoctoral Fellow, Arizona State University, 2001-2003, Postdoctoral fellow, 2005-2006. Current position: Australian Research Council Postdoctoral Researcher, James Cooks University, Cairns, Australia.

Dr. Joseph Macedonia (Ph. D, Duke University, 1990), Postdoctoral Fellow, 2004. Current position: Assistant Professor, Florida Southern College (to start June 2007).

SERVICE (assignments since 1976)

Department

Current (School of Life Sciences)

Director, School of Life Sciences Undergraduate Research (SOLUR) Program

Past (Department of Biology and School of Life Sciences)

Member, SOLS Honors and Awards Committee

Associate Director, SOLS Undergraduate Programs

SOLS Executive Committee

SOLS Undergraduate Programs Committee (chair)

SOLS Lecturer Search Committee (chair)

Biology and Society Program Steering Committee

Managing Director, Undergraduate Biology Enrichment Program

Maytag Postdoctoral Associate Search Committee

Curator Search Committee

Associate Chair

Hughes Program Steering Committee

Biology and Society Program, Co-director

Septennial Self-Study Committee, chair

Graduate Admission-Assistantship Committee (chair and member)

Chairperson's Advisory Committee (elected; chair and member)

Seminar Committee

Various Search Committees

Graduate Exam Committee

Interdepartmental Biology Curriculum Committee

Space Committee

Graduate Student Review Committee

Departmental Decennial Review Committee

HHMI Proposal Committee

Director, Undergraduate Programs (ex officio chair of Undergraduate Programs Committee)

University and College

Current

Planning Committee for PHD in Behavioral Biology, Co-Chair

Quality of Instruction Committee, College of Liberal Arts and Sciences

Past

Ad Hoc Committee to Organize CLAS Undergraduate Poster Symposium

Committee for the Improvement of Freshmen STEM

Dean of College of Education Search Committee

Chair of Integrative Natural Sciences Search Committee, ASU West

Task Force on Curriculum of the New American University

Barrett Honors College Council, 1999-2006 (Chair: Research Subcommittee, 1999-2000)

Marshall Lecture Committee, 2001-2003

Barrett Honors College Dean Search Committee

Consultant, NCA Accrediation Team 5a, Undergraduate Instruction

Center for Environmental Studies, Steering Committee,

College of Liberal Arts and Sciences Requirements Review Committee

National Scholarship and Awards Panel, Honors College

Mentor Program, University Honors College

University of Arizona, Center for Insect Science, Executive Committee

Graduate College, Fellowship Coordinator Search Committee

Academic Senate: Zoology Department Representative (elected)

CLAS Senate: Zoology Department Representative (elected)

University Student Policy Committee (chair and member)  
 Review Panel (Natural Sciences), University Faculty Grant-in-Aid Program  
 Faculty Performance Evaluation Review Committee, College of Liberal Arts and Sciences  
 Life Sciences Building Committee  
 Quality of Instruction Committee, College of Liberal Arts and Sciences  
 Research Awards Committee, College of Liberal Arts and Sciences  
 Graduate College Representative: Thesis defenses  
 Co-chair, Life Sciences Coordinator Search Committee, ASU West  
 Life Science Search Committee, ASU West  
 ASU West Life Sciences Task Force  
 Enrollment Management Task Group, Bachelor of General Studies Degree  
 Center for Environmental Studies, Promotion Evaluation Committee  
 Life Sciences Coordinator Search Committee, ASU West  
 CLAS Committee on Self-Assessment for Quality and Diversity  
 University Student Process Re-engineering Project  
 Speaker, Life Science Careers, Application for Excellence Program, University Honors College (1993)  
 Speaker, High School Senior Honor Day, University Honors College (1994)  
 Speaker, Junior Honor Day, College of Liberal Arts and Sciences, 22 April 1995  
 Speaker, National Merit Scholar Reception, ASU, 14 October 1998  
 Workshops and presentations on mentoring undergraduates in research  
     Center for Learning and Teaching Excellence - Spring and Fall 2001  
     ASU West - Spring 2001  
     College of Liberal Arts and Sciences, New Faculty Workshop - Fall 2001, Fall 2002  
     Associate Deans and Directors Retreat - Fall 2001

#### Community

Sponsor for Preprofessional Internship Program  
     Tempe High School, Tempe, Arizona, Fall 1976  
     East High School, Phoenix, Arizona, Fall 1977  
 Science Fair Judge  
     Ward Elementary School, Tempe, Arizona, May 1979  
     Regional Science Fair, ASU, May 1980, 1981, 1983, 1984, 1987  
     Fuller Elementary School, Tempe, Arizona, March 1983, January 1984, April 1986, 1987  
     Broadmoor Elementary School, Tempe, Arizona, February 1992, 1993, 1994, 1995, 1996  
 Lecturer  
     Super Saturday Program, Tempe School District, Tempe, Arizona, March 1981, November 1984  
     Advanced Biology Class, Shadow Mountain High School, Phoenix, Arizona, December 1982  
     Arizona Entomological Society, Tempe, September 1983  
     Gifted Class, Supai Middle School, Scottsdale, Arizona, February 1984  
     Kindergarten Class, Fuller Elementary School, Tempe, Arizona, October 1984  
     Gifted Class, Mesa Parents Association for the Gifted and Talented, May 1987  
     Valley Unitarian Universalist Church, Chandler, Arizona, April 1988  
     Humanist Society, Phoenix, AZ, January 1991  
     Second Grade Class, Hopi Elementary School, Phoenix, Arizona, April 1992  
     Science Fair Kick-Off Presentation (2 classes), Broadmoor Elementary School, January 1993,  
         1994, 1995, 1996  
     Career Day, Chandler Chamber of Commerce, Bogle Junior High, April 1993  
     Life Sciences Careers (3 classes), Science Department, South Mountain High School, November  
         1993  
     Spirit of the Senses, Phoenix, AZ, April 1995  
     Report on sensitive invertebrate (Viceroy butterfly), Tonto National Forest Aquatic and Riparian  
         Ecosystems Workshop, Mesa, AZ, 18-19 April 1995

Young Scientist Day (2 sessions), Hidden Hills Elementary School, Paradise Valley, AZ, February 1996  
 Rio Salado Rotary Club, Scottsdale, Arizona, 11 April 1996  
 Waggoner Elementary School, Tempe, AZ, November 1997, January, March 1998  
 Findley Farms Elementary School, Gilbert, AZ, February 1998  
 Queen Creek Kiwanis, Queen Creek, AZ, 19 May 1998  
 Tempe Business and Professional Men's Club, 15 July 1998  
 Sigma Xi, ASU Chapter, February 2001  
 OASIS, Phoenix, AZ, March 2001  
 Sun Lakes Kiwanis, Sun Lakes, AZ, April 2001  
 Tempe Historical Museum, July 2001  
 Desert Botanical Gardens, July 2001  
 Center for Insect Science, February 2002  
 Desert Botanical Gardens, What's the Buzz? Lecture Series, April 2002  
 Master Gardeners, May 2002, May 2003  
 Career Decisions class (Marine biology), Pinnacle High School, November 2002  
 High School Biology classes, Phoenix Country Day School, February 2003  
 Dobson Montessori School, Mesa, September 2003  
 Tempe Public Library, Discussion Leader on Biodiversity for Research Revolution Program, November 2003  
 Desert Botanical Gardens, Docent Training for Butterfly Pavilion, January 2004  
 Whitman Elementary School, Mesa, AZ, All Kids are Gifted Program, June 2004, 2005  
 Vistancia, Community Center, Surprise, AZ, April 2007  
 Central Arizona Butterfly Association, September 2007  
 McDowell Sonoran Conservancy, Summer 2007  
 Life Long Learning Institute  
     Sun City Anthem, Merrill Ranch, October 2007  
     Sun City Grand, October 2007  
     Sun City, November 2007  
 Public Lecture Series, James Cook University, Cairns, Queensland, Australia, April 2008

Member

Parks and Recreation Board, City of Tempe, Tempe, Arizona, 1987-1988  
 National Science Scholars Program Panel, Department of Education, State of Arizona, October 1993, 1994

Scientific advisor

Campaign to establish state butterfly, 2000-2001  
 Desert Botanical Gardens, Butterfly Exhibits, 2001-present  
 Quest 2006, butterfly education program, 2005-present

PROFESSIONAL PARTICIPATION

Memberships

American Association for the Advancement of Science  
 Animal Behavior Society  
 International Society for Behavioral Ecology  
 Lepidopterists' Society  
 North American Butterfly Association  
 Sigma Xi  
 Center for Insect Science (Arizona)

Service

Animal Behavior Society  
 Film Committee, 1979-1982  
 Ethics Committee, 1988-1990

W. C. Allee (Best Student Paper) Award Committee, 1979-1980, 1999-2000  
Action Editor, Animal Behaviour, 1997-2000  
Graduate Student Research Fund, Reviewer, 2003

Lepidopterists' Society

Member-at-large (elected), 1996-1999  
Symposium organizer for August 1991 National Meeting, Title: The Evolution of Butterfly Mating Systems  
Best Student Paper Award Committee, 1999  
Budget and Publications Committee, 1999-present

Center for Insect Science

Hexapodium Committee, 1997-2000  
Executive Committee, 1998-2001

Reviewing Activities

Granting Agencies: National Science Foundation, National Geographic Society, Natural Sciences and Engineering Research Council of Canada, Whitehall Foundation  
Journals: American Midland Naturalist, American Naturalist, Animal Behaviour, Behavioral Ecology, Behavioral Ecology and Sociobiology, Biological Bulletin, BioScience, Canadian Journal of Zoology, Condor, Conservation Biology Ecology, Ecology Letters, Evolution, Functional Ecology, Journal of Ethology (Japan), Journal of Insect Behavior, Journal of Research on the Lepidoptera, Journal of the Lepidopterists' Society, Journal of Theoretical Biology, Naturwissenschaften, Oecologia, Oikos, Proceedings of the Royal Society of London, Science  
Books: Benjamin Cummings, Academic Press, Cornell University Press (prospectus for The Biology of Swallowtail Butterflies), Capstone Press  
Book Chapters: Two chapters for The Biology of Swallowtail Butterflies, Chapter for book on Cannibalism Sensitive Invertebrate Species Accounts: Tonto National Forest, Arizona  
Tenure candidate: University of Massachusetts (2004), University of California Irvine (2006)

Meetings Attended (since 1990)

Annual Meeting, Animal Behavior Society, Binghamton, NY, June 1990. Poster paper presented: Behavior of male desert hackberry butterflies (Asterocampa leilia) at perch sites used in mate location (coauthored with J. L. Dickinson and B. Terkanian).  
Annual Meeting, Lepidopterists' Society, Tucson, AZ, August 1991. Paper presented: The evolution of butterfly mating systems.  
Fourth International Behavioral Ecology Congress, Princeton, New Jersey, August 1992. Paper presented: Thermoregulation and mate-location by males in a sit-and-wait butterfly.  
Evolution Education Research Conference, Louisiana State University, Baton Rouge, LA, December 1992.  
Biology in Action: New Approaches to Teaching and Learning Biology, Radford University, Virginia, May 1993. NSF-sponsored conference.  
Annual Meeting, Lepidopterists' Society, Colorado State University, Fort Collins, July 1993. Paper presented: Male mate-locating tactics in butterflies: Daily pattern of encounter site occupation.  
Fossils of Arizona, First annual symposium, Mesa Southwest Museum, Mesa, Arizona, November 1993. Hosted by Mesa Southwest Museum and Southwest Paleontological Society. Invited paper presented: Paleontology, nucleotide sequences, and early evolution of the metazoa.  
5th International Behavioral Ecology Congress, Nottingham, England, August 1994. Poster papers presented: (1) Visual system and mate-locating tactics in a perching butterfly, and (2) Interspecific variation in male mate-locating tactics: related to population density (with Ofer Eitan).  
Annual Meeting, Lepidopterists' Society, University of Minnesota, St. Paul, July 1995. Invited paper presented in symposium on Lepidoptera Mating Behavior: Sexual dimorphism in butterfly eyes and mating behavior. .  
Annual Meeting, Animal Behavior Society, University of Nebraska, Lincoln, July 1995. Paper presented in Education Workshop: Pedagogical approaches to laboratory exercises in animal behavior.  
NRC/NSF Regional Symposium on Undergraduate Education in Science, Math, Engineering, and Technology, Pomona College, CA, January 1996.

Semi-annual meeting, North American Butterfly Association, Sierra Vista, AZ, August 1997. Led workshop on “Butterfly behavior.”

Annual meeting, Animal Behavior Society, Flagstaff, AZ, August 1997. Paper presented: Vision, thermoregulation, and mate-finding in butterflies.

International Congress of Entomology, Florence, Italy, August 1996. Invited paper presented in symposium (Signals used in mate attraction and courtship): Vision, thermoregulation, and mate-finding in butterflies.

50<sup>th</sup> Anniversary meeting, Lepidopterists’ Society, Yale University, Hew Haven, CT, July 1997. Invited contribution to symposium (Evolution of mating systems in the Lepidoptera): Butterfly vision, thermoregulation, and the evolution of mating tactics.

Annual meeting, History of Science Society, La Jolla, CA, November 1997.

Naturalists’ Tradition Conference, Oregon State University, Corvallis, OR, March 1998.

7<sup>th</sup> International Behavioral Ecology Congress, Asilomar, CA, July 1998. Spoken paper presented: Visual detection of mates in a territorial butterfly.

3<sup>rd</sup> International Butterfly Ecology and Evolution Symposium, Crested Butte, CO. Invited spoken presentation: The visual ecology of butterflies. (Could not attend due to death in my family)

Annual Meeting, German Neuroscience Society, Göttingen, Germany, May 1999. Poster paper: Visual detection of potential mates in a territorial butterfly.

Annual Meeting, Lepidopterists’ Society, Sierra Vista, AZ, August 1999. Spoken paper: How butterflies see their world.

Annual Meeting, Animal Behavior Society, Morehouse College, Atlanta, GA, August 2000. Spoken paper: Eye size, vision, and behavior in butterflies.

Annual Meeting, Animal Behavior Society, Oregon State University, Corvallis, OR, July 2001. Poster paper: Which way is up? Visual cues used to adjust head position in perching butterflies.

International Conference on Invertebrate Vision, Bäckaskog Castle, Sweden, August 2001. Spoken paper: Eye size, vision, and behavior in butterflies.

9<sup>th</sup> International Behavioral Ecology Conference, Montreal, Quebec, Canada, July 2002. Poster paper: Iridescence in butterflies: Spatial and temporal structure of signals produced by flying butterflies.

Annual Meeting, Animal Behavior Society, Idaho State University, Boise, July 2003. Spoken paper: Structural colors and behavior: spectral, temporal, and spatial properties of iridescent UV reflection in flying butterflies

10<sup>th</sup> International Behavioral Ecology Conference, Jyväskylä, Finland, July 2004, Spoken paper: Structural and pigmentary colors in sulphur butterflies, *Colias eurytheme* (Lepidoptera; Pieridae), work together to enhance potential signal contrast and honesty (co-authors: Joseph Macedonia, Nate Morehouse, Laura Taylor-Taft)

Annual Meeting, Animal Behavior Society, Snowbird, UT, July 2005. Spoken paper: Structural and pigmentary colors in sulphur butterflies work together to enhance potential signal contrast and honesty (co-authors: Joseph Macedonia, Nate Morehouse, Laura Taylor-Taft)

Annual Meeting, Lepidopterists’ Society, McGuire Center for Lepidoptera and Biodiversity, Gainesville, FL, July 2006. Invited presentation at student-organized symposium on ethology of Lepidoptera: Visual ecology of butterfly color signals.

Program Director’s Meeting, Howard Hughes Medical Institute, Chevy Chase MD, October 2006.

Diversity in the Sciences Workshop, University of Washington, WA, October 2006.

Annual Meeting, Society for Integrative and Comparative Biology, Phoenix, AZ, January 2007. Spoken paper: UV Reflectance in female sulphur butterflies: diversity and mechanisms (co-authors: J. Macedonia, D. Kemp, L. Taylor-Taft).

5<sup>th</sup> International Conference on the Biology of Butterflies, Rome, Italy, July 2007. Invited spoken paper: Iridescent coloration in butterflies: properties, behavioral implications, and functions.

## INVITED COLLEGIATE SEMINARS (since 1991)

Arizona State University, Department of Zoology, September 1991  
Northern Arizona University, Department of Biological Sciences, November 1991  
Arizona State University, Ecology and Evolution Seminar, February 1992  
University of California, Riverside, November 1994  
University of California, San Diego, April 1995  
Arizona State University, Department of Biology, March 1997  
Department of Entomology, University of Arizona, May 1997  
Department of Entomology, University of Kansas, January 1998  
Department of Life Sciences, Arizona State University West, 20 November 1998  
Department of Biology, Grand Canyon University, December 1998  
Department of Zoology, University of Stockholm, April 1999.  
Griswold Lecture, Department of Entomology, Cornell University, March 2000  
Department of Zoology and Tropical Biology, James Cook University, Queensland, Australia, March 2001  
Department of Biological Sciences, Northern Arizona University, March 2001  
Center for Insect Science, University of Arizona, February 2002  
School of Renewable Natural Resources, University of Arizona, May 2003  
University of Missouri, Columbia, October 2003  
Arizona Research Laboratories, University of Arizona, Nov 2003  
University of Nebraska, Lincoln, March 2004  
University of Leiden, Netherlands, June 2005  
University of Antwerp, Belgium, June 2005  
SUNY, Buffalo, NY, Nov 2005  
University of California, Irvine, October 2007  
School of Marine and Tropical Biology, James Cook University, Cairns, Queensland, Australia, April 2008

## GRANTS

Sigma Xi Grant-in-Aid of Research, 1974, \$200.  
The use of chemical and visual signals in the courtship behavior of the small sulphur, Eurema lisa (Lepidoptera, Pieridae).

Bach Fund Award (National Academy of Sciences), 1974, \$500.  
The use of visual and chemical signals in the courtship of the small sulphur butterfly, Eurema lisa.

Arizona State University Faculty Grant-in-Aid, 1976, \$1600.  
Chemical signal of the alfalfa butterfly.

Arizona State University Faculty Grant-in-Aid, 1978, \$2125.  
Mating strategies of female butterflies.

National Science Foundation, 1978-1980, \$40,214.  
Mating strategies of two agricultural pest species of pierid butterflies.

Bache Fund Award (National Academy of Sciences), 1979, \$800.  
Behavior of a hermaphroditic nudibranch.

National Science Foundation, 1980-1982, \$65,000.  
Reproductive behavior of two agricultural pest species of pierid butterflies.

National Science Foundation, 1983-1985, \$74,500.  
Structure and evolution of reproductive behavior.

Arizona State University, University Research Fund, 1986, \$10,621.  
Structure and evolution of insect mating systems. (Returned to university when grant below was awarded.)

National Science Foundation, 1986-1988, \$70,000.  
Structure and evolution of reproductive behavior.

National Science Foundation, 1989, \$41,997 (co- principal investigator).  
Research Experiences for Undergraduates, Site Grant, Physiological Bases of Behavior.

Arizona State University, College of Liberal Arts and Sciences, 1990, \$2,200.  
 Summer Research Grant: Mate-locating behavior of male butterflies.

Arizona State University, College of Liberal Arts and Sciences, 1994, \$269.  
 Travel Grant for Behavioral Ecology Congress, Nottingham, England.

Swedish Natural Science Research Council, 1994, \$17,000.  
 Program for Visiting Scientists (for collaborative work at Stockholm University with P.-O. Wickman, 15 May - 1 August 1994).

National Science Foundation, 1997-1999, \$59,972 (+\$3,500 Supplement for international travel).  
 Mate location tactics, vision, and thermoregulatory behavior in insects.

National Science Foundation, 1999-2003. \$215,983. Undergraduate mentoring in environmental biology: Diverse approaches to environmental research. (5 co-PIs).

Howard Hughes Medical Institute, 1998-2003, \$1,400,000. An integrative biology education program at Arizona State University. (3 co-PIs).

National Science Foundation, 2003-2007, \$305,000, Mechanisms of color production and animal visual signals.

Arizona State University, College of Liberal Arts and Sciences, Grant Award Program to advance the Quality of Undergraduate Education, 2004-2005, \$23,793, Technology as a catalyst for improving programmatic Instructional Practices (co-PIs: Patti Thorn, Chuck Kazelik)

National Science Foundation, 2004-2009, \$12,323,990, Project pathways: Opening routes to math and science success for all students. (17 co-PIs)

National Science Foundation, 2005-2010, \$1,249,622, UBM: Interdisciplinary training for undergraduates in biological and mathematical sciences at ASU. (6 co-PIs)

Howard Hughes Medical Institute, 2006-2010, \$1,800,000. Students as scientists in the world: the Arizona Biosciences Network (4 co-PIs).

## RECENT MEDIA COVERAGE

Featuring research results

Sweet, C. A. 2007. Eye for love. Arizona Highways. March 2007, pp. 20-21.

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### Submitted, In Revision, or In Preparation

- Rutowski, R. L., and E. J. Warrant. Submitted. Visual acuity and sensitivity increase allometrically with body size in butterflies.
- Rutowski, R. L. and J. Macedonia. Submitted. Limits on the wavelengths represented in ultraviolet images of Lepidoptera.
- Rutowski, R. L., J. M. Macedonia, and L. Taylor-Taft. In preparation. Ultraviolet reflecting wing tips in Sara's Orange Tip, *Anthocharis sara* (Pieridae, Lepidoptera): Mechanism, evolution, and potential function.

REVISED 3 June 2008