

CURRICULUM VITAE

JUDITH LEE BRONSTEIN

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520-743-3954 (home)
judieb@email.arizona.edu

Born June 4, 1957; US citizen

Chronology of Education

A.B. 1979, Brown University, Magna Cum Laude with Honors
Major: Independent Program in Ecology and Environmental Studies

M.S. 1981, University of Michigan
Major: Ecology and Evolutionary Biology

Ph.D. 1986, University of Michigan
Major: Ecology and Evolutionary Biology
Ph.D. Dissertation: *Coevolution and Constraints in a Neotropical Fig-Pollinator Wasp Mutualism*. Beverly J. Rathcke, advisor.

Chronology of Appointments

Program Director, National Science Foundation, Division of Environmental Biology, 2007-2008

Professor, Department of Ecology and Evolutionary Biology, University of Arizona 2004-

Professor, Department of Entomology, University of Arizona 2006-

Associate Professor, Department of Ecology and Evolutionary Biology, University of Arizona 1995-2004

Assistant Professor, Department of Ecology and Evolutionary Biology, University of Arizona 1989-1995

Adjunct Associate Professor, Department of Biology, University of Miami 1995-present

Visiting Professor, Department of Biology, Duke University, 1999-2002

Adjunct Assistant Professor, Department of Biology, University of Miami 1989-1995

Visiting Professor, University of Puerto Rico, 1998

Visiting Professor, University of Paris, 1989

Isaak Walton Killam Postdoctoral Fellow, University of Alberta, Canada 1988

NATO Postdoctoral Fellow, Centre Louis Emberger (CNRS), Montpellier, France 1987

Instructor, Université des Sciences et Techniques du Languedoc, France (Scientific Communication, November 1987, November 1988)

Honors and Awards

2007, Distinguished Career Teaching Award, College of Science, University of Arizona

2006, Outstanding Faculty Award, Honors College, University of Arizona

2003, Mortar Board Senior Honor Society Hall of Fame Award, University of Arizona

2000, Distinguished Teaching Award, College of Science, University of Arizona

Service and Outreach

since last promotion

National/International Service and Outreach

Service to the Profession:

2004-2006, Secretary, American Society of Naturalists

2000-2006, Committee of Examiners, GRE Biology Test, Educational Testing Service

2002-2005, Scientific Advisory Board, NCEAS

National Science Foundation

2007-2008, Program Director, Division of Environmental Biology

2003-2004, 2006, NSF Evolutionary and Population Ecology Panel

1997-1999, 2002, NSF Ecology Panel

1997, NSF LTER Site Review Team

Ecological Society of America

2004-2006, Chair, Awards Committee

2002-2003, Grants and Fellowships Committee

2002, Buell/Braun Award Selection Committee

Review of promotions and tenure dossiers for fifteen American and four foreign universities

Editorial Boards:

2004-2007, Editorial Board, *American Naturalist*

2003-2007, Editorial Board, *Oecologia*

1995-2003, Editorial Board, *Conservation Ecology*

1994-1996, Ad Hoc Editor, *Ecology*

Reviews for Journals:

Nature, Science, Proceedings of the National Academy of Sciences USA, American

Naturalist, Quarterly Review of Biology, Evolution, Ecology, Proceedings of the Royal Society of London Series B, Journal of Chemical Ecology, Biotropica, Oecologia Plantarum, Oikos, Journal of Animal Ecology, Journal of Ecology, Conservation Biology, Trends in Ecology and Evolution, Entomologia Experimentalis et Applicata, Florida Entomologist, International Journal of Plant Sciences, Journal of Evolutionary Biology, New Zealand Journal of Botany, American Journal of Botany, Oecologia, Caribbean Journal of Science, American Midland Naturalist, Current Science, Trends in Plant Sciences, Ecology Letters, Plant Ecology, Behavioral Ecology, Journal of Tropical Biology, Ecoscience, Caribbean Journal of Science, Annals of the Missouri Botanical Garden, Naturwissenschaften, Evolutionary Ecology Research, Plant Systematics and Evolution, Annals of Botany

Reviews for Publishers:

Oxford University Press, University of Arizona Press, CRC Press, Island Press, Harbinger Press, Sinauer Associates, National Geographic, Cambridge University Press, Prentice-Hall, Benjamin-Cummings Science

Reviews for Granting Agencies:

National Science Foundation; USDA; Smithsonian Tropical Research Institute; National Geographic Society; United States Department of Agriculture; National Park Service; Wildlife Conservation International; Office of the Vice President for Research, University of Arizona; State of Florida Game and Fish Commission; Foundation for Research Development (South Africa); Nederlandse Organisatie voor Wetenschappelijk Onderzoek (Netherlands); NSERC (Canada); Challenge Grants in Biodiversity (Canada); AAAS; European Science Foundation; IDGP Grants Program, Vanderbilt University

Advisory Boards:

1995-1999, Forgotten Pollinators Campaign Advisory Board, Arizona-Sonora Desert Museum, Tucson, Arizona

Local/State Service and Outreach

2006, Co-designer of teaching materials on symbiosis for Arizona-Sonora Desert Museum's children's program
2006, Tucson Summerfest Speaker: "Why Cooperate? The Biology of Mutualism"
2004, Panelist, WISE Expanding Your Horizons Conference (middle school/high school girls)
1997-Present, mentor for high school girls interested in job-shadowing; supported by Women in Science and Engineering (WISE), University of Arizona
1997, Panelist, YWCA Women on the Move Leadership Conference
1996, Judge, International Science and Engineering Fair

University Service and Outreach

Departmental Committees:

2006-2007, Peer Review Committee
2005-2006, Steering Committee
2005-2006, Graduate Policy Committee (chair)
2004-2005, Promotions and Tenure Committee
2004-2005, Undergraduate Education Task Force
2003-2005, Undergraduate Curriculum Committee (2004-2005, chair)
2001-2005, Department Alumni Newsletter Committee (chair)
2003-2004, Steering Committee
2003-2004, Graduate Admissions Committee
2003-2004, Peer Review Committee (chair)
2003-2004, Behaviorist/physiologist Search Committee
2002-2003, Academic Program Review Committee
2001-2002, Assessment Committee
2000-2001, Undergraduate Instruction and Curriculum Committee
2001, Undergraduate Scholarship Selection Committee
1998-1999, Coordinator of Introductory Biology
1997-1999, Steering Committee
1995-1998, Graduate Admissions Committee; 1995-1997, chair
1997-1998, Promotions and Tenure Committee
1997, Regents' Award Nomination Committee
1997, Organismal Biologist Search Committee
1996, Organismal Biologist Search Committee
1989-present, Departmental examiner for graduate competency in French

College Committees:

2004-2007, Sabbatical Review Committee (chair)
2005-2006, Department Head Review Committee
1995-1998, Curriculum Review Committee
1996, Selection Committee, Excellence Awards in the Biological Sciences

University Committees:

2004, Faculty of Science representative, organizing committee for the Women's Leadership Conference
2001-2004, University of Arizona representative, Organization for Tropical Studies
2001-2002, Undergraduate Writing Competency Review Committee
2001, Tasks in Critical Thinking Subcommittee, General Education Committee
1996-2001, Grader, Undergraduate Writing Competency Examination (UDWPE)
1996-1997, Participant, NSF Model Project: "Breaking the Silences: a Faculty-Student Action Project for Graduate Women in Science and Mathematics"
1996, Academic Program Review Site Visit Committee (review of Psychology Dept.)

1996, Selection Committee, Undergraduate Biology Research Program
Interdisciplinary Program in Insect Science
2002-2005, Executive Committee
1994-present, Scientific Member
Center for Insect Science
1989-present, Scientific Member
Research Training Grant in the Analysis of Biological Diversification
1991-2001, Key Personnel

Publications

* based on work done substantially as a graduate student

Refereed Journal Articles:

- Ferrière, R., M. Gauduchon, and J.L. Bronstein (2007). Evolution and persistence of obligate mutualists and exploiters: competition for partners and evolutionary immunization. *Ecology Letters* 10: 115-126.
- J.L. Bronstein, R. Alarcon, and M. Geber (2006). Tansley Review: Evolution of insect/plant mutualisms. *New Phytologist* 172(3):412-428.
- J.H. Ness, W.F. Morris, and J.L. Bronstein (2006). Integrating quality and quantity of mutualistic service to contrast ant species visiting *Ferocactus wislizeni*, a plant with extrafloral nectaries. *Ecology* 87: 912-921.
- W.F. Morris, W.G. Wilson, J.L. Bronstein, and J.H. Ness (2005) Environmental forcing and the temporal dynamics of a competitive guild of cactus-tending ants. *Ecology* 86: 3190-3199.
- F. Kjellberg, J.L. Bronstein, G. van Ginkel, J.M. Greeff, J.C. Moore, N. Bossu-Dupriez, M. Chevolut and G. Michaloud (2005) Clutch size: a major sex ratio determinant in fig pollinating wasps? *Comptes Rendus Biologies* 328: 471-476.
- R.S. Bshary and J.L. Bronstein. (2004) Game structures in mutualisms: what can the evidence tell us about the kinds of models we need? *Advances in the Study of Behavior* 34:59-104.
- J.H. Ness and J.L. Bronstein. (2004) The effects of invasive ants on prospective ant mutualists. *Biological Invasions* 6: 445-461.
- L.S. Adler and J.L. Bronstein. (2004) Attracting antagonists: Does floral nectar increase leaf herbivory? *Ecology* 85: 1519-1526.
- J.H. Ness, J.L. Bronstein, A.N. Andersen, and J.N. Holland. (2004) Ant body size predicts the dispersal distance of ant-adapted seeds: implications for mutualism disruption by invasive ants. *Ecology* 85: 1244-1250.

- J.N. Holland., J.L. Bronstein, and D.L. DeAngelis. (2004) Testing hypotheses for excess flower production and fruit-to-flower ratios in a pollinating seed-consuming mutualism. *Oikos* 105 633-640.
- J.H. Holland, R. Wyatt, J.L. Bronstein, J.H. Ness (2003) Relating the biology of flower-to-fruit survivorship to the ecology and evolution of fruit-to-flower ratios. in: *Recent Research Developments in Plant Sciences* 1: 75-84
- J.L. Bronstein, W.G. Wilson, and W.F. Morris. (2003) The ecological dynamics of mutualist/ antagonist communities. *American Naturalist* 162: S24-S39.
- W.G. Wilson, W.F. Morris, and J.L. Bronstein. (2003) Coexistence of mutualists and exploiters in spatial landscapes. *Ecological Monographs* 73: 397-413.
- W.F. Morris, J.L. Bronstein, and W.G. Wilson. (2003) Three-way coexistence in obligate mutualist-exploiter communities: the potential role of competition. *American Naturalist* 161: 860-875.
- R. Ferrière, J.L. Bronstein, S. Rinaldi, M. Gauduchon, and R. Law. (2002) Cheating and the evolutionary stability of mutualism. *Proceedings of Royal Society of London, Series B* 269: 773-780.
- J.N. Holland, D.L. DeAngelis, and J.L. Bronstein. (2002) Population dynamics and mutualism: Functional responses of benefits and costs. *American Naturalist* 159: 231-244.
- R. Law, J.L. Bronstein, and R. Ferrière (2001) On mutualists and cheaters: plant-insect coevolution in pollinating seed-parasite systems. *Journal of Theoretical Biology* 212: 373-389.
- J.L. Bronstein (2001) The costs of mutualism. *American Zoologist* 41: 127-141.
- J.L. Bronstein (2001) The exploitation of mutualisms. *Ecology Letters* 4: 277-287.
- F. Kjellberg, E. Jouselin, J.L. Bronstein, A. Patel, J. Yokoyama and J-Y. Rasplus (2001) Pollination mode in fig wasps: the predictive power of correlated traits. *Proceedings of the Royal Society of London, Series B* 268: 1113-1121.
- M. Hossaert-McKey and J.L. Bronstein (2001) Self-pollination and its costs in a monoecious fig (*Ficus aurea*, Moraceae) in a highly seasonal subtropical environment. *American Journal of Botany* 88: 685-692.
- J.L. Bronstein. (1999) The biology of *Anidarnes bicolor* (Hymenoptera, Agaonidae, Sycophaginae), a galler of *Ficus aurea*. *Florida Entomologist* 82: 454-461.
- J.L. Bronstein, D. Vernet, and M. Hossaert-McKey. (1998) Do fig wasps interfere with each other during oviposition? *Entomologia Experimentalis et Applicata* 87:321-324.
- J.L. Bronstein. (1998) The contribution of ant-plant protection studies to our understanding of mutualism. *Biotropica* 30: 150-161.

- J.L. Bronstein and Y. Ziv. (1997) Costs of two non-mutualistic species in a yucca/yucca moth mutualism. *Oecologia* 112: 379-385.
- J.L. Bronstein and M. Hossaert-McKey. (1996) Variation in reproductive success within a subtropical fig/pollinator mutualism. *Journal of Biogeography* 23:433-446.
- M.C. Anstett, F. Kjellberg, and J.L. Bronstein. (1996) Waiting for wasps: consequences for the pollination dynamics of *Ficus pertusa* L. *Journal of Biogeography* 23:459-466.
- C.M. Smith and J.L. Bronstein. (1996) Site variation in reproductive synchrony in three neotropical figs. *Journal of Biogeography* 23:477-486.
- M.C. Anstett, J.L. Bronstein, and M. Hossaert-McKey. (1996) Resource allocation: a conflict in the fig/fig wasp mutualism? *Journal of Evolutionary Biology* 9:417-426.
- Y. Ziv and J.L. Bronstein. (1996) Infertile seeds: a role in the yucca/yucca moth mutualism? *Evolutionary Ecology* 10: 63-76.
- J.L. Bronstein and M. Hossaert-McKey. (1995) Hurricane Andrew and a Florida fig/pollinator mutualism: resilience of an obligate interaction. *Biotropica* 27: 373-381.
- J.L. Bronstein. (1994) Our current understanding of mutualism. *Quarterly Review of Biology* 69: 31-51.
- J.L. Bronstein. (1994) Conditional outcomes of mutualistic interactions. *Trends in Ecology and Evolution* 9:214-217.
- J.L. Bronstein and A. Patel. (1992) Causes and consequences of within-tree phenological patterns in the Florida Strangling Fig, *Ficus aurea*. *American Journal of Botany* 79: 41-48.
- J.L. Bronstein and A. Patel. (1992) Temperature-sensitive development: consequences for local persistence of two subtropical fig wasp species. *American Midland Naturalist*. 128: 397-403.
- J.L. Bronstein. (1991) Mutualism studies and the study of mutualism. *Bulletin of the Ecological Society of America* 72: 6-8.
- J.L. Bronstein. (1991) The nonpollinating wasp fauna of *Ficus pertusa*: Exploitation of a mutualism? *Oikos* 61: 175-186.
- J.L. Bronstein, P.H. Gouyon, C. Gliddon, F. Kjellberg, and G. Michaloud. (1990) Ecological consequences of flowering asynchrony in monoecious figs: a simulation study. *Ecology* 71: 2145-2156.
- J.L. Bronstein and D. McKey, editors. (1989) *The Comparative Biology of Figs. Experientia* 45: 599-680.
- J.L. Bronstein and D. McKey. (1989) The fig/pollinator mutualism: a model system

for comparative biology. in: *The Comparative Biology of Figs, Experientia* 45: 601-604.

J.L. Bronstein. (1989) A mutualism at the edge of its range. in: *The Comparative Biology of Figs, Experientia* 45: 622-636.

*J.L. Bronstein. (1988) Mutualism, antagonism, and the fig-pollinator interaction. *Ecology* 69: 1298-1302.

*J.L. Bronstein. (1988) Limits to fruit production in a monoecious fig: consequences of an obligate mutualism. *Ecology* 69: 207-214.

*J.L. Bronstein. (1988) Predators of fig wasps. *Biotropica* 20: 215-219.

F. Kjellberg, B. Doumesche, and J.L. Bronstein. (1987) Longevity of a fig wasp (*Blastophaga psenes*). *Proc. K. Ned. Akad. Wet. Ser. C* 91: 117-122.

*J.L. Bronstein. (1987) Maintenance of species-specificity in a neotropical fig-pollinator wasp mutualism. *Oikos* 48: 39-46.

*J.L. Bronstein and K. Hoffmann. (1987) Spatial and temporal variation in frugivory at a neotropical fig (*Ficus pertusa*). *Oikos* 49: 261-269.

*I. Rathet and J.L. Bronstein. (1987) Dead acacia thorns: an undescribed arthropod habitat. *American Midl. Nat.* 118: 205-210.

*J.L. Bronstein. (1986) The origin of bract fluid in a neotropical *Heliconia* species. *Biotropica* 18: 111-114.

Chapters in Scholarly Books and Monographs

Original research not published elsewhere:

J.L. Bronstein, I. Izhaki, R. Nathan, J.J. Tewksbury, O. Spiegel, and A. Lotan (2007) Fleshy-fruited plants and frugivores in desert ecosystems. in: A.J. Dennis, E.W. Schupp, R.J. Green and D.W. Westcott (ed), *Seed dispersal: Theory and its Application in a Changing World*. Cambridge University Press.

J.L. Bronstein, T.E. Huxman, and G. Davidowitz (2006) Plant-mediated effects linking herbivory and pollination. pp. 79-103 in: *Ecological Communities: Plant Mediation in Indirect Interaction Webs*. T. Ohgushi, T.G. Craig, and P.W. Price (editors). Cambridge University Press.

J.L. Bronstein, U. Dieckmann, and R. Ferrière. (2004) Coevolutionary dynamics and the conservation of mutualisms. pp. 305-326 in: *Evolutionary Conservation Biology*. R. Ferrière, U. Dieckmann, and D. Couvet (editors), Cambridge University Press, Cambridge.

J.L. Bronstein. (1995) The plant/pollinator landscape. pp. 256-288 in *Mosaic Landscapes and Ecological Processes*, L. Hansson, L. Fahrig, and G. Merriam (eds). Chapman and Hall, New York.

J.F. Addicott, J.L. Bronstein, and F. Kjellberg. (1990) Evolution of mutualistic life cycles: yucca moths and fig wasps. In: *Evolution and Coordination of Insect Life Cycles*. F. Gilbert, editor. Springer Verlag, New York.

Novel syntheses and reviews:

J.N. Holland, J.H. Ness, A. Boyle and J.L. Bronstein (2005) Mutualisms as consumer-resource interactions. in: P. Barbosa (ed), *Ecology of Predator-Prey Interactions*. Oxford University Press, pp. 17-33.

J.L. Bronstein (2003) The scope for exploitation within mutualistic interactions. in: *Genetics and Evolution of Cooperation* (P. Hammerstein, editor), MIT Press, Cambridge, Massachusetts. pp. 185-202.

C.T. Bergstrom, J.L. Bronstein, R. Bshary, R.C. Connor, M. Daly, S.A. Frank, H. Gintis, L. Keller, O. Leimar, R. Noë, and D.C. Queller. (2003) Interspecific mutualism: puzzles and predictions. in: *Genetics and Evolution of Cooperation* (P. Hammerstein, editor), MIT Press, Cambridge, Massachusetts, pp. 241-256.

J.L. Bronstein and P. Barbosa. (2002) Multi-trophic/multi-species mutualistic interactions: the role of non-mutualists in shaping and mediating mutualisms. Pp. 44-65 in *Multitrophic Level Interactions*. B. Hawkins and T. Tschardtke (editors), Cambridge University Press.

J.L. Bronstein (2001) Mutualisms. in: *Evolutionary Ecology: Perspectives and Synthesis* (C. Fox, D. Fairbairn, and D. Roff, editors), Oxford University Press, New York. pp. 315-330.

K.G. Murray, S. Kinsman and J.L. Bronstein. (1999) Plant/animal interactions. in: *The Natural History of a Tropical Cloud Forest* (N. Nadkarni and N. Wheelwright, editors), Oxford University Press. pp. 245-302.

J.L. Bronstein. (1992) Seed predators as mutualists: ecology and evolution of the fig/pollinator interaction. pp. 1-47 in: *Insect/Plant Interactions, Volume IV*. E.A. Bernays, editor. CRC Press, Boca Raton, Florida.

Encyclopedia entries:

J.L. Bronstein (2008) Mutualism. in: *Princeton Guide to Ecology*. Princeton University Press, Princeton, New Jersey.

J.N. Holland and J.L. Bronstein (2007) Population Biology: Mutualism. in: *Encyclopedia of Ecology*. Elsevier Press, New York.

J.L. Bronstein (2002) Mutualism. in: *McGraw-Hill Encyclopedia of Science and Technology (9th edition)*. McGraw-Hill, New York.

J.L. Bronstein (2002) Mutualism. in: *Encyclopedia of Evolution*. (M. Pagel, editor), Oxford University Press, New York.

Book Reviews and Popular Articles:

J.L. Bronstein and J.H. Ness. (2007). Friends of friends? Barrel cactus and its interacting mutualists. *The Plant Press: Arizona Native Plant Society* 31(1): 8-10.

J.L. Bronstein. (1998) Ecology and evolution of a tritrophic interaction. *Ecology*. 79: 1840-1841 (review of A. Weis and W. Abrahamson, *Evolutionary Ecology across Three Trophic Levels*)

J.L. Bronstein. (1996) Coevolution: a geographical perspective. *Bioscience* 46:58-59. (review of J.N. Thompson, *The Coevolutionary Process*)

J.L. Bronstein. (1995) An overview of symbiosis. *Ecology* 76: 1019-1020. (review of A.E. Douglas, *Symbiotic Interactions*)

J.L. Bronstein. (1995) Nocturnal pollination: yuccas and yucca moths. *Sonorensis* 15: 14-15.

Scholarly Presentations

Invited Seminar Presentations (since 1996)

2007, Kellogg Biological Station, Eminent Ecologist in Residence

2007, Department of Biology, University of Pittsburgh

2006, Ecological Sciences Cluster, National Science Foundation

2006, Department of Biology, Duke University

2006, Department of Entomology, University of Arizona

2005, Honors College, University of Arizona

2005, Department of Biology, Dartmouth College

2005, Department of Biology, University of California at Santa Cruz

2005, Haskell Indian Nations University, Kansas

2004, Department of Biology, University of Michigan

2004, Department of Biology, Vanderbilt University

2004, Department of Biology, University of Illinois, Chicago

2003, Department of Biology, Florida State University

2002, Department of Biological Sciences, Indiana University

2002, Institut de Sciences d'Evolution, University of Montpellier, France

2002, Department of Entomology, University of Arizona

2001, Department of Ethology, Stockholm University, Sweden

2001, Instituto de Ecologia, Xalapa, Veracruz, Mexico

2001, Program in Ecology, Duke University

2001, Department of Biology, University of Miami

2000, Ecole Normale Superieure, Paris, France
2000, Department of Biology, University of Oregon
2000, Department of Biology, University of Maryland
1999, Department of Biology, Stanford University
1999, Department of Biology, Vanderbilt University
1999, Center for Population Biology, University of California, Davis
1998, Department of Biology, University of Michigan
1998, Department of Biology, University of Puerto Rico
1997, Department of Zoology, Duke University: *Avon Women in Science Lecture*
1997, Department of Ecology and Evolutionary Biology, University of Arizona
1996, Interdisciplinary Program in Insect Science, University of Arizona
1996, Department of Zoology, Miami University of Ohio: *Roger Wilson Memorial Lecture*
1996, Department of Biology, New Mexico State University

Invited Symposium Presentations (since 1996)

2008, Pollination Ecology Symposium, University of Wisconsin
2007, Young Scientist Symposium, University of Michigan (plenary speaker):
 “Why Cooperate? The Ecology and Evolution of Mutualism”
2007, BioEmCo Scientific Days, Ecole Normale Superieure, Paris (keynote speaker):
 “The Dark Side of Mutualism”
2005, 11th Symposium on the Natural History of the Bahamas (keynote speaker):
 “Why Cooperate? The Ecology and Evolution of Mutualism”
2005, Ecological Society of America Organized Oral Session: Mutualists as
 Parasites: How Should We Define a Mutualism?: “For Better or Worse?
 Manduca sexta is the Major Pollinator and Major Herbivore of *Datura*
 wrightii in Arizona Deserts”
2004, Research Insights Semiarid Ecosystems Symposium: “Linking Plant and
 Insect Physiology in the *Datura/Manduca* Interaction”
2003, Entomological Society of America, Pacific Branch Symposium: Desert
 Ecology of Arthropods. “For Better or Worse? *Manduca sexta* is the Major
 Pollinator and Major Herbivore of *Datura wrightii* in Arizona Deserts”
2002, American Society of Naturalists, Vice Presidential Symposium: Mutualism
 Beyond the Pairwise Perspective. “Ecological and Evolutionary Dynamics of
 Mutualist/Exploiter Interactions”
2002, Dahlem Conference on Genetic and Cultural Evolution of Cooperation, Berlin,
 Germany: “The scope for exploitation within mutualistic interactions”
2000, Society for Integrative and Comparative Biology Symposium: Terrestrial
 Plant/Animal Interactions. “Towards a Unified View of Mutualism”
1999, Ecological Society of America Symposium: Cheating in Mutualism.
 “Conflicts, Cooperation, and Costs: Disruption and Control of Diverse
 Mutualisms”
1999, European Society of Evolutionary Biology (Barcelona, Spain) Symposium:

- Linking Ecology to Evolution: Non-equilibrium Processes and Adaptive Dynamics. "On the Evolution of Cheating in Mutualism"
- 1998, International Institute for Applied Systems Analysis (IIASA) Workshop on Evolutionary Conservation Biology: Adaptive Responses to Environmental Threats -- From Individuals to Ecosystems, Vienna, Austria. "Coevolution, coextinction, and conservation of mutualisms"
- 1998, NSF Symposium, University of Kentucky: Successful Women in Ecology and Evolution. "Combining Career and Family: Is Timing Everything?"
- 1996, Society for Ecological Restoration Symposium: Mutualism and Restoration. "Ecological Variation and the Conservation of Mutualisms" (also moderator of this symposium)

Contributed Papers at Conferences (since 2000)

- 2007, Ecological Society of America, San Jose, California (one paper, one poster)
- 2007, Society for Integrative and Comparative Biology, Phoenix, Arizona
- 2006, Ecological Society of America, Memphis, Tennessee (three papers)
- 2005, Ecological Society of America, Montreal, Quebec, Canada (four papers)
- 2005, Entomological Society of America, Fort Lauderdale, Florida
- 2004, American Institute for Biological Sciences, Washington, DC
- 2004, Ecological Society of America, Portland, Oregon
- 2003, Ecological Society of America, Savannah, Georgia
- 2003, Southwest Association of Biologists, Portal, Arizona
- 2002, Ecological Society of America, Tucson, Arizona
- 2001, Ecological Society of America, Madison, Wisconsin
- 2000, Society for the Study of Evolution, Bloomington, Indiana

Research Grants and Contracts

International:

- 2003-2006, International Arid Lands Consortium: Fleshy-fruited Plants and Frugivores in Desert Ecosystems (co-PI, 33% effort; Ido Izhaki, University of Haifa, Israel, PI; and Ran Nathan, Hebrew University, Israel, co-PI) \$100,000.
- 1998-2000, NATO International Scientific Exchange Programmes: Origin, Evolution, and Maintenance of Mutualism: Theoretical and Empirical Studies (PI, 40% effort; in collaboration with R. Ferrière, R. Law, and C. Martinez del Rio) \$8,000.
- 1993-1997, National Science Foundation International Program: Responses of the Fig-Pollinator Mutualism to Environmental Constraints (PI, 50% effort; in collaboration with Doyle McKey, University of Miami) \$19,968; matched by \$10,000 grant from CNRS, France.

1993-1994, NATO International Scientific Exchange Programmes: Comparative Studies of the Fig/Pollinator Mutualism (PI, 50% effort; in collaboration with F. Kjellberg) \$10,000.

Federal :

- 2007-2011, National Science Foundation: GK12: BioME: Biodiversity from Molecules to Ecosystems. (PI, 15% effort) ~\$2,997,000. *My name is not attached to this grant for 2007-2008 due to my appointment at NSF.*
- 2006-2008, National Science Foundation: Dissertation Improvement Grant: Ecological and evolutionary resources of symbiotic bacteria to a dynamic environment (PI, 0% effort; in collaboration with Anne Estes) \$12,000. *My name is not attached to this grant for 2007-2008 due to my appointment at NSF.*
- 2004-2006, National Science Foundation, Dissertation Improvement Grant: Altitudinal Migrations in a Tropical Frugivorous Bird. (PI, 0% effort; in collaboration with Alice Boyle) \$12,000.
- 2003-2006, National Science Foundation, Division of Environmental Biology: A Model for Species Interactions: Costs and Benefits of Linked Herbivory/Pollination in *Datura wrightii* and *Manduca sexta*. (PI, 33% effort; in collaboration with Travis Huxman and Goggy Davidowitz, University of Arizona) \$450,000.
- 2006, National Science Foundation, Division of Environmental Biology: A Model for Species Interactions: Costs and Benefits of Linked Herbivory/Pollination in *Datura wrightii* and *Manduca sexta*. REU Supplement. (PI, 33% effort; in collaboration with Travis Huxman and Goggy Davidowitz, University of Arizona) \$6,000.
- 2005, National Science Foundation, Division of Environmental Biology: A Model for Species Interactions: Costs and Benefits of Linked Herbivory/Pollination in *Datura wrightii* and *Manduca sexta*. REU Supplement. (PI, 33% effort; in collaboration with Travis Huxman and Goggy Davidowitz, University of Arizona) \$6,000.
- 2004, National Science Foundation, Division of Environmental Biology: A Model for Species Interactions: Costs and Benefits of Linked Herbivory/Pollination in *Datura wrightii* and *Manduca sexta*. REU Supplement. (PI, 33% effort; in collaboration with Travis Huxman and Goggy Davidowitz, University of Arizona) \$12,000.
- 2004-2005, National Science Foundation, Division of Environmental Biology: Collaborative Research: SGER: Post-Fire Recovery of an Obligate Pollination Mutualism. (co-PI, in collaboration with Daniel Udovic, University of Oregon) \$60,000.
- 2002, Women's International Science Consortium (AAAS/NSF) Travel Grant: Seed Dispersal in Desert Ecosystems. (PI, 100% effort) \$5000.
- 2002-2003, National Science Foundation, Dissertation Improvement Grant: Diversity, Specificity, and Dynamics of Rhizobia-Legume Associations in Canyons of the Sonoran Desert. (PI, 0% effort; in collaboration with Helene Harvey) \$10,000.
- 2001-2003: National Park Service: Dynamics of Mutualism: Linking Benefits and

- Costs to Senita Cacti with the Abundance of their Obligate Pollinators (PI, 20% effort; in collaboration with J.N. Holland) (\$150,000).
- 1999-2001: National Science Foundation, POWRE Program: Ecological and Evolutionary Dynamics of Cheating in Mutualism (PI, 100% effort) \$75,000.
- 1994-1996: National Science Foundation Ecology Program: Coevolution of Mutualism: Limits to Reproductive Success in a Fig/Pollinator Interaction (PI, 100% effort) \$30,000.
- 1991-2001, National Science Foundation Research Training Grant: The Analysis of Biological Diversification (with others; J. Lundberg, PI, 5% effort) (\$3,000,000)
- 1990-1993: National Science Foundation, Ecology Program/Research Opportunities for Women: Fig/Pollinator Interactions (PI, 100% effort) \$150,000.

State:

- 2000-2001, University of Arizona, Small Grants Program: Why Cooperate? Mutualism and Cheating in an Arizona Plant/Insect Interaction (PI, 100% effort) \$4954.
- 1991-1992, University of Arizona, Small Grants Program: Proximate Cues and the Maintenance of Specificity in an Arizona Yucca/Pollinator Mutualism (PI, 100% effort) \$5,000.
- 1989, University of Arizona, Provost's Teaching Improvement Award (co-PI, 50% effort; in collaboration with N. Moran). \$300.

Other:

- 2006-2008, National Geographic Society: Geographic variation in chili chemistry and the evolution of seed dispersal systems. (co-PI with Drs. Joshua Tewksbury, David Haak, Tomas Carlo, Carlos Manchego, and Michael Nee) \$27,120.
- 2006-2007, Center for Insect Science: Oviposition Site Choice: From Neurons to Selection. (co-PI with L. Abrell, G. Davidowitz, J. Hildebrand, T. Huxman, and J. Riffell, 20% effort) \$10,000.
- 1998-1999, Arizona-Sonora Desert Museum: Restoration of Yucca/Yucca Moth Mutualisms. (PI, 100% effort) \$2000.

Extent of Teaching

Since 2000

- 2007 ECOL 182, Introductory Biology (with Hunter and Papaj). 310 students
 ECOL 600B, Graduate Core Course: Fundamentals of Ecology. 7

- 2006 ECOL 182, Introductory Biology (with Robichaux and Papaj). 305
- 2005 ECOL 182, Introductory Biology (with Robichaux and Papaj). 320
 ECOL 600B, Graduate Core Course: Fundamentals of Ecology. 11
- 2004 ECOL 182, Introductory Biology (with Robichaux). 320
 ECOL 600B, Graduate Core Course: Fundamentals of Ecology. 13
- 2003 ECOL 182, Introductory Biology (with Maddison and Robichaux). 324
 ECOL 600B, Graduate Core Course: Fundamentals of Ecology. 6
- 2002 ECOL 182, Introductory Biology (with Maddison and Robichaux). 321
 ECOL 596, Ecology and Evolutionary Biology weekly seminar. 20
 ECOL 600B, Graduate Core Course: Fundamentals of Ecology (with
 Enquist). 7
 ECOL 600B, Graduate Core Course: Fundamentals of Ecology. 7
- 2001 ECOL 182, Introductory Biology (with Maddison and Robichaux). 301
 ECOL 596, Ecology and Evolutionary Biology weekly seminar. 20
- 2000 BIO 297S, Mutualism (Duke University). 20. *I taught this course while on
 sabbatical.*
 ECOL 596S, Mutualism. 15

Individual Student Contact

Mentoring:

1997-present, mentor for high school girls interested in job-shadowing; supported
 by Women in Science and Engineering (WISE), University of Arizona

1998, Invited participant in a student-organized, NSF-funded symposium and
 workshop entitled “Successful Women in Ecology and Evolution,” held at
 the University of Kentucky.

1997, Invited Visiting Scientist/Lecturer, Avon Women in Science Program, Duke
 University

1996-1997, Participant, NSF Model Project: “Breaking the Silences: a Faculty-
 Student Action Project for Graduate Women in Science and Mathematics”

1991-1996, Undergraduate Honors Program, Flinn Scholars Mentor for Terry
 Brncic

1992-1994, Undergraduate Honors Program, Flinn Scholars Mentor for Mary
 McLaughlin

1992-1994, Undergraduate Honors Program, Honors Mentor for Meredith Lee
1993-1994, Faculty of Science Mentor for Deanna Melles

Undergraduate Advising.

Independent Study:

2006-2007, Rebecca Ruppel, Scott Sandman, Maria Williams
2005-2006, Sarah White
2005, Brianna Horvath
2004, Kelly Mackay
2004, Rebecca Ruppel
2004, Valentina Rychka
1998-1999, Nicole Petrie
1994-1996, Jutta Holzhaus
1994, Kris Sonderegger
1994, Thomas Castagnola
1993-1994, Zac Forsman
1993, Michael Canning

Research Supervision:

2005-2006, Rebecca Ruppel, Brianna Horvath, Nicole Ferguson, Jenny Graber,
Jenny Barker, Yun Tao
2004-2005, Jim Pearson, Ben Collins, Rebecca Ruppel, Maria Williams, Sarah
Diamond, Brianna Horvath
1998, Nicole Petrie
1994-1996, Jutta Holzhaus
1995, Terry Brncic
1995, Eric Nicholas
1995, Elizabeth Nelson
1993, Zac Forsman
1993, Thomas Castagnola
1993, Shannon Al-Mutawa
1992, Chetan Patel

Honors Research Supervision:

2005-2006, Rachel Mitchell, Arvind Vijayasarathi
2001-2003, Elizabeth Losada
1995-1996, Jutta Holzhaus
1993-1994, Diane Thompson

Graduate Advising:

Major Advisor:

Ph.D., current: 6

Anne Estes (co-advisor): "Ecology and evolution of symbiotic bacteria in a dynamic

environment”

Emily Jones (co-advisor): “Evolutionary dynamics of mutualism: the role of exploitation and competition”

Michelle Lanan: “Implications of a patchily distributed plant mutualist to ant foraging behavior”

Kristen Potter (co-advisor): “Within-plant oviposition choice by *Manduca sexta*: adaptations and constraints”

Joe Deas

Brian Helm

MSc, current: 1

Alex Eaton-Mordas: “Adaptations and constraints in a group of keystone pollinators: implications for a changing world”

Ph.D., graduated: 5

Alice Boyle (co-advisor) (2006) “Causes of altitudinal bird migration and consequences for plant mutualists in a wet tropical forest” *Boyle is currently a postdoc at the University of Western Ontario.*

Jorge Schondube (co-advisor) (2003) “Flowerpiercers and hummingbirds: a comparative study of nectar feeding strategies in birds” *Schondube is currently Assistant Professor at UNAM, Morelia, Mexico.*

Jennifer Weeks (2002) “Context dependent outcomes in a butterfly-ant mutualism: the role of ant nutrition and signalling” *Weeks is currently a postdoc in the Department of Geosciences, University of Arizona.*

Margrit McIntosh (2001) “Interactions between cactus-specialist solitary bees and their host cacti” *McIntosh is currently employed by University of Arizona.*

Sarah Richardson (2000) “The effects of nectar-robbing on a plant-pollinator mutualism and the evolution of nectar-robbing and sociality in bees” *Richardson is currently an Assistant Professor at DePaul University, Chicago.*

M.Sc., graduated: 7.

Leif Richardson (1999) “Mutualist and antagonist flower visitors: a pollination study of two species of manzanita” *Richardson is currently an environmental consultant in Vermont.*

Committee Member:

Ph.D., current: 8 (Department of Ecology and Evolutionary Biology)

1 (Interdisciplinary Program in Insect Science)

1 (Plant Pathology)

1 (Department of Biology, Dartmouth College)

1 (Department of Biology, University of Miami)

Ph.D., graduated:31 (Department of Ecology and Evolutionary Biology)
1 (Department of Plant Sciences)
2 (Department of Entomology)
2 (Interdisciplinary Program in Insect Science)
1 (Dept. of Biology, University of Miami)
1 (Department of Biology, Vanderbilt University)
1 (Department of Biology, Duke University)

M.Sc., graduated:7 (Department of Ecology and Evolutionary Biology)
2 (Department of Entomology)
1 (Biology Teaching Program, University of Arizona)

External Committee Member for Students from Foreign Institutions:

University of Alberta, Canada
Université de Montpellier, France (2)
Institut Agronomique, Paris, France
Ecole Normale Supérieure, Paris, France
Rhodes University, South Africa (2)
University of Cape Town, South Africa
University of Stockholm, Sweden

Graduate Independent Studies:

I have supervised rotations through my laboratory by at least 30 EEB graduate students during my career, as well as 3 from the Department of Entomology and 1 from the Interdisciplinary Program in Insect Science.

Postdoctoral Training

2004-2007, Ruben Alarcon, PERT Fellowship (NIH): “Linking Plant-Insect Mutualistic Networks to Functional Phenotype.”

2002-2005, Joshua Ness, PERT Fellowship (NIH): “The Dynamics of a Plant/Pollinator/ Disperser Network.” *Ness is Assistant Professor at Skidmore College.*

2001-2003, J. Nathaniel Holland, National Park Service Ecological Fellowship: “Dynamics of Mutualism: Linking Benefits and Costs to Senita Cacti with the Abundance of their Obligate Pollinators.” *Holland is Assistant Professor at Rice University.*

2000-2001, Lynn Adler: “Manzanita pollination: Community dynamics and the mutualist/antagonist continuum.” *Adler is Assistant Professor at U Mass Amherst.*

1997-1999, Sandra Perez, NSF Minority Postdoctoral Research Fellowship: “The ecology of a complex mutualism: measuring the costs and benefits of a well-known cactus-microorganism-*Drosophila* interaction.” *Perez is Assistant Professor at University of Texas – El Paso.*

Development and Scholarly Activity Supporting Teaching

I served as an evaluator of University of Arizona's Undergraduate Writing Examination (UDWPE) from 1996-2002. I then served on two University committees charged with developing new assessment methods for undergraduate writing competency: the Undergraduate Writing Competency Review Committee (2001-2002) and the Tasks in Critical Thinking Subcommittee of the General Education Committee (2001).

I have recently completed a six-year term on the seven-member Committee of Advisors for Biology to the Educational Testing Service (Princeton, New Jersey). We are charged with preparing and revising the Graduate Record Examination (GRE) in Biology.

I serve as a consultant to several publishing companies, for whom I review 2-3 proposals and chapters each year for textbooks in Introductory Biology, Ecology, and Evolution.

I am Principal Investigator on a multimillion dollar proposal to NSF's GK12 program, which provides graduate teaching training through interactions with teachers and students in local K-12 schools.