

Jon Fewell Harrison

Virginia M. Ullman Professor of Ecology
School of Life Sciences
Arizona State University
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EDUCATION

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| 1982-1987 | Ph.D. Environmental, Population and Organismal Biology
University of Colorado, Boulder
Thesis Advisor: Dr. Todd T. Gleeson |
| 1978 | University of Pittsburgh, School of Medicine: Medicine |
| 1976-1978 | B.S. Biology
University of Toronto |
| 1973-1975 | Biology
University of Virginia |

MAJOR RESEARCH INTERESTS

Respiratory physiology: evolution and mechanisms
Metabolic and nutritional physiology: evolution and mechanisms
Effects of body size (scaling): evolution and mechanisms
Social insect physiology and behavior
Effects of environmental change on pollinators and other coupled human and natural systems
Environmental toxicology

PROFESSIONAL EXPERIENCE

ARIZONA STATE UNIVERSITY

2024-present	Virginia M. Ullman Professor of Ecology
2012 - 2013	Assistant Vice-President, Research Infrastructure & Facilities Office of Knowledge Enterprise Development
2010 - 2013	Director of Research Infrastructure & Facilities Office of Knowledge Enterprise Development
2011-2013	University Research Integrity Officer Arizona State University
2011-2013	Institutional Official for Animal Care Arizona State University
2005 - 2009	Associate Director of Facilities School of Life Sciences
2002 - Present	Professor School of Life Sciences
1997 - 2002	Associate Professor Department of Biology
1991 – 1997	Assistant Professor Department of Zoology

UNIVERSITY OF BRITISH COLUMBIA

1988-1990 Postdoctoral Fellow, Department of Zoology
Postdoctoral supervisor: Dr. John E. Phillips

MEMBERSHIPS IN SCIENTIFIC SOCIETIES

American Physiological Society
Entomological Society of America
International Union for the Study of Social Insects
Society for Integrative and Comparative Biology

HONORS

2025	Doctor of Science, Honoris Causa, Union College
2025-6	Stellenbosch Institute for Advanced Study Fellowship
2023	Behavioral Plasticity Research Institute Annual Meeting Plenary Speaker, College Station, TX
2022	Distinguished Arizona Physiologist Lecture, Arizona Physiological Society
2020-2025	Chair-Elect, Chair and Past-Chair, Division of Comparative Physiology and Biochemistry, Society for Integrative and Comparative Biology
2018-19	President, Arizona Physiological Society
2017	Kjell Johansen Lecture 2017, Aarhus, Denmark.
2016	August Krogh Plenary Lecture, American Physiological Society
2015	ASU Faculty Women's Association Mentor Award
2010	ASU Parent's Professor of the Year: Special Recognition
2010	ASU Graduate Mentor of the Year
2009	Selected member of Faculty of 1000 in Biology (Physiological Ecology)
2005	Elected Fellow of the American Association for the Advancement of Science
1990	The Scholander Award (Best paper by a young investigator) American Physiological Society, Orlando, FL
1989-90	Izaak Walton Killam Postdoctoral Fellowship

NATIONAL/INTERNATIONAL SCIENTIFIC OFFICES & SERVICES

Panelist, Research Evaluation of the Department of Biology, Aarhus University
2025.

Co-Editor, Annual Review of Entomology, 2024-present

Co-Editor, Ecological and Evolutionary Physiology, 2023-present

Editorial Board, Journal of Insect Physiology. 2024-present

Co-organizer (with Nicolas Pichaud and Daniel Matias Gonzalez Tokman)
symposium on Physiology of insects in a warming world: from cellular to
ecological and evolutionary responses for the 2024 meeting of the
International Congress of Entomology, Kyoto.

Co-organizer (with Caroline Williams and Lisa Dreidel) symposium on Insect
Flight for the 2024 meeting of the Society for Integrative Biology.

Member, NSF IOS grant panel, 2023

Member, USDA/AFRI grants panel, 2022

Co-organizer (with Phil Matthews) symposium on Insect Tracheal Systems for the
American Physiological Society's conference on Comparative Physiology: From
Organisms to Omics in a Changing World, 2022.

American Physiological Society Postdoctoral Fellow Program Oversight Committee
member 2022.

Co-organizer (with Karen Kapheim) symposium on Protecting Pollinators and Our
Food Supply: Understanding and Managing Threats to Pollinator Health for the
2022 Meeting of the International Union for the Study of Social Insects.

Co-organizer (with Meghan Duell) symposium on Causal Mechanisms of
Interspecific Patterns in Metabolic Scaling, selected as a Society-Level
Symposium for the Society for Integrative and Comparative Biology (SICB)
annual meeting, 2022.

Member, Organizing Committee for the 2022 Meeting of IUSSI (International Union for the Study of Social Insects)

Member, NSF IOS Review Panel, Fall 2021.

Co-organizer (with Adrian Fisher) symposium on Sublethal Effects of Agrochemicals on Pollinators, Physiology, Biochemistry and Toxicology Section of the Entomological Society of the America annual meeting, 2020

Chair-Elect and Chair, Division of Comparative and Physiological Biology Section, Society for Integrative and Comparative Biology, 2020 - 2024

Member, USDA NIFA Competitive Grants Award Panel Fall, 2019

Editorial Board Committee member, Annual Review of Entomology (2019-2023)

President, Arizona Physiological Society (2018-19)

Co-organizer (with Leslie Buck) symposium on Comparative Insights into Animal Responses to Hypoxia and Anoxia” American Physiological Society Intersociety Meeting in Comparative Physiology (held October, 2018, New Orleans).

Steering Committee Member, APS International Congress in Comparative Physiology (2014)

Co-Organizer (with Kendra Greenlee) American Society for Physiology symposium at Experimental Biology, Boston, 2015 on “Effect of Changing Climate on Insect Respiration”

Co-Organizer (with Sherry Tamone) Society for Integrative and Comparative Biology 2015 symposium and workshop on “Physiology of the Pancrustaceae”

Organizer - XXIV International Congress of Entomology Symposium: “Mechanisms of regulation of growth rate, size and shape in insects” Daegu, Korea, 2012

Program Officer - Society for Integrative and Comparative Biology: 2011-2013

Organizer and Leader - NSF-Funded Workshops:

“Variable Atmosphere Laboratory (VAL) for Climate Change Research”
February, 2008 and August, 2009

Leader - Collaborative Development Team, Advanced X-ray Imaging Facility:
Argonne National Labs
2008-2010

Chair, Organizing Committee - American Physiological Society Intersociety
Meeting: Comparative and Evolutionary Physiology 2007-
2010

Associate Editor - Physiological and Biochemical Zoology
2007 – 2023

Chair - Scholander Award Selection Committee:
American Physiological Society
2006

Program Officer - Comparative and Evolutionary Physiology
American Physiological Society
2006-2009

Organizing Committee - International Congress in Comparative Physiology
American Physiological Society
2004-2005

Panel Member - Integrative Animal Biology
National Science Foundation
2005

Co-Organizer (with S. Hetz & T. Bradley) - International Congress in Entomology
Symposium “O₂ uptake, H₂O loss and oxygen radical production: finding balance”
Brisbane, Australia, 2004

Co-Organizer (with R. Sterner) - Society for Integrative and Comparative Biology
Cross-Society Symposium “Integrated research challenges: Biological
stoichiometry from genes to ecosystems” Toronto, 2003

Panel Member - Environmental and Evolutionary Physiology
National Science Foundation,
2000, 2005

Program Officer - Division of Comparative Physiology and Biochemistry

Society for Integrative and Comparative Biology 2000-2003

Editorial Board - Physiological and Biochemical Zoology 1999-2007

Best Student Paper Judge - Division of Comparative Physiology and Biochemistry
Society for Integrative and Comparative Biology
Chicago, 2000

Scholander Award Competition Judge - Division of Comparative Physiology
American Physiological Society
San Diego, 2000

Organizer - 21st International Entomological Congress Symposium
"Spiracular mechanisms: ultrastructure and physiology" Brazil, 2000

Organizer – Society for Integrative and Comparative Biology symposium
"Responses of terrestrial invertebrates to variation in temperature and water
availability: molecular, organismal, and evolutionary approaches" Albuquerque,
1996

Guest-Editor - *Physiological Zoology*, volume 67
Symposium "Respiratory and ionic aspects of insect acid-base regulation"
1994

Co-Organizer (with J. E. Phillips) - American Society of Zoologists symposium
"Insect Acid-Base Regulation"
Vancouver, 1992

Nominating Committee - Division of Comparative Physiology and Biochemistry
American Society of Zoologists
1990-91

REVIEWER FOR

Human Frontiers Science Program
National Science Foundation
National Institute of Health
NSERC
Israeli Academy of Sciences
South African Academy of Sciences
South African Science Foundation
Acta Mechanica
Aging Cell
American Journal of Physiology
American Naturalist
Arthropod Structure &
Development
Behavioral Ecology and
Sociobiology
Bioletters
Bioscience
Canadian Entomologist
Comparative Biochemistry &
Physiology
Current Biology
Developmental Biology
Ecology
Ecology and Evolution
Ecosphere
Ecology Letters
EMBO Reports
Environmental Monitoring &
Assessment
Evolution
Experientia
Functional Ecology
Geobiology
Heredity
Insectes Sociaux

Journal of Applied
Physiology
Journal of Comparative Physiology
Journal of Experimental Biology
Journal of Experimental Zoology
Journal of Evolutionary Biology
Journal of Hazardous
Materials
Journal of Insect Behavior
Journal of Insect Physiology
Journal of Heredity
Insect Molecular Biology
Insectes Sociaux
International Journal of Insect
Morphology
Integrative and Comparative
Biology
Metabolomics
Nature
Naturwissenschaften
Pesticide Biochemistry and
Physiology
Physiological and Biochemical
Zoology
Oecologica
PLOS Biology
PLOS Genetics
PLOS One
Proceedings of the National
Academy of Sciences USA
Proceedings of the Royal Society of
London B
Respiratory Biology and
Neurobiology
Science
Scientific Reports
Trends in Ecology and
Evolution

GRANTS AND AWARDS (\$15.3M TOTAL)

- 2026-2029 National Science Foundation DMS 2602341
New mathematics for pollinator decline: from colony dynamics to sustainable agrosystems. \$468,704. (Yun Kang, PI, Co-I: Jon Harrison, Sunmi Lee, Gloria DeGrandi-Hoffman)
- 2022-2023 USDA NIFA Conference grant: synthesis and networking to improve pollinator health at IUSSI 2022. \$49,997 (Karen Kapheim PI, Co-I's Harrison, Evans, Giray, Li-Byarlay).
- 2021-2022 National Science Foundation
SICB Conference/Workshop on Causal Mechanisms of Metabolic Scaling. \$13,703 NSF IOS 2141592
- 2022-2025 USDA (NIFA) 2022-67013-36285
Climatic warming and fungicide effects on honey bees. Co-PIs: Brian Smith, Jennifer Fewell and Yun Kang. \$681,708.
- 2020-2025 National Science Foundation
Collaborative research: Brain size, metabolism and sociality in ants. IOS-1953419. \$597,872.
- 2019-2020 Defense Advanced Research Projects Agency (DARPA).
Energy-efficient neuromorphic computing in light of the structural and functional evolution of multiscale insect brains. PI: Brian Smith, Co-PI's: Ted Pavlic, Kevin Cao, Maxim Bazhenov. Phase I and II: \$1,000,000.
- 2018-2020 National Science Foundation.
Testing macronutrient imbalance as a key factor limiting range expansion in herbivores. Co-PI: Arianne Cease. IOS-1826848. \$120,000

- 2017-2022 USDA. Evaluation of the dose-response of honey bees to carboximide and strobilurine fungicides: from cellular mechanism to integrated management. USDA 2017-68004-26322. Co-PI's: Jennifer Fewell, Brian Smith, Osman Kaftangolu, Gloria DeGrandi-Hoffman. \$932,284.
- 2016-21 National Science Foundation.
Social scaling: allometry of work and metabolism in ant colonies. Co-PI's: Jennifer H. Fewell and Y. Kang. NSF IOS 1558127. \$500,000
- 2016-21 National Science Foundation
The mechanical linkage of respiration, circulation and digestion in beetles. Co-PI's: John Jake Socha and Laura Miller. NSF IOS 1558052. Total budget: \$910,00, ASU budget \$287,146.
- 2015 National Science Foundation award to the Society for Integrative and Comparative Biology. PIs: Jon Harrison and Sherry Tamone. Breaking Boundaries for Evolutionary Synthesis: An Interactive and Integrative Symposium Linking Crustacean and Insect Physiology- West Palm Beach, Florida; January, 2015. NSF IOS 1507854. \$9,900.
- 2013-2015 HHS-NIH-NIGMS Integrating physiological and genetic mechanisms of body size regulation. Postdoc fellowship to Dr. Viviane Callier. \$98,418 (declined)
- 2013-2017 National Science Foundation
SEES Fellowship: Living with locusts. Postdoc fellowship to Dr. Arianne Cease. \$339,921
- 2013-2018 National Science Foundation
CNH: Living with locusts: linking livestock markets and grazing practices with the nutritional ecology of grasses and locusts under alternative property rights regimes. Co-PI's: Arianne Cease, James Elser, Eli Fenechel, Brian Robinson, Joleen Hadrich
NSF DEB 13033608 - \$955,569
- 2013-2017 National Science Foundation
Collaborative research: Is hypoxia a critical cue for molting? Co-I: Alexander Shingleton
NSF IOS 1256745 and 1446302 - \$554,991

- 2012-2013 National Science Foundation
Research Experiences for Undergraduates
Supplement to IOS 1122157 - \$5,750
- 2012-2013 National Science Foundation
Research Experiences for Teachers
Supplement to IOS 1122157 - \$6,125
- 2012-2013 National Science Foundation
Research Experiences for High School Students
Supplement to IOS 1122157 - \$18,150
- 2011-2014 National Science Foundation
Structural and functional scaling of the respiratory system of flying
Beetles; IOS 1122157 - \$625,308
- 2011-2012 National Science Foundation
Dissertation Research: Metabolic and behavioral integration in
social insect colonies. James S. Waters and Jon F. Harrison. IOS
1110796 - \$14,078
- 2010-2012 National Science Foundation
International DDEP: Grasshopper migration in the Asian steppe:
Investigating diet as a cue for developmental polyphenism.
Arianne J. Cease, James J. Elser and Jon F. Harrison.
OISE 1026182 - \$14,988
- 2010-2014 National Science Foundation
EFRI BSBA: Complex microsystem networks inspired by internal
insect physiology NSF 0938047 - \$1,992,607 Jake Socha (VA
Tech) Jon Harrison (ASU) portion of budget: \$390,51
- 2009-2010 National Science Foundation
Workshop: Variable Atmosphere Laboratory 2 IOS-
0929344 - \$28,840
- 2008-2010 NASA Cooperative Agreement NNX08AO88G - \$87,737
Improved prediction of Africanized honeybee abundance,
distribution, and migration in the US and honeybee climate
responses using satellite-derived land-cover type phenological data
- 2007-2008 National Science Foundation
Workshop to evaluate and design a variable atmosphere laboratory

IOS 0748882 - \$13,076

2009-2011 National Science Foundation
REU supplement to NSF
EAR 0746352 - \$30,000

2008-2011 National Science Foundation EAR 0746352 - \$500,000
Atmospheric oxygen effects on the body size of fossil modern insects

2006-2011 DARPA DOD 3000654843 - \$295,133
Synthetic vertebral implant for cyborg insects
(Subcontract from University of Michigan)

2004-2009 National Science Foundation IBN 0419704 - \$633,725
Atmospheric oxygen effects on insect body size and tracheal
function

2003-2004 National Science Foundation Supplement to IBN 0419704 - \$14,000
Research Experience for Undergraduates

2002 Deutscher Akademischer Austausch Dienst \$5,000
Humboldt Universität

2002-2004 Doctoral Dissertation Improvement Grant IBN-0206678 - \$9,951
Kendra Greenlee and Jon F. Harrison. Effects of body size and development on
gas exchange.

2001-2003 Beckman Scholars Program, Beckman Foundation \$106,500
(this award funds undergraduate research in Biology, Chemistry &
Biochemistry at ASU)

2001-2003 National Science Foundation IBN-0104959 - \$10,000. Doctoral Dissertation
Improvement Grant. Scott Kirkton and Jon F. Harrison. Mechanisms and
significance of ontogenetic changes in respiratory function during insect
locomotion.

2001-2005 National Science Foundation IBN 0093410 - \$435,000. Genotypic and
phenotypic variation in foraging behavior of African and European honey bees,
Co-PI: J.H. Fewell.

- 2001-2002. National Science Foundation. Supplement to IBN 9985857 - \$10,000. Research Experience for Undergraduates
- 2000-2004 National Science Foundation, IBN 9985857. \$405,000. Body size and tracheal function
- 1999-2003 National Science Foundation. DEB 9977047. \$2,842,162. IRCEB Biological stoichiometry from genes to ecosystems. Co-I; PI James Elser.
- 1998-2000 National Science Foundation. IBN 9728444. \$150,000. Body size and tracheal function in insects.
- 1999 Arizona State University CLAS Travel Award Travel to International Union of Social Insects Meeting Adelaide, Australia - \$900.
- 1998-1999 National Science Foundation. IBN 9728444. \$20,000. Research Experience for Undergraduates Supplement.
- 1994-1998 National Science Foundation. IBN 9317784 - \$35,32. Research Experience for Undergraduates Supplement.
- 1997-1999 United States Dept of Agriculture Competitive Research Award . 97-35302-4395 - \$95,000. Mechanisms of colony growth and reproduction in African and European honey bees”. Co-PI: Jennifer H. Fewell
- 1996-1997 National Science Foundation. \$5,985. SICB Symposium: Responses of terrestrial invertebrates to variation in temperature and water availability: molecular, organismal, and evolutionary approaches.
- 1994-98 National Science Foundation. IBN 9317784. \$304,000. Insect acid-base regulation
- 1995-97 National Science Foundation. IBN-9521543 - \$9,960. Dissertation Improvement Grant Stephen P. Roberts and Jon F. Harrison
- 1991-94 National Science Foundation. DCB-9020284. \$180,519. Insect acid-base regulation

- 1994 Arizona State University CLAS Travel Award. International Union of Social Insects meeting Paris, France - \$500
- 1992-1993 National Science Foundation. DCB-9020284 - \$8,000. Research Experience for Undergraduates Supplement.
- 1992 National Science Foundation. \$6,000. SICB Symposium on Respiratory and ionic aspects of acid-base regulation in insects Vancouver, British Columbia"
- 1992 National Science Foundation. \$170,000. Analytical Laboratory for Research in Environmental Biology with N.B. Grimm, J.J. Elser, J.H. Fewell, S.G. Fisher, T.M. Markow, M.C. Moore, G. Walsberg:

INVITED LECTURES AND SYMPOSIA PRESENTATIONS (95 TOTAL)

- 2026 Stellenbosch Institute of Advanced Studies. How do insects breathe?
- Stellenbosch University, Department of Botany and Zoology. Heat effects on flying bees and their colonies
- 2025 American Physiological Society Summit, Baltimore, MD on Unlocking Adaptations: Leveraging Imaging Modalities in Experimental Physiology. Synchrotron and CT imaging reveal potential leg-localized limits to insect size.
- 2024 International Congress of Entomology, Kyoto, Japan. Honey bees in the desert: a dangerous oven or a pleasant dry heat?
- American Physiological Society Summit, Long Beach, CA. PhysioHub Plenary. The essential role of physiology in sustaining ecosystem health.
- 2023 Behavioral Plasticity Research Institute Annual Symposium Plenary speaker. Behavioral, physiological and fitness responses to environmental challenges in pollinators.
- 2022 Universität Rostock. Online Seminar Series in Biocomotion. Scaling and thermal effects on the energetics of insect flight.
- 2021 North Dakota State University, Depart of Biological Sciences. Do our current regulations protect pollinators from pesticides? A case study with a commonly-used fungicide.

- Society for Integrative and Comparative Biology on Causal Mechanisms of Metabolic Scaling (I organized the symposium, gave the introductory remarks, and was an author on one presentation).
- 2020 Western Ontario University, Department of Biology. Interactions between body size, metabolic rate and oxygen in animal physiology.
- Entomological Society of America symposium on Sublethal Effects of Agrochemicals on Pollinators (I organized this symposium, gave introductory remarks and moderated the panel discussion, and was an author on four of the presentations).
- 2019 Penn State, Department of Entomology. Challenges in assessing and interpreting insect responses to environmental stress.
- University of Arizona, Ecology and Evolutionary Biology. Why does aerobic metabolic rate scale hypometrically in animals?
- 2018 Barrett College-School of Mathematical and Natural Sciences, Arizona State University West Colloquia: Why are insects small? Aka Why can't Mothra eat Glendale?
- Hamilton College workshop on the Scaling of Defenses. Why does aerobic metabolic rate scale hypometrically?
- International Union for the Study of Social Insects symposium on Social Insect Ecophysiology: Effects of body size and air temperature on the flight physiology of stingless bees.
- Roy Weber symposium, Sandbjerg, Denmark. Why does aerobic metabolic rate scale hypometrically?
- 2017 Colloquia: Fakultät für Mathematik, Informatik und Naturwissenschaften, Universität Hamburg. "Do performance-safety trade-offs cause hypometric scaling of metabolic rate?"
- Kjell Johansen Lecture, Aarhus University, Aarhus, Denmark.
"Comparative physiology of insect tracheal systems"

- 2016 Spirit of the Hive Symposium, Tempe, AZ. Invited speaker. “Size-biased adaptations of ATP demand, not supply, cause hypometric scaling of energy use in metazoans”
- International Congress of Entomology, Orlando, FL. Invited speaker for symposium on “The Limits of Respiratory Function: External and Internal Constraints on the Insect Gas Exchange”
- The Krogh Lecture (Plenary). Experimental Biology, San Diego, CA.
- 2015 Society for Integrative and Comparative Biology, West Palm Beach, FL. Invited speaker for symposium “Breaking boundaries for evolutionary synthesis: An interactive and integrative symposium linking crustacean and insect physiology”
- Colloquia: Dept. of Zoology, Univ. of British Columbia
- Colloquia: US Arid Lands Agricultural Research Center, Maricopa, AZ
- Colloquia: Max Planck Institute for Biology of Aging, Cologne, Germany
- 2014 The International Union for the Study of Social Insects: International Congress, Cairns, Australia.
Invited speaker for symposium on “Integrative Analyses of Division of Labor”
- Colloquia: Institute of Zoology, Chinese Academy of Sciences, Beijing
- Invited symposium speaker, Dept. of Biology, Lanzhou University, China
- Colloquia: School of Mathematical and Natural Sciences, ASU West
- 2013 Colloquia: Midwestern University, Dept. of Physiology
- Invited speaker: Arizona Physiological Society
Colloquia: Texas A&M University, Dept. of Entomology
- 2012 Entomological Society of America, Knoxville, TN
Invited speaker for symposium “Global patterns of insect morphometrics”

- Entomological Society of America. Knoxville, TN. Invited speaker for symposium on “Foraging, energetics and life history-the grand connection”
- International Congress of Entomology, Daegu, Korea
Invited speaker for symposium “Mechanisms of regulation of growth, size and shape in insects”
- Colloquia: Dept. of Engineering Science, Virginia Tech
- 2011 International Hypoxia Symposium, Lake Louise, Canada.
Invited speaker
- Cornell University, Patton Lecture
- Colloquia: Colorado State University, Department of Biology
- 2010 Colloquia: University of California, Riverside, Department of Biology
- Colloquia: University of Montana, Missoula, Department of Biology
- APS Intersociety Meeting, Westminster, CO
Invited speaker for symposium “Environmental adaptations of respiratory systems”
- 2009 SICB, Boston, MA.
Invited speaker for symposium “Insect evolution”
- Colloquia: Chinese Academy of Sciences, Beijing
- Western Physiological Ecology meeting, Bishop, CA
Plenary Speaker
- Colloquia: Virginia Polytechnic University
Department of Engineering Science and Biomechanics
- 2008 Argonne National Laboratory
Invited speaker for Argonne User’s Week Science Symposium
- Colloquia: Brown University, Providence, RI
Department of Ecology and Evolutionary Biology
- Colloquia: University of Arizona State University
Department of Entomology

- Colloquia: University of New Mexico, Albuquerque, NM
Department of Biology
- Colloquia: University of San Diego, San Diego, CA
Dept. of Biology
- 2007 Geological Society of American, Denver, CO
Invited speaker for symposium “Phanerozoic oxygen”
- 2006 Society for Integrative and Comparative Biology, Orlando, FL
Invited speaker for the symposium “Ecophysiology and conservation: the contribution of energetics”
- 2005 Earth Systems Processes 2, Calgary, Alberta
Invited speaker for symposium “Phanerozoic O₂: Animals, plants and fires”

Colloquia: University of Arizona Department of Entomology
- 2004 The Abbey, Fontana, WI
Organized by Argonne National Laboratories
Invited speaker for workshop “Emerging scientific opportunities using xray imaging”

Wuerzburg, Germany
Invited speaker for workshop “Sociocomplexity and genomics in social insects”

International Congress of Entomology, Brisbane, Australia
Invited speaker for symposium “Oxygen, water and oxygen radicals in insects: Understanding the balance”

Society for Integrative and Comparative Biology, New Orleans, LA
Invited speaker for symposium “Ontogeny of physiological regulatory mechanisms”

Colloquia: University of Nevada, Las Vegas Department of Biology
- 2003 Colloquia: University of Nebraska
Department of Biology
Colloquia: University of North Texas
U Department of Biology

Colloquia: University of Arizona
Department of Entomology

- Sixth International Congress of Comparative Physiology and Biochemistry,
Mt. Buller, Australia
Invited speaker for symposium “Physiological gas exchange: strategies for
tracheal systems”
- 2002 Society for Integrative and Comparative Biology, Toronto, Canada.
Invited speaker for symposium entitled “Biological stoichiometry from
genes to ecosystems”
- Comparative Developmental Physiology Workshop, Glen Rose, TX.
Greenlee, K. and J.F. Harrison.
Ontogeny of the hypoxia response in insects
- Colloquia: Dept. of Animal Physiology, Universitat Humboldt, Berlin
- 2001 University of Würzburg
Department Zoologie
- Center for Insect Science Hexapodium Plenary Presentation
- Society for Experimental Biology, Canturbury, U.K
Invited speaker for symposium "Locomotion and energetics of animals"
- Colloquia: University of California, Riverside
Department of Entomology
- American Physiological Society, San Diego
Invited speaker for symposium "Teaching physiology in the 21st century”
- 2000 Society for Integrative and Comparative Biology
Invited speaker for symposium "Epithelial transport in insects"
- International Congress of Entomology, Iguazzu Falls, Brazil
Invited speaker for symposium “Insect flight”
- International Congress of Entomology, Iguazzu Falls, Brazil
Invited speaker for symposium “Spiracular mechanisms: Ultrastructure and
physiology”
- 1999 Arizona State University, West
Dept. of Life Sciences
- 1998 University of Kansas
Department of Entomology
- University of Arizona

- Department of Ecology and Evolutionary Biology
- 1997 University of Arizona
Department of Entomology
- Penn State University
Department of Biology
- Ohio University
Department of Biology
- 1996 University of New Mexico, Albuquerque NM
Department of Biology
- University of California, Irvine
Department of Ecology and Evolutionary Biology
- Society for Integrative and Comparative Biology, Albuquerque, NM
Invited speaker for symposium “Responses of terrestrial invertebrates to variation in temperature and water availability: molecular, organismal and evolutionary approaches”
- 1995 Comparative Section, American Physiological Society,
Experimental Biology, Atlanta, GA.
The "Scholander Lecture"
- American Society of Zoologists, Washington, DC
Invited speaker for symposium "Comparative aspects of control of arterial blood gases: Ventilatory and cardiovascular perspectives"
- 1994 USDA W-180 African Honeybee Conference, Tucson, AZ
- 1993 University of Montana, Missoula, MT
- 1992 University of Arizona School of Medicine,
Department of Physiology
- Dartmouth College Hanover, NH
American Society of Zoologists, Vancouver, B.C.
Invited speaker for symposium “Insect acid-base regulation”
- 1991 Center for Insect Science, Tucson, AZ
- 1990 Arizona State University, Tempe, AZ
- San Diego State University, San Diego, CA

Cleveland State University, Cleveland, OH

1989 University of Utah, Salt Lake City, UT

University of North Carolina, Charlotte, NC

1988 University of British Columbia, Vancouver, BC1987

Colorado State University, Fort Collins, CO

University of California, Irvine, CA

University of British Columbia, Vancouver, BC

Wright State University, School of Medicine, Dayton, OH

MEETING PRESENTATIONS (318 TOTAL; most recent three years shown)

2025 Zombie Apocalypse Medicine Meeting, Eureka Springs, AK. Giant man-eating zombie insects.

Entomological Society of America, Portland, OR. Harrison, J.F., J. Chen, J. Glass, C. Ozturk, B. Smith, G. DeGrandi-Hoffman, Y. Kang, B. Sorensen, D. Rothweil and A. Fisher. Colonial thermoregulation and its limits during heat waves for honey bees.

International Symposium on the Environmental Physiology of Ectotherms and Plants. Vancouver, British Columbia. Harrison, J.F., J. Chen, A. Fisher, C. Ozturk, J. Glass, Y. Raka, B. Smith, J. Fewell, G. Degrandi-Hoffman and Y. Kang. Negative effects of heat waves on colony thermoregulation and population dynamics in honey bees.

2024 Entomological Society of America, Phoenix, AZ. Harrison, J.F., A.L. Fisher II, J.R. Glass, C. Ozturk, J. Chen, J.H. Fewell, B.H. Smith, Y. Kang, and G. DeGrandi-Hoffman. Thermoregulatory failure during heat stress of honey bee (*Apis mellifera*) colonies.

Entomological Society of America, Phoenix, AZ. Millerwise, S., A. Varsani, M. De Koch, C. Brennan, A.M.C. Mechti, V.A.P. Santana, H.J.C. Tun, M.P. Pech, J.F. Harrison and A.J. Cease. Effect of population density and locust phase on viruses associated with Central American locusts, *Schistocerca piceifrons*.

Entomological Society of America, Phoenix, AZ. Lichaa, T., S.M. Tahir, S.T. Jaronski, J.F. Harrison and A.J. Cease. Time course of Pro/PO activity in desert locusts, *Schistocerca gregaria*, infected with fungal *Metarhizium* biopesticide.

Entomological Society of America, Phoenix, AZ. Tahir, S.M., T. Lichaa, J.F. Harrison, R. Shniderman, R. Overson, S.T. Jaronski and A.J. Cease. High protein diet increases susceptibility of desert locust, *Schistocerca gregaria*, to *Metarhizium* biopesticide infection.

Entomological Society of America, Phoenix, AZ. Smalley, R., J.F. Harrison and A.L. Fisher II. The effects of a fungicide on honey bee queen egg laying rates.

Entomological Society of America, Phoenix, AZ. Chen, J., A.L. Fisher II, C. Ozturk, J.H. Fewell, B.H. Smith, G. DeGrandi-Hoffman, Y. Kang and J.F. Harrison. Thermoregulation and population dynamics in honey bees under heat stress.

International Congress of Entomology, Kyoto, Japan. Harrison, J.F., A. FisherII, J.R. Glass, J. Chen, Y. Raka, N.S. Desjardins, C. Ozturk, C.E. Little, K. Chahal, K. Overcash, K. Maxwell, S.A. Combs, N.P. Burnett, J.H. Fewell, B.H. Smith, Y. Kang, and G. DeGrandi-Hoffman. Honey bees in the desert summer: a comfortable dry heat or a deadly oven?

International Congress of Entomology, Kyoto, Japan. Johnson, M.R., M. Barrett and J.F. Harrison. Solar radiation alters heat balance and thermoregulation in a flying desert bee.

International Congress of Entomology, Kyoto, Japan. Fisher, A. II, J. Chen, C. Ozturk, K. Maxwell, K. Overcash, K. Chahal, C. Little, N. Keller, Y. Kang, J.R. Glass, N. Desjardins, G. DeGrandi-Hoffman, B.H. Smith, J.H. Fewell and J. F. Harrison. Honey bee (*Apis mellifera*) colony size affects response to climatic variation.

American Physiological Society Summit, Long Beach, CA. C. Perl, J. Haas, R. Johnson, J.R. Glass and J.F. Harrison. Tissue dependence of resting metabolic rate in harvester ants.

Society for Integrative and Comparative Biology, Seattle, WA. Harrison, J.F.C. Perl, R. Johnson, J. Haas, M. Johnson and L. Graber. Effect of body size and social complexity on body and brain metabolic rates of *Pogonomyrmex* ants.

Society for Integrative and Comparative Biology, Seattle, WA. Talal, S., J.F. Harrison, R. Farrington, J. Youngblood, H. Medina, R. Overson and A.J. Cease. Body mass and growth rates predict protein intake across animals.

Society for Integrative and Comparative Biology, Seattle, WA. Talal, S., G. Osgood, P. Pulver, J. F. Harrison, and A. J. Cease. Daily consumption is not sufficient to fuel energy for repeated days of locust flight.

Society for Integrative and Comparative Biology, Seattle, WA. Glass, J.R., N.P. Burnett, S.A. Combes, E. Weisman, A. Helbing and J.F. Harrison. Hot bees adjust wing kinematics to conserve water and improve heat tolerance when lifting loads.

2023 Society for Integrative and Comparative Biology, Austin, TX. M. Johnson and J.F. Harrison. Which abiotic factor limits the flight activity of the Sonoran desert digger bee?

Society for Integrative and Comparative Biology, Austin, TX. A.L. Fisher II, J.R. Glass, N. Desjardines, C. Ozturk, Y.P. Raka, K. Chahal, G. DeGrandiHoffman, B.H. Smith, J.H. Fewell and J.F. Harrison. The impact of a widely used fungicide on honey bee (*Apis mellifera*) health.

Society for Integrative and Comparative Biology, Austin, TX. Glass, J.R. and J.F. Harrison. Hot bees lift loads without warming or increasing metabolic rate.

Society for Integrative and Comparative Biology, Austin, TX. Raka, Y.P., T. Fox and J.F. Harrison. Mesocosm approach to understanding the poleward expansion of the Zika-carrying *Aedes aegypti*.

Society for Integrative and Comparative Biology, Austin, TX. Pearl, C., J.F. Haas and J.F. Harrison. Causal mechanisms for variation in resting metabolic rates.

Entomological Society of America, Washington DC. Glass, J.R., N.P. Burnett, S.A. Combes, E. Weisman, A. Helbing and J.F. Harrison. Hot bees adjust wing kinematics to conserve water and improve heat tolerance when lifting loads.

2022 Entomological Society of America, Vancouver, B.C. Cease, A, S. Talal, C. Aunmolpreet, G. Osgood, J. Broseman, S. Millerwise and J.F. Harrison. Generalist insect herbivore regulates carbohydrate and lipid intake to increase the efficiency of migratory fuel accumulation.

Entomological Society of America, Vancouver, B.C. Glass, J.R. and J.F. Harrison. Predicting the effects of heat waves on honey bee foraging.

Entomological Society of America, Vancouver, B.C. Millerwise, S., S. Talal, P. Pulver, E. Goethe, G. Osgood, R. Overton, E. Cossey and J.F. Harrison. Dietary macronutrient balance affects reproductive performance across locust lifespans.

Entomological Society of America, Vancouver, B.C. Desjardines, N., A. Fisher, J.F. Harrison and B.H. Smith. Fungicide exposure reduces learning performance and homing ability in honey bees (*Apis mellifera*).

Entomological Society of America, Vancouver, B.C. J.H. Fewell, X. Guo, C. Lynch, M. Ostwald and J.F. Harrison. Metabolic scaling and early colony growth in harvester ants.

Entomological Society of America, Vancouver, B.C. J.F. Harrison, A.L. Fisher II, M.R. Berenbaum, J.D. Crall, J.C. Nieh, H. Siviter, R. Tadei, F. Muth, L.H. Liao and J.R. Glass. Breaking the cycle: reforming pesticide regulations to protect pollinators.

Entomological Society of America, Vancouver, B.C. Fisher, A.L. II, J.R. Glass, N.S. Desjardines, C. Ozturk, G. DeGrandi-Hoffman, B.H. Smith, J.H. Fewell and J.F. Harrison. The impact of a widely used fungicide on honey bee (*Apis mellifera*) health.

Comparative Physiology: From Organisms to Omics in an Uncertain World. San Diego, CA. Pearl, C. and J.F. Harrison. Causal mechanisms of variation in resting metabolic rate.

Comparative Physiology: From Organisms to Omics in an Uncertain World. San Diego, CA. Glass, J.R. and J.F. Harrison. Evaporative cooling and increased load-lifting efficiency allows nectar-foraging honey bees to break the thermal performance curve barrier.

Comparative Physiology: From Organisms to Omics in an Uncertain World. San Diego, CA. Johnson, M., J.R. Glass and J.F. Harrison. Is heat or desiccation the major challenge for small desert animals?

Comparative Physiology: From Organisms to Omics in an Uncertain World. San Diego, CA. Harrison, J.F., T. Fox, Y. Raka and J.J. Socha. Unidirectional airflow can rapidly flush the tracheal system of the darkling beetle, *Zophobas morio*.

9th International Symposium on the Environmental Physiology of Ectotherm and Plants, Rennes, France. Glass, J.R. and J.F. Harrison. Evaporative cooling and reducing heat production allows honey bees to beat the heat when nectar foraging.

International Union for the Study of Social Insects meeting, San Diego. Harrison, J.F., Gou, X, Ostwald, M., Clark, R., Fox, T., Waters, J. and J.H. Fewell. Behavioral and physiological mechanisms for economies of scale in ant colonies.

International Union for the Study of Social Insects meeting, San Diego. Glass, J.R. and J.F. Harrison. Evaporative cooling and reducing heat production allow honey bees to beat the heat when nectar foraging.

International Union for the Study of Social Insects meeting, San Diego. Johnson, M.D. and J.F. Harrison. The natural air conditioning of a desert bee in a changing climate.

International Union for the Study of Social Insects meeting, San Diego. Desjardines, N.S, Ozturk, C., Fisher, A. III, Harrison, J.F. and B.H. Smith. Fungicide exposure reduces learning performance and homing ability in honey bees.

International Union for the Study of Social Insects meeting, San Diego. Fisher, A. II, Ozturk, C., Smith, B.H., Fewell, J.H. and J.F. Harrison. A widely used mito-toxic fungicide affects honey bee (*Apis mellifera*) hemolymph protein levels and ontogeny.

International Union for the Study of Social Insects meeting, San Diego. Perl, C. and J.F. Harrison. Social complexity and brain metabolic rate of harvester ants.

Society for Integrative and Comparative Biology. Phoenix, AZ. Glass, J.R. and J.F. Harrison. Effects of air temperature and pesticides on the maximal flight capacities of the honey bee, *Apis mellifera*.

Society for Integrative and Comparative Biology. Phoenix, AZ. Millerwise, S.M., Talal, S., Harrison, J.F., Eapen, C. and A. Cease. The effect of macronutrient consumption on reproductive performance in locusts.

Society for Integrative and Comparative Biology. Phoenix, AZ. Osgood, G.M., Talal, S., Millerwise, S., Overson, R., Harrison, J.F. and A. Cease. Migratory locusts increase carbohydrate but not protein consumption during simulated migration.

Society for Integrative and Comparative Biology. Phoenix, AZ. Harrison, J.F. and M.E. Duell. Introduction to the symposium: causal mechanisms of metabolic scaling.

Society for Integrative and Comparative Biology. Phoenix, AZ. Duell, M. and J.F. Harrison. The role of body size and temperature in flight metabolic rate scaling among flying insects.

Society for Integrative and Comparative Biology. Phoenix, AZ. Coto, Z., Muratore, I., Fandozzi, E., Azorsa, F., Waters, J., Harrison, J.F., Perl, C., Kamhi, J.F., Muscedere, M. and J.F.A. Traniello. Body size, social complexity and brain metabolic scaling in ants.

Society for Integrative and Comparative Biology. Phoenix, AZ. Somjee, U.S., Powell, E.C., Harrison, J.F., Hickey, A.J. and C. Painting. The metabolic costs of exaggerated sexually selected traits.

Society for Integrative and Comparative Biology. Phoenix, AZ. Raka, Y., Fisher, A., DeGrandi-Hoffman, G., Ozurk, C., Smith, B., Fewell, J. and J.F.

Harrison. The effect of a widely-used mitotoxic fungicide on colony growth in honey bees.

Society for Integrative and Comparative Biology. Phoenix, AZ. Parmar, S., Talal, S., Overson, R., Harrison, J.F. and A. Cease. Effect of macronutrients on migratory locust (*Locusta migratoria*) flight performance.

Society for Integrative and Comparative Biology. Phoenix, AZ. Desjardines, N.S., Fisher, A., Harrison, J.F. and B.H. Smith. The effects of a common agricultural fungicide on homing ability in honey bees (*Apis mellifera*).

Society for Integrative and Comparative Biology. Phoenix, AZ. Fisher II, A., Ozturk, C., Glass, J.R., Desjardines, N., DeGrandi-Hoffman, G., Smith, B.H., Fewell, J.H. and J.F. Harrison. Seasonal variability in physiology and behavior affect the impact of fungicide exposure on honey bee (*Apis mellifera*) health.

Society for Integrative and Comparative Biology. Phoenix, AZ. Johnson, M., Glass, J.R., Alvarez, K. and J.F. Harrison. How to fly at highly variable temperatures when your genes depend on it.

CLASSROOM AND ONLINE TEACHING

2026, Spring On sabbatical

2025, Fall On sabbatical

2025, Spring Developed Online Comparative Physiology class

2024, Fall Online Bio 360 (Animal Physiology, 3 credits, enrollment 282)

2024, Spring No teaching, chair of APR committee

2023, Fall Online Bio 360 (Animal Physiology, 3 credits, enrollment 245)
Online Bio 361 (Animal Physiology Lab, 2 credits, enrollment 118)

2023, Spring Bio 498/591, Insect Physiology, enrollment 14

2022, Fall Online Bio 360 (Animal Physiology, 3 credits, enrollment 222)
Online Bio 361 (Animal Physiology Lab, 2 credits, enrollment 99)

2022, Spring Excused from teaching due to double-load in Fall, 2021

2021, Fall Bio 360 (Animal Physiology, 3 credits, enrollment 260)
 ANB 602 (Animal Behavior graduate seminar, 1 credit, enrollment 7,
 co-taught with Brian Smith)

2021, Spring Online Bio 360 (Animal Physiology, 3 credits, enrollment 160) and
 Online Bio 361 (Animal Physiology lab, 2 credits, enrollment 100)

2020, Fall Bio 591, Insect Physiology (3 credits, enrollment 11)

2020, Summer Online Bio 361, Animal Physiology Lab, 2 credits, enrollment 90

2020, Spring Online Bio 360 (Animal Physiology, 3 credits, enrollment 150) and
 Online Bio 361 (Animal Physiology lab, 2 credits, enrollment 100)

2019, Fall Online Bio 360, Animal Physiology, 3 credits, enrollment 94

2019, Spring Online Bio 360, Animal Physiology, 3 credits, enrollment 73

2019, Summer Online Bio 361, Animal Physiology Lab, 2 credits, enrollment 90
 Bio 494, Tropical Biology in Panama, 4 credits, enrollment 15

2018 Developed online Bio 360, Animal Physiology, 3 credits, and online
 Bio 361, Animal Physiology Lab, 2 credits for rollout in 2019.

2018, Fall Bio 494, Insect Physiology, 3 credits, enrollment 10

2018, Summer Bio 494, Tropical Biology in Panama, 4 credits, enrollment 8

2017, Fall Bio 385, Invertebrate Zoology, 4 credits, enrollment 46
 Bio 602, Current Issues in Behavior, 1 credit, enrollment 4
 Bio 189, Mentor Seminar, recitation, enrollment 19

2017, Spring Bio 360, Animal Physiology, 3 credits, enrollment 234
 Bio 361, Animal Physiology lab, 2 credits, enrollment 64

2016, Fall Bio 394, Honor's section for Bio 360, 1 credit, enrollment 16

2016, Spring Bio 385, Invertebrate Zoology, 4 credits (with lab), enrollment 68

2016, Summer	Bio 494, Tropical Biology in Panama, 6 credits, enrollment 12
2015, Fall	Bio 460 – Comparative Physiology, enrollment 77 Bio 591 – Insect Physiology, enrollment 10 Bio 189 – Life Science Career Paths, enrollment 20
2015, Summer	Bio 494, Tropical Biology in Panama, enrollment 16
2014, Fall	Bio 460 Comparative Physiology, enrollment 32 Bio 591, Environmental Life Sciences, enrollment 7
2014, Spring	Bio 460 – Comparative Physiology, enrollment 30 Bio 591-Seminar in Evolutionary Physiology, enrollment 12
2013, Fall	Bio 591 – Insect Physiology, enrollment 10
2012, Fall	ANB 602 -Animal Behavior Seminar, enrollment 9
2011, Fall	Biology 189 - Life Science Career Paths, enrollment 17
2010, Fall	Biology 461 - Comparative Animal Physiology, enrollment 34
2008, Fall	Biology 202 - Human Anatomy and Physiology Approximate Enrollment 280 (supervised 7 TA's)
2008, Fall	Biology 591 - Seminar in Environmental Life Sciences Enrollment 20
2007, Fall	Biology 361 - Animal Physiology Lab Approximate enrollment 32, supervised 2 TA's
2006, Spring	Bio 591 - Seminar in Ecological/Evolutionary Physiology of Insects enrollment 8
2006, Fall	Biology 560 -Comparative Animal Physiology, enrollment 8
2005, Spring	Biology 360 - Animal Physiology Approximate enrollment 170 Biology 360 - Animal Physiology, enrollment 100 Bio 361 - Animal Physiology Lab: enrollment 64 Bio 591 - Seminar in Insect Physiology: enrollment 9

2004, Spring	Bio 360 - Animal Physiology, enrollment 160 Bio 361 - Animal Physiology Lab, enrollment 32 (supervised 2 TA's)
2004, Fall	Bio 591 - Oxygen Radicals and Oxidative Stress, enrollment 7
2003, Spring	Bio 188 - General Biology (with J. Wilson-Rawls) Approximate enrollment 350 (supervised 8 TAs)
2003, Fall	Bio 560 - Comparative Physiology, enrollment 13
2002, Spring	Bio 360 - Animal Physiology, enrollment: 112 Bio 494 - Writing Seminar for Beckman Fellows Enrollment 6
2001, Fall	Bio 360 - Animal Physiology (with M. Moore) Approximate enrollment: 70 (supervised 4 TAs)
2001, Fall	Bio 591 - Seminar in Comparative Animal Physiology Enrollment: 6
2000, Spring	Bio 182 - General Biology (with Dr. Fewell) Approximate enrollment: 250 (supervised 5 TAs)
2000, Spring	Bio 598 - Cellular and Organismal Responses to Stress (with Drs. Orchinik and Deviche) Approximate enrollment: 12
2000, Fall	Bio 201 - Human Anatomy & Physiology (with R. Satterlie) Approximate enrollment: 150, supervised 3 TAs
1999, Spring	Biology 182 - General Biology (co-taught with J. Fewell) Approximate enrollment: 250 (supervised 6 TAs)
1999, Fall	Zoology 591 - Seminar in Animal Design and Function Bio 360 - Animal Physiology Approximate enrollment: 120 (supervised 4 TAs)
1998, Spring	Bio 591 - Seminar in Biochemical Adaptation Bio 591 - Seminar in Animal Design and Function Zoology 598 - Comparative and Environmental Physiology (co-taught with G. Walsberg)

	Approximate enrollment: 10
	Zoology 591 - Seminar in Animal Design and Function
1998, Fall	Biology 360 - Basic Physiology Approximate enrollment: 120 (supervised 4 TAs)
	Zoology 591 - Seminar in Animal Design and Function
1997, Spring	Zoology 560 -Comparative Physiology Approximate enrollment: 12
1997, Fall	Zoology 202 - Human Anatomy and Physiology Approximate enrollment: 150 (supervised 3 TAs)
	Zoology 494 - Advanced Human Anatomy and Physiology
	Zoology 591 - Seminar in Organismal Biology (with J. Fewell)
1996, Fall	Zoology 202 - Human Anatomy and Physiology
	Zoology 494 - Advanced Human Anatomy and Physiology
1995, Fall	Zoology 360 - General Physiology
	Zoology 591 - General Principles and Current Topics in Insect Physiology
1994, Spring	Zoology 202 - Human Anatomy and Physiology
	Zoology 494 - Advanced Human Anatomy and Physiology
1994, Fall	Zoology 560 - Comparative Physiology
1993, Spring	Zoology 202 - Human Anatomy and Physiology
	Zoology 494 - Advanced Human Anatomy and Physiology
1993, Fall	Zoology 202 - Human Anatomy and Physiology
	Zoology 494 - Advanced Human Anatomy and Physiology Seminar: Zoology 591 - Elements in Individuals and Ecosystems
1992, Spring	Zoology 202 - Human Anatomy and Physiology
1992, Summer	Zoology 202 - Human Anatomy and Physiology

1992, Fall Zoology 560 - Comparative Physiology
 Zoology 494 - Advanced Human Anatomy and Physiology
1991, Spring Zoology 202 - Human Anatomy and Physiology
1991, Summer Zoology 202 - Human Anatomy and Physiology

DEPARTMENT AND UNIVERSITY SERVICES

2024 – 2025	Member, SOLS Undergraduate Program Committee Member, ASU Instrument Design and Fabrication Committee
2023 – 2024	Chair, SOLS Academic Program Review Committee Member, SOLS Undergraduate Program Committee Member, ASU Instrument Design and Fabrication Committee Member, Search Committee for the Director of the School of Applied Sciences and Arts
2022–2023	Chair, STRI-ASU Initiative Member, SOLS Undergraduate Program Committee Member, ASU Instrument Design and Fabrication Governance Committee Member, Search committee for the Director of the School of Applied Sciences and Arts Member, ASU’s Higher Learning Commission Institutional Accreditation Committee
2021 -2022	Substitute CLAS Associate Dean for Facilities (2 months) Chair, STRI-ASU Initiative Member, SOLS Undergraduate Program Committee Chair, Physiology Instructor Search Committee Chair, Physiology Lecturer Search Committee
2020-2021	Chair, Physiology Instructor Search Committee Co-chair, NACE Competencies Mapping Committee Chair, STRI-ASU Initiative Member, SOLS Biology Graduate Program Committee Member, SOLS Undergraduate Program Committee Member, SOLS Education Retreat Planning Committee Member, Medical Biosciences M.Sc. Degree Committee
2019-2020	Co-Chair, Inclusive Biology Education Faculty Search Chair, STRI-ASU Initiative Member, SOLS Biology Graduate Program Committee Member, SOLS Undergraduate Programs Committee Member, SOLS BioCore Committee

2018-19	Chair, STRI-ASU Initiative Member, SOLS Undergraduate Programs Committee Member, SOLS Biospine Committee
2017-18	SOLS Director Search Committee University Research and Creative Activities Committee University Faculty Mentoring Award Selection Committee
2015-18	Chair, ASU-STRI Cooperative Initiative Biology graduate program committee
2015-16	ASU Research and Creative Activities committee
2014-15	Chair, Search Committee for SOLS Director SOLS Research and Training Initiative Committee Biology graduate program committee
2011-2013	Director of Research Facilities and Infrastructure, Office of Knowledge Enterprise Development, ASU (75% appointment) Assistant Vice-President for Research, Office of Knowledge Enterprise Development (OKED, 75% appointment) Institutional Official for Animal Care Co-Chair of EH&S Policy Committee Research Integrity Officer Faculty Participant, Federal Demonstration Project
2010-2011	Director of Research Facilities and Infrastructure, Office of Knowledge Enterprise Development, ASU (50% appointment)
2009-2010	Sabbatical
2008-2009	Associate Director for Facilities, School of Life Sciences Safety committee (member, supervisor) Insect Science Center Executive Committee Organizing Committee, Environmental Life Sciences Ph.D. program

2007-2008	Associate Director for Facilities, School of Life Sciences Safety committee (member) Insect Science Center Executive Committee
2006-2007	Associate Director for Facilities, School of Life Sciences Safety Committee (chair during fall, 2006, member in spring 07) Chair, Graduate Programs Associate Director Search Committee Insect Science Center Executive Committee
2005-2006	Associate Director for Facilities, School of Life Sciences Safety Committee (ex-officio) AP Personnel committee Physiology Curriculum Committee Insect Science Center Executive Committee
2004-2005	Insect Science Center Executive Committee Initiative Programs Committee Member, elected Chair, Honey Bee Reproductive Physiology Search Committee ISTB-1 Ad Hoc Building Committee OISB Hiring Proposal Ad-Hoc Committee
2003-2004	Insect Science Center Executive Committee Initiative Programs Committee Member Elected Evolutionary and Systems Biology committee Member SOLS Director Search Committee Member Elected, Affirmative Action Officer Physiology Lecturer Search Committee Member
2002-2003	Sabbatical Exercise Science Executive Committee Insect Science Center Executive Committee Chair, Search Committee for Anatomy and Physiology Lab Coordinator
2001-2002	Chair, Search Committee for Director of Interdisciplinary Ph.D. Program in Exercise Science Exercise Science Executive Committee Insect Science Center Executive Committee Chair, Beckman Scholar Steering Committee Life Sciences Reorganization Committee
2000-2001	Advisory Committee (elected) Graduate Committee

	Exercise Science Executive Committee Insect Science Center Executive Committee Wrote Beckman Foundation grant for undergraduate research Chair, Beckman Scholar Steering Committee
1999-2000	Advisory Committee (elected) Exercise Science Executive Committee Insect Science Center Executive Committee Chair, Biology Department Seminar Committee wrote Beckman Foundation grant for undergraduate research
1998-99	Personnel Committee (elected) Exercise Science Executive Committee wrote Beckman Foundation grant for undergraduate research (grant declined)
1997-1998	Chair, Search Committee, Environmental or Evolutionary Physiologist Advisory Committee (elected)
1996-1997	Advisory Committee (elected) Graduate Committee
1995-1996	Advisory Committee (elected) Graduate Committee Search Committee, Theoretical Ecologist (affirmative action officer)
1994-1995	Advisory Committee (elected) Graduate Committee Search Committee, Integrative Biologist (affirmative action officer)
1993-1994	Advisory Committee (elected) Graduate Committee
1992-1993	Advisory Committee (elected) Graduate Committee Organizer: Physiology Discussion Group, Spring 1992
1991	Co-Chair, Seminar Committee

MENTORING

Past Postdoctoral Fellows (from most recent to earliest):

Jun Chen, Ph.D. 2023, Arizona State University, currently Assistant Professor, University of Texas, Kingsville.

Stav Talal. (Ph.D. 2018, Tel Aviv University, BARD fellowship). Currently scientist at Intel.

Craig Perl (Ph.D. 2018, University of Sussex, currently Postdoctoral Research Fellow, Dept. of Biology, Indiana University Indianapolis and Visiting Researcher, Institute of Aquaculture, University of Stirling)

Adrian Fisher, II. (Ph.D. 2017, Texas A&M University, currently Assistant Professor, School of Life Sciences, Arizona State University).

Megan Garlapow (Ph.D., 2015, North Carolina State University, currently Principal and Owner, The Line Medical Communications, LLC).

C. Jaco Klok (Ph.D., 1999, University of Pretoria). Currently Senior Research and Applications Scientists at Sable Systems International.

Viviane Callier, Ph.D. 2011, Duke University, currently biostatistician at the Biostatistics Research Branch, NIAID (NIH).

John VandenBrooks, Ph.D. 2006, Yale University, currently Professor at Arizona State University.

H. Arthur Woods, Ph.D., 1998, Univ. of Washington, Emeritus Professor, Univ. of Montana, Missoula.

Patricia Ashby, Ph.D. 1987, Univ. of New Mexico, currently Associate Professor, Scottsdale Community College (Summer 1997)

Matriculated Graduate Students:

Mehreen Tahir, Ph.D. August, 2026 (co-advised with Arianne Cease). Currently Invent@SC Postdoctoral Fellow at Seattle Children's Hospital.

Nicole Desjardins, Ph.D. May 2023 (co-advised with Brian Smith). Currently NSF Postdoctoral Fellow at the Univ. of Wisconsin.

Meredith Johnson, Ph.D. August 2023. Currently postdoctoral fellow at North Dakota State University.

Jordan Glass, Ph.D. May 2023. Currently postdoctoral fellow at University of Wyoming.

Trevor Fox, Ph.D. May 2021. Environmental Scientist, Sacramento-San Joaquin Delta Conservancy (State of California)

Jacob Campbell, Ph.D. August 2018. Currently Scientist, Global R&D, mRNA Development for Aldevron Inc.

Meghan Duell, Ph.D. December 2018. Program manager, Couchiching Conservancy, Ontario, Canada.

James Sargent, M.Sc. May 2019. Research Scientist, 28Gorilla, Chandler, AZ.

Arianne Cease, Ph.D. May 2012, NSF DDEP award, postdoctoral fellowship at the University of Sidney, currently Associate Professor, School of Sustainability, ASU (Popular Science Brilliant 10, 2015)

James S. Waters, Ph.D. Dec., 2012, NSF, Predoctoral Fellowship Award, NSF Doctoral Dissertation Improvement Grant, James S. McDonnell Postdoctoral Fellow in Complexity Science at Princeton University; currently Associate Professor at Providence College.

Joanna Henry, M.Sc. August 2011, currently lab coordinator, School of Life Sciences, ASU.

Manoush Farzin, M.Sc. 2010, DDS from Midwestern University School of Dentistry, Chicago, 2018.

Sydella Blatch, Ph.D. May 2008, NSF Predoctoral Award, PDF at NIH, Bethesda; Program Director, National Institutes of Health.

Brenda Rascón, M.Sc. Dec. 2007, Regulatory Affairs Manager, Cinfa Biotech, Biosimilars.

Kendra Greenlee, Ph.D. May 2004, NSF Doctoral Dissertation Improvement Grant, EPA Star Award, currently Professor, North Dakota State, Fargo.

Scott Kirkton, Ph.D. May 2004, NSF Doctoral Dissertation Improvement Grant, Best Student Paper, Society for Experimental Biology 2002, Best Student Paper, SICB 2003; NIH PDF at Scripps Research Institute, San Diego, currently Associate Professor, Union College

Marc Perkins, M.Sc. 2001, currently Professor, Orange County Community College

Melanie Frazier, M.Sc. 2000, Staff Scientist at the National Center for Ecological Analysis and Synthesis (Ocean Health Index), Santa Barbara, CA.

Steven Roberts, Ph.D. May, 1998, Outstanding Graduate of the College of Liberal Arts and Sciences, currently Vice-Provost, Dean and Professor, Missouri University of Science and Technology, Rolla.

Current Ph.D. Students:

Sydney Millerwise (co-advised with Arianne Cease)

Graduate Committee Service: Student in the Dept. of Zoology/Biology or School of Life Sciences, Arizona State University unless otherwise indicated:

Past:

Khalid Adjerid (Virginia Tech), Kirk Anderson, Salvatore Anzaldo, Patricia Ashby (Univ. of New Mexico), Susan Bertram, Ioulea Bespalova, Jason Borchert, Andrew Burchill, Jake Brashears, Chris Breitmeyer, Michael Bizeau, Michael Black, Christina Burden, Jun Chen, Rebecca Clark, Zach Coto (Boston Univ.), Michael Crowley (Exercise Science), Courtney Currier, Dean R. Dobberfuhl, Jennifer Edmonds, G. Ian Gallicano, Martin Gerrits, Josh Gibson, Chris Goforth (Univ. Arizona), Ti Eriksson, Dina Grayson, Tamar Helmy, Ty Hoffman, Carter Holbrook, Richard Howlett (Exercise Science), Kate Ihle, Matt Jackman (Exercise Science), Andrew Janzen, Brook Jensen, Chris Jernigan, Glennis Julian, Joshua Kalmouni, Michael Kennedy, Rosemary Knapp, Sarah Kuzmiak, Eva Lacy, Israel Leinbach, Marion Le Gall (Texas A&M), Nikos Lessios, Colin Lynch, Neil Mackay, James Maino (Univ. Melbourne), Chris Mallery (Univ. North Texas), Devin Martin, Susan McKinley, Natalie Melkonoff, Justin Merry, Este Miranda, Lee McCoy, Nathan Morehouse, Tyler Murdock, John Olson (Utah State Univ.), Madeleine Ostwald, Christina Palmrose-Kreiger, Dale Pasino, Randi Papke, John Robertson, Michael Quinlan, Brian Reilly, Darleen Sandoval (Exercise Science), Nathan Smith, Zachary Stahlschmidt, Randy Tracy, Tina Traustidottir (Exercise Science), Bogoljub Trickovic, Donald Ward, James Watts, Todd Weaver, Todd McWhorter (Univ. of Arizona), Adrienne Williams (Univ. of California, Irvine), Blair Wolf, Mark Wooden, Christian Wright, Mathew Sara Wilmsen (Univ North Texas), Wright, Guo Xiao, Kasey Yturalde, John Zehmer, Deanna Zembruski

Current graduate committee service:

Ernest Boampong, Sebastian Scofield, Emily (Jordan) Smith (Boston Univ), Frank Azora (Boston University), Sarah Jendresky, Kylie Maxwell, Sem Docetal, Thomas McDermott, Karen Robles (Mississippi State Univ.)

Undergraduate Researchers Supervised:

Past:

Christopher Abdo (currently in medical school, U. of A, Phoenix)
Sufian Ahmed
Todd Albert (currently staff at ASU)
Diana Almendarez (WAESO-funded)
Vahan Aivasian
Brandon Balsino (honor's thesis, currently in medical school)
Aurora Beans
Taylor Biddolph (in Ph.D. program in Pathology)
Layne Bobb
Joshua Borup (in medical school)
Jacque Bruce
Christopher Bowman (switched to Anthropology at ASU)
Alexandra Brantley (currently research technician, UC Denver)
Aaron Bruce (M.D., Midwestern University)
Greg Burnett (M.D. program, Univ. of Arizona)
TimaSue Cantu (Gates Scholar, currently a nurse)
Keerut Chahal (honor's thesis)
Elise Chester (honor's thesis)
Jillian Ciarlariello (biotechnician)
Patricia Coulter (unknown)
Kelsey Cooper (currently working as a vet tech)
Margaret Creswell (Ph.D., Univ. Texas, Austin, Biology),
Tyler Davis (working, applying for medical school)
Victoria Depner
Samuel Dierks
Leon Dilly
Seth Dobrin (Ph.D., A.S.U., Microbiology),
Saundra Dohwenrend (Barrett honor's thesis, currently in Ph.D. program in Biology at Univ. Washington)
Pirouz Ebadi
Kristina Egbert (unknown)
Jennifer Esman (unknown)
Kyra Espinosa (B.Sc., Bioengineering, A.S.U.)
Ruth Farrington (in Ph.D. program, George Washington Univ)
Erica Feuerbacher (currently in Ph.D. program, Cornell Univ.),
Colleen Ford (B.Sc., working as high school biology teacher)
Maya Fortier
Trevor Fox (Ph.D., ASU, currently staff scientist at San Jaoquin River

Conservation District – State of California))
 Melanie Frazier (Ph.D., University of Washington, Project Analyst, Ocean Health Index, Univ. of California, Santa Barbara)
 James Gerace (M.D., DePaul Univ. Medical School),
 Nicholas Gonzalez (M.D., Univ. Wisconsin Medical School),
 Preyanka Govender
 Austin Gil
 Alex Gray (currently research assistant, U Colorado, Denver)
 John Gransee (B.A. in Psychology from ASU, currently a counselor)
 Kendra Greenlee (currently Professor and Chair, North Dakota State)
 Joy Gur-Lavi (M.D., Emory Univ. Medical School),
 Olivera Grubisha (unknown)
 Scotti Gulinson (DVM, Univ. Calif. Veterinary School, Davis),
 Runlong Guo (in dental school)
 James Haas (honor's thesis), currently Ph.D. student, Colorado State University
 Steve Hammet (M.D., Univ. of Arizona)
 DeeAnn Hartung, 2000-2002, (Ph.D., 2009, Univ. of California, Santa Barbara, currently biologist Univ. Colorado, Denver)
 Erica Heinrich (Assistant Professor, Univ. California, Riverside)
 Stephanie Heinrich
 Alina Helbling
 Joanna Henry (lab coordinator at ASU)
 Nicole Holden (Ph.D., Univ. British Columbia)
 Adam House
 Alexander Hubb (M.D. and researcher, Univ. of Iowa)
 Logan Hunt
 Ramzi Ibrahim
 Saman Jirjies (M.Sc., Bioinformatics, ASU)
 Sabrina Jones
 Ami Joshi
 Dena Kalamchi
 Kenyan Kearney
 Anna Kuznetsova
 Anelia Kassi (M.D., Univ. Miami)
 Paola Kentel-Rodriguez,
 Kenyan Kerman
 Alexander Keyel Ph.D., Tufts University)
 Jinkyu Kim (M.S., ASU)
 Sakina Kino (B.Sc., Biochemistry degree at ASU, unknown)
 Katie Krolikowski (Ph.D., Harvard Univ., Biology, Associate. Professor, Contra

Costa College),
Nemanja Kuzmanovic
Jesse LaFrenier (architect)
Dillon LaMoure
Cody Little,
Ana Lopez,
Jessalyn Macias
Kyle Meyer (M.D., Univ OK)
Ben McKinley (M.D. Univ. Minnesota)
Victoria Morgan
Elyse Munoz, (PhD, Biology, Penn State, currently healthcare analyst at IQVIA)
Subhiksha Muregesh
Andrew Mussa
Uio Sara Liao (software consultant),
Xu Lui (Ph.D., Purdue Univ., Biochemistry),
Danielle Niren (working as a biochemist)
Ekwutosi Ohuro (M.D., Tufts University)
Choognam Onoe
Paula Overby, lab manager, Dept. of Psychology, ASU
Rekha Nair (unknown)
Christina Nebeker
Elana Niren
Jared Nsika (M.D./Ph.D., U.C., San Diego)
Zeel Patel,
Teja Peela
Nicholas Pierce (technician at Sun Health)
Aunmolcheet Prahal (honor's thesis)
Catherine Prendergast (Analyst, Congressional Budget Office)
Andrew Rael (biotechnology technician)
Katrina Ramsey (Barrett honor's thesis, currently in Pharmacy School,
Midwestern Univ.)
Yash Raka (honor's thesis), currently fellow at the National Academy of Sciences
Grace Rauch
Brenda Rascon (PhD, Biology, Univ. Norway, currently Senior Consultant,
Biopharma Excellence)
Anam Saed,
Yasir Salih (currently working as a community organizer)
Sophia Sassine
Uri Segal
Emma Siebrandt,

Kaitlyn Shurr,
Hunter Smith
Sean Smith
Daniela Sota
Jennifer Stewart (Ph.D., Colorado State Univ., Immunotoxicologist, SNBL),
Jolie Tran
Danaira Vasquez
Julian Wagner (in Biology Ph.D. program at Cal Tech)
Michael Weed (staff at ASU)
Ethan Weisman (honor's thesis)
Lauren Welch, staff scientist, SRP
Simon Werkhoven (West Virginia School of Osteopathic Medicine)
Marcellina Wiertek
Eric Wilkinson (M.D., Stanford Medical School)

Current Undergraduates in Lab:

Alana Boots, Tamir Lichaa, Kylie Maxwell, David Rothweil, Rebecca Smalley,
Brittany Sorenson

High School Students Mentored in Lab:

Gabrielle Wightman (2012), Elizabeth Palos (2012), Ruth Farington (2014),
Jinoh Lee (2014), Joseph Park (2014), Farin Shiehzhadegan (2014, Science Fair
prize)

High School Teacher Mentored in Lab:

Shoshanna Kroeger (2012)

ACADEMIC/PROFESSIONAL DEVELOPMENT

Sept 2023	RISE Workshop: How can we make evolution education more effective?
April 2023	Culturally Aware Mentoring
March 2022	Culturally Aware Mentoring
March 2018	Mastering Online Teaching
Feb 2018	Copywrite and Fair Use Webinar for Instructors
Jan 2018	The Basics of Planning a Successful Online Course
Nov 2017	CLAS Natural Sciences Teach Online Showcase
Nov 2017	Shindig Lunch and Learn
Jan 2013	Federal Demonstration Project, ASU faculty representative
Jan 2012	Federal Demonstration Project, ASU faculty representative
Sept 2009	Project Science Management workshop
Summer 2002	General Biology Workshop (1 week)
Spring 1994	"Fast Plants" teaching workshop by Paul Williams (1 day)
Summer 1993	Hughes Teaching Strategies Workshop (1 month)

PRESS COVERAGE/PUBLIC SERVICE/OUTREACH

2026

<https://phys.org/news/2026-03-massive-insect-body-size-million.html>

<https://www.eurekalert.org/news-releases/1121268>

miragenews.com/ancient-insect-size-not-linked-to-high-oxygen-1644186/

<https://theconversation.com/giant-dragonflies-once-roamed-earths-skies-new-research-upends-the-textbook-theory-of-why-they-went-extinct-278997>

<https://naukatv.ru/news/vozmozhno-ogromnye-razmery-tel-nasekomykh-300-millionov-let-nazad-ne-byli-svyazany-s-vysokim-soderzhaniem-kisloroda-v-atmosfere>

<https://gizmodo.com/study-challenges-popular-theory-on-why-primordial-bugs-were-so-darn-huge-2000738537>

<https://arstechnica.com/science/2026/03/leading-explanation-for-ancient-giant-flying-insects-gets-squashed/>

<https://www.sci.news/paleontology/gigantic-griffinflies-14656.html>

Interviewed by Dave Marshall for Paleocast.com

2023

Interviewed by Hunter Rhea, ASU State Press re decline of honey bees

Interviewed by Breana Steele for Cronkite News on decline of honey bees

2020

Invited speaker for the Central Arizona Chapter of the Society for Conservation Biology (Hazards of Agrochemicals for Pollinators)

<https://science.kjzz.org/content/1400886/how-grasshoppers-deal-blood-rushing-their-heads>

https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=299875&org=NSF&from=news

<https://www.aps.anl.gov/APS-Science-Highlight/2020-01-15/revealing-insects-physiological-responses-to-gravity>

<https://www.iflscience.com/plants-and-animals/scientists-put-grasshoppers-in-a-linear-accelerator-to-see-what-happens-when-theyre-upside-down/>

<https://www.smithsonianmag.com/smart-news/humans-grasshoppers-grapple-gravitys-effects-blood-pressure-180973958/>

https://www.roanoke.com/news/education/gravity-affects-insect-blood-flow-like-in-humans-says-study/article_ca5e77fa-41fa-5d28-a987-459fc1b592a7.html?

<https://www.nytimes.com/2020/01/13/science/insects-gravity.html>

<https://asunow.asu.edu/20200113-asu-researcher-unlocks-mysteries-grasshopper-response-gravity>

<https://phys.org/news/2020-01-x-ray-images-reveal-insects-physiological.html>

2019

<https://asunow.asu.edu/20190503-discoveries-tiny-bee-brains-could-reveal-solutions-miniaturizing-artificial-intelligence>

2017

KJZZ/NPR interview with Lauren Gilger (The Show)

<http://theshow.kjzz.org/content/446430/asu-research-studying-reasons-bee-population-decline>

Arizona Republic coverage of ASU honey bee research (including our lab):

<http://www.azcentral.com/story/sponsor-story/arizona-state-university/2017/02/23/asu-honey-bee-decline-threat-to-global-food-supply/98301512/>

NPR coverage of my lab's research into the potential role of fungicides on declining pollinators (imminent).

2016

Created the Beetle Dissection tool on Ask A Biologist website

<https://askabiologist.asu.edu/beetle-dissection>

This site is a network of 54 high-quality photographic and x-ray images that students can click through to see and identify more than 40 structures in unprecedented detail.

The site also includes student activities and teacher guidance materials, and is written in HTML5, and so is compatible with tablets and phones, greatly facilitating student use. We worked closely with educators to ensure that the educational goals aligned with Arizona and Common Core standards.

2015

Featured on the blog “Noticing” by Robert Krulwich and Aatish Bhatia.

<http://noticing.co/how-insects-breathe/>

Featured in article in Science on SICB Pancrustacean symposium

(http://www.sciencemagazinedigital.org/sciencemagazine/16_january_2015?folio=220#pg12).

2014

Manduca website on Ask-A-Biologist

(<https://askabiologist.asu.edu/experiments/manduca>)

This is an educational website, aimed at middle-high school students, designed to teach core principle related to insect development and effects of temperature on growth and size. It has been highly successful, over 10,000 reads as of mid-2016, with over 20 min average time on the page according to Google Analytics.

2013

Featured on BBC film: Insect Dissection: How Insects Work

2012

ScienceNow with slide show [[link](#)]

This Week in SCIENCE [[link](#)]

AAAS News [[link](#)]

Science Magazine Podcast [[link](#)]

NSF Science360 – Breaking Story [[link](#)]

NSF.gov News [[link](#)]

BBC World Service (min 50:00) [[link](#)]

Science and Development Network [[link](#)]

Voice of America

Le Figaro [[link](#)]

AllAfrica.com [[link](#)] io9.com

[[link](#)]

Radio New Zealand [[link](#)]

France24 [[link](#)]

AFP – Agence France-Presse [[link](#)]
PhysOrg [[link](#)]
ScienceCodex [[link](#)]
ScienceDaily [[link](#)] labspaces
[[link](#)]
White Mountain Conservation League [[link](#)]
Brunei Times [[link](#)]

SciShow interview with Hank Green:

http://www.youtube.com/watch?v=l79FuGuk1qE&feature=player_embedded

Trained Phoenix Bioscience High School students (Gabrielle Wightman and Elizabeth Palos) and teacher (Shoshanna Kroeger) in a summer research program (2012)

2010

Coverage by Silobreaker: http://www.silobreaker.com/high-oxygen-levels-spawn-monster-dragonflies5_2263838725144313856

Coverage by Motherboard:

<http://www.motherboard.tv/2010/11/1/scientists-are-breeding-giant-dragonflies--2>

Coverage by TrueAuthority.com:

<http://www.trueauthority.com/dinosaurs/death2.htm>

Coverage by Softpedia: <http://news.softpedia.com/news/Massive-Dragonflies-Roamed-the-Ancient-Earth164467.shtml>

Coverage by Everything Dinosaur:

http://blog.everythingdinosaur.co.uk/blog/_archives/2010/11/3/4671836.html

Coverage by Geeky Gadgets: <http://www.geeky-gadgets.com/arizona-state-university-raising-giant-insects-to-solve-evolution-mystery-30-10-2010/>

2007

Coverage by TrueAuthority.com

<http://www.trueauthority.com/dinosaurs/death2.htm>

2006

Dagmar Röhrlich, German Public Radio: Deutschlandfunk

Multiple science demonstrations at Waggoner Elementary School

Living on Earth Radio Interview

<http://www.loe.org/shows/segments.htm?programID=06-P1300042&segmentID=8>)

American Physiological Society News Release

<http://www.the-aps.org/press/conference/vabeach/11.htm>

Coverage by PHYSORG.COM 16:51, Oct. 2006

<http://www.physorg.com/news79804314.html>

Coverage by EurekaAlert.com:

http://www.eurekaalert.org/pub_releases/2006-10/aps-gim100706.php

Inside JEB:

<http://jeb.biologists.org/cgi/reprint/207/3/387>

http://www.livescience.com/animalworld/061011_giant_insects.html

Coverage by ScienceAgogo: “Bow to Your Insect Overlords”

http://www.scienceagogo.com/news/insects_climate.shtml

Coverage by Softpedia, Article by Stefan Anitei

<http://news.softpedia.com/news/More-Oxygen-Would-Mean-Giant-Insects37643.shtml>

Coverage by What’s Next in Science and Technology

http://www.whatsnextnetwork.com/technology/index.php/2006/10/11/more_oxygen_in_atmosphere_produced_giant

Coverage by UnExplainedMysteries.Com

<http://www.unexplained-mysteries.com/viewnews.php?id=80269>

Coverage by Jennifer Vegas, Discovery News

http://dsc.discovery.com/news/2006/10/11/giantbug_anl.html?category=dinosaurs&guid=20061011140030

Coverage by Mongabay.Com

<http://news.mongabay.com/2006/1010-insects.html>

ABC News: Dye Hard Science

<http://abcnews.go.com/Technology/DyeHard/story?id=2578773&page=1>

Coverage by Tribe.net

<http://tribes.tribe.net/strangephenomena/thread/90bb6cc9-fb5f-4bca-be8e1c83c3bd1920>

Coverage by CreationontheWeb.com

<http://www.creationontheweb.com/content/view/4686/>

Coverage by NSF

[http://www.nsf.gov/news/mmg/mmg_disp.cfm?med_id=51729&from=googlebot\(at\)googlebot.com](http://www.nsf.gov/news/mmg/mmg_disp.cfm?med_id=51729&from=googlebot(at)googlebot.com)

2005

Larry Hanlon, Discovery Magazine

(<http://dsc.discovery.com/news/briefs/20050815/megainsect.html>)

Science News Dec. 17, 2005 by Sid Perkins:

http://www.findarticles.com/p/articles/mi_m1200/is_25_168/ai_n16029291

- | | |
|-------------|--|
| 2004 | New York Times interview: Front page article regarding giant insects |
| 2003 | Several science demonstrations, Waggoner Elementary |
| 2002 | Interviewed by John Doyle, British channel 6
Monthly science demonstrations, Waggoner Elementary
Biology career day: Kyrene Middle School
Desert Botanical Gardens Presentation: "Hoppin' Hoppers" |
| 2001 | Interviewed by Annie Bates, BBC |
| 2000 | Interviewed for Raven & Johnson's Biology "Real People Doing Real Science" feature |
| 1999 | Featured on KAET (Channel 8): ASU Research |
| 1998 | ASU Insight and ASU Research articles re giant insects
http://researchmag.asu.edu/stories/bugs.html
http://researchmag.asu.edu/stories/test.html |
| 1997 | Channel 3 Halloween interview re edible insects |

- 1996** Interview, CNN (Bailey Barash)
 Interview, BBC World News Service (Ruth Linton), phone interview
 broadcast world-wide on “Programme Science”, Oct. 4 and 5
 Interview, German News Service (Gisela Ostwald)
 Interview, Washington Post (Kurt Supple)
 Interview, New Scientist Magazine (Ben Crystal)
 Interview, Tribune Newspapers
- 1995** Interview, Channel 12, Phoenix
 Interview, Tribune Newspapers
- 1993** Interview, NBC radio
- 1991-1996** Judge, Broadmoor Science Fair
- 1995-1996** Monthly science demonstrations, Waggoner Elementary School

PUBLICATIONS (June 2026 h index 63, i10 = 164)

BOOKS/EDITED BOOKS:

- Harrison, J.F., H. Arthur Woods and Stephen P. Roberts. *Ecological and Environmental Physiology of Insects*. 2012. ISBN 978-0-19-922594-1; 978-0-19-922595-8. Oxford Press. 392 pages.
- Harrison, J.F. 2023. *Environmental Threats to Pollinator Health and Fitness*. Volume 64 in *Advances in Insect Physiology*. Elsevier Press, Oxford, U.K. ISBN 978-0-443-13249-0.

BOOK CHAPTERS:

- Harrison, J. and Wasserthal, L. (2012) Gaseous exchange, in R.F. Chapman's *The Insects: Structure and Function* (eds S.J. Simpson and A.E. Douglas) Cambridge University Press.
- J.S. Waters and J.F. Harrison. 2012. Insect metabolic rates. in *Metabolic Ecology: A Scaling Approach*. Editors: J. Brown, R. Sibly and A. Brown. John Wiley & Sons. ISBN: 978-0-470-67153-5.

Johnson, M.G., J.R. Glass, M.E. Dillon and J.F. Harrison. 2023. How will climatic warming affect insect pollinators? In: *Advances in Insect Physiology. Environmental Threats to Pollinator Health and Fitness*, J.F. Harrison (ed.) volume 64:1-115. Elsevier Press.
<https://doi.org/10.1016/bs.aiip.2023.01.001>

Fisher, A.L. II, G. DeGrandi-Hoffman, L.H. Liao, R. Tadaei and J.F. Harrison. 2023. The challenge of balancing fungicide use and pollinator health. In: *Advances in Insect Physiology. Environmental Threats to Pollinator Health and Fitness*, J.F. Harrison (ed.) volume 64: 117 – 190. Elsevier Press.
<https://doi.org/10.1016/bs.aiip.2023.01.002>

COMMENTARIES, LETTERS:

Harrison, J.F. and H.A. Woods. 2026. Ballooning underwater. *Science* 393 (6809):356-7.

Harrison, J.F. 2022. Gregarious locusts down-regulate muscular catabolic capacities yet fly far. *Proceedings of the National Academy of Sciences USA* 119: e2122086119. d.o.i: 10.1073/pnas.2122086119

Fisher, A. I., M. Berenbaum, J. D. Crall, N. Desjardines, J. R. Glass, J. F. Harrison, L. H. Liao, F. Muth, J. C. Nieh, R. C. F. Nocelli, N. Simon-Delso, H. Siviter, R. Tadei and K. Traynor (2021). "Protect pollinators - reform pesticide regulations." *Nature* **595**: 172. <https://doi.org/10.1038/d41586-021-01818-x>

Harrison, J.F. 2021. Book Review of Fires of Life: Endothermy in Birds and Mammals, by Barry Gordon Lovegrove. *Quarterly Review of Biology* 96:150.

Harrison, J.F. 2020. Foreword to Volume 66 of the *Annual Review of Entomology*.

Harrison, J.F. 2019. Physiology: The highs and lows of bird flight. *eLife* 2019; 8:e50626 DOI: [10.7554/eLife.50626](https://doi.org/10.7554/eLife.50626)

Harrison, J.F. 2018. Reply to Glazier. *Trends in Ecology and Evolution* 33(4):238-239. DOI: [10.1016/j.tree.2018.01.004](https://doi.org/10.1016/j.tree.2018.01.004)

Harrison, J.F. 2015. Evolvability and nonevolvability of allometric slopes. *Proceedings of the National Academy of Sciences, USA*. 112:13426-13427. DOI: 10.1073/pnas.1517621112. Web:

REVIEWED PUBLICATIONS:

(196 Reviewed Publications total)

- Perl, C.D., Z.N. Coto, R.A. Johnson, M.G. Johnson, L.C. Graber, J. Haas, J.F.A. Traniello, J.S. Waters, and J.F. Harrison. In press. Evolution of neurometabolic frugality: lower mass-specific brain and body metabolic rate in derived harvester ant species is associated with worker size. *Proceedings of the Royal Society Series B*.
- Harrison, J.F., J. Chen, J.R. Glass, C. Ozturk, B.H. Smith, J.H. Fewell, G. Degrandi-Hoffman, Y. Kang, B. Sorensen, D. Rothweil, N.S. Desjardins, and A. Fisher II. 2026. Limits and mechanisms of honey bee colonial thermoregulation in the heat. *Journal of Experimental Biology* 229(14):jeb252357. 10.1242/jeb.252357
- Prendergast, C.T., J.F. Harrison and K.M. Baudier. In press. Variation in reflective flow and forager navigation explain speed of obstruction circumnavigation on *Atta colombica* foraging trails. *Neotropical Naturalist*.
- Coto, Z., D. Ye, S. Arganda, J.F. Harrison and J.F.A. Traniello. In press. Neurometabolic scaling and “selfishness” in a social insect brain. *Proceedings of the National Academy of Sciences, USA*. 123(32): e2605431123. doi:10.1073/pnas.2605431123
- Snelling, E.P., A.V. Lensink, S. Clusella-Trullas, C. Weldon, P. Lehmann, J. Terblanche, N. L. Payne, Jon F. Harrison, A. J. R. Hickey, A. Donaldson¹, C. M. Deschodt, R. S. Seymour. 2026. Evidence against the hypothesis that oxygen constrains the evolution of insect gigantism. *Nature* 653:439-443. DOI: 10.1038/s41586-026-10291-3.
- Tahir, S.M., T. Lichaa, S. Jaronski, R. Shniderman, J.F. Harrison and A.J. Cease. Protein-biased food enhances immune responses, but nevertheless increases susceptibility to *Metarhizium* biopesticide in desert locusts. In press. *Journal of Experimental Biology* 229(3):jeb205955. DOI: 10.1242/jeb.250955.
- Chen, J., A. Fisher, G. DeGrandi-Hoffman, C. Ozturk, B.H. Smith, J.H. Fewell, Y. Kang, K. Maxwell, K. Overcash, K. Chahal and J.F. Harrison. 2026. Negative effects of excessive heat on colony thermoregulation and population dynamics in honey bees. *Ecological and Evolutionary Physiology* 99(1)1-18. <https://doi.org/10.1086/739493>.
- Cease, A., J., S. Talal, G. Osgood, P. Pulver, S. Millewise, R.P. Overson and J.F. Harrison. 2026. Energetic constraints on multi-day flights in migratory locusts. *Journal of Experimental Biology* 226(7): jeb251191. DOI: 10.1242/jeb.251191.

- Glass, J.R., M.G. Johnson and J.F. Harrison. 2025. When does temperature limit bee flight? Identifying the missing pieces of the puzzle. *Journal of Experimental Biology* 228(24): jeb250891. DOI: 10.1242/jeb.250891.
- Lynch, C.M., Beshpalova, I., Pavlic, T., Pratt, S., Harrison, J.F. and J.H. Fewell. 2025. Piecewise continuous sampling: a method for minimizing bias and sampling effort for estimated metrics of animal behavior. 2025. *Ethology* 131(12):290-302. <https://doi.org/10.1111/eth.70021>
- Chen, J., A. Fisher II, J.F. Harrison, G. DeGrandi-Hoffman, J.H. Fewell and Y. Kang. 2025. Modeling pesticide impacts on honey bee dynamics from mathematical and experimental integration. 2025. *Journal of Theoretical Biology* 611: 112167. <https://doi.org/10.1016/j.jtbi.2025.112167>.
- Fisher, A.L. II, Keerut Chahal; Gloria DeGrandi-Hoffman; Brian H. Smith; Jennifer H. Fewell; Jon F. Harrison. 2025. Exposure to a widely used mitotoxic fungicide negatively affects hemolymph protein and vitellogenin levels in honey bees (*Apis mellifera*). *Environmental Pharmacology and Toxicology* 115:104676. <https://doi.org/10.1016/j.etap.2025.104676>
- Millerwise, S. Talal, T. Pulver, E. Goethe, G. Osgood, E. Cossey, R. Overson, J. Harrison and A. Cease. 2025. High-protein diets shorten female but not male life spans and have minimal effects on egg production in Migratory locusts. *Ecological and Evolutionary Physiology* 98(2):83-95. doi: 10.1086/735836
- Guo, X., J.F. Harrison, C. Lynch and J.F. Fewell. 2025. Ontogeny of metabolic rate in harvester ant colonies and the dual antagonistic effects of brood content on colony metabolism. *Proceedings of the Royal Society B* 292(2039): 20242534. 10.1098/rspb.2024.2534
- Clark, R.M., T.P. Fox, C.J. Klok, J.H. Fewell and J.F. Harrison. 2025. Cooperation by ant queens brings direct energetic benefits during colony founding. *Behavioral Ecology and Sociobiology* 79(1). <https://doi.org/10.1007/s00265-024-03551-7>
- Johnson, M.G., M. Barrett and J.F. Harrison. 2025. Solar radiation alters heat balance and thermoregulation in a flying desert bee. *Journal of Experimental Biology* 228(1): jeb247335. <https://doi.org/10.1242/jeb.247335>
- Talal, S., J.F. Harrison, R.F. Farrington, R. Overson, and A.J. Cease. 2024. Body mass and growth rate determine protein intake for animals. *eLife* 13: e88933. 10.7554/eLife.88933.
- Campbell, J.B., K.J. Greenlee, A.W. Shingleton, A.E. Gray, H.C. Smith, V. Callier, T. Lundquist and J.F. Harrison. 2024. HIF signaling in the prothoracic gland regulates growth and development in hypoxia but not normoxia in *Drosophila*. *Journal of Experimental Biology* 227(18): jeb247697. <https://doi.org/10.1242/jeb.247697>. *Short-listed for Best JEB paper of the year.*

- Neal, M.H., J.F. Harrison, B.B. Skabalund and R.J. Milcarek. 2024. Insect tracheal systems as inspiration for CO₂ capture systems. *Bioinspiration and Biomimetics* 19(5):6015 doi: 10.1088/1748-3190/ad665c.
- Singh, R., S. Suresh, J.H. Fewell, J.F. Harrison and T. Linksvayer. 2024. *Wolbachia* infected pharaoh ant colonies have higher egg production, metabolic rate, and worker survival. *Journal of Experimental Biology* 227 (16): jeb247168. <https://doi.org/10.1242/jeb.247168>
- Treidel, L.A., K.D. Deem, M.K. Salcedo, M.H. Dickinson, H.S. Bruce, C.A. Darveau, B.H. Dickerson, O. Ellers, J.R. Glass, C.M. Gordon, J.F. Harrison, T.L. Hedrick, M.G. Johnson, J.E. Lebenzon, K. Nütepold, S.P. Sane, S. Sponberg, S. Talal, C.M. Williams, and E.S. Wold. 2024. Insect flight: state of the field and future directions. *Integrative and Comparative Biology*. 10.1093/icb/icae106
- Fox, T.P., Y.P. Raka, K. Smith and J.F. Harrison. 2024. Climate change may release *Aedes aegypti* (Diptera:Culicidae) larvae from cold-inhibition and enable year-round development in a desert city. *Ecological and Evolutionary Physiology*. doi: 10.1086/731710
- Talal, S., A. Chahal, G.M. Osgood, J. Broseman, J.F. Harrison and A.J. Cease. 2024. Target for lipid to carbohydrate intake minimizes cost of growth. *Proceedings of the Royal Society B* 291: 20240424. doi:10.1098/rspb.2024.0424.
- Glass, J.R. and J.F. Harrison. 2024. A thermal performance curve perspective explains decades of disagreements over how air temperature affects the flight metabolism of honey bees. *Journal of Experimental Biology* 227(7): jeb246926. DOI: 10.1242/jeb.246926.
- Desjardins, N.S., E. K. Chester, C. Ozturk, C.M. Lynch, J.F. Harrison and B.H. Smith. 2024. Synergistic negative effects between fungicides and high temperatures on navigation behavior in bees. *Proceedings of the Royal Society B* 291:20240040; <https://doi.org/10.1098/rspb.2024.0040>.
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