

M. Deane Bowers
CURRICULUM VITAE
January, 2023

ADDRESS: University of Colorado Museum of Natural History and
Department of Ecology and Evolutionary Biology
University of Colorado
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RESEARCH INTERESTS: chemical ecology, insect ecology and evolution, Lepidoptera, plant-insect interactions, multitrophic interactions, insect defenses, biological control of invasive plants, effects of nitrogen deposition on multitrophic interactions, insects and climate change

ACADEMIC POSITIONS

2014-2020 Chair, Department of Ecology and Evolutionary Biology
2010-2011 Visiting Researcher, Brown University (sabbatical)
2007-2008 Interim Director, University of Colorado Museum of Natural History (6 month appointment)
1996-1997 Visiting Researcher, University of California, Davis (sabbatical)
1995 – present. Professor of Biology and Curator of Entomology, University of Colorado
1989-1995 Associate Professor of Biology and Curator of Entomology, University of Colorado
1986-1989 Associate Professor of Biology and Hessel Associate Curator of Lepidoptera, Harvard University
1986-1987 Visiting Associate Professor in Chemistry, Colorado State University
1981-1986 Assistant Professor of Biology and Hessel Assistant Curator of Lepidoptera, Harvard University
1977-1979 Teaching Associate, University of Massachusetts
1974-1975 Teaching Assistant, University of Massachusetts,

EDUCATION

Post-doctoral Research Associate, Stanford University, California. 1979-1981
University of Massachusetts, Amherst, Massachusetts (Ph.D. 1979). 1974-1979
Smith College, Northampton, Massachusetts (B.A. 1974). 1970-1972, 1973-1974
Williams College (exchange program). 1972-1973

HONORS AND AWARDS

Outstanding Graduate Student Mentor Award, Graduate School, University of Colorado Boulder (2016)
Elected as a Fellow of the Entomological Society of America (2015)
College Scholar Award, University of Colorado (for 2010-2011)
Faculty Fellowship, University of Colorado (2003 – 2004)

Lund Lecturer, University of Georgia (2003)
Griswold Lecturer, Cornell University (2002)
Chair (1998) of the Gordon Research Conference on “Plant-Herbivore Interactions”
University of Colorado at Boulder: Boulder Faculty Assembly Award for Excellence in Research (1996)
Co-chair (1995) of the Gordon Research Conference on “Plant-Herbivore Interactions”
Vice-president, Lepidopterists’ Society (1992 - 1993)
University of Massachusetts, Chancellor’s Fellowship (1975 – 1977)

FELLOWSHIPS AND GRANTS

Current Funding

External Sources

- 2020—Institute of Museum and Library Sciences: “Enhancing preservation and accessibility of a unique arthropod collection from the mountains of Colorado”. PI: M.D. Bowers, Co-PI: C. McCain. \$227,257. 9/1/2020 – 8/31/2022.
- 2019—NSF “Collaborative research: Novel trophic interactions determined by Phytochemistry, pathogen infection, and parasitoids”. PI: M.D. Bowers. (Collaborator: Angela Smilanich, University of Nevada, Reno). \$400,000 to University of Colorado; total award \$900,000. 9/1/2019 – 8/31/2023.

Previous Funding

External Sources

- 2020—City of Longmont Parks and Natural Resources Division: “Impacts and recovery status of wild bee communities following a catastrophic flood”. PI: V. Scott; Co-PIs J. Mullins (graduate student) and M.D. Bowers. \$4,924
- 2020—Denver Audubon Society, Lois Webster Fund: “Impacts and recovery of wild bee communities following a 500 year flood. PI: M.D. Bowers and J Mullins (graduate student). \$4,852.
- 2016—Boulder County Open Space. Bee community response to the 2013 flood. \$10,000. Co-PI; PI: Adrian Carper. 2016 – 2018.
- 2016—Greenwood Fund. \$2,000. PI Christy McCain, Co-PI Deane Bowers
- 2015—NSF “Collaborative research: Understanding the evolution of diet breadth through ecoimmunology”. PI. (Collaborator: Angela Smilanich, University of Nevada, Reno). \$331,900 to University of Colorado; total award \$600,000. 3/1/2015 – 3/31/2020.
- 2012—NSF “Collaborative Research: Southwest Collection of Arthropods Network (SCAN): A Model for Collections Digitization to Promote Taxonomic and Ecological Research”. PI. One of 10 participating institutions. 2012 – 2017. \$104,000 to Bowers.
- 2014—NSF Dissertation Improvement grant for Caitlin Kelly, “Chemical Mediation of Multitrophic Interactions: A Test of the Tri-trophic Interactions Hypothesis”. \$12,246. 2014 – 2016.
- 2013—USDA “Impacts of herbaceous bioenergy production systems on bee communities: implications for pollinator declines and pollinator conservation” PI Mary Jamieson; Co-PIs Deane Bowers, Andrew Norton (CSU). \$499, 997. 2013-2016,
- 2012—NSF Dissertation Improvement grant for Susan Whitehead, “Chemical Ecology of *Piper* (Piperaceae) Seed Dispersal by Frugivorous Bats in the Genus *Carollia* (Phyllostomidae). \$14,995, 2012-2014.

- 2011--National Geographic Waite Grant . PI: S.R. Whitehead, with co-PIs M.D. Bowers, B. Herrera-Rodriguez, M. Fernanda-Quesada, and A. Trowbridge . \$14,870.
- 2010—NSF. “RET Supplement to: Collaborative research: Are sequestered allelochemicals benefits or detriments to wasp and fly parasitoids?”. Bowers PI, L. Dyer and G. Gentry (Tulane University) Co-PI’s. \$10,375.
- 2009—NSF. Dissertation Improvement Grant for Carolina Quintero. “The Importance of Plant Ontogeny for Tritrophic Interactions”. \$8,227.
- 2009—NSF. “REU Supplement to: Collaborative research: Are sequestered allelochemicals benefits or detriments to wasp and fly parasitoids?”. Bowers PI, L. Dyer and G. Gentry (Tulane University) Co-PI’s. \$12,000.
- 2008—NSF Dissertation Improvement Grant for Mary Jamieson, “Effects of soil nitrogen enrichment on the chemical mediation of multitrophic interactions”. \$6,627.
- 2007—NSF. “A multi-species study of grasshopper phenology, distribution and body size responses to climate changes in the Front Range of Colorado”. C. Nufio PI, Bowers and Guralnick, Co-PIs. \$392,000 for 5 years.
- 2007-2011—NSF “REU Supplements to: A multi-species study of grasshopper phenology, distribution and body size responses to climate changes in the Front Range of Colorado”. C. Nufio PI, Bowers and Guralnick, Co-PIs. \$18,000.
- 2007—City of Boulder Open Space and Mountain Parks. “The influence of nitrogen availability on Dalmatian Toadflax (*Linaria dalmatica*) and its specialist herbivore, *Calophasia lunula*”. Bowers PI, M. Jamieson, Co-PI. \$6,280 for 1 year.
- 2007—NSF. “REU Supplement to: Collaborative research: Are sequestered allelochemicals benefits or detriments to wasp and fly parasitoids?”. Bowers PI, L. Dyer and G. Gentry (Tulane University) Co-PI’s. \$6,000.
- 2007—City of Boulder Open Space and Mountain Parks. “Long-term survey of butterfly communities on city of Boulder OSMP Land”. Bowers PI, N. Robinson, Co-PI. \$6,235 for 1 year.
- 2006--NSF. “Collaborative research: Are sequestered allelochemicals benefits or detriments to wasp and fly parasitoids?”. Bowers PI, L. Dyer and G. Gentry (Tulane University) Co-PI’s. \$293,400 for 5 years to University of Colorado.
- 2005--NSF. “Instrumentation for the analysis of biogenic organic compounds”. R. Monson PI, Bowers, Co-PI. \$248,474 for 2 years.
- 2005--NSF. “Improvement of the Gordon Alexander collection of Orthoptera at the University of Colorado” \$202, 201 for 2.5 years. Bowers PI, Co-PI’s C. Nufio, R. Guralnick.
- 2005—NSF. “REU Supplement: Improvement of the Gordon Alexander collection of Orthoptera at the University of Colorado”. \$6,000.
- 2001—NSF. "Research Experiences for Undergraduates, Undergraduate Research in Behavior, Ecology and Evolution". \$200,000 for 3 years. Co-PI, M. Breed project director.
- 1997--NSF. “Support for the 1998 Gordon Conference on Plant-Herbivore Interactions”. \$28,000 for 1 year.
- 1996—NSF. “Analytical chemical analysis in an ecological context: a High Pressure Liquid Chromatography Workstation, Fluorometer, and Spectrophotometer”. Co-PIs: Steve Schmidt, Russ Monson, Ted Raab. \$48,000.
- 1996—NSF. “The Evolution of Unpalatability in Insects: Biochemistry in an Evolutionary Context”. \$30,000 for 1 year.
- 1995—NSF. "Research Experiences for Undergraduates, Undergraduate Research in Behavior, Ecology and Evolution". \$150,000 for 3 years. Bowers, project director.
- 1994--NSF. “Support for the Gordon Research Conference on the Chemistry of Plant-Herbivore Interactions”. Mark Rausher Co-PI. \$7,300
- 1994--U.S. Department of Agriculture. “Support for the Gordon Conference on the Chemistry of Plant-Herbivore Interactions”. Mark Rausher Co-PI. \$7,300

- 1994—NSF. "Renovation and expansion of the E.P.O. Biology greenhouses". 7 Co-PI's. \$240,000.
- 1994--City of Boulder Open Space. "An insect survey of the Dowdy Draw Open Space. \$8,000 for 1 year. Virginia Scott, Co-PI.
- 1993—NSF. "Relative effects of hostplant chemistry and insect predators on herbivorous insects and their hostplants". \$100,000 for 3 years.
- 1993--City of Boulder Open Space, "An insect database for Boulder County", \$4000 for 4 months
- 1992—NSF. "Research Experiences for Undergraduates, Undergraduate Research in Behavior, Ecology and Evolution". \$150,000 for 3 years. Bowers, project director
- 1992--NSF Dissertation improvement grant for Mark Camara. (\$7,000)
- 1992--NSF Dissertation improvement grant for Lee Dyer. (\$8,000)
- 1991—NSF. "Research Experiences for Undergraduates: Undergraduate Research in Behavior, Ecology, and Evolution" (with Bill Bowman, Mike Breed, Pam Diggle, and Steve Schmidt). \$49,634 for 1 year.
- 1990—NSF. "Research Experiences for Undergraduates: Undergraduate Research in Behavior and Ecology" (with Bill Bowman, Mike Breed, Russ Monson, and Steve Schmidt). \$40,000 for 1 year.
- 1989—NSF. "The effects of hostplant chemistry and invertebrate predators on caterpillar foraging and hostplant fitness" \$140,500 for 3 years.
- 1989—NSF. "Research Experiences for Undergraduates: An Interdisciplinary Grant in Evolutionary Biology (with Steve Austad, James Carpenter, and Bruce Waldman) \$120,000 for 3 years
- 1988—NSF. "Research Experiences for Undergraduates: An Interdisciplinary Grant in Evolutionary Biology" (with Steve Austad, Rodney Honeycutt, and Bruce Waldman) \$40,000 for 1 year
- 1987--Whitehall Foundation, "Recycling Plant Chemical Defenses and the Evolution of Unpalatability". \$62,670 for 2 years.
- 1987—NSF. "Research Experiences for Undergraduates: an Interdisciplinary Program in Ecology, Evolution, Behavior and Genetics (with Steve Austad, James Birchler, Rodney Honeycutt, and Bruce Waldman). \$40,000 for 1 year
- 1987—NSF. "Improvement of the Insect Collections of the Museum of Comparative Zoology (with J.M. Carpenter and E.O. Wilson). \$143,438 for 2 years.
- 1986—NSF. Visiting Professorships for Women, "Processing of Plant Allelochemicals by Insect Herbivores". \$80,661 for 1 year.
- 1983—NSF. "Hostplant Specialization and the Evolution of Unpalatability: the Role of Iridoid Glycosides". \$70,000 for 2 years.
- 1982—NSF. "Improvement of the Insect Collections of the Museum of Comparative Zoology". (with R.J. McGinley and E.O. Wilson) (3 years, \$160,000).

Internal Sources

- 2015-- University of Colorado Outreach Program. "The Bees' Needs part II". PI Deane Bowers, Alex Rose and Virginia Scott, Co-PIs. 2015-2016. \$8,000.
- 2013—University of Colorado Outreach Program. "The Bees' Needs: a Citizen Science Project". PI Alex Rose, Deane Bowers and Virginia Scott, Co-PIs. 2013 – 2016. \$24,000.
- 2010—University of Colorado College Scholars Award. "Effects of an Invasive Weed on the Ecology and Evolution of a Rare Butterfly". One half year's salary for sabbatical at Brown University.

- 2007—University of Colorado LEAP Program. “Assessing the Effects of Human Nitrogen Inputs on an Invasive Weed and Its Biological Control Agent”. Bowers, PI. \$8,000 for 1 year.
- 2005 – 2006—CRCW, University of Colorado. “Caterpillar chemical defense and its effects on parasitoids”, \$5,120
- 2003 – 2004—CRCW, University of Colorado. “The ecology and evolution of caterpillar chemical defense”, \$5,600
- 1994--CRCW, University of Colorado. “Metabolic cost of detoxifying plant chemical defenses and the host specialization of herbivorous insects”, \$6,800
- 1992--CRCW grant, University of Colorado, “The effects of temporal and spatial heterogeneity on the interaction of a plant and its insect herbivores”, \$3,200

PROFESSIONAL SOCIETIES

International Society of Chemical Ecology
 Ecological Society of America
 Entomological Society of America
 Lepidopterists' Society
 American Association of Museums

PROFESSIONAL ACTIVITIES

Vice President and Executive Council, Lepidopterists' Society, 2020-2021
 Entomological Society of America. Fellows review board, 2017-2018
 Review of 15 – 20 manuscripts for professional journals per year
 NSF full proposal panel, Population and Community Ecology, September, 2019
 NSF preproposal panel, Population and Community Ecology, April, 2016
 NSF full proposal panel, Informal Science Education, May, 2015
 NSF full proposal panel, Systematics and Biodiversity, October 2014
 NSF Preproposal Panel, Systematics and Biodiversity, April 2012
 NSF Preproposal Panel, Informal Science Education, October 2011
 Organizing Committee 2012 meeting of the Lepidopterists' Society
 Organized 2013 meeting of the High Country Lepidopterists
 Organized 2008 meeting of the High Country Lepidopterists
 Organized 2006 meeting of the High Country Lepidopterists
 Organized 2004 meeting of the High Country Lepidopterists
 Organized 2001 meeting of the High Country Lepidopterists
 Editor, Journal of the Lepidopterists' Society. 1998 – 2001
 NSF panel on Informal Science Education, March 2009
 NSF panel on Ecological Processes and Evolution, April 2009
 NSF panel for the PEET (Partnerships for Enhancing Expertise in Taxonomy), May 2001
 NSF Ecology Panel, October, 1995; April, 1996; October, 1998, October, 1999, April 2000, October, 2006
 Chair, Gordon Conference on “Chemistry of Plant-Animal Interactions”, 1998
 Co-chair, Gordon Conference on “Chemistry of Plant-Animal Interactions”, 1995
 NSF Panel, Postdoctoral grants, February, 1994
 NSF Panel, Postdoctoral grants, May, 1993
 Ecological Society of America, Committee on Women and Minorities, 1992 - 1995
 USDA Panel, Research in entomology, July, 1993
 NSF meeting of site directors of REU programs, August, 1993
 Program chair of Lepidopterists Society meeting, Fort Collins Colorado, July 1993

Oecologia editorial board, 1992 - 1998
 Chemoecology editorial board, 1990 - present
 Biochemical Systematics and Ecology editorial Board, 1996 - present
 Journal of the Lepidopterists' Society, editorial board - 1991 - 2001
 Review of grant proposals for NSF and USDA
 Organized and ran the fall, 1984 meeting of the Population Biologists of New England, at Harvard University.
 Consultant for Genetics Institute
 Lepidopterists' Society Executive Council, 1979 - 1982 and 1986 - 1989
 Lepidopterists' Society Associate Editor, 1987 - 1992
 Lepidopterists' Society Vice-President, 1992 - 1993
 Cambridge Entomological Society president, 1984 - 1985
 Cambridge Entomological Society editorial board, 1981 - 1989

Membership of University and Departmental Committes

Museum

Search Committee, Associate Director Museum (2023)
 Search Committee, Financial manager Museum (2022, 2023)
 ARPAC 2021, Chair of Research Committee
 Promotion to Full Professor, J. Eberle, fall 2016
 Acting Director CU Museum, 6 weeks in fall 2013
 Merit Committee, 2011, 2013, 2020, 2022
 Tenure Committee, Vertebrate Curator, 2013
 Search Committee (chair), Botany curator, 2011-2012
 Tenure Committee (chair), Botany Curator, 2009 - 2010
 Search Committee, Botany Curator, 2008 - 2009
 Museum and Field Studies Program Interim Director, Fall, 2007
 Bio Hall Committee, 2007 - 2011
 Marketing Committee, 2007 - 2008
 Salary Committee, 2006 - 2007, 2007 - 2008, 2008 - 2009, 2013-2014, 2018-2019
 Director Exploratory Committee (Chair), 2006 - 2007
 Search Committee, Vertebrate Zoologist, 2006 - 2007
 Museum Program Review Committee, 2005 - 2006
 Museum Self-Study Committee, 2004 - 2005
 Museum BFA representative, 2000 - 2008 (except sabbatical year, 2003 - 2004)
 American Association of Museums Accreditation Committee, 2000 - 2002
 Centennial Committee, 2002 - 2003
 Building Committee, 1998 - 2002
 Curriculum Committee, 1991-1993, 1998 - 2000, 2005-2006, 2007 - 2008, 2012-2013
 Steering Committee, 1999 - 2001
 Art Selection Committee, 2000 - 2001
 Search Committee Chair, Invertebrate zoologist and curator, 1999-2000
 Evaluation Committee (chair) for Linda Cordell, Director CU Museum, 1999
 Self-Study Committee, 1998 - 1999
 Reappointment Committee (chair) Alan DeQueiroz, 1998
 Promotion Committee Judith Harris, 1998 - 1999
 By-laws Committee, 1998
 Acting Director, summer, 1998

Building Committee, 1996 – 1999
Committee to review the status of Hunter Building, 1994
Collection Committee, 1992 – 2005, chair 2004 - 2005
Museum Studies Task Force, 1993
Reappointment Committee (chair), Tom Ranker, 1992
Post-tenure review committee, S-K. Wu, 1991
Post-tenure review committee, W. Hay, 1990
Museum Exhibits Committee, 1989-1990
Search Committee, Herbarium Curator, 1989-1990

Department of Ecology and Evolutionary Biology

Merit Committee—2023
Search Committee EBIO Office Manager—2022
Search Committee EBIO Financial Manager—2022
Reappointment Committee Chair, J. Resasco--2022
Promotion to Full Professor, C. McCain--2021
Early Career Faculty Mentoring Committee—2020- present
Chair of Ecology and Evolutionary Biology—2014 – 2020
Merit Committee (Chair)—2015, 2016, 2017, 2018, 2019, 2020
Executive Committee (Chair)—2015, 2016, 2017, 2018, 2019, 2020
Arts and Science Council representative, 2013 - 2014
Tenure Committee (Chair), Patrick Kociolek, 2007 - 2008
Executive Committee, 2007 – 2008, 2013 - 2014
Search Committee, Ecologist, 2004 - 2005
Reappointment Committee for T. Lemieux (chair), 2004 – 2005
Graduate Committee, 1998 – 1999, 2004 – 2013
Reappointment Committee, Pei Tsai, 2003
Strategic Planning Committee, 2001 – 2002
Space Committee, 2002
Salary Committee, 2001, 2006-2007
Student Computer Facility, 1998 - 2001
Undergraduate Curriculum Committee, 1997
Divisional structure committee, 1997
Reappointment committee, Alan DeQueiroz, 1998
Chair, Graduate Committee, 1993 - 1995
Associate Chair of EPO Biology, 1993 - 1995
General Biology Committee, 1992 - 1994
Reappointment Committee, Tom Ranker, 1992
Search Committee: Plant-animal interactions, 1990 - 1991.
EPOB Executive Committee, 1990 - 1991, 1993 - 1995
EPOB Greenhouse Committee, 1990 - present; chair, 1992-1993
EPOB Greenhouse construction committee, 1992 - 1994
Coordinator, General Biology final, fall, 1990.
General Biology laboratory review committee, 1991.

University of Colorado

LEAP Program grant evaluation panel (2022, 2023)
New Chairs workshop (2022)

University of Colorado Research Misconduct Committee—2017-present
 College of Arts and Sciences, Committee on CUREs—2019-2020
 University of Colorado, committee on the Bookstore--2018
 New faculty workshop—member of panel on starting out as a faculty member at CU, 2017
 Provost's Advisory Board, University of Colorado, 2016-2017
 Research Innovations Advisory Board, University of Colorado, 2016 – 2018
 Internal Evaluation Committee, Department of French and Italian, University of Colorado, 2016
 New Chairs workshop—member of panel on graduate student mentoring, 2016
 New Faculty Workshop—led discussion on setting up a lab, 2015
 Libraries Tenure and Promotion Committee, 2015
 Undergraduate Research Opportunities Program Advisory Committee, 2007 – 2014
 Arts and Sciences Tenure and Promotion Committee, 2009 – 2013
 BFA Research Faculty Evaluation Committee, 2007- 2008
 BFA Administrator Appraisal Committee, 2006 - 2010
 CRCW Committee, 2004 - 2007
 Boulder Faculty Assembly Executive Committee, 2001 – 2003, 2004 - 2005
 Boulder Faculty Assembly Secretary, 2002 – 2003, 2004 – 2005
 Chancellor's Committee on Gay, Lesbian, Bisexual and Transgendered Issues, 2001 – 2015
 BFA Committee on Women, 2001 - 2003
 Evaluation Committee (chair) for Linda Cordell, 1999
 Science Advisor, Hughes Initiative Program, 1998 – 2014
 BFA Awards Committee, 1999, 2006, 2014
 Internal Review Committee for Fine Arts, 1998
 University Diversity Committee, 1994 - 1996
 Women's Advisory Team, 1997 – 1999 (chair, 1999)
 Search Committee: Museum Director, 1992 - 1993

CURATORIAL ACTIVITIES

Curated museum exhibits (University of Colorado)

2017-2018. "Becoming Butterflies" travelling exhibit. Developed travelling exhibit to be set up at University of Nevada, Reno.
 2016-2017. "Becoming Butterflies". Exhibit on the biology of butterflies featured at the University of Colorado Museum of Natural History and CU South Denver.
 2010-2011. "Beetles". Exhibit at University of Colorado Museum of Natural History, featuring the diversity of beetles, using about 1000 specimens from the CU Entomology section collection.
 2002-2003. "A window to the future; a door to the past". 100th anniversary of the CU Museum of Natural History. Curated insect portion of exhibit.
 2010 - Present. Curated and provided specimens and text for numerous small exhibits in the CU Museum's "Biolounge", including exhibits on Monarch butterflies, state insects, Colorado Hairstreak (Colorado State Insect), insect gynandromorphs, beetle art.

Collection Administration

University of Colorado Museum of Natural History Entomology Section
 Insect and arachnid collection: approximately 1.3 million specimens, with special strengths in Hymenoptera, Orthoptera, Lepidoptera, and Coleoptera

Supervise: Collection Manager (Virginia Scott); Graduate Assistant; several volunteers
Answer questions from the public about insects (20 – 30 per year)
Insect identification (5 – 10 per year)
Collection tours (courses, school groups, visitors) (2 - 6 per year)

Major Collection-Related Projects

Post-doctoral Researcher, Adrian Carper, received NSF TCN grant to photograph and digitize part of our bee collection. 2021-2024.
Incorporation of over 300,000 invertebrate specimens into the Entomology section and the Invertebrate Zoology section. Oversee sorting, identification, curation and databasing of these specimens. Obtained funding from IMLS for this effort. 2020-2023.
Databasing of ground-dwelling arthropods (as part of NSF TCN grant): databased over 100,000 specimens of ground-dwelling arthropods. 2012 - 2017
Addition of over 100,000 bee and wasp specimens to collection through grants from U.S.D.A., City of Boulder Open Space, Boulder County Open Space.
Imaging of targeted Orthoptera, Hymenoptera, and Coleoptera specimens for NSF TCN grant. 2012 - 2017.
Digitization of historical Alexander Orthoptera collection (collected 1959, 1960, 1961) and incorporation into CU insect collection (~40,000 specimens) 2009-2012.
Incorporation of ~40,000 Orthoptera specimens, collected as part of NSF grant.
Accession and incorporation of Lepidoptera collection.
Accession and incorporation of Willey Orthoptera collection (approximately 10,000 specimens). Donated in 2014.

OUTREACH ACTIVITIES

Advisor for public art exhibit on insects and arachnids. 2020. Danielle Forte, artist. Coordinated and edited “Wonders of the Week”—short articles and photographs of collection specimens for Museum website. 2020-2021
Participation in "Girls in the Museum Exploring Science" (GAMES) program and the University of Colorado Museum of Natural History. 2010 - present.
Give numerous talks and presentations to public schools and public groups about insects.
Contribute to Evolution Outreach programs through Department of Ecology and Evolutionary Biology (featured speaker 2010 and 2014)
"The Bees' Needs" Citizen Science Project (2013 - 2017). Provided bee blocks to citizen scientists and oversaw data collection from these participants.
Science Advisory Board, Butterfly Pavilion (1995 – 2016)
Consultant for Baltimore Checkerspot restoration project, Maryland. 2010 – 2014.
Numerous talks to the public on topics such as “Butterfly Gardening”, “Moth Mania”, “Pollination Biology”, “Gardening for Pollinators”

Radio interviews

July, 2020. Miller moths and Monarchs: <https://www.kunc.org/post/millers-and-monarchs-and-milkweed>

TEACHING

University of Colorado:

Biology 4660/5660. Insect Biology. (for advanced undergraduates and graduate students) fall, 1991, 1993, 1995, 1997, 2000, 2008, 2011, 2013, 2015, 2017, 2020, 2021 (lecture and laboratory)
Biology 6300. Introduction to Research. Graduate seminar for new graduate students, Fall 2014, 2015, 2016, 2017, 2019.
Museum 5140, Collections Management, Fall, 2003, 2005, 2022; Spring, 2008, 2010, 2012, 2014
Biology 6300. Graduate seminar in Chemical Ecology, fall, 2005
Biology 1220. General Biology, Spring, 2005, 2006
Biology 5320. Graduate Course in Plant-Animal Interactions, spring, 2003.
Museum 5196. Advanced Graduate Course in Entomology, fall 2002
Biology 4800/5800. Critical thinking: Plant-animal interactions, fall 1994, 1997, 1998.
Biology 6200. Graduate seminar in plant-insect interactions.
Biology 5280. Graduate course in laboratory techniques (with 4 co-instructors).
Biology 4130/5130. Plant-animal interactions. for advanced undergraduates and graduate students. spring 1990, fall 1992.
Biology 1230. General Biology. fall, 1990, 1992
Biology 6210. Graduate seminar in nutritional ecology and biochemistry. Spring 1991.
Museum 4936/5936. Internship in entomology. spring 1991, 1992, 1993, 1994.
Biology 6250. Graduate seminar, "Scientific Survival". fall, 1996, spring 1997, 1998, 1999, 2000, 2003, 2005.
Museum 5200. Collections and Data Management. spring, 1998, 1999, 2000.

Harvard University:

Biology 132. Chemical Ecology (lecture and laboratory)
Biology 116. Insect Biology: Structure and Function (lecture and laboratory)
Biology 252. Plant-Animal Interactions (graduate seminar)
Biology 280. Plant Products, Pests, and Pathogens (graduate seminar, co-taught)
Biology 10. Invertebrate Zoology (the insect lectures)
Biology 144. Biology of the Flower (team-taught; my responsibility was for 1/4 of the course the section on pollination biology and herbivory)

Colorado State University:

Entomology 570. Chemical Ecology (lecture and laboratory; co-taught)

Organization for Tropical Studies (OTS)

Faculty resource person, 1986, 1992, 2002

The Lepidoptera Course (American Museum of Natural History)

Instructor, August 2012, 2013

STUDENTS

Graduate Students, Harvard University

Mark Skinner (Ph.D. 1988)

Eric Fajer (Ph.D. 1990)

Kathy Burgess (Ph.D. 1991)

Graduate Students, University of Colorado

Karolyn Darrow (MBS, 1993)
Lee Dyer (Ph.D., 1994)
Ruth Heisler (M.A., 1995)
Mark Camara (Ph.D., 1995)
Jamie Alton (M.S., 1997)
Jill Dreves (M.S., 2001)
Celeste Park (M.A., 2001)
MarieAnn de la Fuente (Ph.D. 2002)
Steve Armstead (M.S. 2003)
David Bettman (M.A. 2004)
Kasey Barton (Ph.D. 2007)
Ken Keefover-Ring (Ph.D. 2008, coadvised)
Jessica Vargas (M.A. 2009)
Jeff McClenahan (M.S. 2009)
Natalie Robinson (M.A. 2009; Ph.D. 2013, coadvised)
Crystal Boyd (M.S. 2011)
Mary Jamieson (Ph.D. 2010, co-advised)
Carolina Quintero (Ph.D. 2011)
Susan Whitehead (Ph.D. 2013)
Katie Wolfson (M.S. 2015)
Collin Schwantes (M.A 2015)
Amy Trowbridge (Ph.D. 2015, co-advised)
Brian Stucky (Ph.D. 2015, co-advised)
Caitlin Kelly (Ph.D. 2016)
Megan Blanchard (Ph.D. 2019)
Tobin Hammer (Ph.D. 2018, co-advised)
Erin Barbeau (M.S. 2019)
Jessica Mullins (M.S. 2021)
Katherine Hernandez (Ph.D. expected 2023)
Megan Zabinski (Ph.D. expected 2023)
Garret Jolma (M.S. expected 2023, co-advised)

Post-doctoral Fellows

Gillian Puttick (1981-1983)
Suzanne Dobler (1993-1996)
Dana Garrigan (1994 - 1996)
Cesar Nufio (2005 – 2009)
Evan Lampert (2007 – 2010)
Susan Whitehead (2013 – 2014)
Peri Mason (2013 – 2016)
Adrian Carper (2013 – present)

Graduate Student Committees (University of Colorado only)

Rick Adams, Elizabeth Ammon, Genna Anderegg, Jan Bernstein, Robin Bingham, Kate
Bowell, Amanda Cook, Dave Denton, Alex Elliott, Tim Farkas, David Fleck, Chloe
Garfinkel, Anna Goebel, Nate Howard, Jo Jeral, Asia Kaiser, Keefover-Ring, Scott Kelley,
David Knochel, Claire Lay, Bethany Lewis, Marcy Litvak, Claire Lay, Sukuan Liu,
Margaret McDole, Terry McGlynn, Chris McGuire, Sam Messier, Kailen Mooney,

Mardy Nelson, Michelle Ochomogo, Anna Paraskovopoulos, Sonora Rasmussen, Michael Rodriguez, Terry Smith-Glaser, Brian Stucky, Tim Szewczyk, Amy Trowbridge, Shaharra Usnick, Ann West, Mathhew Wilkins, Carla Wise, Jane Zelikova

Graduate Student Committees—other Universities

Leah Dudley (Univeristy of Missouri, Ph. D. 2005)
Angela Smilanich (Tulane University, Ph.D. 2008)
Christina Alba (Colorado State University, Ph.D. 2011)
Peri Mason (Wesleyan University, Ph.D. 2012)
Stacy Endriss (Colorado State University, Ph.D. 2016)
Elizabeth Barnes (University of Denver, Ph.D. 2017)
Leif Richardson (Dartmouth University, Ph.D. 2015)
Cheryl Bowker (Colorado State University, Ph.D. 2017)
Laurel Cepero (University of Denver)
Nate Haan (University of Washington, Ph.D. 2017)
Jessica Bray (Virginia Commonwealth, M.S. 2015)
Tara Christianson (University of Nevada, Reno, Ph.D.)

Undergraduate Honors Theses (at University of Colorado only)

Demetri Theodoratus (1998) *magna cum laude*
Megan Petri (2008) *summa cum laude*
Frances Drachenberg (2010) *magna cum laude*
Angela Knerl (2010) *summa cum laude*
Sean MacNamara (2011) *cum laude*
Daniel Minahan (2011) *magna cum laude*
Mike Belazis (2012) *magna cum laude*
Jordan Tiramani (2012) *cum laude*
Pornsawan Poopat (2013) *cum laude*
Alexandra Morphew (2017) *summa cum laude*
Micaela Enger (2017) *cum laude*
Hannah Hartung (2019) *summa cum laude*
Adriana Jacobi (2023) in progress

Undergraduate students doing independent research (at University of Colorado only)

Michele Arntz, Mike Belazis, Lauren Bradley, Patty Brezovar, Eowyn Burke, Marie Ann de la Fuente, Scott Denton, Frances Drachenburg, Robb Ecker, Alexander Ellis, Micaela Enger, Tara Glover, Colin Gottlieb, Hannah Hartung, Alex Hill, Kevin Johnson, Janine Johnston, Heidi Kippenhan, Angela Knerl, Quinn Langsfeld, Edwin Lynch, Sean MacNamara, Marie Massa, Kelly Matheson, Jeff McClenahan, Danny Minnahan, Alex Morphew, Ann Nelson, Celeste Park, Pornsawan Poopat, Katie Ramsey, Pamela Ridley, Joni Sakurada, Nathan Sanders, Erin Schon, Kelly Sensecqua, Jan Simms, Shelby Soulia, Demetri Theodoratus, Leslie Van Stelten, Allyson Sudborough, Jordan Tiramani, Jason Wong, Abigail Wright

FIELD EXPERIENCE

North America--Northern California, Colorado and New England
South America--Peru, Argentina, Costa Rica, Venezuela

INVITED SEMINARS AND SYMPOSIA PARTICIPATION (last 15 years)

- 2023 Gordon Conference on Plant Herbivore Interactions.
Discussion leader (with Katja Poveda), GRS mentoring
Co-leader Power Hour (with Karina Boege)
- 2022 CU Be Well presentation: Consequences of globalization for insect-plant interactions and the wellness of the planet
- 2022 Center for Plant Conservation, keynote address: Better living through plant chemistry: people, pollinators and parasites
- 2021 Texas A&M
University of Northern Colorado
- 2020 Rotary Club of Boulder
- 2019 Gordon Conference on Plant Herbivore Interactions. Discussion Leader for session on “The Ecology and Evolution of Unconventional Herbivores”
Entomological Society of America. Smilanich, A., M.D. Bowers, N. Muchoney, H. Slinn. The gravity of top-down forces: Effects of parasitoids and viruses on the ecology of caterpillars. Invited symposium presentation.
Entomological Society of America. Keynote speaker in symposium, “Caterpillars in a tritrophic world: Adaptations and counteradaptations”
University of Colorado Women’s Club
Pennsylvania State University
- 2018 Michigan State University
CU Denver
- 2017 Ecological Society of America, Portland, Oregon. Invited symposium presentation.
- 2016 Boulder Valley Schools Education Program
University of Colorado Museum of Natural History
Northern Arizona University
Tufts University
- 2015 Entomological Society of America, Minneapolis, Minnesota. Invited symposium presentation.
- 2014 University of Colorado Evolution Outreach Program. Keynote speaker.
Entomological Society of America, Portland, Oregon. Invited symposium presentation.
Laboratorio Ecotono, CONICET–INIBIOMA, Universidad Nacional del Comahue, Bariloche, Argentina.
University of Wyoming
University of Wisconsin
- 2013 Entomological Society of America, Austin, Texas. Symposium on Plant Secondary Chemistry and Insect-Plant Interactions: The Role of Iridoid Glycosides (Co-Organizer and speaker)
Entomological Society of America, Austin Texas. Symposium on The Environment as the Sculptor: How Abiotic Factors Shape Plant-Insect Interactions
University of Denver
- 2012 Dartmouth University
State of Maryland Natural Resources
University of Colorado Museum of Natural History
- 2011 Binghamton University
University of Nevada at Reno
- 2010 Brown University
Rhode Island Audubon Society
Dartmouth University
- 2009 Texas A&M University
Swarthmore College
Butterfly Pavillion

- University of Colorado Museum
- 2008 International Congress of Entomology, Durban, South Africa. Symposium on Role of Plant Chemistry in Multi-trophic Interactions
- 2007 Western Interior Paleontological Society, Symposium on Evolution and the Fossil Record
Colorado College
Entomological Society of America, Symposium in honor of Elizabeth Bernays
Butterfly Pavilion
Colorado Native Plant Society, keynote speech
- 2006 Wesleyan University
University of Oregon
Georgetown University
University of Maryland

PAPERS AND POSTERS PRESENTED AT PROFESSIONAL MEETINGS (last 15 years)

* = undergraduate contributors

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- 2022 Entomological Society of America. K. Hernandez (presenter), A. Carper, M.D. Bowers. Temperature effects on a specialist and a generalist caterpillar. Format: talk, November 2022, Vancouver, Canada
CU Student Research symposium. M. Zabinski (presenter) and M.D. Bowers. Battle Royale: Caterpillars and their enemies.
Guild of Rocy Mountain Ecologists and Evolutionary Biologists. M. Zabinski (presenter) and M.D. Bowers. Investing in defense: costs of unpalatability in a nymphalid caterpillar on two chemical defended host plants.
- 2021 Lepidopterists' Society. Zabinski, M. (presenter) and M.D. Bowers. Population variation in chemical defense and immune response in a widespread North American Butterfly (virtual).
Entomological Society of America. Bowers, M.D. and A. Carper. Hostplant effects on a specialist caterpillar-parasitoid interaction.
Entomological Society of America. Jessica L. Mullins (presenter), Virginia L. Scott, Adrian L. Carper, M. Deane Bowers. Weathering the storm: Wild bee community response to an extreme flood.
Entomological Society of America. Hernandez, K. (presenter), S. Cibotti, A. Hess, R. Schilder, J. Ali, M.D. Bowers. Fight or flight: Evaluating the impacts of diet on the flight performance of painted lady butterflies.
Entomological Society of America. Muchoney, N. (presenter), M.D. Bowers, A. Carper, A. Smilanich. Interactions between a densovirus and wild lepidopteran hosts: The roles of host plant use, chemical defense, and viral diversity.
High Country Lepidopterists Society. Adrian Carper (presenter) and M.D. Bowers. Host plant effects on parasitoid-host interactions.
- 2020 Ecological Society of America. Discussion leader for organized session (virtual).
Ecological Society of America. Carper, A. (presenter), L. Richardson, and M.D. Bowers. Seasonal variation in host plant chemistry drives sequestration in a specialist caterpillar. Poster.
Ecological Society of America. Zabinski, M. (presenter) and M.D. Bowers. Population variation in chemical defense and immune response in a widespread North American butterfly. Poster.
Entomological Society of America. Mullins, J. (presenter), Scott, V., Carper, A., and Bowers M.D. Wild bee response to extreme flooding.

- 2019 Gordon Conference on Plant Herbivore Interactions. Discussion Leader for session on “The Ecology and Evolution of Unconventional Herbivores”
- Gordon Conference on Plant Herbivore Interactions. Bowers, M.D. Fluctuating chemical defense in two checkerspot butterflies (poster).
- Gordon Conference on Plant Herbivore Interactions. Hernandez, K. (presenter) and M.D. Bowers. Hungry caterpillars: Assessing host plant effects on larval performance of a generalist butterfly (poster).
- Gordon Conference on Plant Herbivore Interactions. Blanchard, M. and M.D. Bowers. From pods to populations: Chemical variation across scales (poster).
- Gordon Conference on Plant Herbivore Interactions. Smilanich, A.M. (presenter), N. Muchoney, M.D. Bowers, M. Teglas, A. Carper. “The effects of a pathogenic virus on herbivores host plant range expansion (poster).
- Ecological Society of America. Carper, A.L. (presenter), M. Enger, M.D. Bowers. Impacts of host plant on sequestration and immune response across development in a specialist caterpillar.
- Entomological Society of America. Muchoney, N. (presenter), M.D. Bowers, P. Mason, A.L. Carper, A. Smilanich. Phytochemical and immunological mediation of interactions between a pathogenic densovirus and its lepidopteran hosts.
- 2018 Entomological Society of America. Hernandez, K. (presenter) and M.D. Bowers. “Larval performance of a multivoltine generalist herbivores: Effects of diet and time”
- Entomological Society of America. Muchoney, N. (presenter), M.D. Bowers, A.L. Carper, and A. Smilanich. “Larval host plant species influences development and survival of viral infection in *Anartia jatrophae* (Lepidoptera: Nymphalide).
- Entomological Society of America. M.D. Bowers (presenter). “Annual variation in chemical defense of two sympatric checkerspot butterflies”.
- Entomological Society of America. A. Smilanich (presenter), A. Wantanabe, N. Muchoney, C. Chung, A.L. Carper, and M.D. Bowers. “Host plant dependent variation in survival against a lepidopteran densovirus”.
- Ecological Society of America. Blanchard, M. (presenter), M.D. Bowers. “From pods to populations: A comparison of lupine seed defense across scales”
- Lepidopterists’ Society. Hernandez, K. (presenter), M.D. Bowers. “Larval performance of a multivoltine generalist herbivore: Effects of diet and time”.
- Society for the Study of Evolution. Muchoney, N. (presenter), M.D. Bowers, A. Smilanich. “Consequences of novel host plant use for pathogen exposure, immunocompetence and chemical defense in a specialist herbivore”.
- 2017 High Country Lepidopterists. Bowers, M.D. “Non-native plants and native herbivores: Chemical defense and higher trophic levels”
- Ecological Society of America. Carper, A.L. (presenter), C.J. Schwantes, S. Endriss, A. Norton, M.D. Bowers, M.A. Jamieson. “Exploring variation in local and landscape factors driving grassland bee communities in Colorado”.
- Ecological Society of America. Bowers, M.D. (presenter), N. Muchoney, P. Mason, A. Smilanich. “Non-native plants and native herbivores: Chemical defense and higher trophic levels”. Invited symposium presentation.
- Ecological Society of America. Muchoney, N.D. (presenter), P. Mason, M. Teglas, A. Smilanich. “Consequences of novel host plant utilization for pathogen exposure, immunocompetence, and chemical defense in wild populations of *Euphydryas phaeton*”. (poster).
- Ecological Society of America. Haan, N.L. (presenter), J.D. Bakker, and M.D. Bowers. Novel and ancestral host plants and their effects on the endangered butterfly, Taylor’s checkerspot.

- Ecological Society of America. Bohanon, K.H. (presenter), A.L. Carper, M.D. Bowers. "Effects of woody debris and its management on wild bee communities along Colorado's Front Range. (poster).
- Ecological Society of America. Blanchard, M.L. (presenter) and M.D. Bowers. From pods to populations: Variation in lupine seed defense across scales. (Poster).
- Gordon Conference on Plant Herbivore Interactions. Bowers, M.D. (presenter), N. Muchoney, P.A. Mason, A.M. Smilanich. "Consequences of novel host plants for native insect herbivores: pathogens, immune response and chemical defense". (Poster)
- Front Range Open Space Research Symposium, Boulder, CO. Carper, A.L. (presenter) & M.D. Bowers. The conservation value of woody debris for cavity-nesting bees on Boulder County Open Space.
- Gordon Conference on Plant Herbivore Interactions. Megan Blanchard (presenter) and M.D. Bowers. "Within- and between-plant variation in lupine alkaloids". (poster)
- 2016 Ecological Society of America. "Conservation grassland plantings promote wild cavity-nesting bee reproduction in agroecosystems". Poster. Alexandra Morphew* (presenter), Adrian Carper, M. Deane Bowers, Mary Jamieson.
- Ecological Society of America. "How does allocation of defensive compounds change with tissue type over the growing season?". Poster. Megan Blanchard (presenter), M. Deane Bowers.
- Lepidopterists' Society. "Localization of defense chemicals in two checkerspot butterflies (*Euphydryas*, Nymphalidae)". M. Deane Bowers (presenter) and Peri Mason.
- International Congress of Entomology. "Utilization of a novel host plant impairs immunity and increases pathogen prevalence in wild populations of *Euphydryas phaeton*. Poster. N. Muchoney (presenter), P. Mason, M. Teglas, J. Hsueh, M.D. Bowers, A. Smilanich.
- International Congress of Entomology. "The Bees' Needs: Integrating ecological research and outreach: V. Scott (presenter), A. Rose, A.L. Carper, M.D. Bowers.
- International Congress of Entomology. "Host range expansion and the insect immune response". A. Smilanich, P. Mason, C. Mo, N. Muchoney, T. Langus, S. Yoon, M.D. Bowers.
- International Congress of Entomology. "Host plant effects on buckeye (*Junonia coenia*) survival and immunity during infection with the *Junonia coenia* denovirus. Poster. C. Mo (presenter), M.D. Bowers, P. Mason, M. Teglas, J. Hsueh, C. Dodson, A. Smilanich.
- 2015 Entomological Society of America. "*The Bees' Needs*: Assessing the conservation value of bee nesting blocks through citizen science". Poster. Virginia Scott (presenter), Alexandra Rose, Collin Schwantes, Katherine Wolfson, Adrian Carper, M. Deane Bowers.
- Eastern Branch Entomological Society. "Responses of the Catalpa Sphinx and its primary parasitoid to high and low levels of iridoid glycosides". Jessica Bray (presenter), Deane Bowers, and Karen Kester.
- Citizen Science Conference. "Partnering for discovery: Exploring the connection between citizen science and museums." Katie Wolfson (presenter) and Deane Bowers.
- AAAS. "Imagine all the imaging: One entomology collection's quest for the perfect insect image". Katie Wolfson (presenter), Megan Blanchard, Virginia Scott, and Deane Bowers.

- Ecological Society of America, Baltimore, MD. "Nectar chemistry mediates the behavior of parasitized bees: consequences for plant fitness". Leif Richardson (presenter), Rebecca Irwin, Deane Bowers
- 2014 Ecological Society of America meeting, Sacramento, CA. "Iridoid glycosides in floral nectar alter pollinator behavior and pollen transfer dynamics". Leif Richardson (Presenter), Rebecca Irwin, Deane Bowers
- Entomological Society of America, Portland, Oregon. "Population variation in chemical defense in the specialist butterfly, *Euphydryas phaeton* (Nymphalidae)". Peri Mason (presenter) and Deane Bowers.
- Entomological Society of America, Portland, Oregon. "Consequences of non-native host plants for caterpillars and their natural enemies". Deane Bowers (presenter). Invited symposium presentation.
- Entomological Society of America, Portland, Oregon. "Interactions between territorial soldier beetles (*Chauliognathus basalis*) and bees visiting sunflowers (*Helianthus perfoliaris*). Poster. Collin Schwantes (presenter) and Deane Bowers.
- Entomological Society of America, Portland, Oregon. "Responses of *Catalpa* Sphinx and its primary parasitoid to vary levels of host plant iridoid glycosides". Poster. Jessica Bray (presenter), Deane Bowers, and Karen Kester.
- Entomological Society of America, Portland, Oregon. "Extreme weather events and native bees: Effects of the 2013 Colorado flood". Poster. Virginia Scott (presenter), Adrian Carper, and Deane Bowers.
- Entomological Society of America, Portland, Oregon. "Conservation grasslands support diverse native bee assemblages in agroecosystems". Poster. Adrian Carper (presenter), Collin Schwantes, Stacy Endriss, Andrew Norton, Deane Bowers, Mary Jamieson.
- 2013 Gordon Conference on Plant-Herbivore Interactions. Ventura, California. "Sequestration of iridoid glycosides by a specialist geometrid and the evolution of iridoid sequestration in the Lepidoptera". Deane Bowers (Presenter). Poster.
- Gordon Conference on Plant-Herbivore Interactions. Ventura, California. "Effects of sustained herbivory on conifer defenses: consequences for herbivore performance". Amy Trowbridge (presenter), Deane Bowers, Henry Adams, Nate McDowell, and Russell Monson. Poster.
- Gordon Conference on Plant-Herbivore Interactions. Ventura, California. "Chemical trade-offs in seed dispersal: Defensive metabolites in fruits alter preferences of seed-dispersing bats". Susan Whitehead (presenter), Maria Obando-Quesada, Deane Bowers. (Poster).
- Gordon Conference on Plant-Herbivore Interactions. Ventura, California. Chemical defense profiles in native and non-native *Lonicera* species: partitioning variance and associations with herbivore resistance. Deah Lieurance, Sourav Chakraborty, Susan R. Whitehead, Jeff Powell, Pierluigi Bonello, Deane Bowers, and Don Cipollini (Presenter). Poster.
- Gordon Conference on Plant-Herbivore Interactions. Ventura, California. Does nectar robbing induce iridoid glycosides in *Linaria vulgaris*? Jessamyn Manson (presenter), Rebecca Irwin, Deane Bowers. Poster.
- Entomological Society of America. Austin, Texas. "Plant chemical variation and trophic interactions: time is of the essence". Deane Bowers (Presenter) and Carolina Quintero. (invited symposium contributor)
- Entomological Society of America. Austin, Texas. "Ecology and evolution of iridoid glycoside sequestration in the Lepidoptera". Deane Bowers. (invited symposium contributor).

- Entomological Society of America. Austin, Texas. "The Bees' Needs: a Citizen Science Project. Virginia Scott (presenter), Alex Rose, Deane Bowers. Poster.
- 2012 Terrestrial Invasive Species Conference, "Variation in defensive secondary metabolites of native and non-native *Lonicera* species grown in the common garden: responses to nutrient availability and relationships with herbivore resistance" Deah Lieurance (Presenter), Sourav Chakraborty, Pierluigi Bonello, Susan Whitehead, Deane Bowers and Don Cipollini
- Guild of Rocky Mountain Ecologists and Evolutionary Biologists. "Chemical ecology of *Eucaterva variaria* (Geometridae) and its host plant, Desert Willow, *Chilopsis linearis* (Bignoniaceae)"
- Lepidopterists' Society, Denver, Colorado. "Chemical ecology of *Eucaterva variaria* (Geometridae) and its host plant, Desert Willow, *Chilopsis linearis* (Bignoniaceae)"
- Ecological Society of America, Portland, Oregon. "Does variation in defensive secondary metabolites in native and non-native *Lonicera* species explain invasive success?: responses to nutrient availability and relationships with herbivore resistance in a common garden experiment" Deah Lieurance (Presenter), Sourav Chakraborty, Pierluigi Bonello, Susan Whitehead, Deane Bowers and Don Cipollini
- 2011 Ecological Society of America, Austin, Texas. "Are ripe fruit secondary compounds a function of foliar defense: patterns of intra-specific variation in *Lonicera x bella*" (with Susan Whitehead, presenter).
- Lepidopterists Society, New Haven, Connecticut. "Within and between year variation in chemical defense of two co-occurring butterfly species" (with Alex Hill*, Frances Drachenburg*, Carolina Quintero)
- 2010 Gordon Conference on Plant-Herbivore Interactions. Galveston, Texas, "Annual variation in chemical defense of two checkerspot butterflies". (with Alexander Hill*, Frances Drachenburg*, and Carolina Quintero). (poster)
- Gordon Conference on Plant-Herbivore Interactions. Galveston, Texas, "Effects of host plant species on performance of caterpillars and their parasitoids: a comparison of two systems" (with Evan Lampert, presenter). (poster).
- Society for the Study of Evolution. "Phytochemical variation in *Mimulus guttatus* (Yellow Monkey Flower)" (with Liza Holeski (presenter), Ken Keefover-Ring and Rick Lindroth.
- Ecological Society of America. "Ontogenetic variation in herbivore defense phenotypes in the introduced weed *Verbascum thapsus* (common mullein)" (with Christina Alba-Lynn (presenter), Dana Blumenthal and Ruth Huffbauer).
- Guild of Rocky Mountain Ecologists and Evolutionary Biologists. Pingree Park, CO Whitehead, S.R. and M.D. Bowers "Are ripe fruit secondary compounds a consequence of foliar defense? Patterns of intraspecific chemical variation in *Lonicera tatarica* (Caprifoliaceae)"
- 2009 Ecological Society of America, "Caterpillar chemical defense: sources of variation and effects on an endoparasitoid". (with Evan Lampert and Lee Dyer)
- Ecological Society of America, "Effects of plant ontogeny on chemical defense of *Plantago lanceolata*". (with Carolina Quintero, presenter).
- Guild of Rocky Mountain Population Biologists, "Caterpillar chemical defense: sources of variation and effects on an endoparasitoid". (with Evan Lampert)
- Spring symposium, Department of Ecology and Evolutionary Biology, University of Colorado. The effect of ingested iridoid glycosides on the White Peacock (Lepidoptera: Nymphalidae). (with Angela Knerl*, presenter).

- 2008 North Central Branch of the Entomological Society of America, “Host plant identity and interactions between a generalist herbivore and its parasitoid”. (with Evan Lampert, presenter).
 International Congress of Entomology, Durban, South Africa, “Variation in caterpillar chemistry: Effects on predators versus parasitoids”. (invited symposium presentation).
 International Congress of Entomology, Durban, South Africa, “Multi-trophic maintenance of herbivore populations: How plant secondary chemistry indirectly benefits parasitoid natural enemies”, (with Angela Smilanich, presenter, Lee Dyer, Jeff Chambers).
 Ecological Society of America, Milwaukee, WI, “The effects of climate change on the grasshoppers of the southern Rocky Mountains of Colorado”, (with C. Nufio, presenter).
 Entomological Society of America, “A comparison of mixed host plant diets on the sequestration of iridoid glycosides by three lepidopteran species” (with Evan Lampert, presenter).
 Guild of Rocky Mountain Ecologists and Evolutionary Biologists. “Impacts of diet variation in secondary compounds on a generalist herbivore”. (with Evan Lampert, presenter)
- 2007 Gordon Conference on Plant-Herbivore Interactions, “Iridoid glycosides in an invasive weed, Dalmatian Toadflax (*Linaria dalmatica*) and its biological control agent (*Calophasia lunula*)” (poster).
 Ecological Society of America, “Effects of nitrogen deposition on biological control of an invasive weed, *Linaria dalmatica* (Scrophulariaceae). Poster (with Mary Jamieson, presenter).
 Ecological Society of America, “Costs of sequestration in the buckeye caterpillar (*Junonia coenia*). Smilanich, A.M (presenter)., Dyer, L.A., Chambers, J.Q., and Bowers, M.D.
 Entomological Society of America, “Costs of sequestration in the Buckeye caterpillar, *Junonia coenia* (Nymphalidae)”. (with Angela Smilanich, presenter, Lee Dyer, Jeff Chambers).
 Entomological Society of America, “Caterpillar chemistry: Sequestration of iridoid glycosides by woolly bears (Arctiidae)”. Invited symposium presentation.
 Entomological Society of America, “Tritrophic interactions among *Catalpa*, the Catalpa Sphinx (*Ceratomia catalpae*), and the parasitoid *Cotesia congregata*”. Poster. (With Evan Lampert, presenter, and Lee Dyer).
 Colorado Native Plant Society. “Eating and being eaten: Plant-insect interactions in the Colorado Front Range”. Key note speaker.

PUBLICATIONS (Peer-reviewed)

H-index = 53 (Google Scholar)

* indicates undergraduate author

** indicates graduate student or post-doctoral author

145. Muchoney, N.D., M.D. Bowers, A.L. Carper, M.B. Teglas, A.M. Smilanich. 2023. Use of an exotic host plant reduces viral burden in a native insect herbivore. *Ecology Letters* 26: 425-436.
144. Iwanycki Ahlstrand, N., Shyam Gopalakrishnan, Filipe G Vieira, Vanessa C Bieker, Heidi M Meudt, Stephanie Dunbar-Co, Carl J Rothfels, Karen A Martinez-Swatson, Carla Maldonado, Gustavo Hassemer, Alexey Shipunov, M Deane Bowers, Elliot

- Gardner, Maonian Xu, Abdolbaset Ghorbani, Makoto Amano, Olwen M Grace, James S Pringle, Madonna Bishop, Vincent Manzanilla, Helena Cotrim, Sean Blaney, Dimitri Zubov, Hong-Keun Choi, Yeter Yesil, Bruce Bennett, Sornkanok Vimolmangkang, Hesham R El-Seedi, Peter O Staub, Zhu Li, Delgerbat Boldbaatar, Michael Hislop, Laura J Caddy, A Muthama Muasya, C Haris Saslis-Lagoudakis, M Thomas P Gilbert, Nyree JC Zerega, Nina Rønsted. Travel tales of a worldwide week: Genomic signatures of *Plantago major* reveal distinct genotypic groups with links to colonial trade routes. *Frontiers in Plant Science* 13.
143. Bowers, M.D. 2022. Sequestered caterpillar chemical defenses: From “disgusting morsels” to model systems. In: Marquis, R. and Koptur, S. (eds.). *Caterpillars in the Middle*.
 142. Muchoney^{**}, N.D., M.D. Bowers, A.L. Carper^{**}, P.A. Mason, M.B. Teglas¹, A.M. Smilanich. 2022. Use of an exotic host plant shifts immunity and chemical defense in wild populations of a specialist insect herbivore. *Ecology and Evolution* 12(3) 38723
 141. Carper, A^{**}, Richardson, L., Irwin, R., and Bowers, M.D. 2022. Seasonal variation in host plant chemistry drives sequestration in a specialist caterpillar. *Journal of Chemical Ecology* 48:79-88.
 140. Haan, N^{**}, M.D. Bowers and J. Bakker. 2021. Preference, performance, and chemical defense in an endangered butterfly using novel and ancestral host plants. *Scientific Reports* 11:992-1005. <https://doi.org/10.1038/s41598-020-80413-y>
 139. Blanchard^{**}, M.E. and M.D. Bowers. 2020. Critical phenological events affect chemical defense of plant tissues: Iridoid glycosides in a woody shrub. *Journal of Chemical Ecology* 46: 206-216. <https://doi.org/10.1007/s10886-019-01135-8>
 138. Carper^{**}, A. L., Enger^{*}, M., and M.D. Bowers. 2019. Host plant effects on immune response across development of a specialist caterpillar. *Frontiers in Ecology and Evolution* 7: 208. doi: 10.3389/fevo.2019.00208. invited contribution to special topics issue.
 137. Schwantes^{**}, C.J., A.L. Carper, and M.D. Bowers. 2018. Solitary floral specialists do not respond to cryptic flower-occupying predators. *Journal of Insect Behavior* 31: 642-655.
 136. Bradley^{*}, L., C. Kelly, M.D. Bowers. 2018. Host plant suitability in a specialist herbivore, *Euphydryas anicia* (Nymphalidae): Preference, performance and sequestration. *Journal of Chemical Ecology* 44:1051-1057.
 135. Kelly^{**}, C. and M.D. Bowers 2018. Host plant iridoid glycosides mediate herbivore interactions with natural enemies. *Oecologia* 188:491-500. .
 134. Quintero^{**}, C. and M.D. Bowers. 2018. Plant and herbivore ontogeny interact to shape the preference, performance and chemical defense of a specialist herbivores. *Oecologia* 187:401-412. (Invited contribution to special topic issue).
 133. Haan^{**}, N. J.D. Bakker, M.D. Bowers. 2018. Hemiparasites can transmit indirect effects from their host plants to herbivores. *Ecology* 99: 399-410.
 132. Kelly^{**}, C. and M.D. Bowers. 2017. The perennial *Penstemon*: variation across years, populations and tissues. *Journal of Chemical Ecology* 43:599-607.
 131. Mason^{**}, P. and M.D. Bowers. 2017. Localization of defensive chemicals in two congeneric butterflies (*Euphydryas*, Nymphalidae). *Journal of Chemical Ecology* 43:480-486.
 130. Trowbridge^{**}, A., M. D. Bowers, R.A. Monson. 2016. Conifer monoterpene chemistry during an outbreak enhances consumption and immune response of an eruptive folivore. *Journal of Chemical Ecology* 42:1381-1292.

129. Schultz, C. J. Zemaitis, C. Thomas, M.D. Bowers, E. Crone. 2016. Nontarget effects of grass-specific herbivores differ among species, chemicals and host plants in *Euphydryas* butterflies. *Journal of Insect Conservation* 20: 867-877.
128. Whitehead**, S., M. Obando Quesada, M. D. Bowers. 2016. Chemical trade-offs in seed dispersal: Defensive metabolites in fruits deter consumption by mutualist bats. *Oikos* 125:927-937..
127. Whitehead**, S., J. Tiramani*, M.D. Bowers. 2016. Iridoid glycosides from fruits reduce the growth of fungi associated with fruit rot. *Journal of Plant Ecology* 9: 357-366.
126. Kelly**, C. and M.D. Bowers. 2016. Preference and performance of generalist and specialist herbivores on chemically defended host plants. *Ecological Entomology* 41: 308-316.
125. Richardson, L.**, M.D. Bowers, R. Irwin. 2016. Nectar chemistry mediates the behavior of parasitized bees: consequences for plant fitness. *Ecology* 97:325-337.
124. Lieurance**, D., S. Chakraborty, S.R. Whitehead**, J. Powell, P. Bonello, M.D. Bowers, D. Cipollini. 2015. Comparative herbivory rates and secondary metabolite profiles in the leaves of native and non-native *Lonicera* species. *Journal of Chemical Ecology* 41:1069-1079.
123. Bowers, M.D. 2015. From caterpillars to chemistry. In: L.A. Dyer and M.L. Forister (eds.). *The Lives of Lepidopterists*. Springer. Pp. 3 – 9.
122. Hammer**, T. and M.D. Bowers 2015. Gut microbes may facilitate insect herbivory of chemically defended plants. *Oecologia* 179:1-14.
121. Lampert**, E. and M.D. Bowers. 2015. Incompatibility between plant-derived defensive chemistry and immune response of 2 sphingid herbivores. *Journal of Chemical Ecology* 41:85-92.
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