Heidi M. Appel, PhD

happel@uh.edu
713.743.9007 (office)

Education

University of Michigan, Ann Arbor, MI, 1983-1990, Ph.D. (Biology; Ecology & Evolution)
University of Minnesota, St. Paul, MN, 1981-1983
University of Michigan, Ann Arbor, MI, 1979-1981, M.S. (Biology)
Oakland University, Rochester, MI, 1977-1979, B.G.S. (Bachelor of General Studies)
Thomas Jefferson College, Grand Rapids, MI, 1974-1977 (Ancient History & Music)

Professional Employment

Dean, Honors College at the University of Houston, 2023 – present
Professor, Department of Biology & Biochemistry, University of Houston, 2023 - present
Dean, Jesup Scott Honors College, University of Toledo, 2016 – 2023
Professor, Department of Environmental Sciences, University of Toledo, 2016 – present
Senior Associate Director, Honors College, University of Missouri, 2013 - 2016
Associate Director, Honors College, University of Missouri, 2012 - 2013
Senior Research Scientist & Member of Graduate Faculty, University of Missouri, 2007 - 2016
Research Associate & Member of Graduate Faculty, Pennsylvania State University, 1994 - 2007
Lecturer, Pennsylvania State University Department of Entomology, 1992-1999; 2006
Lecturer, Pennsylvania State University Schreyer Honors College & Dept of Biology, 2000 - 2004

Leadership Activities & Recognitions

Executive Board, APLU Council on Honors Education, 2021 - present
Milestone Honoree (Education), YWCA of Northwest Ohio, 2023 – unable to receive because of move
Program Committee for 2022 Conference, APLU Council on Honors Education
Co-Chair, Steering Committee, 2021 International Visual Literacy Association Conference (virtual)
Co-Chair, APLU Council on Honors Education, Subcommittee on Student Opportunities, 2020 - present
AAAS Fellow, American Association for the Advancement of Science, 2018
Co-Founder, Toledo Museum of Art / University of Toledo *Visual Literacy Initiative*, 2017 – present
Co-Organizer, Leadership Conference: *Finding the Balance in Higher Education*, UMissouri, 2014
Co-Founder, campus-wide initiative in interdisciplinary teaching, 2013
Chair, Gordon Conference on Plant Herbivore Interactions, 2010
Co-Founder, Interdisciplinary Working Group in Evolutionary Studies, UMissouri, 2008 - 2012

Leadership Training

NCHC Assessment Workshop and Program Review Training, 2022
SEC Academic Leadership Development Program, 2014 - 2015
HERS Leadership Institute, Bryn Mawr, 2013
Science communication training *Science: Becoming the Messenger*, National Science Foundation, 2013

Professional Service – General

President's Steering Committee on Financial Opportunity Review, UToledo, 2021- 2023
Support Unit Budget Allocation Committee, University of Toledo, 2022 - 2023
Co-Chair, UToledo United Way Campaign, 2021 - 2022
Provost's Reinvestment Strategy Committee, UToledo, 2020 - 2021
Chair, Search Committee, Dean of College of Natural Sciences & Mathematics, UToledo, 2021
Distinguished University Professor Committee, UToledo, 2019 – present
Chair, Search Committee, Dean of University Libraries, UToledo, 2017
Co-Chair, Presidential Scholar Selection Committee, UToledo, 2017 – present
Panelist, National Science Foundation Workshop on Institutional Leadership in Broader Impacts, 2015
Advisory Board, Office of Undergraduate Research, UMissouri, 2014 - 2016
Advisory Board, Life Sciences and Society Program, UMissouri, 2010 - 2016
Editorial Board of *Journal of Chemical Ecology,* 2005 – 2016; Peer Reviewer for PNAS, PLOS ONE, PLOS BIOLOGY, Plant Physiology, Plant Journal, New Phytologist, J. Experimental Botany, Plant Science, Chemoecology, Molecular Ecology, Ecology, Ecological Letters, J. Ecology, Oecologia
NSF-IOS Panel Member 2010, 2014, 2020; Ad Hoc Proposal Reviewer for USDA, NSF

Professional Service – Teaching (*designed course)

**Design Challenges* (HON4397). Interdisciplinary, experiential learning course in which students support local non-profits by researching, and in some cases implementing, a mission-related charge from them.
**Social Determinants of Health: Food Insecurity* (HON4950). Interdisciplinary, action-based seminar with United Way in which student teams do research to find solutions to local challenges. Fall 2022.
**Community Engagement* (Hon3010). Interdisciplinary, action-based course in which students support local non-profits by researching best practices to help them extend their reach in the community.
**Galapagos Islands: Biology & Conservation* (HON2990) 10-day interdisciplinary study abroad course taught over spring break, 2017, 2018, 2020.
**Ecuador: Biology, Culture, & Sustainable Development* (Hon 2990, GnHon 2450H/ 2230H/2310H). Two-week interdisciplinary study abroad course during Winter Intersession 2015, 2016, 2019.
**Finding the Story in Science* (GnHon2450H). Interdisciplinary discussion-based course on communicating science to the public, co-taught with Journalism faculty.
**Genes & Beyond: How the environment shapes who we are* (GnHon2450H). Interdisciplinary discussion -based course on epigenetics taught around the 2015 Life Sciences & Society Symposium.
**Decoding Science* (GnHon1070H). Honors College. Interdisciplinary discussion-based course taught around the 2014 Life Sciences & Society Symposium.
**Environment: From Molecules to the Cosmos* (General Honors 2461H), Honors College. Fall 2013, 2014. Interdisciplinary science course for non-science majors, revised with a contemporary topical theme to teach basic science principles, emphasizing the nature of science research.
**Claiming Kin* (GnHon1070H). Honors College. Interdisciplinary discussion-based course taught around the 2013 Life Sciences & Society Symposium of the same name.
**Molecular Ecology of Plant Herbivore Interactions* (PS7970/PS4001), UM Division of Plant Sciences, 2008-present. Designed to enhance critical thinking and reviewing skills by critiquing current literature.
Plant Stress Biology (PS8530), UM Division of Plant Sciences, Fall 2010 - present. Developed and co-taught a 1-week module on insects as a plant stress.
**Insect Biodiversity*, PSU Dept Entomology, 2006. Required course to provide core concepts in ecology and evolution and hone critical thinking and writing skills for entomology graduate students.
**Honors Introductory Biology,* Schreyer Honor College & PSU Dept Biology, 2000-2004. Integrate lecture, discussion, and cooperative and problem-based learning techniques; piloted use of on-line course and designed in-class critical thinking activities to extend online learning.
**Honors Ecology & Population Biology*, Schreyer Honor College & PSU Dept Biology, 2000-2004.

Integrated lecture, discussion, and cooperative and problem-based learning techniques.

**Bug Camp for Teachers*, PSU Dept Entomology, 1994-1999. One-week summer course for graduate credit with Science Education Faculty to introduce in-service elementary education teachers to inquiry-based classroom techniques using insects.

Insect Structure and Function Lab, PSU Dept Entomology, 1992-1995. Required course for beginning entomology graduate students designed to provide a wide range of lab techniques in a problem-based learning format to accompany a lecture course.

**Teaching With Insects*, PSU Dept Entomology, 1999. Developed with Science Education Faculty to train pre-service elementary education majors to use inquiry-based science methods with insects.

**Insect Connection*, PSU Dept Entomology, 1994. Developed with other Entomology faculty to introduce non-science majors to insects, emphasizing 'how science works'.

Professional Service – Student Training

Doctoral Thesis Committees:

Salma Bibi, University of Houston, Department of Earth and Atmospheric Sciences, 2024 -
Taylor Paret, University of Toledo, Department of Environmental Sciences, 2019 - 2024
Dileepa Jayawardena, University of Toledo, Department of Environmental Sciences, 2016 – 2020
Carola De La Torre, University of Missouri Division of Plant Sciences (UM-DPS); 2014 – 2016
Clayton Coffman (Co-Chair), UM-DPS; 2008 – 2016, Excellence in Outreach Award
Melanie Body, External Evaluator (Jury Participant) for Universite Francois-Rabelais de Tours; 2014
Phuong Dung (Ellie) Nguyen, UM-DPS; 2012 - 2013
Abbie Ferrieri, UM-DPS, 2009 – 2012; UM Excellence in Research Award
Aaron Sickel, College of Education (Science Ed) - UM; 2009 - 2012
Jason Green, College of Engineering (Computer Science) - UM; 2009 - 2012
Kristin Leach, UM-DPS; 2008 - 2010
Erin Rehrig (Co-Chair), UM-DPS; 2008 - 2010
Dong Cha, Pennsylvania State University (PSU) Department of Forest Resources; 2000-2003
Marla Jones, PSU College of Education (Science Ed); 2000-2002
Kathleen Russell, PSU College of Education (Science Ed); 2000-2002
Naomi Lovallo, PSU Dept of Entomology; 1995-1999
Patricia Friedrichsen, PSU College of Education (Science Ed); 1999-2002

Master's Thesis Committees:

Claire Thelen, Department of Biology, Bowling Green State University, 2018-2020
Taylor Paret, University of Toledo, Department of Environmental Sciences, 2017-2019
Nathaniel McCartney, PSU Dept of Entomology; 2004-2007
Julie Reynolds, PSU Dept of Entomology; 1998-1999
Amy Lake, PSU Dept of Entomology; 1995-1997
Mike Grove (Co-Chair), PSU Dept of Entomology; 1998-1999
Bryan Severyn (Co-Chair), PSU Dept of Entomology; 1998-1999

Undergraduate Independent Researchers

Kathryn Helminiak, UT Biology, Pamela Steider, UT Biology; Nicole Odom, UM Chemistry; Dhruveesh Dave*, UM Biology; William Neer, UM Honors College (UM-HC), Chemistry & Philosophy; Jacob Combs, UM Biochemistry; Keiran Hyte, UM Plant Sciences; Alexis Kollasch*, UM-HC, Biology; Briana Lynch, UM-HC, Biology Honors, NIH-IMDS Fellow (NIH Postbac Program); Ryan Richardson[*], UM-HC, Biology Honors, HHMI Fellow (Technician, Washington University); Victor Martinez-Cassmeyer, UM-HC, Biology Honors; NIH-IMDS Fellow (Peace Corps); Caitlin Vore[*], UM Plant Sciences; UMEB, McNair, NSF REU, and LSUROP Fellowships; Lynn Maines, Biochemistry (PhD Pharmacology & MBA PSU); Heather Governor[*+], PSU-SHC, Biology; M.S.; Jennifer Hess, PSU Biochemistry (M.S. in

Biochemistry); Thuy Trang-Nguyen, PSU (M.S. in Biochemistry); Susan Dietz, PSU (M.S. Entomology PSU); David Herbst[+], PSU Microbiology (M.S. Biotechnology Johns Hopkins & MBA Mount St Mary's); Brian Johnson[+], Biochemistry PSU (M.S. Biotechnology Johns Hopkins); Amanda Horn[*], PSU-SHC thesis (Dental School University of Pennsylvania); Megan Allen-Wagner[+], PSU-SHC thesis; Theresa Lee[+] PSU-SHC thesis (M.D. Johns' Hopkins Medical School); Kathyrn Pickering[*] PSU-SHC thesis (M.D. Jefferson Medical College); Colleen Yunker, PSU-SHC thesis (PhD Molecular Biology Harvard); Bianca LoVerde, PSU-SHC thesis (M.D. West Virginia School of Osteopathic Medicine)
[*]coauthored publication, [+]received award for poster at Undergraduate Research Fairs

Professional Service – Community Engagement (highlights)

Co-Founder, *Visual Literacy Initiative,* Toledo Museum of Art & University of Toledo, 2017 – present
Talks for the General Public: UToledo Saturday Morning Science, UToledo Lake Erie Speaker Series, UToledo Stranahan Aboretum Series, Toledo Naturalists′ Assoc., Boone Naturalist Assoc., 2016 – 2020
Host Scientist, Art/Science Summer Camp, UMissouri, 2015
Art in Science Program, Lee Elementary School Program, UMissouri, 2015
Talks to *Saturday Morning Science* program, UMissouri, 2014, 2015
Extensive media coverage of research leads to radio interviews on NPR, BBC, Radio New Zealand, Quirks & Quarks, Splendid Table, and hundreds of written venues, 2014-2015
Designed and co-piloted 1-day HHMI Workshop for Teachers *Plants Bite Back*, 2012
Panel Member for NIH-IMSD Students *Negotiating Positions in Research Labs*, 2009-2011
Lab host: PREP teachers 2008, 2009, 2010; elementary and middle schools; Missouri senators, representatives, staffers on MO-BIO tours, 2008 - 2014
Talks to undergraduate Researchers & Teachers: Life Sciences Undergraduate Plant Genome Internships Summer Lectures, 2008, 2009; Life Sciences Undergraduate Summer Lectures, 2009; Partners in Education 2009
Science Coordinator, State College Friends School (K-8), 2000-2006.
Career Panelist, *Expanding Your Horizons* Workshop for Junior High School Girls, 1994-1996.
PSU Entomology Department Public Education Committee 1995-1997.
Co-Organizer of 'Wildlife Nightlife' and 'Hands-On-Bugs' in 'Catch the Bug' series, 1995-1999.
Co-Organizer of the 'Insect Zoo' at the Great Insect Fair; 1993-1998.
Co-Founder and Co-Organizer, Catch The Bug workshop and field trip series; 1996-1998.
Co-Founder and Co-Instructor, Bug Camp for Kids; June 1996-1997.
Co-Founder and Co-Instructor, Bug Camp for Teachers; June 1994-1997.
Co-Founder and Co-Editor, BugBytes Newsletter; 1994-1999.
Co-Founder of the Great Insect Fair, Sept 1993 (recipient of Dept of Entomology's Team Award)
Lecturer, Univ. Minnesota Continuing Education, *Minnesota Plant Families*; Spring 1982.

Granting

Extramural:
Choose Ohio First: IMProving Retention and Student Success in Computing (COFIMPRESS-C) (2020), Ohio XXX , N. Alaraje, H. Appel. $50,059
Meeting: Plants Between a Rock and a Hard Place: The Interface between Plant Abiotic and Biotic Stress Responses (2015). National Science Foundation (NSF). W. Gassman, H. Appel, D. Mendoza-Cozati. $10,000.
The 32nd Annual Interdisciplinary Plant Group Symposium - The Interface Between Plant Abiotic And Biotic Stress Responses (2015). United States Department of Agriculture (USDA) M. Mitchum, H. Appel, W. Gassman, D. Mendoza-Cozati. $10,000.
Plant perception of insect herbivores includes leaf vibrations caused by chewing (2014). NSF. H.M. Appel, R.C. Cocroft. $810,000.
Molecular Basis of Plant Parasitism by a Galling Insect (2013). NSF, J.C. Schultz, H.M. Appel

$714,118

Plant-Herbivore Interaction Gordon Research Conference (2010). USDA. H.M. Appel, C. Orians. $10,000.

Plant-Herbivore Interaction Gordon Research Conference (2010). NSF. H.M. Appel, C. Orians. $20,000.

Interrogating Plant Volatile Reports About the Environment. NSF. J.C. Schultz, G Frye-Mason, H.M. Appel, Xudong Fan. 2009-2010. $299,980.

Competing sinks as constraints on plant defense responses. NSF, J.C. Schultz, H.M. Appel and T. Arnold, 2006-2009, $231,572.

Coordinate induction of sink strength and phenolic synthesis in trees. NSF, J.C. Schultz, H.M. Appel and T. Arnold, 2001-2004, $280,000.

Factors governing susceptibility of non-target Lepidoptera Bacillus thuringiensis. USDA FS. JC Schultz, H.M. Appel, 1998-1999, $60,000.

Hostplant incompatibility with biological control: tannins, Bt, and the gypsy moth. USDA NRICG, H.M. Appel and W.J. McCarthy, 1996-1999, $120,000.

Oak tannins, gypsy moths, and LdNPV: Anti-viral activity depends on oxidation and covalent binding of gallotannins to viral proteins. NSF, H.M.Appel and K.S. Feldman. 1994-1997, $305,937. Suppl. awards: REU, 1995-1997, $18,000.

Biochemical bases of gypsy moth resistance to biological pesticides. Northeast Regional Pesticide Impact Assessment Program, J.C. Schultz, H.M. Appel, 1993-1994, $22,500.

Tannin impact on gypsy moth requires oxidative activation. USDA NRICG, & J.C. Schultz, H.M. Appel, C.A. Mullin, 1991-1993, $130,000.

Intramural:

An Interdisciplinary Initiative to Enhance Undergraduate Interdisciplinary Education. (2013) Mizzou Advantage $30,000.

Are insect galls ectopic fruit? (2012) MU Research Board $45,619

Collaborative Portals for Interdisciplinary Working Groups: Evolutionary Studies and Science Studies 2011) Mizzou Advantage $15,000

Proposal to Establish Evolutionary Studies and Science Studies on Campus. (2010) Mizzou Advantage $20,000

Publications

Paret T, Emmons RV, Cocroft R, Gionfriddo E, and **Appel H**. 2025. Indirect Defense Responses of *Arabidopsis thaliana* to Insect Feeding Vibrations Utilizing a Miniature GC-FID. J. Chem. Ecology 51: 113. https://doi.org/10.1007/s10886-025-01669-0

Schultz J; Body M; Edger; Witiak, S; **Appel H** (2025). Transcriptional evidence of pluripotency in development of the leaf gall formed by grape phylloxera (*Daktulosphaira vitifoliae* (Fitch 1855)). New Phytologist, https://doi.org/10.1111/nph.70241

Bott-Knutson RC, Kotinek J, **Appel H**, Hart, JL, Knox P, Ziegler W, Roberts DM, Radasanu A, Nichols T, Fine L, Cordingley K, Bryk M, Sumner S, Bastian GE, Roerig N, & Stroud A (2025). An edifying honors collaborative. J Zubizarreta & VM Bryan (Eds.), *Where Honors Education and Faculty Development Meet*. National Collegiate Honors Council.

Hart, J.L., Bott-Knutson, R.C., **Appel, H.**, Kotinek, J., Knox, P., Sumner, S., Roerig, N., Ziegler, W., Fine, L.E. (2025). Hacking through the Silos: Honors Faculty Development. J Zubizarreta & VM Bryan (Eds.), *Where Honors Education and Faculty Development Meet*. National Collegiate Honors Council.

Paret T, Connor M, Cocroft R, **Appel H**. 2025. Plant response to touch *vs.* insect feeding vibrations. Arthropod-Plant Interactions 19,34. https://doi.org/10.1007/s11829-025-10139-z

Schultz JC, **Appel HM**, Edger PP, Body MJA. 2025. What transcriptomics can and cannot tell us about insect gall development. In: Oliveira, D.C.d., Isaias, R.M.d.S. (eds) Plant Galls. Springer, Cham. https://doi.org/10.1007/978-3-031-80064-1_2

Pekas A, Mazzoni V, **Appel HM**, Cocroft R, Dicke M (2023). Plant protection and biotremology: fundamental and applied aspects. Trends in Plant Science https://doi.org/10.1016/j.tplants.2023.06.021.

Radasanu R, Bott-Knutson RC, Fine LE, Kotinek J, Hart JL, Nichols T, **Appel H**, Roberts DM, Knox P, Ziegler W (2023). A Relational Model for Honors Education: From Contagion to Permeability. 2023. Journal of the National Collegiate Honors Council. 24:47-62

Kotinek JD, Bott-Knutson RC, Fine LE, Hart JL, Ziegler W, Knox P, Nichols T, Sumner, S, **Appel HM**, Andersen MC, Bryk M, Radasanu A, Cassady J, Garbutt K (2023*).* The Justice Challenge: Honors Endeavors Innovative Pedagogies through the Grand Challenge Scholars Program. Honors in Practice pp 121-124.

Bott-Knutson RC, Hart J, **Appel H**, Kotinek J, Knox P, Ziegler W, Roberts D, Radasanu A, Nichols T, Fine L (2023). Simul Fortior: The Rise of an Honors Collaborative and The Justice Challenge. Journal of the European Honors Council. 6(2):5.

Hart JL, Bott-Knutson RC, **Appel HM**, Kotinek J, Knox P, Ziegler W (2023). Pedagogy of Engagement, Innovation, and Reflection: Hackathons in Honors Education. Honors in Practice 19:125-128

Appel HM, Bott-Knutson RC, Hart J L, Knox P, Radasanu A, Fine L, Nichols T, Roberts D, Garbutt K, Ziegler W, Kotinek J, Cooke K, Keen R, Andersen M, Kapur J. (2023). Teaching and learning in the fourth space: Preparing scholars to engage in solving community problems. In R. Badenhausen (Ed.), *Honors colleges in the 21st century* (pp. 441-476). National Collegiate Honors Council.

Appel, HM and Cocroft, R (2023). Plant ecoacoustics: a sensory ecology approach. Trends Ecol. Evol. https://doi.org/10.1016/j.tree.2023.02.001

Ziegler W**, Appel H,** Bott-Knutson R, Radasanu A, Hart J, Knox P, Keen R, Kotinek J, Andersen M. (2023). "Honors Education: A Natural Laboratory for Interdisciplinary Exploration of the Arts, Humanities, Social Sciences, and Education", *Proceedings of the Hawaii University International Conferences on Arts, Humanities, Social Sciences and Education (AHSE)*; 4/10/2023: https://artshumanitieshawaii.org/wp-content/uploads/2023/04/Ziegler-William-2023-HUIC-AHSE.pdf

Kotinek J, Bott-Knutson RC, Fine LE, Hart JL, Ziegler W, Knox P, Nichols T, Sumner S, **Appel HM**, Andersen MC, Bryk M, Radasanu A, Cassady J, Garbutt K (2023) The Justice Challenge: Honors Endeavors Innovative Pedagogies through the Grand Challenge Scholars Program. Honors in Practice, 2023, Vol. 19: 121–24

Appel HM and Deetsch M. (2022) Seeing Across Disciplines: An Experiment in Visual Literacy across Higher Ed, in Lee, J., ed. The Book of Selected Readings, International Visual Literacy Association. https://ivla.org/wp-content/uploads/2022/05/4-Seeing-Across-Disciplines-an-Experiment.pdf

Ziegler W, Radasanu A, **Appel HM**, Keen R (2022) Capstone on Top of Capstone: The Honors Dilemma. *Proceedings of the 2022 Capstone Design Conference*. http://capstonedesigncommunity.org/sites/default/files/proceedings_papers/Ziegler_EtAl_HonorsOnCapstone_CDC22.pdf.

Nieri R, Michael SCJ, Pinto CF, Urquizo O, **Appel HM**, Cocroft RB (2022) Methods for detecting and reproducing substrate-borne vibrations: advantages and limitations in Hill P., Strithi-Peljhan, Virant-Doberlet, eds., Biotremology--Physiology, Ecology and Evolution, Springer, NY. ISBN 978-3-030-97418-3

Appel, HM (2021). Resilience and Change in the Age of Pandemic. resilience, March 19, 2021. https://www.resilience.org/resilience-author/heidi-appel/

Rigsby, CM, Body MJA, May A, Oppong A, Kostka A, Houseman N, Savage S, Whitney ER, Kinahan IG, DeBoef B, Orians CM, **Appel HM**, Schultz JC, Preisser EL (2020) Impact of chronic stylet-feeder infestation on folivore-induced signaling and defenses in a conifer. Tree Physiology. DOI: 10.1093/treephys/tpaa136.

Kollasch AM, Abdul-Kafi A-R, Body MJA, Pinto CF, **Appel HM**, Cocroft RB (2020) Leaf vibrations produced by chewing provide a consistent acoustic target for plant recognition of herbivores. *Oecologia.*doi.org/10.1007/s00442-020-04672-2

Body MJA, Dave DF, Coffman CM, Paret TY, Koo AJ, Cocroft RB, **Appel HM.**(2019) Use of yellow fluorescent protein fluorescence to track OPR3 expression in *Arabidopsis thaliana*. Frontiers in Plant Science 10:1586 https://doi.org/10.3389/fpls.2019.01586

Pinto CF, Torrico-Bazoberry D, Penna M, Cossio-Rodriguez R, Cocroft R, **Appel HM**, and Niemeyer HM (2019) J Chem Ecol 45: 708. https://doi.org/10.1007/s10886-019-01089-x

Body MJA, Neer WC, Vore C, Lin C-H, Vu DC, Schultz JC, Cocroft RB, and **Appel HM** (2019) Caterpillar chewing vibrations cause changes in plant hormones and volatile emissions in *Arabidopsis thaliana*. Frontiers in Plant Sciences https://doi.org/10.3389/fpls.2019.00810

Appel HM and Cocroft RB (2019) Safe and Sound. Biologist 66:25-26*,* Royal Society of Biology, UK.

Schultz, JC, Edger, PP, Body, MJA and **Appel, HM** (2019) A galling insect activates reproductive programs during gall development. Scientific Reports 9:1833 10.1038/s41598-018-38475-6. Also available on BioRXiv. https://doi.org/10.1101/383851

Michael SCJ, **Appel HM**, and Cocroft RB (2019*)* Methods for replicating leaf vibrations induced by insect herbivores. Pp 141-157 in Gassmann W, ed., Methods in Molecular Biology: Plant Innate Immunity, Springer, NY.

Body MJA, Zinkgraf MS, Whitham TG, Lin C-H, Richardson RA, **Appel HM**, Schultz JC (2018) Heritable phytohormone profiles of poplar genotypes vary in resistance to a galling aphid. Molecular Plant-Microbe Interactions 32:654-672. doi.org/10.1094/MPMI-11-18-0301-R

Gassman, W, **Appel HM**, and Oliver M (2016) The interface between abiotic and biotic stress responses. J. Exp. Bot. 67:2023-2024. doi: 10.1093/jxb/erw110

Guiguet A, Dubreuil G, Harris MO, **Appel HM**, Schultz JC, Pereira MH, Giron D (2015) Shared weapons of blood- and plant-feeding insects: Surprising commonalities for manipulating hosts. J. Insect Physiol. doi:10.1016/j.jinsphys.2015.12.006

Nguyen PDT, Pike S, Wang J, Poudel AN, Heinz R, Schultz JC, Koo AJ, Mitchum MG, **Appel HM** and Gassmann W (2015) The Arabidopsis immune regulator *SRFR1* dampens defenses against herbivory by *Spodoptera exigua* and parasitism by *Heterodera schachtii*. Molecular Plant Pathology. doi/10.1111/mpp.12304.

Appel, HM (2015) Five Things I Learned When My Research Went Viral. Originally published at *The Conversation*: https://theconversation.com/five-things-i-learned-when-my-research-went-viral-42924 then at London School of Economics and Political Science *The Impact Blog* (http://blogs.lse.ac.uk/impactofsocialsciences/2015/08/06/five-things-i-learned-when-my-research-went-viral/)

Ferrieri AB, **Appel HM**, and Schultz JC (2015) Plant vascular architecture determines the pattern of herbivore-induced systemic responses in *Arabidopsis thaliana*. PLoS One. 2015; 10: e0123899. doi: 10.1371/journal.pone.0123899.

Appel HM and Cocroft RB (2014) Plants respond to leaf vibrations caused by insect herbivore chewing. Oecologia 175:1257-1266. doi:10.1007/s00442-014-2995-6. *Faculty of 1000 selection*.

Appel HM, Fescemyer H, Ehlting J, Weston DJ, Rehrig EM, Joshi T, Xu D, Bohlmann J, and Schultz JC (2014) Transcriptional responses of *Arabidopsis thaliana* to chewing and sucking insect herbivores. Frontiers in Plant Science doi: 10.3389/fpls.2014.00565.

Rehrig EM, **Appel HM,** Jones AD, and Schultz JC (2014) Roles for jasmonate- and ethylene-induced transcription factors in the ability of *Arabidopsis* to respond differentially to damage caused by two insect herbivores. Frontiers in Plant Science doi:10.3389/fpls.2014.00407.

Appel, HM, MacBool S, Raina S, Jagadeeswaran G, Acharya BR, Hanley JC, Miller KP, Hearne L, Jones AD, Raina R, and Schultz JC (2014). Transcriptional and metabolic signatures of *Arabidopsis* responses to chewing damage by an insect herbivore and bacterial infection and the consequences of their interaction. Frontiers in Plant Science doi: 10.3389/fpls.2014.00441.

Appel HM and Cocroft RB (2013) Comments on 'green symphonies'. Behavioral Ecology 24:800.

Schultz JC, **Appel HM**, Ferrieri AP, and Arnold TM (2013) Flexible resource allocation during plant defense responses. Frontiers in Plant Science 4:324 (doi: 10.3389/fpls.2013.00324).

Ferrieri, A, Agtuca B, **Appel HM**, Ferrieri RA, and Schultz JC (2013). Temporal changes in allocation and partitioning of new carbon as ^{11}C elicited by simulated herbivory suggest that roots shape aboveground responses in *Arabidopsis thaliana*. Plant Physiology 161:692-704.

Arnold TA, **Appel HM**, and Schultz JC (2012) Is polyphenol induction simply a result of altered carbon and nitrogen accumulation? Plant Signaling and Behavior 7: 1498 – 1500.

Appel HM, Arnold TA, and Schultz JC (2012) JA responses reconfigure the long-distance transport of carbon but not nitrogen in poplar. New Phytologist 195: 419-426.

Green JM, **Appel HM**, Rehrig EM, Harnsomburana J, Chang J-F, Balint-Kurti P, and Shyu C-R (2012) PhenoPhyte: A flexible affordable method to quantify visual 2D phenotypes. Plant Methods, 8: 45.

Ferrieri A, **Appel HM**, Ferrieri R, and Schultz JC (2012) Non-medical application of 2-[18F]fluoro-2-deoxy-D-glucose to study plant defenses. Nuclear Medicine and Biology, 39: 1152-1160.

Liu J, Oo MKK, Reddy K, Gianchandani YB, Schultz JC, and **Appel HM**, Fan X (2012) Adaptive two-dimensional micro-gas chromatography. Analytical Chemistry 84:4214-4220.

Rehrig E, **Appel HM**, Schultz J (2011) Measuring "normalcy" in plant gene expression after herbivore attack. Molecular Ecology Resources 11:294-304.

Dong C, **Appel HM**, Frost C, Schultz J, and Steiner K (2010) Red oak responses to nitrogen addition depend on herbivory type, tree family, and site. Forest Ecology and Management 259:1930-1937.

Havens TC, Keller JM, Rehrig EM, **Appel HM**, Popescu M, Schultz JC, and Bezdek JC (2008) Fuzzy cluster analysis of bioinformatics data composed of microarray expression data and gene ontology annotations. Proceedings of NAFIPS 2008 Conference.

Frost CJ, **Appel HM,** Carlson JE, De Moraes CM, Mescher MC, and Schultz JC (2007). Within-plant signalling via volatiles overcomes vascular constraints on systemic signalling and primes responses against herbivores. Ecol. Letters 10:490-498.

Acharya BR, S. Raina, Maqbool SB, Jagadeeswaran G, Mosher SL, **Appel HM**, Schultz JC, Klessig DF, and Raina R (2007) CRK13, an Arabidopsis cysteine-rich receptor-like kinase positively regulates cell death and resistance against pathogens. Plant Journal 50:488-99.

Jagadeeswaran G, Raina S, Acharya B, Maqbool S, Mosher S, **Appel HM**, Schultz J, Klessig D, and Raina R (2007) Arabidopsis GH3-LIKE DEFENSE GENE 1 is required for accumulation of salicylic acid, activation of defense responses and resistance to *Pseudomonas syringae*. Plant Journal 51: 234-46.

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Appel HM, and Joern A (1998) Gut physicochemistry of grassland grasshoppers. Journal of Insect Physiology 44:693-700.

Govenor HL, Schultz JC **and Appel HM** (1997) Impact of dietary allelochemicals on gypsy moth (*Lymantria dispar*) caterpillars: importance of midgut alkalinity. Journal of Insect Physiology 43:1169-1175.

Quideau S, Feldman KS, and **Appel HM** (1996) Galloyl-derived orthoquinones as reactive partners in nucleophilic additions and Diels-Alder dimerizations: a novel route to the dehydrodigalloyl linker unit of agrimoniin-type ellagitannins. Journal of Organic Chemistry 61:6656-6665.

Quideau, S., Feldman, K.S., **Appel, HM**. 1995. The chemistry of galloyl-derived o-quinones: reactivity toward nucleophiles. Journal of Organic Chemistry 60:4982-4983.

Appel HM and Maines L (1995) Effect of hostplant species on gut conditions of gypsy moth caterpillars. Journal of Insect Physiology 41:241-246.

Appel HM and Schultz JC (1994) Oak tannins reduce effectiveness of *Bacillus thuringiensis* in the gypsy moth. Journal of Economic Entomology 87:1736-1742

Appel HM (1993) The insect gut lumen: physiochemistry and impact on plant allelochemicals and nutrients. Pp. 209-223 In, E.A. Bernays, ed., Insect-Plant Interactions Volume 5, CRC Press, Inc.

Appel HM 1993. The role of phenolics in ecological systems: the importance of oxidation. Journal of Chemical Ecology 19:1521-1552.

Appel HM and Schultz JC (1992) Activity of phenolics in insects may require oxidation. 609-620 In, R.W. Hemingway, ed., Plant Polyphenols: Biogenesis, Chemical Properties, and Significance. Plenum Press.

Schultz JC, Hunter MD, and **Appel HM** (1992) The tannin conundrum: Do polyphenols benefit the plant or the herbivore? Pp. 621-637 In, R.W. Hemingway, ed., Plant Polyphenols: Biogenesis, Chemical Properties, and Significance. Plenum Press.

Appel HM and Martin MM (1992) The significance of metabolic load in the evolution of host specificity of *Manduca sexta*. Ecology 73:216-228.

Appel HM and Martin MM (1990) Gut redox conditions in herbivorous lepidoptera larvae. J. Chem Ecol. 16:3277-3290.

Van't Hof (**Appel**) HM and Martin MM (1989) Performance of the tree-feeder *Orgyia leucostigma* (Lepidoptera: Liparidae) on artificial diets of different water content: A comparison with the forb-feeder, *Manduca sexta* (Lepidoptera: Sphingidae). J. Insect Physiol. 35:635-641.

Van't Hof (**Appel**) HM and Martin MM (1989) The effect of diet water content on energy expenditure by third-instar *Manduca sexta* larvae (Lepidoptera: Sphingidae). J. Insect Physiol. 35:433-436.

Martin MM and Van't Hof (**Appel**) HM (1988) The cause of reduced growth of *Manduca sexta* larvae on a low-water diet: Increased metabolic processing costs or nutrient limitation? J. Insect Physiol. 34:515-525.

Van't Hof TJ, Van't Hof (**Appel**) HM, and Waldbauer GP (1983) Summer records of Northern Three-toed Woodpecker (*Picoides tridactylus*) and Gray-cheeked Thrush (*Catharus minima*) in northern Michigan. Jack Pine Warbler 61: 82.

Talks and Posters (*invited talk)

2025

* Unchartered: Navigating a National Collaboration**,** presented with multiple coauthors at the annual meeting of the National Collegiate Honors Council, San Diego, CA.

Partnership and Collaboration in Community-Engaged Learning, presented with multiple coauthors at the annual meeting of the National Collegiate Honors Council, San Diego, CA.

2024

*Belk Lecture: The Surprising World of the Sensory Ecology of Plants, Miami University of Ohio

*The Aural Life of Plants, Biology Department, Miami University of Ohio

Elevating Honors Education Through Systems Thinking: Applications in Community Engagement, Self-studies, and Strategic Thinking, presented at the annual meeting of the National Collegiate Honors Council, Kansas City, Missouri, with multiple coauthors.

Making Honors More Permeable: From Contagion to Permeability. Presented at the Biennial Honors Education at Research Universities Conference, Lexington, Kentucky, with multiple coauthors.

2023

Honors education: A Natural Laboratory for Interdisciplinary Exploration of the Arts, Humanities, Social Sciences, and Education. Presented at the International Conference on Arts, Humanities, Social Sciences, and Education, Honolulu, Hawaii, with multiple coauthors.

2022

Capstone on Top of Capstone: The Honors Dilemma, presented at the Capstone Design Conference, Dallas, Texas with W Ziegler, A Radasanu, and R Keen.

Beans to Beanstalks: Counting to Cultivating. Presented at the 2022 Council of Honors Education annual meeting, Denver, CO, with multiple coauthors.

Honoring our communities: Lessons on engaging diverse honors cohorts. Paper presented at the annual meeting of the National Collegiate Honors Council, Dallas, Texas, with multiple coauthors.

Creating a Fourth Space for Honors Student Community Engagement, Higher Education at Research Universities Conference, Houston, TX with R. Schultz.

The Justice Challenge: An Honorable Model, Higher Education at Research Universities Conference, Houston, TX with multiple coauthors.

2021

Seeing Across Disciplines: An Experiment in Visual Literacy across Higher Ed, 2021 International Visual Literacy Association Conference (virtual) with M. Deetsch.

Creating a Fourth Space for Students to Address Wicked Problems, 2021 National Collegiate Honors Council Annual Conference, Orlando, FL., with multiple coauthors.

The Rise of a Nationwide Collaborative of (15) Honors Colleges and Programs from Public Institutions,

2021 National Collegiate Honors Council Annual Conference, Orlando, FL., with multiple authors.
The Justice Challenge: Engaging students in the future of food, climate, and energy. Presented at the 2021 NSF Convergence of Food, Energy, Water, and Systems workshop (virtual) with multiple authors.
*Good Vibrations – Acoustic Perception of Plants, Auraldiversities Project: Expanded Listening – across species and spaces, Arts & Humanities Symposia (virtual) with RC Cocroft.
2019
*The Aural Life of Plants. Max Plank Institute of Chemical Ecology, Jena, Germany
Do You See Do You See What I See: Visual Literacy in the Honors Curriculum. Honors Education at Research Universities Biannual Conference, University of Utah
Let's Make a Deal: Honors Learning Contracts as Opportunities for High-Impact Learning (with K Miller) Honors Education at Research Universities Biannual Conference, University of Utah
To hear without an ear: Mechanosensation in plants (poster) Paret T, Body MJA, Haswell ES, Cocroft RB, Appel HM. Midwest Plant Cell Dynamics Meeting at The Pennsylvania State University
To hear without an ear: Mechanosensation in plants (poster) Paret T, Body MJA, Haswell ES, Cocroft RB, Appel HM. Paret T, Body MJA, Haswell ES, Cocroft RB, Appel HM. International Society of Chemical Ecology, Georgia Tech University (won 1 of 3 Best Student Poster Awards)
Improv-ing Community Engagement (with A. Pryor). Ohio Campus Contact Annual Meeting, The Ohio State University.
2018
*Vibration Perception by Plants. Interdisciplinary Program in Plant Physiology, University of Illinois Champaign Urbana
*The Vibrational World of Plant Communication. Biology Department, Univ.of Toledo
*Good Vibrations: The Amazing World of Plant Vibrational Communication, Lake Erie Center, University of Toledo
Gaining Consensus Among Disciplines: Standardizing the Rigor of Honors Contracts. Honors Education at Research Universities Biannual Conference, The Ohio State University
Engaging Engineers: Honors Community Engagement as a Bridge Among Academic Disciplines. Honors Education at Research Universities Biannual Conference, The Ohio State University
2017
*Plants Sensing Danger: The surprising role of vibration detection. Department of Environmental Sciences, University of Toledo
*The Vibrational World of Plant Communication. Department of Biology, Bowling Green State University
2016
*The Vibrational World of Plant Communication. 6th Annual DuPont Plant Sciences Symposium, University of Wisconsin
*The Vibrational World of Plant Communication. Department of Biology, University of St. Louis
*The Vibrational World of Plant Communication. Department of Biology, University of Louisville,
What Makes a Course Honors? Heidi Appel & Art Spisak (Univ Iowa), Linn Van Woerkom (Ohio State) & Sissel Schroeder (Univ Wisconsin), Honors Education at Research Universities Biannual Conference, Oregon State University
Involving Faculty in the Honors College: Two Successful Initiatives. Heidi Appel & Steve Lynn (Univ South Carolina), Honors Education at Research Universities, Oregon State University
*Plants Sensing Danger: the surprising role of vibration detection. Program in Physiological & Molecular Plant Biology, University of Illinois at Urbana-Champaign
Panelist, *Understanding and Recognizing Broader Impacts Work at Multiple Levels*, Building an Institutional Framework for Faculty Success, Chicago, IL
*Evasion of host defenses by endophagous feeders. Le Studium Conference Insects, Pathogens, and Plant Reprogramming: from Effector Molecules to Ecology, Loire Valley Institute for Advanced Studies, Tours, France
2015

*Plants Sensing Danger: the surprising role of vibration detection. Biology Department, Univ. Louisville
*Plant responses to leaf vibrations caused by insect chewing. American Society of Plant Biologists, Minneapolis, MN July (invited for mini-symposium talk and session chair)
*The Interface Between Plant Responses to Insects and Other Plant Stressors. Heidi Appel, Interdisciplinary Plant Group Symposium, University of Missouri

2014

*Bad Vibrations: Plant responses to insect chewing vibrations. Heidi Appel, Division of Plant Sciences, University of Missouri
*The importance of the phloem and CHO transport in shaping plant defense responses and herbivore feeding behaviors. Tom Arnold, Jack Schultz, and Heidi Appel. Ecological Society of America Annual Meeting, Portland, OR

2013

*Misophonia Plantarum. Heidi Appel. IRBI, University of Tours, France.
Misophonia Plantarum. Heidi Appel. Entomological Soc. Ameri. Annual Meeting, Austin, TX (poster)
*Darwin's Peach. Jack Schultz and Heidi Appel. International Gall Symposium, Lamington National Forest, Queensland, Australia.
*Bad Vibrations: plants respond to insect chewing vibrations by increasing chemical defense. Heidi Appel and Reginald Cocroft. Plant Signaling & Behavior Society, Vancouver, BC.

2012

Using Computational Methods to Quantify, Describe, and Retrieve Visual Phenotypes. Jason Green, Heidi Appel, Jaturon Harnsomburana, Adrian Barb, Peter Balint-Kurti, Chi-Ren Shyu. Plant and Animal Genome XX Conference, San Diego, CA. (poster)

2011

Automatic Algorithmic Computation of Leaf Area from Controlled Imagery. J Green, H. Appel, C-R Shyu. Plant and Animal Genome IX Conference, San Diego, CA. (poster)

2010

Novel ways to study defense-induced carbon allocation and metabolic partitioning using 2-[F-18]Fluoro-2-Deoxy-D-Glucose. A. Ferrieri, H. Appel, R. Ferrieri, J. Schultz. 2010 GRC Plant Herbivore Interactions, Galveston, TX. (poster)
Automated rapid phenotyping for plant herbivory and resistance. H. Appel, E. Rehrig, J-F Chang, D. Hao, J. Green, J. Harnsomburarna, C-R. Shyu, J. Schultz. 2010 GRC Plant Herbivore Interactions, Galveston, TX. (poster)
Novel Ways to Study Defense-Induced Carbon Allocation and Metabolic Partitioning using 2-[^{18}F]Fluoro-2-Deoxy-D-Glucose. A.P. Ferrieri, M. Best, H. Appel, J. Schultz, R.A. Ferrieri. International Society of Chemical Ecology, Tours, France. (poster)

2009

*Can plants tell insects apart? H Appel, Entomology Department, Univ Illinois.
*Genomic and metabolic signatures of plant response to an insect herbivore and bacterial pathogen. H Appel, J Schultz, R Raina, AD Jones. Ent. Soc. America Annual Meeting, Indianapolis, IN.

2008

*Insects as manipulators of plant resources. H Appel. Ent. Soc. America Annual Meeting, Reno, NV.
Is chitin a key signal in plant responses to insects? H Appel, Wan, J, Dayang, H, Stacey, G, Shyu, C, Schultz, J.C. International Society of Chemical Ecology, University Park, PA (poster)
Induction of Cell-Wall Invertase in *Arabidopsis thaliana* by Caterpillar Feeding: Implications for the Induced Sink Strength Model of Plant Defense? A. Ferrieri, H. Appel, T. Arnold, J. Schultz. International Society of Chemical Ecology, University Park, PA (poster)
Wound-induced sink strength (WISS) enhances carbon but not nitrogen import, favoring the production of carbon-based defenses in wounded poplar leaves. TM Arnold, H Appel, J.C. Schultz. ASCB Annual Meeting, Merida Mexico.

2007

*Arabidopsis as entomologist: transcriptional and biochemical responses to attack by insects. 2007. HM

Appel, H Fescemyer, J Hanley, D Jones, R Raina, J Ehlting, J Bohlmann, JC Schultz. PAGXV, San Diego, CA.

Linking gene expression to phenotype: effect of four insect herbivores on microarray and metabolite profiles. 2007. HM Appel, J Hanley, M Stagliano, J Ehlting, D Jones, J Bohlmann, J Schultz. GRC Plant Herbivore Interactions, Ventura, CA.

When a tree talks to itself: herbivore-induced volatiles prime systemic leaves for attack. 2007. CJ Frost, HM Appel, J Carlson, C DeMoraes, M Mescher, JC Schultz. GRC Plant Herbivore Interactions, Ventura, CA.

2006

Linking gene expression to phenotype: effect of four insect herbivores on microarray and metabolite profiles, HM Appel, J Hanley, J Ehlting, D Jones, J Bohlmann, J Schultz. Ecological Genomics Symposium, Kansas State, Manhattan KS.

Phytohormone signaling in herbivore responses: insights from microarrays. C Coffman, J Ehlting, H Appel, J Bohlmann, J Schultz. Ecological Genomics Symposium, Kansas State, Manhattan KS.

*Transcription factor profiles and cis-regulatory motif distributions in Arabidopsis genes regulated by herbivory. E Rehrig, J Ehlting, H Appel, J Bohlman, J Schultz. Ecological Genomics Symposium, Kansas State, Manhattan KS.

Effect of insect herbivory on plant extracellular invertases. M Pye, T Arnold, H Appel, J Schultz. American Society of Plant Biologists -SS, Daytona, FL.

2005

*Receptor-like kinases: how plants sense their environment and can tell us what they "see"", JC Schultz, R. Raina, H. Appel. First Intl Symposium on Plant Neurobiology, Florence, Italy.

Plant Responses to Stresses: Transcript Profiling of Stress/Defense-Related Genes of Arabidopsis thaliana. SB Maqbool, BR Acharya, IP Singh, R Mukherjee, HM Appel, JC Schultz and R Raina. Annual Arabidopsis Meeting, Madison WI

Eavesdropping Plants: Molecular ecology of Arabidopsis responses to green leaf volatiles. HM Appel, JEngelberth, I Seidl-Adams, R Raina, J Schultz, and J Tumlinson. Ecological Genomics Symposium, Kansas State, Manhattan KS.

2004

Transcriptional and chemical responses of Arabidopsis to generalist and specialist insects. H. Fescemyer, I. Mewis, HM. Appel, JC Schultz. Entomo. Soc. Amer. Cincinatti, OH

Carbohydrate translocation determines the phenolic content of *Populus* foliage: a test of the sink-source model of plant defense T.A. Arnold, HM Appel, JC Schultz. International Soc. Chem. Ecology, Ottawa, ONT.

2003

Induction of gene transcript levels and glucosinolate biosynthesis in Arabidopsis thaliana L. by different insect herbivore feeding guilds. I Mewis, JG. Tokuhisa, J Gershenzon, HM. Appel, C. Ulrichs, and JC. Schultz. Symposium on Insect-Plant Interactions, Berlin.

*Exploring Plant-Insect Interactions with Functional Genomics, H.M. Appel et al., Gordon Research Conference on Ecological and Evolutionary Functional Genomics, Colby-Sawyer, NH.

How Plants Taste and Smell, J.C. Schultz, et al., Gordon Research Conference on Ecological and Evolutionary Functional Genomics,. Colby-Sawyer, NH.

Exploring Plant-Insect Interactions with Functional Genomics, H.M. Appel et al., Gordon Research Conference on Plant-Herbivore Interactions, Ventura, CA.

Induced sink strength as a general first step towards plant defense, T. Arnold, HM Appel, JC Schultz, Gordon Research Conference on Plant-Herbivore Interactions, Ventura, CA.

2002

*Ecology of plant polyphenols, Phytochemical Society of North America, Merida, Mexico. Coauthored with presenter J C Schultz.

1999

Enhancing the science in elementary science methods: A collaborative effort between science education

and entomology (with L.A. Boardman, C. Zembal-Saul, and M.Frazier). Annual Meeting of the Association for the Education of Teachers of Science, Austin, TX, 1/99.

Use and misuse of Folin assays of polyphenols in ecological studies (with H.L. Govenor, M.D'Ascenzo, E. Siska, and J.C. Schultz. Paper presented at the Annual Meeting of the Ecological Society of America, Snowbird, UT.

1998

Chemical ecology of tannins: oaks, gypsy moths, and LdNPV, Gordon Research Conference on Plant Herbivore Interactions, Ventura CA.

Folin Follies: Appropriate use of the Folin-Denis assay for total polyphenols in ecological studies (with H Govenor, M D'Ascenzo, E. Siska, & J . Schultz), Gordon Research Conference on Plant Herbivore Interactions, Ventura CA.

Oxidative Activation: Key to understanding the importance of plant polyphenols, poster presented at the XX Reuniao annual Sobre Evolucao, sistematicae Ecologia Micromoleculares, Rio de Janeiro

1997

Ecological chemistry of oak tannins, gypsy moths, & a viral pathogen. Ecol. Society of America, Albuquerque, NM.

Stealthy herbivores? Forest tent caterpillars don't induce oak defenses (with J.C. Schultz and M.D'Ascenzo), Ecological Society of America, Albuquerque, NM.

Effects of resource heterogeneity on populations and communities of creosotebush herbivores (with T. Floyd and J.C. Schultz), Ecological Society of America, Albuquerque, NM.

1996

*Tannin-protein binding in gypsy moth midgut fluid. Gordon Research Conference on Plant-Herbivore Interactions, Oxnard, CA.

1995

*Tritrophic interactions among the gypsy moth, oak leaf tannins, and two entomopathogens (Bacillus thuringiensis and LdNPV) Entomological Society of America, Las Vegas, NV.

1994

Tannin action in insects is a real Feenyomenon (with J.C. Schultz), International Society of Chemical Ecology, Syracuse, NY.

1993

*An overview of gut physiology: the inside story USDA Interagency Gypsy Moth Research Forum, Annapolis, MD.

Chemical basis of differential microbial efficacy on two oaks (with J.C. Schultz and J. Schofield) USDA Interagency Gypsy Moth Research Forum, Anapolis, MD.

Chemical ecology of creosote bush and its insects. Ecological Society of America, Madison, WI.

Chemical bases of differential impact of one aspen and two oak species on the gypsy moth (with J.C. Schultz, K. W. Kleiner, and J.A. Schofield), Ecol. Society of America, Madison, WI.

1992

*Running the gauntlet: plant allelochemicals in the insect gut lumen Gordon Research Conference on Plant-Herbivore Interactions, Oxnard, CA.

1991

*Tannin activity in insects requires oxidative activation (with J.C. Schultz) The Second North American Tannin Conference, Houghton, MI. Tannin activity in insects requires oxidative activation (with J.C. Schultz), Ecol. Society of America, San Antonio, TX.

Inhibition of LdNPV by leaf tannins: Oxidative activation required (with J.C. Schultz)(poster), USDA Interagency Gypsy Moth Research Review, Annapolis MD.

1990

Redox potentials of caterpillar midguts: Alternative means of handling phenolics? (with M.M. Martin) Entomological Society of America, San Antonio, TX.

The role of food processing costs in the evolution of host specificity of larval Lepidoptera (with M.M.

Martin), Gordon Conference on the Chemistry of Plant-Herbivore Interactions. Oxnard, CA.

1989

*Impact of gut physiology and biochemistry on the gypsy moth nuclear polyhedrosis virus (with J.C. Schultz). E. Branch, Entomological Society of America, Providence, RI.

1988

The importance of leaf water content to growth of herb- and tree-feeding Lepidoptera: Evidence from *Manduca sexta* and *Orgyia leucostigma*. Ecological Society of America, Davis, CA.

1996

Woody plant foliage and larval Lepidoptera: Causes of low relative growth rates. Entomological Society of America, Reno, NV.

A comparison of metabolic costs of processing diets of high and low water content, ISCE Madison, WI.