

ANURAG AGRAWAL

James A. Perkins Professor of Environmental Studies
Department of Ecology and Evolutionary Biology
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EDUCATION

<u>Year</u>	<u>Degree</u>	<u>Institution</u>
1999	Ph.D., Population Biology	University of California at Davis Advisor: Dr. Richard Karban
1995	Tropical Biology 95-3	Organization for Tropical Studies
1994	M.A., Conservation Biology	University of Pennsylvania
1994	B.A., Biology <i>Magna Cum Laude</i>	University of Pennsylvania

PROFESSIONAL APPOINTMENTS

<u>Year</u>	<u>Experience</u>
2017-	James Perkins Professor of Environmental Studies, Cornell University
2010-	Cornell University, Professor of Ecology and Evolutionary Biology, with joint appointment in the Department of Entomology, Cornell University
2005-2010	Cornell University, Associate Professor of Ecology and Evolutionary Biology, with joint appointment in the Department of Entomology, Cornell University
2008-2010	Cornell University, Faculty Director for Environmental Programs, Atkinson Center for a Sustainable Future
2004-2005	Cornell University, Assistant Professor of Ecology and Evolutionary Biology, with joint appointment in the Department of Entomology, Cornell University
2000-2004	University of Toronto, Assistant Professor of Botany
1999-2000	University of Amsterdam, Postdoctoral Fellow in the Section of Population Biology, Advisor: Dr. Maurice W. Sabelis
1994-1999	University of California at Davis, Teaching and research assistanceships

1993-1994 University of Pennsylvania, Research assistant: Dr. Daniel Janzen

SCHOLARLY SUMMARY: >230 peer-reviewed publications and editor of 15 journal special issues and books. >25 papers with undergraduate student coauthors and H-index = 84, cited ≈25,000 times (based on Google Scholar). Top 25 cited publications all >300 citations. Fledged 15 graduate students and postdocs (8 of which are in permanent faculty positions). ≈5 invited talks per year over the past 10 years.

AREAS OF EXPERTISE

Environmental biology, Community and evolutionary ecology of interspecific interactions, Genotypic and environmental influences on insect communities, Phenotypic plasticity, Induced plant defense against herbivores, Ecological genetics, Evolutionary biology, Phylogenetics and comparative biology, Chemical ecology

HONORS AND AWARDS

National Academy of Sciences, Member (2021)
E.O. Wilson Award, American Society of Naturalists (2019)
Highly Cited Researcher, Web of Science (2019, 2021)
Silverstein-Simeone Award, International Society of Chemical Ecology (2018)
National Outdoor Book Award, Nature and Environment Category (2017)
James Perkins Professorship in Environmental Studies, Cornell University (2017)
Fellow of Ecological Society of America (2017)
Robert H. MacArthur Award, Ecological Society of America (2016)
Harper Prize (Highly Commended) for Martin et al. 2015, British Ecological Society
Founders' Memorial Award, Entomological Society of America (2013)
Best Paper Award, Royal Entomological Society (for Rafter et al. 2012)
Fellow, American Association for the Advancement of Science (2012)
David Starr Jordan Prize (2009)
George Mercer Award, Ecological Society of America (2006)
NSF Early Career Award (2005)
Premier's Research Excellence Award (Ontario, 2000)
Young Investigator Award, American Society of Naturalists (1999)
Merton Love Award, Outstanding doctoral thesis in ecology and evolution (UC Davis 1999)
Buell Award, Ecological Society of America (Honorable mention, 1998)
Phi Beta Kappa (1994)
ARCS Scholar (1997-1999)

Honorary lectures

Charles Chesley Doane Distinguished Lecture, University of Wisconsin (planned)
L. Floyd Clarke Lecture, University of Wyoming (planned)
Tansley Lecture, British Ecological Society (2020)
E.O. Wilson Award Lecture, American Society of Naturalists Meeting (2020)
Wege Environmental Lecture, Meijer Gardens (Sept. 2019)
Silverstein-Simeone Lecture, International Society of Chemical Ecology (2018)
Robert MacArthur Award Lecture, ESA, Portland (2017)
Alexander Entomology Lecture, University of Massachusetts (2015)
Douglas Distinguished Lecturer, Rocky Mountain Biological Laboratory (2014)
University of Montana, Distinguished speaker (2014)
G. Evelyn Hutchinson Distinguished Speaker, Yale University (2014)
Chris Reed Memorial Lecture, Dartmouth College (2013)
Jill Adams Memorial Lecture, University of Washington (2011)
Walton Memorial Lecture, University of Virginia (2009)
Dennis Chitty Lecture, University of British Columbia (2009)
Eminent Ecologist Lectures, Kellogg Biological Station (2006)
George Williams Lecture, Stony Brook University (2006)

SABBATICALS

Spring 2018, Oaxaca, Mexico
Fall 2017, University of Montana
Spring 2011, University of Arizona
Fall 2007, Michigan State University

LAB MEMBERS

Postdoctoral Associates

Dr. Peter Van Zandt, 2001-2003, Associate Professor, Birmingham Southern College
Dr. Kailen Mooney (Jan. 2005 - July 2007), Professor, UC Irvine
Dr. John D. Parker (Jan. 2006 - Aug. 2007), Senior Scientist at the Smithsonian ERC
Dr. Sergio Rassman (Feb. 2007 - Dec. 2010), Professor, Neuchatel University
Dr. Gaylord Desurmont (August 2009 - Dec. 2010), Research Entomologist, EBCL
Dr. Jared Ali (Sept 2011 – Mar. 2013), Assistant Professor, Pennsylvania State University
Dr. Georg Petschenka (Oct 2012 - March 2015), Professor of University of Hohenheim
Dr. Karin Gustafsson (Jan. 2014 – Jan. 2015), Associate Professor, Örebro University
Dr. Tobias Zuest (April 2012-2015), Eccellenza Assistant Professor, University of Zürich
Dr. Patricia Jones, 2014-2017, Assistant Professor, Bowdoin College
Dr. Tyler Coverdale, 2018-2021, Postdoctoral Fellow, Harvard University

Dr. Xosé López Goldar, Jan. 2020-2022, Postdoctoral Fellow, Michigan State University

Graduate students

Nile Kurashige (2001-2004), MSc Botany, University of Toronto. Phenotypic plasticity to light competition and herbivory in *Chenopodium album*. Plant Technician, University of Washington.

Marc Johnson (2002-2006), PhD Botany, University of Toronto. Community genetics of Evening Primrose and its insects: testing how plant genes and insect communities interact. Professor and Canada Research Chair, University of Toronto at Mississauga.

Marc Lajeunesse (2003-2008), PhD EEB, Cornell University. Host range evolution in parasites. Associate Professor, University of South Florida.

Michael Stastny, (2004-2010), PhD EEB, Cornell University. Ecological consequences of relatedness: the role of Competition and herbivory in the community structure of co-occurring Asteraceae. Staff Scientist, Canadian Forest Service (Fredericton, NB, Canada).

Susan C. Cook-Patton, (2006-2012), PhD EEB, Cornell University. Consequences of changing biodiversity for plants, insects, and ecosystems. Senior Forest Restoration Scientist, The Nature Conservancy

Alexis C. Erwin, (2006-2013), PhD EEB, Cornell University. Patterns and ecological consequences of aboveground and belowground herbivory. Currently Energy and Environmental Sustainability Advisor, U.S. Agency for International Development

Marjorie Weber, (2009-2014), PhD EEB, Cornell University. The evolution of mutualistic defensive traits in plants. Assistant Professor, Michigan State University

Lina Arcila-Hernandez, (2013-2019), PhD EEB, Cornell University. Biogeographic variation in oviposition behavior in the milkweed stem weevil: Contributions to ecological specialization. Active learning postdoctoral fellow, Cornell University.

Jacob Elias, (2017-2020), MSc, E&EB, Cornell University. Phenotypic plasticity and local adaptation of a native legume to soil resources.

Xuening (Shirley) Zhang, 2020 -

Nicholas Dietschler, 2021 -

Kelley Slimon, 2021 -

Research Professionals

Amy Hastings, MSc, Research Support Specialists (2008-)

Ronald White, Technician II (2017-2021)

Katalin Boroczky, Research Associate (2015-2017)

Eamonn Patrick, Technician II (2014-2015)

Andrew Tuccillo, Technician (2005-2006)

Andrew McDowell, Technician (2004-2005)

Lisa Plane, Technician (2001-2003)

Marc Johnson, Technician (2000-2001)

Sabbatical visitors

Laurel Fox (University of California, Santa Cruz), Fall 2006

Robin Bingham (Western State College of Colorado), 2008-2009

Luis Santamaría (Mediterranean Institute for Advanced Studies), 2012

Chad Brasil (University of Nebraska), Spring 2015

Susanne Dobler (University of Hamburg), Spring 2015

EXTERNAL FUNDING

2022	NSF IOS IEP-2209762, Escalation in coevolution: Characterization of novel plant toxins, how specialist herbivores cope, and tests of phylogenetic intensification in plant defense potency (\$657,747)
2019	NSF IOS IEP-1907491, Insect herbivore feeding guilds and compartmentalized plant defense. (\$534,000)
2017	NSF IOS EDGE-1645256, Development of genetic and genomic resources for milkweed, <i>Asclepias syriaca</i> and <i>Asclepias curassavica</i> . Co-PI with 3 others (\$1,020,000)
2015	NSF DEB-1513839, Genetic transformation of common milkweed, <i>Asclepias syriaca</i> : Creating a model plant for ecological investigations (\$307,000)
2013	John Templeton Foundation, Convergence and the origins of biodiversity. (\$1,0355,000 split between Cornell, Univ. Arizona, and Univ. Hamburg)
2011	NSF DEB-1118783, Tests of classic plant defense theory (\$439,918)
2009	NSF DEB-1026110, Evolution of plant defense: A multigenerational selection experiment in the field (\$264,000)
2005	NSF DEB-0822462, Milkweed-herbivore interactions: Advancing community ecology and student community outreach (\$566,000)
2005	NSF DEB-0544929, Workshop: Frontiers in Ecology (\$46,000)
2003	Joint award to host an international symposium on plant-insect interactions (\$21,000 from NSF DEB-0330166, Connaught Committee University of Toronto, and Botany Department at the University of Toronto).
2002	NSERC equipment grant for C-N analyzer (\$55,000) (with several others)
2000-2003	Canadian Foundation for Innovation grant (\$478,000) (with Jennifer Thaler and David Guttman)
2000-2004	NSERC Discovery grant (\$150,000)
2000-2001	Premier's Research Excellence Award, Ontario (\$150,000)
2000-2002	Connaught research grants, University of Toronto (\$40,000)
1997	NSF, Dissertation Improvement Grant (\$10,000)
1996-1997	Organization for Tropical Studies Fellowship (\$2,500)
1996	Phi Beta Kappa Graduate Research Grant (\$3,000)
1995-1996	Jastro Shields Research Grant from UC Davis (\$2,800)
1995-1997	Center for Population Biology Research Grant from UC Davis (\$3,400)
1994	Institute Environmental Studies, University of Pennsylvania (\$2,000)
1993	NSF - REU at Mountain Lake Biological Station (\$2,500)
1989	NIH Undergraduate Research scholarship (\$1,500)

TEACHING AND ADVISING

BIOEE 1610 Ecology and the Environment (Fall 2013, 2015, Spring 2016, Fall 2018, 2019, 2021)
BIOEE 3611 Field Ecology (Fall 2006, 2010, 2012, 2014, 2016, 2020, 2022)
BIO G 2990 / BIO G 4990 Independent Undergraduate Research in Biology
BIOEE 3690 Chemical Ecology (each spring 2007-2019)
BIOEE 4580 Community Ecology (Spring 2006, 2008, 2010)
BIOEE 7590 Special Topics in Evolution and Ecology: Plant-Insect Interactions Seminar (every semester since Fall 2004)
BIOEE 7590 Special Topics in Evolution and Ecology: Professional Development in E&EB (Fall 2006, Fall 2011, Spring 2014, Spring 2017, Spring 2020)
BIOEE 7600 Special Topics in Evolution and Ecology: Phylogenetics in Ecology (Fall 2005, spring 2009, spring 2021)
BIOEE 760 Special Topics in Evolution and Ecology: Biodiversity (Spring 2010)
BIOEE 7600 Special Topics in Evolution and Ecology: Eco-Evo Feedbacks (Fall 2011)
BIOEE 7590 Special Topics in Evolution and Ecology: Evolutionary Ecology (Fall 2019)

Fashionable Concepts in Ecology, University of Toronto (BOT1700, Spring 2001)
Evolutionary Ecology, University of Toronto (BOT1700, Spring 2003)
Advanced Ecology, University of Toronto (JZB1014H, Spring 2004)
Ecology and Evolution of Interspecific Mutualisms, Univ. of California at Davis, Fall 1998
Community Ecology, University of Toronto BIO321 (Fall 2001, 2002, 2003)
Introductory Biology, University of Toronto (Winter 2002, 2003, 2004) for 2200 students
Plant-Animal Interactions, University of Toronto (Winter 2003, 2004)
Biodiversity and Ecology in Indochina, Univ. Toronto (BIO308H1F, 2004, 17 days in Vietnam)

Current Undergraduate Advisees

9 students in *Environment and Sustainability* and 6 students in *Biology*

Other Relevant Teaching and Advising

Biology Scholars Program (2014, 2019)
Participating mentor, Cornell teaching Partnership Program (2016-)
Participating instructor, Evolutionary Biology Workshop (June 23-30, 2012, Switzerland)
Participating instructor in the Organization for Tropical Studies Field Course in Plant-Animal Interactions in the Tropics (January 2010, La Selva Biological Station, Costa Rica).
Participating instructor in an Insect Chemical Ecology course (ICE10) for 40 graduate students (June 2010, Pennsylvania State University).

Undergraduate project students

(*indicates students were co-authors on published papers – 19)

(†indicates students completed a senior thesis at Cornell - 7)

Margaret Sherriffs* (University of California – Davis, NSF Young Scholars Program, 1996)

Chris Kobayashi* (University of California – Davis, NSF Young Scholars Program, 1997)

Corrine Klein* (University of California – Davis, NSF Young Scholars Program, 1998)

Karin Rotem* (University of Toronto, NSERC Fellowship, 2001)

Natalie Griffiths (University of Toronto, Northrop-Frye Scholar, 2002)

Rowan Barrett* (University of Guelph, NSERC Fellowship, 2002)

William Godsoe* (University of Guelph, NSERC Fellowship, 2003)

Rosanna McGuire* (University of Toronto, NSERC Fellowship, 2004)

Patricia L. Jones* (Cornell University, NSF-REU Fellowship, 2005)

R. Alex Smith*† (Cornell University Presidential Scholar, 2006)

Kelly Goodsell (Cornell University, NSF-REU Fellowship, 2006)

Jessica Goldstein* (Cornell University, NSF-REU Fellowship, 2007)

Margaret Daisy Johnson*† (Cornell University, NSF-REU Fellowship, 2008, 2010)

Ellen Woods*† (Cornell University, NSF-REU Fellowship, 2008, 2009)

Trey Ramsey* (Cornell University, NSF-REU Fellowship, 2009)

Emily Kearney*† (Cornell University, NSF-REU Fellowship, 2010, 2011)

Jessica Tingle*† (Cornell University, Howard Hughes Fellowship, 2010, 2011)

Andrea Alfano (Cornell University, NSF-REU Fellowship, 2012)

Eamonn Patrick*† (Cornell University, NSF-REU Fellowship, 2012, 2013)

Daniel Fines* (Cornell University, NSF-REU Fellowship, 2014)

Sophie Mao*† (Cornell University, NSF-REU Fellowship, 2014)

Aliya Ali* (Cornell University, independent study, 2015, 2016, 2017)

Isabella Sobalvarro (Cornell University, 2015-summer 2016)

Zach Stoessel (Cornell University, 2016-summer 2017)

Jackson Seminara (Cornell University, summer 2017)

Gunnar Glover (Cornell University, summer 2017)

Elise He*† (Cornell University, 2020)

Nathaniel Carlson (Cornell University, 2019-)

Max Goldman (Cornell University, 2020-)

Graduate student special committee member

David Clark (2000-2002) MSc, Botany, University of Toronto
Danush Viswanathan (2000-2005) PhD, Botany, University of Toronto
Maria Clara Castellanos (2001-2003) PhD, Zoology, University of Toronto
Eric Dunbar (2001-2003) MSc, Botany, University of Toronto
Michelle Greenshields (2001-2003) MSc, Forestry, University of Toronto
Pamela O (2001-2003) MSc, Botany, University of Toronto at Mississauga
Chad Brassil (2001-2004) PhD, Zoology, University of Toronto
Celine Muis (2001-2004) MSc, Botany, University of Toronto
Charles J. Donlan, III, (2008) PhD, Ecology and Evolutionary Biology, Cornell
Andrea Davelos (2008) PhD, Natural Resources, Cornell
Jesse L. Bellemare (2009) PhD, E&EB, Cornell
Gaylord Desurmont (2009) PhD, Entomology, Cornell
Jesse L. Bellemare (2009) PhD, E&EB, Cornell
Daniel L. Rabosky (2009) PhD, E&EB, Cornell
Megan O'Rourke (2009) PhD, E&EB, Cornell
Amy Parachnowitsch (2010) E&EB, Cornell
Sophie Cardinal (2010) Entomology, Cornell
Charlotte Jander (2011) NB&B, Cornell
Scott McArt (2011) Entomology, Ph.D., Cornell
Sarah J. Reilly (2012), E&EB, Ph.D., Cornell
Joe Simonis (2012) E&EB, Ph.D., Cornell
Monica Kersch-Becker (2014), E&EB, Ph.D., Cornell
Annise Dobson (2014), DNR, MSc, Cornell
Jake Blessing, DNR, MSc., 2015
Laura J. Martin, DNR, Ph.D., 2015
Ben Freeman, E&EB, Ph.D., 2016
Annise Dobson, DNR, Ph.D., 2018
Renee Petipas, E&EB, Ph.D., 2018
Kristen Brochu, Entomology, Ph.D. 2018
Jacob Berv, E&EB, Ph.D., 2019
Geoffrey Broadhead, Ph.D. Neurobiology and Behavior 2019
Collin Edwards, E&EB, Ph.D., 2019
Aubrie James, E&EB, Ph.D., 2019
Ellie Goud, E&EB, Ph.D., 2019
Zoe Getman-Pickering, Entomology, Ph.D., 2020
Katherine Eisen, E&EB, Ph.D., 2020
Lauren Brzozowski, Horticulture, Ph.D., 2020
Alexander Chautá, E&EB, Ph.D., 2021

Gregor Siegmund, E&EB, Ph.D., 2022
Jennifer Uehling, E&EB, Ph.D., 2022
Arielle Johnson, Plant Biology, Ph.D., 2023

Samantha Goldman, E&EB, Ph.D., 2023
Gregory Inzinna, Plant Breeding
Hayley Schroeder, Entomology, Ph.D., 2024
Wade Simmons, DNRE, Ph.D., 2024
Yixin Ma, E&EB, Ph.D., 2025

PROFESSIONAL SERVICE

Editorial boards

Proceedings of the National Academy of Sciences, Handling Editor (2021-)
PLoS Biology, Editorial board (2006-)
Quarterly Review of Biology, Associate Editor (2007-)
PeerJ, Academic Editor (2012-2015)
American Naturalist, Associate Editor (2010-2013)
Ecological Entomology, Associate Editor (2007-2010)
Ecological Entomology, Editorial Board (2004-2007)
Functional Ecology, Editorial Board (2005)
Ecology, Special Features Editor (2001-2004)
Ecology Letters, Editorial Board (2001-2003)
Trends in Ecology and Evolution, Commentary Panel (2000-2002)

Society membership

American Society of Naturalists (2010-)
Executive committee (2015-2017)
Vice president (2016)

Ecological Society of America (1994-)
Mercer Award Committee (2013-2015)
MacArthur Award Committee (2017-)

Society for the Study of Evolution (1996-)
Lewontin Early Awards Reviewing Committee (2022)

American Association for the Advancement of Science (2005-)
Sigma Xi (1996-)
International Society for Chemical Ecology (2008-)
Entomological Society of America (1996, 2012-)

Peer-reviewing

685 Ad hoc manuscripts, grants and external promotion files reviewed since 1996 (about 26 papers per year, not including those handled as an editor): American Journal of Botany (4), American Midland Naturalist (1), American Naturalist (19), Animal Migration (1), Applications in Plant Sciences (1), Annals of Botany (2), Annals of the Entomological Society of America (1), Arthropod-Plant Interactions (2), Australian Journal of Agricultural Research (1), Basic and Applied Ecology (1), Behavioral Ecology (3), Biological Conservation (1), Biological Reviews (2), Biology Letters (9), BioScience (3), Biotropica (5), Blackwell book (1), BMC Evolutionary Biology (1), Bulletin of Entomological Research (5), Canadian Journal of Botany (3), Canadian Journal of Fisheries and Aquatic Sciences (1), Canadian Journal of Forest Research (1), Chemoecology (4), Conservation Science and Practice (1), Cornell Hatch Proposal (5), Current Biology (2), Czech Republic Academy of Sciences (1), Dutch SF (2), Ecography (1), Ecological Applications (1), Ecological Entomology (18), Ecological Monographs (2), Ecology (23), Ecology Letters (48), Écoscience (6), Ecosphere (1), Ecosystems (1), eLife (1), Entomologia Experimentalis et Applicata (5), Environmental Entomology (3), Evolution (28), Environmental Epigenetics (1), Evolutionary Ecology (4), Evolutionary Ecology Research (6), Experimental and Applied Acarology (5), Frontiers in Ecology and Environment (1), Functional Ecology (9), Global Change Biology (2), Global Ecology and Biogeography (2), Gordon Research Conference proposal (1), Graduate Women in Science grants (1), Heredity (2), Highlights magazine (2), Insect Conservation and Diversity (1), Israel Science Foundation (1), Journal of Animal Ecology (6), Journal of Applied Ecology (5), Journal of Chemical Ecology (28), Journal of Ecology (22), Journal of Evolutionary Biology (5), Journal of Experimental Botany (1), Journal of Insect Science (1), Journal of the Lepidopterists' Society (1), Journal of Natural History (2), Journal of Tropical Ecology (1), Journal of Tropical Forest Science (1), MacArthur Fellows Program (1), Maryland Agricultural Experiment Station Competitive Grants (1), Molecular Ecology (2), National Geographic Society Grants (2), Nature (4), Nature communications (1), Nature Ecology and Evolution (3), Nature Plants (4), NERC-England (5), New Phytologist (32), NSERC (5), NSF (54), Oecologia (31), Oikos (39), Philosophical Transactions of the Royal Society of London, special issue proposal (1), Physiological Entomology (1), Phytochemistry (1), Phytochemistry Reviews (1), Plant Biology (1), Plant Physiology (8), PLoS Biology (5), PLoS One (5), PNAS (34), Princeton Monograph proposal (3), Princeton monographs (2), Proceedings of the Royal Society of London - B (16), Promotion to tenured faculty or full professor (40), Quarterly Review of Biology (3), Royal Society Fellowships (1), Science (14), Science Advances (1), Scientific Reports (2), Sinauer text book (1), Swiss ETH (3), Swiss National Science Foundation (3), Trends in Ecology & Evolution (5), Trends in Plant Science (3), Turku University thesis evaluation (1), UMass Hatch proposals (2), University of Chicago Book proposals (2), USDA (9), US-Israel Binational Science Foundation (1), Wallenberg Foundation Grant (2), Web Ecology (1), Western North American Naturalist (1).

COMMITTEES

University

Distinguished Visitor in Organismal Biology, organizing chair (2020-)
CALs Dean Search Committee, 2019-2020
University Appeals Panel (2014-)
Biology without Borders Seminar Series (organizer 2015-2017)
Natural Areas Committee, Cornell Plantations (2006-)
Cornell Presidential Postdoctoral Fellows Selection Committee (2018-2020)
Faculty Advisory Board, Atkinson Center for a Sustainable Future (2008-2018)
Lab of Ornithology, Administrative Board (2017)
Advisory board, University Courses (2014-2017)
Life Sciences Advisory Council (2013-2015)
Presidential Life Sciences (PLSF) committee (2012-2013)
Environmental Sciences Planning Committee (2010)
CALs Dean Search Committee, 2009-2010
Faculty Advisory Committee, Cornell Center for a Sustainable Future (2008-2010)
Joker's Hill Scientific Reserve, Scientific Oversight Committee, Univ. of Toronto (2001-2004)
Joker's Hill Scientific Reserve, Management Board, Univ. of Toronto (2002-2004)

College

CALs Executive Committee (2021-)
NB&B Faculty search committee, (2018-2019)
CALs rebranding committee (2016-2017)
CALs Structure Task Force (2016)
Agricultural Experiment Station, Culture of Sustainability Committee (2008-2010)
Ad hoc tenure committee (2008, 2013, 2019)
Ad hoc tenure committee chair (2006)
CALs Environmental Sustainability and Development Task Force (2007-2008)
Plant Sciences Task Force (2006-2007)
Center for the Environment Faculty Advisory Committee (2005-2008)
CALs Greenhouse Faculty Advisory Committee (2005-2006)
Atmospheric Science search committee, CALs/CCSF, 2008-2009
Terrestrial Biogeochemistry search committee, CALs/CCSF, 2008-2009

Department committees

Mentoring committee, Meredith Holgerson, chair (2020-)
Mentoring committee, Megan Greischar (2020-)
Mentoring committee, Andrew Moeller (2019-)
Mentoring committee, Xiangtao XU (2019-)
DEIJB Working group on website and statements (2020-2021)
Organismal Biology Search Committee, (2019-2020)
Chair, tenure review (2019)
Chair, Faculty 3rd year review (2018)
Mentoring committee chair, Maren Vitousek (2016-2019)
Mentoring committee, Denis Willtett (2018-2021)
Graduate Admissions Committee, Field of E&EB, (2005-2007, 2011, 2013, 2018)
Mentoring committee chair, Katja Poveda (Entomology) (2014-2017)
Evolution Search Committee, co-chair (2016-2017)
Strategic Planning, Chair (2015-2016)
Awards Chair (2015-2017)
Awards committee (Entomology) (2012-2013)
Seminar Committee Chair (2008-2010)
Chair, Faculty 3rd year review (2008)
Whittaker and Book Award Committee (2006)
Cole Award Committee (2005)
Graduate Studies Committee, University of Toronto Botany Department (2002-2004)
Microbial interactions search committee, University of Toronto Botany Department (2003)
Plant Ecologist search committee, University of Toronto Botany Department (2001-2002)
EcoLunch seminar series coordinator, University of Toronto Botany Department (2000-2001)
Botany seminar series coordinator, University of Toronto Botany Department (2000-2004)
EvoLunch seminar series, University of Toronto Botany Department (2001-2004)
Growth Facilities Committee, University of Toronto Botany Department (2003-2004)

CONFERENCES/WORKSHOPS

OUTSIDERS: How the Invasion Concept Shapes Migration Perspectives. Moderated a panel discussion for the Migrations Initiative at Cornell, March 2022

USDA Annual Multi-State Meeting for “Harnessing Chemical Ecology to Address Agricultural Pest and Pollinator Priorities” – Annually since 2014, including organizational responsibilities

Multi-stakeholder workshop on public policy and biodiversity offsetting, Cornell & NYU, July 2020

Cornell Institute for Biology Teachers, Monarch butterfly workshop, October, 2018

Monarch Butterfly Expert Elicitation Meeting, US Fish and Wildlife Service, Minneapolis, MN, June 12-15, 2017

How to get your NSF grant funded, Cornell University Panel, Spring 2017

Cayuga Nature Center, Summer Solstice Butterfly presentation, lecture and field walk, 2014, 2015

Cornell Institute for Biology Teachers, Summer workshop, July 2010, July 2011, 2013, two hour field trip with 25 secondary school instructors

How to Succeed in Graduate School, BEB Workshop, December 2009

Cornell Club visit and presentations, Washington DC, April 2009

CALS Alumni Presentation, Making a World of Difference, April 2009

Cornell Alumni Presentation, Boston, June 2008

Cornell Institute for Biology Teachers, Return to Campus event, 5 May 2007, two hour field lecture to 40 secondary school instructors

Cornell Institute for Biology Teachers, Summer workshop, July 2007, two hours field trip with 25 secondary school instructors

University & Industry Consortium, introductory talk on integrative biology at Cornell (April 17, 2007)

Workshop on Journal Citation Impact Factors, Mann Library, April 7, 2006

Participant in National Center for Ecological Analysis and Synthesis working group: Biotic Interactions and Invasions (2004-2005)

Participant in Ecological Society of America Workshop on How to succeed in ecology: Advice from current and aspiring eminent ecologists (August 2004)

Meetings and symposia organized

Symposium: Frontiers in the study of induced plant defense against pathogens and herbivores, joint meeting of the Phytopathological and Entomological Society of America. (Las Vegas, November 1998)

Symposium: Multi-Trophic Interactions Brainstorm Symposium, an international conference on emerging areas of research (Toronto, 2004). Funded by Connaught fund, US NSF, and University of Toronto Botany

NSF Workshop: Frontiers in Ecology (Washington DC, Jan 2006): chaired 15 person workshop to assign priority areas for NSF base-budget funding in ecology

Workshop: Cornell Center for the Environment, Forum on Invasive species (chair and organizer), Cornell University, May 2006

Pennsylvania State University – Cornell University joint symposium in Chemical Ecology (co-organizer), State College, PA, May 2007

Symposium: Phylogenetic approaches to the study of plant resistance and insect host range. International Society for the Study of Chemical Ecology. (Pennsylvania State University, August 2008)

Symposium: Evolutionary Ecology of Plant Defense Against Insects: Novel Approaches to Classic Questions, Ecological Society of America (Albuquerque, NM, August 2008).

New Phytologist 7th Annual Workshop, Frontiers in the Chemical Ecology and Coevolution. (Ithaca, NY September 2013)

Symposium: Evolutionary Chemical Ecology, International Society of Chemical Ecology (Urbana, IL, July 2014)

ASN VP Symposium, ASN/SSE: Convergence, Natural History, and the big questions in biology (Austin, TX, 2016)

Symposium: Tibor Jermy's Legacy in Plant-Insect Evolution, International Society of Chemical Ecology (Budapest, Hungary, August 2018)

Oak Springs Garden Foundation – Of Milkweeds & Monarchs - Workshop (June 2019)

INVITED PRESENTATIONS

Planned: Charles Chesley Doane Distinguished Lecture, University of Wisconsin
Harvard University, Dept. OEB

2021 Polly Hill Arboretum, Martha's Vineyard

2020 Paleontological Research Institution, Darwin Days public lecture
University of California, Davis (talk given remotely)
University of Toronto (talk given remotely)
New England Botanical Club (talk given remotely)
Tansley Lecture, British Ecological Society

2019 University of Nevada, Reno
Ladew Topiary Gardens, Monkton, MD
Frederik Meijer Gardens, Grand Rapids, MI
Point Pelee National Park, Ontario, Canada
J.N. Ding Darling National Wildlife Refuge, Sanibel Island, FL (2 talks)
Oak Springs Garden Foundation, Upperville, VA
Boyce Thompson Institute of Plant Sciences, Ithaca, NY

2018 Cary Institute for Ecosystem Studies, Millbrook, NY
Cornell Botanic Gardens, Ithaca, NY

North American Butterfly Association, Keynote talk
Silverstein-Simeone Lecture, Int. Soc. Chemical Ecology, Budapest, Hungary
Interdisciplinary Research Center for Regional Development, Oaxaca
Oaxaca Lending Library, public lecture
UNAM, Mexico City, Institute of Ecology
UNAM, Morelia, Institute of Research in Ecosystems and Sustainability
5th Annual WWF International Symposium on Monarch Butterfly Research and
Conservation, Morelia, Mexico.

- 2017 Arnold Arboretum, Harvard University (two talks)
Montana Natural History Center / Missoula Insectarium, Missoula, MT
Ecological Society of America, Robert H. MacArthur Award lecture
Houston Museum of Natural Science, Houston, TX
Royal Ontario Museum, Toronto, Ontario
Cornell University, Chats in the stacks
Lady Bird Johnson Wildflower Center, Austin, TX
California Academy of Sciences, San Francisco, CA
Seattle Town Hall, Seattle, WA
San Antonio Book Festival, San Antonio, TX
- 2016 Integrative Biology, Michigan State University
Department of Natural Resources, Cornell University
Fish & Wildlife Service Webinar, Conservation Series
Science and Suds, Public talk in Cortland, NY
- 2015 University of Massachusetts, Alexander Entomology Lecture
Princeton University, Department of Ecology and Evolutionary Biology
Ecological Society of America, Ignite session: Advances, Frontiers, Applications,
and Challenges within and across Ecological Disciplines: A Celebration of
ESA's Centennial, and a Roadmap for the Next 100 Years
Duke University, Program in Ecology
- 2014 University of Montana, distinguished speaker (2 talks)
Rocky Mountain Biological Laboratory (2 talks)
International Society of Chemical Ecology, Keynote talk
University of Minnesota, Department of Ecology and Evolution
Finger Lakes Native Plant Society
Boyce Thompson Institute for Plant Sciences
Yale University, Department of Ecology & Evolutionary Biology
- 2013 Dartmouth College, Department of Biological Sciences
Founders Memorial Award Lecture, Ent Soc Annual Meeting, Austin, TX
New Phytologist 7th Workshop: Chemical Ecology & Coevolution (Ithaca, NY)

- 2012 University of California, Davis, Department of Entomology
University of Georgia, Department of Plant Biology
University of South Carolina, Department of Biological Sciences
University of Pittsburg, Department of Biological Sciences
- 2011 University of Wisconsin, Madison
University of Washington, Jill Adams Memorial Lecture
University of Colorado, Boulder, Department of Ecology and Evolution
Stockholm-Cornell Bilateral Insect Symposium, Stockholm University
- 2010 David Starr Jordan Award Lecture, Cornell University
Department of Entomology, Cornell University, Geneva Campus
Indiana University, Department of Biological Sciences
Oklahoma State University, Department of Botany
- 2009 Entomological Society of America Symposium: Evolutionary Arms Race of
Resistance in Herbivores to Novel Chemistries: Lessons from Native and
Agricultural Systems (Indianapolis, IN).
Stony Brook University, Darwin's 150 anniversary of the Origin of Species
University of Michigan
University of British Columbia, Chitty Lecture
Syracuse University, Department of Biology
Mountain Lake Biological Station, Walton Lecturer
Ecological Society of America Symposium: Ecology of Plant Defense Against
Insects: Novel Approaches to Classic Questions
- 2008 Stanford University, Department of Biological Sciences
University of California Davis, Ecology Series
University of California Irvine, Department of Ecology and Evolutionary Biology
Texas A&M, Ecology and Evolutionary Biology Program
University of Tennessee, Department of Ecology and Evolution
- 2007 Umeå University, Department of Ecology and Environmental Science (2 talks)
University of Kentucky, Department of Entomology
Northern Arizona University, School of Forestry
Penn State – Cornell Symposium in Chemical Ecology
Michigan State University, Ecology & Evolutionary Biology
Meet the greenhouse staff – Cornell University
Portland State University, Department of Biology
- 2006 Pennsylvania State University, Department of Entomology
Symposium on the ecological consequences of genetic diversity, at the Ecological
Society of America annual meeting.
Kellogg Biological Station, Eminent Ecologist (2 talks over weeklong visit)
SUNY Stony Brook, GC Williams Lecture in Evolutionary Biology

- Cornell CALS back to the classroom alumni lecture
UMass Amherst, Organismic and Evolutionary Biology Series
University of Rochester, Department of Biology
- 2005 Symposium in Honor of Erkki Haukioja, University of Turku, Finland
Geneva Experiment Station, Cornell University, Department of Entomology
Cornell University, Department of Entomology
NCCR Plant Survival International Conference, Leysin, Switzerland
- 2004 University of Pennsylvania, Biology Alumni Series (2 talks)
Georgia Institute of Technology, School of Biology
12th International Symposium Insect-Plant-Interactions, Berlin. Keynote speaker
Ecological Society of America, Symposium on ecological implications of phenotypic plasticity
Ontario Ecology and Ethology Colloquium, Plenary lecture
Cornell University, Biogeochemistry and biocomplexity series
University of South Carolina, Department of Biological Sciences
Gordon Research Conference: Plant-Herbivore Interactions, closing lecture
- 2003 Smithsonian Tropical Research Institute, BCI, Panama
University of Guelph, Department of Botany
Royal Canadian Institute, Toronto. Sunday Science Lectures
Brodie Club, Toronto. Natural history seminar series
North Dakota State University, Department of Entomology
University of Arizona, Center for Insect Science
Western Michigan State University, Biology Department
- 2002 Cornell University, Department of Ecology and Evolution
University of Pittsburgh, Department of Biology
University of Toronto (EcoLunch series)
Indiana University, Department of Biology
- 2001 University of Minnesota, Center for Community Genetics
Workshop: Plant-animal interactions in complex environments, Section for Landscape Ecology, SLU (Sweden)
Harvard University, Graduate class on plant-herbivore interactions
University of British Columbia, Centre for Biodiversity
Simon Fraser University, Department of Biology
UNAM, Institute for Ecology (Mexico)
University of Toronto (EcoLunch series)
University of Toronto at Mississauga, Department of Biology
Course in plant-animal interactions, Instituto de Ecología, A.C., Vera Cruz, Mexico. One week in the field with 2 talks.

- 2000 University of Leiden (Netherlands), Department of Plant Ecology
30 questions for the next century of ecology, Ecological Society of America
Wageningen University (Netherlands), Department of Entomology
- 1999 Workshop: Chemistry of resistance in woody plants - prospects for ecologically
valid generalizations, University of Turku (Finland)
Imperial College at Silwood Park (UK)
Centre for Population Biology University of Amsterdam, Institute for Biodiversity
University of Arkansas, Department of Entomology
Keynote Symposium, Plant-Animal Interactions, XVI Int. Botanical Congress
Young Investigators Symposium, annual meeting of the Amer. Soc. of Naturalists
Merton Love Seminar in Ecology and Evolution, University of California, Davis
Vanderbilt University, Department of Biology (2 talks)
University of Chicago, Department of Ecology and Evolution (2 talks)
Duke University, Department of Botany
University of Illinois at Urbana-Champaign, School of Integrative Biology
- 1998 California Conference on Biological Control (Berkeley, CA)
Symposium on Induced Plant Defense, Joint annual meeting of Phytopathological
and Entomological Societies of America
University of California – Santa Cruz, Department of Environmental Studies
North Carolina State University, Department of Zoology
Pennsylvania State University, Department of Biology
University of California – Berkeley, Department of ESPM
University of Toronto, Department of Botany (2 talks)
- 1996 Symposium on Ant-Plant Interactions at the Ecological Society of America annual
meeting

REVIEW PANELS

- NSF IOS – IEP panel, May 18-20 (2020)
Atkinson Center for a Sustainable Future, TNC-Collaborative proposals (2018)
Atkinson Center for a Sustainable Future, NatureNet Postdocs (2017)
Atkinson Center for a Sustainable Future, AVF Panel (2015, 2016)
NSF Population and Community Ecology panel, April 21-23 (2010)

PUBLICATIONS

Books

Agrawal, A.A. 2017. *Monarchs and Milkweed: A Migrating Butterfly, A Poisonous Plant, and their Remarkable Story of Coevolution*. Princeton University Press. 296pp.

- *winner of the National Outdoor Book Award - Nature and Environment Category 2017*
- *One of Forbes's top 10 biology books of 2017*
- *Award of Excellence in Gardens, The Council on Botanical and Horticultural Libraries*
- *Honorable Mention 2018 PROSE Award in Popular Science, Assoc. American Publishers*
- *Longlisted for the 2018 AAAS/Subaru Prizes for Excellence in Science Books*

Submitted papers

Goud, E.M., A.A. Agrawal, and J.P. Sparks. A direct comparison of ecological theories for predicting the relationship between plant traits and growth. *Ecology*.

Carvajal Acosta, N. Agrawal, A.A and K.A. Mooney. Plant traits as mediators of herbivore drought response: phylogeny, physiology, and functional traits. *Functional Ecology*.

Edwards, C.E., S.P. Ellner, A.A. Agrawal. Identifying synergies and antagonisms between plant defense traits in *Asclepias syriaca*. *Ecology*.

López-Goldar, X., A.P. Hastings, T. Züst, and A.A. Agrawal. Evidence for compartmentalized defense-offense interactions between milkweed and its community of specialized herbivores. *Molecular Ecology*.

Coverdale, T.C. and A.A. Agrawal. Experimental insect suppression causes loss of induced, but not constitutive, resistance in *Solanum carolinense*. *Ecology*.

Boyle, J.H., S. Strickler, A.D. Twyford, A. Ricono, A. Powell, J. Zhang, H-X Xu, H.J. Dalglish, G. Jander, A.A. Agrawal, J.R. Puzey. Temporal matches and mismatches between monarch butterfly and milkweed population changes over the past 12,000 years. *Molecular Ecology*.

Jones, P.A. and A.A. Agrawal. Caffeine and ethanol in nectar interact with flower color impacting bumblebee behavior. *Behavioral Ecology and Sociobiology*.

In Press

Refereed Papers

- 2022 Brzozowski, L.J., D.C. Weber, A.K. Wallingford, M. Mazourek, and A.A. Agrawal. Tradeoffs and synergies in management of two co-occurring specialist squash pests. *Journal of Pest Science* 95: 327–338.
- 2021 Agrawal, A.A., A.P. Hastings, and J.L. Maron. Evolution and seed dormancy shape plant genotypic structure through a successional cycle. *PNAS*
doi.org/10.1073/pnas.2026212118
- McCoshum, S.M. and A.A. Agrawal. Ecology of *Asclepias brachystephana*: a potential plant for roadside seeding. *Native Plants Journal* 23:256-267.
- Coverdale, T.C. and A.A. Agrawal. Evolution of shade tolerance is associated with attenuation of shade avoidance and reduced phenotypic plasticity in North American milkweeds. *American Journal of Botany* 108:1705-1715.
- Elias, J.D. and A.A. Agrawal. A private channel of nitrogen alleviates interspecific competition for an annual legume. *Ecology* 102: e03449
- Lopez-Goldar, X., and A.A. Agrawal. Ecological interactions, environmental gradients, and gene flow in local adaptation. *Trends in Plant Science* 26: 796-809.
- Agrawal, A.A. and X. Zhang. The evolution of coevolution in the study of species interactions. *Evolution* 75-7: 1594–1606.
- Tigreros, N. A.A. Agrawal, and J.S. Thaler. Genetic variation in parental effects contribute to the evolutionary potential of antipredator plasticity. *American Naturalist* 197:164–175.
- Agrawal, A.A., K. Böröczky, M. Haribal, A.P. Hastings, R.A. White, R-W Jiang, and C. Duplais. Cardenolides, toxicity and the costs of sequestration in the coevolutionary interaction between monarchs and milkweeds. *PNAS* 118: e2024463118.
- Holmes, K.D. and A.A. Agrawal. Induced resistance mitigates the effect of plant neighbors on susceptibility to herbivores. *Ecosphere* 12:e03334. [10.1002/ecs2.3334](https://doi.org/10.1002/ecs2.3334)
- 2020 Agrawal, A.A. A scale-dependent framework for trade-offs, syndromes, and specialization in organismal biology (MacArthur Award paper). *Ecology* 101: e02924
- Mirzaei, M., T. Züst, A.P. Hastings, A.A. Agrawal, and G. Jander. Less is more: a mutation in the chemical defense pathway of *Erysimum cheiranthoides* (Brassicaceae) reduces

total cardenolide abundance but increases resistance to insect herbivores. *Journal of Chemical Ecology* 46:1131–1143.

Brzozowski, L.J., M.A. Gore, A.A. Agrawal, and M. Mazourek. Divergence of defensive cucurbitacins in independent *Cucurbita pepo* domestication events leads to differences in specialist herbivore preference. *Plant, Cell & Environment* 43:2812–2825.

He, E. and A.A. Agrawal. Clonal versus non-clonal milkweeds (*Asclepias* spp.) respond differently to stem damage, affecting oviposition by monarch butterflies. *PeerJ* 8:e10296 <https://doi.org/10.7717/peerj.10296>

Brzozowski, L.J., J. Gardner, M.P. Hoffmann, A. Kessler, A.A. Agrawal, and M. Mazourek. Attack and aggregation of a major squash pest: parsing the role of plant chemistry and beetle pheromones. *Journal of Applied Ecology* 57: 1442-1451.

Arcila Hernández, L.M., S.R. Davis, and A.A. Agrawal. Host specificity and variation in oviposition behavior of milkweed stem weevils and implications for species divergence. *Ecological Entomology* 45: 1121-1133.

Villalona, E., B.D. Ezray, E. Laveaga, A.A. Agrawal, J.G. Ali, H.M. Hines. The role of toxic nectar secondary compounds in driving differential bumble bee preferences for milkweed flowers. *Oecologia* 368: 835-835.

Ogran, A., J.K. Conner, A.A. Agrawal, and O. Barazani. Evolution of phenotypic plasticity: genetic differentiation and additive genetic variation for induced plant defense in wild arugula *Eruca sativa*. *Journal of Evolutionary Biology* 33: 237-246.

Keen, P., A.P. Hastings, A.A. Agrawal, and J. Van Eck. Agrobacterium tumefaciens-mediated transformation of three milkweed species (*Asclepias hallii*, *A. syriaca*, and *A. tuberosa*). *Current Protocols in Plant Biology* 5: e20105.

2019 Karageorgi, M, S. Groen, F. Sumbul, J.N. Pelaez, K.I. Verster, J.M. Aguilar, A.P. Hastings, S.L. Bernstein, T. Matsunaga, M. Astourian, G. Guerra, F. Rico, S. Dobler, A.A. Agrawal, N.K. Whiteman. Genome editing retraces the evolution of toxin resistance in the monarch butterfly. *Nature* 574: 409–412.

Jones, P.A. and A.A. Agrawal. Beyond preference and performance: host plant selection by monarch butterflies, *Danaus plexippus*. *Oikos* 128:1092-1102.

Agrawal, A.A. and A.P. Hastings. Plant defense by latex: new data on the ecological genetics of inducibility in the milkweeds and a general review of mechanisms, evolution, and implications for agriculture. *Journal of Chemical Ecology* (Silverstein-Simeone Award paper) 45:1004–1018.

- Agrawal, A.A. and A.P. Hastings. Trade-offs constrain the evolution of an inducible plant defense within but not between species. *Ecology* 100: e02857.
- Maron, J. L., A. A. Agrawal, and D. W. Schemske. 2019. Plant–herbivore coevolution and plant speciation. *Ecology* 100:e02704. 10.1002/ecy.2704
- Goud, E.M., J.P.Sparks, M. Fishbein, and A.A. Agrawal. Integrated metabolic strategy: a mechanistic framework for predicting the evolution of carbon gain and water loss tradeoffs within plant clades. *Journal of Ecology* 107:1633–1644.
- A.A. Agrawal. Advances in understanding the long-term population decline of monarch butterflies. *PNAS* 116: 8093-8095.
- Brzozowski, L.J., M. Mazourek, and A.A. Agrawal. Mechanisms of resistance to insect herbivores in isolated breeding lineages of *Cucurbita pepo*. *Journal of Chemical Ecology* 45: 313–325.
- Jones, P.L., G. Petschenka, L. Flacht, and A.A. Agrawal. Cardenolide intake, sequestration, and excretion by the monarch butterfly along gradients of plant toxicity and larval ontogeny. *Journal of Chemical Ecology* 45: 264–277.
- Hahn, P.G., A.A. Agrawal, K.I. Sussman, and J.L. Maron. Population variation, environmental gradients, and the evolutionary ecology of plant defense against herbivory. *American Naturalist* 193: 20–34.
- Züst, T., G. Petschenka, A.P. Hastings, and A.A. Agrawal. Toxicity of milkweed leaves and latex: chromatographic quantification versus biological activity of cardenolides in 16 *Asclepias* species. *Journal of Chemical Ecology* 45: 50-60. (cover photo)
- Boege, K., J.S. Thaler, and A.A. Agrawal. Ontogenetic strategies in insect herbivores and their impact on tri-trophic interactions. *Current Opinion in Insect Science* 32: 61-67.
- 2018 Petschenka, G., C.S. Fei, J.J. Araya, S. Schröder, B.N. Timmermann, and A.A. Agrawal. Structural variation in toxin-receptor interactions suggests a mechanism for how milkweed plants can selectively defend against herbivores. *Frontiers in Plant Science* 9:1424.
- Züst, T, S. Mou, and A.A. Agrawal. What doesn't kill you makes you stronger: the burdens and benefits of toxin sequestration in an aphid. *Functional Ecology* 32:1972-1981.
- Agrawal, A.A. and H. Inamine. Mechanisms behind the monarch's decline. *Science* 360:1294-1296.

- Maron, J.L., M.T.J. Johnson, A.P. Hastings, and A.A. Agrawal. Fitness consequences of occasional outcrossing in a clonal plant (*Oenothera biennis*). *Ecology* 99: 464–473.
- Agrawal, A.A., A.P. Hastings, D.M. Fines, S. Bogdanowicz, and M. Huber. Insect herbivory and plant adaptation in an early successional community. *Evolution* 72: 1020-1033.
- Agrawal, A.A., A. Ali, M.D. Johnson, A.P. Hastings, D. Burge, M.G. Weber. Toxicity of the spiny thick-foot *Pachypodium*. *American Journal of Botany* 105: 677-686.
- 2017 Agrawal, A.A. Towards predictive framework for convergent evolution: integrating natural history, genetic mechanisms, and consequences for the diversity of life. *American Naturalist* 190: S1-S12.
- Züst, T. and A.A. Agrawal. Trade-offs between plant growth and defense against insect herbivory: An emerging mechanistic synthesis. *Annual Review of Plant Biology* 68: 513-534.
- Ali, J.G. and A.A. Agrawal. Trade-offs and tritrophic consequences of host shifts in highly specialized root herbivores. *Functional Ecology* 31:153-160.
- Züst, T. and A.A. Agrawal. Plant chemical defense indirectly mediates aphid performance via interactions with tending ants. *Ecology* 98:601-607.
- Cook-Patton, S.C., A.P. Hastings, A.A. Agrawal. Genotypic diversity mitigates negative effects of density on plant performance: a field experiment and life-cycle analysis of common evening primrose *Oenothera biennis*. *Journal of Ecology* 105:726–735.
- Groen, S., E.R. LaPlante, N.M. Alexandre, A.A. Agrawal, S. Dobler, N.K. Whiteman. Multidrug transporters and organic anion transporting polypeptides protect insects against the toxic effects of cardenolides. *Insect Biochemistry and Molecular Biology* 81:51-61.
- Jones, P.L. A.A. Agrawal. Learning in insect pollinators and herbivores. *Annual Review of Entomology* 62:53–71.
- Gustafsson, K., S.A. Wolf, and A.A. Agrawal. Science-policy-practice interfaces: Emergent knowledge and monarch butterfly conservation. *Environmental Policy and Governance* 27:521-533.
- 2016 Jones, P.L. A.A. Agrawal. Consequences of toxic secondary compounds in nectar for mutualist bees and antagonist butterflies. *Ecology* 97: 2570–2579. (cover photo)
- Inamine, H., S.P. Ellner, J.P. Springer, and A.A. Agrawal. Linking the continental

- migratory cycle of the monarch butterfly to understand its population decline. *Oikos* 125:1081-1091. (cover photo)
- Petschenka, G. and A.A. Agrawal. How herbivores coopt plant defenses: Natural selection, specialization, and sequestration. *Current Opinion in Insect Science* 14:17–24.
- Pellissier, L., G. Litsios, M. Fishbein, N. Salamin, A.A. Agrawal, and S. Rasmann. Different rates of defense evolution and niche preferences in clonal and non-clonal milkweeds (*Asclepias* spp.). *New Phytologist* 209: 1230–1239.
- Lewis, E.M., J.B. Fant, M.J. Moore, A.P. Hastings, E.L. Larson, A.A. Agrawal, and K.A. Skogen. Microsatellites for *Oenothera gayleana* and *O. hartwegii* subsp. *filifolia* (Onagraceae), and their utility in section *Calylophus*. *Applications in Plant Science* 4: 1500107
- Züst, T. and A.A. Agrawal. Plant resistance to aphids: chemical defense, induced responses, and evolution. *Nature Plants* 2, 15206.
- Züst, T. and A.A. Agrawal. Population growth and sequestration of plant toxins along a gradient of specialization in four aphid species on the common milkweed *Asclepias syriaca*. *Functional Ecology* 30: 547–556.
- Tingle, J.L., S.C. Cook-Patton, and A.A. Agrawal. Spillover of a biological control agent (*Chrysolina quadrigemina*) onto native St. Johnswort (*Hypericum punctatum*). *PeerJ* 4:e1886; DOI 10.7717/peerj.1886.
- 2015 Agrawal, A.A., A.P. Hastings, G.S. Bradburd, E.C. Woods, T. Züst, J.A. Harvey, T. Bukovinszky. Evolution of plant growth and defense in a continental introduction. *American Naturalist* 186:E1-E15.
- Agrawal, A.A. and M.G. Weber. On the study of plant defence and herbivory using comparative approaches: how important are secondary plant compounds? *Ecology Letters* 18: 985–991.
- Petschenka, G. and A.A. Agrawal. Toxin resistance in the milkweed butterflies was driven by predation, not host plant use. *Proceedings of the Royal Society B* 282: 20151865. DOI: 10.1098/rspb.2015.1865
- Fitzpatrick, C.R., A.A. Agrawal, N. Basiliko, A.P. Hastings, M.E. Isaac, M. Preston, and M.T.J. Johnson. The importance of plant genotype and contemporary evolution for terrestrial ecosystem processes. *Ecology* 96:2632–2642.
- Züst, T., S. Rasmann, and A.A. Agrawal. Growth-defense trade-offs for two major anti-herbivore traits of the common milkweed *Asclepias syriaca* L. *Oikos* 124: 1404-1415.

Raguso, R.A., A.A. Agrawal, A.E. Douglas, G. Jander, A. Kessler, K.A. Poveda and J.S. Thaler. The raison d'être of chemical ecology. *Ecology* 96:617–630.

Martin, L.J., A.A. Agrawal, C.E. Kraft. Historically browsed jewelweed populations exhibit greater tolerance to deer herbivory than historically protected populations. *Journal of Ecology* 103:243-249. (Harper prize of the British Ecological Society, runner up paper)

Kariñho-Betancourt, E., A.A. Agrawal, R. Halitschke, and J. Núñez-Farfán. Phylogenetic correlations among chemical and physical plant defenses change with ontogeny. *New Phytologist* 206:796–806.

Gustafsson, K., A.A. Agrawal, B.E. Lewenstein, and S.A. Wolf. The monarch butterfly through time and space: the social construction of an icon. *BioScience* 65:112-122.

2014 Agrawal, A.A., A.P. Hastings, A.C. Knight, E.T. Patrick. Specificity of herbivore-induced hormonal signaling and defensive traits in closely related milkweeds (*Asclepias* spp.). *Journal of Chemical Ecology* 40:717–729.

Agrawal, A.A., E.T. Patrick, and A.P. Hastings. Tests of the coupled expression of latex and cardenolide plant defense in common milkweed (*Asclepias syriaca*). *Ecosphere* 5:126. <http://dx.doi.org/10.1890/ES14-00161.1>.

Ali, J.G. and Anurag A. Agrawal. Asymmetry of plant-mediated interactions between specialist aphids and caterpillars on two milkweeds. *Functional Ecology* 28: 1404-1412.

Weber, M.G. and A.A. Agrawal. Defense mutualisms enhance plant diversification. *PNAS* 111:16442-16447. (cover article)

Cook-Patton, S.C. and A.A. Agrawal. Exotic plants contribute positively to biodiversity functions but reduce native seed production and arthropod richness. *Ecology* 95: 1642-1650.

DiTommaso, A., S.H. Morris, J.D. Parker, C.L. Cone, A.A. Agrawal. Deer browsing delays succession by altering aboveground vegetation and belowground seed banks. *PLoS One* 9:e91155.

Desurmont, G.A., P.A. Weston, and A.A. Agrawal. Reduction of oviposition time cost and larval group feeding: two potential benefits of aggregative oviposition for the viburnum leaf beetle. *Ecological Entomology* 39:125–132.

Desurmont, G.A., A.E. Hajek, and A.A. Agrawal. Seasonal decline in plant defense is associated with relaxed offensive oviposition behavior in the viburnum leaf beetle *Pyrrhalta viburni*. *Ecological Entomology* 39: 589–594.

- Erwin, A.C., T. Züst, J.G. Ali, and A.A. Agrawal. Aboveground herbivory facilitates above- and belowground conspecific insects and reduces fruit production. *Journal of Ecology* 102:1038–1047.
- Desurmont, G.A. and A.A. Agrawal. Do plant defenses predict damage by an invasive herbivore? A comparative study of the viburnum leaf beetle. *Ecological Applications* 24: 759–769.
- Bukovinszky, T., R. Gols, A.A. Agrawal, C. Roge, T.M. Bezemer, A. Biere, and J.A. Harvey. Reciprocal interactions between native and introduced populations of common milkweed, *Asclepias syriaca*, and the specialist aphid, *Aphis nerii*. *Basic and Applied Ecology* 15:444–452.
- Stastny, M. and A.A. Agrawal. Love thy neighbor? Reciprocal impacts between plant community structure and insect herbivory in co-occurring Asteraceae. *Ecology* 95:2904–2914.
- 2013 Erwin, A.C., M.A. Geber, and A.A. Agrawal. Specific impacts of two root herbivores and soil nutrients on plant performance and insect-insect interactions. *Oikos* 122:1746–1756.
- Wason, E.L., A.A. Agrawal, M.D. Hunter. A genetically-based latitudinal cline in the emission of herbivore-induced plant volatile organic compounds. *Journal of Chemical Ecology* 39:1101-1111.
- Rafter, J.L., Agrawal, A.A., and E.L. Preisser. Chinese mantids gut toxic monarch caterpillars: avoidance of prey defense? *Ecological Entomology* 38:76–82.
- Agrawal, A.A., M.T.J. Johnson, A.P. Hastings, J.L. Maron. Experimental evolution of plant life-history traits and its eco-evolutionary feedback to seed predator populations. *American Naturalist* 181:S135-D145.
- Burge, D., K. Mugford, A.P. Hastings, and A.A. Agrawal. Phylogeny of the plant genus *Pachypodium* (Apocynaceae). *PeerJ*, DOI: 10.7717/peerj.70.
- 2012 Agrawal, A.A., A.P. Hastings, M.T. Johnson, J.L. Maron, J-P. Salminen. Insect herbivores drive real-time ecological and evolutionary change in plant populations. *Science* 338:113-116. (with perspectives article published in the same issue)
- Abdala-Roberts, L., A.A. Agrawal, K.A. Mooney. Ant-aphid interactions on *Asclepias syriaca* are mediated by plant genotype and caterpillar damage. *Oikos* 121:1905–1913.

- Agrawal, A.A., G. Petschenka, R.A. Bingham, M.G. Weber, and S. Rasmann. Toxic cardenolides: chemical ecology and coevolution of specialized plant-herbivore interactions (*Tansley Review*). *New Phytologist* 194:28–45.
- Parker, J.D., J-P. Salminen, and A.A. Agrawal. evolutionary potential of root chemical defense: genetic correlations with shoot chemistry and plant growth. *Journal of Chemical Ecology* 38:992–995.
- Weber, M.G. and Agrawal, A.A. Phylogeny, ecology and hypothesis testing: coupling comparative and experimental approaches. *Trends in Ecology and Evolution* 27:394-403.
- Weber, M.G., W.L. Clement, M.J. Donoghue, and A.A. Agrawal. Phylogenetic and experimental tests of interactions among mutualistic plant defense traits in *Viburnum* (Adoxaceae). *American Naturalist* 180:450-463.
- Woods, E.C., A.P. Hastings, N.E. Turley, S.B. Heard, and A.A. Agrawal. Adaptive geographical clines in the growth and defense of a native plant. *Ecological Monographs* 82:149–168.
- Desurmont, G.A., F. Herard, and A.A. Agrawal. Oviposition strategy as a means of local adaptation to plant defense in native and invasive populations of the viburnum leaf beetle. *Proc Royal Society Lond - Biological Sciences* 279:952–958.
- Rasmann, S., M. De Vos, C.L. Casteel, D. Tian, J.Y. Sun, A.A. Agrawal, G.W. Felton, and G. Jander. Transgenerational resistance against insect herbivory requires jasmonates and siRNA synthesis. *Plant Physiology* 158:854–863.
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PROFESSIONAL OVERVIEW AND OBJECTIVES

My research program addresses questions in the ecology and evolution of interactions between plants and animals. In particular, I focus on the generally antagonistic interactions between plants and insect herbivores and ultimately seek to understand the complexity of community-wide interactions. What ecological factors allow the coexistence of similar species? What evolutionary factors led to the diversification of species? In total, plants and insect herbivores comprise about one half of earth's macroscopic biodiversity and herbivory accounts for major losses in agriculture. Given that herbivory is the conduit through which most of plants' autotrophic energy is transmitted to the rest of the food web, the focus on plant-herbivore interactions is justifiably important. My approach to science in general involves 1) rigorous, manipulative field experiments to test for the importance of conceptually or theoretically developed interactions, 2) a comparative phylogenetic approach to describing deep evolutionary patterns which bear on long-standing hypotheses, 3) the search for novel interactions which may be pervasive in nature but have escaped our attention, and 4) a keen interest in teaching and mentoring students at all levels of education. My research is mostly conducted in northeastern old-field communities, although when appropriate I travel to other field sites (Costa Rica, Bahamas, and Finland). During the colder months, my lab conducts more mechanistic experiments in glasshouses and growth chambers.