

2016 Curriculum Vitae



NAME: Anurag Agrawal
DEPARTMENT/UNIT: Ecology and Evolutionary Biology
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BACKGROUND

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	Organization for Tropical Studies field course: <i>Tropical Biology 95-3</i>	
1994	M.A., Conservation Biology	University of Pennsylvania
1994	B.A., Biology <i>Magna Cum Laude</i>	University of Pennsylvania

ACADEMIC RANKS

Professor: 2010, Cornell University
Associate Professor: 2005, Cornell University
Assistant Professor: 2004, Cornell University
Assistant Professor: 2000, University of Toronto

PRIMARY DEPARTMENTAL/Unit PROGRAM AREA

Population and community ecology, evolutionary ecology, plant-insect interactions

AREAS OF EXPERTISE

Community and evolutionary ecology of plant-animal interactions: interspecific interactions, genotypic and environmental influences on insect communities, phenotypic plasticity, induced plant defense against herbivores, ecological genetics, evolutionary biology, phylogenetics, chemical ecology, and comparative biology.

PROFESSIONAL EXPERIENCE

<u>Year</u>	<u>Experience</u>
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, Associate Director for Environmental Programs, Cornell 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

SABBATICALS AND STUDY LEAVES

Spring 2011, University of Arizona
Fall 2007, Michigan State University

HONORS AND AWARDS

Robert H. MacArthur Award, Ecological Society of America (2016)
Highly Commended (Harper Prize competition) 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 (elected 1994)
ARCS Scholar (1997-1999)

NAMED / HONORARY LECTURES

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)

ACADEMIC RESPONSIBILITIES

ADMINISTRATIVE RESPONSIBILITIES

Associate Director, Cornell Center for a Sustainable Future, 2008-2010
Cornell Chemical Ecology Group, 2008- (www.chemicalecology.cornell.edu)

RESEARCH RESPONSIBILITIES

Current Postdoctoral Associates

Dr. Patricia Jones (2014-)

Past Postdoctoral Associates

Dr. Peter Van Zandt, 2001-2003, Currently Assistant Prof. at Birmingham Southern College
Dr. Kailen Mooney (Jan. 2005 - July 2007), Currently Associate Prof. at UC Irvine
Dr. John D. Parker (Jan. 2006 - Aug. 2007), Currently Senior Scientist at the Smithsonian ERC
Dr. Sergio Rassman (Feb. 2007 - Dec. 2010), Currently Professor at Neuchatel University
Dr. Gaylord Desurmont (August 2009 - Dec. 2010), Currently Research Entomologist, EBCL
Dr. Jared Ali (Sept 2011 – Mar. 2013), Currently Assistant Professor, Pennsylvania State Univ
Dr. Georg Petschenka (Oct 2012 - March 2015), Currently postdoc at University of Giessen
Dr. Karin Gustafsson (Jan. 2014 – Jan. 2015), Currently postdoc at Örebro University
Dr. Tobias Zuest (April 2012-2015), Currently postdoc at Bern University

Other Current Research Professionals Supervised

Amy Hastings, MSc, Research Support Specialists (2008-)
Katalin Boroczky, (2014-)

Other Past Research Professionals Supervised

Eamonn Patrick, Technical II (2014-2015)
Andrew Tuccillo, Technician (2005-2006)
Andrew McDowell, Technician (2004-2005)
Lisa Plane, Technician (2001-2003)
Marc Johnson, Technician (2000-2001)

Other Relevant Research Activities, Accomplishments, etc.

Funding

2015 DEB-1513839, Genetic transformation of common milkweed, *Asclepias syriaca*:
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 (lead institution), University of Arizona, and
University of 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)

TEACHING AND ADVISING RESPONSIBILITIES

Courses Taught

BIOEE 1610 Ecology and the Environment (Fall 2013, 2015, Spring 2016)
BIOEE 263 (now 3611) Field Ecology (Fall 2006, 2010, 2012, 2014)
BIO G 2990 Introduction to Research Methods in Biology – Independent Study – (most
semesters)
BIOEE 3690 Chemical Ecology (Spring 2007, 2008, 2009, 2010, 2012, 2013, 2014, 2015, 2016)
BIOEE 4580 Community Ecology (Spring 2006, 2008, 2010)
BIO G 4990 Independent Undergraduate Research in Biology – Independent Study (most
semesters)
BIOEE 7590 Special Topics in Evolution and Ecology: Plant-Insect Interactions Seminar (every
semester)
BIOEE 7590 Special Topics in Evolution and Ecology: Professional Development in E&EB (Fall
2006, Fall 2011, Spring 2014)
BIOEE 7600 Special Topics in Evolution and Ecology: Phylogenetics in Ecology (Fall 2005,
spring 2009)

BIOEE 760 Special Topics in Evolution and Ecology: Biodiversity (Spring 2010)
BIOEE 7600 Special Topics in Evolution and Ecology: Biodiversity (Fall 2011 Eco-Evo
Feedbacks)

BIOEE 9990 Ph.D. Dissertation Research (all semesters)

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 Students Mentored in Independent Research

Aliya Ali

Current Undergraduate Advisees

Kimberly Adams
Varun Rathi
Daniel Iyayi
Daniel Arauz
Britney Thomson

Current Teaching Assistants (graduate & undergraduate) and Other Teaching Support Professionals Supervised

Other Relevant Teaching and Advising Activities, Accomplishments, etc.

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)

(†indicates students completed a senior thesis at Cornell University)

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)

GRADUATE FIELD MEMBERSHIPS

Ecology and Evolutionary Biology
Entomology

GRADUATE MAJORS

Current (names and expected date and field of degree including degree. For example, Ph.D., M.S., MPS, MAT, etc.)

Lina Arcila-Hernandez, E&EB, Ph.D., 2018
Jacob Elias, E&EB, Ph.D., 2020
Katherine Holmes, E&EB, Ph.D., 2020

Total Completed

Marc Johnson (2002-2006) primary advisor, PhD Botany, University of Toronto. Community genetics of Evening Primrose and its insects: testing how plant genes and insect communities interact. Currently Associate Professor, University of Toronto.

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

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

Susan C. Cook-Patton, (2006-2012) primary advisor, PhD EEB, Cornell University. Consequences of changing biodiversity for plants, insects, and ecosystems. Currently a Post Doc at US Forest Service Policy Analysis.

Alexis C. Erwin, (2006-2013) primary advisor, 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) primary advisor, PhD EEB, Cornell University.
The evolution of mutualistic defensive traits in plants
Currently Assistant Professor, Michigan State University

GRADUATE MINORS

Current (names and expected date and field of degree)

Annise Dobson, DNR, Ph.D., 2018
Renee Petipas, E&EB, Ph.D., 2016
Kristen Brochu, Ph.D. Entomology 2017
Geoffrey Broadhead, Ph.D. Neurobiology and Behavior 2018
Aubrie James, E&EB, Ph.D., 2018
Jacob Berv, E&EB, Ph.D., 2019
Ellie Goud, E&EB, Ph.D., 2019
Collin Edwards, E&EB, Ph.D., 2018
Zoe Getman-Pickering, Entomology, Ph.D., 2019
Katherine Eisen, E&EB, Ph.D., 2019
Gregor Fausto Siegmund, E&EB, Ph.D., 2019
Lauren Brzozowski, Horticulture, Ph.D., 2019
Alexander Chautá, E&EB, Ph.D., 2020

Total Completed

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., 2014 (not completed)
Laura J. Martin, DNR, Ph.D., 2015
Ben Freeman, E&EB, Ph.D., 2016

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

OTHER CURRENT PROFESSIONAL ACTIVITIES

PROFESSIONAL SOCIETIES & ACTIVITIES

American Society of Naturalists (2010-)
 Executive committee (2015-2017)
 Vice president (2016)
Ecological Society of America (1994-)
 Mercer Award Committee (2013-2015)
Society for the Study of Evolution (1996-)
American Association for the Advancement of Science (2005-)
Sigma Xi (1996-)
International Society for Chemical Ecology (2008-)
Entomological Society of America (1996, 2012-)

EDITORIAL BOARDS

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)

Botany Department (2003-2004)

OTHER CURRENT PROFESSIONAL CONTRIBUTIONS

CONFERENCES/WORKSHOPS

Papers presented

2016 American Society of Naturalists meeting, Austin, TX (1 additional paper co-authored)
2016 American Society of Naturalists, Asilmoar meeting

- 2015 Ecological Society of America annual meeting (3 additional papers co-authored)
- 2014 Entomological Society of America annual meeting (1 paper co-authored)
- 2013 Entomological Society of America annual meeting (2 additional papers co-authored)
- 2013 Society for the Study of Evolution annual meeting (1 additional paper co-authored)
- 2012 Ecological Society of America annual meeting (2 additional papers co-authored)
- 2012 Monarch Biology and Conservation Meeting, University of Minnesota
- 2011 Ecological Society of America annual meeting 1 co-authored presentation
- 2010 Ecological Society of America annual meeting (5 additional papers co-authored)
- 2009 Ecological Society of America annual meeting (6 additional papers co-authored)
- 2007 Ecological Society of America annual meeting (3 additional papers co-authored)
- 2007 13th International Symposium Insect-Plant-Interactions, Uppsala, Sweden
- 2006 Ecological Society of America annual meeting (4 additional papers co-authored)

Workshops/other university service

- 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.

Meetings and symposia organized

- 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)

INVITED PRESENTATIONS

Planned: Ecological Society of America, MacArthur Award lecture (Portland, OR, August 2017)
Michigan State University (Fall 2016)

2016 Fish & Wildlife Service Webinar, Conservation Series

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).
Stonybrook 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

RESEARCH AND EXTENSION GRANT REVIEW PANELS (please provide detail)

Atkinson Center for a Sustainable Future, AVF Panel (2015, 2016)
NSF Population and Community Ecology panel II, April 21-23 2010.

RESOURCE FOR MEDIA (i.e., called upon as an expert for electronic or print media)

Many outlets for comment on 2016 monarch article
Ithaca.com (2015 article on monarch butterflies and pollinators)
Ithaca Journal (2014 article on deer impact on the environment)
Chronicle of Higher Education (2012, article on journal impact factors)
Science (2008, article on mutualism and community structure)
Science News (2007, article on community genetics)

Nature (2006, article on the ecological consequences of genetic diversity)
Discover (Nov. 2006, article on epigenetic inheritance)

PUBLICATIONS

Submitted papers

- Gustafsson, K., S.A. Wolf, and A.A. Agrawal. Science, citizen science, and the monarch butterfly. A study of knowledge production and social change. *Social Studies of Science*.
- Jones, P.L. A.A. Agrawal. Learning in insect pollinators and herbivores. *Annual Review of Entomology*.
- Cook-Patton, S.C., A.P. Hastings, A.A. Agrawal. Genotypic diversity mitigates negative effects of density on plant performance. *Journal of Ecology*.
- Maron, J.L., M.T.J. Johnson, A.P. Hastings, and A.A. Agrawal. Fitness benefits of sexual reproduction: a multigenerational field experiment. *Evolution*.

In Press

- Jones, P.L. A.A. Agrawal. Consequences of secondary compounds in nectar for mutualist bees and antagonist butterflies. *Ecology*.
- 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*.
- Ali, J.G. and A.A. Agrawal. Trade-offs and tritrophic consequences of host shifts in highly specialized root herbivores. *Functional Ecology*.

Refereed Papers

- 2016 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.
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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.