Anne A. Madden

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Education and training

Postdoctoral Researcher	North Carolina State University	2016-present
Sloan Foundation Postdoctoral Researcher	University of Colorado, Boulder	2014-2016
PhD	Biology, Tufts University	2014
BA	Biological Sciences, Wellesley College *Magna Cum Laude*	2006

Peer-reviewed publications

	Madden AA, Boyden SD, Soriano JN, Corey TB, Leff JW, Fierer N, and PT Starks. The emerging contribution of social wasps to grape rot disease ecology	In Review
Molecular Ecology	**Madden AA,** Barberan A, Bertone MA, Menninger HL, Dunn RR, and N Fierer. The diversity of arthropods in homes across the United States as determined by environmental DNA analyses. 25(24): 6214-6224.	2016
Journal of Microbiology & Biology Education	Barberan A, Hammer TJ, **Madden AA**, and N Fierer. Microbes should be central to ecological education and outreach. 17(1): 23-28.	2016
Environmental Entomology	**Madden AA**, Grassetti A, Soriano JN, and PT Starks. Actinomycetes with antimicrobial activity isolated from paper wasp nests. 42(4): 703-710.	2013
International Journal of Systematic & Evolutionary Microbiology	**Madden AA**, Stchigel AM, Guarro J, Sutton DA, and PT Starks. *Mucor nidicola* sp. nov., a novel fungal species isolated from an invasive paper wasp nest. 62(7): 1710-1714. ***Cover***	2012
Insectes Sociaux	**Madden AA**, Davis MM, and PT Starks. First detailed report of brood parasitoidism in the invasive population of the paper wasp *Polistes dominulus* (Hymenoptera, Vespidae) in North America. 57(3): 257-260.	2010
Journal of Natural Products	Saporito RA, Donnelly MA, **Madden AA**, Garraffo HM, and TF Spande. Sex-related differences in alkaloid chemical defenses of the dendrobatid frog Oophaga pumilio from Cayo Nancy, Bocas del Toro, Panama. 73(3): 317-321.	2009
Journal of Antibiotics	Peoples AJ, Zhang Q, Millett WP, Rothfeder MT, Pescatore BC, **Madden AA,** Ling LL, Moore CM. Neocitreamicins I and II, novel antibiotics with activity against methicillin resistant *Staphylococcus aureus* and vancomycin-resistant Enterococci. 61(7): 457-463. ***Cover***	2008

Peer-reviewed publications in prep. (selected)

Madden AA, Nichols L, Sheppard J, RR Dunn. (In prep) Insects as a source of non-conventional beer brewing yeasts.

Madden AA, Leff JW, Soriano JN, Grassetti A, Ellis N, Lorenzi MC, Fierer N, PT Starks. (In prep) Where you live matters more than who you are: Microbiology of a social wasp invasion.

Madden AA, Lattin C, Leff JW, Fierer N, Romero LM, PT Starks. (In prep) The effect of chronic stress on the microbiome of a wild avian.

Technical reports (selected)

Project Associate	Report: "The contribution of bacteria to clothing smell." For a textile industry partner	2017
Project Lead	Report: "3D Glass Printing and Honeybees." For MIT Media Lab	2015

Work experience (selected)

Chief Strategy Officer	**Lachancea LLC**, Raleigh, NC Assisted CEO with business marketing, research, strategy, engagement initiatives, and website development.	2016-present
Consultant	**The Best Bees Company**, Boston, MA Pitched, created, and developed the product 'HoneyDNA': a genetic screen service that identifies the plants in honey for clients and provides personalized infographics.	2015-2016
Consultant	**MIT Media Lab** Mediated Matter group, Cambridge, MA Assisted with the Synthetic Apiary project.	2015
Consultant	**PIARCS, LLC**, Boulder, CO Strategized pitch development for technology funding.	2014-2015
Associate Scientist II	**Novobiotic Pharmaceuticals**, Cambridge, MA Carried out biological activity screens of active compounds including assays for DNA intercalation activity, minimum-inhibitory concentration, serum binding effect, activity against yeasts, and spectrum of activity against clinically relevant pathogens. Maintained company's mammalian cell line and carried out toxicity and infection assays. Contributed to SBIR grant proposals. Contributed to technology development, such as early stage iChip testing. Developed and managed internal compound tracking and assessment system. Contributed to SBIR grant proposals.	2007

Work experience (selected) continued

Associate Scientist I	**Novobiotic Pharmaceuticals**, Cambridge, MA Isolated novel bacteria from environmental samples as a source for novel antimicrobials. Assisted in discovery and characterization of novel antimicrobial compounds: Neocitreamicin I&II. Managed and aided in the development of the biological assay screens of antimicrobial samples as well as the biological assay department of the company. Introduced the company to a new source for bacteria isolation, which led to the isolation of novel bacteria. Developed photographic atlas training manuals. Promoted within first six months due to outstanding performance.	2006-2007
Research Assistant	PI: Mary Allen, **Wellelsey College** Investigated the effect of metal contaminants on environmental bacterial isolates	2006
Research Assistant	Co-PIs: Ralph Saporito & Maureen Donnelly, **Florida International U.** Investigated the chemical ecology of poison dart frog in Costa Rica & Panama	2005, 2006
Research Assistant	PI: Robin Chazdon, **University of Connecticut** Investigated the effect of light quantity & quality on Costa Rican forest structure	2005

Teaching experience

Content Developer	The Microbial Ecosystem of Sourdough, A Student Discover Lesson Module	Ongoing
Teaching Assistant	Bio106: Microbiology Laboratory, Tufts University	2014
Co-Instructor	Bio51: Experiments in Ecology with Lab, Tufts University	2013
Teaching Assistant	Bio106: Microbiology Laboratory, Tufts University	2013
Teaching Assistant (Field)	Bio181: Tropical Ecology, Tufts University	2011
Guest Instructor	Biol342: Topics in Behavioral Biology, Simmons College	2011
Teaching Assistant	Bio106: Microbiology Laboratory, Tufts University	2010
Lab Instructor	Bio13: Introductory Organismal and Cellular Biology, Tufts University	2010
Teaching Assistant	Bio106: Microbiology Laboratory, Tufts University	2009
Lab Instructor	Bio13: Introductory Organismal and Cellular Biology, Tufts University	2009
Guest Lecturer	Bio130: Animal Behavior, Tufts University	2009

Grants and fellowships (selected)

Alfred P Sloan Foundation	Sloan Microbiology of the Built Environment Postdoctoral Fellowship. $120,000.00	2014-2016
National Science Foundation	National Science Foundation Graduate Research Fellowship. $121,500.00	2010-2013
Soc Integr Compar Bio	Charlotte Mangum Student Program Award. (Housing)	2012
IUSSI	Travel Award. $100.00	2012

Grants and fellowships (selected) continued

Int Assoc for Eco & Health	Travel and Workshop Award. $3,340.00	2012
Tufts University	Various travel awards. Total: $800.00	2012, 09, 08
Soc Integr Compar Bio	Grant-in-Aid. $972.00	2012
Tufts University	Tufts Institute of the Environment Grant. $500.00	2012
Tufts University	Graduate Student Research Award (Grant). $700.00	2011
Am Philo Soc	Lewis and Clark Grant. $1,400.00	2011
Am Mus of Natl Hist	Theodore Roosevelt Memorial Grant. $640.00	2011
Sigma Xi	Grant-in-Aid. $400.00	2011
Wellesley College	Graduate Research Fellowship (Grant). $2,014.00	2010
Tufts University	Graduate Student Research Award (Grant). $700.00	2010
Tufts University	Tufts Institute of the Environment Fellowship (Grant). $5,797.00	2009
Tufts University	Graduate Student Research Award (Grant). $700.00	2009
Tufts University	Graduate Student Research Award (Grant). $700.00	2008

Honors and awards

Improbable Research Soc	LFHCfS Woman of the Year	2015
Tufts University	Doctoral Hooding Graduate Speaker	2014
Tufts University	Special mention for outstanding contribution to undergrad education	2014
EcoHealth Conference	Honorable Mention Poster Award	2012
BioNES Conference	Graduate Student Oral Presentation Award	2011
Wellesley College	Lingos Prize in Life Sciences (*Awarded to one person per year*)	2006
Phi Beta Kappa	Member	2006
Sigma Xi	Full Member	2006

Outreach & public engagement (selected)

Speaker	**TED**. Vancouver, BC. Theme: Future You. Title: TBD	Upcoming
Interview	Podcast: **Feminist Science.** Topic: Being a Woman in Science	Upcoming
Interview	Podcast: **Bikes+Books+Beer+Coffee.** Topic: Stressed Yeast	Upcoming
Interview	**Documentary**: By Smith & Nasht. Title: *The Kingdom of Fungi*	Upcoming (2018)
Speaker	**TEDx**. Charlotte, NC. Theme: Explore. Title: *The Future of Flavor*	2016

Outreach & public engagement (selected) continued

Speaker + Content Developer	**Under the Microscope**: Exploring the Intersection of Education, Research, Food & Beer. North Carolina State University. Raleigh, NC	2016
Speaker	**North Carolina Art Museum**. Raleigh, NC	2016
Interview	Videocast: **Tools of Science.** Topic: Insect Yeast for Beer	2016
Speaker + Content Developer	The Secret World Inside You. **NC Science Museum**. Raleigh, NC	2016
Writer	"The Microscopic Alchemist" **PrimerStories.com**	2016
Speaker + Content Developer	Night of Natural Selections, Brewers Expo. **NC Science Museum**. Raleigh, NC	2016
Participant	**House of Genius**. Boulder, CO	2015
Consultant	Video Blog: **NOVA's Gross Science**. Topic: Face mites	2015
Speaker + Content Developer	Night of Natural Selections, Brewers Expo. **NC Science Museum**. Raleigh, NC	2015
Interview	Video Blog: **NOVA's Gross Science.** Topic: Wasp Yeast Beer	2015
Writer	"Streptomyces" Essay in ebook **Invisible Wildlife** ed. by Rob R. Dunn	2014
Speaker + Content Developer	Night of Natural Selections, Brewers Expo. **NC Science Museum**. Raleigh, NC	2014
Speaker	**North Carolina State University** Summer College in Biotechnology and Life Sciences. Raleigh, NC	2014
Speaker	**The World Beer Festival**. Raleigh, NC	2014
Speaker	**The Story Collider.** Cambridge, MA	2014
Writer	**ASM blog** *Small Things Considered* guest contributer	2013
Speaker	**Coastal Studies for Girls Science and Leadership High School**. Freeport, ME	2011
Speaker + Content Developer	Building Professional Websites for Scientists. Tufts University Bio Dept., Medford, MA	2010

Professional development

Workshop	Genomic Analysis: RNA-Seq, Tufts Medical Center	Feb 2013
Internship	Science Journalism, The Society for Integrative and Comparative Biology	Jan-Feb 2013
Workshop	NSF Metagenomic Analysis of Microbial Pathogen Communities, Ecohealth Conference	Oct 2012
Workshop	Northeastern University NSF Project ADVANCE future faculty workshop	Mar 2012
Workshop	Grant Writing, Tufts University	June 2011
Workshop	Microbes to Metazoans: Regulation, Dynamics, and Evolution of Social Behavior Workshop, Georgia Institute of Technology.	Dec 2009

Professional & departmental service (selected)

Peer reviewer	*PLoS ONE, Molecular Ecology*	2016
Peer reviewer	*Environmental Entomology, Environmental Health Perspectives, Indoor Air*	2015
Peer reviewer	*Probiotics and Antimicrobial Proteins*	2014
Committee	*Graduate Student Reseaerch Award Committee Member, Tufts University.*	2011

Professional & departmental service (selected) continued

Committee	*Faculty Research Support and Facilities Advisory Committee, Tufts University.*	2009
Council Member	*Graduate Student Countil Executive Board Member, Tufts University*	2009

Academic presentations & invited talks (selected)

Madden AA. Using wild microorganisms from strange places for better future breads. *International Bread Symposium: The Future of Bread*, Puratos Co., Charlotte NC. — Upcoming (May 2017)

Madden AA. Keynote: The Microbiome. *Workshop: Making the Microbiome Public*, Oxford University, Oxford, UK. — Upcoming (May 2017)

Madden AA. Continental-scale mapping of home arthropods using molecular methods. Oral presenatation at the *Alfred P. Sloan Microbiology of the Built Environment Workshop*, Kuopio, Finland. — 2015

Madden AA. Molecular mapping of arthropod distributions in home dust samples from across the USA. Oral presentation at the *Alfred P. Sloan Microbiology of the Built Environment Conference*, Boulder, CO. — 2015

Madden AA. The mycobiomes of sympatric native and invasive paper wasp species. Oral presentation at the *Entomological Society of America Eastern Branch Meeting*, Lancaster, PA. — 2013

Madden AA. A microbial jungle overhead: bacteria and fungi associated with paper wasps. Invited talk at the *Social Insect Research Group, School of Life Sciences, Arizona State University,* Tempe, AZ. — 2013

Madden AA et al. Fungal patterns across space and species: Comparative studies of the mycobiomes of sympatric paper wasp species. Poster presentation at the annual *Society for Integrative and Comparative Biology Conference*, San Francisco, CA. — 2013

Madden AA et al. The effect of chronic stress on the avian gut microbial community. Poster presentation at the *Society for Integrative and Comparative Biology Conference*, San Francisco, CA. — 2013

Madden AA et al. The effect of chronic stress on the gut bacteria of wild-caught house sparrows. Poster presentation at the *Conference of the International Association for Ecology & Health*, Kunming, China. — 2012

Madden AA et al. The microbiology of a social insect invasion: invasive paper wasps as microbial ecosystem engineers? Poster presentation at the *International Society for the Study of Social Insects, North American Section*, Greensboro, NC. — 2012

Madden AA et al. Antimicrobial producing leaf-cutter ant symbionts isolated from paper wasp nests (Hymenoptera, Vespidae). Poster presentation at the *Annual Boston Bacterial Meeting*, Cambridge, MA. — 2012

Academic presentations & invited talks (selected) continued

Madden AA et al. Paper wasp bacterial associates display antimicrobial activity. Oral and poster presentations at the *Biology New England South (BioNES) Meeting*, Bristol, RI. 2011

Madden AA et al. Effects of Heavy Metal Interaction, Medium Composition and pH on Lead and Chromium Resistance of Bacteria Isolated from Heavy Metal Contaminated Soil. Poster presentation at the *American Society for Microbiology Annual Meeting*, Toronto, Canada. 2007

Madden AA et al. Characterization of Lead, Chromium, and Antibiotic Resistance in 17 Bacterial Strains Isolated from Heavy Metal Contaminated Soil: Effects of Heavy Metal Interaction, Media Composition, and pH. Poster presented at the *Northeastern Microbiology Conference: Physiology, Ecology, Taxonomy (NEMPET)*, Blue Mt. Lake, NY. 2006

Banica M, **Madden AA**, Allen M. Poisons, Pollution, and Plasmids: An investigation of the plasmid conferred antibiotic and heavy metal resistance in bacteria. Poster presented at the *Wellesley College Ruhlman Conference*, Wellesley, MA. 2006

Popular press coverage (selected)

--- New Beer Technology from Insect Yeast ---

Loaded Magazine. *Anne A. Madden Ph.D. is making beer out of bugs and it's delicious.* Danielle de la Bastide. 2017

CBS-WNCN (Broadcast & Online). *NC State researchers using inseccts to create new kinds of beer.* Maggie Newland. 2016

News & Observer. *The next big thing for beer could be bugs, NC State Scientists say.* Rose Rimler. 2016

Raleigh & Company. *Bee (the) Beer*. Jen Baker. 2016

International Business Times. *New types of beer may be produced using wild yeast, scientists say.* Karla Tecson. 2016

National Geographic-The Plate. *Walk on the wild side with beer made from wasp yeast.* Lindsay Smith. 2015

The Wall Street Journal. *Tough Day? How about a frosty schooner of pizza or pond scum?* Tripp Mickle. 2015

Discovery Channel. *Wild Yeast could yield new kinds of beer*. DNews. 2015

The Toronto Star. *Bugs help create tasty new beers, scientists discover.* Rose Rimpler. 2015

Food and Wine (FWx). *Researchers brewing beer from bug yeast.* Mike Pomranz. 2015

Indy Week. *True story: NC state scientists brew beer from wasps' yeast.* Lisa Sorg. 2015

Live Science. *Cheers! Wild yeast could yield new kinds of beer*. Charles Choi. 2015

North Carolina Public Radio (WUNC). *Beers of North Carolina.* Meghan Modafferi and Frank Stasio. 2014

--- Environmental DNA Assessment of Arthropods in Homes --- 2017

Scientific American (Print & Online). *Go west, allergy sufferers: dust mites avoid arid America.* Jennifer Frazer. 2017

Newsweek (Print & Online). *Dust DNA reveals all the insects and creatures that live in American homes.* Douglas Main. 2016

CBS News (Online). *DNA in dust reveals truth about bugs lurking in our homes.* Robert Preidt. 2016

The Washington Post (Print & Online). *Scientists just completed a census of the creepy crawlies that live in our homes.* Sarah Kaplan. 2016

Popular press coverage (selected) continued

--- Environmental DNA Assessment of Arthropods in Homes ---	2017
Northern Woodlands. *The Outside Story: The arthropods among us*. Kenrick Vezina.	2016
New Scientist. *Your home is a jungle inhabited by 100 different species*. Andy Coghlan.	2016
--- Science and Technology Consulting ---	
Architect Magazine. *MIT's Mediated Matter group builds a synthetic apiary to help save bees*. Wanda Lau.	2016
--- Science and Technology Consulting (continued) ---	
Improper Bostonian. *Sweet Science: A local lab finds out what bees are having for breakfast*. Jacqueline Houton.	2016
--- Novel Fungus Species From a Wasp Nest ---	2016
NPR Science Friday (Online). *Discovering a new fungus*. Meryl, Coastal Studies for Girls.	2011
Science Daily. *Scientists find a new species of fungus in a wasp nest.*	2011
--- Personal Press ---	
Micrographia Today. *Cover Interview*. Saumyadip Sarkar.	2015

Current projects not otherwise disclosed

Sourdough	**Project Manager and one of the Senior Scientists on a project investigating the diversity of microorganisms in global sourdough starters.** This is the world's largest sourdough survey and is part of a larger citizen science effort. It features the use of big data with DNA amplicon sequencing and multivate statistical models to understand the microorganisms involved in sourdough starters and the factors that influence this diversity. Ultimately we are using these data to target specific microorganisms that confer particularly valuable sourdough traits.	2016-present
Insect microorganisms for food and beverage production	**Lead Scientist investigating the use of insect associated microorganisms to create better food and beverages.** This includes using big data DNA amplicon sequencing and bioinformatics applications as well as classical microbiological techniques and fermentation strategies, and developing targeted ecologically informed pipelines to identify, isolate, and select bacteria and fungi for targeted fermentations. This work has already resulted in a patent application, licensed yeast strains, a biotech company, K-12 student activities, a citizen science strain naming engagement project, and multiple peer reveiwed publications in prep.	2013-present

References

Academic

Rob Dunn, Full Professor, North Carolina State University. Email: rrdunn@ncsu.edu

Noah Fierer, Assistant Professor, University of Colorado, Boulder. Email: noah.fierer@colorado.edu

Industry

Brian Pescatore, Senior Research Specialist, Shire Human Genetic Therapies. Email: bpesca@yahoo.com

Additional references available upon request

For more information, as well as live links to presentations, visit AnneAMadden.com