JAMES R REILLY

Rutgers University
Department of Ecology, Evolution, & Natural Resources
New Brunswick, NJ

jrr157@rci.rutgers.edu
winfreelab.com/people

Education

2009 Ph.D., Entomology, Cornell University, Ithaca, NY
2002 B.S., Biology, College of William & Mary, Williamsburg, VA

Postdoctoral Positions

2013-Present Dept of Ecology, Evolution, & Natural Resources, Rutgers University, New Brunswick, NJ
2011-2012 Dept of Entomology, Rutgers University, New Brunswick, NJ
2009-2011 Dept of Biological Sciences, Louisiana State University, Baton Rouge, LA

Independent Consulting Contracts

2012-2013 Ecological consulting/data analysis, Cornell University, Ithaca, NY
2009-2011 GIS mapping/databases, Capital Region Land Conservancy, Richmond, VA

Research Interests

Ecological and evolutionary relationships of insects, including their interactions with pathogens, plants and predators: population dynamics of insect outbreaks, transmission of insect pathogens, avian ecology, plant-herbivore interactions, and pollination ecology.

Peer-reviewed Publications

Winfree R, Fox J, Williams N, **Reilly JR**, Cariveau D (2015) Abundance of common species, not species richness, drives delivery of a real-world ecosystem service. Ecology Letters 18: 626-635. Also featured by Nature as a research highlight.

Reilly JR, Elderd BD (2014) Effects of biological control on long-term population dynamics: Identifying unexpected outcomes. *Journal of Applied Ecology* 51(1): 90-101.

Elderd BD, **Reilly JR** (2014) Warmer temperatures increase disease transmission and outbreak intensity in a host-pathogen system. *Journal of Animal Ecology* 83 (4): 838-849.

Benjamin F, **Reilly JR**, Winfree R (2014) Pollinator body size mediates the scale at which land use drives crop pollination services. *Journal of Applied Ecology* 51(2): 440-449.

Reilly JR, Liebhold A, Hajek AE, Plymale R (2014) The impact of *Entomophaga maimaiga* on outbreak gypsy moth populations: the role of weather. *Environmental Entomology* 43(3): 632-641.

Rader R, **Reilly JR**, Bartomeus I, Winfree R (2013) Predicting climate change impacts on pollination services. *Global Change Biology* 19 (10): 3103-3110.

Reilly JR, Hajek AE (2012) Prey processing by avian predators enhances virus transmission in the gypsy moth. *Oikos* 121: 1311-1316.

Hajek AE, Plymale R, **Reilly JR** (2012) Comparing Two Methods for Quantifying Soil-Borne *Entomophaga maimaiga* Resting Spores. *Journal of Invertebrate Pathology* 111: 193-195.

Reilly JR, Reilly RJ (2009) Bet-hedging and the orientation of juvenile passerines in fall migration. *Journal of Animal Ecology* 78: 990-1001.

Reilly JR, Hajek AE (2008) Density-dependent resistance of the gypsy moth *Lymantria dispar* to its nucleopolyhedrovirus, and the consequences for population dynamics. *Oecologia* 154: 691-701.

Henson SM, **Reilly JR**, Robertson SL, Schu MC, Rozier ED, Cushing JM (2003) Predicting irregularities in population cycles. *SIAM Journal on Applied Dynamical Systems* 2(2): 238-253.

Research Presentations

Reilly JR, Winfree R (2015) Getting from pollinator visitation to yield: a synthesis across multiple crop types. Oral presentation at the Entomological Society of America meeting, Minneapolis, MN.

Reilly JR, Bartomeus I, Cariveau DP, Benjamin F, Winfree R (2014) More pollinator species are required for pollination function at larger spatial scales, but high regional dominance can suppress this effect. Oral presentation at the Ecological Society of America meeting, Sacramento, CA.

Reilly JR (2013) Predatory birds facilitate disease transmission in the gypsy moth. Invited seminar in the Biology seminar series at Virginia Commonwealth University, Richmond, VA.

Reilly JR, Liebhold A, Plymale R, Hajek AE (2013) The impact of Entomophaga maimaiga on outbreak gypsy moth populations: the role of weather. Invited oral presentation at the USDA Research Forum on Invasive Species, Annapolis, MD.

Reilly JR, Elderd BE (2010) Modeling viral and bacterial biological control in the gypsy moth. Oral presentation at the Ecological Society of America meeting, Pittsburg, PA.

Reilly JR (2009) The link between bird predation and disease outbreaks in forest-defoliating insects. Invited seminar in the Systematics, Ecology, & Evolution seminar series at Louisiana State University, Baton Rouge, LA.

Reilly JR (2008) The ecology of nucleopolyhedrovirus transmission in the gypsy moth, *Lymantria dispar*. Dissertation seminar in the Jugatae Seminar Series at Cornell, Ithaca, NY.

Reilly JR, Hajek AE (2007) Variation in the prey-processing behavior of insectivorous birds affects NPV transmission in the gypsy moth. Oral presentation at the Society for Invertebrate Pathology meeting, Quebec City, QC, Canada.

Reilly JR, Hajek AE (2007) Density-dependent resistance of the gypsy moth, *Lymantria dispar*, to its nucleopolyhedrovirus. Poster presentation and Pitch at the Ecology and Evolution of Infectious Disease meeting, Ithaca, NY.

Reilly JR, Hajek AE (2006) Density-dependent resistance of the gypsy moth, *Lymantria dispar*, to its nucleopolyhedrovirus. Poster presentation at the USDA Research Forum on the Gypsy Moth and other Invasive Species, Annapolis, MD.

Reilly JR, Hajek AE (2005) Density-dependent resistance of the gypsy moth to its nucleopolyhedrovirus (NPV). Oral presentation at the Entomological Society of America meeting, Ft Lauderdale, FL.

Reilly JR, Reilly RJ (2004) Bet-hedging and the orientation of juvenile passerines in fall migration. Oral presentation at the Ecological Society of America meeting, Portland OR.

Teaching Experience

2009-2010	Principles of Ecology (BIO 4253), Louisiana State University, Guest lecturer
2006	Introductory Biology (BIO 103), Cornell University, TA responsible for 2 lab sections
2003	Ecology and the Environment (BIOEE 261), Cornell University, TA responsible for 3 discussion sections
2001	Entomology (BIO 428), College of William and Mary, TA

Awards and Funding

Louisiana Board of Regents Support Fund, 2012-2014: Climate change and disease transmission: Shifts in host-pathogen ranges, Co-PI with Bret Elderd, Amount**:** $133,012

National Science Foundation Graduate Research Fellowship, 2002-2007

W. Arthur and Alma D. Rawlins Graduate Student Endowment, 2005-2007

Grace Griswold Endowment, 2003-2008

Monroe Scholars Grant, College of William and Mary, 1999-2002

Howard Hughes Medical Institute Grant, College of William and Mary, 2001

Charles Center U.S. Domestic Research Grant, College of William and Mary, 2001

Valedictorian, Trinity High School, Richmond, VA, 1999

Other Skills and Experience

Computer programming and data analysis: I write programs for mathematical modeling in the R programming language and Matlab. I am also skilled with html, php, javascript, and sql/web databases. I have extensive experience using R to manipulate and statistically analyze large ecological datasets and have worked as an independent consultant doing data analysis.

Reviewed manuscripts for scientific journals including Ecology, Science, and Fungal Ecology

GIS Mapping: I have a long-standing interest in GIS mapping, and make extensive use of ArcGIS and GPS software. I work as an independent GIS contractor for the Capital Region Land Conservancy in Richmond, VA, creating maps that introduce ecological criteria into land use planning. I also used fine-scale land cover digitization and GIS mapping to design a system of conservation zones for my home county (Powhatan, VA) that were incorporated into the county comprehensive plan and are now protected with minimum 10 acre zoning.

Lepidoptera identification/taxonomy/museum specimen curation: worked in the Cornell University Insect Collection to identify and curate the Franklemont Geometrid collection (several hundred thousand specimens), and incorporate it into the main collection. I can identify over 1000 species of moths from Eastern North America on sight, and have extensive experience sampling and photographing moths.

Birding: My specialty is birding by ear, and I have worked conducting bird surveys (point counts) in VA for several agencies. I also band birds, and hold federal and state permits.

Laboratory skills: Highly experienced with DNA extraction and analysis, including the use of real-time quantitative PCR. I am trained in the use of scanning electron microscopes and experienced in phase contrast microscopy for the identification of insect pathogens, etc.

Photography: I have a great deal of experience with digital photography and nature video. I am extremely knowledgeable about the natural history of the Eastern United States, and have extensive experience working with a wide variety of systems.

Carpentry: I am skilled in general carpentry, electrical, and plumbing, and able to build my own field equipment.