Emily M.X. Reed, PhD

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Current Position

Postdoctoral Associate, September 2021—Present
Invasive Species Working Group (ISWG)
Global Change Center, Fralin Life Sciences Institute
Virginia Tech (VT)

Position Highlights: Conducting interdisciplinary, collaborative research on invasive species at science-policy interface; developing capacity of the ISWG by building stakeholder networks, leading research and outreach projects, and strengthening existing skills and connections; facilitating meetings and seminars related to invasion science

Advisors: Dr. Jacob Barney (School of Plant and Environmental Sciences, VT); Dr. Bryan Brown (Biological Sciences Dept, VT); Dr. David Haak (School of Plant and Environmental Sciences, VT); Dr. Scott Salom (Entomology Dept, VT); Dr. Todd Schenk (School of Public and International Affairs, VT)

Education

Doctor of Philosophy, Ecology and Evolutionary Biology, July 2021
Dissertation: Population and Landscape Genetics of the Anthropophilic Invasive Mosquito *Aedes albopictus*
North Carolina State University (NCSU)
GPA: 4.200/4.0
Department of Biological Sciences
Advisor: Dr. Martha Burford Reiskind (Biological Sciences Dept, NCSU)
Committee: Dr. Nick Haddad (Integrative Biology Dept, Michigan State University); Dr. Michael Reiskind (Entomology and Plant Pathology Dept, NCSU); Dr. Adam Terando (Research Ecologist, USGS)

Honors Bachelor of Arts summa cum laude, French, May 2014
*Minor*s: Neuroscience, Biology
University of North Carolina at Asheville
GPA: 3.950/4.0

Research Experience

Global Change Fellowship: Graduate Research Assistant Spring 2018, Fall 2019—2020
Landscape genomics of *Aedes albopictus*: gene flow and connectivity along urban-rural landscape gradients
USGS Southeast Climate Adaptation Science Center

Researcher Summer 2016—2018
State-wide Survey of Container *Aedes* Mosquitoes: North Carolina 2016, 2017
Supervised survey efforts in Wake Co, analyzed statewide data for 2016 survey
PIs: Michael Reiskind (NCSU), Brian Byrd (WCU), Stephanie Richards (ECU)

Research Technician Summer 2016
Aedes albopictus Reciprocal Transplant/Common Garden Experiment
Implemented field experiment at Raleigh site, maintained records, managed undergraduate technicians
PIs: Michael Reiskind (NCSU), Laura Harrington (Cornell), Courtney Murdock (UGA)

Undergraduate Research Assistant Spring 2016
Gene Expression Control of Murine Protein Pheromones
Investigated gene expression of murine proteins in mouse cell cultures via hormone manipulation
PI: Dr. Angel Kaur (UNCA)

Undergraduate Independent Research Spring 2016

Freshwater Invertebrate Identification App
Developed app in collaboration with computer science student for use in volunteer-based stream monitoring efforts
Advisor: Dr. Timothy Forrest (UNCA)

Data Collector Fall 2015—Spring 2016

The Role of Law Enforcement in Supporting Pedestrian and Bicycle Safety
Collected data on pedestrian/motorist interactions through observations and staged crossings
PI: Laura Sandt (UNC Highway Safety Research Center)

Publications

Reiskind MH, Styers D, Hayes I, Richards SL, Doyle M, **Reed EMX**, Hollingsworth B, Byrd BD (2020) Taking the pulse: container *Aedes spp.* (Diptera: Culicidae) presence and abundance is associated with fine-scale landscape factors in North Carolina, USA. *Environmental Health Insights*

Levis NA, **Reed EMX**, Pfennig DW, Burford Reiskind MO (2020) Identification of candidate loci for adaptive phenotypic plasticity in natural populations of spadefoot toads. *Ecology and Evolution* 10:8976-8988. https://doi.org/10.1002/ece3.6602

Reed EMX, Serr M, Maurer AS, Burford Reiskind MO (2020) Gridlock and beltways: the genetic context of urban invasion. *Oecologia* 192:615-628. https://doi.org/10.1007/s00442-020-04614-y

Burford Reiskind MO, **Reed EMX**, Giacomini J, Labadie P, McNear A, Nieuwsma J, Parker G, Rossi R, Stephenson C, Roberts RB, Stephenson J (2019) The genomics of invasion: characterization of the red lionfish from its native and introduced range. *Biological Invasions* 21:2471-2483. https://doi.org/10.1007/s10530-019-01992-0

Reed EMX, Byrd BD, Richards SL, Eckardt M, Williams C, Reiskind MH (2019) A statewide survey of container *Aedes* mosquitoes in North Carolina, 2016: a multi-agency response to Zika using ovitraps. *J Med Entomol* 56:483-490. https://doi.org/10.1093/jme/tjy190

Manuscripts in Preparation

Reed EMX, Reiskind MH, Burford Reiskind MO. Population genetic patterns differ between life stages of the invasive mosquito *Aedes albopictus* at fine spatial scales. Target journal—*PLoS NTD,* Target date—*October 2021*

Scholten B, Dillon M, **Reed EMX**, Wallace E, Carlson K, Reiskind MH, Burford Reiskind MO. Genomic divergence in sympatry and allopatry of a cryptic species along an ecological marine gradient. Target journal – *Mol Ecol*, Target date – *October 2021*

Wallace E, **Reed EMX**, Aguilar A, Reiskind MH, Burford Reiskind MO. Next generation sequencing approach to the phylogenetic relationship among members of the rockfish subgenus *Sebastosomus*. Target Journal – *Molecular Phylogeny and Evolution*, Target date –*October 2021*

Reed EMX, Reiskind MH, Burford Reiskind MO. Population genomic analyses of an invasive mosquito species demonstrate the importance of spatial heterogeneity and natural history to interpret patterns of genetic structure, diversity, and connectivity. Target Journal – *Landscape Ecology*, Target date – *January 2022*

Reed EMX, Burford Reiskind MO. Urban landscape genetics reveal a complex relationship between anthropogenic features and gene flow in a non-native, cosmopolitan mosquito species. Target journal – *Mol Ecol,* Target date – *November 2021*

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Presentations

Effects of Urbanization Intensity on Genetic Connectivity of the Invasive Mosquito *Aedes albopictus* 2 Sept 2021
Postdoc Flash Talks, Ecology, Evolution, and Behavior Seminar Series
Virginia Tech, Blacksburg VA

Landscape Genetics of the Anthropophilic Invasive Mosquito *Aedes albopictus* 20 Aug 2021
Invited Talk, NCSU Genetics and Genomics Initiative
4th Annual Retreat, Raleigh NC

Population genetics of an invasive mosquito along an urban-rural landscape 11-25 Nov 2020
Oral Asynchronous Presentation, Multistate Research Project Session
Entomology Virtual Annual Meeting

Landscape genetics of an urban-suburban invader 14 Jan 2020
Poster Presentation, United States Department of Agriculture
Interagency Research Forum on Invasive Species, Annapolis MD

Landscape genomics of *Aedes albopictus* 10 Dec 2019
Oral Presentation, North Carolina Mosquito and Vector Control Association
Annual Conference, Carolina Beach NC

Landscape genetic tools can be used to identify habitat corridors in an invasive species 13 Nov 2019
Poster, Southeast Climate Adaptation Science Center Regional Symposium, New Orleans La

Landscape genetics of an invasive species in an urban-rural landscape 19 Sept 2019
Lightning Talk Competition, Evolution and Comparative Genetics & Genomics Research Group,
Genetics & Genomics Initiative, North Carolina State University. *First place*

Landscape genetics of an invasive species in an urban-rural landscape 31 July 2019
Oral Presentation, BioLunch Graduate Seminar Series, Raleigh NC

Developed open spaces facilitate gene flow in an invasive mosquito 24 June 2019
Poster, Evolution Conference, Providence RI

The genomics of invasion: characterization of the red lionfish from its native and introduced range 14 May 2018
Poster, Population, Evolutionary, and Quantitative Genetics Conference, Madison WI

Using landscape genomics to understand urban dispersal of a highly invasive species 13 Mar 2018
Poster, Southeast Climate Science Center Strategic Advisory Committee Meeting, Raleigh NC

Understanding *Aedes* presence, abundance, and phenology:
results from the 2016 North Carolina Mosquito Survey. 13 Feb 2018
Oral Presentation, Mid-Atlantic Mosquito Control Association & North Carolina
Mosquito and Vector Control Association Annual Conference, Carolina Beach NC

Honors & Awards

USGS Southeast Climate Adaptation Science Center Global Change Fellowship	2018, 2019—2020
NC State College of Agriculture and Life Sciences Assistantship	Spring & Fall 2019
NC State Graduate Student Association Travel Assistance Award: $500	2018
Harkema Graduate Award: $350	2018
NC State University Biology Graduate Program Research Award: $1500	2018
National Science Foundation Graduate Fellowship: Honorable Mention	2017
UNC Asheville Andrade Scholarship for Study Abroad	2012

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Teaching

AEC 550: Conservation Genetics 2 semesters: Spring 2017, 2021
Teaching Assistant, NC State University (2021: online)
Guest lecturer: "Invasion genetics" & "Genetics of metapopulations"

BIO 181: Introductory Biology: Ecology, Evolution and Biodiversity Fall 2020
Laboratory Instructor, NC State University (Online)

GLHLTH 735: One Health Teaching Assistant, Duke Global Health Institute Summer 2019
Guest lecturer: "Vector control approaches"

AEC 460: Field Ecology & Methods Teaching Assistant, NC State University 3 semesters: Fall 2016—2018
Guest lecturer: "Statistical analysis of field data", "The art of the 5-minute presentation"

Mentorship & Training

Megan Dillon First-Year Graduate Student Mentee Fall 2020—Spring 2021
Genetics and Genomics Initiative, NC State University

Emma Wallace Undergraduate Research Experience Fall 2019—Present
Genetics, NC State University

Chris Intehar Independent Undergraduate Research Spring 2018
Applied Ecology, NC State University

Stephanie Orr Independent Undergraduate Research Spring 2017
Entomology and Plant Pathology, NC State University

Community Engagement & Leadership

Biological Sciences DEI Student Advisory Board Fall 2020—Spring 2021
Member, Department of Biological Sciences, NC State University

Genetics & Genomics Initiative Graduate Student Panelist Spring & Fall 2020, Spring 2021
Invited Panelist for Q & A with first year graduate students and recruits

CDC West Nile Virus and *Aedes* Forecasting Challenges Summer 2020
Member, NC State University Team

Invited Graduate Student Panelist Spring 2020
Professional Development and Ethics Course, Genetics, NC State University

Global Change Seminar Series Organizer Spring 2018, Fall 2019—Spring 2020
NC State University. Organized Seminars include:
Climate Justice Panel/ The Economics of Climate Change / Climate Change Lightning Talks /
Adaptation to Global Change in Urban Environments

Conference Facilitator Spring 2018 & Fall 2019
USGS Southeastern Climate Adaptation Science Center:
Strategic Advisory Committee Meeting (2018), Regional Symposium (2019)
Collected and synthesized stakeholder and science needs to create science plan

Volunteer 2016-Present
BugFest, Darwin Day, North Carolina Museum of Natural Sciences

Treasurer, Executive Committee Member, Finance Committee Chair 2018—2019
University Graduate Student Association, North Carolina State University

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Treasurer 2017—2018
Graduate Student Association of Biology, North Carolina State University

Seminar Host Spring 2017
Brandt Lecture: Dr. Hopi Hoekstra; Ecology and Evolution Seminar: Dr. Lindsay Zanno
North Carolina State University

Wildlife Rehabilitation Intern & outreach publication author Spring 2015
Western North Carolina Nature Center, Asheville NC
Western North Carolina Rehabilitation Guide for Reptiles, Amphibians, Mammals, and Birds

Professional Memberships

Genetics Society of America
Society for the Study of Evolution
Entomology Society of America
North Carolina Mosquito and Vector Control Association

Referee for Peer-Review Journals

Evolutionary Applications
Journal of Medical Entomology