

## Catherine A. Lippi, MFAS

Quantitative Disease Ecology and Conservation (QDEC) Lab Group  
Department of Geography & Emerging Pathogens Institute, University of Florida  
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### Current Position

**Graduate Research Assistant**, Department of Geography & Emerging Pathogens Institute  
NIH EEID Primary Funding: “*Spatial eco-epidemiology of tick-borne rickettsial pathogens*” 2019 – 2020  
UF Geography Teaching Assistantship: “*GEO 3452 Introduction to Medical Geography*” 2018 – 2019  
UF Geography Teaching Assistantship: “*GEO 3372 Conservation of Natural Resources*” 2019  
NSF EEID Primary Funding: “*Effects of temperature on vector-borne disease transmission: integrating theory with empirical data*” 2016 – 2018  
Supplemental Funding:  
CDC: “*Insecticide Resistance in Aedes aegypti in a Zika transmission region in Ecuador*” 2017 – 2018  
USAID: “*Development of a health-climate spatio-temporal modeling framework for the Caribbean*” 2017

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### Education

**PhD Candidate**, Department of Geography, University of Florida, 2016 – Present  
Department of Entomology and Nematology, *minor*  
**MFAS, Fisheries and Aquatic Sciences**, University of Florida, 2013  
Technical Paper: “*Changes in the abundance of young-of-the-year winter flounder in response to finfish predator abundance in Long Island Sound, CT*”  
**BS, Wildlife Ecology and Conservation**, University of Florida, 2007  
Zoology, *minor*

### Certifications

**Applied Biostatistics Graduate Certificate**, University of South Florida, 2015  
Department of Epidemiology and Biostatistics, College of Public Health  
**Trainer Certification**, Integrated Mosquito Management Curriculum, 2017  
American Mosquito Control Association and Centers for Disease Control

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### Previous Appointments

**Flagler College Natural Sciences Department**, Saint Augustine, FL  
2015 – 2016: Instructor, Biological Sciences

**Anastasia Mosquito Control District**, Saint Augustine, FL  
2015: Graduate Research Intern, Public Health Vector Control

### Florida Department of Health

2016: Environmental Health Specialist, St. Johns County  
2014 – 2015: Health Education Support, Baker County

**Florida Master Naturalist Program**, University of Florida/IFAS, Marineland, FL  
2013 – 2019: Guest Lecturer (Coastal and Upland Ecology Modules)

**Whitney Laboratory for Marine Bioscience**, University of Florida, Marineland, FL  
2015 – 2016: Web, Media, and Outreach Assistant  
2013 – 2014: Research Technician, Neurophysiology and Biomechanics

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**Yale Peabody Museum of Natural History**, Yale University, New Haven, CT

2011– 2012: Museum Collections Assistant, Division of Vertebrate Zoology

**Florida Museum of Natural History**, University of Florida, Gainesville, FL

2009 – 2011: Research Assistant, Division of Herpetology

2005 – 2008: Museum Collections Assistant, Division of Herpetology

**Jacksonville Zoo and Gardens**, Jacksonville, FL

2008 – 2009: Marine Assistant Supervisor, Living Exhibits

**Interdisciplinary Center for Biotechnology Research (ICBR)**, UF, Gainesville, FL

2006 – 2007: Laboratory Technician, Molecular Phylogeography

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### Awards and Honors

- UF Association of Academic Women Emerging Scholars Honorable Mention Award 2020
- Graduate Student Council Grant, University of Florida 2020
- American Committee on Arthropod-borne Viruses (ACAV) Student Award 2019
- Ryan Poehling Fellowship, UF Department of Geography 2019
- Medical Geography in Global Health Top Student Paper, UF Department of Geography 2018 – 2019
- Vector Behaviour in Transmission Ecology (VectorBiTE) Research Coordination Network Funded Participant, VectorBiTE Annual Meeting and Training Workshop 2017 – 2019
- Little Family Student Fellowship Award, UF Department of Geography 2018
- Mathematics of Planet Earth (MPE) 2013+ Funded Workshop Participant, Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), Rutgers University 2018
- College of Liberal Arts and Sciences Travel Grant, University of Florida 2017 – 2019
- Clinic on Dynamical Approaches to Infectious Disease Data (DAIDD) Funded Participant, International Clinics on Infectious Disease Dynamics and Data Program, Yulee, FL 2017
- Peter Gould Student Paper Competition Finalist, American Association of Geographers 2017
- Jennings Scholarship, Department of Wildlife Ecology and Conservation, University of Florida 2010
- Doris Lowe and Earl and Verna Lowe Scholarship, CALS, University of Florida 2007
- Jennings Scholarship, Department of Wildlife Ecology and Conservation, University of Florida 2007

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### Professional Societies

American Society of Tropical Medicine and Hygiene (ASTMH), ASTMH American Committee of Medical Entomology (ACME), ASTMH American Committee on Arthropod-borne Viruses (ACAV), American Association of Geographers (AAG), AAG Health and Medical Geography Specialty Group, Florida Mosquito Control Association (FMCA)

### Reviewer

**Journals:** American Journal of Tropical Medicine and Hygiene, Ecosphere, Global Public Health, Journal of Medical Entomology, Malaria Journal, Parasites & Vectors, PeerJ, PLOS ONE

### Service

UF Department of Geography Graduate Student Representative (2019–2020)

Gainesville Roller Rebels Social Events and Teambuilding Coordinator (2020)

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### Publications

#### *Peer-Reviewed Articles, Submitted*

- Lippi, C.A.**, H.D. Gaff, A.L. White, and S.J. Ryan. Scoping review of distribution models for *Amblyomma* ticks and rickettsial group pathogens. *Submitted PeerJ*.
- Sippy, R., **C.A. Lippi**, A.M. Stewart-Ibarra, and S.J. Ryan. Endemic and Emerging Arboviruses of Mosquitoes in Ecuador. *Submitted Rural Family Medicine*.
- James, T.G. and **C.A. Lippi**. Interdisciplinary Collaborations Required: Teaching Health Educators Infectious Disease Dynamics. *Accepted Pedagogy in Health Promotion*.
- Lucky, A., R. Atchison, L. Ohyama, Y.M. Zhang, J. Williams, J. Pinkney, K. Clancy, A. Nielsen, and **C.A. Lippi**. Myrmecology, Gender, and Geography: changing demographics of a research community over thirty years. *Submitted Myrmecological News*.
- Lamb, A.D., **C.A. Lippi**, G. Watkins-Colwell, A. Jones, D. Warren, T. Iglesias, M. Brandley, C. Neagle, and A. Dornburg. Competitor or predator? Reevaluating expectations of *Hemidactylus* invasion dynamics. *Submitted Oryx*.

#### *Peer-Reviewed Articles, Published*

- Lippi, C.A.**, L. Mao, A.M. Stewart-Ibarra, N. Heydari, E. Beltrán Ayala, N.D. Burkett-Cadena, J.K. Blackburn, and S.J. Ryan. 2020. A Network Analysis Framework to Improve the Delivery of Mosquito Abatement Services in Machala, Ecuador. *International Journal of Health Geographics* 19(3): <https://doi.org/10.1186/s12942-020-0196-6>.
- Lippi, C.A.**, A.M. Stewart-Ibarra, M. Romero, A.Q.J. Hinds, R. Lowe, R. Mahon, C.J. van Meerbeeck, L. Rollock, M. Gittens-St. Hilaire, A.R. Trotman, D. Holligan, S. Kirton, M.J. Borbor-Cordova, and S.J. Ryan. 2020. Spatiotemporal tools for emerging and endemic disease hotspots in small areas – an analysis of dengue and chikungunya in Barbados, 2013 – 2016. *American Journal of Tropical Medicine and Hygiene*: doi:10.4269/ajtmh.19-0919
- Ryan, S.J., **C.A. Lippi**, and F. Zermoglio. 2020. Shifting transmission risk for malaria in Africa with climate change: a framework for planning and intervention. *Malaria Journal* 19(170): <https://doi.org/10.1186/s12936-020-03224-6>
- Lippi, C.A.** P.E. Kaufman, and E.A. Buckner. Asian bush mosquito, Asian rock pool mosquito. 2020. Featured Creatures EENY-761, Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida.
- Lippi, C.A.** and E.A. Buckner. A bromeliad-inhabiting mosquito, *Wyeomyia vanduzeei*. 2020. Featured Creatures EENY-747, Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida.
- Lippi, C.A.**, A.M. Stewart-Ibarra, M.E.F. Bajana Loo, J.E. Duenas Zambrano, N.A. Epinoza Lopez, J.K. Blackburn, and S.J. Ryan. 2019. Geographic shifts in *Aedes aegypti* habitat suitability in Ecuador using larval surveillance data and ecological niche modeling: Implications of climate change for public health vector control. *PLOS Neglected Tropical Diseases* 13(4):e0007322
- Mordecai, E., J. Caldwell, M. Grossman, **C.A. Lippi**, L. Johnson, M. Neira, J.R. Rohr, S.J. Ryan, V. Savage, M. Shocket, R. Sippy, A.M. Stewart-Ibarra, M. Thomas, and V. Oswaldo. 2019. The thermal biology of mosquito-borne disease. *Ecology Letters* doi:10.1111/ele.13335

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- Taylor, R., S.J. Ryan, **C.A. Lippi**, D.G. Hall, H. Narouei-Khandan, J.R. Rohr, and L.R. Johnson. 2019. Predicting the fundamental thermal niche of crop pests and diseases in a changing world: a case study on citrus greening. *Journal of Applied Ecology* 00:1-12. <https://doi.org/10.1111/1365-2664.13455>
- Ryan, S.J., S.J. Mundis, A. Aguirre, **C.A. Lippi**, E. Beltrán, F. Heras, V. Sanchez, M.J. Borbor-Cordova, R. Sippy, A.M. Stewart-Ibarra, and M. Neira. 2019. Seasonal and geographic variation in insecticide resistance in *Aedes aegypti* in southern Ecuador. *PLOS Neglected Tropical Diseases* 13(6): 30007448
- Ryan, S.J., **C.A. Lippi**, R. Nightingale, G. Hamerlinck, M.J. Borbor-Cordova, M. Cruz B, F. Ortega, R. Leon, E. Waggoner, and A.M. Stewart-Ibarra. 2019. Socio-ecological factors associated with dengue risk and *Aedes aegypti* presence in the Galápagos Islands, Ecuador. *International Journal of Environmental Research and Public Health* 16(5): 682.
- Lippi, C.A.**, A.M. Stewart-Ibarra, Á.G. Muñoz, M.J. Borbor, R. Mejía, K. Rivero, K. Castillo, W.B. Cardenas, S.J. Ryan. 2018. The social and spatial ecology of dengue presence and burden during an outbreak in Guayaquil, Ecuador, 2012. *International Journal of Environmental Research and Public Health* 15(4): 827.
- Lowe, R., A. Gasparrini, C.J. van Meerbeeck, **C. Lippi**, R. Mahon, A.R. Trotman, L. Rollock, A. Hinds, S.J. Ryan, and A.M. Stewart-Ibarra. Nonlinear and delayed impacts of climate on dengue risk in Barbados: A modelling study. 2018. *PLOS Medicine* 15(7): e1002613.
- Ryan, S.J., **C.A. Lippi**, C.J. Carlson, A.M. Stewart-Ibarra, M.J. Borbor Cordova, M.M. Romero, S. Cox, R. Mahon, A. Trotman, L. Rollock, M. Gittens-St. Hilaire, D. King, and S. Daniel. 2018. Zika virus outbreak, Barbados, 2015–2016. *American Journal of Tropical Medicine and Hygiene*. DOI: 10.4269/ajtmh.17-0978
- Xue, R., **C.A. Lippi**, and L. Drake. 2018. Species composition of mosquitoes and invertebrates in common bromeliad plant axils (Family: Bromeliaceae) and the plant impacts on survival of vector mosquito, *Aedes albopictus* (Diptera:Culicidae). *China Tropical Medicine* 18(1): 6 -10.
- Ryan, S.J., **C.A. Lippi**, P.H. Boersch-Supan, N. Heydari, M. Silva, J. Adrian, L.F. Noblecilla, E.B. Ayala, M.D. Encalada, D.A. Larsen, J.T. Krisher, L. Krisher, L. Fregosi, and A.M. Stewart-Ibarra. 2017. Quantifying Seasonal and Diel Variation in Anopheline and Culex Human Biting Rates in Southern Ecuador. *Malaria Journal* 16:479.
- Mordecai, E.A., J.M. Cohen, M.V. Evans, P. Gudapati, L.R. Johnson, **C.A. Lippi**, K. Miazgowicz, C.C. Murdock, J.R. Rohr, S.J. Ryan, V. Savage, M.S. Shocket, A. Stewart-Ibarra, M.B. Thomas, and D.P. Weikel. 2017. Detecting the impact of temperature on transmission of Zika, dengue, and chikungunya using mechanistic models. *PLOS Neglected Tropical Diseases* 11(4): e0005568.
- Dornburg, A., **C. Lippi**, S. Federman, J.A. Moore, D.L. Warren, T.L. Iglesias, M.C. Brandley, G.J. Watkins-Colwell, and A. Jones. 2016. Disentangling the influence of urbanization and invasion on endemic reptiles in tropical biodiversity hotspots: A case study of *Phyllodactylus martini* along an urban gradient in Curaçao. *Bulletin of the Peabody Museum of Natural History* 57 (2): 147 - 164.
- Weaver, J.H.R., **C. Lippi**, M.F. Sallam, M.K. Gaines, and R. Xue. 2016. Arbovirus surveillance report in St. Johns County, Florida, 2008–2014. *Technical Bulletin of the Florida Mosquito Control Association* 10: 43-56.
- Sallam, M.F., **C. Lippi**, and R. Xue. 2016. Spatial analysis of arbovirus transmission in St. Johns County, Florida. *Technical Bulletin of the Florida Mosquito Control Association* 10: 57-64.

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- Krysko, K.L., L.P. Nunez, **C. Lippi**, D.J. Smith, and M.C. Granatosky. 2016. Pliocene-Pleistocene lineage diversifications in the Eastern Indigo Snake (*Drymarchon couperi*) in the Southeastern United States. *Molecular Phylogenetics and Evolution*. 98: 111 – 122.
- Krysko, K.L., **C.A. Smith**, and A.P. Borgia. 2012. *Phelsuma grandis* (Madagascar Giant Day gecko) Prey. *Herpetological Review* 43 (1):136-137.
- Krysko, K.L., **C.A. Smith**, and R.W. Snow. 2010. *Micrurus fulvius* (Harlequin Coralsnake) Prey. *Herpetological Review* 41(4): 501-502.
- Krysko, K.L., **C.A. Smith**, and J.P. Burgess. 2010. *Rhinella marina*. *Herpetological Review* 41(4): 508.
- Krysko, K.L., S.A. Johnson, K.E. Giddens, K.H. Gielow, T.S. Lowke, W.M. Moore, E. Suarez, C.D. Thomas, A.S. Shoeslon, J.P. Burgess, **C.A. Smith**, and B.A. Garner. 2010. The African Five-Lined Skink, *Trachylepis quinquetaeniata* (Lichtenstein 1823): A New Established Species in Florida. *IRCF Reptiles & Amphibians* 17(3): 183-184.
- Smith, C. A.**, and K. L. Krysko. 2007. Distributional Comments on the Teiid Lizards (Squamata: Teiidae) of Florida with a Key to Species. *Caribbean Journal of Science* 43(2): 260-265.

### **Agency Reports, Technical Publications, and Book Chapters**

- Ryan, S.J., **C.A. Lippi**, K.L. Bardosh, E.F. Frydenlund, H.D. Gaff, N. Heydari, A.J. Wilson, and A.M. Stewart-Ibarra. 2020. Direct and indirect social drivers and impacts of vector-borne disease. In: *Population Biology of Vector-Borne Diseases*. Edited by J.M. Drake, M.B. Bonsall, and M.R. Strand. Oxford University Press. DOI: 10.1093/oso/9780198841661.003.0014
- Stewart-Ibarra, A.M., S.J. Ryan, M.B. Cordova, M. Romero, R. Lowe, **C.A. Lippi**, and C. Carlson. 2017. A spatio-temporal modeling framework for *Aedes aegypti* transmitted diseases in the Caribbean. United States Agency for International Development (USAID) Programme for Building Regional Climate Capacity in the Caribbean (BRCCC Programme).
- Tobacco Use in Baker County. 2015. Florida Department of Health, Baker County.
- Maternal and Child Health in Baker County. 2015. Florida Department of Health, Baker County.
- Oral Health in Baker County. 2014. Florida Department of Health, Baker County.
- Keeping Baker Healthy Newsletter\*. 2014 – 2015. Florida Department of Health, Baker County.
- Krysko, K.L., D.J. Smith, and **C.A. Smith**. 2010. Historic and current geographic distribution and preliminary evidence of population genetic structure in the Eastern Indigo Snake (*Drymarchon couperi*) in the Southeastern United States. Final Report, Project Agreement 06011, Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, USA.

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### **Selected Academic Presentations (\* invited talk)**

- Lippi, C.A.\*** 2020. Introduction to mosquito-borne diseases: environment, people, and management implications. BIOL/ENVS 304 Wildlife Biology & Management, Department of Biology & Environmental Science Program, Trinity College, Hartford, CT.
- Lippi, C.A.**, A.M. Stewart-Ibarra, M.E. Franklin Bajana Loor, J.E. Duenas Zambrano, N.A. Epinoza, J.K. Blackburn, and S.J. Ryan. 2019. Geographic shifts in *Aedes aegypti* habitat suitability in Ecuador using larval surveillance data and ecological niche modeling: implications of climate change for public health vector control. Annual Meeting of the American Association of Geographers (AAG), Washington, D.C.

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- Lippi, C.A.\*** 2019. Arthropod Vectors in Florida. Florida Master Naturalist Program. University of Florida/Institute of Food and Agricultural Sciences, Marineland, FL
- Lippi, C.A.\*** 2018. Incorporating geostatistical methods into vector-borne disease surveillance and response in Ecuador. Florida Medical Entomology Laboratory, Vero Beach, FL
- Lippi, C.A.,** A.M. Stewart-Ibarra, A. Trotman, R. Mahon, L. Rollock, D. Holligan, S. Kirton, and S.J. Ryan. 2018. Hotspots for public health intervention: different tools for emerging and endemic diseases in small areas, a spatiotemporal analysis of dengue and chikungunya in Barbados, 2013–2016. American Society of Tropical Medicine & Hygiene Annual Meeting, New Orleans, LA. *Poster*.
- Lippi, C.A.\*** 2018. Management of Vector-borne Diseases: An Introduction to Medical Geography. IB Environmental Systems and Societies, Pedro Menendez High School, St. Augustine, FL
- Lippi, C.A. \*** 2018. Incorporating geostatistical methods into vector-borne disease surveillance and response. Mathematics of Planet Earth (MPE) 2013+ DIMACS Workshop on Global Change and Vector-borne Diseases: Mapping Emerging Infectious Diseases, George Mason University, Fairfax, VA
- Lippi, C.A.,** Stewart-Ibarra, A.M., Mao, L., Heydari, N., Ryan, S.J. 2018. Using a network analysis framework to discuss delivery of mosquito abatement services in Machala, Ecuador. Session: Geographic Research on Vector-borne Diseases I, Annual Meeting of the American Association of Geographers (AAG), New Orleans, LA
- Lippi, C.A.\*** 2018. Understanding spatial and climatological factors that affect mosquito-borne disease transmission. National Health Education Week, Society for Public Health Education, University of Florida, Gainesville
- Lippi, C.A.,** K. Castillo, A.M. Stewart-Ibarra, Á.G. Muñoz, M.J. Borbor, R. Mejía, K. Rivera, W.B. Cardenas, and S.J. Ryan. 2016. The social ecology of dengue presence and burden during an outbreak in Guayaquil, Ecuador, 2012. American Society of Tropical Medicine & Hygiene Annual Meeting, Atlanta, GA. *Poster*.
- Ortega, F., R. Nightingale, R. Leon, D. Basantes, M.J. Borbor-Cordova, M. Cruz B., E. Waggoner, **C.A. Lippi,** S.J. Ryan, and A.M. Stewart-Ibarra. 2016. Dengue fever and *Aedes aegypti* risk in the Galapagos Islands. American Society of Tropical Medicine & Hygiene Annual Meeting, Atlanta, GA. *Poster*.
- Lippi, C.A.** 2015. Bromeliads (Family: Bromeliaceae) as habitat and potential sugar resources for mosquitoes. Meeting of the Anastasia Mosquito Control District (AMCD), Saint Augustine, FL
- Lippi, C.A.** 2015. Biostatistical analysis of AMCD sentinel chicken arbovirus surveillance network. Meeting of the Anastasia Mosquito Control District (AMCD), Saint Augustine, FL
- C. Bibbs and **C.A. Lippi\***. 2015. Environmental factors and their effect on local mosquito abundance. St. Johns County Democratic Party Climate Challenge Meeting, Saint Augustine, FL
- Smith, C.A.,** M. Haehnel-Taguchi, and J.C. Liao. 2014. Regional specialization of posterior lateral line efferent neurons in the hindbrain of larval zebrafish. Society for Integrative and Comparative Biology (SICB), Austin, TX. *Poster*.
- Smith, C.A.,** G.J. Watkins-Colwell, and D.K. Skelly. 2012. From Acris to Xenopus: Recuration of Amphibians at Yale Peabody Museum. 27th Annual meeting of the Society for the Preservation of Natural History Collections (SPNHC), New Haven, CT

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**Smith, C.A.** 2010. Phylogeography of the Eastern indigo snake (*Drymarchon couperi*) in Florida and Georgia. Meeting of the Southeast Partners in Amphibian and Reptile Conservation (SEPARC), Camp Ocala, FL