

CURRICULUM VITAE–FULL

Karoun H. Bagamian
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EDUCATION

Emory University, Atlanta, GA 2004–2012
Ph.D., Population Biology, Ecology & Evolution

Tulane University, New Orleans, LA 1997–2001
B.S., *cum laude* Ecology & Evolutionary Biology

PROFESSIONAL EXPERIENCE

Bagamian Scientific Consulting, LLC, Gainesville, FL Apr 2017–present
Owner, Principal Writer and Analyst

- Provide services related to scientific writing, editing, training, and analysis for clients from the academic, nonprofit, medical, and government sectors.
- Write and edit grant proposals for funding from governmental agencies and public health foundations, prepare manuscripts for publication, reports, white papers, and other related writing products.
- Perform statistical and spatial analysis for clients.

Duke University, Durham, NC Jun 2017, 2018, 2019

Co-instructor

Instructor: Tara Sabo-Atwood, Ph.D.

- Co-developed and co-taught an Environmental Health Workshop for international public health and medical professionals.
- Gave lectures and utilized active learning approaches in the classroom.

University of Florida, Gainesville, FL Aug–Dec 2017

Department of Environmental and Global Health

Adjunct Faculty

Supervisor: Tara Sabo-Atwood, Ph.D.

- Developed and taught a mixed-level (graduate and undergraduate) course, Environmental Health Concepts, for public health majors.
- Prepared course material and lectures and implemented hybrid teaching approaches (using in-class and online course materials) to enhance the learning process.

Emerging Pathogens Institute, University of Florida, Gainesville, FL

Department of Environmental and Global Health

Jan–Jun 2017

Research Scientist

Supervisor: Sadie J. Ryan, Ph.D.

- Analyzed diarrheal disease and childhood stunting in seven low- to middle-income countries (LMICs) in relation to childhood undernutrition, access to healthcare, and improved water and sanitation using multi-level statistical models.

Postdoctoral Associate

2014–2016

Supervisor: Richard Rheingans, Ph.D.

- Led an analysis and writing team on a project to assess WASH-related disease risk in relation to economic and spatial heterogeneities to better target interventions. This was a collaborative project among the University of Florida, London School of Hygiene & Tropical Medicine, and Overseas Development Institute, led by Oxford Policy Management and funded by the World Bank's Water and Sanitation Program.
- Conducted spatial analyses and modeling of data from multiple countries around the world, assessing relationships among diarrheal diseases, vaccination coverage, poverty levels, access to water and sanitation, and social and economic burden. Project goals included characterization of areas of high need and burden for public health interventions and of vaccination coverage in select nations. Funders included PATH and Bill & Melinda Gates Foundation.
- Provided guidance of molecular laboratory testing of samples collected as a part of a UK Department for International Development funded WASH Disparities study in Kisumu.

Department of Environmental and Global Health

Jun–Jul 2015

Course Co-instructor for “Field Course in OneHealth Problem Solving and Laboratory Methods”

- Developed and taught laboratory methods in Kisumu, Kenya to American Masters of Public Health students and African Masters of Community Development students.
- Coordinated and facilitated the transportation of all equipment, supplies, and reagents of a molecular laboratory to set up a basic laboratory in Kenya.
- Supervised and trained students in DNA extraction, PCR, and electrophoresis techniques.

Department of Geography

2012–2014

Postdoctoral Associate

Supervisor: Jason K. Blackburn, Ph.D.

- Investigated the spatio-temporal dynamics of bacterial zoonoses and disease spillover into wildlife, livestock, and human populations in countries of the former Soviet Union. Projects were funded by the Defense Threat Reduction Agency of the United States Department of Defense.
- Led a serological surveillance project investigating anthrax exposure in wildlife in North America and Ukraine.
- Led a project employing geographic information systems (GIS) analysis of livestock and human anthrax in Ukraine with Ukrainian collaborators.
- Trained international collaborators on GIS methods.
- Coordinated processes and products through University of Florida and governmental employees/contractors in the US and abroad.

Journal of Wildlife Diseases, Lawrence, KS

2011–2014

Editorial Assistant

Supervisor: James N. Mills, Ph.D.

- Supported editor-in-chief and assistant editors by implementing manuscript quality control.
- Provided authors assistance with technical, stylistic, formatting, language, and general scientific issues during the submission, review, and publication processes.
- Managed manuscript processes from receipt of manuscript to submission to publisher.

Centers for Disease Control and Prevention, Atlanta, GA

2012

Guest Researcher

Supervisor: Johnathan S. Towner, Ph.D.

- Established new laboratory procedures and trained personnel at Montana Tech, University of Montana, Butte, MT, initiating an ongoing research project using Sin Nombre hantavirus (SNV) sequence information to infer host population processes in deer mouse in Montana.

Research Fellow/Ph.D. Candidate**Advisor: James N. Mills, Ph.D.**

- Pioneered new laboratory molecular extraction and viral RNA amplification molecular assays (region-specific reverse transcriptase polymerase chain reaction: RT-PCR & cross-region quantitative RT-PCR) approaches for Sin Nombre hantavirus detection from deer mice blood and oropharyngeal swabs.
- Devised and implemented dissertation project: “Transmission Ecology of Sin Nombre Hantavirus in Deer Mice Populations in Outdoor Enclosures” in Butte, MT in collaboration with Montana Tech University, Emory University, and the Centers for Disease Control and Prevention Special Pathogens Branch.
- Led a field team in enclosure construction, as well as trapping, processing, and stocking deer mice (*Peromyscus maniculatus*) into enclosures. Conducted collection of blood and saliva specimens and mouse life history data on all experimental animals used. Supervised, trained, and mentored undergraduates.
- Performed and optimized serological (enzyme immunoassays: EIA, and enzyme immunoabsorbent assays: ELISA) and molecular assays (reverse transcriptase polymerase chain reaction: RT-PCR and quantitative RT-PCR) on fluid and blood specimens.

Baxter Bioscience, Los Angeles, CA

2004

Quality Lab Associate

- Set up a new laboratory to support a state-of-the-art plasma fractionation facility.
- Established safety policies and wrote standard operating procedures.
- Collaborated on research projects to validate biological assays and equipment.

Alpha Therapeutic Corporation, Los Angeles, CA

2001–2003

Quality Control Chemist

2002–2003

- Tested human serum products for protein and activity levels, HIV/HCV antibodies, and processing chemicals. Chosen by management to participate in special testing for anti-complementary activity in immunoglobulin products.

Quality Control Training Associate

2001–2002

- Enhanced scientific and technical understanding of pharmaceutical science among non-technical staff by assisting in course development for diverse departments. Facilitated communication between technical and non-technical staff.

PUBLICATIONS, SELECTED MANUSCRIPTS IN PREPARATION FOR SUBMISSION, AND REPORTS*Peer-reviewed publications*

- **Bagamian, K.H.**, Anderson, J.D., Muhib, F., Cumming, O., Laytner, L.A., Wierzba, T.F. and Rheingans, R. Heterogeneity of ETEC and *Shigella* infections: a subnational approach quantifying risk, mortality, morbidity, and stunting in 11 African countries. *The Lancet Global Health*, 8, 101-112.
- Anderson, J.*, **Bagamian, K.H.***, Muhib, F., Amaya, M.P., Laytner, L.A., Wierzba, T., and Rheingans, R. 2019. The unrecognized consequences of ETEC and *Shigella* non-fatal infections: burden in 79 low-income and lower middle-income. *The Lancet Global Health*, 7, 321–30. *Equal contributors.
- Carrera, J.P., **Bagamian K.H.**, Travassos da Rosa, A., Wang, R., Beltran, D., Gundaker, N., Armien, B., Arroyo, G., Sosa, N., Pascale, J.M., Valderrama, A., Tesh, R., Vittor, A., and Weaver, S. 2018. Human and equine infection with alphaviruses and flaviviruses in Panama during 2010: a cross-sectional study of household contacts during an encephalitis outbreak. *American Journal of Tropical Medicine and Hygiene*, 98, 1798–1804.
- Rheingans, R., Anderson, J., **Bagamian, K.H.**, Laytner, L.A., Pecenka, C., Ahmed, M., and Gilani, S.S. 2018. Effects of Geographic and Economic Heterogeneity on the Burden of Rotavirus Diarrhea and the Impact and Cost-Effectiveness of Vaccination in Pakistan. *Vaccine*, 36, 7780–7789.
- Rheingans, R., Anderson, J., **Bagamian, K.H.**, Laytner, L.A., and Pecenka, C. 2018. Effects of Geographic and Economic Heterogeneity on the Burden of Rotavirus Diarrhea and the Impact and Cost-Effectiveness of Vaccination in Lao People’s Democratic Republic. *Vaccine*, 36, 7868–7877.

- Kaplan, M., Manore, C., and **Bagamian, K.H.** 2016. Agent-based hantavirus transmission model incorporating host behavior and viral shedding heterogeneities derived from field transmission experiments. *Letters in Biomathematics* 3, 209–228.
- Bezymennyi, M.*, **Bagamian, K.H.***, Barro, A., Skrypnyk, A., Skrypnyk, V., and Blackburn, J.K. 2014. Spatio-temporal patterns of livestock anthrax in Ukraine during the past century (1913–2012). *Applied Geography* 54, 129–138. *Equal contributors.
- **Bagamian, K.H.**, Skrypnyk, A., Rodina, Y., Bezymennyi, M., Nevolko, O., Skrypnyk, V., and Blackburn, J.K. 2014. Serological anthrax surveillance in wild boar (*Sus scrofa*) in Ukraine. *Vector-Borne and Zoonotic Diseases* 14, 618–620.
- Blackburn, J.K., Skrypnyk, A., **Bagamian, K.H.**, Nikolich, M.P., Bezymennyi, M., and Skrypnyk, V. 2014. Anthrax in a backyard domestic dog in Ukraine: a case report. *Vector-Borne and Zoonotic Diseases* 14, 615–617.
- Skrypnyk, V.G., Koziy, R.V., Skrypnyk, A.V., Rublenko, I.O., **Bagamian, K.H.**, Farlow, J., Nikolich, M.P., Mezhenkiy, A.O., Nevolko, O.M., and Blackburn, J.K. 2014. Anthrax in dogs. *уча СучаСсні наукові розробки* 1, 14–17.
- **Bagamian, K.H.**, Alexander, K.A., Hadfield, T.L., and Blackburn, J.K. 2013. Ante- and post-mortem diagnostic techniques for anthrax: rethinking pathogen exposure and the geographic extent of the disease in wildlife. *Journal of Wildlife Diseases* 49, 786–801.
- **Bagamian, K.H.**, Towner, J.T., Mills, J.N., and Kuenzi, A.J. 2013. Increased detection of Sin Nombre hantavirus RNA in antibody-positive deer mice from Montana, USA: evidence of male bias in RNA viremia. *Viruses: Special Issue: Hantaviruses* 5, 2320–2328.
- **Bagamian, K.H.**, Towner, J.S., Douglass, R.J., Kuenzi, A.J., Rollin, P.E., Waller, L.A., and Mills, J.N. 2012. Transmission ecology of Sin Nombre hantavirus in North American deer mouse populations in outdoor enclosures. *PLoS One* 7, e47731.
- **Bagamian, K.H.**, Douglass, R.J., Alvarado, A., Kuenzi, A.J., Amman, B.A., Waller, L.A., and Mills, J.N. 2012. Population density and seasonality effects on Sin Nombre virus transmission in North American deer mice (*Peromyscus maniculatus*) in outdoor enclosures. *PLoS One* 7, e37254.
- Carver, S., Kuenzi, A.J., **Bagamian, K.H.**, Mills, J.N., Rollin, P.E., Zanto, S.N., and Douglass, R.J. 2011. A temporal dilution effect: hantavirus infection in deer mice in Montana: effect of intermittent presence of voles. *Oecologia* 166, 713–721.
- **Bagamian, K.H.**, Heins, D.C., and Baker, J.A. 2004. Body condition and reproductive capacity of three-spined stickleback infected with the cestode *Schistocephalus solidus*. *Journal of Fish Biology* 64, 1568–1576.

Selected manuscripts in review/ in preparation for submission

- Anderson, J.D., Pecenka, C., **Bagamian, K.H.**, and Rheingans, R. Effects of Geographic and Economic Heterogeneity on the Burden of Rotavirus Diarrhea and the Impact and Cost-Effectiveness of Vaccination in Nigeria. *PLoS One*, in review.
- Cumming, O., Anderson, J.D., **Bagamian, K.H.**, Andres, L., Kullman, C., Skoufias, E., Rheingans, R., Ryan, S.J. The distribution of water and sanitation related diarrhoeal disease risk and burden in seven low-income countries—application and validation of a novel risk model. *BMJ Global Health*, in prep.
- Co-infection with multiple respiratory viruses in children from nine Pittsburgh schools during the winter of 2012–2013. Authorship order: TBD, in prep.
- Comparison of SMART2 to community-wide influenza and respiratory virus dynamics and influenza-like illness related absences. Authorship order: TBD, in prep.

Reports

- **Bagamian, K.H.** and Anderson, J.D. 2019. WASH Poverty Diagnostic; Poverty Risk Model Assessment: Angola. World Bank Report, 48pp. *Report commissioned by the “Poverty Risk Models (PRM) for water, sanitation and health (WASH) project” for World Bank, Washington, D.C.*
- Rheingans, R., **Bagamian, K.H.**, Anderson, J.D., Ryan, S.J., Amratia, P., Amaya, M.P., Bouland, J., Laytner, L.A., Watson, J., and Cumming, O. 2016 WASH Poverty Diagnostic; Poverty Risk Model Assessment: Bangladesh. World Bank Report, 56pp. *Report commissioned by the “Poverty Risk Models (PRM) for water, sanitation and health (WASH) project” for World Bank, Washington, D.C.*

- Rheingans, R., Anderson, J.D., **Bagamian, K.H.**, Ryan, S.J., McNamara, K., Laytner, L.A., Amratia, P., Watson, J., and Cumming, O. 2016 WASH Poverty Diagnostic; Poverty Risk Model Assessment: Democratic Republic of Congo. World Bank Report, 56pp. *Report commissioned by the “Poverty Risk Models (PRM) for water, sanitation and health (WASH) project” for World Bank, Washington, D.C.*
- Rheingans, R., **Bagamian, K.H.**, Anderson, J.D., Ryan, S.J., Laytner, L.A., McNamara, K., Watson, J., and Cumming, O. 2016 WASH Poverty Diagnostic; Poverty Risk Model Assessment: Ethiopia. World Bank Report, 56pp. *Report commissioned by the “Poverty Risk Models (PRM) for water, sanitation and health (WASH) project” for World Bank, Washington, D.C.*
- Rheingans, R., **Bagamian, K.H.**, Anderson, J.D., Ryan, S.J., Laytner, L.A., McNamara, K., Amaya, M.P., Watson, J., and Cumming, O. 2016 WASH Poverty Diagnostic; Poverty Risk Model Assessment: Haiti. World Bank Report, 54pp. *Report commissioned by the “Poverty Risk Models (PRM) for water, sanitation and health (WASH) project” for World Bank, Washington, D.C.*
- Rheingans, R., Anderson, J.D., **Bagamian, K.H.**, Ryan, S.J., Watson, J., Laytner, L.A., and Cumming, O. 2016 WASH Poverty Diagnostic; Poverty Risk Model Assessment: Mozambique. World Bank Report, 62pp.
- Rheingans, R., **Bagamian, K.H.**, Anderson, J.D., Ryan, S.J., Laytner, L.A., McNamara, K., Watson, J., and Cumming, O. 2016 WASH Poverty Diagnostic; Poverty Risk Model Assessment: Nigeria. World Bank Report, 54pp. *Report commissioned by the “Poverty Risk Models (PRM) for water, sanitation and health (WASH) project” for World Bank, Washington, D.C.*
- Rheingans, R., Anderson, J. D., **Bagamian, K.H.**, Ryan, S.J., Amaya, M.P., Laytner, L.A., McNamara, K., Watson, J., and Cumming, O. 2016 WASH Poverty Diagnostic; Poverty Risk Model Assessment: Tajikistan. World Bank Report, 54pp. *Report commissioned by the “Poverty Risk Models (PRM) for water, sanitation and health (WASH) project” for World Bank, Washington, D.C.*
- Rheingans, R., **Bagamian, K.H.**, Anderson, J.D., Ryan, S.J., Watson, J., Amratia, P., Laytner, L.A., and Cumming, O. 2016 WASH Poverty Diagnostic; Poverty Risk Model Assessment: Pakistan. World Bank Report, 58pp. *Report commissioned by the “Poverty Risk Models (PRM) for water, sanitation and health (WASH) project” for World Bank, Washington, D.C.*
- Ryan, S.J., **Bagamian, K.H.**, Rheingans, R., and Cumming, O. 2016. An exploratory validation of the WASH PRM for the Democratic Republic of Congo, Haiti, and Tajikistan. World Bank Report, 47pp. *Report commissioned by the “Poverty Risk Models (PRM) for water, sanitation and health (WASH) project” for World Bank, Washington, D.C.*

PRESENTATIONS

Selected invited seminars

- **National Institute of Allergy and Infectious Diseases, Rocky Mountain Laboratories, Hamilton, MT**, October 22, 2014, Bagamian, K.H., Transmission and within-host characteristics of deer mice naturally infected with Sin Nombre hantavirus.
- **University of Florida, Gainesville, FL**, *Emerging Pathogen Institute Seminar Series*, October 31, 2012, Bagamian, K.H., Transmission ecology of Sin Nombre hantavirus in North American deer mouse (*Peromyscus maniculatus*) populations in outdoor enclosures.
- **Tulane University, New Orleans, LA**, *Tulane School of Science and Engineering Seminars*, April 20, 2012, Bagamian, K.H., Transmission ecology of Sin Nombre hantavirus in North American deer mouse (*Peromyscus maniculatus*) populations in outdoor enclosures.

Selected conference presentations

- **Bagamian, K.H.**, Anderson, J.D., Laytner, L.A., Cumming, O., and Rheingans, R. **Spatial Heterogeneity and disparities in enteric disease risk (ETEC and *Shigella* infection) in East and Central Africa: implications for new vaccines.** *Vaccines Against Shigella and ETEC (VASE) Conference*, Washington D.C., USA, June 28–30, 2016. *Poster presentation.*
- **Bagamian, K.H.** and Rheingans, R. **Building a high-resolution spatial dataset to assess the heterogeneity of diarrheal prevalence and risk in East Africa.** *Ecology and Evolution of Infectious Disease Annual Conference*, Athens, GA, USA, June 1–4, 2015. *Poster presentation.*

- **Bagamian, K.H. Transmission ecology of Sin Nombre hantavirus in North American deer mouse populations in outdoor enclosures.** *Wildlife Disease Association International Conference*, Lyon, France, July 22–27, 2012. *Wildlife Disease Association Graduate Research Recognition Award Oral Presentation*.
- **Bagamian, K.H.,** Towner, J.S., Douglass, R.J., Kuenzi, A.J., Rollin, P.E., Waller, L.A., and Mills, J.N. **Transmission ecology of Sin Nombre hantavirus in North American deer mouse populations in outdoor enclosures.** *NIH–NIGMS 4th Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE)*, Washington D.C., USA, June 25–27, 2012. *Highlighted Poster: Immunobiology and Infectious Diseases Session*.
- **Bagamian, K.H.,** Douglass, R.J., and Mills, J.N. **Field test of Outdoor Enclosure System for Sin Nombre Hantavirus Transmission Research.** *National Center for Zoonotic, Vector-Borne, and Enteric Diseases (NCZVED) 2009 Science Summit*, CDC, Atlanta, GA, March 2009. *Poster presentation*.
- **Bagamian, K.H.,** Douglass, R.J., and Mills, J.N. **Hantavirus Transmission in Natural Populations of Deer Mice in Outdoor Enclosures.** *Wildlife Disease Association International Conference*, Estes Park, Colorado August 12–17, 2007. *Opening session oral presentation*.

GRANTS, SCHOLARSHIPS, AND ACHIEVEMENTS

- National Institute for Mathematical and Biological Synthesis (NIMBioS) Short-Term Visitor, 2013
- Wildlife Disease Association Graduate Research Recognition Award, 2012
- Newcomb College Young Alumna Award, Tulane University, May 18, 2012
- Oak Ridge Institute for Science and Education Research Fellowship, 2009–2010
- NIH–CDC Public Health Dissertation Research Grant, 2008–2009
- NIH Training Grant in Population Biology of Infectious Diseases, 2004–2007
- National Merit Scholar, 1997–2001

SERVICE

Professional

- **Assistant Editor** for *Journal of Wildlife Diseases* 2014–present
- **Peer Reviewer** 2012–present
 Journals include *Proceedings of the Royal Society B*, *Emerging Infectious Diseases*, *Ecology*, *Journal of Wildlife Diseases*, *Viruses*, *Vector-Borne and Zoonotic Diseases*, *Journal of Vector Ecology*, *EcoHealth*, *PLoS One*, *PLoS Neglected Tropical Diseases*, *International Journal for Equity in Health*, and *Ecology and Evolution*.
- **Science Outreach**
 - Radio Interview: “Why did you choose science?” *Cfvep.Org EcoJazz* 2012
Radio Show, KMSM 103.9, Butte, Montana
 - STEM (Science Technology Engineering Math) visitor, Southwest Montana Science Partnership: Workshop on Inquiry-Based Instruction 2011

Academic

- **Mentorship**
 - Emory Laney Graduate School Ph.D. Alumni Mentor 2013
 - Population Biology, Ecology, and Evolution (PBEE) Dept. Student Mentor 2005–2012
- **Tutoring** 1995–2001
 - Elementary to High School Level (Math, English, History, Science)
 - College (Ecology and Evolutionary Biology)

Community

- STEM Volunteer “Girls to Young Ladies” 2014
- Coaching: Elementary and High School Level Volleyball Teams 1998–2004

SOCIETAL MEMBERSHIPS

American Medical Writers Association, American Society of Tropical Medicine and Hygiene, Wildlife Disease Association

COMPUTER SKILLS

Geographic information systems (GIS) and related spatial software, R, Stata, DNASTAR Lasergene Suite, Microsoft Office, Geneious, BEAST

OTHER TRAINING

- Virus Evolution and Molecular Epidemiology (VEME) Workshop: Evolutionary Hypothesis Testing Module, University of Florida, Gainesville, FL, August 25–30, 2013.
- Ecology and Evolution of Infectious Diseases Modeling Workshop on Ecology of Infectious Disease, University of Georgia, Athens, GA, May 17–20, 2009.

ADDITIONAL LANGUAGES

- Armenian: Fluent (speaking, reading, writing)
- Spanish: Beginner (speaking, reading, writing)