

Ian D. Buller

National Cancer Institute
 Division of Cancer Epidemiology and Genetics
 Occupational and Environmental Epidemiology Branch
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EDUCATION

- 2013 B.A./M.A., Ecology and Evolutionary Biology, University of Colorado – Boulder
 Thesis: *Nationwide distributional determinants for a wildlife and human parasite*
- 2019 Ph.D., Environmental Health Sciences, Emory University
 Dissertation: *On estimating the spatial distribution of enzootic Yersinia pestis in the United States using a wide-ranging sentinel species and spatial statistics with sampling considerations*

PROFESSIONAL EXPERIENCE

- 2008-2013 Student Assistant (I & II), University of Colorado – Boulder (CU-Boulder), Boulder, CO
- 2012-2013 Research Assistant, Wedge Communications L.L.C., Golden, CO
- 2013 Visiting Research Assistant, Instituto Leônidas e Maria Deane – Fiocruz Amazônia, Manaus, Brazil
- 2019- Cancer Prevention Fellow, National Institutes of Health (NIH), National Cancer Institute (NCI), Division of Cancer Epidemiology and Genetics (DCEG), Occupational and Environmental Epidemiology Branch

OTHER TRAINING

- 2012 Graduate Summer Session in Epidemiology, University of Michigan, Ann Arbor, MI
- 2015 Adult Mosquito Identification Certification, East Georgia State College, Swainsboro, GA
- 2017 Bayesian and INLA Disease Mapping Curriculum, Medical University of South Carolina, Charleston, SC
- 2017 Graduate Workshop on Environmental Data Analytics, National Center for Atmospheric Research, Boulder, CO
- 2019 Principles and Practice of Cancer Prevention and Control course, NCI, Rockville, MD
- 2019 Molecular Cancer Prevention course, NCI, Rockville, MD
- 2020 Linux for Biomedical Researchers, Foundation for Advanced Education in the Sciences (FAES) at NIH, Bethesda, MD
- 2020 Creating Plots, Graphs, and Maps Using R, FAES at NIH, Bethesda, MD

SOFTWARE SKILLS

R, LaTeX, Git, Shell, markdown, SAS, ArcGIS, Excel, Word, PowerPoint

COMPETITIVE RESEARCH FUNDING

- 2014-2019 Graduate Research Fellowship Program, National Science Foundation (NSF)
- 2017 Graduate Research Internship Program, NSF
- 2020 DCEG Informatics Tool Challenge, NCI. Co-lead: Dr. Derek Brown
- 2020 William G. Coleman Jr., Ph.D., Minority and Health Disparities Research Innovation Award, NIMHD. Co-leads: Drs. Jacqueline Vo, Naoise Synnott, and Derek Brown
- 2021 Trans-Fellowship Research Award Supplement, Division of Cancer Prevention (DCP), NCI. Co-lead: Dr. Derek Brown

AWARDS, SCHOLARSHIPS, HONORS

- 2006 Eagle Scout Rank, Boy Scouts of America
- 2008 Summer Undergraduate Research Experience, CU-Boulder
- 2008-2013 Presidential Leadership Class, CU-Boulder
- 2010 Alvin G. Flanagan/Walker Family Scholarship, CU-Boulder
- 2011 Barry M. Goldwater Scholarship, Barry M. Goldwater Scholarship and Excellence in Education Foundation
- 2013 Graduate Research Fellowship Program, NSF (honorable mention)
- 2014 Student Photography Contest, Emory Global Health Institute (honorable mention)
- 2017 New Thinkers/New Leaders Award, Emory University
- 2018 Student Section Travel Award, Ecological Society of America Annual Meeting
- 2018 Young Investigator Award, American Society of Tropical Medicine and Hygiene (first-tier mention)
- 2020 DCEG Fellows Award for Research Excellence, NCI

ACADEMIC APPOINTMENTS/ MENTORING EXPERIENCE

- 2011 Undergraduate Teaching Assistant, Ecology and Evolutionary Biology, CU-Boulder
- 2010-2011 First Year Class Advisor, Presidents Leadership Class, CU-Boulder
- 2011-2013 Academic Affairs Fellow, Presidents Leadership Class, CU-Boulder
- 2014-2017 Teaching Assistant, Rollins School of Public Health, Emory University
- 2017-2018 Laboratory Instructor, College of Arts and Sciences, Emory University
- 2017-2018 Symposium Research Mentor, Undergraduate Research Program, Emory University

PROFESSIONAL CONTRIBUTIONS AND AFFILIATIONS

Committees, Review Panels, and Editorial Boards

- 2015-2018 Co-Founder, President, and Treasurer, Public Health Doctoral Students in Environmental Health, Emory University
- 2016-2018 Team Lead, Emory Climate Analysis and Solutions Team, Emory University
- 2017 Judge, Science Fair, Fernbank Elementary School, Decatur, GA

- 2017-2018 Judge, Undergraduate Research Symposium, Emory University
- 2018-2019 Judge, American Statistical Society DataFest at Emory University, Emory University
- 2019- Co-Editor, DCEG Fellows Editorial Board, NCI
- 2020-2021 Co-Chair, Method and Training Committee, Fellows Advisory Board, DCP, NCI

Professional Societies and Memberships

- 2010-2013 American Society of Parasitologists (ASP)
- 2011- Phi Beta Kappa
- 2011-2018 Ecological Society of America (ESA)
- 2013- Society for Epidemiologic Research (SER)
- 2016-2017 Georgia Public Health Association
- 2017-2018 American Public Health Association (APHA)
- 2018-2020 American Society of Tropical Medicine and Hygiene (ASTMH)
- 2018-2020 American Statistical Association
- 2019- American Association for Cancer Research (Affiliate member)
- 2020- American Association of Geographers (AAG)
- 2020- National Postdoctoral Association (Affiliate member)
- 2020- International Society for Environmental Epidemiology (ISEE)

Reviewer for Refereed Journals

<i>Cancer Causes & Control</i>	<i>Cancer Epidemiology, Biomarkers & Prevention</i>
<i>Environmental Research</i>	<i>International Journal of Environmental Research and Public Health</i>
<i>Methods in Ecology and Evolution</i>	<i>International Journal of Health Geographics</i>
<i>PLoS – Neglected Tropical Diseases</i>	<i>Journal of the Georgia Public Health Association</i>

MEETINGS AND PRESENTATIONS (presenting author only)

Oral Presentations

- 2010 A loaded toad: Parasite communities of juvenile Western Toads (*Anaxyrus boreas*) from California and Oregon. ASP Annual Meeting, Colorado Springs, CO.
- 2011 Parasite communities of juvenile Western Toads (*Anaxyrus boreas*) from California and Oregon, USA. Rocky Mountain Conference of Parasitologists Annual Meeting, Ogallala, NE.
- 2012 Factors related to the distribution and abundance of the four-host trematode parasite *Alaria* spp. in amphibians in the San Francisco Bay Area. ESA Annual Meeting, Portland, OR.
- 2015 A solution to the problem of separation in site-occupancy models. ESA Annual Meeting, Baltimore, MD.
- 2021 Geographic variation in the oral microbiome of NIH-AARP Diet and Health Study participants. NIEHS Microbiome Workshop entitled “Impact of Environmental Exposures on the Microbiome and Human Health.” (*virtual vis-à-vis COVID-19*)
- 2021 Roadway Proximity and Lung Cancer in NIH-AARP Diet and Health Study Participants. ISEE Annual Meeting, New York, New York. (*virtual vis-à-vis COVID-19*)

Invited Presentations

- 2017 Panelist, Dean's council meeting: Climate and health, Emory University, Rollins School of Public Health, Atlanta, GA.
- 2018 Spatial distribution of *Yersinia pestis* found in *Canis latrans* across North America, United States Department of Agriculture, Animal & Plant Health Inspection Services, Wildlife Disease Program, Fort Collins, CO.
- 2018 Spatial distribution of *Yersinia pestis* found in a sentinel species across the United States while accounting for sampling uncertainty, Lancaster University, Lancaster, United Kingdom.
- 2018 Climate and the plague. The Emory Climate Analysis and Solutions Team, Climate@Emory, Emory University, Atlanta, GA.
- 2019 On examining spatial patterns in principal component space to identify suitable habitat for *Yersinia pestis* transmission in the western United States, DCEG Geographic Analysis Working Group, NCI, Rockville, MD.
- 2019 On examining spatial patterns in principal component space to identify suitable habitat for *Yersinia pestis* transmission in the western United States, Geospatial Interest Group, Federal Committee on Statistical Methods, Washington, DC.
- 2019 The geographic distribution of *Yersinia pestis* in California: a spatial analysis of carnivore-based spatial disease surveillance, Vector-Borne Disease Section, California Department of Public Health, Sacramento, CA.
- 2020 Zoonotic surveillance of plague via point processes in geographic and principal component space, Department of Biostatistics and Bioinformatics Seminar, Emory University, Atlanta, GA.
- 2020 A place for spatial analysis in the Cancer Control Continuum, DCP, NCI, Rockville, MD.
- 2020 Introduction to R. DCP, NCI, Rockville, MD.
- 2021 Spatial Power: a new webtool to calculate power for spatial cluster detection techniques, DCEG Geographic Analysis Working Group, NCI, Rockville, MD.
- 2021 Estimating environmental mixtures in a geospatial context, symposium entitled "Implementing geolocation-based exposure assessments," SER Annual Meeting. (*virtual vis-à-vis COVID-19*)

Poster Presentations

- 2013 Nationwide distributional determinants of an amphibian and human parasite. ESA Annual Meeting, Minneapolis, MN.
- 2017 Spatial distribution of *Yersinia pestis* in wildlife in California while accounting for sampling effort. Ecology and Evolution of Infectious Disease Annual Meeting, Santa Barbara, CA.
- 2017 Assessing public health co-benefits of the City of Atlanta's Climate Action Plan. APHA Annual Meeting, Atlanta, GA.
- 2018 Spatial distribution of *Yersinia pestis* found in a sentinel species across the United States while accounting for sampling uncertainty. Ecology and Evolution of Infectious Disease Annual Meeting, Glasgow, United Kingdom.
- 2018 Spatial distribution of *Yersinia pestis* found in a sentinel species across the United States while accounting for sampling uncertainty. ESA Annual Meeting, New Orleans, LA.
- 2018 Spatial distribution of *Yersinia pestis* found in a sentinel species across the United States while accounting for sampling uncertainty. ASTMH Annual Meeting, New Orleans, LA.

- 2020 Geographic variation in the oral microbiome of Agricultural Health Study applicators. American Association of Geographers Annual Meeting, Denver, CO. (*accepted but COVID-19*)
- 2020 Geographic variation in the oral microbiome of Agricultural Health Study applicators. Society for Epidemiologic Research Annual Meeting, Boston, MA. (*virtual vis-à-vis COVID-19*)
- 2020 Geographic variation in the oral microbiome of NIH-AARP Diet and Health Study participants. ISEE Annual Meeting, Washington, D.C. (*virtual vis-à-vis COVID-19*)

BIBLIOGRAPHY

Peer-reviewed Publications

1. Johnson PTJ, **Buller ID**. Parasite competition hidden by correlated coinfection: Using surveys and experiments to understand parasite interactions. *Ecology* 92(3): 535-541; 2011. PMID: 21608460.
2. Fisher JA, Spaur M (co-first), **Buller ID**, Flory AR, Beane-Freeman LE, Hofmann JN, Giangrande M, Jones RR, Ward MH. Spatial heterogeneity in positional errors: a comparison of two residential geocoding efforts in the Agricultural Health Study. *IJERPH* 18(4): 1687; 2021. PMID: 33572119.
3. **Buller ID**, Brown DW (co-first), Myers TA, Jones RR, Machiela MJ. sparrpowR: a flexible R package to estimate statistical power to identify spatial clustering of two groups. *IJHG* 20(1): 13; 2021. PMID: 33736677.

Software Packages (Authorship)

4. **Buller ID**, Brown DW. sparrpowR: Power Analysis to Detect Spatial Relative Clusters. R package version 0.1.3; 2020. <https://CRAN.R-project.org/package=sparrpowR>
5. **Buller ID**. gateR: Flow/Mass Cytometry Gating via Spatial Kernel Density Estimation. R package version 0.1.2; 2020. <https://CRAN.R-project.org/package=gateR>
6. **Buller ID**. envi: Environmental Interpolation using Spatial Kernel Density Estimation. R package version 0.1.3; 2020. <https://CRAN.R-project.org/package=envi>

Software Packages (Contributor)

7. spatstat: Spatial Point Pattern Analysis, Model-Fitting, Simulation, Tests. R package version 1.64-2; 2020. <https://spatstat.org/resources/spatstatManual.pdf>
8. SpatialEpi: Methods and Data for Cluster Detection and disease mapping. R package version 1.2.3.9000; 2021. <https://github.com/rudeboybert/SpatialEpi>

Web Applications

9. **Buller ID**, Brown DW. Spatial Power. <https://analysistools.cancer.gov/spatial-power>