

**Ian D. Buller**

National Cancer Institute  
Division of Cancer Epidemiology and Genetics  
Occupational and Environmental Epidemiology Branch  
9609 Medical Center Drive, 6E124  
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<https://idbl.rbind.io>

**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
- 2021      The Brothers Bayes' Boisterous Bootcamp. Epidemiology in Occupational Health (EPICOH) Workshop, Virtual vis-à-vis COVID-19

**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
- 2022 Career Development Award, NCI Director's Intramural Innovation Award Program, NCI.

**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, DCEG, NCI
- 2021 CPFP Merit Award, DCP, NCI
- 2021 NCI Director's Award for Emerging Leader, Office of the Director, NCI (shared with 2019-2020 CPFP Fellows Advisory Board, DCP, 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
- 2020-2021 Co-Chair, Method and Training Committee, Fellows Advisory Board, DCP, NCI
- 2020- Co-Editor-in-Chief, DCEG Fellows Editorial Board, DCEG, 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)
- 2019- National Postdoctoral Association (Affiliate member)
- 2020- American Association of Geographers (AAG)
- 2020- International Society for Environmental Epidemiology (ISEE)

### Reviewer for Refereed Journals

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|---|--|
| <i>Cancer Causes &amp; Control</i>        | <i>Cancer Epidemiology, Biomarkers &amp; 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. (*virtual vis-à-vis COVID-19*)
- 2020 Introduction to R. DCP, NCI, Rockville, MD. (*virtual vis-à-vis COVID-19*)
- 2021 Spatial Power: a new webtool to calculate power for spatial cluster detection techniques, DCEG Geographic Analysis Working Group, NCI, Rockville, MD. (*virtual vis-à-vis COVID-19*)
- 2021 Estimating environmental mixtures in a geospatial context, symposium entitled “Implementing geolocation-based exposure assessments,” SER Annual Meeting, San Diego, CA. (*virtual vis-à-vis COVID-19*)
- 2021 Spatial epidemiology of noncommunicable diseases (cancer), guest lecture for a course entitled “Epidemiology of Disease,” Oregon Health Sciences University – Portland State University School of Public Health, Portland, OR. (*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. AAG Annual Meeting, Denver, CO. (*accepted but COVID-19*)
- 2020 Geographic variation in the oral microbiome of Agricultural Health Study applicators. SER 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, DC. (*virtual vis-à-vis COVID-19*)
- 2021 Geographic variation in the oral microbiome of NIH-AARP Diet and Health Study participants. FDA-NIH-NIST-USDA Joint Agency Microbiome Symposium. (*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.
4. **Buller ID**, Patel DM, Weyer PJ, Prizment A, Jones RR, Ward MH. Ingestion of nitrate and nitrite and risk of stomach and other digestive system cancers in the Iowa Women's Health Study. *IJERPH* 18(13): 6822; 2021. PMID: 34202037

### **Commentaries, Letter, and Non-Peer Reviewed Publication(s)**

5. **Buller ID**, Jones RR. Invited Commentary: Predicting incidence rates of rare cancers: adding epidemiologic and spatial contexts. *Am J Epidemiol (In Press)*. PMID: 34875003

### **Software Packages (Authorship)**

6. **Buller ID**, Brown DW. sparrpowR: Power Analysis to Detect Spatial Relative Clusters. R package initial version 0.1.3; 2020. DOI: 10.5281/zenodo.5347998. <https://CRAN.R-project.org/package=sparrpowR>
7. **Buller ID**. gateR: Flow/Mass Cytometry Gating via Spatial Kernel Density Estimation. R package initial version 0.1.2; 2020. DOI: 10.5281/zenodo.5347893. <https://CRAN.R-project.org/package=gateR>
8. **Buller ID**. envi: Environmental Interpolation using Spatial Kernel Density Estimation. R package initial version 0.1.3; 2020. DOI: 10.5281/zenodo.5347827. <https://CRAN.R-project.org/package=envi>

### **Web Applications**

9. **Buller ID**, Brown DW. Spatial Power. Division of Cancer Epidemiology and Genetics at the National Cancer Institute; 2021. <https://analysisitools.cancer.gov/spatial-power>