# SHELDON G.B. WAUGH, MSC, PHD

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## BASIC INFORMATION

**Citizenship**
Yes - United States
**Federal Experience** *June 2018 - Present*
United States Army Medical Command, Army Public Health Center
**Military Experience**
United States Army Reserve, Signal Corps, Captain *December 2011 - Present*

## OBJECTIVE

To obtain a full time position in service with a Federal or Private Organization as an Director of Data Science or a Principal Investigator.

## EDUCATION

**University of Florida, Gainesville, Florida** *August 2017 - May 2018*
Department of Epidemiology, College of Public Health and Health Professions *August 2014 - May 2018*
PhD in Epidemiology
Department of Geography, College of Liberal Arts and Sciences *August 2007 - May 2014*
Masters of Science in Geography
Bachelors of Science in Geography

## CURRENT PROJECTS

**Global Privately and Government-owned Worldwide Surveillance System (GPAWSS)**
Chief scientist and co-project manager for GPAWSS. GPAWSS is a surveillance platform designed to provide surveillance data to inform commanders and VCOs of the distribution, frequency, and incidence of various companion animal diseases. The platform uses multiple heterogeneous data streams including: Remote Online Veternary Record (ROVR) EHR data, laboratory data, and data from a civilian corporate companion animal practice. Data in GPAWSS is managed by the One-Health Division and is displayed on an interactive, web-based platform (Tableau and R-Shiny) tracking disease frequency and incidence globally. GPAWSS also has outbreak detection capabilities.

**Modernizing the Data infrastructure of the Veterinary Services and Public Health Sanitation Directorate (VSPHS)**
The VSPHS is currently at a crossroads in terms of the organization of data in a manner that allows for increased collaboration with outside organizations and encourages creativity and the discovery of novel data sources and research methods. i) The project intends to: Establish a data etiquette protocol within the VSPHS in order to establish a data standardization protocol, simplifying future data integration with outside organizations ii) Restructure the data storage structure of the directorate, establishing standardized databases, per division and housing them within the Army Engineer Research and Development Center (AERDC) DoD Supercomputing Resource Center's data infrastructure (DSRC). The AERDC's Data Lake structures allows for the positive control of potentially all of the directorate's data in a single source that can be updated at one point, decreasing areas of inaccessible and siloed data. My exapansive experience with data cleaning, restructuring and manipulation techniques allows me to lead this project for the directorate in terms of methodology, collaboration and planning.

## TECHNICAL STRENGTHS

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| **Advanced Statistical Methods** | Machine Learning and Bayesian modeling |
| **Machine Learning Methods** | NLP and Advanced Regression techniques |
| **Geo-spatial Modeling and Analysis** | ESRI ArcGIS Enterprise |
| **Data Management and Cleaning Methods** | SQL, R and, NoSQL coding techniques |
| **Business Intelligence Solutions** | Tableau, Power BI, R, Python |
| **Software & Tools** | Python, R, VB, and C++ (12+ years of proficiency) |

## WORK EXPERIENCE

**One Health Division, VSPHS, Army Public Health Center, Aberdeen Proving Ground** June 2018

*Epidemiologist* *Supervisor: MAJ Sara Mullaney DVM, PhD, DACVPM*

- Serves as technical expert and advisor in the Veterinary One Health Division within the Veterinary Services and Public Health Sanitation Directorate, U.S. Army Public Health Center, in the epidemiology and surveillance of both the military and beneficiary animal populations as they relate to specific population assessments and health related outcome analysis, zoonotic diseases, infectious illnesses, injuries and occupational illness and injury (military working animals), and as related to human biosurveillance through a One Health paradigm. Work involves assessment of available Department of Defense (DoD veterinary medical data, disease and non-battle injury data and other health outcomes data looking to assess trends and potential associations.
- Plans and executes epidemiological projects and outbreak investigations aimed at identifying population based risk factors for zoonotic disease, infections and/or acute or chronic illnesses, injuries, and occupational hazards.
- Serves as advisor and special assistant to the Division Chief for Veterinary One Health. Manages the Military Working Dog (MWD) centralized data repository, and veterinary medical biosurveillance operations for both the military and beneficiary animal populations. Functions as lead for the One Health centralized MWD data initiative to consolidate all MWD data sources into one combined data system through collaboration and coordination with key stakeholders for the creation of a new epidemiologic database.
- Serves as the One Health lead for veterinary medical biosurveillance of both military working animal and beneficiary animal populations, with responsibility for independently planning, reporting, coordinating necessary teamwork, and managing survey data for related outcome analysis, zoonotic diseases, infectious illnesses, injuries and occupational illness and injury of military working animals

**Spatial Epidemiology & Ecology Research Laboratory (SEER), Department of Geography, University of Florida** March 2017 - June 2018

*Bioinformatician* *PI: Jason K Blackburn, PhD*

- Chief Bioinformatics analyst and developer in genomic and spatial analysis
- Utilized advanced statistical and phylogenetic techniques to update genomic laboratory procedures in order to standardize lab results
- Primarily tasked with database management and control of passive surveillance data collection of genomic and spatial data with collaboration with international health organizations
- Responsible for creation of data algorithms and specialized software pipelines to identify and classify
- Updated Multiple-Locus Variable number tandem repeat Analysis (MLVA) data and fragments for phylogenetic analysis.

**Department of Epidemiology, College of Public Health and Health Professions, University of Florida** August 2014 - June 2018

*Research/Study Coordinator* *PI: Volker Mai, PhD*

- Bioinformatics analyst and developer in metagenomics

- Responsible for creation of data algorithms and specialized software pipelines to identify and classify components of 16S sequencing fragments.
- Study Coordinator for four clinical studies investigating changes in human metagenomics via high-throughput sequencing
- Assisted in the development of research protocols, design and execution of clinical/observational studies investigating potential health effects

**Department of Geography, College of Liberal Arts and Sciences, University of Florida**
January 2013 - July 2013
*Research/Data Analyst* *PI: Andrew Tatem, PhD*

- Data used in mapping projects for the University of Southampton.
- Tasked with data entry and processing of country population data to GIS databases
- Data used in AfriPOP and AsiaPOP projects with an aim of producing population distribution maps

## HONORS, ACHIEVEMENTS AND AWARDS

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| Meritorious Service Medal, U.S. Army Reserve, Milton, Florida | *January 2018* |
| Honorable Mention, Student Research Abstract Award, SHES/APHA Annual Meeting | *November 2016* |
| SMART Scholarship, Department of Defense, Washington D.C. | *August 2016 - May 2018* |
| McKnight Fellowship, Florida Education Fund, Orlando, Florida | *August 2014 - May 2018* |
| Ryan Poehling Fellowship Award, University of Florida | *December 2013 - May 2014* |
| Army Achievement Medal, U.S Army Reserve, Milton, Florida | *June 2014* |
| Army Achievement Medal, U.S Army Reserve, Milton, Florida | *December 2013* |
| LTC Samuel W Anderson Scholarship, University of Florida | *December 2009 - May 2011* |
| 1LT Mark T Barrett Memorial Award, University of Florida | *May 2009 - May 2010* |
| Gold Scholarship, University of Florida | *August 2007* |

## RELATED AND TEACHING EXPERIENCE

**College of Public Health and Health Professions, University of Florida** May 2017 - 2018
*Social Committee Chair for Executive Board-Doctoral Student*

**College of Public Health and Health Professions, University of Florida** May 2017 - 2018
*Department Student Representative*

**Student Conduct and Conflict Resolution, Dean of Students Office, University of Florida**
May 2014 - 2018

- Title IX Conduct Committee Member
- Student Conduct Committee Member
- Honor Code Committee Member

**Department of Epidemiology, College of Public Health and Health Professions, University of Florida** January 5th - May 4th 2015
*Teaching Assistant (Online PHC6003: Epidemiology of Chronic Diseases)*

- Assisting David Sheps MD, MSPH with developing, grading assignments quizzes and exams

**Department of Epidemiology, College of Public Health and Health Professions, University of Florida** January 5th - May 4th 2015
*Teaching Assistant (Online PHC4101: Public Health Concepts)*

- Assisting Dr. Sarah McKune MPH, PhD with developing, grading assignments, quizzes and exams
- Established online assistance forums

## MILITARY EXPERIENCE

**HHC, 302nd Maneuver Enhancement Brigade, Chicopee, Massachusetts, United States Army Reserve**
*Captain, Signal Corps*

· NETOPS Officer — *September 2018 - Present*

**842nd Signal Company, Milton, Florida, United States Army Reserve**
*Captain, Signal Corps*

· Company Commander — *September 2015 - 2018*
· Family Readiness Group Liaison — *January 2015 - 2018*
· Executive Officer — *September 2013 - 2015*
· Platoon Leader — *December 2011 - 2013*

## PUBLISHED WORKS

Ball, J. D., Fe Agana, D., **Waugh, S.**, Wang, K., James, T. G., Nicolette, G. (2019). Systematically collected information at encounters with HIV-positive students: A review of 10 years of electronic medical records. Journal of American College Health, 1-5. PMID: 30681932

Spatial-Genomic Association of Co-Circulating Brucella Strains in Southern Kazakhstan: Phylogenetic Inferences Using MLVA Data, **Waugh, S.** (Submitted)

Brucellosis Transmission Between Humans and Domesticated Livestock in Southern Kazakhstan: Inferences through MLVA Typing, **Waugh, S.** (Submitted)

Visualizing the Occurrence of Zoonotic Diseases among Military Associated Canines, **Waugh, S.** (Submitted)

Jennifer C. Dennis, Tyler Culpepper, Carmelo Nieves, Jr., Cassie C. Rowe, Alyssa M. Burns, Carley T. Rusch, Ashton Federico, Maria Ukhanova, **Waugh, S.**, Volker Mai, Mary C. Christman, Bobbi Langkamp-Henken, Probiotics (Lactobacillus gasseri KS-13, Bifidobacterium bifidum G9-1, and Bifidobacterium longum MM-2) improve rhinoconjunctivitis-specific quality of life in individuals with seasonal allergies: a double-blind, placebo-controlled, randomized trial. Am J Clin Nutr 105, 758767 (2017). PMID: 28228426

**Waugh, S.** App.: Gut Microbiota Differences in Children From Distinct Socioeconomic Levels Living in the Same Urban Area in Brazil. Journal of Pediatric Gastroenterology and Nutrition (2016). PMID: 28644365

Oliveira, F.P. de, Mendes, R.H., Dobbler, P.T., Mai, V., Pylro, V.S., **Waugh, S.**, Vairo, F., Refosco, L.F., Roesch, L.F.W., and Schwartz, I.V.D. (2016). Phenylketonuria and Gut Microbiota: A Controlled Study Based on Next-Generation Sequencing. PLOS ONE 11, e0157513. PMID: 27336782

Dahl, W. J., Ford, A.L., Ukhanova, M., Radford, A., Christman, M.C., **Waugh, S.**, Mai, V. Resistant potato starches (type 4 RS) exhibit varying effects on laxation with and without phylum level changes in microbiota: A randomised trial in young adults. Journal of Functional Foods 23, 111 (2016).

**Waugh, S.** Apropos: Plasmodium knowlesi malaria an emerging public health problem in Hulu Selangor, Selangor, Malaysia (20092013): epidemiologic and entomologic analysis. Parasites Vectors 8, 79 (2015). PMID: 25651916

Mai, V., **Waugh, S.**, Byrd, D., Simpson, D. Ukhanova, M. Novel encapsulation improves recovery of probiotic strains in fecal samples of human volunteers. Appl Microbiol Biotechnol 17 (2016). PMID: 27796434

**Waugh, S.**, Varma, D., Striley, C., Cottler, L. Comparing Spatial Techniques to Visualize Hypertension Spread and Risk Factors for Hypertension Using Self-report from Community Participants. Applied Geography (2015). (Submitted)

## PRESENTED WORKS

**Waugh, S.**, Progress towards an Integrated Companion Animal Zoonotic Disease Surveillance System within the DoD, APHC Science Exchange, 2019

**Waugh, S.**, Progress towards an Integrated Companion Animal Zoonotic Disease Surveillance System within the DoD, APHC One-Health Day Seminar, 2018

**Waugh, S.**, Sytnik, I, Karibayev, T, Alimbayev, A, Ornybayev, M, Rametov, M, Nikolich, M, Hagius, S, Elzer, P, Blackburn, J. Brucellosis Transmission Between Humans and Domesticated Livestock In Southern Kazakhstan: Inferences Through MLVA Typing, UF Emerging Pathogens Institute Research Day, 2018

**Waugh, S.**, Sytnik, I, Karibayev, T, Alimbayev, A, Ornybayev, M, Rametov, M, Nikolich, M, Hagius, S, Elzer, P, Blackburn, J. Brucellosis Transmission Between Humans and Domesticated Livestock In Southern Kazakhstan: Inferences Through MLVA Typing, UF Public Health and Health Professions Research Day, 2018

**Waugh, S.**, Sytnik, I, Karibayev, T, Alimbayev, A, Ornybayev, M, Rametov, M, Nikolich, M, Hagius, S, Elzer, P, Blackburn, J. Brucellosis Transmission Between Humans and Domesticated Livestock In Southern Kazakhstan: Inferences Through MLVA Typing, AAG Annual Meeting, 2018

**Waugh, S.**, Ball, J. Using statistical approaches to quantify the effects of ridesharing accessibility on Driving under the Influence (DUI) arrests in a university city, American Public Health Association Annual Meeting, 2016

**Waugh, S.**, Varma, D., Striley, C., Cottler, L. Utilizing GIS to Visualize Hypertension Spread: A Comparative Study using HealthStreet Data, American Public Health Association Annual Meeting, 2015

**Waugh, S.**, Varma, D., Striley, C., Cottler, L. Utilizing GIS to Visualize Hypertension Spread: A Comparative Study using HealthStreet Data, UF Public Health and Health Professions Research Day, 2015

**Waugh, S.**. Geo-Spatial Risk Modeling for West Nile Virus in Tarrant County, TX Using Environmental and Demographic Data, AAG Annual Meeting, 2014

## MEMBERSHIPS

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| International Society of Disease Surveillance | *August 2018 - Present* |
| Association for Veterinary Informatics | *July 2018 - Present* |
| AMSUS - The Society of Federal Health Professionals | *May 2018 - Present* |
| Association of American Geographers | *September 2013 - Present* |
| American Public Health Association | *October 2014 - Present* |