

JAMIE D SMITH

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CURRENT POSITION

Apr 2019 Research Assistant
Dr. Nick Haddad, Kellogg Biological Station, Hickory Corners, MI

EDUCATION

Jan 2015 – Apr 2019 Western Michigan University, Kalamazoo, MI
M.S., Biological Sciences

Sep 2010 - June 2013 Western Michigan University, Kalamazoo, MI
B.S., Major: Biological Sciences
Minors: Chemistry, Mathematics

PUBLICATIONS

2018 Smith, J.S., Gill, S.A., Baker, K.M., Vonhof, M.V. 2018. Prevalence and diversity of avian Haemosporida infecting songbirds in southwest Michigan. *Parasitology Research*. doi: 10.1007/s00436-017-5724-3

PRESENTATIONS

2017 Poster: Smith, J.S., Gill, S.A., Baker, K.M., Vonhof, M.V. Effects of urbanization on prevalence, diversity, and parasitaemia of avian Haemosporida. Joint meeting of the American Ornithological Society and Society of Canadian Ornithologists (AOS-SCO), East Lansing, MI.

2015 Talk: Smith, J.S., Gill, S.A., Baker, K.M., Vonhof, M.V. The effect of urbanization on prevalence and diversity of Haemosporida parasites. Malaria Research Coordination Network (MalariaRCN) Workshop, Shepherdstown, WV.

2015 Talk: Smith, J.S., Gill, S.A., Baker, K.M., Vonhof, M.V. The effect of urbanization on prevalence and diversity of avian blood parasites. Michigan Bird Conservation Initiative (MiBCI) Conference, Tustin, MI.

GRANTS & AWARDS

2018 MPI Outstanding Graduate Research Award

2018 Department-Level Graduate Research and Creative Scholars Award

2015-2017 Graduate Teaching Assistantship, Western Michigan University

2016 Graduate Student Research Grant, Western Michigan University

2013 Frank Hinds Zoology Award, Western Michigan University

2012 National Science Foundation Research Experience for Undergraduates Scholarship, Western Michigan University

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FIELD AND LAB EXPERIENCE

- 2019 Assisted with research projects exploring the effects of intensity of agricultural land use in a Michigan LTER (Long Term Ecological Research) on insect abundance and species richness. Supervised technicians collecting and processing data in the field and lab, coordinated with land managers on a weekly basis to schedule field work around site maintenance. Designed and implemented a more efficient pitfall trapping system, identified nearly 200 ant specimens at the species level, conducted weekly butterfly surveys, pinned ant and beetle specimens for long-term preservation. Conducted plant surveys of recently installed prairie strips to identify and estimate abundance of more than 60 native and introduced species and assess establishment of sown seedlings. Ordered lab supplies, constructed field equipment for sampling both ground-dwelling and flying insects.
- 2015-2018 Conducted a Master's thesis project to determine the effects of urbanization on patterns of prevalence, diversity, and infection intensity of avian malaria and related parasites (Haemosporida). Target-captured 11 species of songbirds across an urbanization gradient in southwest Michigan using mist nets and song playback. Used GIS (with emphasis on spatial analysis) to quantify urbanization and other land use types at multiple spatial scales around sample sites. Collected data from more than 600 birds of 55 species, including wing chord, tarsus length, mass, sex, age, blood, fecal matter, and skin and buccal swabs. Extracted DNA from over 700 blood samples, screened for parasite DNA using PCR and electrophoresis, aligned and edited DNA sequences, and produced phylogenetic trees. Used fragment analysis to molecularly confirm bird sex for monomorphic species. Stained over 1000 avian blood smears using Diff-Quik and Giemsa techniques. Used oil immersion microscopy to count leukocytes, identify Haemosporidian parasites at the genus and species level, and quantify parasite loads from avian blood smears. Used R statistical software and packages to explore and plot data, calculate diversity indices and Chao2 species accumulation statistics, conduct t-tests, chi-squared tests, basic ANOVA and logistic regression analyses, apply principal components analysis, and run generalized linear mixed models.
- 2016-2018 Tested experimental treatment for naturally occurring white nose syndrome on little brown bats, tri-colored bats, and cave myotis in 8 mines across the Upper Peninsula of Michigan. Surveyed sites for any occurring bat species, including federally listed northern long-eared bats and Indiana bats. Banded bats and recaptured marked individuals in subsequent years. Organized supplies and equipment for each trip and supervised data collection in the field. Swabbed bat wing, uropatagium, and wall substrate for molecular assessment of fungal load. Compiled data and prepared several thousand samples for DNA extraction upon return. Worked with collaborators from other universities, Bat Conservation International, and DNR biologists.
PI: Dr. Maarten Vonhof, Dr. Timothy Carter (Ball State University)

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- 2015-2017 Aided in banding and annual recapture of House Wrens, collected physiological data (tarsus length, mass, fecal matter, blood, etc.) from adults and nestlings. Monitored reproductive success by checking networks of nest boxes for number of offspring and dates of egg laying, hatching, and fledging. Placed Wildlife Acoustics SM2 recording units for passive acoustic monitoring of wren communication networks.
PI: Dr. Sharon Gill (Western Michigan University)
- 2015 Supervised a field team recording vocalizations of male Chipping Sparrows as part of a long-term study to determine the effects of noise pollution on song traits. Monitored male territories, coordinated capture of recorded males, compiled and organized physiological and acoustic data. Used Marantz handheld recording units with shotgun microphones to record vocalizations from targeted males. Used Avisoft sound analysis software to extract song data from recordings.
PI: Dr. Sharon Gill
- 2014-2015 Managed a project in which little brown bats were experimentally infected with white nose fungus and a treatment was tested. Set up incubators, two types of data loggers with separate software, and 9 motion-sensitive cameras to collect data continuously over the course of the experiment. Regularly monitored rousing activity and mortality rate during a 6-month period of remote observation. Oversaw data collection and assisted with experimental infection and treatment at beginning of experiment and with wing imaging, tissue swabbing, and euthanization of bats at end of experiment. Extracted DNA from swabs for quantification of fungal load.
PI: Dr. Maarten Vonhof, Dr. Timothy Carter
- 2012, 2014 Assisted a graduate student in banding, recapturing, and monitoring a population of Chipping Sparrows during breeding season and recording male songs using Marantz hand-held recording units with shotgun microphones. Monitored reproductive success by locating nests and counting offspring.
PI: Dr. Sharon Gill
- Extracted and analyzed data from male Field Sparrow songs using Avisoft software. Wrote a guide to inform other students on protocol for proper data extraction from bird song. Organized, compiled, and maintained large datasets of physiological and acoustic data for both projects.
PI: Dr. Sharon Gill, Dr. Maarten Vonhof
- 2012-13 Assisted a graduate student in detecting, recording vocalizations, and swabbing the skin of gray treefrogs and spring peepers using Marantz hand-held recording units with shotgun microphones. Measured pH and dissolved oxygen levels of nearest body of water at each site.
PI: Dr. Sharon Gill

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TEACHING & ADVISING

- 2016-18 Trained four students to conduct leukocyte counts and identify parasites at the genus level from avian blood smears using oil immersion microscopy. Trained three students to extract and amplify DNA from blood. Trained one student to extract data from recordings of bird song using Avisoft software.
- 2016, 2018 Graduate Teaching Assistant for Tropical Biology (Belize), Western Michigan University –coordinated with professor, students, and staff at rainforest biological station, assisted in species identification in rainforest and on Caribbean coral reef, advised students as they designed and executed short-term field projects, graded projects and presentations, and provided care and support to students.
- 2016-17 Graduate Teaching Assistant for Ecology and Evolution, Western Michigan University – taught two lab sections per week, presented and explained material to diverse groups of students, communicated assignments and expectations on a weekly basis, wrote quizzes, graded lab reports and papers.
- 2015-17 Graduate Teaching Assistant for Biological Form and Function, Western Michigan University – held weekly office hours, answered course- and content-related questions, graded assignments, and held review sessions.
- 2015-2017 Trained students to set up mist nets for bird capture, identify target species by sight and sound, extract birds from nets, and handle and collect various data from birds, including nestlings.

PROFESSIONAL SKILLS

- Took two statistics courses at the Master’s level and have three years of experience coding in R.
- Proficient in Microsoft Word, Excel, Outlook, and PowerPoint.
- Attended a workshop in 2015 hosted by the Malaria Research Coordination Network where I received training in microscopic detection and identification of Haemosporida parasites, blood smear preparation and preservation, vertebrate blood collection methods, identification and collection of parasite life stages, insect vector field collection methods, and dissection and preparation of mosquitos to screen for parasite presence.
- Took two GIS courses and used ArcGIS software to map sites and extract land use data during my thesis project. Have extensive experience with the Spatial Analyst toolbox.
- Vaccinated for rabies.

VOLUNTEER

- 2019 Society of Women Engineers Corporate Engineering Challenge, Kalamazoo Air Zoo
- 2013, 2015 Regional Science Olympiad, hosted by Western Michigan University