Matthew T. Farr

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Education

Ph.D. candidate, Michigan State University
Department of Integrative Biology
Ecology, Evolutionary Biology, and Behavior Program;
Major Professor: Dr. Elise F. Zipkin
Graduate Committee: Dr. Kay E. Holekamp, Dr. Gary J. Roloff, & Dr. Andrew O. Finley
East Lansing, MI, expected May 2021 (GPA: 3.8/4.0)

B.S. in Wildlife, *With Distinction*, Purdue University,
Department of Forestry and Natural Resources,
West Lafayette, IN, 2014 (GPA: 3.8/4.0)

Research Experience

Graduate Research Assistant: Development of integrated, scalable hierarchical models (NSF RAPID, MSB:ECA, INTERN grants), Michigan State University, Patuxent Wildlife Research Center (Fall 2018-present)

Graduate Research Assistant: Gulf of Mexico marine assessment program for protected species (GoMMAPPS), Michigan State University (Spring 2018-Summer 2018)

Research Technician: The behavioral ecology and conservation of African carnivores (NSF International Research Experience for Students [IRES] Program), Michigan State University (2015)

Wildlife Technician: Assessing juvenile survival in Eastern Hellbenders (Indiana State Wildlife Grant Project), Purdue University (Fall 2014)

Biological Technician: Sierra Nevada carnivore monitoring program, United States Forest Service (2014)

Teaching Experience

Social Science Data Analytics Summer Workshop Series, Michigan State University
Guest Lecturer: Introduction to Bayesian software in R (Summer 2020)

IBIO 831: Statistical Methods in Ecology and Evolution, Michigan State University
Graduate Teaching Assistant and Guest Lecturer (Spring 2019, Spring 2020)

IBIO/African Graduate Student Association Short-course, Michigan State University
Guest Lecturer: Introduction to Data Management and Analysis for Biologists and Behavioral Scientists (Spring 2018)

IBIO 365: Biology of Mammals Laboratory, Michigan State University
Graduate Teaching Assistant (Spring 2017)

BS 171: Molecular and Cell Biology Laboratory, Michigan State University
Graduate Teaching Assistant (Fall 2016, Fall 2017)

FNR 210: Natural Resource Information Management, Purdue University
Undergraduate Teaching Assistant (Spring 2014)

Publications

Christensen, S.A., **Farr, M.T.**, and Williams, D.M. (*In Revision after Review*) Assessment and novel application of N-mixture models for aerial surveys of wildlife. Ecosphere.

Saunders, S.P., Piper, W., **Farr, M.T.**, Bateman, B.L., Michel, N.L., Westerkam, H., and Wilsey, C.B. (*In Revision after Review*) Interrelated impacts of climate and land-use change on an iconic waterbird. Journal of Animal Ecology.

Marshall, A.J., **Farr, M.T.**, Beaudrot, L., Zipkin, E.F., Feilen, K.L., Bell, L.G., Setiawan, E., Susanto, T.W., Setia, T.M., Leighton, M., and Wittmer, H.U. (*In Review*) Long-term fluctuations in orangutan dispersion along an elevation and productivity gradient. *Oikos*.

Zylstra, E.R., Ries, L., Neupane, N., Saunders, S.P., Ramírez, M.I., Rendón-Salinas, E., Oberhauser, K.S., **Farr, M.T.**, and Zipkin, E.F. (*In Review*) Changes in climate drive recent monarch butterfly dynamics. *Nature.*

Merow, C., Best, J., **Farr, M.T.**, Gardner, B., Jarzyna, M.A., Jetz, W., Yackulic, C.B., Zipkin, E.F., and Thorson, J. (*In Prep*) Integrating multiple biodiversity data types into species range models.

Farr, M.T., O'Brien, T., Yackulic, C.B., and Zipkin, E.F. (*In Prep*) Estimating demographic parameters in animal communities using detection-nondetection data with a 'multi-species N-occupancy model'.

Farr, M.T., Green, D.S., Holekamp, K.E., and Zipkin, E.F. (*In Press*) Integrating distance sampling and presence-only data to estimate species abundance. Ecology.

Farr, M.T., Green, D.S., Holekamp, K.E., Roloff, G.J., and Zipkin, E.F. (2019) Multi-species hierarchical modeling reveals variable responses of African carnivores to management alternatives. Ecological Applications. 29: e01845.

Green, D.S.[†], **Farr, M.T.**[†], Holekamp, K.E., Strauss, E.D., and Zipkin, E.F. (2019) Can hyena behavior predict abundances of sympatric carnivores? Philosophical Transactions of the Royal Society B. 347: 20180052. [†]*Authors contributed equally.*

Saunders, S.P., **Farr, M.T.**, Wright, A.D., Bahlai, C.A., Ribeiro, J.W., Rossman, S., Sussman, A.L., Arnold, T.W., and Zipkin, E.F. (2019) Disentangling data discrepancies with integrated population models. Ecology. 100: e02714.

Presentations

Farr, M.T., O'Brien, T., Yackulic, C.B., and Zipkin, E.F. (2020) Estimating demographic parameters in animal communities using detection-nondetection data with a 'multi-species N-occupancy model'. The Wildlife Society Annual Conference. Virtual. September 28 – October 2, 2020. (Contributed Oral)

Farr, M.T., Green, D.S., Holekamp, K.E., and Zipkin, E.F. (2019) Integrating distance sampling and presence-only data to estimate abundance. The Wildlife Society Annual Conference. Reno, NV. October 3, 2019. (Invited Oral)

Farr, M.T., Wilson, R.R., Sussman, A.L., Silverman, E.D., Lyons, J.E., and Zipkin, E.F. (2018) Impacts of offshore energy development, oceanographic features, and climate change on seabird distributions. Environmental Science and Policy Program Annual Symposium. East Lansing, MI. November 1, 2018. (Contributed Oral)

Farr, M.T., Green, D.S., Holekamp, K.E., Roloff, G.J., and Zipkin, E.F. (2018) Multi-species hierarchical modeling reveals variable responses of African carnivores to management alternatives. The Wildlife Society Annual Conference. Cleveland, OH. October 8, 2018. (Invited Oral)

Farr, M.T., Green, D.S., Holekamp, K.E., and Zipkin, E.F. (2018) Integrating distance sampling with presence only data. International Statistical Ecology Conference. St Andrews, UK. July 4, 2018. (Contributed Oral) **Awarded Best Student Presentation*

Farr, M.T. (2018) Integrated species distribution modeling. Michigan State University's EEBB Colloquium. East Lansing, MI. February 28, 2018. (Contributed Oral)

Farr, M.T., Green, D.S., Holekamp, K.E., Roloff, G.J., and Zipkin, E.F. (2017) A hierarchical community distance sampling model: case study of a carnivore community. Michigan State University's EEBB Symposium. East Lansing, MI. May 1, 2017. (Contributed Oral) **Awarded Best Student Presentation*

Farr, M.T., Green, D.S., Holekamp, K.E., and Zipkin, E.F. (2016) A community distance sampling model for estimating the distributions and abundances of carnivores in the Maasai Mara, Kenya. The Ecological Society of America's Annual Conference, Fort Lauderdale, FL. August 12, 2016. (Contributed Poster)

Honors and Awards

Michigan State University Ecology, Evolutionary Biology, and Behavior Distinguished Student Speaker (2021)

National Science Foundation INTERN Program Award (2019)

Michigan State University Environmental Science Policy Program Networking Fellowship (2018)

Michigan State University Environmental Science Policy Program Summer Research Fellowship (2018)

Michigan State University Ecology, Evolutionary Biology, and Behavior Summer Fellowship (2017)

National Science Foundation Graduate Research Fellowship Honorable Mention (2016)

Michigan State University Quantitative Biology Recruiting Fellowship (2015)

Indiana Academy of Science Senior Research Grant (2013)

Purdue University College of Agriculture Undergraduate Research Grant (2013)

Claude M. Gladden Memorial Fund Scholarship (2012-2013)

Gruel Memorial Endowment Scholarship (2013)

Martell Scholarship (2012)

Lloyd and Gene Sellers Scholarship (2011)

Graduate (and Other Relevant) Coursework

Introduction to Python (DataCamp), Introduction to Git (DataCamp), IBIO 851 Statistical Methods in Ecology and Evolution (MSU), IBIO 896 Population and Community Ecology (MSU), IBIO 849 Evolutionary Biology (MSU), FW 849 Bayesian Inference Monte Carlo (MSU), IBIO 801 Professional Development (MSU), MTH 309 Linear Algebra (MSU), PLB 898 Population and Community Ecology Theory Lab (MSU), IBIO 890 Reproducible Quantitative Methods (MSU), IBIO 890 Modern Statistical Models in Ecology (MSU), QFC (short-course) Software Tools for Maximum Likelihood Estimation (MSU), STAT 503 Statistical Methods in Biology (Purdue), BIOL 595 Ecological Statistics (Purdue), FNR 567 Advanced Mammalogy (Purdue), FNR 598 R and Bayesian Analysis in Ecology (Purdue), FNR 647 Quantitative Methods for Ecologists (Purdue)

Professional Society Memberships

The Wildlife Society
Ecological Society of America

Outreach Activities

Michigan State University Middle School Girls Math and Science Day (2018)