ADAM D. SMITH

As a Quantitative Ecologist with the United States Fish & Wildlife Service Inventory and Monitoring Program, I provide ecological inventory and monitoring design and analytical assistance to the roughly 130 National Wildlife Refuges. In addition, I engage in diverse partnerships with conservation and resource management agencies and organizations to support a research program built around modern quantitative tools and approaches to understand the ecology and conservation of migratory animals. Most of my active projects are collaborative and integrate digitally-coded telemetry or GPS logging technology to answer landscape and local scale questions relevant to conservation and management. I am an open science advocate.

EDUCATION

2013 — **Ph.D., Environmental Science (avian ecology focus)**
University of Rhode Island — Kingston, RI

- Thesis: Migration and stopover ecology of songbirds and bats along a major ecological barrier

2006 — **M.S., Raptor Biology**
Boise State University — Boise, ID

- Thesis: Exploring raptor migration using stable isotope analysis: the Northern Goshawk in western North America

2000 — **B.S., Wildlife Biology**
Murray State University — Murray, KY

PROFESSIONAL EXPERIENCE

2019 | 2015 — **Quantitative Ecologist**
U.S. Fish and Wildlife Service — Athens, GA

- Provide ecological, design, and analytical assistance to southeastern National Wildlife Refuges
- Build statistical models relevant to ecological research (e.g., occupancy models, hierarchical models)
- Develop methodologies and tools (e.g., R packages) that facilitate the synthesis and analysis of ecological data.
- Coordinate installation and maintenance of automated telemetry stations as part of the Motus Wildlife Tracking network

2015 | 2013 — **Postdoctoral Fellow**
University of Rhode Island — Kingston, RI

- Described spatiotemporal variation in the behavior and abundance of sea ducks in southern New England and developed novel statistical methodologies to predict animal distribution and abundance relative to environmental covariates
- Studied post-breeding and migratory movement ecology of migratory birds using automated telemetry

View this CV online with links at *adamdsmith.me/cv/cv.html*

CONTACT

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Google Scholar
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SKILLS

- R
- Digital telemetry
- Bird banding
- Data analysis
- GitHub
- Markdown

*Made with **pagedown**.*

*Source code on **github**.*

Last updated: 2019-12-10.

2008

Research Associate

University of Florida

- Generated probabilistic (Bayesian) models of songbird resource use based on the isotopic composition of avian tissues and potential food resources to document the extent of community-level diet shifts and the seasonal importance of different food resources to migratory songbirds

2007 | 2005

Avian Research Technician II/III

Kentucky Department of Fish and Wildlife Resources — Frankfort, KY

- Coordinated and implemented statewide Bald Eagle and Peregrine Falcon monitoring, two Monitoring Avian Productivity and Survivorship (MAPS) banding stations, migratory songbird banding, winter raptor surveys, and songbird banding training for staff and cooperators

PUBLICATIONS

2019

(under review) Linking monitoring and data analysis to predictions and decisions for the range-wide eastern Black Rail status assessment. Endangered Species Research.

2019

(under review) Actionable long-term monitoring for southeastern U.S. bat populations following White-nose Syndrome's western spread. Biological Conservation

2019

(in revision) Florida's strategic position for collaborative automated-telemetry tracking of avian movements across the Americas. Journal of Fish and Wildlife Management

2019

Modeling spatiotemporal abundance of mobile wildlife in highly variable environments using boosted GAMLSS hurdle models. *Ecology and Evolution* 9:2346-2364.

2018

Gradient boosting for distributional regression: faster tuning and improved variable selection via noncyclical updates. *Statistics and Computing* 28:673-687.

2017

Where's the Grass? Disappearing submerged aquatic vegetation and declining water quality in Lake Mattamuskeet. *Journal of Fish and Wildlife Management* 8:401-417.

2016

Bat activity during autumn relates to atmospheric conditions: implications for coastal wind energy development. *Journal of Mammalogy* 97:1565-1577.

2016 **Two seconds is all it takes: European starlings (*Sturnus vulgaris*) increase levels of circulating glucorticoids after witnessing a brief raptor attack. *Hormones and Behavior* 78:72-78**

2015 **Using land-based surveys to assess sea duck abundance and behavior in nearshore waters of southern New England, USA. *Waterbirds* 38:252-259**

2015 **What to do when stopping over: condition-dependent behavioral decisions of migrating songbirds. *Behavioral Ecology* 25:1423-1435**

2014 **Using nocturnal flight calls to assess the fall migration of warblers and sparrows along a coastal ecological barrier. *PLoS ONE* 9:e92218**

2014 **Fruit removal rate depends on neighborhood fruit density, frugivore abundance, and spatial context. *Oecologia* 174:931-942**

2013 **Birds select fruits with more anthocyanins during autumn migration. *Wilson Journal of Ornithology* 125:97-108**

2011 **A mass balance approach to identify and compare differential routing of 13^{C}-labeled carbohydrates, lipids, and proteins in vivo. *Physiological and Biochemical Zoology* 84:506-513**

2009 **Poor reproducibility and inference in hydrogen-stable-isotope studies of avian movement: A reply to Wunder et al. (2009). *Auk* 126:926-931**

2009 **Deuterium measurements of raptor feathers: does a lack of reproducibility compromise geographic assignment? *Auk* 126:41-46**

2008 **Intrafeather and intraindividual variation in the stable-hydrogen isotope (δD) content of raptor feathers. *Condor* 110:500-506**

2005 **Variation in the stable-hydrogen isotope composition of Northern Goshawk feathers: relevance to the study of migratory origins. *Condor* 107:547-558**

GRANTS

Asterisks (*) indicate I was integral to project development, design, and implementation, but not an official PI due to institutional policies.

2019 **Local and post-breeding movements of Painted Buntings associated with molt**

Carolina Bird Club

- co-PI with Aaron Given (Town of Kiawah Island, SC)
- $3,500

2018 ***Evaluating the use of autonomous recording units (ARUs) to survey Black Rails**

U.S. Fish & Wildlife Services

- PI Susan McRae (East Carolina University)
- $19,715

2017 ***Inventory and assessment of secretive marshbirds: using eDNA to determine occupancy with a focus on Eastern Black Rail and King Rail**

U.S. Fish & Wildlife Services

- PI Susan McRae (East Carolina University)
- $27,352

2016 ***Black Rail ecology to inform effective survey design and support population modelling**

U.S. Geological Survey

- PI Clint Moore (U.S. Geological Survey)
- $172,907

2016 **Secretive marsh bird surveys on southeastern National Wildlife Refuges**

U.S. Fish & Wildlife Services

- co-PI with Whitney Biessler (U.S. Fish & Wildlife Service)
- $92,700

2016 **Seasonal connectivity of MacGillivray's Seaside Sparrow**

U.S. Fish & Wildlife Services

- co-PI with Aaron Given (Town of Kiawah Island, SC)
- $11,750

2016 ***Seasonal connectivity of MacGillivray's Seaside Sparrrow**

Carolina Bird Club

- co-PI with Aaron Given (Town of Kiawah Island, SC)
- $4,800

2014 ***Automated telemetry monitoring of migratory birds**
U.S. Fish & Wildlife Services

- PI Scott McWilliams (University of Rhode Island)
- $7,426

2010 ***Acoustic monitoring of migrating bats and birds of Rhode Island National Wildlife Refuges**
U.S. Fish & Wildlife Services

- PI Scott McWilliams (University of Rhode Island)
- $33,038

2008 ***Rapid assessment of fruits available to songbirds during fall migration**
U.S. Fish & Wildlife Services

- PI Scott McWilliams (University of Rhode Island)
- $9,276

2002 ***Migratory connectivity: linking raptors to their breeding areas**
Idaho Department of Fish & Game

- PI Al Dufty (Boise State University)
- $17,900

2002 **Frank M. Chapman Memorial Research Grant**
American Museum of Natural History

2002 **E. Alexander Bergstrom Memorial Research Award**
Association of Field Ornithologists

INVITED TALKS

2016 **Southbound Merlin migration in southern New England and the mid-Atlantic (Automated telemetry symposium)**
North American Ornithological Conference — Washington, DC

- co-authored by S.R. McWilliams, R. Gray, and C. DeSorbo

2014 **Songbird migration and stopover dynamics along an ecological barrier**
Connecticut College — New London, CT

CONTRIBUTED TALKS

2016 **What is good quality habitat for migrating songbirds? A nutritional and physiological perspective**
North American Ornithological Conference — Washington, DC

- co-author with S.R. McWilliams, S.R., S. Smith-Pagano, L. Langlois, M. Skrip, and B. Pierce

2015 **Boosted zero-inflated negative binomial models for spatiotemporal abundance of sea birds**
International Workshop on Statistical Modelling — Linz, Austria
• co-author with B. Hofner

2015 **Spectating is stressful: witnessing two seconds of a predator attack increases levels of circulating glucocorticoids**
Society for Integrative and Comparative Biology — West Palm Beach, FL
• co-author with B.C. Jones, S.E. Bebus, and S.J. Shoech

2014 **Keeping fruit biochemistry in context: neighborhood influences on patterns of fruit consumption**
Wilson Ornithological Society — Newport, RI
• co-authored by S.R. McWilliams

2014 **Acoustic monitoring of migrating songbirds and bats in coastal Rhode Island**
Northeast Regional Migration Monitoring Network — Winter Harbor, ME

2013 **Coastal bat migration and weather: like the birds or for the birds**
Natural Resources Science Seminar, University of Rhode Island

2012 **What you don't know can't help you: linear mixed models in the environmental sciences**
Natural Resources Science Seminar, University of Rhode Island

2010 **Body condition influences the stopover decisions of a migratory songbird**
Natural Resources Science Seminar, University of Rhode Island

2009 **Inferring diets of migrating birds: are stable isotopes the answer?**
Natural Resources Science Seminar, University of Rhode Island

TEACHING EXPERIENCE

2018 **(Workshop) Motus wildlife tracking**
ACE Basin National Estuarine Research Reserve — Charleston, SC
• presented with N. Wallover and F. Sanders

2018 **(Workshop) Using the Motus wildlife tracking network to study avian migration pathways through the southeastern United States**
Association of Southeastern Biologists — Myrtle Beach, SC
• presented with K. Lefevre and S. Mackenzie

2016 **Raster Processing in R**
USFWS Geospatial Training Workshop — Shepherdstown, WV

2014 **Scientific Computing and Programming for Coastal Resource Management: Fundamental Concepts and Open Access Tools**
University of Rhode Island — Kingston, RI
• co-instructor with J. Hollister and P. August

2012 **Teaching Assistant, Wildlife Management Techniques**
University of Rhode Island — Kingston, RI
• Wildlife Management Techniques

2004 **Head Teaching Assistant, Human Anatomy and Physiology**
Boise State University — Boise, ID

2003 | 2001 **Teaching Assistant, Human Anatomy and Physiology**
Boise State University — Boise, ID

ADVISING

2020 **David Tilson, M.S. candidate committee member**
University of Georgia — Athens, GA

2011 **Sarah Donlan, Senior Honors Project**
University of Rhode Island — Kingston, RI

2011 **Undergraduate Natural Resources Science Research Apprenticeships (x2)**
University of Rhode Island — Kingston, RI

REFERENCES