




ADAM D. SMITH

As a Quantitative Ecologist with the [United States Fish & Wildlife Service Inventory and Monitoring Program](#), I provide varied ecological inventory and monitoring support, build statistical models relevant to this monitoring, and develop methods and tools to synthesize, analyze, and report on ecological data, with a responsibility to 130 southeastern 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.



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

EDUCATION






- | | |
|------|---|
| 2013 | Ph.D., Environmental Science
University of Rhode Island  Kingston, RI |
| | <ul style="list-style-type: none">• Thesis: Migration and stopover ecology of songbirds and bats along a major ecological barrier |
| 2006 | M.S., Raptor Biology
Boise State University  Boise, ID |
| | <ul style="list-style-type: none">• 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








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|-------------------|---|
| 2020

2015 | Quantitative Ecologist
U.S. Fish and Wildlife Service  Athens, GA |
| | <ul style="list-style-type: none">• 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 |
| 2019 | Contract analyst
Birds Canada  Athens, GA |
| | <ul style="list-style-type: none">• Provide visualization and analytical support for Red Knot movement data |

CONTACT

-  avianmigration@gmail.com
-  github.com/adamsmith
-  adamsmith.me
-  [Google Scholar](#)
-  [avianmigration](#)

SKILLS

-  R
-  Wildlife survey design
-  Digital telemetry
-  Bird banding (master)
-  Data analysis
-  GitHub
-  RMarkdown

Made with [pagedown](#).

Source code on [github](#).

Last updated: 2021-03-16.

2015
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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

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
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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

2021

Evans, KO, [AD Smith](#), and D Richardson. Statistical power of mobile acoustic monitoring to detect population change in southeastern U.S. bat species, a case study. *Ecological Indicators* 125: 107524.

2020

McGowan, CP, NF Angeli, WA Beisler, C Snyder, NM Rankin, JO Woodrow, JK Wilson, E Rivenbark, A Schwarzer, CE Hand, R Anthony, RK Griffin, K Barrett, AA Haverland, NS Roach, T Schneider, [AD Smith](#), FM Smith, JDM Tolliver, and BD Watts. Linking monitoring and data analysis to predictions and decisions for the range-wide eastern black rail status assessment. *Endangered Species Research* 43: 209-222.

2020

Lefevre, KL and [AD Smith](#). Florida's strategic position for collaborative automated-telemetry tracking of avian movements across the Americas. *Journal of Fish and Wildlife Management* 11: 369-375.

2019

[Smith, AD](#), B Hofner, JS Lamb, JE Osenkowski, T Allison, G Sadoti, SR McWilliams, and PWC Paton. Modeling spatiotemporal abundance of mobile wildlife in highly variable environments using boosted GAMLSS hurdle models. *Ecology and Evolution* 9:2346-2364.

2018

Thomas, J, A Mayr, B Bischl, M Schmid, [AD Smith](#), and B Hofner. Gradient boosting for distributional regression: faster tuning and improved variable selection via noncyclical updates. *Statistics and Computing* 28:673-687.

2017

Moorman, MC, T Augspurger, JD Stanton, and [AD Smith](#). 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 [Smith, AD](#) and SR McWilliams. Bat activity during autumn relates to atmospheric conditions: implications for coastal wind energy development. *Journal of Mammalogy* 97:1565-1577.
- 2016 Jones, BC, [AD Smith](#), SE Bebus, and SJ Shoeck. Two seconds is all it takes: European starlings (*Sturnus vulgaris*) increase levels of circulating glucocorticoids after witnessing a brief raptor attack. *Hormones and Behavior* 78:72-78
- 2015 [Smith, AD](#), SR McWilliams, KJ Winiarski, CL Trocki, B Harris, JE Osenkowski, and PWC Paton. Using land-based surveys to assess sea duck abundance and behavior in nearshore waters of southern New England, USA. *Waterbirds* 38:252-259
- 2015 [Smith, AD](#), and SR McWilliams. What to do when stopping over: condition-dependent behavioral decisions of migrating songbirds. *Behavioral Ecology* 25:1423-1435
- 2014 [Smith, AD](#), PWC Paton, and SR McWilliams. Using nocturnal flight calls to assess the fall migration of warblers and sparrows along a coastal ecological barrier. *PLoS ONE* 9:e92218
- 2014 [Smith, AD](#), and SR McWilliams. Fruit removal rate depends on neighborhood fruit density, frugivore abundance, and spatial context. *Oecologia* 174:931-942
- 2013 Bolser, JA, RR Alan, [AD Smith](#), L Li, N Seeram, and SR McWilliams. Birds select fruits with more anthocyanins during autumn migration. *Wilson Journal of Ornithology* 125:97-108
- 2011 McCue, MD, [AD Smith](#), R McKinney, B Rewald, B Pinshow, and SR McWilliams. 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 [Smith, AD](#), CA Lott, JP Smith, KC Donohue, S Wittenberg, KG Smith, and L Goodrich. Poor reproducibility and inference in hydrogen-stable-isotope studies of avian movement: A reply to Wunder et al. (2009). *Auk* 126:926-931
- 2009 [Smith, AD](#), CA Lott, JP Smith, KC Donohue, S Wittenberg, KG Smith, and L Goodrich. Deuterium measurements of raptor feathers: does a lack of reproducibility compromise geographic assignment? *Auk* 126:41-46
- 2008 [Smith, AD](#), KC Donohue, and AM Dufty. Intrafeather and intraindividual variation in the stable-hydrogen isotope (δD) content of raptor feathers. *Condor* 110:500-506
- 2005 [Smith, AD](#) and AM Dufty. Variation in the stable-hydrogen isotope composition of Northern Goshawk feathers: relevance to the study of migratory origins. *Condor* 107:547-558



SOFTWARE


- 2019 Fiske, I, R Chandler, D Miller, A Royle, M Kery, J Hostetler, R Hutchinson, [A. Smith](#), and K Kellner. unmarked: models for data from unmarked animals. R package version 0.12-3.







GRANTS

NOTE: asterisks (*) indicate integral contribution to project development, design, and implementation, but institutional policies prevented inclusion as a PI.

2019	Given, A, and <u>AD Smith</u>. Local and post-breeding movements of Painted Buntings associated with molt. \$3,500. Carolina Bird Club.
2018	*McRae, S. Evaluating the use of autonomous recording units (ARUs) to survey Black Rails. \$19,715. U.S. Fish and Wildlife Service.
2017	*McRae, S. Inventory and assessment of secretive marshbirds: using eDNA to determine occupancy with a focus on Eastern Black Rail and King Rail. \$27,352. U.S. Fish and Wildlife Service.
2016	*Moore, C, and R. Cooper. Black Rail ecology to inform effective survey design and support population modelling. \$172,907. U.S. Geological Survey.
2016	<u>Smith, AD</u>, and W Wiest. Secretive marsh bird surveys on southeastern National Wildlife Refuges. \$92,700. U.S. Fish and Wildlife Service.
2016	<u>Smith, AD</u>, and A Given. Seasonal connectivity of MacGillivray's Seaside Sparrow. \$11,750. U.S. Fish and Wildlife Service.
2016	*Given, A. Seasonal connectivity of MacGillivray's Seaside Sparrow. \$4,800. Carolina Bird Club.
2014	*McWilliams, SR. Automated telemetry monitoring of migratory birds. \$7,426. U.S. Fish and Wildlife Service.
2010	*McWilliams, SR. Acoustic monitoring of migrating bats and birds of Rhode Island National Wildlife Refuges. \$33,038. U.S. Fish and Wildlife Services.
2008	*McWilliams, SR. Rapid assessment of fruits available to songbirds during fall migration. \$9,276. U.S. Fish and Wildlife Service.
2002	*Dufty, A. Migratory connectivity: linking raptors to their breeding areas. \$17,900. Idaho Department of Fish and Game.

TEACHING

2020	(Workshop) R tools for a code-based data workflow USFWS Virtual Data Management Workshop	
	<ul style="list-style-type: none"> • presented with M. Cobb • Webinar recording 	
2018	(Workshop) Motus wildlife tracking ACE Basin National Estuarine Research Reserve	 Charleston, SC
	<ul style="list-style-type: none"> • 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
- 2004 **Head Teaching Assistant, Human Anatomy and Physiology**
Boise State University  Boise, ID
- 2003 **Teaching Assistant, Human Anatomy and Physiology**
Boise State University  Boise, ID
|
2001



INVITED TALKS

- 2016 **Smith AD, SR McWilliams, R Gray, and C DeSorbo. Southbound Merlin migration in southern New England and the mid-Atlantic (Automated telemetry symposium). North American Ornithological Conference**
- 2014 **Smith AD Songbird migration and stopover dynamics along an ecological barrier. Connecticut College.**



CONTRIBUTED TALKS

- 2020 **McWilliams, SR, A Smith, C Cooper-Mullin, and C Graham. Pump it up: how diet and body condition affect migratory movements of shorebirds and songbirds. North American Ornithological Conference.**
- 2020 **Lefevre, KL and AD Smith. The case for expanding automated telemetry efforts across the Caribbean. North American Ornithological Conference.**
- 2016 **McWilliams, SR, AD Smith, S Smith-Pagano, L Langlois, M Skrip, and B Pierce. What is good quality habitat for migrating songbirds? A nutritional and physiological perspective. North American Ornithological Conference.**
- 2015 **Hofner, B, and AD Smith. Boosted zero-inflated negative binomial models for spatiotemporal abundance of sea birds. International Workshop on Statistical Modelling.**
- 2015 **BC Jones, AD Smith, SE Bebus, and SJ Shoech. Spectating is stressful: witnessing two seconds of a predator attack increases levels of circulating glucocorticoids. Society for Integrative and Comparative Biology.**

- 2014 **Smith, AD**, and SR McWilliams. Keeping fruit biochemistry in context: neighborhood influences on patterns of fruit consumption. Wilson Ornithological Society.
- 2014 **Smith, AD**. Acoustic monitoring of migrating songbirds and bats in coastal Rhode Island. Northeast Regional Migration Monitoring Network.
- 2013 **Smith, AD**. Coastal bat migration and weather: like the birds or for the birds. University of Rhode Island.
- 2012 **Smith, AD**. What you don't know can't help you: linear mixed models in the environmental sciences. University of Rhode Island.
- 2010 **Smith, AD**. Body condition influences the stopover decisions of a migratory songbird. University of Rhode Island.
- 2009 **Smith, AD**. Inferring diets of migrating birds: are stable isotopes the answer? University of Rhode Island.



ADVISING

- 2021 **Forrest Wallace, M.S. committee member**
Florida Gulf Coast University Fort Myers, FL
- 2020 **David Tilson, M.S. 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