

# KAYLA L. DAVIS

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## EDUCATION

<b>Michigan State University, East Lansing, MI</b> <b>Ph.D., Integrative Biology and Ecology, Evolution, and Behavior</b> Dissertation: "From data to dynamics: data integration to estimate avian population and community dynamics" Advisor: Elise F. Zipkin	2018–2024
<b>Virginia Tech, Blacksburg, VA</b> <b>Master of Science, Department of Fish and Wildlife Conservation</b> Master's Thesis: "Behavioral and demographic effects of human activities and environmental factors on Roseate Tern parent-offspring interactions and hatch-year survival during the pre-migratory staging period at Cape Cod National Seashore, Massachusetts" Advisor: Sarah M. Karpanty	2014–2016
<b>Wake Forest University, Winston-Salem, NC</b> <b>Bachelor of Science, Biology, Cum Laude, Honors in Biology</b> Minor: Chemistry Honors Thesis: "Specificity of Trigeminal System Tolerance in Birds" Honors Advisor: David J. Anderson	2007–2011

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## ACADEMIC EXPERIENCE

<b>Postdoctoral Fellow, University of Saskatchewan</b> <i>Department of Biology</i> Advisor: Mitch D. Weegman	February 2024–Present
<b>Graduate Research Assistant, Michigan State University</b> <i>Department of Integrative Biology</i> Advisor: Elise F. Zipkin	2018–2023
<b>Graduate Research Assistant, Virginia Tech</b> <i>Department of Fish and Wildlife Conservation</i> Advisor: Sarah M. Karpanty	2014–2016
<b>Undergraduate Research Assistant, Wake Forest University</b> <i>Department of Biology</i> Advisor: David J. Anderson	2009–2011

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## TEACHING EXPERIENCE

### Teaching Assistant

<b>Applications in Biological Science Laboratory (virtual)</b> <i>Michigan State University, Center for Integrative Studies in Biology</i> <ul style="list-style-type: none"><li>Problem solving activities based on observation of biological systems and interpretation of data.</li><li>Taught three sections (~90 students total) of two-hour lecture/lab sessions. Each section consisted of a lecture followed by a groupwork activity.</li></ul>	Fall 2021
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## Principals of Fish and Wildlife Conservation

Fall 2015 & 2016

Virginia Tech, Department of Fish and Wildlife Conservation

- Basic principles, key people, agencies, and laws guiding science-based conservation and management of natural resources. Conservation and management of organisms and habitats examined at local and global scales in the context of ecological, sociological, and ethical theories and practices.

## Guest Lecture

### Ornithology

Spring 2024

Michigan State University, Department of Integrative Biology

- Lecture on principles of detection probability, point count methods and analysis, and nest searching and monitoring methods.

### Wildlife Field Techniques

Spring 2014 & 2015

Virginia Tech, Department of Fish and Wildlife Conservation

- Presented bird capture and handling techniques in a senior-level undergraduate Field Techniques course

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## PEER-REVIEWED PUBLICATIONS

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### Under Review

13. **Davis, K.L.**, R.B. Lanctot, S.T. Saalfeld, E.F. Zipkin. Evaluating environmental drivers and synchrony of Arctic shorebird demographic rates to inform conservation management. *Ecological Applications*. *In Review*.

### 2024

12. Latif, Q.S., J.J. Valente, A. Johnston, **K.L. Davis**, F.A. Fogarty, A.W. Green, G.M. Jones, M. Leu, N.L. Michel, D.C. Pavlacky Jr., E.A. Rigby, C.S. Rushing, J.S. Sanderlin, M.W. Tingley, Q. Zhao. Planning count-based studies in a world of hierarchical models. *The Journal of Wildlife Management* 88:e22622.
11. Gilbert, N.A., B.R. Amaral, O.M. Smith, P.J. Williams, S. Ceyzyk, S. Ayebare, **K.L. Davis**, W. Leuenberger, J.W. Doser, E.F. Zipkin. 2024. A century of statistical Ecology. *Ecology* 105(6): e4283.
10. Smith, O.M., **K.L. Davis**, R. Waterman, R.B. Pizza, C. Mack, E.E. Conway, K.C. Dobson, B. Foster, A.E. Hristova, J.C. Jarvey, N. Nourn, C.L. Davis. 2024. Journals must expand access to peer review data. *Trends in Ecology and Evolution* 39(4):311-314.

### 2023

9. Zipkin, E.F., J. Doser, C.L. Davis, W. Leuenberger, S. Ayebare, **K.L. Davis**. 2023. Integrated community models: A framework combining multi-species data sources to estimate the status, trends, and dynamics of biodiversity. *Journal of Animal Ecology* 92:2248-2262.
8. **Davis, K.L.**, S.P. Saunders, S. Beilke, E.R. Ford, J. Fuller, A. Landgraf, E.F. Zipkin. 2023. Breeding season management is unlikely to improve population viability of a data-deficient migratory species in decline. *Biological Conservation* 283:110104.
7. Smith, O.M., **K.L. Davis**, R.B. Pizza, R. Waterman, K.C. Dobson, B. Foster, J.C. Jarvey, L.N. Jones, W. Leuenberger, N. Nourn, E.E. Conway, C.M. Fiser, Z.A. Hansen, A. Hristova, C. Mack, A.N. Saunders, O.J. Utley, M.L. Young, C.L. Davis. 2023. Peer review perpetuates barriers for historically excluded groups. *Nature Ecology and Evolution* 7:512-523.

### 2022

6. **Davis, K.L.**, E. D. Silverman, A. L. Sussman, R. R. Wilson, E. F. Zipkin. 2022. Errors in aerial survey count data: Identifying pitfalls and solutions. *Ecology and Evolution* 12:e8733.

## 2019

5. **Davis, K.L.**, S.M. Karpanty, J.A. Spendelow, J.B. Cohen, M.A. Althouse, K.C. Parsons, C.F. Luttazi. 2019. Residency, recruitment, and staging duration of hatch-year roseate terns (*Sterna dougallii*) during the pre-migratory staging period. *Avian Conservation and Ecology* 14(2):11.
4. **Davis, K.L.**, S.M. Karpanty, J.A. Spendelow, J.B. Cohen, M.A. Althouse, K.C. Parsons, C.F. Luttazi. 2019. Begging behavior as an honest signal of need and parent-offspring association during the post-fledging dependency period. *Ecology and Evolution* 9(13):7497–7508.

## 2018

3. Althouse, M.A., J. Cohen, S. M. Karpanty, J.A. Spendelow, **K. L. Davis**, K.C. Parsons, C.F. Luttazi. 2018. Evaluating response distances to develop buffer zones for staging terns. *The Journal of Wildlife Management* 83:260–271.

## 2017

2. **Davis, K.L.**, K.L. Schoenemann\*, D.H. Catlin, K.L. Hunt, M.J. Friedrich, S.J. Ritter, J.D. Fraser, and S.M. Karpanty. 2017. Hatch-year Piping Plover (*Charadrius melodus*) prospecting and habitat quality influence second-year nest-site selection. *The Auk: Ornithological Advances* 134:92–103. **\*Undergraduate advisee**

## 2016

1. Althouse, M.A., J. Cohen, J.A. Spendelow, S. M. Karpanty, **K. L. Davis**, K.C. Parsons, C.F. Luttazi. 2016. Quantifying the effects of research band resighting activities on staging terns in comparison to other disturbances. *Waterbirds* 39:417– 421.

## In preparation:

- **Davis, K.L.**, Davis, C.L., R.B. Lanctot, S.T. Saalfeld, E.F. Zipkin. Multi-species integrated models: an approach for estimating species-level demographic rates and population abundance for communities. *In preparation for Methods in Ecology and Evolution*.

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## FELLOWSHIPS AND SCHOLARSHIPS

<b>TWS Biometrics Working Group Travel Award</b> <i>The Wildlife Society (TWS)</i>	Fall 2023
<ul style="list-style-type: none"><li>• \$850 awarded for travel to the 2023 TWS conference in Louisville, KY</li></ul>	
<b>Dissertation Completion Fellowship</b> <i>Michigan State University Graduate School</i>	Fall 2023
<ul style="list-style-type: none"><li>• \$10,000 awarded to support dissertation writing</li></ul>	
<b>American Ornithological Society Travel Award</b> <i>American Ornithological Society (AOS)</i>	Summer 2023
<ul style="list-style-type: none"><li>• \$561 awarded to help fund travel to London, Ontario for the 2023 AOS conference.</li></ul>	
<b>Wallace Scholarship Award</b> <i>Michigan State University, Integrative Biology Department</i>	Spring 2022
<ul style="list-style-type: none"><li>• \$4,400 awarded to continue dissertation research on bird population dynamics.</li></ul>	
<b>Early Start Fellowship</b> <i>Michigan State University Graduate School</i>	Summer 2018
<ul style="list-style-type: none"><li>• \$6,000 awarded to begin the Ph.D. program in the Integrative Biology Department at Michigan State University.</li></ul>	
<b>North American Ornithological Conference Student Travel Award</b> <i>American Ornithologists Union</i>	Summer 2016
<ul style="list-style-type: none"><li>• \$145 awarded to support travel to the North American Ornithological Conference in Washington D.C.</li></ul>	

- Roanoke Valley Bird Club Scholarship** Spring 2015  
*Virginia Tech, Department of Fish and Wildlife Conservation*
- \$930 awarded for academic and professional achievement in wildlife biology and conservation.
- Robert L. Sullivan Scholarship** Summer 2009 and Spring 2011  
*Wake Forest University, Department of Biology*
- \$2,000 awarded in summer 2009 for undergraduate students with the desire to pursue biological studies outside of the classroom.
  - \$400 awarded in spring 2011 to assist with travel expenses to St. Pete Beach, Florida for a presentation at the AChemS (Association for Chemoreception Sciences) national meeting.
- Wake Forest Undergraduate Research Fellowship** Summer 2010  
*Wake Forest University*
- \$4,380 in funding and stipends to pursue an independent research project under the guidance of mentor professor, Dave Anderson.

## AWARDS AND HONORS

- Best Student Presentation Award** November 2021  
*Waterbirds Society Conference*
- Outstanding Master's Student Award** Spring 2017  
*Virginia Tech, College of Natural Resources and Environment*
- Harold E. Burkhart Outstanding Master's Student Award** Spring 2017  
*Virginia Tech, Fish and Wildlife Conservation Department*

## INVITED PRESENTATIONS

- Davis, K. L.,** R. B. Lanctot, S. T. Saalfeld, E. F. Zipkin. Evaluating environmental drivers of semipalmated sandpiper demographic rates to inform conservation management. August 2024. Invited talk for a symposium on Semipalmated Sandpiper ecology and management at the Western Hemisphere Shorebird Group Conference, Sackville, New Brunswick, CA.
- Davis, K. L.** Addressing sources of error in aerial data: what are common pitfalls and solutions. June 2024. Invited presentation for Ungulate Monitoring Methods Workshop presented remotely for Alberta Environment and Parks.
- Davis, K. L.** From data to dynamics: building blocks for understanding bird populations. November 2021. Invited seminar for Biology Symposium Series at Andrews University, Berrien Springs, MI.
- Davis, K. L.,** M. T. Farr, R. R. Wilson, E. D. Silverman, A. L. Sussman, J. E. Lyons, E. F. Zipkin. Optimizing aerial survey design: pitfalls and progress. June 2019. Invited talk for symposium session entitled, "Counting unmarked birds: matching appropriate sampling and modeling techniques with particular research questions" at the American Ornithological Society Conference, Anchorage, AK.

## OTHER PRESENTATIONS

- Davis, K. L.,** R.B. Lanctot, S.T. Saalfeld, E.F. Zipkin. Evaluating environmental drivers and synchrony of Arctic shorebird species dynamics to inform conservation management. November 2023. Oral presentation at The Wildlife Society Conference, Louisville, KY.

**Davis, K. L.**, S.P. Saunders, S. Beilke, E.R. Ford, J. Fuller, A. Landgraf, E.F. Zipkin. Breeding season management is unlikely to improve population viability of a data-deficient migratory species in decline. August 2023. Oral presentation at the American Ornithological Society Conference, London, ON, CA.

**Davis, K. L.**, S.P. Saunders, S. Beilke, E.R. Ford, J. Fuller, A. Landgraf, E.F. Zipkin. Breeding season management is unlikely to improve population viability of a data-deficient migratory species in decline. May 2023. Oral presentation at the Michigan State University Ecology, Evolutionary Biology, and Behavior Symposium, East Lansing, MI.

**Davis, K. L.**, R. R. Wilson, E. D. Silverman, E. F. Zipkin. The way we count counts: using waterbird data to investigate the effects of counting error on abundance estimates. November 2021. Oral presentation given at the Waterbirds Society Meeting, virtual. **\*Awarded Best Student Presentation\***

**Davis, K. L.**, R. R. Wilson, E. D. Silverman, A.L. Sussman, J. E. Lyons, E. F. Zipkin. Flock counting error in aerial seabird surveys. June 2020. Oral presentation given at the International Statistical Ecology Conference, virtual.

**Davis, K. L.**, R. R. Wilson, A. L. Sussman, E. D. Silverman, J. E. Lyons, E. F. Zipkin. GoMMAPPS Aerial Survey Update. September 2019. Oral presentation given at a regional planning meeting for the Gulf of Mexico Marine Assessment Program for Protected Species, Lafayette, LA.

**Davis, K. L.**, M. T. Farr, R. R. Wilson, E. D. Silverman, A. L. Sussman, J. E. Lyons, E. F. Zipkin. Optimizing aerial survey design: pitfalls and progress. April 2019. Oral presentation at the Michigan State University Ecology, Evolutionary Biology, and Behavior Symposium, East Lansing, MI.

**Davis, K.L.**, S.M. Karpanty, J.A. Spendelow, J.B. Cohen, M.A. Althouse, K.C. Parsons, C.F. Luttazi. Behavior and demography of hatch-year Roseate Terns at a major tourist destination during the pre-migratory staging period. August 2017, Oral presentation at the American Ornithological Society Conference, East Lansing, MI.

**Davis, K.L.**, S.M. Karpanty, J.A. Spendelow, J.B. Cohen, M.A. Althouse, K.C. Parsons, C.F. Luttazi. Family Matters: Begging as an Honest Signaling Mechanism in hatch-year Roseate Terns (*Sterna dougallii*). September 2016. Oral presentation at the Waterbirds Conference, New Bern, NC.

**Davis, K.L.**, S.M. Karpanty, J.A. Spendelow, J.B. Cohen, M.A. Althouse, K.C. Parsons, C.F. Luttazi. Hatch-year Roseate Tern (*Sterna dougallii*) Behavioral Response to Human and Non-human Disturbance at Pre-Migratory Staging Grounds. August 2016. Oral presentation at the North American Ornithological Conference (NAOC), Washington D.C.

**Davis, K.L.** and S.M. Karpanty. Assessing the behavioral and demographic effects of disturbance on hatch-year roseate terns at Cape Cod National Seashore, MA. January 2016. Poster presented at the Atlantic Coast Piping Plover and Least Tern Working Group Meeting, Shepardstown, WV.

**Davis, K.L.** and S.M. Karpanty. Behavior and weekly residency of hatch year roseate terns during the staging period at Cape Cod National Seashore, Massachusetts. November 2015. Oral presentation at the Roseate Tern Recovery Team Meeting, Westborough, MA.

Althouse, M.A. and **K.L. Davis**. = Effects of disturbance at the Cape Cod National Seashore on the federally endangered roseate tern. August 2015. Oral presentation at the Massachusetts Coastal Waterbird Cooperators Meeting, Hyannis, MA.

**Davis, K.L.** and S.M. Karpanty. Behavioral and demographic effects of disturbance on juvenile roseate tern at Cape Cod National Seashore, Massachusetts. March 2015. Oral presentation at the Virginia Tech Graduate Student Research Assembly Symposium, Blacksburg, VA.

**Davis, K.L.** and S.M. Karpanty. Assessing the behavioral and demographic effects of human activities and natural events on roseate tern parents and hatch-years during the pre-migratory staging period at Cape Cod National Seashore, Massachusetts. November 2014. Oral presentation at the Roseate Tern Recovery Team Meeting, Hadley, MA.

Althouse, M.A. and **K.L. Davis**. Importance of Cape Cod National Seashore to staging roseate terns. August 2014. Oral presentation at the Massachusetts Coastal Waterbird Cooperators Meeting, Hyannis, MA.

**Davis, K.L.**, D.H. Catlin, K.L. Hunt, M.J. Friedrich, J.D. Fraser, S.M. Karpanty. Know place like the home place: juvenile prospecting behavior in piping plovers. March 2014. Oral presentation at the Missouri River Natural Resources Conference and Biological Opinion Forum, Nebraska City, NE.

**Davis, K.L.**, D.J. Anderson, and W.L. Silver. Specificity of chemical irritant tolerance in birds. April 2011. Poster presented at the Association for Chemoreception Sciences Society (AChemS) national meeting, St. Pete Beach, FL.

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## SERVICE & PUBLIC OUTREACH

### Editorial Service

**Peer reviews:** *Avian Conservation and Ecology* (2), *Biological Conservation* (1), *Ecology* (1), *Ecosphere* (1), *Ecological Research* (2), *Journal of Applied Ecology* (2), *Journal of Coastal Research* (2), *Journal of Field Ornithology* (2), *Journal of Wildlife Management* (2), *Oikos* (2), *Ornithological Applications* (4), *PeerJ* (1), *The Wilson Journal of Ornithology* (1)

### University and Society Service

**Statistics Consultant with the TWS Biometrics Working Group** November 2023  
*The Wildlife Society Annual Conference, Louisville, Kentucky*

**Research Symposium Chair** 2022–2023  
*Ecology, Evolution, and Behavior Program, Michigan State University*

**President** 2021–2022  
*Ecology, Evolution, and Behavior Program Graduate Group, Michigan State University*

**Social Chair** 2014–2015  
*Fish and Wildlife Conservation Department Graduate Group, Virginia Tech*

### Outreach

Science Fair Volunteer Mentor. Fall and Winter 2020. BioScience Careers Program at Wilson Talent Center, Michigan.

Girls Math and Science Day (GMSD) at Michigan State University. March 2019. Presented an activity at GMSD entitled “Math and Monarchs,” where students interacted with a Shiny app built by the Zipkin lab to understand monarch butterfly population dynamics.

**Davis, K.L.** All birds need a place to rest: Importance of stopover sites and staging grounds. November 2015. Educational presentation for the Roanoke Valley Bird Club, Roanoke, VA.

Althouse, M.A. and **K.L. Davis**. Effects of disturbance at the Cape Cod National Seashore on the federally endangered roseate tern. August 2015. Educational presentation at the Science at the Seashore Symposium, Eastham, MA.

**Davis, K.L.** All birds need a place to rest: Importance of stopover sites and staging grounds. July 2015. Educational presentation for the Friends of the Assabet River National Wildlife Refuge, Sudbury, MA.

Graduate Student Panel Discussion. February 2015. Participated as a graduate student panel member at a meeting of the Virginia Tech chapter of The Wildlife Society to discuss graduate school and post-graduation employment options for undergraduate students.

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## FIELD & LAB WORK EXPERIENCE

**Aerial Bird Survey Crew Member** February 2020  
*U.S. Fish and Wildlife Service, Gulf of Mexico, USA*

**Marbled Murrelet Field Technician** April 2017–August 2017  
*Oregon State University, Corvallis, OR*

<b>St. Thomas Roseate Tern Annual Census Participant</b> <i>U.S. Virgin Islands Fish and Wildlife Service, USVI</i>	May 2016
<b>Great Gull Island Tern Bander and Census Participant</b> <i>American Museum of Natural History, Great Gull Island, NY</i>	Summer 2014–2016
<b>Piping Plover and Least Tern Field Crew Leader</b> <i>Virginia Tech Shorebird Program, Vermillion, SD</i>	April 2013–August 2013
<b>Piping Plover and Least Tern Field Technician</b> <i>Virginia Tech Shorebird Program, Vermillion, SD</i>	April 2012–August 2012
<b>Laboratory Assistant</b> <i>Wake Forest University, Winston- Salem, NC</i>	Fall 2009–May 2011

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## AFFILIATIONS

American Ornithological Society	2015–Present
The Wildlife Society	2022–Present
Ecological Society of America	2024–Present