

Sarah K. Winnicki

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EDUCATION

PhD candidate (Program in Ecology, Evolution, & Conservation Biology) *in progress*, University of Illinois at Urbana-Champaign, Aug 2019-present
Intraspecific variation in avian growth and development: patterns and mechanisms
Co-advisors: Dr. T.J. Benson and Dr. Mark E. Hauber

MSc (Biology), Kansas State University, 2019 (4.0)
with a Graduate Certificate in Applied Statistics
Growing up prairie: ecological drivers of grassland songbird nestling development
Advisor: Dr. W. Alice Boyle

BSc (Biology), Denison University, 2016, *Summa cum laude*, co-valedictorian (4.0)
*Aggregation of Grasshopper Sparrow (*Ammodramus savannarum*) territories: effects on extra-pair copulation, cooperative care, and brood parasitism*
Co-advisors: Dr. W. Alice Boyle (Kansas State University) and Dr. Thomas Schultz (DU)

BA (History), Denison University, 2016
The ideals of female sanctity in Merovingian and Carolingian vitae
Advisor: Dr. Adam Davis (DU)

PUBLICATIONS

7. J.S. Marshall and **S.K. Winnicki**. 2022. Knemidokoptic mite infestation of island populations of Red-winged Blackbirds (*Agelaius phoeniceus*). *Wilson Journal of Ornithology* 134(1): 119-123. doi: 10.1676/21-00008.
6. **S.K. Winnicki**, M.E. Hauber, T.J. Benson, and M. Abolins-Abols. 2022. Ground-nesting by arboreal American robins (*Turdus migratorius*). *Ecology and Evolution* 12 (1), e8489. doi: 10.1002/ece3.8489.
5. B.H.F. Verheijen, A.N. Erickson, W.A. Boyle, K.S. Leveritte, J.L. Sojka, L.A. Spahr, C.C. Then, E.J. Williams, **S.K. Winnicki**, and B.K. Sandercock. 2022. Predation, parasitism, and drought counteract the benefits of patch-burn grazing for the reproductive success of grassland songbirds. *Ornithological Applications*, duab066. doi: 10.1093/ornithapp/duab066.
4. S.L. Lawson, J.K. Enos, C.S. Wolf, K. Stenstrom, **S.K. Winnicki**, T.J. Benson, M.E. Hauber, and S.A. Gill. 2021. Referential alarm calling elicits future vigilance in a host of an avian brood parasite. *Biology Letters*. 17(9): 20210377. doi: 10.1098/rsbl.2021.0377.

3. M.E. Hauber, **S.K. Winnicki**, J.P. Hoover, D. Hanley, and I.R. Hays. 2021. The limits of egg recognition: Testing the acceptance thresholds of American robins in response to decreasingly egg-shaped objects in the nest. *Royal Society Open Science*. 8(1): 201615. doi: 10.1098/rsos.201615.
2. **S.K. Winnicki**, B.M. Strausberger, J. Lock, N.D. Antonson, D.E. Burhans, A.M. Kilpatrick, and M.E. Hauber. 2021. Developmental asynchrony and host species identity predict variability in nestling growth rates of an obligate brood parasite: a test of the “growth-tuning” hypothesis. *The Canadian Journal of Zoology*. 99(3): 213-220. doi: 10.1139/cjz-2020-0147.
1. **S.K. Winnicki**, S.M. Munguía, E.J. Williams, and W.A. Boyle. 2020. Social interactions do not drive territory aggregation in a grassland songbird. *Ecology* 101: e02927. doi: 10.1002/ecy.2927.

E.B. Smith, A. Roe, K. Silber, E.J. Williams, **S.K. Winnicki**, and W.A. Boyle. Consequences of drought for grassland songbird reproduction. *In revision for Ecosphere*.

S.K. Winnicki, M.E. Hauber, R.T. Paitz, and T.J. Benson. Different light exposure affects Japanese Quail (*Coturnix japonica*) yolk steroid concentrations during development but not embryonic growth. *In revision following review with Physiological and Biochemical Zoology*.

K. Kuangyi, M.R. Servedio, **S.K. Winnicki**, C. Moskat, J. Hoover, A. Turner, and M.E. Hauber. Host learning selects for coevolution of greater egg-mimicry and narrower anti-parasitic egg-rejection thresholds. *In review for Evolution Letters*.

S.K. Winnicki, M.E. Hauber, R.T. Paitz, W.M. Schelsky, and T.J. Benson. The injection of testosterone and androstenedione during pre- and mid-embryonic development produces little variation in Japanese Quail (*Coturnix japonica*) embryo size. *In prep (awaiting coauthor comments on full draft) for General and Comparative Endocrinology*.

S.K. Winnicki and W.A. Boyle. Host-dependent effects of brood parasitism, predation risk, and brood size on growth variation in developing grassland songbirds. *In prep for Functional Ecology*.

SCHOLARSHIPS & FELLOWSHIPS

Francis M. and Harlie M. Clark Summer Fellowship , UIUC SIB, \$5,100.	2022
Illinois Distinguished Fellowship , UIUC Graduate College, \$75,000.	2019-2024
Graduate Research Fellowship , National Science Foundation, \$132,000.	2016-2019
NSF Research Experience for Undergraduates (REU) , Kansas State, \$5000.	2015
Kenneth I. Brown Scholarship , Denison University, \$2000.	2015
Allen Price Memorial Scholarship , Denison University, \$1000.	2015
NSF Research Experience for Undergraduates (REU) , Kansas State, \$5000.	2014
Anderson Scholarship for Excellence in Science , Denison University, \$89,340.	2014-2016
Research Experience for Undergraduates (REU) , Ohio State University (Stone Lab).	2013
Paschal Carter Scholarship , Denison University, \$160,000.	2012-2014

RESEARCH GRANTS

Student Research Grant , Illinois Audubon Society, \$1000	2022
Summer Research Grant , UIUC PEEC, \$2000.	2022
Summer Research Grant , UIUC PEEC, \$2000.	2021
Lebus Research Award , UIUC SIB, \$1000.	2021

Dissertation Travel Grant , UIUC Graduate College, for research travel, \$2,474.42.	2020
Summer Research Grant , UIUC PEEC, \$1000.	2020
Harley J. Van Cleave Research Award , UIUC SIB, \$1000.	2020
Student Research Grant , KSU Biology Graduate Student Association, \$500.	2018
FOSZ Conservation Scholarship , Friends of the Sunset Zoo (Kansas) \$2000.	2018
Grant-in-Aid of Research , Sigma Xi, \$1000.	2017
Howard McCarley Award , Southwestern Association of Naturalists, \$1000.	2017
Gilpatrick Center Student Research Grant , Denison University, \$200.	2015
Gilpatrick Center Student Research Grant , Denison University, \$500.	2014
Student Research Grant , Kansas Ornithological Society, \$600.	2014
Horizon Fund Grant , Denison University Division of Student Development, \$1000.	2014
Great Opportunities Fellowship , Denison University, \$3000.	2013

ACADEMIC AWARDS & HONORS

Recognition of Achievement , Kansas State College of Arts and Sciences	2019
President's Medal , for achievement, service, and leadership, Denison University	2016
William T. Utter Prize , for best year-long history thesis, Denison University	2016
Michael and Amy Gordon Award in European History , Denison University	2016
A. Blair Knapp Award for academic achievement, Denison University	2016
Senior Fellow , Denison University Biology Department	2016
Sigma Xi Associate Membership , sponsored by the Denison Biology Department	2016
Phi Beta Kappa , academic achievement honorary, Denison University	2015
Margaret Ann Watkins Award for achievements in biology, Denison University	2015
Mortar Board , for academic achievement and service, Denison University	2015-2016
Carolyn Craig & Carl M. Franklin Student Service Award , Denison University	2014
Department Fellow , Denison University History Department	2014-2016
Phi Alpha Theta , history honorary, Denison University	2014-2016
Dean's List , Denison University, all semesters	2012-2016
National Merit Scholar	2012-2016

CONFERENCE TRAVEL AWARDS

Student Travel Award , Wilson Ornithological Society, \$700.	2022
Student Travel Award , UIUC Graduate College, \$325.	2019
PEEC Travel Grant , UIUC School of Integrative Biology, \$700.	2019
Student Travel Award , American Ornithological Society, \$580.	2019
Bruce Steward Travel Award , Southwestern Association of Naturalists, \$542.	2019
Student Travel Award , Kansas State University Graduate Student Council, \$675.	2018
Student Travel Award , Kansas State University College of Arts & Sciences, \$800.	2018
Student Travel Award , American Ornithological Society, \$300.	2018
Student Travel Award , Wilson Ornithological Society, \$170.	2016
Student Travel Award , Wilson Ornithological Society, \$1112.75.	2015

CONFERENCE PRESENTATIONS

- **Wilson Ornithological Society**, Santa Fe NM (oral in-person with virtual component): 2022
Laying order, incubation behavior, and hatching synchrony in American Robins (*Turdus migratorius*).
- **Animal Behavior Twitter Conference** (virtual); **American Ornithological Society** (virtual): 2021
Egg-laying order, maternal effects, and embryonic growth in American Robins.
- **North American Ornithological Conference**, virtual (poster); **Animal Behavior Society**, 2020
virtual (oral): Maternal hormone investment does not match embryonic growth rate in quail.
- **American Ornithological Society**, Anchorage AK (oral): Direct effects of Brown-headed 2019
Cowbird (*Molothrus ater*) brood parasitism on the growth and development of grassland songbirds.
- **Southwestern Association of Naturalists**, Chihuahua City Mexico (oral): Direct effects of 2019
Brown-headed Cowbird (*Molothrus ater*) brood parasitism on the growth and development of grassland songbirds/ Efectos directos del parasitismo de cria por el vaquero de cabeza castaña (*Molothrus ater*) en el crecimiento y desarrollo de aves cantores de pastizales.
- **Kansas Ornithological Society**, Lawrence KS (oral); **International Ornithological 2018
Congress**, Vancouver BC Canada (poster): Direct effects of Brown-headed Cowbird (*Molothrus ater*) brood parasitism on the growth and development of grassland songbirds
- **American Ornithological Society**, Tucson AZ (oral); **Kansas Natural Resources 2018
Conference**, Manhattan KS (oral): The effects of Brown-headed Cowbird brood parasitism on the growth and development of grassland songbirds.
- **Kansas Ornithological Society**, Junction City KS (oral): The role of brood parasitism in 2017
shaping nestling growth and development strategies: preliminary results.
- **American Ornithological Society/Society of Canadian Ornithologists/SOC**, East Lansing 2017
MI (poster); **Kansas Natural Resources Conference**, Wichita KS (poster): Complex drivers of Grasshopper Sparrow (*Ammodramus savannarum*) nest success.
- **Kansas Ornithological Society**, Garden City KS (oral); **North American Ornithological 2016
Conference**, Washington DC (oral): Causes of Grasshopper Sparrow (*Ammodramus savannarum*) density variation: parasitism, cooperative care, and extra-pair paternity.
- **Ohio Avian Research Conference**, Granville OH (oral); **American Ornithologists' 2015
Union/Cooper Ornithological Society**, Norman OK (oral); **WOS/SCO-SOC/AFO**, Wolfville NS Canada (oral): Aggregation of Grasshopper Sparrow (*Ammodramus savannarum*) territories: effect of extra-pair paternity, cooperative care, and kinship.
- **Ohio Avian Research Conference**, Granville OH (oral): Aggregation of Grasshopper 2014
Sparrow (*Ammodramus savannarum*) territories: a test of the extra pair mating and cooperative care hypotheses.
- **Wilson Ornithological Society/Association of Field Ornithologists**, Newport RI (poster); 2014
Ohio Avian Research and Conservation Conference, Granville OH (oral and poster): 2013
Population biology of the Red-winged Blackbirds on the Lake Erie islands.

SERVICE AND LEADERSHIP

Board Chair , (previously Web Manager) Rainbow Lorikeets (American Ornithology Society and Out to Innovate LGBTQIA+ caucus)	2022-present
-led initiatives to expand the Board, build a Lorikeets Community email listserv and (upcoming) Discord space, connect with other ornithological societies to build a broader queer ornithology community, generate discussion with #QueerOrnithology Twitter conversations, educate community members about the needs of queer ornithologists (writing an upcoming blog post for AOS's Wing Beat and Ornithology Exchange), plan social events at conferences; ran the Lorikeets' Twitter, doubling the presence of the caucus on the site in 6 weeks; organized and led monthly Board meetings	
Peer reviewer for scientific manuscripts in: Journal of Field Ornithology, Journal of Animal Ecology, Animal Cognition, Ibis, Western Birds	2018-2022
Web Manager , Graduates in Ecology and Evolution society, UIUC	2020-2021
-managed the GEEB Twitter account, blog, website, and emailing listserv	
Social Media Manager for the Sensorium (sensory biology) conference	2019
Web Manager and Reviewer , Science Snapshots research blog	2018-2019
Contributor to the creation of K-State Biology's first Diversity Statement	2018
Secretary , Kansas State University Biology Graduate Student Association	2016-2017
Committee Member , Kansas State University Biology Graduate Student Association: Faculty Awards Committee and Manual Sales Committee	2016-2018
Treasurer , Denison University chapter of Phi Alpha Theta (history honorary)	2014-2015
Corresponding Secretary and Editor , Cleveland's (Ohio) Kirtland Bird Club	2013-2015
-maintained membership lists, produced the Kirtland Warbler quarterly newsletter	
Secretary , Denison University Hillel	2013-2015
President , and (previously Secretary) of the Denison University Quadball Team	2014-2016
Youth Advisory Board Panel , Ohio Young Birders Club	2009-2012
-led field trips, managed student-led publications, planned outreach projects, hosted conferences, consulted with community leaders (like the Governor of Ohio) on conservation projects	

TEACHING AND MENTORING EXPERIENCE

Mentoring:

- Co-mentored (with M.E. Hauber) an independent undergraduate researcher studying robin parental care: A. Pelayo (UIUC)	2022-present
- Co-mentored (with W.A. Boyle) an independent undergraduate researcher writing a manuscript on prairie snake behavior: D. Stockman (Kansas State)	2019-2020
- Co-mentored (with W.A. Boyle) three summer REU students at Kansas State University doing grassland bird biology: E. Harris (Beloit College), B. Rosado Ramos (Universidad del Turabo), and D. Savage (Kansas State University)	2017
- Trained field technicians: fifteen Kansas State undergraduate students, one UIUC undergraduate student	2016-2022
- Trained lab technicians: ten Kansas State undergraduate students	2016-2019

Teaching Experience:

Graduate Teaching Assistant, University of Illinois at Urbana-Champaign

- IB/NRES 461: Ornithology Spring 2022
led two laboratory sections; designed material, lectures, and evaluations;
led field trips
- IB 150: Organismal and Evolutionary Biology Fall 2021
led four discussion sections

Graduate Teaching Assistant, Kansas State University

- BIOL 513: Physiological Adaptations of Animals Fall 2018
- BIOL 543: Ornithology Spring 2018
oversaw laboratory classes and bird ID lectures, led field trips
- BIOL 513: Physiological Adaptations of Animals Fall 2017
- BIOL 543: Ornithology Spring 2017
oversaw laboratory classes and led field trips
- BIOL 198: Principles of Biology Fall 2016
prepared and led the two-week ecology module

Undergraduate Teaching Assistant, Denison University

- BIOL 103: Ecology of a Changing Planet Spring 2016
- BIOL 104: Biology of Color Fall 2015
- BIOL 356: Ornithology Spring 2015
- BIOL 150: Introduction to the Science of Biology Fall 2014
- BIOL 202: Ecology and Evolution Spring 2014

Invited guest lectures to college students:

- Loyola Marymount University Behavioral Endocrinology class: 2022
“Hormones and Life History”
- SUNY Geneseo Animal Behavior class, cowbird breeding behavior 2020

Teaching/Mentoring Training and Certification:

- SafeZone Advocate, trained ally to minority students 2018
- Trained in Active Learning techniques at a Kansas State University workshop 2016

SCIENCE COMMUNICATION AND OUTREACH

Scientific Consultant for:

- upcoming television documentary on cowbirds produced by Wildstar Films for National Geographic/Disney+ 2022
- “True Facts: Parasitic Birds” YouTube video in the “Ze Frank’s True Facts” series, viewed 2.2 million times since September 2022, <https://tinyurl.com/yjkwpmua> 2022
- educational videogame with the Kansas State University Advanced Landscape Immersion and Visualization Environment laboratory (Kansas). The project, 2017

- “Visualizing the Konza in 4D,” is intended to educate students about the tallgrass prairie and specific research projects that take place there (including my projects) 2015
- Junior Girl Scouts conservation-based GS Journey/Bronze Award project (Ohio) 2015

Guest interviews for multimedia public audiences:

- podcast: The American Birding Podcast, spoke about cowbirds; 2021
<https://tinyurl.com/yvdy5tzb>
- radio: 89.7 NPR News (Ohio) All Sides With Ann Fisher, promoting the Ohio Young Birders Club conference and answering questions about science communication 2018
- radio: KSDB (Kansas) to promote Science on Tap program 2018
- radio: 91.9 KSDB (Kansas) promoting the K-State Science Communication week and my research 2017
- television: 13 WIBW (Kansas) “Red Couch” segment, promoting the K-State Science Communication week 2017

Interviewed for public print media:

- Birds and Bloom Magazine, upcoming article on Red-winged Blackbirds 2022
- National Audubon Society article about brood parasitism 2022
- Birds and Bloom magazine article: “How long do baby birds stay in the nest and more nest facts” <https://tinyurl.com/2df86e8e> 2022
- Audubon Magazine article about the Ohio Young Birders Club and my career: <https://tinyurl.com/y42hss6s> 2019
- 46 Questions for Scientists feature, <https://tinyurl.com/t65f3jh> 2019
- National Audubon Society article about human interference and cowbird parasitism: <https://tinyurl.com/ycaxxlrld> 2018
- SEEK magazine (Kansas State): “Taking research to the nest level: Prairie songbird biologist engages public in her work on nestlings” 2018
- Fantastic Women in Science blog, interviewed about my experiences with science, gender, sexuality, and mental illness: <https://tinyurl.com/y7u6hfua> 2018

Public seminars:

- “Science Communication and Outreach,” UIUC Graduate Students in Ecology and Evolutionary Biology EcoLunch series 2022
- “Cowbirds: villainous mobsters or falsely maligned native species? A biologist’s perspective” to:
 - Will County Audubon (Illinois) 2022
 - Biggest Week in American Birding festival Expert Workshop (Ohio) 2022
 - Grosse Point Audubon Society (Michigan) 2021
 - K-State Johnson County Extension Master Naturalist Program (Kansas) 2021
 - Chicago Ornithological Society: Birds & Bytes (Illinois) 2021
 - Black Swamp Bird Observatory Birds at Home Keynote (Ohio) 2021
 - Wichita Audubon Society (Kansas): <https://tinyurl.com/dwupy3aw> 2020
- “Evolution of brood parasitism,” Ayatana Artists’ Research Program (4 classes) 2020-2022
- “Teaching the Scientific Process: Linking Hypotheses to Data Using Migratory Birds,” Western Cuyahoga Audubon Society (Ohio): <https://tinyurl.com/5akkjhzd> 2021

- presentation on wildlife career and research for the K-State Wildlife Society (Kansas) 2018
- “Effects of brood parasitism on nestling growth and development,” Three-Minute Thesis Competition (Kansas) 2018
- “Surveying Natural Selection: Evolution in the Galapagos, on the Lake Erie Islands, and in Our Classrooms,” Kirtland Bird Club (Ohio) and the Medina County Parks District Environmental Speaker Series (Ohio) 2014
- “Birding With Your Family: Tips to Get the Whole Family Out Birding!” with W. Miller, Midwest Birding Symposium (Ohio) 2011
- “Cornell Lab of Ornithology’s Young Birders’ Event Review,” Ohio Young Birders Club Conference (Ohio) 2010
- “Birding 101” with W. Miller, Shreve Migration Sensation (Ohio) 2010
- “California Condors: A Conservation Story,” Ohio Young Birders Club Conference (Ohio) and Kelley’s Island Audubon Society Meeting (Ohio) 2009-2010

K-12 Outreach:

- Pen-pal in the Letters to a Pre-Scientist program 2018-2022
- led discussion about ecology careers and a hands-on workshop about hypothesis testing/bird migration for middle school girls, Enhancing Your Future, Emporia State (Kansas) 2018
- led online workshops with the Skype-A-Scientist program:
 - with two classrooms of fifth graders from Tinley Park (Illinois) 2019
 - with two classrooms of fifth graders from Mansfield (Maryland) 2019
 - with one classroom of twelfth graders from Tulsa (Oklahoma) 2019
 - with two classrooms of tenth graders from Midlothian (Virginia) 2019
 - with three classrooms of eighth graders from Stetson Hills (Arizona) 2018
 - with four classrooms of eleventh and twelfth graders from Aubrey (Texas) 2018
- led a hands-on hypothesis testing/ bird biology workshop with W.A. Boyle for middle-school girls, Enhancing Your Future, Emporia State (Kansas) 2017
- created an educational game for middle-schoolers about the politics of science funding and medical responses to epidemics, GROW (Girls Researching Our World) program, KSU (Kansas) 2016
- presented “Avian Adieu,” an introduction to bird migration and conservation, to elementary students at the Granville Public Library (Ohio) 2015

Public workshops and outreach:

- Science on Tap, brewery science series, Tallgrass Taphouse (Kansas) 2018
- developed a game to teach all ages about grassland bird growth, biology, conservation, shared it at the:
 - Kansas State University science communication meet-and-greet 2017
 - Sunset Zoo (Kansas) Science Saturday, both November and December events 2017
- presented at the “Think and Drink” community event, Arrow Coffee (Kansas) 2017
- shared research images at the Science Communication Scholarship Expo (Kansas) 2017
- answered questions at a community “Ask a Scientist” event (Kansas) 2017
- led community bird walks for the Central Ohio Audubon Club 2012-2016

Online science communication and advocacy efforts:

- run a Twitter account (@skwinnicki) with >9,000 followers tuning in for science facts 2018-
- post videos of wildlife, science methods to a YouTube account with >125,000 views 2015-
- hosted a Twitter “Ornitholoday” event for the British Ornithologists’ Union, tweeting 2019
about grassland bird development 170 times over 9 hours
- featured on 500 Queer Scientists: <https://tinyurl.com/y9wph98f> 2018
- contributed blog posts to the Kansas State University science blog Science Snapshots 2018

Science Communication Awards and Honors:

- Finalist, British Ornithological Union Science Communication Award 2020
- invited speaker, SciComm conference (Kansas), presented: “Hashtags, captions, 2019
albums, lists? Observations about different audience-specific communication styles
on Twitter, Facebook, and YouTube.”
- Science Communication Award, Kansas Science Communication Initiative 2019
- Invited Keynote Speaker, 12th Annual Ohio Young Birders Conference, presented 2018
“Growing up Prairie: Insights from the sparrows”
- Student Presentation Award, Kansas Ornithological Society 2018
- one of four graduate students invited to speak at the Kansas State University Division 2018
of Biology 50th Anniversary meeting
- James E. Ackert Award for Outstanding Graduate Student Presentation, Kansas State 2018
University Division of Biology
- Best Presentation Style Award, Ecology and Evolutionary Biology Graduate Students 2018
on Parade (Kansas State University)
- Student Presentation Award, Kansas Ornithological Society 2016
- crowd-voted best student science presentation, Ohio Avian Research Conference 2015
- Dr. David R. Osborne Ornithology Prize for best student oral presentation, Ohio Avian 2014
Research Conference

Science Communication Training and Certifications:

- STEM workshop leader for the Education Justice Project, a prison outreach program 2021-
(Illinois) with associated training for science communicators seeking to educate and present
advocate for incarcerated adults
- Science Communication Fellow, Sunset Zoo (Kansas) 2017
- trained in science blog writing through a workshop with Kansas State and the Sunset 2017
Zoo (Kansas)

OTHER EMPLOYMENT AND INTERNSHIPS

- Field Technician and Crew Leader**, Kansas State University 2016
- Biology Head Tutor**, Denison University Academic Support and Enrichment 2015-2016
- Biology Drop-in Tutor**, Denison University Biology Department 2014-2016
- Student Research Assistant**, Denison University Libraries 2014
- Biology Tutor**, Denison University Academic Support and Enrichment 2013-2016
- Research Assistant and Writing Associate**, Denison University History Department 2014

Circulation Desk and Reference Desk Employee , Denison University Libraries	2013-2016
Archive Student Assistant , Denison University Libraries	2012-2014
Ecotourism Field Trip Leader Intern , Wildside Nature Tours, Inc., (sporadically)	2012-2015

RESEARCH SKILLS

Field skills:

Undergraduate research (2013): passive mist netting to capture birds; rowing boats to island research sites; recording and entering field data

Konza project (2014-2018): mist netting, bleeding, measuring, and personally banding over 300 songbird individuals; resighting color-banded sparrows and completing formal surveys; nest searching by behavioral observations and rope-dragging (finding over 100 grassland songbird nests); measuring eggs; using GPS and maps; measuring and personally banding 140 nestlings; measuring vegetation using Robel poles and Daubenmire frames; behavioral observations from a blind; operating a quantitative magnetic resonance machine in a trailer; monitoring nests in person and by video recording; assembling and deploying nest cameras; operating field trucks and changing tires; and planning and coordinating the efforts of 6+ field crew technicians per year.

PhD research (2019-present): measuring nestling American Robins (*Turdus migratorius*) and eggs; nest searching in arbors, using phone GPS and maps; constructing nest cameras and monitoring nests; fostering and transporting eggs; collecting eggs for hormone content analyses; incubating robin eggs and measuring embryos; coordinating with a field technician; collecting fecal samples from nestling birds for microbiome sequencing

Lab skills:

Undergraduate work (2013-2016): curated a museum collection of bird study skins

Konza project (2014-2018): DNA extraction from bird blood; PCR and microsatellite ABI genotyping

PhD research (2019-present): Raising quail embryos in lab incubators; measuring developing embryos; extracting and preparing egg yolk hormone samples for mass spectrometry analysis; PCR and molecular sexing; freeze-drying fecal samples; DNA extraction from blood, flesh, and fecal samples (Qiagen and FastDNA kits)

Computer skills:

-statistical analysis, data visualization, and data formatting in R/RStudio (primarily), but also JMP, SAS, Program MARK, and ESRI arcMap

-building/managing databases in Microsoft Access and online data entry forms on Microsoft Forms

-building and maintaining databases, files on Dropbox, Box, and Google Drive

-presenting scientific research in Word and PowerPoint

-data collection using ImageJ (for still photos) and DeepMeerkat (for video data)

-producing educational videos with Adobe Premiere Pro