

Katy Silber

Division of Biology, Kansas State University
333 Ackert Hall
Manhattan, KS 66506
ksilber@ksu.edu
katysilber.weebly.com

CURRENT ROLE

Postdoctoral Scientist **2023-present**
Virtual Cattle Fencing in the Flint Hills
Kansas State University
(in collaboration with The Nature Conservancy, National Parks Service,
Colorado State University, and Point Blue Conservation Science)

EDUCATION

Doctor of Philosophy, Kansas State University **2023**
Dissertation: *Under the weather: mechanisms underlying avian responses to precipitation*
Advisor: Dr. W. Alice Boyle

Bachelor of Science, University of Vermont **2015**
Major: Animal Science
Minors: Environmental Studies, Public Communication

PUBLICATIONS

In preparation (i.e., manuscript complete, awaiting final revisions):

8. Freeman, N. E.*, **K. Silber***, T.J. Hefley, A.M. Louthan, and W.A. Boyle. Dispersal drives population change in a declining grassland songbird: inferences from an integrated population model.
*co-first authors
7. **Silber, K.** and W.A. Boyle. Precipitation timing, elevation, and life history traits mediate relationship between precipitation and avian reproductive success: A global meta-analysis.

In review:

6. **Silber, K.**, T.J. Hefley, H. Castro-Miller, Z.R. Ratajczak, and W.A. Boyle. The long shadow of woody encroachment: an integrated approach to modeling grassland songbird habitat. *Ecological Applications*.
5. Sroor, E., W.A. Boyle, H.N. Castro-Miller, K.S. Hobbs, M.D. Reynaldo, **K. Silber**, N.M. Mohankumar, N.A. Wright, N.E. Freeman. Environmental drivers of shifts in female reproductive investment from quantity to quality in a grassland songbird. *Animal Behaviour*.
4. Smith, E.B., A.J. Roe, **K. Silber**, E.J. Williams, S.K. Winnicki, and W.A. Boyle, Consequences of drought for grassland songbird reproduction. *Ecosphere*.

Published peer-reviewed articles:

3. Mohankumar, N.M., T.J. Hefley, **K. Silber**, and W.A. Boyle. (in press) Data fusion of distance sampling and capture-recapture data. *Journal of Spatial Statistics*.
2. **Silber, K.**, N.M. Mohankumar, T.J. Hefley, and W.A. Boyle. (2023). Emigration and survival correlate with different precipitation metrics throughout a grassland songbird's annual cycle. *The Journal of Wildlife Management*. 87(3). <https://doi.org/10.1002/jwmg.22371>
1. Kneeland, M.R., V.A. Spagnuolo, D.C. Evers, J.D. Paruk, L. Attix, N. Schoch, M.A. Pokras, V. Stout, A. Dalton, and **K. Silber**. (2020). A novel method for captive rearing and translocation of juvenile common loons. *Zoo Biology*. 39(4). <https://doi.org/10.1002/zoo.21544>

PRESENTATIONS

* Underline denotes presenting author

Conference presentations:

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| <u>Silber, K.</u> and W.A. Boyle. "Under the weather: mechanisms underlying avian response to precipitation" Kansas State University Division of Biology Graduate Research Forum, Manhattan, KS (oral) | 17 Apr 2023 |
| <u>Silber, K.</u> , T.J. Hefley, H. Castro-Miller, Z.R. Ratajczak, and W.A. Boyle. "The long shadow of woody encroachment: an integrated approach to modeling grassland songbird habitat." Kansas Natural Resources Conference, Manhattan, KS (oral) | 10 Feb 2023 |
| <u>Silber, K.</u> , W.K. Dodds, C.R. Mushrush, A.P. Capizzo, and W.A. Boyle. "Virtual fences: a win-win for ranchers and conservation in the Flint Hills?" Kansas Natural Resources Conference, Manhattan, KS (poster) | 9 Feb 2023 |
| <u>Silber, K.</u> , T.J. Hefley, H. Castro-Miller, Z.R. Ratajczak, and W.A. Boyle. "The long shadow of woody encroachment: an integrated approach to modeling grassland songbird habitat." The Konza Prairie Long-term Ecological Research Site Annual Meeting, Manhattan, KS (oral) | 20 Jan 2023 |

- Silber, K.**, A.M. Louthan, N.E. Freeman, T.J. Hefley, and W.A. Boyle. 1 Oct 2022
 “Rainfall mediates population dynamics in a mobile grassland songbird.”
 Kansas Ornithological Society Conference, Atchison, KS (oral)
- Reynaldo, M.D.**, W. Schlesky, M. Hauber, **K. Silber**, and W.A. Boyle. 29 Jun 2022
 “Evidence of high rates of conspecific brood parasitism in Eastern
 Meadowlarks.” American Ornithological Society and Birds Caribbean
 Joint Conference, San Juan, PR (oral)
- Silber, K.**, A.M. Louthan, N.E. Freeman, T.J. Hefley, and W.A. Boyle. 4 Feb 2022
 “Population growth is sensitive to apparent survival in a declining
 grassland songbird.” Kansas Natural Resources Conferences, Manhattan,
 KS (oral)
- Sroor, E.N.**, W.A. Boyle, K. Hobbs, M.R. Reynaldo, H. Castro-Miller, N.M.
 Mohankumar, **K. Silber**, and N.E. Freeman, “What drives female
 investment in egg and clutch size in Grasshopper Sparrows?” Kansas
 Natural Resources Conference, Manhattan KS (oral)
- Silber, K.** and W.A. Boyle. “A bird’s eye view: does Konza provide suitable
 breeding habitat for declining grassland songbirds?” The Konza Prairie
 Long-term Ecological Research Site Annual Meeting, Manhattan, KS
 (oral)
- Smith, D.J.**, **K. Silber, K.**, E.J. Williams, S.K. Winnicki, P.E. Klug, K.L.
 Kosciuch, W.E. Jensen, J.W. Rivers, B.F. Sousa, B.K. Sandercock, and
 W.A. Boyle, “Local grassland bird declines were not explained by long-
 term changes in reproductive output.” Joint meeting of the American
 Ornithological Society and the Society of Canadian Ornithologists
 (virtual; oral)
- Silber, K.**, T.J. Hefley, and W.A. Boyle. “An integrated resource selection
 model to predict avian habitat use from grassland vegetation structure.”
 American Ornithological Society (virtual; oral)
- Silber, K.**, T.J. Hefley, and W.A. Boyle. “An integrated resource selection
 model to predict avian habitat use from grassland vegetation structure.”
 Ecological Society of America Conference (virtual; poster)
- Silber, K.**, N.M. Mohankumar, T.J. Hefley, and W.A. Boyle. “Apparent
 survival is correlated with lagged precipitation in a mobile grassland
 songbird.” Kansas Ornithological Society Conference (virtual; oral)
- Kneeland, M. R.**, V.A. Spagnuolo, D.C. Evers, J.D. Paruk, L. Attix, N.
 Schoch, M.A. Pokras, V. Stout, A. Dalton, and **K. Silber**. (2020). “A
 novel method for captive rearing and translocation of juvenile common
 loons.” North American Ornithological Conference (virtual; poster)
- Mohankumar, N.M.**, T.J. Hefley, **K. Silber**, and W.A. Boyle. “An Integrated
 Population Model for Spatial Capture-Recapture and Distance Sampling
 Data.” North American Ornithological Conference, (virtual; poster)

Silber, K., N.M. Mohankumar, T.J. Hefley, and W.A. Boyle. “How does precipitation influence apparent survival in Grasshopper Sparrows?” Kansas Natural Resources Conferences, Manhattan, KS (poster) 30 Jan 2020

Invited talks:

Silber, K., W.K. Dodds, C.R. Mushrush, A.P. Capizzo, and W.A. Boyle. “Virtual fences: a win-win for ranchers and conservation in the Flint Hills?” Oral presentation for symposium entitled “Virtual Fence Technology: Challenges and opportunities for implementing virtual fence across public, private, and research sectors” at the Society for Range Management Annual Meeting, Boise, Idaho. 14 Feb 2023

Silber, K. “The Flint Hills Virtual Fence Project.” Presentation for Kansas State University’s student chapter of The Wildlife Society, Manhattan, KS. 25 Oct 2022

Silber, K. “How to implement complex population models: a case study of the Grasshopper Sparrow.” Guest lecture for Kansas State University, Division of Biology Population Biology course, Manhattan, KS. 11 Oct 2022

Silber, K., A.M. Louthan, N.E. Freeman, T.J. Hefley, and W.A. Boyle. “Rainfall mediates population dynamics in a mobile grassland songbird.” Oral presentation for symposium entitled “Avian responses to rainfall variability in temperate and tropical systems” at the American Ornithological Society and Birds Caribbean Joint Conference, San Juan, PR 30 Jun 2022

Public engagement presentations and products:

Silber, K., S. Herzog, and B. Ritchey, “Bison, Birds, and Bluestem: Research at the Konza Prairie.” Tabling to advertise research conducted at the Konza Prairie Biological Station. Audience included thousands of members of the Kansas community of all ages at Kansas State University’s Open House event, Manhattan, KS. 9 Apr 2022

Silber, K., W.A. Boyle. “A bird’s eye view: how do we study grassland bird declines?” Tabling for ~30 people of the Manhattan community at a Science on Tap event at Manhattan Brewing Company, Manhattan, KS. 30 Mar 2022

Silber, K., W.A. Boyle, M.J. Reynaldo, and E.N. Sroor. “Grassland Bird Behavior and Ecology.” Presentation and hands-on interactive session with ~40 members of the Riley County Senior Center, Manhattan, KS. 10 Sept 2021

Shogren, E.H., J. Gresham, A.J. Roe, **K. Silber**, D.J. Smith, M.K. Wilcox, S.K. Winnicki, and W.A. Boyle. “Dance Dance Evolution.” Video detailing tropical research by lab members. Apr 2020
https://www.youtube.com/watch?v=fSXKTfy_sE

Silber, K., and D.J. Smith “Wonderful World of Bird Migration.” 23 Mar 2019
Presentation and workshop introducing middle school girls to avian biology and identification. Enhancing your Future with Mathematics and Science conference, Emporia State University, Emporia, KS

LEADERSHIP AND SERVICE

Committee Chair 2022-2023
Division of Biology Faculty Awards
Biology Graduate Student Association, Kansas State University

Symposium co-organizer 2022
Avian responses to rainfall variability in temperate and tropical systems
American Ornithological Society and Birds Caribbean Joint Conference

Sub-committee Chair 2021-2022
Recruitment and Retention Sub-committee
Konza Prairie Diversity, Equity, and Inclusion Committee

Graduate Student Representative 2020-2023
Konza Prairie Long-term Ecological Research Site
Long-term Ecological Research Network

Field Crew Leader 2019-2021
Grassland Ecology Research Project
The Boyle Lab, Kansas State University

TEACHING AND MENTORING

Teaching Assistant
Division of Biology, Kansas State University

Ornithology Springs 2019, 2021, 2022, 2023
Developed lab curricula; led hands-on activities in lab and in the field; lectured on avian ecology topics such as identification, anatomy and physiology, evolution, eggs and development, dispersal and migration, and communication; led birding hikes

Applied Population and Statistical Ecology Springs 2019, 2020, 2022
Taught bird handling, mist-netting, and banding skills in field setting; developed student projects using ecological datasets; assisted undergrads with statistical analyses; led R workshops; lectured on topics such as project design, developing hypotheses, and scientific literature

Organismic Biology Fall 2021
Lectured on topics such as anatomy and ecology of plants, fungi, and animals; led hands-on activities in lab

<i>Population Biology</i>	Fall 2020
Let student discussions on topics such as simple population growth models, matrix models, metapopulations, and multitrophic interactions	
<i>Physiological Adaptations of Animals</i>	Fall 2019
Led dissections of mammalian organs and systems	

Undergraduate mentor

Kansas State University

Emma Blackwood, Shelby Noel, Alli Stanton, Paige Wimberly, Nathalie Wright	2023
Emma Blackwood, Henry Castro-Miller, Greta Forney, Leah Mills, Miriam Reynaldo, Elizabeth Sroor, Nathalie Wright	2022
Henry Castro-Miller, Victoria Gaa, Kevin Perozeni, Miriam Reynaldo, Elizabeth Sroor, Aja Wong, Nathalie Wright	2021
Miriam Reynaldo, Elizabeth Sroor, Kailyn Underwood, Daniel Wells	2020
Ryan Donnelly, Joanna Gresham, Miriam Reynaldo, Austin Roe, Mariel Winnerman	2019

AWARDS AND HONORS

Research grants and scholarships

The Nature Conservancy Weaver Grant (\$1000)	2021
National Wildlife Rehabilitators Association Research Grant (<i>Co-investigator</i> ; \$2700)	2018
Presidential Scholarship, University of Vermont	Fall 2012 – Fall 2015

Awards

<i>Best Student Presentation</i>	2023
Kansas Natural Resources Conference	
<i>Student Presentation Honorable Mention</i>	2022
American Ornithological Society & Birds Caribbean Joint Conference	
<i>Best Overall Presentation</i>	2021
Kansas State University, Division of Biology Graduate Students on Parade	
<i>Best Scientific Presentation</i>	2020
Kansas State University, Division of Biology Graduate Students on Parade	
<i>Best PhD Student Presentation Award</i>	2020
Kansas Ornithological Society Meeting	

OTHER EMPLOYMENT AND RESEARCH EXPERIENCE

Research Lead <i>Virtual Cattle Fencing in the Flint Hills</i> Kansas State University	March 2022-May 2023
Research Assistant University of Iowa Geography Department <i>Supervisor: Dr. Heather Sander</i>	2018
Ornithology Collections Volunteer University of Iowa Natural History Museum	2017
Seasonal Biologist Biodiversity Research Institute <i>Supervisor: Dr. Michelle Kneeland, Lee Attix</i>	2017
Necropsy/Laboratory Assistant Biodiversity Research Institute <i>Supervisor: Dr. Michelle Kneeland</i>	2016-2017
Veterinary Assistant Veterinary and Rehabilitation Center of Cape Elizabeth <i>Supervisor: Dr. Ginger Browne Johnson</i>	2016-2017
Intern Green Mountain Audubon Society <i>Supervisor: Mark LaBarr</i>	2015
Environmental Educator Americorps Sustainable Outdoor Leadership Education <i>Supervisor: Ashley Eaton</i>	2014-2015
Keeper Aide Smithsonian National Zoological Park Elephant House <i>Supervisor: Tony Barthel</i>	2012-2013