We are pleased to provide this report highlighting activities and accomplishments of the Kansas Cooperative Fish and Wildlife Research Unit for 2022-2023. This year marks the 32nd year of the Kansas Unit at Kansas State University. On behalf of the greater than 20 Unit scientists, staff, graduate students, technicians, and associated undergraduate students, we would like to thank the myriad of people, governmental agencies, and nongovernmental organizations for their support of the Kansas Unit.

During the 2022-2023 reporting period, the Kansas Unit had 9 active research grants totaling $3,964,657 in funding; graduated 4 graduate students; currently supporting 8 graduate students and 1 post-doctoral research associate; published 2 book chapters and 19 peer-reviewed journal articles; and presented 56 talks at professional meetings. Please see our updated website (https://www.k-state.edu/kscfwr/) for additional details and specifics relative to our reported activities.
Current Unit Staff

Unit Leader—David Haukos
Assistant Unit Leader—Martha Mather
Office Manager—Tara Dreher
Post-Doctoral Research Associates
Andrew Whetten (2022-2024)
Fraser Combe (2021-2022)

Locations of KSCFWRU Students 2012-2023

Kansas State University Graduate Students

Completed 2022-2023


**Megan Vhay** (M.S., 2022, Haukos). Reconstruction of landscape composition and vegetation characteristics in the Sand Sagebrush Prairie Ecoregion.

**Ashley Messier** (M.S., 2023, Sullins/Haukos). Patterns of greenness (NDVI) in the Southern Great Plains and their influence on the habitat quality and reproduction of a declining prairie grouse.

**Camille Rieber** (M.S., 2023, Hefley/Haukos). Treed Gaussian processes for animal movement modelling.

**Current (Graduation Date)**

**Olivia Rode** (M.S., GRA, Mather). An adaptive management framework for extracting additional insights from fish monitoring data to aid conservation. (12/23)

**Victoria Read** (MS, GRA, Mather, Department of Biological and Agricultural Engineering). Analyzing empirical fish habitat data can aid fish conservation. (12/23)

**Cassidy Lathrom** (MS, GRA, Haukos). Density, diversity, and relative abundance of bees on Fort Riley Military Installation. (5/25)

**Natalie Pegg** (Ph.D, GRA, Haukos). Movements, space use, and vital rates of mourning doves (5/26).

**Mary Ware** (MS, GTA, Haukos). Response by wild turkeys to harvest and management actions in Kansas. (5/26)

**Elizabeth (Elli) Teige** (Ph.D, GRA, Haukos). Assessing landscape and vegetation characteristics, habitat quality and quantity, and habitat use of Conservation Reserve Program lands by lesser prairie-chickens throughout the species range. (8/26)

**Caroline Skidmore** (Ph.D, GRA, Haukos/Sullins) Population demography of wild turkeys in Kansas. (8/27)

**Sara Hansen** (Ph.D, GRA, Sullins/Haukos). Landscape ecology of wild turkeys in Kansas. (8/27)
Completed and Active Research Projects 2022-2023

Completed
Reconstruction of Landscape Composition and Vegetation Characteristics in the Sand Sagebrush Prairie Ecoregion
Patterns of Greenness (NDVI) in the Southern Great Plains and Their Influence on the Habitat Quality and Reproduction of a Declining Prairie Grouse
The Impact of Future Climate Variability on Shorebirds and Their Wetland Habitats in the South-Central U.S.
Survival Rates, Habitat Selection, and Movement of Sympatric Mule Deer and White-tailed Deer in Kansas

In Progress
Multi-scale Response of Lesser Prairie-Chickens to Future Changes in Land Use and Land Cover
Movements, Space Use, and Vital Rates of Mourning Doves
Identification of landscape thresholds and patch dynamics for lesser prairie-chickens
Wild Turkey Population Demography and Ecology in Kansas
Status of Native Bumble Bees (*Bombus* spp.) at Fort Riley Military Reservation, Kansas
Designing Optimal Landscapes for Lesser Prairie-Chicken Conservation

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### Graduate Student Employment

- **Academic**: 27.50%
- **State Agency**: 32.50%
- **Federal Agency**: 27.50%
- **Nongovernment**: 12.50%

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[Image of a person holding a bird]
Publications 2022-2023

**Book Chapters**


**Journal Articles**


Publications 2022-2023


Awards and Recognition

David Haukos

Martha Mather
USGS STAR Award – planning and leading a session at 2023 USGS CRU All-Hands Meeting

Elizabeth Teige
TWS Associate Wildlife Biologist ®, 2023

Megan Vhay
USFWS Directorate Research Fellowship. 2022
Outstanding KSCFWRU Student 2022

Ashley Messier
USFWS Directorate Research Fellowship. 2022
Best Oral Presentation, Kansas Chapter of The Wildlife Society, Kansas Natural Resources Conference – 2022

Graduate Student Travel Grants
5 Students, 7 Grants, $3,350

Professional Presentations

Total—55; 6—Invited
9—The Wildlife Society
9—Kansas Natural Resource Conference
5—Prairie Grouse Technical Council
10—Midwest Fish and Wildlife Conference
4—American Fisheries Society
7—Joint Aquatic Science Meeting
2—TWS Central Mountains and Plains Section
1—NA Congress for Conservation Biology

Teaching

Graduate Student Teaching Assistants—Total 12 sections
Principles of Biology (6 sections), Organismic Biology (3 sections), Mammalogy (1 section), Wildlife Management and Techniques (1 section), Flora and Fauna of the Great Plains (1 section)

David Haukos
Introduction to Fisheries, Wildlife, and Conservation Biology (BIOL 433; Spring 2022, 2023)
Habitat Ecology and Management (BIOL 890; Spring 2022, Fall 2023)
Demographic Methods (BIOL 823; Fall 2022)
Natural Resources/Environmental Science (NRES). Capstone Course (Spring 2023)

Martha Mather
Professional Skills (BIOL 863; Spring 2022)
Biologically-involved Sustainability (BIS): A New Direction for Successful Resource Conservation and Management. BIOL 890 (Graduate); BIOL 697 (Undergraduate).

Olivia Rode presented a paper "Squeezing additional insights from fish survey data to aid conservation" at the Midwest Fish and Wildlife Conference in Overland Park, Kansas.
Current and previous members of the Kansas Cooperative Fish and Wildlife Research Unit gathered at the annual meeting of The Wildlife Society.

A Cooperative Agreement establishes the Kansas Cooperative Fish and Wildlife Research Unit at Kansas State University, with USGS, KSU, KDWP, WMI, and USFWS as signatories to the agreement. A new 10-year agreement was negotiated, signed, and executed in 2022.

Stacy Hoeme – Hoeme Land and Cattle, Scott City, Kansas
Citizens Conservation Achievement Award
Central Mountains and Plains Section, The Wildlife Society
Research Work Orders Administered

Where do we look and what should we do: examining the hard questions of chronic wasting disease management and surveillance – Trevor Hefley, KSU Statistics Department

Integrated management of sericea lespedeza on Fort Riley – Sarah Lancaster, KSU Department of Agronomy

Intermittent stream risk assessment: Mapping patterns of stream drying and identifying vulnerabilities of stream fish and crayfish communities – Keith Gido, KSU Division of Biology, Lindsey Bruckerhoff, Ohio State University

Patterns of greenness (NDVI) in the Southern Great Plains and their influence on the habitat quality and reproduction of a declining prairie grouse – Dan Sullins, Department of Horticulture and Natural Resources

David Haukos
3 M.S. and 1 Ph.D Graduate Committee Member
Associate Editor, Wildlife Society Bulletin
Associate Editor, Journal of Fish and Wildlife Management
Co-Chair, Certification Review Board, The Wildlife Society
Adjunct Professor, Texas Tech University
Member, KSU Institutional Animal Care and Use Committee
Faculty Advisor, KSU Student Chapter of The Wildlife Society
KSU Technical Representative, Great Plains Cooperative Ecosystems Study Unit
Member, Playa Lakes Joint Venture Science Advisory Team
Member of the KDWP Threatened and Endangered Task Committee

Kansas Alliance of Wetlands and Streams – Board Member 2018-2022

NRES (Natural Resources and Environmental Sciences Secondary Major), Governing Board, KSU – Natural Sciences Representative 2020-2023.

Search Committee—KSCFWRU (Chair), KSU IACUC Program Manager (Member)

Martha Mather
Kansas Chapter, American Fisheries Society, Membership Committee
Diversity, Equity, Inclusion Committee, National, American Fisheries Society
Organizing, Plenary, and Student Affairs Committees 2023 Midwest Fish and Wildlife Conference
Leadership Team, Kansas State University Chapter, Sigma Xi
Member, USGS Fisheries Leadership Team
Subject Editor, Frontiers in Freshwater Science
Co-organizer, Prairie Stream Fish Collaborative Workshop

Caroline Skidmore
Board member of the Kansas Chapter of TWS

Elizabeth Teige
Board Member-at-Large, Central Mountains and Plains Section of The Wildlife Society (CMPS).

CMPS Student and Early Career Professionals Committee Chair
CMPS Elections Committee Acting Chair

Camille Rieber
TWS KSU Student Chapter graduate student liaison

Sara Hansen
Immediate Past President and NW Section Rep - WA Chapter – TWS

Board Member - Inclusion, Diversity, Equity, and Awareness (IDEA) Working Group – TWS

Member – Diversity Resource Center Committee – TWS

Mentor – Leadership Institute – TWS

KSCFWRU COORDINATING COMMITTEE