Preview of Award 2025849 - Annual Project Report

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Project Title:	LTER: Manipulating drivers to assess grassland resilience
PD/PI Name:	Jesse B Nippert, Principal Investigator Sara G Baer, Co-Principal Investigator Melinda D Smith, Co-Principal Investigator Lydia H Zeglin, Co-Principal Investigator
Recipient Organization:	Kansas State University
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Accomplishments

*** What are the major goals of the project?**

The Konza Prairie LTER program (KNZ) focuses on the ecological dynamics of tallgrass prairie - a historically widespread mesic grassland in the North American Great Plains. Our core research site is the Konza Prairie Biological Station (KPBS), a 3487 ha native tallgrass prairie located in the Flint Hills of northeast Kansas, USA. Since 1980, KNZ has investigated how key drivers of grasslands globally - fire, grazing, and climatic variability - interact to influence tallgrass prairie structure and function. The conceptual framework of KNZ LTER VIII builds on long-term studies, reflects the increasing complexity of research questions developed over the history of this program, and explicitly recognizes that tallgrass prairie pattern and process results from human alteration of ecological drivers at local (e.g., land use and management), regional (e.g., nutrient inputs) and global (e.g., climate change) scales. KNZ LTER VIII will provide new information critical for understanding, managing, and conserving grasslands globally, while concurrently addressing fundamental ecological questions to explain grassland dynamics in a changing world.

KNZ utilizes long-term, watershed-scale manipulations of fire frequency and grazing by large ungulates, coupled with numerous plot-scale manipulations (i.e., nutrients and rainfall) to test ecological theory and address timely questions regarding grassland responses to multiple, interacting global changes. KNZ LTER VIII builds upon a legacy of long-term observations and experiments manipulating key drivers to assess changes in the structure and function of tallgrass prairie and associated dynamics in aquatic systems. A recurring theme from prior KNZ research is that grassland responses to variation in ecological drivers vary in magnitude and change dynamically over time. Long-term studies are required to improve our ability to forecast change in this ecosystem, identify the mechanisms that facilitate and reinforce these ecological changes, and determine if the ecological changes we have observed are reversible. LTER VII began our focus on mechanisms that underlie the sensitivity and resilience of ecosystem states in mesic grasslands. LTER VIII will utilize the array of ecosystem states that have emerged from these manipulations of historical and global change drivers to refine our understanding of sensitivity, resilience, and ecosystem state change in tallgrass prairie.

To accomplish the goals of KNZ LTER VIII, our proposed research comprises four thematic areas: 1) watershed-level study of the long-term effects of historical drivers (fire and grazing), 2) experimental manipulations of global change drivers, 3) cessation or reversal of selected drivers, and 4) human intervention. Collectively, we will use ongoing and new activities under each theme to assess ecosystem sensitivity and resilience through the manipulation or restoration of drivers or ecosystem

states. We will: 1) conduct targeted investigations of mechanisms that underlie ecosystem sensitivity and state change as informed by results to date, 2) interpret experiments in the context of long-term observations at KNZ and in comparison to other grasslands and biomes, 3) advance general ecological theory and inform theoretical and process-based ecological models, and 4) maximize the broader impacts of our research by providing full open access to all core datasets, applying insights from KNZ research to management, conservation, and restoration of grasslands, while expanding KNZ education and public outreach programs.

*** What was accomplished under these goals and objectives (you must provide information for at least one of the 4 categories below)?**

Major Activities:

The LTER VIII conceptual framework integrates the increasing complexity of previous iterations of LTER research and recognizes that the key determinants of patterns and processes in grasslands are directly (land use and management) and indirectly (climate change and nutrient inputs) determined by human activities. Experimental manipulation of drivers allows us to assess sensitivity, transitions between states, and the potential for recovery or changes in resilience.

The watershed-scale experiment and a multitude of plot-level manipulations are used to: 1) reveal mechanisms underlying ecosystem state changes in response to altered and variable ecological drivers (O'Connor et al. 2020, Collins et al. 2021, Eckhoff et al. 2023); 2) interpret responses in the context of long-term observations at KNZ (Knapp et al. 2018, Bruckerhoff et al. 2020, Smith et al. 2020) and in comparison to other grasslands and biomes (e.g., Smith et al. 2016, Koerner et al. 2018, Komatsu et al. 2019, Rastetter et al. 2022); and 3) advance ecological theory and inform process-based models (Smith et al. 2009, Dodds et al. 2015, Ratajczak et al. 2017, Brunsell et al. 2017, Ratajczak et al. 2018). Last, we maximize the broader impacts of our research by providing full open access to all core datasets, applying insights from KNZ research to management, conservation, and restoration of grasslands, while expanding KNZ education and public outreach programs.

Each year, LTER staff, faculty and students play intentional roles supporting the fire (burning watersheds) and grazing (bison roundup) programs at Konza Prairie. During year 5 of KNZ LTER VIII, we maintained our core KNZ programs including watershed-level fire experiments, contrasts of grazed (bison and cattle) and ungrazed locations, and the associated data collection and synthesis that are central to our research program. This includes maintaining watershed-level manipulations of fire frequencies (1, 2, 4, 20-year fire return intervals), seasonal timing of fires (spring, summer, fall, winter), and the reversal of fire treatments over time to assess the potential for altered fire regimes to mitigate trajectories of land-cover change. Collectively, we use ongoing and new activities under each theme to assess how changes in the key drivers of ecosystem processes impact the sensitivity and resilience of grassland ecosystem states. In addition to the watershed-level experimental platform at KNZ, there are numerous plot-level and stream reach experiments that aim to tease apart mechanisms underlying the grassland response to variation in historical and global change drivers. This platform of research also provides unique research opportunities for graduate and undergraduate students at KSU, as well as visiting students from many other institutions.

Nippert has completed his eighth year as the PI of the KNZ program. As with many large research programs, there are many aspects of this program that require frequent attention. To assist with these additional responsibilities that have accrued through time, Meghan Avolio (Johns Hopkins) is co-leading the program with Nippert. The Konza LTER group frequently interacts to ensure we are meeting goals and expectations. We have whole-site meetings (everyone invited) once a month, Nippert and the KNZ staff meet monthly, and Avolio, Nippert, and Jennifer Rhodes meet bi-weekly for planning purposes. We have an annual KNZ LTER meeting that includes site-based presentations, posters, and group interactions. In late March 2025, all PIs met at a hotel near the KC airport for planning meeting to develop our next conceptual model. This

award supported the travel of the non-Kansas PI's and we met to identify new themes of research, assess our previous conceptual models, and assess the models of other LTER sites. This meeting was productive and allowed us to begin the necessary steps towards creating a new thematic umbrella for our work at Konza Prairie LTER. This year's annual meeting, held in May, consisted of 9 topical presentations, providing updates on key aspects of the KNZ program (grazing, fire, climate, woody encroachment, nutrient cycling, etc.) on day 1. Then on day 2, we began synthesizing this information into key research themes associated with grassland resilience in anticipation of our next funding opportunity. This exercise allowed us to integrate our current knowledge base, identify key knowledge gaps, and then begin the process of planning for future study.

Specific Objectives:

In the "Activities" supporting document included in this report, we provide updated results on the broad suite of research activities conducted at Konza Prairie over the past year. Our goal with this document is to illustrate the progress being made and to provide short illustrations of novel, and significant results. 2024-2025 saw the termination of two long-term experiments at Konza – patch-burn grazing experiment and ghost fire.

The Patch-Burn Grazing (PBG) experiment, established in 2010 across 8 watersheds, was designed to evaluate whether fire and grazing heterogeneity could be harnessed to balance cattle production with biodiversity conservation in mesic grasslands. Unlike annual burning and grazing (ABG) which homogenizes vegetation structure and can degrade habitat quality, PPG applies spatially discrete fire to draw grazers to fresh growth and promote vegetation heterogeneity which thereby supports native flora and fauna while maintaining livestock gains. This past year marked the final phase of the project. Sample processing and analysis, a large collaborative process, is occurring at Kansas State University, as well as the University of North Carolina Greensboro and Johns Hopkins University. Synthesis and publication of long-term findings are ongoing, representing over a decade of integrated ecological and agricultural research.

The Ghost Fire experiment, established in 2014, was a decade-long study designed to test how litter and nutrient availability mediate the long-term impacts of fire frequency on ecosystem structure and function in mesic grasslands. By manipulating litter presence and nitrogen levels (reduced, ambient, increased) across annually and infrequently burned upland watersheds at Konza, the experiment examined both short and long-term drivers of productivity, species composition, and below ground processes. Summer 2024 marked the final field season (11th year; 10th of treatments) with an extensive and nearly exhaustive field sampling campaign. The Ghost Fire platform provided hand-on research and mentoring opportunities for numerous undergraduate researchers in the lab and supported the completion of one Master's thesis (UNCG) which will result in a published peer-reviewed manuscript. A synthesis publication is in preparation along with additional manuscripts that will extend the legacy of this long-term experiment.

Significant Results:

Key outcomes or Other achievements:

*** What opportunities for training and professional development has the project provided?**

The Konza LTER program provides training and professional development opportunities at many levels, including K-12 teachers, undergraduate and graduate students, post-doctoral scientists from several different institutions, junior tenure earning faculty members, and professional research staff. Below we summarize some of the recent and continuing opportunities provided by the KNZ program.

The Konza Prairie Schoolyard LTER (SLTER) program is in its 27th year as a science education program for K-12 teachers and their students, built around the successful Konza Prairie LTER program. The Konza Prairie SLTER program aims to educate students about ecology and global change, with emphasis on regional grasslands, by engaging students and

teachers in realistic and relevant science-based activities focused on long-term data collection at our LTER site. These activities were designed to give students an understanding of ecology, provide them with the opportunity to collect and interpret their own data. K-12 teachers who wish to bring their classes to Konza Prairie and to experience the Schoolyard LTER activities must first participate in a Summer Teachers' Workshop. This week-long program introduces the teachers to each of the activities offered by the Konza Environmental Education Program (KEEP) and, at the completion of the workshop, allows them to tailor an educational experience specific to the needs of their students. The teachers who complete the program qualify to bring their classes to Konza for no charge and have their bus transportation costs paid. This agreement stands for the rest of the teachers' professional career. These educators have become important partners in KEEP and many return annually. We have trained 137 area teachers since our program began in 1998. In 2025 KEEP welcomed over 4,000 school children from 23 different school districts to our site. Each visit is different with the teachers collaborating with KEEP personnel to tailor their student's experience. Students may go for a guided hike followed by a driving tour of the high prairie/bison area. Other groups may participate in hands-on activities, gathering data during experiments that mimic those of Konza Prairie researchers. All our groups get a chance to directly experience the colors, smells, sounds, and textures of the prairie throughout the year to increase both understanding and appreciation of this ecosystem.

KEEP has partnered with the Manhattan/Ogden KS School District 383 and Fort Riley/Junction City School District 475 to be a ready source of informal science education – specifically addressing core science concepts that are easily experienced during a Konza visit. To meet this need we train volunteer docents that assist in public education and outreach activities. New docents are added to the program annually and receive 40 hours of training on the history and ecology of the tallgrass prairie as well as an overview of research being conducted at Konza. Experienced docents regularly are appraised of new research programs and the progress of existing research and become ambassadors of science to the community. The KEEP program has trained over 300 docents (60 who were active during this reporting year). Additionally, we partner with the Flint Hills Discovery Center (Manhattan, KS) to co-host visiting school groups.

The Konza LTER program continues to emphasize quality graduate student training. During the 2024-2025 funding period, we provided stipends and other forms of non-financial support (vehicle use, site use, analytical laboratory use, attendance at regional/national meetings) for 33 graduate students, including both KSU and non-KSU graduate students. We continue to foster graduate research involving students attending Colorado State University, University of Kansas, Johns Hopkins, Wyoming, UNC-Greensboro, Penn State, and Oregon State. In 2024-2025, 5 thesis/dissertations were completed that included research conducted and data acquired from Konza Prairie.

The graduate student data synthesis group, "Grassland Rocks" met at Cedar Creek LTER in early May 2025. Grassland Rocks is a collaborative program between 3 LTER grassland sites (Kellogg, Cedar Creek, and Konza) to teach graduate students data synthesis/meta-analysis techniques and working in teams for synthesis projects. During the meeting, the group made progress with data analysis and developed an outline for their manuscript. Since the meeting, the group has met virtually on a regular basis. They have a complete draft manuscript that has been submitted to the journal Ecology Letters. Their harmonized dataset has been published on EDI. By all metrics, this cross-site activity has been a success. The students were exposed to multiple sites and their data, they identified a question of interest, harmonized the long-term data to address the question, and sent the results of their efforts to a top journal in our field.

The Konza LTER program provides hands-on research opportunities for ~45-50 undergraduate research assistants each year. These undergraduates are employed by KNZ LTER directly (as part of field crews collecting core LTER datasets) or indirectly in the labs of Konza faculty researchers. KNZ also supports and provides professional development for our professional research staff members, including training in the use of field and laboratory equipment, training in health and safety protocols, training in prescribed fire practices, and other relevant professional development. KNZ has a strong history of providing mentoring and research training for recent PhD's and junior faculty members. The KNZ program provided resources and mentoring to tenure-earning faculty members. In our current funding cycle, this includes assistant professors in Biology at KSU (Allison Louthan, and Zak Ratajczak).

*** Have the results been disseminated to communities of interest? If so, please provide details.**

Konza LTER results are disseminated to the scientific community via publications in peer-reviewed literature, through presentations at professional meetings and workshops, through seminars by KNZ scientists and students, through social media (Twitter/X, Facebook, Researchgate), and via the KNZ and KPBS websites. In addition, KNZ scientists have participated in a broad range of activities that go beyond the scientific community. For example, KNZ data and findings are used in several undergraduate and graduate courses at Kansas State University, the University of Kansas, University of Arizona, Colorado State University, and University of Oklahoma, among others. Data and insight from the Konza LTER

program are used by resource managers for effective land stewardship. Currently, our research concerning the role of seasonal burning and fire intensity on woody encroachment is being used to inform the Great Plains Fire Science Exchange (www.gpfirescience.org) and the Tallgrass Prairie and Oak Savanna Fire Science Consortium (www.tposfirescience.org). Both non-profit groups focus on conservation issues and land management of Midwestern grasslands. In addition, many of the Konza investigators serve as scientific consultants for a regional cultural and natural history center, the 'Flint Hills Discovery Center' in Manhattan, KS.

Over the past year, KNZ scientists and graduate students participated in numerous public outreach events designed to enhance the understanding of LTER science and dissemination of important findings. KNZ LTER Education Director, Jill Haukos developed and delivered the inaugural 2-day workshop for adult learners entitled, "The Tallgrass Prairie." The workshop, connecting adults to the prairie ecosystem, was open to the public with overwhelming response. KNZ LTER lead PI, Jesse Nippert participated in a live stream event, "Trees in the Grasslands: Three Perspectives, sponsored by the KSU Beach Museum of Art. This event brought together Nippert, Dana Fritz (Professor of Art at University of Nebraska-Lincoln) and Carson Vaughan (author and freelance environmental reporter) who discussed tree planting campaigns on the prairie and their impacts. Nippert has also engaged with public outreach during 2025 in several other venues. He was an invited speaker to the house subcommittee on water (KS State House of Representatives) where he spoke about the threat of woody encroachment on water sustainability in KS rangelands. He has given two public science presentations to the Missouri Prairie Foundation in 2025 (threats to Midwest grasslands), he presented to the Kansas Grazing Lands Coalition on sustainable range management, and Nippert and Blair led a discussion titled "What have we learned after 50 years of studying the Konza Prairie" at the 'Symphony in the Flint Hills' event. This presentation was attended by several hundred public prairie enthusiasts on a warm summer afternoon in June.

*** What do you plan to do during the next reporting period to accomplish the goals?**

We are entering year 6 of LTER VIII. We have begun to organize and plan for the renewal proposal, due in Spring 2026. To aid in that process, we have begun to develop our organizing conceptual model and discuss large site-based experiments that will test this model. We will be hosting a broad planning meeting in Jan. 2025 to make headway towards this goal.

During year 6 we will: 1) continue our core-data collection, processing, and online data integration of the current year and previous years' samples; 2) continue to update and error check the online data associated with KNZ LTER database and LTER network information management system; 3) continue to improve data accessibility and search options within our online database; 4) maintain our spatial data portal and online accessibility of our GIS data, 5) continue to support the development of new research projects initiated by KNZ faculty including Pam Sullivan (OSU), Meghan Avolio (Johns Hopkins), Sally Koerner (UNC-Greensboro), Kim Komatsu (UNC-Greensboro), Andrew Hope (KSU), Kevin Wilcox (UNC-Greensboro), Abby Langston (KSU), Zak Ratajczak (KSU) and Allison Louthan (KSU); 6) promote educational training and inclusion of undergraduate researchers within site science; 7) invest in training and development of our graduate student researchers at KNZ, contribute towards their career advancement, and engage them in synthesis activities available within broader LTER network; and 8) continue to provide leadership and participation in LTER network level activities.

Supporting Files

Filename	Description	Uploaded By	Uploaded On
2024-2025 KNZ LTER Findings.pdf	Please see the supporting pdf file, which provides detailed additional information which contributed to the overall progress of LTER VIII in 2024-2025.	Jesse Nippert	10/16/2025
2024-2025 KNZ LTER Activities.pdf	Please see the supporting pdf file, which provides detailed additional information which contributed to the overall progress of LTER VIII in 2024-2025.	Jesse Nippert	10/17/2025

Products

Books

Book Chapters

Inventions

Journals or Juried Conference Papers
View all journal publications currently available in the NSF Public Access Repository for this award.

The results in the NSF Public Access Repository will include a comprehensive listing of all journal publications recorded to date that are associated with this award.

Zeglin, Lydia H and Nieland, Matthew A and Carson, Christine M and Floyd, Victoria. (2024). Product-inhibition feedbacks, not microbial population level tradeoffs or soil pH, regulate decomposition potential under nutrient eutrophication. *Soil Biology and Biochemistry*. 189 (C) 109247. Status = Added in NSF-PAR

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Firn, Jennifer and Hobbie, Sarah E. and Komatsu, Kimberly J. and Cadotte, Marc W. and Collins, Scott L. and Hautier, Yann and Hector, Andy and Buckley, Yvonne M. and MacDougall, Andrew and Harpole, W. Stanley and Biederman, Lori and Adler, Peter B. and Hagenah, Nicole and Borer, Elizabeth T. and Dee, Laura and Isbell, Forest and Fay, Philip A. and Knops, Johannes M. H. and Seabloom, Eric W. and Alberti, Juan and Laungani, Ramesh. (2021). Increasing effects of chronic nutrient enrichment on plant diversity loss and ecosystem productivity over time. *Ecology*. 102 (2) . Status = Added in NSF-PAR

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Noble, Z. Ratajczak (In press) Restoring frequent fire and bison grazing results in habitat improvement for bison but minimal early reduction of woody encroachment. Ecological Restoration. Status = ACCEPTED.

Licenses

Other Conference Presentations / Papers

Other Products
View all workshop reports currently available in the NSF Public Access Repository for this award.

The results in the NSF Public Access Repository will include a comprehensive listing of all workshop report publications recorded to date that are associated with this award.

Other Publications

Patent Applications

Technologies or Techniques

Thesis/Dissertations
Weickert, Nathaniel. *Are We There Yet: Assessing Trajectories of Two Restored Prairies to Target Native Prairies over a Decadal Time Frame*. (2023). University of Kansas. Acknowledgement of Federal Support = Yes

Hedberg, Sydney. *Assessing drought sensitivity across the shortgrass steppe biome*. (2024). Colorado State University. Acknowledgement of Federal Support = Yes

Vega Anguiano, Nico. *Bison and cattle impacts on grassland soil microbial and ecosystem properties*. (2023). Kansas State University. Acknowledgement of Federal Support = Yes

Bookout, Bess. *Bison as Ecosystem Engineers: Impacts on Tallgrass Prairie Soil, Plant Communities, and Microbial Assemblages*. (2025). Kansas State University. Acknowledgement of Federal Support = Yes

Noble, B.. *Early detection of wildfire risk in the Great Plains: merging machine learning, landscape metrics, and rich data sources*. (2023). Kansas State University. Acknowledgement of Federal Support = Yes

Keen, R.. *Ecohydrological implications of clonal shrub encroachment in tallgrass prairie*. (2023). Kansas State University. Acknowledgement of Federal Support = Yes

Nieland, M.. *Ecosystem recovery from chronic fertilization: Biotic mechanisms underpinning soil nitrogen legacies in burned and unburned grasslands*. (2023). Kansas State University. Acknowledgement of Federal Support = Yes

Herzog, Sarah. *Environmental driver effects on population growth rates vary by rarity type and variation in demographic rate sensitivity*. (2024). Kansas State University. Acknowledgement of Federal Support = Yes

Bowman, Ashley. *Environmental heterogeneity effects on plant community structure, ecosystem functioning, and resilience to global change drivers in restored prairie*. (2025). University of Kansas. Acknowledgement of Federal Support = Yes

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Rodgers, A.. *Grazing intensity and fire frequency effects on plant species and community characteristics in tallgrass prairie*. (2023). University of Wyoming. Acknowledgement of Federal Support = Yes

McCarroll, Nicholas. *Hillslope evolution of heterolytic landscapes: investigating processes and controls on geomorphic development of staircase landscapes*. (2024). Kansas State University. Acknowledgement of Federal Support = Yes

Bunch, Zachary. *Impacts of Patch Burn Grazing on the Invertebrate Communities of Kansas Rangelands*. (2024). University of North Carolina Greensboro. Acknowledgement of Federal Support = Yes

Anhold, Christa. *Impacts of Woody Encroachment on the Fate of Soil CO2 in Grassland Watersheds*. (2023). Kansas State University. Acknowledgement of Federal Support = Yes

Millie Ortiz. *Investigating the Direct and Indirect Effects of Fire on Tallgrass Prairie Arthropod Communities of Eastern Kansas*. (2025). University of North Carolina Greensboro. Acknowledgement of Federal Support = Yes

Noble, Sidney. *North American Megafauna, Friend or Foe to Woody Encroachment Across the Great Plains?*. (2024). Kansas State University. Acknowledgement of Federal Support = Yes

Mohammadi, Shahla. *Phenotypic plasticity and ecological memory in Andropogon gerardii: responses to simulated grazing pressure*. (2024). Kansas State University. Acknowledgement of Federal Support = Yes

Storc, Zach. *Planting Year Climate Explains Variation in Community Assembly in Developing Prairie*. (2024). University of Kansas. Acknowledgement of Federal Support = Yes

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Wedel, Emily. *Resource-use strategies of woody plants in grassy ecosystems*. (2023). Kansas State University. Acknowledgement of Federal Support = Yes

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Silber, K.M.. *Under the weather: mechanisms underlying avian responses to precipitation*. (2023). Kansas State University. Acknowledgement of Federal Support = Yes

Pruitt, L.. *Variation in runoff generation and concentration-discharge behavior in three variably encroached grassland watersheds*. (2025). Kansas State University. Acknowledgement of Federal Support = Yes

Websites or Other Internet Sites

Participants/Organizations

What individuals have worked on the project?

Name	Most Senior Project Role	Nearest Person Month Worked
Nippert, Jesse	PD/PI	4
Baer, Sara	Co PD/PI	2

Name	Most Senior Project Role	Nearest Person Month Worked
Smith, Melinda	Co PD/PI	2
Zeglin, Lydia	Co PD/PI	2
Avolio, Meghan	Co-Investigator	2
Blair, John	Co-Investigator	1
Boyle, Alice	Co-Investigator	1
Brunsell, Nathaniel	Co-Investigator	1
Collins, Scott	Co-Investigator	1
Dodds, Walter	Co-Investigator	1
Gido, Keith	Co-Investigator	1
Hefley, Trevor	Co-Investigator	1
Hope, Andrew	Co-Investigator	1
Horne, Eva	Co-Investigator	1
Jensen, William	Co-Investigator	1
Jumpponen, Ari	Co-Investigator	1
Kirk, Matt	Co-Investigator	1
Knapp, Alan	Co-Investigator	1
Koerner, Sally	Co-Investigator	1
Komatsu, Kimberly	Co-Investigator	1
Langston, Abigail	Co-Investigator	1
Louthan, Allison	Co-Investigator	1
Ratajczak, Zak	Co-Investigator	1
Rice, Charles	Co-Investigator	1
Santos, Eduardo	Co-Investigator	1
Sullivan, Pam	Co-Investigator	1

Name	Most Senior Project Role	Nearest Person Month Worked
Wilcox, Kevin	Co-Investigator	1
Wilson, Gail	Co-Investigator	1
Goodin, Douglas	Faculty	1
Griffin-Nolan, Robert	Faculty	1
Lee, Sonny	Faculty	1
Mayfield, Mark	Faculty	1
Moore, Trisha	Faculty	1
O'Keefe, Kim	Faculty	1
Olson, KC	Faculty	1
Patrignani, Andres	Faculty	1
Spencer, Joel	Faculty	1
Temme, Arnaud	Faculty	1
Welti, Ellen	Faculty	1
Whiles, Matt	Faculty	1
Zolnerowich, Gregory	Faculty	1
Bloodworth, Kathryn	Postdoctoral (scholar, fellow or other postdoctoral position)	1
Broderick, Caitlin	Postdoctoral (scholar, fellow or other postdoctoral position)	1
Chaves Rodriguez, Francis	Postdoctoral (scholar, fellow or other postdoctoral position)	1
Connell, Kent	Postdoctoral (scholar, fellow or other postdoctoral position)	1
Keen, Rachel	Postdoctoral (scholar, fellow or other postdoctoral position)	1
Linabury, Mary	Postdoctoral (scholar, fellow or other postdoctoral position)	1

Name	Most Senior Project Role	Nearest Person Month Worked
Nieland, Matthew	Postdoctoral (scholar, fellow or other postdoctoral position)	1
Pehim Limbu, Smriti	Postdoctoral (scholar, fellow or other postdoctoral position)	1
Puthalath, Saranya	Postdoctoral (scholar, fellow or other postdoctoral position)	1
Wedel, Emily	Postdoctoral (scholar, fellow or other postdoctoral position)	1
Haukos, Jill	Other Professional	12
O'Connor, Rory	Other Professional	1
Rhodes, Jennifer	Other Professional	12
Wiekert, Nathaniel	Other Professional	1
Xia, Yang	Other Professional	12
King, Nathan	Technician	12
Ajowele, Joshua	Graduate Student (research assistant)	1
Anderson, Logan	Graduate Student (research assistant)	1
Bookout, Bess	Graduate Student (research assistant)	1
Bowman, Ashley	Graduate Student (research assistant)	1
Brenneman, Rachael	Graduate Student (research assistant)	1
Bunch, Zachary	Graduate Student (research assistant)	1
Chakravarty, Moupyali	Graduate Student (research assistant)	1
Clark, Kelly	Graduate Student (research assistant)	1
Dea, Hannah	Graduate Student (research assistant)	1
Gimenez Diaz, Marcos	Graduate Student (research assistant)	1
Glidden, Alec	Graduate Student (research assistant)	1
Grabda, Elisa	Graduate Student (research assistant)	1

Name	Most Senior Project Role	Nearest Person Month Worked
Greenlee, Emma	Graduate Student (research assistant)	1
Guthrie, Christiana	Graduate Student (research assistant)	1
Herzog, Sarah	Graduate Student (research assistant)	1
Jacobi, Adriana	Graduate Student (research assistant)	1
McTigue, Corina	Graduate Student (research assistant)	1
Moriello, Madison	Graduate Student (research assistant)	1
Nippert Churchman, Kalea	Graduate Student (research assistant)	1
Ortiz, Millie	Graduate Student (research assistant)	1
Pruitt, Levi (Johnny)	Graduate Student (research assistant)	1
Querns, Aleah	Graduate Student (research assistant)	1
Raihan, Md	Graduate Student (research assistant)	1
Regier, Lydia	Graduate Student (research assistant)	1
Sopko, Calla	Graduate Student (research assistant)	1
Stevermer, Klara	Graduate Student (research assistant)	1
Summers, Dorothea	Graduate Student (research assistant)	1
Terry, Rose	Graduate Student (research assistant)	1
Tooley, Greg	Graduate Student (research assistant)	1
Vasquez, Amy	Graduate Student (research assistant)	1
Weaver, Maija	Graduate Student (research assistant)	1
Westberg, Lydia	Graduate Student (research assistant)	1
Wieland, Sophie	Graduate Student (research assistant)	1
Yao, Zheng	Graduate Student (research assistant)	1
Figge, Janaye	Non-Student Research Assistant	12
Kuhl, Amanda	Non-Student Research Assistant	12

Name	Most Senior Project Role	Nearest Person Month Worked
Taylor, Jeff	Non-Student Research Assistant	12
Danner, Chloe	Undergraduate Student	1
Tyndall, Emma	Undergraduate Student	1

Full details of individuals who have worked on the project:

Jesse B Nippert
Email: nippert@ksu.edu
Most Senior Project Role: PD/PI
Nearest Person Month Worked: 4

Contribution to the Project: Dr. Nippert is the Konza Prairie LTER lead PI and project director. Provides overall LTER project leadership and coordination. He contributes expertise in plant ecology and ecophysiology, and plant responses to spatial variability in microclimate, and plant responses on core LTER watersheds at the Konza Prairie LTER site. He is responsible for woody plant encroachment studies, and also directs the KSU Stable Isotope Mass Spectroscopy Laboratory, and provides expertise on the application of stable isotopes to ecological studies.

Funding Support: NSF: Collaborative Research: How roots, regolith, and rock interact to control climate at mesotemporal scales, the R3-C Frontier.

Change in active other support: No

International Collaboration: Yes, South Africa
International Travel: No

Sara G Baer
Email: sgbaer@ku.edu
Most Senior Project Role: Co PD/PI
Nearest Person Month Worked: 2

Contribution to the Project: Dr. Baer is a project co-PI and provides expertise on grassland restoration, particularly with respect to plant community dynamics and long-term changes in ecosystem properties and processes. She is responsible for directing research on grassland restoration ecology at the Konza site, including recovery of ecosystem properties in restored grasslands. Dr. Baer oversees the Restoration Chronosequence study as part of the LTER VIII project. Supported with a subcontract to the University of Kansas.

Funding Support: USDA: Linking microbiome function and microbial processes to plant genetic diversity in a foundation forage grass across the Great Plains grassland climate gradient: a multi-omics approach.

Change in active other support: No

International Collaboration: No
International Travel: No

Melinda D Smith
Email: melinda.smith@colostate.edu
Most Senior Project Role: Co PD/PI
Nearest Person Month Worked: 2

Contribution to the Project: Professor at Colorado State University conducting research on plant population and community dynamics at Konza Prairie, and the impacts of climate change. Directs site-based activities related to the multi-site Nutrient Network (NutNet) project. Supported by a subcontract to Colorado State University.

Funding Support: USDA-NIFA: How do the soil microbiome and plant-soil feedbacks influence rangeland agroecosystems responses to drought?

Change in active other support: No

International Collaboration: No
International Travel: No

Lydia H Zeglin
Email: lzeglin@ksu.edu
Most Senior Project Role: Co PD/PI
Nearest Person Month Worked: 2

Contribution to the Project: Provides expertise in molecular microbial ecology; taxonomic and functional diversity of soil and stream microbiota in the context of ecosystem N and C cycles.

Funding Support: NSF-DEB-ES CAREER: How do microorganisms and grazing mammals interact at local to regional scales to regulate grassland nitrogen cycling processes?

Change in active other support: No

International Collaboration: No
International Travel: No

Meghan Avolio
Email: meghan.avolio@gmail.com
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 2

Contribution to the Project: Co-PI with Dr. Jesse Nippert. Research on grassland plant communities, mycorrhizae, climate change, nitrogen deposition, and genetic structure of plant communities. Currently an assistant professor at Johns Hopkins University. Supported on a subcontract with Johns Hopkins.

Funding Support: None

International Collaboration: No
International Travel: No

John Blair
Email: jblair@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Konza LTER investigator and Director of the Konza Prairie Biological Station (the primary research site for the Konza LTER program). Research expertise in ecosystem ecology and terrestrial biogeochemistry; soil ecology, including decomposition, soil nutrient cycling, litter/soil/plant nutrient dynamics; effects of climate change and other disturbances on ecosystem processes; ecology of soil invertebrates; and restoration ecology.

Funding Support: None

International Collaboration: No
International Travel: No

Alice Boyle
Email: aboyle@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Expertise in bird ecology and physiology; particular interest in reproduction, dispersal and energetics. 5/2025 - Dr. Boyle left KSU for a new position.

Funding Support: None

International Collaboration: No
International Travel: No

Nathaniel Brunsell
Email: brunsell@ku.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Expertise in ecosystem and global C and water flux measurement and modeling; coordinates collection and analysis of data from the Ameriflux towers located on Konza Prairie.

Funding Support: None

International Collaboration: No
International Travel: No

Scott Collins
Email: scollins@sevilleta.unm.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Expertise in grassland ecology and plant community ecology; ecological analyses of spatial and temporal dynamics; ecological responses to disturbance; analysis of species distribution and abundance; local regional interactions; productivity-diversity relationships.

Funding Support: None

International Collaboration: Yes, South Africa
International Travel: No

Walter Dodds
Email: wkdodds@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Dr. Dodds provides leadership for the Konza LTER aquatic research group. Research expertise in aquatic ecology; phycology; nutrient cycling and retention in streams; groundwater chemistry; watershed-level hydrologic export; water quality. Dr. Dodds is also leading the riparian vegetation removal study as part of the LTER VIII funding cycle. This study assess the impacts of riparian land-cover change on grassland streams.

Funding Support: None

International Collaboration: Yes, Brazil
International Travel: No

Keith B Gido
Email: kgido@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Provides expertise in aquatic ecology; stream communities and ecosystems; the effects of fish on stream ecosystem properties such as primary productivity, nutrient cycling, community structure (species richness and diversity), decomposition and transport of particulate organic matter (POM); impacts of altered hydrologic regimes on stream ecosystems. Oversees the LTER experimental stream facility. Coordinates regional assessments of stream fish communities.

Funding Support: US Bureau of Reclamation: Razorback suckers study in San Juan River

International Collaboration: Yes, Australia
International Travel: No

Trevor Hefley
Email: thefley@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Ecological statistics, hierarchical Bayesian models, spatial and spatio-temporal statistics, and wildlife ecology.

Funding Support: None

International Collaboration: No
International Travel: No

Andrew Hope
Email: ahope@ksu.du
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Expertise in mammalogy; particularly phylogeography, speciation and climate impacts on evolutionary mechanisms of community assembly.

Funding Support: None

International Collaboration: No
International Travel: No

Eva Horne
Email: ehorne@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Research in behavioral ecology of grassland reptiles; responses of reptile and amphibian populations to fire and grazing. Dr. Horne also assists with administration of the Konza Prairie Biological Station, and coordination of research permits and projects at the site.

Funding Support: None

International Collaboration: No
International Travel: No

William Jensen
Email: wjensen1@emporia.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Dr. Jensen is an Associate Professor at Emporia State University. He is studying the effects of patch-burn grazing on brood parasitism of Dickcissel nests in the Flint Hills tallgrass prairie, and is responsible for collecting data on avian consumer responses to the patch-burn grazing experiment.

Funding Support: None

International Collaboration: No
International Travel: No

Ari Jumpponen
Email: ari@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Expertise on fungal ecology, particularly mycorrhizae and other endophytic fungi; diversity of soil microbial communities; application of molecular methods to characterize soil microbial communities.

Funding Support: None

International Collaboration: No
International Travel: No

Matt Kirk
Email: mfkirk@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: KSU professor in the Department of Geology. Dr. Kirk is continuing the research of Dr. Gwen Macpherson, who retired from the University of Kansas.

Funding Support: None

International Collaboration: No
International Travel: No

Alan Knapp
Email: alan.knapp@colostate.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Provides research expertise in grassland ecology, plant ecology, physiological ecology, global change studies, plants-herbivore interactions, invasive species ecology. Dr. Knapp also provides leadership for LTER studies of plant productivity and responses to climatic variability and climate change, and conducts multi-site research involving SGS and KNZ LTER sites. Supported by a subcontract to Colorado State University.

Funding Support: None

International Collaboration: Yes, South Africa
International Travel: No

Sally Koerner
Email: sally.koerner@uncg.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Dr. Koerner is an assistant professor at the University of North Carolina Greenboro. Her research interests include ecology (community, ecosystem and plant ecology); drivers of biodiversity across spatial scales and through time.

Funding Support: None

International Collaboration: No
International Travel: No

Kimberly Komatsu
Email: kjkomatsu@uncg.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Former PhD student from Yale University. Dr. Komatsu is an associate professor and Florence Schaeffer Distinguished Scholar at the University of North Carolina Greensboro. Her research areas consists of animal plant interactions, biodiversity, climate change, ecology, ecosystem function, ecosystem services, global change, herbivores, insects, invasive species, nutrient pollution, plant ecology, and terrestrial ecology.

Funding Support: None

International Collaboration: No
International Travel: No

Abigail Langston
Email: alangston@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Professor in the KSU Department of Geology. Dr. Langston's core areas of geographic research are in quantitative geomorphology and landscape evolution modeling.

Funding Support: None

International Collaboration: No
International Travel: No

Allison Louthan
Email: amlouthan@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Dr. Louthan works at the intersection of population and community ecology, focusing on how species interactions and climate change jointly influence plant population dynamics and distribution patterns. She uses a combination of observational fieldwork, field- and greenhouse-based experiments, and modeling to explore how species interactions might impact future biodiversity patterns in a changing climate.

Funding Support: None

International Collaboration: No
International Travel: No

Zak Ratajczak
Email: zarata@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Research area involves woody encroachment. Former PhD student of Jesse Nippert.

Funding Support: None

International Collaboration: No
International Travel: No

Charles Rice
Email: cwrice@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Expertise in soil microbial ecology; responses of grassland microbial communities to fire, grazing climatic variability; soil C and N dynamics; denitrification in grasslands; effects of management on soil C sequestration. Contributor and author for IPCC AR4.

Funding Support: None

International Collaboration: No
International Travel: No

Eduardo Santos
Email: esantos@ksu.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Micro-meteorology and measurements of carbon and water fluxes from grassland. Expertise in eddy flux techniques and stable isotope analyses.

Funding Support: None

International Collaboration: No
International Travel: No

Pam Sullivan
Email: pamela.sullivan@oregonstate.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: As an ecohydrologist, Dr. Sullivan is interested in investigating the interactions between climate, vegetation and geology on freshwater resources over different temporal and spatial scales. Supported on a subcontract to Oregon State University.

Funding Support: None

International Collaboration: No
International Travel: No

Kevin Wilcox
Email: k_wilcox@uncg.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Professor at University of North Carolina Greensboro. Research focuses on global change and land use impacts on plant community dynamics, primary productivity, and biogeochemical cycles.

Funding Support: None

International Collaboration: No
International Travel: No

Gail Wilson
Email: gail.wilson@okstate.edu
Most Senior Project Role: Co-Investigator
Nearest Person Month Worked: 1

Contribution to the Project: Gail Wilson provides expertise on the role of mycorrhizal fungi in grasslands, and is responsible for long-term studies of the impacts of of mycorrhizal fungi on plant community dynamics and on soil structure and C storage in grasslands.

Funding Support: None

International Collaboration: No
International Travel: No

Douglas Goodin
Email: dgoodin@ksu.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Provides expertise on remote sensing of ecological data, including patterns of plant productivity and spatial distributions of grazing and fire effects; research on climatology in the Central Plains; research on the impacts of burning on air quality.

Funding Support: None

International Collaboration: No
International Travel: No

Robert Griffin-Nolan
Email: rgriffinnolan@scu.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Former PhD student (Advisor, Alan Knapp) working on plant physiological responses to drought and ecosystem drought sensitivity. Received PhD in 2019. Currently, faculty at California State University.

Funding Support: None

International Collaboration: No
International Travel: No

Sonny Lee
Email: leet1@ksu.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Interest include: metagenomics, bioinformatics, microbial ecology, microbial diversity and cultivation.

Funding Support: None

International Collaboration: No
International Travel: No

Mark Mayfield
Email: markherb@ksu.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Expertise in plant systematics.

Funding Support: None

International Collaboration: No
International Travel: No

Trisha Moore
Email: tlcmoore@ksu.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Expertise in environmental engineering with a focus on ecohydrology and water and carbon cycling.

Funding Support: None

International Collaboration: No
International Travel: No

Kim O'Keefe
Email: okeefe.kim@gmail.com
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Assistant professor at Northern Michigan University. Former PhD student of Dr. Jesse Nippert

Funding Support: None

International Collaboration: No
International Travel: No

KC Olson
Email: kcolson@ksu.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: KC Olson is a professor of animal science, who brings expertise on the physiology and management of cattle in mesic grasslands. Dr. Olson is an active participant in the new patch-burn grazing study, and will oversee assessment of animal performance as a management-related aspect of this LTER study.

Funding Support: None

International Collaboration: No
International Travel: No

Andres Patrignani
Email: andrespatrignani@ksu.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Dr. Patrignani is an assistant professor in the KSU Department of Agronomy. His interest is soil water management.

Funding Support: None

International Collaboration: No
International Travel: No

Joel Spencer
Email: joelspen@ksu.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: KSU professor of geology

Funding Support: None

International Collaboration: No
International Travel: No

Arnaud Temme
Email: arnaudtemme@ksu.edu

Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Expertise in Geomorphology, soil mapping, soil and landscape evolution, complexity, mountain landscapes

Funding Support: None

International Collaboration: No
International Travel: No

Ellen Welti
Email: weltie@si.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Former PhD student (Advisor, Tony Joern) working on mechanisms of food web stability. Currently working at the Great Plains Science Program, Conservation Ecology Center, Smithsonian Conservation Biology Institute.

Funding Support: None

International Collaboration: No
International Travel: No

Matt Whiles
Email: mwhiles@ufl.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Expertise in invertebrate ecology; research focused on assessment of patterns and controls of secondary productivity in grassland streams; ecology of soil invertebrates in grasslands. Participant in new riparian vegetation removal experiment.

Funding Support: None

International Collaboration: No
International Travel: No

Gregory Zolnerowich
Email: gregz@ksu.edu
Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Expertise in grassland insect biodiversity and insect systematics, particularly of parasitic wasps. Dr. Zolnerowich oversees the KSU Museum of Entomological and Prairie Arthropod Research, and provides expertise on electronic databasing of biological collections.

Funding Support: None

International Collaboration: No
International Travel: No

Kathryn Bloodworth
Email: kjbloodw@uncg.edu

Most Senior Project Role: Postdoctoral (scholar, fellow or other postdoctoral position)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Sally Koerner Defended PhD in December 2023 Now postdoc at University of Maryland

Funding Support: None

International Collaboration: No
International Travel: No

Caitlin Broderick
Email: broder49@msu.edu
Most Senior Project Role: Postdoctoral (scholar, fellow or other postdoctoral position)
Nearest Person Month Worked: 1

Contribution to the Project: Former Advisor: John Blair Now postdoc at Michigan State

Funding Support: None

International Collaboration: No
International Travel: No

Francis Chaves Rodriguez
Email: francis.chaves_rodriguez@colostate.edu
Most Senior Project Role: Postdoctoral (scholar, fellow or other postdoctoral position)
Nearest Person Month Worked: 1

Contribution to the Project: Former PhD student at Colorado State University Current postdoc for Dr. Melinda Smith, Colorado State

Funding Support: None

International Collaboration: No
International Travel: No

Kent Connell
Email: rkco@umich.edu
Most Senior Project Role: Postdoctoral (scholar, fellow or other postdoctoral position)
Nearest Person Month Worked: 1

Contribution to the Project: Postdoc at University of Michigan Former graduate student of Dr. John Blair

Funding Support: None

International Collaboration: No
International Travel: No

Rachel Keen
Email: rlease@ksu.edu
Most Senior Project Role: Postdoctoral (scholar, fellow or other postdoctoral position)
Nearest Person Month Worked: 1

Contribution to the Project: Former grad student of Dr. Jesse Nippert. Currently postdoc with Dr. Sharon Billings (KU) and Dr. Pam Sullivan (Oregon State).

Funding Support: None

International Collaboration: No
International Travel: No

Mary Linabury
Email: mary.linabury@gmail.com
Most Senior Project Role: Postdoctoral (scholar, fellow or other postdoctoral position)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Melinda Smith Defended: 2025 Now a postdoc at Arizona State University

Funding Support: None

International Collaboration: No
International Travel: No

Matthew Nieland
Email: mnieland@umass.edu
Most Senior Project Role: Postdoctoral (scholar, fellow or other postdoctoral position)
Nearest Person Month Worked: 1

Contribution to the Project: Former PhD student of Dr. Lydia Zeglin Now postdoc at University of Massachusetts Amherst

Funding Support: None

International Collaboration: No
International Travel: No

Smriti Pehim Limbu
Email: slimbu2@jhu.edu
Most Senior Project Role: Postdoctoral (scholar, fellow or other postdoctoral position)
Nearest Person Month Worked: 1

Contribution to the Project: Former PhD student of Dr. Meghan Avolio at Johns Hopkins Now postdoc at Dartmouth College

Funding Support: None

International Collaboration: No
International Travel: No

Saranya Puthalath
Email: saranyaputhalath@ksu.edu
Most Senior Project Role: Postdoctoral (scholar, fellow or other postdoctoral position)
Nearest Person Month Worked: 1

Contribution to the Project: Postdoc in Dr. Jesse Nippert's lab

Funding Support: None

International Collaboration: No
International Travel: No

Emily Wedel
Email: ewedel@nd.edu
Most Senior Project Role: Postdoctoral (scholar, fellow or other postdoctoral position)
Nearest Person Month Worked: 1

Contribution to the Project: Former PhD student of Jesse Nippert Defended in 2023 Now postdoc at Norte Dame

Funding Support: None

International Collaboration: No
International Travel: No

Jill Haukos
Email: jhaukos@ksu.edu
Most Senior Project Role: Other Professional
Nearest Person Month Worked: 12

Contribution to the Project: Director of the Konza Education Program (KEEP). Jill directs the K-12 education program, including the Konza Prairie SLTER program and serves as the KNZ LTER education representative for LNO activities. Jill also oversees the Konza docent program and some of the public outreach activities.

Funding Support: Konza Prairie Biological Station

International Collaboration: No
International Travel: No

Rory O'Connor
Email: rory.o'connor@usda.gov
Most Senior Project Role: Other Professional
Nearest Person Month Worked: 1

Contribution to the Project: Former PhD student of Dr. Jesse Nippert. Currently works as a rangeland ecologist for the USDA-ARS in Burns, Oregon. Still conducts research at Konza Prairie.

Funding Support: None

International Collaboration: No
International Travel: No

Jennifer Rhodes
Email: jenniferrhodes@ksu.edu
Most Senior Project Role: Other Professional
Nearest Person Month Worked: 12

Contribution to the Project: Program coordinator and event planner.

Funding Support: None

International Collaboration: No
International Travel: No

Nathaniel Wiekert
Email: n.c.weickert@ku.edu

Most Senior Project Role: Other Professional
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Sara Baer Defended masters in 2022. Now assistant operations manager at the KU Field Station

Funding Support: None

International Collaboration: No
International Travel: No

Yang Xia
Email: yangx@ksu.edu
Most Senior Project Role: Other Professional
Nearest Person Month Worked: 12

Contribution to the Project: LTER Information Manager. Responsibilities include data management, database design and implementation, and overseeing KNZ LTER computer network activities.

Funding Support: None

International Collaboration: No
International Travel: No

Nathan King
Email: nathanking778@ksu.edu
Most Senior Project Role: Technician
Nearest Person Month Worked: 12

Contribution to the Project: Field technician.

Funding Support: None.

International Collaboration: No
International Travel: No

Joshua Ajowele
Email: joshuaajowele@gmail.com
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Kevin Wilcox University of North Carolina Greensboro

Funding Support: None

International Collaboration: No
International Travel: No

Logan Anderson
Email: landerson14@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student in Dr. Alice Boyle's lab.

Funding Support: None

International Collaboration: No
International Travel: No

Bess Bookout
Email: bessbookout16@gmail.com
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Zak Rataczak Presented her defense on 6/25/2025

Funding Support: None

International Collaboration: No
International Travel: No

Ashley Bowman
Email: ashley.wojiechowski@ku.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Sara Baer

Funding Support: None

International Collaboration: No
International Travel: No

Rachael Brenneman
Email: rrbrenneman@uncg.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Dr. Kim Komatsu

Funding Support: None

International Collaboration: No
International Travel: No

Zachary Bunch
Email: zlbunch2@uncg.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student in Dr. Kim Komatsu's lab at University of North Carolina Greensboro Defended in 2024

Funding Support: None

International Collaboration: No
International Travel: No

Moupyali Chakravarty
Email: mou@k-state.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student in Dr. Abigail Langston's lab at KSU

Funding Support: None

International Collaboration: No
International Travel: No

Kelly Clark
Email: kmclark4@uncg.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student at University of North Carolina Greensboro Advisor: Kim Komatsu

Funding Support: None

International Collaboration: No
International Travel: No

Hannah Dea
Email: hidea@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Ari Jumpponen

Funding Support: None

International Collaboration: No
International Travel: No

Marcos Gimenez Diaz
Email: marcosgimenezdiaz@ku.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student at University of Kansas Advisor: Dr. Sara Baer

Funding Support: None

International Collaboration: No
International Travel: No

Alec Glidden
Email: aglidden@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Dr. John Blair

Funding Support: None

International Collaboration: No
International Travel: No

Elisa Grabda
Email: msgrabda@uncg.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Dr. Kim Komatsu

Funding Support: None

International Collaboration: No
International Travel: No

Emma Greenlee
Email: egreenlee@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student in Dr. Zak Ratajczak's lab KSU

Funding Support: None

International Collaboration: No
International Travel: No

Christiana Guthrie
Email: clguthrie@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student in Dr. Allison Louthan's lab at KSU

Funding Support: None

International Collaboration: No
International Travel: No

Sarah Herzog
Email: sherzog@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Allison Louthan Defended on 10/25/2025

Funding Support: None

International Collaboration: No
International Travel: No

Adriana Jacobi
Email: adriana.jacobi@colostate.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student at Colorado State University

Funding Support: None

International Collaboration: No
International Travel: No

Corina McTigue
Email: corinam@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Kansas State University graduate student in Dr. Jesse Nippert's lab

Funding Support: None

International Collaboration: No
International Travel: No

Madison Moriello
Email: moriello@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student in Dr. Walter Dodds' lab

Funding Support: None

International Collaboration: No
International Travel: No

Kalea Nippert Churchman
Email: krnippert@uncg.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: University of North Carolina Greensboro Advisor: Dr. Sally Koerner

Funding Support: None

International Collaboration: No
International Travel: No

Millie Ortiz
Email: m_ortiz2@uncg.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student in Dr. Kim Komatsu's lab at UNCG.

Funding Support: None

International Collaboration: No
International Travel: No

Levi (Johnny) Pruitt
Email: JohnnyPruitt@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student at KSU Advisor: Dr. Matt Kirk

Funding Support: None

International Collaboration: No
International Travel: No

Aleah Querns
Email: akquerns@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Allison Louthan

Funding Support: None

International Collaboration: No
International Travel: No

Md Abu Raihan
Email: aburaihan@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Dr. Walter Dodds

Funding Support: None

International Collaboration: No
International Travel: No

Lydia Regier
Email: lydiaregier@ku.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student at University of Kansas Advisor: Sara Baer

Funding Support: None

International Collaboration: No
International Travel: No

Calla Sopko
Email: callasopko@gmail.com
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Kansas State University Advisor: Dr. Ellen Welti

Funding Support: None

International Collaboration: No
International Travel: No

Klara Stevermer
Email: klarastevermer@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Master's student of Dr. Jesse Nippert

Funding Support: None

International Collaboration: No
International Travel: No

Dorothea Summers
Email: dorothea.summersamdg@gmail.com
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student at University of Kansas Advisor: Dr. Sara Baer

Funding Support: None

International Collaboration: No
International Travel: No

Rose Terry
Email: rsterry@uncg.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Sally Koener

Funding Support: None

International Collaboration: No
International Travel: No

Greg Tooley
Email: greg.tooley@colostate.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Colorado State University Advisor: Dr. Alan Knapp

Funding Support: None

International Collaboration: No
International Travel: No

Amy Vasquez
Email: avasque3@jhu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Advisor: Dr. Meghan Avolio

Funding Support: None

International Collaboration: No
International Travel: No

Maija Weaver
Email: maija@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Kansas State University Advisor: Dr. Keith Gido

Funding Support: None

International Collaboration: No
International Travel: No

Lydia Westberg
Email: lydia.westberg@ku.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student of Dr. Sara Baer's at KU.

Funding Support: None

International Collaboration: No
International Travel: No

Sophie Wieland
Email: swieland@ksu.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student in Dr. Allison Louthan's lab, KSU

Funding Support: None

International Collaboration: No
International Travel: No

Zheng Yao
Email: zyao78@k-state.edu
Most Senior Project Role: Graduate Student (research assistant)
Nearest Person Month Worked: 1

Contribution to the Project: Graduate student of Dr. Allison Louthan

Funding Support: None

International Collaboration: No
International Travel: No

Janaye Figge
Email: jhanschu@ksu.edu
Most Senior Project Role: Non-Student Research Assistant
Nearest Person Month Worked: 12

Contribution to the Project: LTER analytical lab supervisor, research coordinator.

Funding Support: None.

International Collaboration: No
International Travel: No

Amanda Kuhl
Email: akuhl@ksu.edu
Most Senior Project Role: Non-Student Research Assistant
Nearest Person Month Worked: 12

Contribution to the Project: Research assistant and field crew leader.

Funding Support: None

International Collaboration: No
International Travel: No

Jeff Taylor
Email: jht@ksu.edu
Most Senior Project Role: Non-Student Research Assistant
Nearest Person Month Worked: 12

Contribution to the Project: Field technician.

Funding Support: None

International Collaboration: No
International Travel: No

Chloe Danner
Email: chloe221@ksu.edu
Most Senior Project Role: Undergraduate Student
Nearest Person Month Worked: 1

Contribution to the Project: Undergraduate student in Dr. Jesse Nippert's lab.

Funding Support: None

International Collaboration: No
International Travel: No

Emma Tyndall
Email: etyndall@ksu.edu
Most Senior Project Role: Undergraduate Student
Nearest Person Month Worked: 1

Contribution to the Project: Undergraduate researcher in Dr. Jesse Nippert's lab.

Funding Support: None

International Collaboration: No
International Travel: No

What other organizations have been involved as partners?

Name	Type of Partner Organization	Location
Colorado State University	Academic Institution	Fort Collins, CO
Department of Energy	Other Organizations (foreign or domestic)	USA
USGS	Other Organizations (foreign or domestic)	USA
University of Kansas	Academic Institution	Lawrence, KS
University of North Carolina at Greensboro	Academic Institution	Greensboro, NC
Johns Hopkins University	Academic Institution	Baltimore, MD
Kansas State University	Academic Institution	Manhattan, KS
NOAA	Other Organizations (foreign or domestic)	USA
Oklahoma State University	Academic Institution	Stillwater, OK
Oregon State University	Academic Institution	Corvallis, OR
State of Kansas	State or Local Government	Kansas
The Nature Conservancy	Other Nonprofits	Kansas
US EPA	Other Organizations (foreign or domestic)	USA

Full details of organizations that have been involved as partners:

Colorado State University

Organization Type: Academic Institution
Organization Location: Fort Collins, CO

Partner's Contribution to the Project:
Collaborative Research

More Detail on Partner and Contribution: Dr. Alan Knapp (Biology Department, Colorado State University) collaborates on many aspects of the Konza LTER program. His research includes studies of grassland ecology, responses to climatic variability and climate change, and the ecology of plant invasions. Knapp's LTER research is supported by a subcontract to Colorado State University, which also provides support for students participating in cross-site research that utilizes the Konza Prairie LTER site and database. Dr. Melinda Smith is an LTER collaborator and participates in several aspects of Konza LTER research, including studies of plant community dynamics, the ecology of plant invasions, genomic responses of plants to climate change, and comparisons of the ecology of North American and South African grasslands. Dr. Smith and her students also oversee the NutNet project at Konza as apart of a multi-site study of the effects of nutrient amendments and herbivory on herbaceous community and ecosystem dynamics. The Konza LTER program provides a subcontract to CSU and logistical support for these studies.

Department of Energy

Organization Type: Other Organizations (foreign or domestic)
Organization Location: USA

Partner's Contribution to the Project:
Financial support
In-Kind Support
Collaborative Research

More Detail on Partner and Contribution: The Konza LTER program provides partial support for two CO2 flux towers, which are part of the Ameriflux network of net C exchange measurement sites. DOE provides some financial and logistical support for tower operations and data processing.

Johns Hopkins University

Organization Type: Academic Institution
Organization Location: Baltimore, MD

Partner's Contribution to the Project:
Collaborative Research

More Detail on Partner and Contribution: Konza LTER supports collaborative research with Johns Hopkins collaborator, Dr. Megan Avolio. Dr. Avolio's lab focuses on plants and their interactions with the environment and other organisms.

Kansas State University

Organization Type: Academic Institution
Organization Location: Manhattan, KS

Partner's Contribution to the Project:
In-Kind Support
Facilities

More Detail on Partner and Contribution: KSU owns a portion of the Konza Prairie Biological Station, and provides access and use of the field site and associated on-site facilities. KSU also provide campus lab facilities, and computer server and network support through a partnership between the KNZ LTER program and the KSU Physics Computer Support Center, where KNZ network servers are housed. KSU provides support for operation of the Environmental Chemistry Laboratory in Bushnell Hall, which is used for LTER water sample analyses. KSU also provides support in the form of available assistantships for graduate students conducting KNZ research.

NOAA

Organization Type: Other Organizations (foreign or domestic)
Organization Location: USA

Partner's Contribution to the Project:
Facilities
Collaborative Research

More Detail on Partner and Contribution: Konza Prairie is part of the U.S. Climate Reference Network (USCRN). USCRN is a network of climate stations developed as part of a National Oceanic and Atmospheric Administration (NOAA) initiative. Its primary goal is to provide future long-term homogeneous observations of temperature and precipitation that can be coupled to long-term historical observations for the detection and attribution of present and future climate change.

Oklahoma State University

Organization Type: Academic Institution
Organization Location: Stillwater, OK

Partner's Contribution to the Project:
Collaborative Research

More Detail on Partner and Contribution: The Konza LTER program supports collaborative research with Dr. Gail Wilson. Dr. Wilson's research focuses primarily on the role of mycorrhizae in grasslands, and the the ecology of Bothriochloa bladhii (Caucasian bluestem), an important invasive grass species.

Oregon State University

Organization Type: Academic Institution
Organization Location: Corvallis, OR

Partner's Contribution to the Project:
Collaborative Research

More Detail on Partner and Contribution: Collaborative Konza LTER research with OSU collaborator, Dr. Pam Sullivan and students to conduct research on groundwater hydrology and chemistry. Dr. Sullivan is continuing work previously conducted by Dr. Gwen Macpherson (University of Kansas), who retired in 2020.

State of Kansas

Organization Type: State or Local Government
Organization Location: Kansas

Partner's Contribution to the Project:
Financial support
Facilities

More Detail on Partner and Contribution: The state of Kansas provides an operating budget for Konza Prairie Biological Station personnel and general site maintenance.

The Nature Conservancy

Organization Type: Other Nonprofits
Organization Location: Kansas

Partner's Contribution to the Project:
Facilities
Collaborative Research

More Detail on Partner and Contribution: Konza Prairie Biological Station is a Nature Conservancy site, established on land purchased by The Nature Conservancy and managed by the Division of Biology at KSU. Konza LTER scientists interact with TNC scientists and officers on a broad range of management-related issues, including grassland conservation, restoration ecology, and grazing management.

US EPA

Organization Type: Other Organizations (foreign or domestic)
Organization Location: USA

Partner's Contribution to the Project:
Facilities
Collaborative Research

More Detail on Partner and Contribution: The US EPA jointly operates a CASTNet (Clean Air Standards and Trends Network) and AMoN (ammonia monitoring) site located at the Konza Prairie LTER site. The Konza Prairie LTER program provides site support and the EPA provides analytical services and compiles data on atmospheric nutrient concentrations and dry deposition rates, and tropospheric ozone concentrations. The EPA Region 7 office also supports a collaborative modeling project, which is using using Konza LTER data to build linked models of hydrology and biogeochemistry that can be used to assess the effects of alternate land-use scenarios in the Flint Hills region. This project is led by Dr. Bob McKane (EPA) in collaboration with KNZ scientists.

USGS

Organization Type: Other Organizations (foreign or domestic)
Organization Location: USA

Partner's Contribution to the Project:
Facilities
Collaborative Research

More Detail on Partner and Contribution: The USGS collects and provides data on the hydrology and chemistry of Kings Creek, a USGS benchmark stream located on the Konza Prairie LTER site, and the Konza LTER program facilitates the transfer of these data to the Hydro-DB database. The Konza LTER site is also a part of the USArray component of the USGS EarthScope project- a continental-scale seismic observatory.

University of Kansas

Organization Type: Academic Institution
Organization Location: Lawrence, KS

Partner's Contribution to the Project:
Collaborative Research

More Detail on Partner and Contribution: We provide a subcontract and logistical/technical support to Dr. Nathaniel Brunsell (Dept of Geography), who oversees flux tower operations at the Konza site. Dr. Brunsell's research addresses the role of land-use/land-cover change land surface heterogeneity in vegetation, moisture, soil type, topography on water and energy fluxes from local to regional scales. This research uses a combination of field measurements, remote sensing and numerical modeling, and is integrated with flux tower studies at the Konza LTER site. We also provide a subcontract to Dr. Sara Baer and student to research grassland restoration ecology.

University of North Carolina at Greensboro

Organization Type: Academic Institution
Organization Location: Greensboro, NC

Partner's Contribution to the Project:
Collaborative Research

More Detail on Partner and Contribution: Konza LTER supports collaborative research with UNCG's collaborators, Dr. Sally Koerner, Dr. Kim Komatsu, and Dr. Kevin Wilcox.

Were other collaborators or contacts involved? If so, please provide details.
Nothing to report

Impacts

What is the impact on the development of the principal discipline(s) of the project?

The Konza Prairie LTER program is a comprehensive, interdisciplinary research program designed to contribute to synthetic activities and conceptual and theoretical advances in ecology, and to further an understanding of ecological processes in grasslands. In the 2024-2025 funding period, the KNZ program produced or contributed to 44 publications: 40 refereed journal articles (including 6 currently in press) and 5 dissertations and theses. These publications cover topics ranging from assessing the role of plant diversity into mechanisms of nutrient dilution, estimating Flint Hills tallgrass prairie productivity and fuel loads using AI tools and remotely sensed imagery, and the effects of patch-burn grazing on belowground invertebrates. Within the past year, Konza LTER scientists have continued to publish high-quality articles in disciplinary focused areas (e.g.Journal of Remote Sensing, Freshwater Biology, Mycologia, and Chemical Geology), general ecology (e.g. Oecologia, Ecology, Functional Ecology, Ecosphere, Ecosystems, Journal of Ecology, Ecology Letters), and high-impact general science journals (e.g. PNAS, Science, TREE, and Nature).

In addition to site-based science, KNZ scientists made substantial contributions to multi-site, collaborative ecological research, and the widespread use of KNZ LTER data and resources by the broader ecology community. For example, Kim Komatsu is a member of the LTER SPARC Synthesis working group, which is using long-term data from 14 LTER sites to understand how disturbances and environmental change across timescales are altering the production and transfer of organic matter from primary producers to herbivores. Nippert is a member of the LTER synthesis grant focused on ecosystem material legacies (led by postdoc Kai Kopecky – CU Boulder). This synthesis group has completed its first manuscript (submitted to the journal Science in October 2025) and will meet in person at NCEAS in February 2026. Finally, data from five long-term Konza experiments are included in the CoRRE database, for which the consequences of global change drivers for plant phylogenetic and functional diversity are being assessed as part of a German Centre for Biodiversity (iDiv) working group led by Meghan Avolio and Kim Komatsu).

Two global experimental networks have their roots at Konza. Building on Konza's rich history of experimental rainfall manipulations (Knapp et al. 2015, Wilcox et al. 2017), Melinda Smith founded 'Drought-Net', a network of >100 globally distributed grassland sites that manipulate rainfall to assess ecosystem sensitivity to drought. Smith was also a founding member of the Nutrient Network (NutNet), with plots established on KPBS in 2007. KNZ investigator Kim Komatsu serves on the NutNet Advisory Team and contributes KNZ data for NutNet publications.

What is the impact on other disciplines?

The Konza Prairie LTER program and our core research experiments attract numerous scientists from a broad spectrum of scientific disciplines beyond ecology. One particular area of recent emphasis has been the development of our critical zone research and collaborations between biological and hydrological scientists. Our groundwater chemistry program (and well installation) began in the late 1980's by Gwen Macpherson (Geology, KU). Gwen retired in the winter of 2020, and her groundwater chemistry sampling is being continued by Dr. Matt Kirk, Geology, KSU. KNZ supports Dr. Pamela Sullivan (Earth, Oceans, and Atmo Sciences, Oregon State Univ.) who began additional subsurface geochemistry research at Konza

in 2016 and is continuing to develop a site-based program on Konza. Sullivan's work focuses on the interface of freshwater resources – changing climate – vegetation dynamics, and she is collaborating with Nippert and Blair. Pam, Jesse and Dr. Li Li (Penn State) have been investigating root macropore generation as a consequence of woody encroachment. New wells were installed on Konza for this project in the summer, 2021. Pam, Jesse, Li Li and 5 others (Dr. Kamini Singha – CO School of Mines, Dr. Dan Hirmas and Dr. Hoori Ajami – Cal Riverside, Dr. Lejo Flores – Idaho State, and Dr. Sharon Billions – KU) received an NSF-GEO award to conduct Critical Zone research comparing Konza to 4 other sites. This research began in Summer 2022. In the summer 2024, Sullivan, Li, Nippert, and Kirk received a new NSF award (EAR 2415980) in 2024 to continue to investigate how woody plants alter subsurface geology, hydrology, and biogeochemistry. This work is exclusively focused on Konza Prairie and builds from previous research on site. In April of 2025, all new sensors associated with this award (soil moisture, matric potential, gas concentrations (CO2, O2) gas wells, lysimeters and aboveground sensors to assess evapotranpirative fluxes were installed in watersheds N4D and N1B.

Dr. Abby Langston (KSU Geography) is a geomorphologist with research interests in landscape evolution and modeling. Dr. Langston is collaborating with Dr. Walter Dodds on projects related to stream flow and stream corridor change.

The KNZ LTER patch-burn grazing experiment is being done in collaboration with Dr. KC Olson, a grazing animal nutritionist (Animal Science and Industry – KSU) that is using the experiment to access the impacts of alternative grassland management practices on animal nutrition and animal health. Other contributions to disciplines outside the traditional realm of ecology include the use of flux towers at the Konza site, which has provided data used by micrometeorologists, climatologists, remote sensing scientists and modelers. We also collaborate with atmospheric chemists and modelers with the EPA CASTNet program in sampling concentrations of selected airborne particles and use these to model dry deposition rates.

What is the impact on the development of human resources?

Our program has a long history of undergraduate training and exposure to scientific research for local KSU students. Amanda Kuhl (KNZ Research Assistant) mentors 15-25 students year-round that provide essential roles in the collection and measurement of long-term productivity plots, as well as grass and grasshopper population data in the core KNZ datasets. Amanda is a long-term Konza staff and has great institutional memory and is a core asset to our team. In addition, training of undergraduates includes REU students supported each summer (typically 2/summer). Indirectly, we support the development of undergraduates via the use of Konza LTER data in ecology classes and textbooks. As documented elsewhere in this report, we also train numerous graduate students and provide valuable experience in interdisciplinary research and the synthetic use of long-term datasets. In addition to supporting KSU graduate students, the Konza Prairie LTER site is widely utilized by graduate students from other institutions. During the 2024-2025 funding period, the site was used by graduate students from the University of Kansas, Colorado State University, Oregon State University, University of North Carolina at Greensboro, and Johns Hopkins University. We also hosted field trips for students from many regional colleges and universities. The Konza Environmental Education Program and the Konza Prairie Schoolyard LTER Program provide formal and informal research experiences and science education to public groups, children, and K-12 teachers.

What was the impact on teaching and educational experiences?

KNZ data and findings are used in a number of undergraduate and graduate courses at Kansas State University, the University of Kansas, University of Arizona, Colorado State University, University of Oklahoma, among others. In addition, KNZ findings are increasingly utilized in undergraduate ecology texts and supplementary teaching material. For example, KNZ long-term studies were used to demonstrate the role of fire and grazing in the 'Ecology' text by Cain et al. ('Life. The Science of Biology. 7th edition' by Purves, Sadva, Orians, and Heller) and KNZ data and findings are highlighted in several upper-level and graduate texts including 'Freshwater Ecology' (W.K. Dodds), 'The Ecology of Plants' (Gurevitch, Scheiner and Fox), and 'Biogeochemistry. An Analysis of Global Change' (W.H. Schlesinger). Additionally, KNZ is used as an "outdoor classroom' for many courses at KSU and regional colleges and universities. As an example, many of the lab portions of KSU Biology courses take the students to Konza for weekly lab exercises (focused on everything from small mammal trapping, avian ecology / sampling, measurements of plant physiology and productivity, soil microbiome measurements, and freshwater fish and biogeochemistry sampling. Allison Louthan (KSU) has drawn heavily from Konza research as examples in a new "tallgrass prairie ecology" course taught for the first time in Spring 2025; a manuscript resulting from that course– with almost entirely graduate and undergraduate authors– is in preparation for submission to a peer-reviewed publication.

Konza Prairie hosted two educational/training short courses in 2025 (in addition to the 'Grassland Rocks' data synthesis activity previously described). Konza Prairie hosted the 4th straight summer iteration of the 'Critical Zone' Field Camp (late June 2025). A total of 16 undergraduates, 3 graduate students and 3 postdocs participated. Lead by Pam Sullivan, instructors included Jesse Nippert, Lin Ma, Rachel Keen, Xander Takver and Taylor McDowell. The training focused on

building research skills across the disciplines of hydrology, ecology, pedology, geology, and biology. Participants came from Oregon State University, Colorado School of Mines, University of Texas El Paso, Texas Tech University and Kansas State University.

The subcontract to PI-Baer has provided a range of professional development opportunities to graduate students: learning how to curate long-term datasets for archival purposes, creating metadata, and provide explanatory data for public access; visualizing temporal trends in R; and modeling the influence of climate on communities and ecosystem processes.

What is the impact on physical resources that form infrastructure?

The Konza LTER program provides a research platform for scientists and students from around the world. The 3,487-ha Konza Prairie Biological Station (KPBS), located in the Flint Hills of NE Kansas, is the core research site for the KNZ program. In addition to providing the watershed-level fire and grazing treatments, agricultural fields, restored prairie, stream networks and weirs, KPBS includes several buildings in the headquarters area that support LTER research. The on-site Ecology Laboratory (2,400 ft2) includes (1) a wet/dry lab with sinks, fume hood, refrigerators, balances, etc., (2) two large multi-purpose work rooms with bench space and sinks for processing samples, drying ovens, refrigerators and freezers, and equipment storage, and (3) a large researchers' shop equipped with a variety of tools and field supplies. Other station buildings include a fire station and maintenance building, a large storage building for equipment, and a residence occupied by the site foreman year around. The 4,650-ft2 Hulbert Center houses a library/conference room, administrative office, classroom and teaching laboratory (used primarily for K-12 activities), reference herbarium and animal collections, and a kitchen and dormitory-style housing for 15 visitors. Two small guest cottages (each with 2-bedrooms, living room, bath, kitchen, and laundry facilities), can accommodate up to 5 persons/cottage. A larger cottage, built in 2012, can accommodate up to 12 guests, expanding the capacity of on-site accommodations to 37 visiting researchers. With funding from an NSF-FSML grant and additional support from KSU and a private donor, an historic limestone barn at the KPBS headquarters was transformed into a multipurpose meeting facility for on-site conferences, workshops, and educational programs. The historic stone barn was renovated in 2008 and has the Cortelyou Lecture Hall (1,750 ft2) with a seating capacity of ~100 persons fully equipped with A/V equipment and wireless internet. An additional large multi-purpose room (1,850 ft2) is designed as flexible space for varied uses including additional meeting space, workshops, scientific posters and other research displays, social gatherings, and education programs for large groups. All lab and office buildings have internet connectivity to the KSU campus. In addition, there is a wireless link to KPBS from campus with multiple wireless access points that provides coverage to >60% of the 3,487-ha site. Other LTER infrastructure, maintained by KPBS, includes the outside perimeter fence (29.8 km), the interior bison management area closed by 16.4 km of "New Zealand" fence, 98 small (25 m2) grazing enclosures, 11.7 km of fence for cattle research, 26.4 km of access roads and 61 km of fireguards separating the experimental watershed units. KPBS maintains several general-purpose vehicles on-site, as well as specialized equipment (tractors, fire trucks, mowers, soil augers, etc.). KPBS makes staff and equipment available to assist with KNZ research activities, including mowing fireguards, installing equipment, soil coring, etc. KPBS staff also coordinates the fire management of bison and cattle herds for KNZ grazing treatments. The headquarters area includes a corral and handling facilities for managing the bison herd (hydraulic chute, electronic scales, etc.), which is essential for LTER grazing studies. In late 2017, then KPBS director, Briggs received an NSF award to upgrade the corral area. In 2018, KPBS and KNZ staff redesigned and improved the bison handling facility. The changes provide a safer working environment for staff, reduce stress on bison, and allow greater ease and flexibility in conducting bison-related research. In 2018, we constructed a 900 ft2 walk-in drying oven using a modified shipping container. Temperatures within the large drying oven are regulated by a small home furnace powered using propane. In 2020, 20 km of fencing was replaced to improve the safety and security of the bison inclosure. This process of fence replacement required months of effort. Other field equipment and instrumentation on-site includes the main KNZ weather station, a network of 11 rain gauges, two eddy flux towers for quantifying ecosystem-level C and water vapor flux, four weirs and associated stream gauging equipment, 46 wells for measuring groundwater levels and chemistry, numerous TDR probes, neutron access tubes and tension lysimeters for soil water measurements. Related equipment co-supported by other programs includes USGS stream monitoring station, 2 seismometers (USGS), an aerosol and ozone monitoring facility (CASTNet), and a NOAA Climate Reference Network (CRN) weather station. These facilities add significantly to data for LTER research and education programs, and for regional cross-site studies. KPBS is also a core site for the National Ecological Observatory Network (NEON), which is fully-built-out and operational. NEON provides additional unique measurement capabilities and data at KBPS, which will complement many KNZ LTER studies. In addition to facilities at KPBS, a wide range of modern laboratory facilities are available on the nearby KSU campus, approximately 15 km from KPBS (e.g., Analytical Chemistry Labs, Stable Isotope Lab, Ecological Genomics Institute, Core Sequencing and Genotyping Facility). The majority of core LTER laboratory space and analytical equipment are in Bushnell Hall (Biology), including space and equipment for preparing plant, soil and water samples for analysis (drying ovens, grinders, shaker tables, block digesters, vacuum filtration systems). Bushnell Hall also houses an extensive collection of prairie plant specimens in the KSU

Herbarium, and these specimens are electronically databased and georeferenced. Some specific equipment and facilities available for LTER research are located within other Departments (Agronomy, Biological and Agricultural Engineering, Plant Pathology, Geography), reflecting the interdisciplinary nature of our research. Some major analytical instruments available for KNZ investigators include: 2 Alpkem autoanalyzers (FlowSolution IV) for liquid samples, Carlo-Erba 1500 automated C/N analyzer for solid samples, Shimadzu TOC 500 analyzer for dissolved C, a Hitachi U2900 automated dual-beam spectrophotometer, 4 LiCor 6400 Portable Photosynthetic Systems, 2 LiCor 8100 systems dedicated for soil CO2 flux measurements, a LiCor 1600 null-balance porometer for stomatal conductance, and 3 pressure chambers (PMS model 1000) for measuring plant water potential, 4 Tektronix cable testers (model 1502B) coupled to Campbell CR10 data loggers for TDR soil moisture measurements, 2 Troxler (model 3221) neutron probe gauges for soil moisture determinations, and several Trimble GPS units. Eight multi-parameter sonds (YSI 6000) are used for monitoring oxygen and temperature for 3 watersheds.

What is the impact on institutional resources that form infrastructure?
Nothing to report.

What is the impact on information resources that form infrastructure?

KNZ resources support the hardware and software for the KNZ website and data portal, which provide information to the scientific community, the LTER Network, EDI, and DataOne. The website (lter.konza.ksu.edu) offers open access to KNZ data, publication, research activities, and related products. Currently, 184 data packages are available, including 35 graduate student research data packages, with 9 new packages added to EDI since October 2024. The website also highlights physical sample collections from long-term datasets (e.g., grasshoppers, plants, water, and small mammals) and maintains an updated list of 2,125 KNZ-LTER supported publications available online. In addition, the site provides guidance on data submission and access policies, helping researchers prepare datasets for archiving and ensuring data are accessible and reusable.

A substantial accomplishment in 2024-2025 was the redesign and development of the new KNZ LTER website (completed in Oct. 2025). In addition, we finalized the migration of all KNZ LTER servers, databases, and network access to the centralized Kansas State University (KSU) IT system under the ksu.edu domain. The move to KSU's Modern Campus Omni CMS improves website security and ensures reliable hosting under K-State's IT system, providing a stable, sustainable, and user-friendly platform for KNZ information systems. This transition also enhances accessibility and guarantees long-term technical support and maintenance.

During the next reporting year, we will: 1) continue to ensure data quality, integrity, data availability by adhering to the latest LTER IMC standards, providing accurate data to KNZ investigators and the broader scientific community; 2) continue to support researchers and graduate students to facilitate the timely incorporation of projects and data into the KNZ IMS and the EDI; 3) continue to make improvements to the KNZ LTER spatial data portal (https://maps-konza.hub.arcgis.com); 4) explore and apply artificial intelligence (AI) tools to enhance information management workflows, including automating metadata extraction and summarization, improving QA/QC processes, and assisting with metadata documentation.

What is the impact on technology transfer?
Nothing to report.

What is the impact on society beyond science and technology?

The KNZ LTER program contributes to increased public awareness of ecological and environmental issues (e.g. biodiversity conservation, habitat loss, ecosystem services, restoration ecology, etc.) through outreach and public education activities. Our research concerning the role of seasonal burning and fire intensity on woody encroachment is being used to inform the Great Plains Fire Science Exchange (www.gpfirescience.org) and the Tallgrass Prairie and Oak Savanna Fire Science Consortium (www.tposfirescience.org). Both are non-profit groups focusing on conservation issues and land management of Midwestern grasslands. Konza investigators have a strong working and advisory relationship with the KS NRCS and with the Kansas chapter of The Nature Conservancy. We work closely with Dr. Brian Obermeyer, the Director of Protection and Stewardship and Tony Capizzo, Flint Hills Initiative Manager for KS TNC. In addition, the Konza Prairie LTER program is increasingly called upon to provide data relevant to resource management and regulatory policy. Dr. John Blair and Dr. Jesse Nippert regularly provide outreach and tours to state and national policymakers and lawmakers. Because of the widespread use of prescribed fire for both grassland conservation and agricultural tours, KNZ research on ecological responses to contrasting long-term fire regimes and different seasons of fire has taken on new importance. At the regional level, KNZ scientists advised the EPA Region 7 staff and scientists on the ecological benefits of fire in maintaining native tallgrass prairie

habitat and diversity and contribute long-term data to guide the development of the Flint Hills regional smoke and management goals. The KNZ Season of Fire Experiment provides 24-years of data from watersheds burned at different times of the year (Spring, Summer, Fall, and Winter). Most prescribed burning in the Flint Hills takes place during a small window in April. We now have data showing that burning can be done other times of the year in ungrazed watersheds with little adverse effect on plant productivity or desirable species. KNZ investigators have interacted with advisory groups, including the EPA, Natural Resources Conservation Service, the Kansas Farm Bureau, The Nature Conservancy Grassland Community, and others. Locally, Konza scientists continue to serve as consultants for the Flint Hills Discovery Center, the Mount Mitchell Heritage prairie (grassland site with historical linkages to the underground railroad) and we participate in Kansas Agricultural Experiment Station public education events by providing information on the ecological consequences of various grassland management practices (e.g., fire frequency and grazing). The Konza Prairie LTER database is also being used to address other issues relevant to regulatory policy. Long-term data on Konza Prairie stream water quality provides a baseline being incorporated into ongoing studies to evaluate the potential of grassland management practices to increase soil C sequestration to offset atmospheric CO2 loading.

In 2024-2025, KNZ scientists, graduate students, and staff participated in numerous public outreach events to enhance understanding of LTER science and dissemination of important findings. Over the past year, Jesse Nippert gave 8 invited seminars, most to diverse non-academic audiences interested in grassland conservation. Konza Prairie Biological Station Director, John Blair, talked about Konza and the tallgrass prairie ecosystem on KMAN's Within Reason with Mike Matson. Zak Ratajczak shared his research findings regarding bison promoting biodiversity and resilience in tallgrass prairie in the Kansas Reflector. Numerous KNZ LTER investigators (Ratajczak, Allison Louthan, Eva Horne, Alice Boyle, Walter Dodds) discuss bison research at Konza and how they affect the prairie ecosystem in K-State's Seek research magazine. KNZ LTER Environmental Educator, Jill Haukos, organized events open to the public, to showcase Konza and our research. These events, which drew record number this year, include a Wildflower Walk (June 2025), Friends of Konza Prairie Bison Tour (September 2025), and the Visions of the Flint Hills Art Show, where a portion of the art sold returns to support the Konza Education Programs.

What percentage of the award's budget was spent in a foreign country?
Nothing to report.

Changes/Problems

Changes in approach and reason for change
Nothing to report.

Actual or Anticipated problems or delays and actions or plans to resolve them
Nothing to report.

Changes that have a significant impact on expenditures
Nothing to report.

Significant changes in use or care of human subjects
Nothing to report.

Significant changes in use or care of vertebrate animals
Nothing to report.

Significant changes in use or care of biohazards
Nothing to report.

Change in primary performance site location
Nothing to report.