**Katherine S. Nelson**

Assistant Professor • Department of Geography and Geospatial Sciences

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**RESEARCH INTERESTS**

Sustainable development; social vulnerability; sustainable agriculture; flood adaptation; hierarchical Bayesian modeling; spatial analysis and GIS; scaling relationships

**APPOINTMENTS**

2018 - present Assistant Professor, Department of Geography and Geospatial Sciences, Kansas State University

2011 - 2013 Lab Manager and Senior Scientist, Nano Research Facility, Washington University in St. Louis

2010 - 2011 Research Scientist, Nano Research Facility, Washington University in St. Louis

**EDUCATION**

2018 Ph.D. in Environmental Engineering, Vanderbilt University

2009 M.S. in Environmental Engineering, Washington University in St. Louis

2006 B.S. in Environmental Engineering, University of Oklahoma

**PUBLICATIONS**

**Peer-Reviewed Journal Articles**

**\*** Equal contribution † Student or post-doc mentee

2023 **Nelson, K.S.** & Burchfield, E. Defining Features of Diverse and Productive Agricultural Systems: An Archetype Analysis of U.S. Agricultural Counties. *Frontiers in Sustainable Food Systems*. (accepted 02/06/2023)

2023 **Nelson, K. S.**\*, & Nguyen, T. D.\* (2023). Community assets and relative rurality index: A multi-dimensional measure of rurality. *Journal of Rural Studies*, 97, 322-333. https://doi.org/10.1016/j.jrurstud.2022.12.025

2022 **Nelson, K. S.**, Nguyen, T. D., Francois, J. R.†, & Ojha, S.† (2022). Rural sustainability methods, drivers, and outcomes: A systematic review. *Sustainable Development*, 1 – 24. https://doi.org/10.1002/sd.2471

2022 **Nelson, K.S.\*,** Appuhamilage, B.M. †**\***, & Yao, B. †**\***. (2022). Higher landscape diversity associated with improved crop production resilience in Kansas-USA. *Environmental Research Letters*. https://doi.org/10.1088/1748-9326/ac7e5f

2022 Sikorsky, K., Sharp, R., Fefer, J., **Nelson, K**., & Shivley, R. (2022). The use of drones for recreational impact monitoring of public lands. *Journal of Park and Recreation Administration*. doi:10.18666/JPRA-2022-11429

2021 **Nelson, K.S.\*** & Burchfield, E.K.**\*** (2021). Landscape Complexity and U.S. Crop Production. *Nature Food*, 2(5), 330-338. https://doi.org/10.1038/s43016-021-00281-1

2021 **Nelson, K. S.**, & Molloy, M. † (2021). Differential disadvantages in the distribution of federal aid across three decades of voluntary buyouts in the United States. *Global Environmental Change*, 68, 102278. https://doi.org/10.1016/j.gloenvcha.2021.102278

2021 Burchfield, E. K., & **Nelson, K. S.** (2021). Agricultural yield geographies in the United States. *Environmental Research Letters*, 16 054051, https://doi.org/10.1088/1748-9326/abe88d

2021 **Nelson, K.S.\***, Nguyen, T.D.**\***, Brownstein, N.†, Garcia, D.†, Walker, H.†, Watson, J.†, & Xin, A.† (2021). Definitions, measures, and uses of rurality: A systematic review of the literature. *Journal of Rural Studies*, 82, 351-365, https://doi.org/10.1016/j.jrurstud.2021.01.035.

2020**Nelson, K. S.**, & Camp, J. (2020). Quantifying the Benefits of Home Buyouts for Mitigating Flood Damages. *Anthropocene*, 100246. https://doi.org/10.1016/j.ancene.2020.100246

2020Camp, J.**\***, **Nelson, K.\***, Philip, C. E., Moravec, M.†, Scheffler, D. W., & Johnson, P. (2020). Utilizing Agent-Based Modeling to Evaluate Operational Impacts of an Incident and Possible Alternatives on US Waterways. *Transportation Research Record*, 0361198120941504. https://doi.org/10.1177/0361198120941504

2019Burchfield, E.K., **Nelson, K.S.**, & Spangler, K.(2019). The impact of agricultural landscape diversification on U.S. crop production. *Agriculture, Ecosystems & Environment*. https://doi.org/10.1016/j.agee.2019.106615

2019 Gillespie-Marthaler, L., **Nelson, K.**, Baroud, H., & Abkowitz, M. D. (2019). Selecting Indicators for Assessing Community Sustainable Resilience. *Risk Analysis*. https://doi.org/10.1111/risa.13344

2019 **Nelson, K.,** Gillespie-Marthaler, L., Baroud, H., Abkowitz, M., & Kosson, D. (2019). An integrated and dynamic framework for assessing sustainable resilience in complex adaptive systems. *Sustainable and Resilient Infrastructure*, 1-19. https://doi.org/10.1080/23789689.2019.1578165

2018 Gillespie-Marthaler, L., **Nelson, K.S.**, Baroud, H., Kosson, D. S., & Abkowitz, M. D. (2018). An Integrative Approach to Conceptualizing Sustainable Resilience. *Sustainable and Resilient Infrastructure*. https://doi: 10.1080/23789689.2018.1497880

2017  **Nelson, K. S.** & Burchfield, E.K. (2017). Effects of the Structure of Water Rights on Agricultural Production During Drought: A Spatiotemporal Analysis of California’s Central Valley. *Water Resources* Research, 53. doi:10.1002/2017WR020666

2017 **Nelson, K. S.**, Camp, J. V., Philip, C. E., & Abkowitz, M. D. (2017). Agent-Based Model of Navigable Inland Waterway Tow Operation Procedures. *Transportation Research Record: Journal of the Transportation Research Board*, (2611), 11-18.

2016 Dundon, L. A., **Nelson, K. S.**, Camp, J., Abkowitz, M., & Jones, A. (2016). Using Climate and Weather Data to Support Regional Vulnerability Screening Assessments of Transportation Infrastructure. *Risks*, 4(3), 28.

2015  **Nelson, K. S.**, Abkowitz, M. D., & Camp, J. V. (2015). A Method for Creating High Resolution Maps of Social Vulnerability in the Context of Environmental Hazards. *Applied Geography*, 63, 89-100.

2013 Wu, L., Luderer, M., Yang, X., Swain, C., Zhang, H., **Nelson, K. S.**, ... & Pan, D. (2013). Surface Passivation of Carbon Nanoparticles with Branched Macromolecules Influences Near Infrared Bioimaging. *Theranostics*, 3(9), 677.

2013 Wu, L., Cai, X., **Nelson, K. S.**, Xing, W., Xia, J., Zhang, R., ... & Shen, B. (2013). A Green Synthesis of Carbon Nanoparticles from Honey and their use in Real-Time Photoacoustic Imaging. *Nano Research*, 6(5), 312-325.

**Book Chapters, Reports and Other Publications**

2021 **Nelson, K.S.** (2021). *Mitigating flood risk to support small town development: A story map for Paxico, Kansas*. https://storymaps.arcgis.com/stories/e4cabd52b3f54511820e3d58b3cbe498

2021 **Nelson, K.S.**, Weiderstein, T. † & Mahlmeister, K. † *Changes in land cover and associated runoff between 1990 and 2016 in the Wildcat Creek Watershed*. Report to the City of Manhattan office of Community Development.

2020 **Nelson, K. S.** (2020). California Drought, 2012-2016. In B.K. Paul (ed.), *Natural Hazards and Disasters: From Avalanches and Climate Change to Water Spouts and Wildfires (40)*. ABC-CLIO.

2018 **Nelson, K. S.** (2018). *Towards Quantitative Assessment of Vulnerability, Resilience, and the Effects of Adaptation on Social-Environmental Systems* (Doctoral dissertation, Vanderbilt University).

2018Gunda, T., **Nelson, K.S.,** & Patel, N. (2018). *Sustainable Development: It’s as easy as F-E-W (2017-2)*. Teaching Case Study. Annapolis: National SocioEnvironmental Synthesis Center. https://www.sesync.org/sustainable-development-it%E2%80%99s-as-easy-as-f-e-w-2017-2

2015 **Nelson, K. S.**, Camp, J. V., Philip, C. E., & Abkowitz, M. D. (2015, September). *Navigable Inland Waterway Transportation Modeling: A Conceptual Framework and Modeling Approach for Consideration of Climate Change Induced Extreme Weather Events.* Paper presented at the World Association for Waterborne Transport Infrastructure (PIANC) Smart Rivers 2015 Conference, Buenos Aires, Argentina. Retrieved from http://www.pianc.org.ar/\_stage/pdf/papers\_sr2015/123\_paper\_Nelson\_USA\_7.pdf

2014 **Nelson, K. S.**, Winter, P., Shokeen, M., Wang, S., & Berezin, M. Y. (2014). Nanoparticles for Bioimaging. *Nanotechnology for Biomedical Imaging and Diagnostics: From Nanoparticle Design to Clinical Applications*, 151-192.John Wiley & Sons.

2010 Giammar, D.E., **Nelson, K.S.**, Noel, J. D., & Xie, Y. (2010). *Water Chemistry Effects on Dissolution Rates of Lead Corrosion Products*. Water Research Foundation Report 4064. Retrieved from http://www.waterrf.org/PublicReportLibrary/4064.pdf

**PAPERS UNDER REVIEW**

2023 Francois, J.R.† & **Nelson, K.S**. Community Well-being at the Intersection of Rurality and Agricultural Engagement.

**WORKING PAPERS**

Burchfield, E.K. & **Nelson K.S.** Landscape Complexity Metric Data for U.S. Counties.

**Nelson K.S.** & Goodman, C.† A Dataset of Multiscalar Social Vulnerability Indices for the U.S.

**Nelson, K.S.** & Chavez, D. † Challenges in Assessing Agricultural Community Adaptive Capacity.

**Nelson, K.S.** Uncertainty in Social Vulnerability and its Intersections with Flood Risk Across Scales.

Madin, M. † & **Nelson, K.S.** Landscape diversity and sustainable agriculture production: data and analytical challenges.

**GRANTS**

**Pending**

2022 NSF Ecology and Evolution of Infectious Diseases (EEID), “Wheat Streak Mosaic Virus dynamics at the intersection of climate, landscape, and agricultural management”, Aug 2023 – Jul 2028, $2,308,335 (PI)

2022 National Science Foundation. Knowledge-Centric AI for Climate Adaptive Agriculture in the Great Plains (Know-CAP AI Institute). Pascal Hitzler, PI. June 2023 - May 2028. $20,000,000 (key participant)

2022 NSF Convergence Accelerator Track J: Sustainable solutions to PFAS contaminated soil and its impacts to food and nutrition, Jan 2023 – Dec 2023, $197,620 (key participant)

2022 U.S. Department of Transportation - University Transportation Center Tier 1 Application, Center for Transportation Infrastructure Resilience to Floods, 2023, $288,236 (key participant)

2022 NRT-HDR-FW-HTF: Building interdisciplinary connectivity and convergence: an integrated research and management plan to promote biologically-involved sustainability, Aug 2023 – Jul 2028, $2,997,328 (co-PI)

**Funded**

2022 North Central Region - Sustainable Agriculture Research & Education (NCR-SARE) Graduate Student Grant, “Does Community Well-Being Matter in Landscape Management of U.S. Farming Systems?”, Sept 2022 – Aug 2024, $14,501 (Faculty PI)

2021 Kansas NSF EPSCoR Major Initiatives to Improve Research Infrastructure (RII Track-2 FEC), “BioWRAP (Bioplastics With Regenerative Agricultural Properties): Spray-on bioplastics with growth synchronous decomposition and water, nutrient, and agrochemical management for enhanced field crop production”, Aug 2021 – Jul 2025, $5,999,428 (Key participant: Socioeconomic impacts and rural sustainability lead.)

2021 US Department of Agriculture – Foundational and Applied Science Program, “Irrigation at the new 100th Meridian: Adaptation to manage climate risks and preserve water resources in the Eastern Kansas River Basin”, summer 2022 – summer 2026. $750,000 (co-PI)

2020 Kansas State University Global Food Systems – Seed Grants, “Quantifying agricultural and social vulnerability to climate change in the Eastern Kansas River Basin to inform decision-making”, summer 2020 – summer 2021. $45,324 (co-PI)

2019 US Department of Agriculture – Foundational and Applied Science Program, “Agricultural landscape management for improved sustainability: Quantifying relationships, barriers and opportunities”, July 2020 – June 2023, $499,949 (PI)

2019 Kansas State University Center for Engagement and Community Development – Engagement Incentive Grants, “Building Our Sustainable Future through Community Engagement”, July 2019 – July 2021, $7,000 (PI)

2019 Kansas State University – University Small Research Grants, “Understanding the Influence of Scale on Characterization of the Social Vulnerability of High Flood Risk Populations”, July 2019 – July 2020, $4,240 (PI)

2017Nashville Metro Water Services, “Converting Vulnerable Landscapes to Resilient and Sustainable Community Assets”, March 2017 – December 2017, $62,500 (co-wrote)

2017 U.S. Coast Guard, “Elizabeth M Accident Evaluation Simulation”, August 2017 – July 2018, $98,000 (co-wrote)

**Unfunded**

2021 NSF Ecology and Evolution of Infectious Diseases (EEID), “Wheat Streak Mosaic complex dynamics at the intersection of environmental condition and agricultural management”, Aug 2022 – Jul 2027, $1,800,000 (PI)

2021 Kansas State University Strategic Investment Fund Proposals, “Advancing Sustainability across the K-State Enterprise – Phase 1”, $119,500 (Key participant)

2021 NRT-HDR-FW-HTF: Building an integrated transdisciplinary framework for science-based, data-driven decision-making to achieve sustainability, Aug 2021 – Jul 2026, $2,998,178 (co-PI)

2021 NSF – Human-Environment and Geographical Sciences Program (HEGS), “Unpacking polycentric climate adaptation for a shared hydrologic resource: the impacts of multiscale and multisector coordination”, Aug 2021 – Jul 2024, $398,275 (PI)

2021 Kansas NSF EPSCoR Major Initiatives to Improve Research Infrastructure (RII Track-1), “Artificial intelligence-based data science to build resilient rural agricultural systems”, Aug 2022 – Jul 2027. $5,000,638 (Socio-economic systems key participant.)

2020 US Department of Agriculture – Foundational and Applied Science Program, “Irrigation at the new 100th Meridian: Adaptation to manage climate risks and preserve water resources in the Eastern Kansas River Basin”, summer 2021 – summer 2024. $499,811 (co-PI)

2020 NSF EPSCoR Research Infrastructure Improvement (RII) Track-2: Focused Collaborations, "RII Track-2 FEC: Infrastructure for Data-Advanced Research and Education (I-DARE) to improve weather intelligence, climate change assessment, and citizen science in Central U.S."

2019 Kansas State University Chapman Center for Rural Studies - Interdisciplinary Research Grants, “Services, Amenities, and Relative Rurality (SARR) Index: A Flexible Continuous Multi-dimensional Measure of Rurality Using Granular Scale and Cutting Edge Data”, January 2020 – January 2021, $18,000 (PI)

2019 Spencer Foundation – Small Research Grants, “The Influence of Essential Services, Amenities, and Relative Rurality on Academic Performance in the U.S.”, August 2020 – July 2021, $49,942 (co-PI)

2019 National Science Foundation - Smart and Connected Communities Planning Grant, “Leveraging smart technology to develop a safe and environmentally resilient watershed community”, July 2020 – July 2021, $149,983 (co-PI)

2019 US Department of Education - Teacher quality partnership residency program, “T-SPARK (Teacher STEM Preparation Academic Residency for Kansas)”, October 2019 – Sept 2024, $5,761,004 (collaborator)

2018National Science Foundation – Geography and Spatial Sciences, “Understanding the Role of Landscape Diversity in Agricultural System Function”, August 2019 – August 2021, $308,493 (co-PI)

**TEACHING**

**Courses Taught**

2021 **GEOG 833**: Seminar in Sustainability Science, Thought, and Approaches

Upper-level graduate course on concepts, frameworks, and analytical approaches in sustainability science.

2020/2022 **GEOG 728**: Programming for Geospatial Analysis - R

Upper-level cross-listed graduate and undergraduate course in use of R for spatial data analysis and modeling.

2019 - 2022 **GEOG 360**: Sustainability Concepts and Issues

Undergraduate introductory course in sustainability concepts and systems thinking. (Online and in-person)

2018 – 2019, 2022 **GEOG 508**: Introduction to Geographic Information Systems

Cross-listed graduate and undergraduate course in application of GIS to problem solving.

(Online and in-person)

2019/2022 **GEOG 821**: Research and Professional Development in Geography

Master’s level introductory seminar on research methods and professionalization in Geography.

**Additional Training**

2019 - 2020 Civic Engagement Fellow training program, Kansas State University

2017 Funded Participant, National Socio-Environmental Synthesis Center (SESYNC) Short Course “Teaching Socio-Environmental Synthesis with Case Studies”

2016 Certificate in College Teaching, Vanderbilt University Center for Teaching

2016 Assistant Instructor,Geospatial Technologies (K-12 teacher professional development), Metropolitan Nashville Public Schools

2013 Teaching Assistant, Introduction to Environmental Engineering (undergraduate lecture course), Department of Civil & Environmental Engineering, Vanderbilt University

2006 - 2008 National Science Foundation Graduate Teaching Fellow in K-12 Education (part-time co-teacher), Environmental Science, Gateway Middle School, St. Louis Public School District

**PRESENTATIONS**

**Paper Presentations**

2022 Nelson, K.S., Burchfield, E., Rissing, A., Cowan, J., Francois, J.R. (December, 2022*). Features of Diverse and Productive Agricultural Systems: Biophysical and Human Dimensions of Crop Production in US Counties*. A Community on Ecosystem Services (ACES) Annual Conference, Arlington, VA.

2022 Nelson, K.S. (2022, October). *Shining light on the black box: a simple approach to merge flood modeling and local knowledge*. Kansas Association of Mappers (KAM) Conference, Manhattan, KS.

2022Nelson, K. S. (2022, February). *Community Assets and Relative Rurality Index: A Continuous Multi-dimensional Measure of Rurality.* Annual Meeting of the American Association of Geographers (AAG), New York City, NY. (*virtual attendance*)

2022 Francois, J. †, Ohja, S. †, & Nelson, K.S. (2022, February). *Rural Sustainability Methods, Drivers, and Outcomes: A Systematic Review*. Annual Meeting of the American Association of Geographers (AAG), virtual.

2021 Nelson, K. S. (2021, April). *Characterizing Uncertainty in the Intersection of Social Vulnerability and Flood Risk.* Annual Meeting of the American Association of Geographers (AAG), Seattle, WA. (*virtual attendance*)

2020 Nelson, K. S. & Molloy, M.† (2020, April). *The Socio-demographic Landscape of Three Decades of FEMA Buyouts*. Annual Meeting of the American Association of Geographers (AAG), Denver, CO. (*cancelled due to COVID*)

2019 Nelson, K. S. & Molloy, M.† (2019, October). *The Socio-demographic Landscape of Three Decades of FEMA Buyouts*. Annual Meeting of the Great Plains/Rocky Mountain Division of the American Association of Geographers (AAG), Lawrence, KS.

2019 Nelson, K. S, Burchfield, E. K., & Spangler, K. (2019, April). *Exploring the Impacts of Agricultural Landscape Diversity on Yields in the U.S. Using Bayesian Spatiotemporal Modeling*. Annual Meeting of the American Association of Geographers (AAG), Washington D.C.

2019 Burchfield, E. K., Nelson, K. S, & Spangler, K. (2019, April). *Impacts of agricultural diversification on U.S. crop production*. US-IALE (International Association for Landscape Ecology) Annual Meeting, Fort Collins, CO.

2018 Nelson, K. S (2018, October). *Exploring the Impacts of Agricultural Landscape Diversity on Yields in the U.S. Using Bayesian Spatiotemporal Modeling*. Annual Meeting of the Great Plains/Rocky Mountain Division of the American Association of Geographers Association of American Geographers (AAG), Manhattan, KS.

2018 Nelson, K. S (2018, April). *Examining the Sustainable Resilience of an Urban System*. Association of American Geographers (AAG) Annual Meeting, New Orleans, LA.

2017Nelson, K. S., Dundon, L. A., & Abkowitz, M. D. (2017, June). *Quantifying Social Resilience and Evaluating Climate Change Adaptation Strategies*. 3rd Climate Change Adaptation Conference (ECCA), Our Climate Ready Future, Glasgow, Scotland.

2017Gillespie-Marthaler, L.,Nelson, K. S., & Abkowitz, M. D. (2017, June). *Indicators for Assessing and Achieving Resilient and Sustainable Communities*. 26th Annual Conference of the Society for Risk Analysis – Europe (SRA-E), Lisbon, Portugal.

2017Nelson, K. S., Camp, J.V., Philip, C. E., & Abkowitz, M. D. (2017, January). *Agent-Based Model of Navigable Inland Waterway Tow Operation Procedures*. 96th Annual Meeting of the Transportation Research Board (TRB), Washington D.C.

2016 Nelson, K. S. & Burchfield, E. K. (2016, November). *Does the Structure of Water Rights Impact Agricultural Production During Droughts? A Spatiotemporal Analysis of California's Central Valley* Association for Public Policy Analysis & Management (APPAM) 38th Annual Fall Research Conference, Washington D.C.

2016 Nelson, K. S., Camp, J. V., Philip, C.E., & Abkowitz, M.D*.* (2016, June). *Navigable Inland Waterway Traffic Model for Evaluation of Tow Operation Procedures in the Context of Extreme Weather Events*. Student Honor Panel of the 4th Biennial TRB-CMTS Research & Development Conference, Washington D.C.

2015 Nelson, K. S., Abkowitz, M. D., & Camp, J. V. (2015, April). *A Method for Creating High Resolution Maps of Social Vulnerability*. Association of American Geographers (AAG) Annual Meeting, Chicago, IL.

2009 Giammar, D. E., Nelson, K. S., Noel, J. D., & Xie, Y. (2009, June). *Formation and Stability of Solid-Phase Lead Corrosion Products in Drinking Water Distribution Systems*. AWWA Annual Conference and Exposition, San Diego, CA.

2009 Giammar, D. E., Nelson, K. S., Noel, J. D., & Xie, Y. (2009, March). *Influence of water chemistry on the stability of lead-containing phases present in drinking water distribution systems*. Paper presented at the 237th ACS National Meeting, Salt Lake City, UT. (March 22-26, 2009).

2008 Nelson, K. S. & Giammar, D. E. (2008, April). *The Influence of Water Chemistry on the Dissolution Rate of a Lead Phosphate Corrosion Product.* Paper presented at the Joint Meeting of the Missouri Water Environment Association and the Missouri Section of the American Water Works Association, Osage Beach, MO.

**Poster Presentations**

2022 Madin, M.† & Nelson, K.S. (2022, February). *Landscape diversity and sustainable agriculture production*. Annual Meeting of the American Association of Geographers (AAG), virtual.

2021 Chavez, D.R.† & Nelson, K.S. (2021, December). *Agricultural Community Adaptive Capacity in Kansas*. American Geophysical Union (AGU) Annual Meeting, New Orleans, LA. (*virtual attendance*)

2021 Ohja, S.†, Francois, J.† and Nelson, K.S. (2021, September). *Rural Sustainability Methods, Drivers, and Outcomes: A Systematic Review​*. Annual Meeting of the Great Plains/Rocky Mountain Division of the American Association of Geographers (AAG), Lincoln, NE.

2020 Nelson, K.S. (2020, March). *Reviewing the Structure and Function of Self-Described Living Labs*. Community Engagement Symposium – Student Success and the Public Good, Kansas State University, Manhattan, KS. (*online only due to COVID*)

2018 Nelson, K. S. (2018, December). *The Value of Flood Mitigating Ecosystem Services Provided by a Home Buyout Program.* American Geophysical Union (AGU) Annual Meeting, Washington D.C.

2017 Burchfield, E.K. & Nelson, K.S. (2017, July). *Using R-INLA to understand institutional moderators of drought*. useR! Conference, Brussels, Belgium.

2016 Gillespie-Marthaler, L. & Nelson, K. S. (2016, December). *Resilience, Sustainability, and Vulnerability: Multi-Scale, Dynamic Interactions within Complex Systems and an Integrative Assessment Method*. Society for Risk Analysis (SRA) Annual Meeting, San Diego, California.

2016 Gillespie-Marthaler, L. & Nelson, K. S. (2016, November). *Resilience, Sustainability, and Vulnerability: Multi-Scale, Dynamic Interactions within Complex Systems and an Integrative Assessment Method*. Association for Public Policy Analysis & Management (APPAM) 38th Annual Fall Research Conference, Washington D.C.

2014Nelson, K. S. (2014, February). *Environmental Justice Considerations Involving Rail Transport of Hazardous Materials*. Logistics, Trade and Transportation (LTT) Symposium, Gulfport, Mississippi.

**Invited Presentations**

2022 Nelson, K. S. (2022, September). *Landscape complexity, crop yields, and associated contextual factors in U.S. agriculture*. Geography & Atmospheric Science's Colloquium Series, University of Kansas.

2022 Nelson, K. S. (2022, September). *Landscape complexity, crop yields, and associated contextual factors in U.S. agriculture*. Plant Pathology Seminar Series, Kansas State University.

2021 Nelson, K. S. (2021, September). *Urban Flood Resilience: A look at the issues and paths forward*. Civil Engineering Graduate Seminar Invited Lecture Series, Kansas State University.

2020 Nelson, K. S. (2020, February). *Landscape Composition, Configuration, and US Crop Production*. Ecology and Evolutionary Biology (EEB) Seminar Series, Kansas State University.

2019 Nelson, K. S. (2019, March). *Costs and Benefits of Flood Adaptation Strategies in Nashville, TN*. Presentation at the Regional Conference of the American Planning Association, Manhattan, KS.

2018 Nelson, K. S. (2018, October). *Challenges in Adapting to Urban Flooding.* Natural Resources and Environmental Sciences (NRES) Seminar Series, Kansas State University.

**FELLOWSHIPS & AWARDS**

2019 - 2020 Civic Engagement Fellow, Kansas State University

2015 - 2016 Oak Ridge Institute for Science and Education (ORISE) Graduate Research Fellowship, U.S. Army Corps of Engineers Research Participation Program,

May 2015 – October 2016, $60,000

2013 - 2018Harold Stirling Vanderbilt Graduate Honor Fellowship, Vanderbilt University

2006 - 2008 National Science Foundation Graduate Teaching Fellow in K-12 Education, Washington University in St. Louis

**SERVICE**

**Outreach**

2021 Community Scientist, *Mitigating flood risk for small town economic and community development.*

*Paxico, Kansas*. AGU Thriving Earth Exchange (volunteer community science projects to solve local challenges related to natural resources, climate change and natural hazards).

2021 Co-organizer and speaker, *Wildcat Creek Panel Series: Know your Watershed, Support your Watershed, Love your Watershed, Sunday in the Stream!,* and *Water Fest*. Hosted by Prairiewood with support from Kansas State University Libraries and Kansas State University Department of Geography & Geospatial Sciences.

2020 Guest Speaker, *Interdisciplinary environmental science for sustainable agriculture and beyond*, KAWSE Career Chats, Kansas State University.

2020 Volunteer co-Presenter/Instructor, *Urban Development and Climate Change*. An interactive online workshop for middle school students, 2020 GROW/EXCITE Virtual Summer Workshop, KAWSE, Kansas State University.

2020 Guest Speaker, *The Academic Job Market, Job Talks, and Application Materials*. A discussion with the Rural Resources Resiliency NSF Research Training program fellows, Kansas State University.

2019 Guest Speaker, *Wildcat Creek Watershed as a Living Laboratory*. Presentation at the 14th Annual Sustainability Dialogue – ‘Climate Change and Storm Water Management’, Kansas State University.

2019 Guest Speaker, *What does a geographer do?* A discussion on interdisciplinary research and career paths, Kansas Louis Stokes Alliance for Minority Participation (KS-LAMP) Pathways to STEM summer research program.

2016 Volunteer Instructor, *Simplifying Complexity: The Wild World of Human-Environment Interactions*, Tennessee Women in Science, Technology, Engineering & Research (TWISTER) STEM conference for girls in 9th to 12th grades.

**Professional Service**

Journal Reviewer for: *Agricultural Systems*, *Sustainability, PLOS One, Water Resources Research, Water, Urban Science, Cities, Applied Geography, Resources, Environmental Research Letters, Sustainable and Resilient Infrastructure, Global Environmental Change, Journal of Rural Studies, Land*

Funding Agency Reviewer for: Kansas State University Small Research Grants Program, NSF Geography and Spatial Sciences Program (ad hoc), NSF Smart and Connected Communities (panel)

**PROFESSIONAL AFFILIATIONS**

Association of American Geographers (AAG) American Geophysical Union (AGU)

**TECHNICAL EXPERTISE**

R (Statistical Programming Language)

ArcGIS

NetLogo

AnyLogic