

# Katherine S. Nelson

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## RESEARCH INTERESTS

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

## APPOINTMENTS

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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

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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

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### Peer-Reviewed Journal Articles

\* Equal contribution      † Student or post-doc mentee

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| 2022 | <b>Nelson, K.S.*</b> , Appuhamilage, B.M. †*, & Yao, B. †*. Higher landscape diversity associated with improved crop production resilience in Kansas-USA. <i>Environmental Research Letters</i> . <a href="https://doi.org/10.1088/1748-9326/ac7e5f">https://doi.org/10.1088/1748-9326/ac7e5f</a>  |
| 2022 | Sikorsky, K., Sharp, R., Fefer, J., <b>Nelson, K.</b> , & Shivley, R. The use of drones for recreational impact monitoring of public lands. <i>Journal of Park and Recreation Administration</i> . (accepted)  |
| 2021 | <b>Nelson, K.S.*</b> & Burchfield, E.K.* (2021). Landscape Complexity and U.S. Crop Production. <i>Nature Food</i> , 2(5), 330-338. <a href="https://doi.org/10.1038/s43016-021-00281-1">https://doi.org/10.1038/s43016-021-00281-1</a>  |
| 2021 | <b>Nelson, K. S.</b> , & Molloy, M. † (2021). Differential disadvantages in the distribution of federal aid across three decades of voluntary buyouts in the United States. <i>Global Environmental Change</i> , 68, 102278. <a href="https://doi.org/10.1016/j.gloenvcha.2021.102278">https://doi.org/10.1016/j.gloenvcha.2021.102278</a> |

- 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.<sup>†</sup>, Garcia, D.<sup>†</sup>, Walker, H.<sup>†</sup>, Watson, J.<sup>†</sup>, & Xin, A.<sup>†</sup> (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>
- 2020 Camp, J.\*, **Nelson, K.\***, Philip, C. E., Moravec, M.<sup>†</sup>, 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>
- 2019 Burchfield, 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.org/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.

## 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. <sup>†</sup> & Mahlmeister, K. <sup>†</sup> *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).
- 2018      Gunda, 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](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

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- 2022      Nguyen, T.\* & **Nelson, K.S.\*** Community Assets and Relative Rurality Index: A Multi-dimensional Measure of Rurality.
- 2022      **Nelson, K.S.**, Francois, J.R., Ohja, S. & Nguyen, T. Rural Sustainability Methods, Drivers, and Outcomes: A Systematic Review.

## WORKING PAPERS

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**Nelson K.S. & Burchfield, E. K.** Defining Features of Diverse and Productive Agricultural Systems: an archetype analysis of US agricultural counties.

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

**Nelson, K.S. & Goodman, C.**<sup>†</sup> Uncertainty in Social Vulnerability and its Intersections with Flood Risk Across Scales.

## GRANTS

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### Pending

- 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)
- 2017 Nashville 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)

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| 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)                      |
| 2018 | National 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

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### Courses Taught

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| 2021              | <b>GEOG 833:</b> Seminar in Sustainability Science, Thought, and Approaches<br>Upper-level graduate course on concepts, frameworks, and analytical approaches in sustainability science. |
| 2020/2022         | <b>GEOG 728:</b> Programming for Geospatial Analysis - R<br>Upper-level cross-listed graduate and undergraduate course in use of R for spatial data analysis and modeling.               |
| 2019 - 2022       | <b>GEOG 360:</b> Sustainability Concepts and Issues<br>Undergraduate introductory course in sustainability concepts and systems thinking. (Online and in-person)                         |
| 2018 – 2019, 2022 | <b>GEOG 508:</b> Introduction to Geographic Information Systems<br>Cross-listed graduate and undergraduate course in application of GIS to problem solving. (Online and in-person)       |
| 2019/2022         | <b>GEOG 821:</b> Research and Professional Development in Geography<br>Master’s level introductory seminar on research methods and professionalization in Geography.                     |

### Additional Training

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| 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                       |

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|-------------|---|
| 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

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### Paper Presentations

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|------|---|
| 2022 | Nelson, K. S. (2022, February). <i>Community Assets and Relative Rurality Index: A Continuous Multi-dimensional Measure of Rurality</i> . Annual Meeting of the American Association of Geographers (AAG), New York City, NY. (virtual attendance)  |
| 2022 | Francois, J. <sup>†</sup> , Ohja, S. <sup>†</sup> , & Nelson, K.S. (2022, February). <i>Rural Sustainability Methods, Drivers, and Outcomes: A Systematic Review</i> . Annual Meeting of the American Association of Geographers (AAG), virtual.  |
| 2021 | Nelson, K. S. (2021, April). <i>Characterizing Uncertainty in the Intersection of Social Vulnerability and Flood Risk</i> . Annual Meeting of the American Association of Geographers (AAG), Seattle, WA. (virtual attendance)  |
| 2020 | Nelson, K. S. & Molloy, M. <sup>†</sup> (2020, April). <i>The Socio-demographic Landscape of Three Decades of FEMA Buyouts</i> . Annual Meeting of the American Association of Geographers (AAG), Denver, CO. (cancelled due to COVID)  |
| 2019 | Nelson, K. S. & Molloy, M. <sup>†</sup> (2019, October). <i>The Socio-demographic Landscape of Three Decades of FEMA Buyouts</i> . 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). <i>Exploring the Impacts of Agricultural Landscape Diversity on Yields in the U.S. Using Bayesian Spatiotemporal Modeling</i> . Annual Meeting of the American Association of Geographers (AAG), Washington D.C.   |
| 2019 | Burchfield, E. K., Nelson, K. S, & Spangler, K. (2019, April). <i>Impacts of agricultural diversification on U.S. crop production</i> . US-IALE (International Association for Landscape Ecology) Annual Meeting, Fort Collins, CO.   |
| 2018 | Nelson, K. S (2018, October). <i>Exploring the Impacts of Agricultural Landscape Diversity on Yields in the U.S. Using Bayesian Spatiotemporal Modeling</i> . 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). <i>Examining the Sustainable Resilience of an Urban System</i> . Association of American Geographers (AAG) Annual Meeting, New Orleans, LA.   |
| 2017 | Nelson, K. S., Dundon, L. A., & Abkowitz, M. D. (2017, June). <i>Quantifying Social Resilience and Evaluating Climate Change Adaptation Strategies</i> . 3 <sup>rd</sup> Climate Change Adaptation Conference (ECCA), Our Climate Ready Future, Glasgow, Scotland.  |

- 2017 Gillespie-Marthaler, L., Nelson, K. S., & Abkowitz, M. D. (2017, June). *Indicators for Assessing and Achieving Resilient and Sustainable Communities*. 26<sup>th</sup> Annual Conference of the Society for Risk Analysis – Europe (SRA-E), Lisbon, Portugal.
- 2017 Nelson, K. S., Camp, J.V., Philip, C. E., & Abkowitz, M. D. (2017, January). *Agent-Based Model of Navigable Inland Waterway Tow Operation Procedures*. 96<sup>th</sup> 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) 38<sup>th</sup> 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 4<sup>th</sup> 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 237<sup>th</sup> 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.<sup>†</sup> & 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.<sup>†</sup> & 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.<sup>†</sup>, Francois, J.<sup>†</sup> 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) 38<sup>th</sup> Annual Fall Research Conference, Washington D.C.
- 2014 Nelson, K. S. (2014, February). *Environmental Justice Considerations Involving Rail Transport of Hazardous Materials*. Logistics, Trade and Transportation (LTT) Symposium, Gulfport, Mississippi.

### Invited Presentations

- 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

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| 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 - 2018 | Harold 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

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#### Outreach

September 2022

Katherine S. Nelson CV, 9

- 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 14<sup>th</sup> 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*

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

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Association of American Geographers (AAG)

American Geophysical Union (AGU)

## TECHNICAL EXPERTISE

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R (Statistical Programming Language)  
ArcGIS

NetLogo  
AnyLogic