

Joshua W. Hess, M.S.

Ozarks Environmental and Water Resources Institute
Missouri State University
901 S. National Ave
Springfield, MO 65897
Email: joshhess@missouristate.edu

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EDUCATION

Missouri State University

M.S. Geospatial Sciences in Geography and Geology, 2019

Thesis: Stream Channel Morphology and Riparian Forest Response to a 500-year Flood in the Missouri Ozarks

Advisor: Robert T. Pavlowsky

Committee: Toby Dogwiler, Xiaomin Qiu

B.S. Geography - Environment and Natural Resources, 2018

Minor: Geology

Advisor: Robert T. Pavlowsky

WORK EXPERIENCE

2026 – Present: Assistant Director, Ozarks Environmental and Water Resources Institute, Missouri State University

2020 – 2026: Research Specialist II, Ozarks Environmental and Water Resources Institute, Missouri State University

2019 – 2020: GIS Analyst, Stantec Inc

2018 – 2019: Graduate Teaching Assistant, Missouri State University

PEER-REVIEWED PUBLICATIONS

8. Hess, J. W., Owen, M. R., Jerin, T. (2025). Sinkhole Mapping Using LiDAR DEMs and Supervised Machine Learning Within the Mark Twain National Forest. Missouri Natural Areas Newsletter 25 (1), 23 – 31. <https://mdc.mo.gov/sites/default/files/2026-01/Missouri%20Natural%20Areas%20Newsletter%202025.11.pdf>
7. Jerin, T., Hess, J., Owen, M., Pavlowsky, R., Dogwiler, T., Qiu, X., Steele, K. (2025). Novel parameters for sinkhole mapping in the Anthropocene: Example from karst dominated environment in the Ozarks, Missouri. Progress in Physical Geography. <https://doi.org/10.1177/03091333251409572>

6. **Hess, J. W.**, Pavlowsky, R. T., and Dogwiler, T. (2024). UAV Imagery for Measuring Large Wood Volume and Distribution: Ground Truthing Results and Sources of Error. *Southeastern Geographer* 64(1), 11-29. <https://doi.org/10.1353/sgo.00001>
5. **Hess, J. W.**, Pavlowsky, R. T., and Lecce, S. A. (2023). Climate-Driven Flood Effects on Channel Stability, Sedimentation, and Freshwater Mussel Habitat in Rivers Draining the Ozark Highlands. *Proceedings of SEDHYD 2023*, May 8 -12, St. Louis, MO. [29.pdf \(sedhyd.org\)](#)
4. Pavlowsky, R. T., **Hess, J. W.**, Martin, D. J., Dogwiler, T., and Bendix, J. (2023). Large wood loads in channels and on floodplains after a 500-year flood using UAV imagery in Mark Twain National Forest, Ozark Highlands, Missouri. *Geomorphology*, vol 431. <https://doi.org/10.1016/j.geomorph.2023.108672>
3. Jerin, T., Pavlowsky, R. T., Owen, M. R., **Hess, J. W.**, Alkier, H. N., and Grong, K. A. (2023). Anthropogenic channel network development in forested watersheds by recent stream channelization practices in Mark Twain National Forest, Missouri Ozarks. *Geomorphology*, vol 426. <https://doi.org/10.1016/j.geomorph.2023.108601>
2. Hostens, D. S., Dogwiler, T., **Hess, J. W.**, Pavlowsky, R. T., Bendix, J., and Martin, D. J. (2022). Assessing the role of sUAS Mission Design in the Accuracy of Digital Surface Models Derived from Structure-from-Motion Photogrammetry. In: Konsoer, K., Leitner, M., Lewis, Q. (eds) *sUAS Applications in Geography. Geotechnologies and the Environment*, vol 24. Springer, Cham. https://doi.org/10.1007/978-3-031-01976-0_6
1. Martin, D. J., Pavlowsky, R. T., Bendix, J., Dogwiler, T., and **Hess, J.** (2021). Impacts of an extreme flood on large wood recruitment and transport processes. *Physical Geography*. <https://doi.org/10.1080/02723646.2021.1980958>

TECHNICAL REPORTS

21. Owen, M. R., **Hess, J. W.**, Pavlowsky, R. T., Connolley, M. H., Brand, K. E. (2026). Gasconade River Watershed River-Scale Geomorphic Assessment of Channel Evolution to Support Bank Stabilization Planning. OEWRI-EDR-DRAFT April 29, 2026.
20. **Hess, J. W.**, Edwards, B., Owen, M. (2025). Database, Metadata, and Field Results Final Report. Completed for The Nature Conservancy. April 17, 2026.
19. **Hess, J. W.**, Owen, M. R., Jerin, T. (2025). Mark Twain National Forest Sinkhole Mapping Methodology Report. Completed for the U. S. Forest Service. OEWRI-EDR-025 December 19, 2025.
18. Evans, K. R., Owen, M. R., Pavlowsky, R. T., **Hess, J. W.**, Sommer, S. P. (2025). Preliminary Report: Karst Geology and Sinkholes of Mark Twain National Forest, Missouri. OEWRI-EDR-25-018. Completed for the U.S. Forest Service. December 11, 2025.
17. **Hess, J. W.**, Edwards, B. D., Heth, R., Owen, M. R. (2025). Mississippi River Basin Healthy Watersheds Initiative (MRBI) Watershed Assessment for: Sni-A-Bar Creek (HUC-12: 103001010506). Ozarks Environmental and Water Resources Institute, Missouri State University,

- OEWRI EDR-25-016. Completed for the Natural Resources Conservation Service. September 23, 2025.
16. Heth, R., **Hess, J. W.**, Edwards, B. D., Ebeling, C., Owen, M. R. (2025). Mississippi River Basin Healthy Watersheds Initiative (MRBI) Watershed Assessment for: Horseshoe Creek - Sni-A-Bar Creek (HUC-12: 103001010504). Ozarks Environmental and Water Resources Institute, Missouri State University, OEWRI EDR-25-015. Completed for the Natural Resources Conservation Service. September 23, 2025.
 15. Edwards, B. D., Owen, M. R., Heth, R., **Hess, J. W.**, (2025). Mississippi River Basin Healthy Watersheds Initiative (MRBI) Watershed Assessment for: Headwaters Sni-A-Bar Creek (HUC-12: 103001010502). Ozarks Environmental and Water Resources Institute, Missouri State University, OEWRI EDR-25-014. Completed for the Natural Resources Conservation Service. September 23, 2025.
 14. **Hess, J. W.**, Owen, M.R., Edwards, B., Pavlowsky, R. T. (2025). Pre- and post-Harvest Activity Assessment using the U.S. Forest Service Forest Soil Disturbance Monitoring Protocol (FSDMP), Mark Twain National Forest, Missouri (2024-2025). OEWRI EDR-24-013. Completed for U.S. Forest Service. September 8, 2025.
 13. **Hess, J. W.**, Owen, M. R. (2025). Gasconade River Watershed Study, Sub Task 2.11 – Analysis of new cross-sections and comparison to previous surveys. Completed for the Missouri Department of Natural Resources and the United States Army Corps of Engineers. July 23, 2025.
 12. **Hess, J. W.** (2025). Literature Review: Environmental Assessment and Soil Mapping of Barton Fen, Potosi Ranger District, Mark Twain National Forest, to Support Restoration Planning. Completed for U. S. Forest Service. May 2, 2025.
 11. Evans, K. R., Owen, M. R., Pavlowsky, R. T., **Hess, J. W.**, Sommer, S. P. (2025). Preliminary Report: Karst Geology and Sinkholes of Mark Twain National Forest, Missouri. Completed for U.S. Forest Service. January 2025.
 10. **Hess, J. W.**, Pavlowsky, R. T., Owen, M. R. (2024). Lake Taneycomo Nine Element Nonpoint Source Watershed Management Plan. OEWRI EDR-24-005. Completed for Missouri Department of Natural Resources. June 14, 2024.
 9. **Hess, J. W.**, Owen, M.R., Edwards, B., Pavlowsky, R. T. (2024). Pre- and post-Harvest Activity Assessment using the U.S. Forest Service Forest Soil Disturbance Monitoring Protocol (FSDMP), Mark Twain National Forest, Missouri (2023-2024). OEWRI EDR-24-004. Completed for U.S. Forest Service. April 15, 2024.
 8. **Hess, J. W.**, Lacki, J. J., Pavlowsky, R. T. (2023). Lake Taneycomo Shoreline Bank Erosion and Tributary Sedimentation Assessment. OEWRI EDR-23-003. Completed for the Missouri Department of Natural Resources. September 29, 2023.
 7. **Hess, J. W.**, Owen, M. R., and Pavlowsky, R. T. (2023). Pre- and Post-Harvest Activity Assessment using the U.S. Forest Service Forest Soil Disturbance Monitoring Protocol (FSDMP), Mark Twain National Forest, Missouri (2022-2023). OEWRI EDR-23-001. Completed for U.S. Forest Service. June 8, 2023.

6. Owen, M. R., **Hess, J. W.**, and Pavlowsky, R. T. (2022). Pre- and Post-Harvest Activity Assessment using the U.S. Forest Service Forest Soil Disturbance Monitoring Protocol (FSDMP), Mark Twain National Forest, Missouri (2021-2022). OEWRI EDR-22-003. Completed for U.S. Forest Service. March 23, 2022.
5. Pavlowsky, R. T., **Hess, J. W.**, Nash, J., Lecce, S.A. (2022). Geomorphic Habitat Assessment of the Big Piney River and Roubidoux Creek within Fort Leonard Wood, Missouri. OEWRI EDR-22-002. Completed for U.S. Army Corp of Engineers. June 7, 2022.
4. Owen, M. R., **Hess, J. W.**, and Pavlowsky, R. T. (2021). Dissolved Oxygen and Water Temperature Monitoring of the Big Piney River and Roubidoux Creek at Fort Leonard Wood, Missouri (October 2019 – June 2021). OEWRI EDR-21-001. Completed for U.S. Army Corp of Engineers. December 17, 2021.
3. **Hess, J. W.** and Pavlowsky, R. T. (2021). Lake Taneycomo Watershed Planning 319 Project: Nonpoint Source and Target Load Modeling Report. OEWRI EDR-21-010. Completed for the Missouri Department of Natural Resources. November 11, 2021.
2. Owen, M. R., **Hess, J. W.**, and Pavlowsky, R. T. (2021). Pre- and Post-Harvest Activity Assessment using the U.S. Forest Service Forest Soil Disturbance Monitoring Protocol (FSDMP), Mark Twain National Forest, Missouri (2020-2021). OEWRI EDR-21-006. Completed for U.S. Forest Service. August 3, 2021.
1. **Hess, J. W.**, Pavlowsky, R. T., and Owen, M. R. (2021). Sediment and Erosion Control Assessment, Fort Leonard Wood: Best Management Practices for Ranges 33H, Ranges 2 & 3, and Roadway Drainage for FLW E. OEWRI EDR-21-001. Completed for U.S. Army Corp of Engineers. January 4, 2021.

CONFERENCE PRESENTATIONS/POSTERS

8. **Hess, J. W.** Applications of High Resolution DEMs for Natural Resource Management. 2026 Missouri Natural Resources Conference (MNRC). Margaritaville Resort Lake of the Ozarks, Missouri. February 3 - 5, 2026.
7. Lacki, J. J., **Hess, J. W.**, and Pavlowsky, R. T. Shoreline Erosion and Sedimentation Assessment: Lake Taneycomo, Missouri. 2024 Missouri Natural Resources Conference (MNRC). Margaritaville Resort Lake of the Ozarks, Missouri. February 6 – 8, 2024.
6. **Hess, J. W.**, Pavlowsky, R. T., and Lecce, S. A. Climate-Driven Flood Effects on Channel Stability, Sedimentation, and Freshwater Mussel Habitat in Rivers Draining the Ozark Highlands. 2023 Conference on Sedimentation and Hydrologic Modeling (SEDHYD), St. Louis Union Station, St. Louis, Missouri. May 8 – 12, 2023.
5. **Hess, J. W.**, Nash, J., and Pavlowsky, R. T. Geomorphic Patterns of Riparian Tree Mortality and Recovery After a 500-Year Flood Event on an Ozark Highlands River. 2021 Binghamton Geomorphology Symposium, Middle Tennessee State University, Murfreesboro, Tennessee. October 15 – 17, 2021.

4. **Hess, J. W.**, Pavlowsky, R. T., Dogwiler, T., Bendix, J., and Martin, D. J. Catastrophic Flood Effects on Riparian Forests in Mark Twain National Forest, Southern Missouri. 2019 Missouri Natural Resources Conference (MNRC). Margaritaville Resort Lake of the Ozarks, Missouri. February 5 – 7, 2019.
3. **Hess, J. W.** and Pavlowsky, R. T. Spatial Distribution of Riparian Tree Mortality by a 500-year Flood in the North Fork River Watershed, Southern Missouri. 2019 Missouri Natural Resources Conference (MNRC). Margaritaville Resort Lake of the Ozarks, Missouri. February 5 – 7, 2019.
2. **Hess, J.W.**, Nash, J., Rose, K., LeTarte, S., Adams, H., and Pavlowsky, R. T. Catastrophic flood effects on riparian forest structure, mortality, and fluvial wood supply on a Missouri Ozarks river. 2017 American Association of Geographers West Lakes Division Annual Meeting. Missouri State University – West Plains, West Plains, Missouri. October 19 – 21, 2017.
1. **Hess, J. W.**, Nash, J., Rose, K., LeTarte, S., Adams, H., and Pavlowsky, R. T. Geomorphic controls on riparian forest response to a catastrophic flood in Mark Twain National Forest, Missouri. 2017 Binghamton Geomorphology Symposium. Texas State University, San Marcos, Texas. October 13 - 15, 2017.

EDUCATION, SERVICE, AND SUPPORT

21. Certificate – Data Logger Basics: Best Practices for Water Monitoring. Hobo Marketing. February 11, 2026.
20. Campus Security Authority. Since February 2026.
19. Instructor, GEP-101, First-Year Foundations. Missouri State University. Fall 2025.
18. Annual Regional Water Conference, Springfield Missouri. September 23, 2025.
17. Advanced NEPA workshop. National Association of Environmental Professionals. September 19, 2025.
16. NEPA Essentials Workshop. National Association of Environmental Professionals. September 18, 2025.
15. Webinar: Barrier Removal as a Climate Resilience Strategy. American Rivers. September 17, 2025.
14. ESRI User Conference 2025. San Diego, CA. July 14 – 18, 2025.
13. MOSCP (Missouri Stream Connectivity Partnership) Road-stream Crossing Survey Training by the Southeast Aquatic Resources Partnership (SARP). June 24-25, 2025.
12. Missouri Natural Resources Conference, Osage Beach, February 2025.
11. Adult and Pediatric First Aid/CPR/AED Trained. American Red Cross. November 14, 2024.
10. AWRA, UCOWR, NIWR Joint Resources Conference. September 30 – October 2, 2024.
9. Search Committee Chair for OEWR Director - Missouri State University, CNAS/SEES. Fall 2024.
8. Graduate Faculty (Professional) – Missouri State University. Since September 5, 2024.
7. Certificate – Missouri State University: You Can Help a Student. November 20, 2023.
6. Annual Regional Water Conference, Springfield Missouri. September 26, 2023.
5. Certificate – U. S. EPA Watershed Academy Webcasts: Using Geospatial Indicators of Watershed Condition to Support Freshwater Conservation Actions. April 21, 2022.
4. Annual Regional Water Conference, Springfield Missouri. November 19, 2021.
3. Certificate – LinkedIn Learning: Programming Foundations - Fundamentals. November 15, 2021.
2. Guest lecturer for BIO 509 Stream Ecology.
1. Supervised, trained, and mentored 20 graduate assistants since 2020.