

PERSONAL INFORMATION**Name:** Makki Khorchani**Current position:** Research Assistant Professor, School of Natural Resources, University of Nebraska–Lincoln**Address:** 506 South Hardin Hall, 3310 Holdrege Street, Lincoln, NE 68583-0995, USA**Email:** mkhorchani2@unl.edu**ORCID:** <https://orcid.org/0000-0001-9379-7052>**Google Scholar:** <https://scholar.google.com/citations?user=btji37cAAAAJ>**EXPERTISE**

I study the interaction and coupled effects of management and climate variability on the productivity and water use of terrestrial ecosystems with a particular focus on agroecosystems. I use process-based ecohydrological models, machine learning, and statistical models to analyze Eddy Covariance, streamflow, and plant production data with the objective of defining resource efficient and sustainable management practices. My work involves the use of large datasets and programming languages, and requires important computing resources.

PROFESSIONAL EXPERIENCE/TRAINING

- 2024-present Research assistant professor, School of Natural Resources, University of Nebraska, USA.
- 2022- 2024 Research associate, School of Natural Resources, University of Nebraska, USA.
- 2017- 2022 Research assistant, Pyrenean Institute of Ecology, Spain

ACADEMIC EDUCATION

Institution and Location	Degree	Year	Field	Advisors
• University of Zaragoza, Spain	PhD	2022	Land use and environmental planning	Teodoro Lasanta; Estela Nadal-Romero; José Arnáez Vadillo
• Mediterranean Agronomic Institute of Zaragoza, Spain	MSc	2016	Integrated planning for rural development and management of natural resources	Sergio Vicente-Serrano
• University of Carthage, Tunisia	BS	2014	Agriculture and management of natural resources	N/A

HONORS AND AWARDS

- Extraordinary PhD reward from the University of Zaragoza, Spain, 2022.
- Pre-doctoral fellowship from the Ministry of Economy and Competitiveness, Spain (July 2017-November 2021)
- Erasmus+ fellowship from the European Commission (July-August 2016)

- Master fellowship from the Mediterranean Agronomic Institute of Zaragoza, Spain (July 2014-June 2016)

PUBLICATIONS LIST (2020-2025)

For a full publication list please refer to my [Google Scholar](#) or my [ORCID](#)

1. Dangal, S. R. S., Birru, G., **Khorchani, M.**, Shiferaw, A., Schmer, M., Suyker, A., Jin, V., & Awada, T. (2025). Soil organic carbon trends in US Midwest continuous maize and maize–soybean systems over 20 years. *Agrosystems, Geosciences & Environment*, 8, e70222. <https://doi.org/10.1002/agg2.70222>
2. Hajek, O. L., Kaplan, N. E., Azad, S., Fay, P. A., **Khorchani, M.**, Nelson, A. M., Schreiner-McGraw, A. P., Abendroth, L. J., Baffaut, C., Baker, J., Bestelmeyer, B. T., Boughton, E. H., Browning, D. M., Carlson, B. R., Cavigelli, M. A., Clark, P. E., Dell, C., Guo, Y., Hendrickson, J., Huggins, D., Hussain, M. Z., King, K. W., Kovar, J. L., Liebig, M., Locke, M., Schmer, M., Silveira, M. L., Smith, D. R., Snyder, K. A., Starks, P. J., White, K. E., Wilke, B., & Hoover, D. L. (2025). Variation in patterns of production and water-use efficiency among agroecosystems. *Science of the Total Environment*, 995, 180115. <https://doi.org/10.1016/j.scitotenv.2025.180115>
3. **Khorchani, M.**, Schmer, M., Freidenreich, A., Awada, T., Birru, G., Christofferson, S., Drijber, R., Erickson, G., Jin, V., McDermott, R., Suyker, A., Watson, A., Woodbury, B., Xiong, Y., Hiller, J., Sun, X., Li, L. 2024. The LTAR Grazing Land Common Experiment at Platte River High Plains Aquifer. *Journal of Environmental Quality*, 1-9. <https://doi.org/10.1002/jeq2.20629>
4. Freidenreich, A., Schmer, M. R., **Khorchani, M.**, Birru, G., Jin, V. L., Awada, T., Drijber, R. A., Suyker, A., Córdova, S. C., Smith, T., Kettler, T., Christofferson, S., Sun, X., Li, L. 2024. The LTAR Cropland Common Experiment at Platte River/High Plains Aquifer. *Journal of Environmental Quality*, 1–9. <https://doi.org/10.1002/jeq2.20648>
5. Liebig, M. A., Abendroth, L. J., Robertson, G. P., Augustine, D., Boughton, E. H., Bagley, G., Busch, D. L., Clark, P., Coffin, A. W., Dalzell, B. J., Dell, C. J., Fortuna, A. M., Freidenreich, A., Heilman, P., Helseth, C., Huggins, D. R., Johnson, J. M. F., **Khorchani, M.**, King, K., Kovar, J. L., Locke, M. A., Mirsky, S. B., Schantz, M. C., Schmer, M. R., Silveira, M. L., Smith, D. R., Soder, K. J., Spiegel, S., Stinner, J., Toledo, D., Williams, M., Yost, J. 2024. The LTAR Common Experiment: Facilitating improved agricultural sustainability through coordinated cross-site research. *Journal of Environmental Quality*, 1–15. <https://doi.org/10.1002/jeq2.20636>
6. Shiferaw, A., Birru, G., Tadesse, T., Schmer, M. R., Awada, T., Jin, V. L., Wardlow, B., Iqbal, J., Freidenreich, A., Kharel, T., **Khorchani, M.**, Mersha, Z., Begna, S., Sohoulade, C. 2024. Optimizing cover crop management in Eastern Nebraska: Insights from crop simulation modeling. *Agronomy*, 14(7), 1561. <https://doi.org/10.3390/agronomy14071561>
7. **Khorchani, M.**, Awada, T., Schmer, M., Jin, V., Birru, G., Dangal, S.R.S., Suyker, A., Freidenreich, A. 2024. Long-term croplands water productivity in response to management and climate in the Western US Corn Belt. *Agricultural Water Management*, 291, 108640. <https://doi.org/10.1016/j.agwat.2023.108640>
8. Nadal-Romero, E., **Khorchani, M.**, Gaspar, L., Arnáez, J., Cammeraat, E., Navas, A., Lasanta, T. 2023. How do land use and land cover changes after farmland abandonment affect soil properties and soil nutrients in Mediterranean mountain agroecosystems? *Catena*, 226, 107062. <https://doi.org/10.1016/j.catena.2023.107062>

9. **Khorchani, M.**, Gaspar, L., Nadal-Romero, E., Arnáez, J., Lasanta, T., Navas, A. 2023. Effects of cropland abandonment and afforestation on soil redistribution in a small Mediterranean mountain catchment. *International Soil and Water Conservation Research*, 11, 339-352. <https://doi.org/10.1016/j.iswcr.2022.10.001>
10. Lasanta, T., Cortijos-López, M., Errea, M.P., **Khorchani, M.**, Nadal-Romero, E. 2022. An environmental management experience to control forest fires in the mid-mountain Mediterranean area: shrub clearing to generate mosaic landscapes. *Land Use Policy*, 118, 106147. <https://doi.org/10.1016/j.landusepol.2022.106147>
11. **Khorchani, M.**, Nadal-Romero, E., Lasanta, T., Tague, C., 2022. Carbon sequestration and water yield tradeoffs following restoration of abandoned agricultural lands in Mediterranean mountains. *Environmental Research* 112203. <https://doi.org/10.1016/j.envres.2021.112203>
12. **Khorchani, M.**, Nadal-Romero, E., Lasanta, T., Tague, C., 2021. Natural revegetation and afforestation in abandoned cropland areas: Hydrological trends and changes in Mediterranean mountains. *Hydrological Processes*, e14191. <https://doi.org/10.1002/hyp.14191>
13. **Khorchani, M.**, Nadal-Romero, E., Lasanta, T., Tague, C., 2021. Effects of vegetation succession and shrub clearing after land abandonment on the hydrological dynamics in the Central Spanish Pyrenees. *Catena* 204, 105374. <https://doi.org/10.1016/j.catena.2021.105374>
14. Nadal-Romero, E., Juez, C., **Khorchani, M.**, Peña-Angulo, D., Lana-Renault, N., Regüés, D., Lasanta, T., García-Ruiz, JM. 2021. Impacts of land abandonment on flood mitigation in Mediterranean mountain areas. *The Handbook of Environmental Chemistry Book series*. Springer (**Book chapter**)
15. Juez, C., Peña-Angulo, D., **Khorchani, M.**, Regüés, D., Nadal-Romero, E., 2021. 20-Years of hindsight into hydrological dynamics of a mountain forest catchment in the Central Spanish Pyrenees. *Science of the Total Environment*, 766, 142610. <https://doi.org/10.1016/j.scitotenv.2020.142610>
16. Lasanta, T., Nadal-Romero, E., **Khorchani, M.**, Romero-Díaz, A., 2021. A review of abandoned lands in Spain: from local landscapes to global management strategies. *Geographical Research Letters*, 47. <https://doi.org/10.18172/cig.4755>
17. **Khorchani, M.**, Nadal-Romero, E., Lasanta, T., Zabalza, J., Tague, C., Lana-Renault, N., Domínguez- Castro, F., Choate, J. 2020. Effects of active and passive land use management after cropland abandonment on water and vegetation dynamics in the Central Spanish Pyrenees. *Science of the Total Environment*, 717, 137160. <https://doi.org/10.1016/j.scitotenv.2020.137160>
18. Lasanta, T, Sánchez-Navarrete, P., Medrano-Moreno, L.M., **Khorchani, M.**, Nadal-Romero, E., 2020. Soil quality and soil organic carbon storage in abandoned agricultural lands: effects of revegetation processes in a Mediterranean mid-mountain area. *Land Degradation & Development*, 31, 2830–2845. <https://doi.org/10.1002/ldr.3655>

CONFERENCE PRESENTATIONS (2020-2025)

1. **Khorchani, M.**, Shehab, H., Mazis, A., McDermott, R., Erickson, G., Schmer, M., Jin, V., Hiller, J., & Awada, T. 2024. Smooth Bromegrass pasture performance under different management practices in the Midwest of the United States. (Poster, AGU2024, Washington D.C., USA).
2. Hajek, O., Kaplan, N., Azad, S., Fay, P., **Khorchani, M.**, Nelson, A., Schreiner-McGraw, A., Abendroth, L., Baffaut, C., Baker, J. M., Bestelmeyer, B., Boughton, E., Browning, D. M., Cavigelli, M., Carlson, B., Clark, P., Dell, C. J., Guo, Y., Hendrickson, J., Huggins, D., Hussain, M. Z., King, K., Kovar, J., Liebig, M. A., Locke, M. A., Schmer, M., Silveira, M., Smith, D. R., Snyder, K., White, K., Wilke, B., & Hoover, D. 2024. An ecological framework to assess agroecosystem sensitivity to precipitation across the United States. (Poster, AGU2024, Washington D.C., USA).
3. Sun, X., Suyker, A. E., Erickson, G., McDermott, R., **Khorchani, M.**, Awada, T., & Xiong, Y. 2024. Year-long eddy covariance measurements of greenhouse gas fluxes (CO₂, CH₄, and N₂O) over a grazed pasture in the Midwest. (Poster, AGU2024, Washington D.C., USA).
4. **Khorchani, M.**, Awada, T., Schmer, M., Jin, V., Birru, G., Dangal, S.R.S., Suyker, A., Freidenreich, A. 2023. More crop per drop: feasibility and challenges. Case study of Western US Corn belt. (Oral presentation, ALECSO2023, Tunis, Tunisia).
5. **Khorchani, M.**, Awada, T., Schmer, M., Jin, V., Birru, G., Dangal, S.R.S., Suyker, A., Freidenreich, A. 2023. Long-term croplands water use efficiency in response to management and climate, in Eastern Nebraska's US Corn Belt. (Poster, AGU2023, San Francisco, USA).
6. Nadal-Romero, E., **Khorchani, M.**, Cortijos-López, M., Sánchez-Navarrete, P., Errea, P. and Lasanta, T. 2021. Long-term abandonment of agro-ecosystems in Mediterranean mid-mountain areas: environmental consequences. (Online presentation, SERE2021, Alicante, Spain).
7. **Khorchani, M.**, Sánchez-Navarrete, P., Nadal-Romero, E., Lasanta, T. 2020. Shrub clearing to limit the negative effects of the natural revegetation in Mediterranean mountains. (Online presentation, COLORURAL2020, Valladolid, Spain).
8. **Khorchani, M.**, Nadal-Romero, E., Lasanta, T. 2020. Shrub clearing as active management strategy to control land abandonment in the Central Spanish Pyrenees: The effects and the limits (Online presentation, EGU2020, Vienna, Austria).

GRANTS

- **PI**, Computer Vision-Based High-Frequency Livestock Tracking in Pasture Systems: Advancing Agricultural Research and Environmental Monitoring. **\$9,993. August 2025-July 2026. (USA, University of Nebraska Lincoln).**
- **CoPI**, Climate Smart Beef: Advancing Development of Assessments, Practices, and Tools, **P.I. Galen Erickson. \$4,997,068. 2024-2029 (USA, University of Nebraska Lincoln)**
- **CoPI**, Transitioning from a Linear to a Circular Bioeconomy Opportunities within the Beef System, Nebraska Research Initiative, **P.I. Tala Awada. \$149,923. 2023-2025 (USA, University of Nebraska Lincoln)**

- **CoPI**, Response of a Man-Made Forest to the Catastrophic Wildfires of 2022: Recovery of the Sandhills Halsey Nebraska National Forest. **P.I. Tala Awada. \$375,000. 2023-2027 (USA, USDA McIntire Stannis)**
- **Collaborator**, Mediterranean mid-mountain landscapes and forest expansion: implications for water resources and soil conservation **P.I. Noemi Lana-Renault, €93,594. 2025-2028 (Spain, Ministry of science, innovation, and universities)**
- **Collaborator**, Assessing the resilience of productivity to climate variability across management and climate gradients **P.I. David Hoover. \$116,940 (USA, National Center for Ecological Analysis and Synthesis)**

LANGUAGE SKILLS

- English: Fluent
- Spanish: Fluent
- Arabic: Native
- French: Good

ADDITIONAL INFORMATION

- Associate editor for Cuadernos de Investigacion Geografica-Geographical Research Letters (ISSN 0211-6820, EISSN 1697-9540) since May 2025.
- Peer reviewer for *Catena*, *Water Resources Research*, *Agricultural Water Management*, *Agronomy Journal* among others.
- Co-advisor with Dr. Tala Awada (UNL) for a Ph.D. student and a Master student.
- Member American Geophysical Union (AGU) since 2022.
- Member European Geosciences Union (EGU): 2018,2020, and 2022.