

Photos courtesy of Jesse Nippert



May 20, 2025, 12 p.m. ET, 11 a.m. CT, 10 a.m. MT, 9 a.m. PT

Woody Plant Encroachment in Mesic Grasslands: What's Happened, Where We Are Now, and What Can Still be Done

Jesse Nippert, Ph.D., University Distinguished Professor of Biology | Kansas State University

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This presentation will use examples from the Konza Prairie (Manhattan, KS) that illustrate linkages between above- and below-ground ecosystem processes following encroachment. This research shows the mechanisms by which woody vegetation accelerates water cycling and alters the distribution of C within the soil profile. Coarse woody roots create larger soil macropores that speed up rates of infiltration to the groundwater, a process that alters belowground C distribution, reduce water residence time in surface soils and along with higher ET, result in longer-term drying trends in grassland ecosystems. The results from Konza Prairie illustrate how the replacement of grass with woody species in grasslands magnifies water loss above and belowground leading to greater water scarcity. In the context of these ecosystem changes, I will discuss options for conservation and restoration of our grassy landscapes and provide my perspective on solutions that hold the greatest potential for long term success.



Jesse Nippert, Ph.D. | University Distinguished Professor of Biology | Kansas State University

Jesse Nippert, Ph.D. is a University Distinguished Professor of Biology at Kansas State University. He has led the Long-Term Ecological Research program at Konza Prairie since 2017. He studies plant physiological responses to climate change in North American grasslands and Southern Africa savannas. For the past 15 years, he has studied the drivers and consequences of shrub expansion into grassy ecosystems.