



DR. RAY HUHNKE

PROJECT DIRECTOR & PI, OKLAHOMA NSF EPSCoR

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Dr. Ray Huhnke is a professor in Biosystems and Agricultural Engineering at Oklahoma State University. Since 2000, he has been a team leader on several multidisciplinary, multi-institutional projects in converting low-cost biomass into liquid fuels and other value-added products using a gasification-fermentation process. In 2008, he was named Director of OSU's Biobased Products and Energy Center. From 2008-2013, Huhnke was the research coordinator on a five-year NSF EPSCoR Research Infrastructure Improvement Plan, "Building Oklahoma's Leadership Role in Cellulosic Bioenergy." In July 2013, he assumed the role of project director for the current Research Infrastructure Improvement Plan "Adapting Socio-Ecological Systems to Increased Climate Variability."



DR. GAREY FOX

CO-LEAD RESEARCHER, OKLAHOMA NSF EPSCoR

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Dr. Garey Fox is a Biosystems and Agricultural Engineering researcher and Buchanan Endowed Chair in Biosystems and Agricultural Engineering at Oklahoma State University, and Director and Thomas E. Berry Endowed Professor of the Oklahoma Water Resources Center. He is the lead researcher on the Oklahoma NSF EPSCoR Research Infrastructure Improvement Award No. IIA-1301789 (2013-2018), “Adapting Socio-Ecological Systems to Increased Climate Variability.” Dr. Fox has a Bachelor’s Degree and Master’s Degree in Agricultural Engineering, both from Texas A&M University. He received his Doctorate Degree in Civil Engineering from Colorado State University in 2003.

Dr. Fox works in the area of environment and natural resources engineering and specializes in stream/aquifer interaction; stream bank erosion and failure; seepage erosion; subsurface nutrient transport; and contaminant transport modeling. He has authored over 90 peer-reviewed publications.



DR. DAWN JOURDAN

**ASSOCIATE PROFESSOR & DIRECTOR
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Dawn Jourdan is an Associate Professor and Director of the Division of Regional and City Planning at the University of Oklahoma. Previously, she held a joint appointment between the Colleges of Design, Construction, and Planning and the Levin College of Law at the University of Florida. While at UF, Dawn also served as Director of the Center for Building Better Communities. She began her academic career as an Assistant Professor of Planning at Texas A & M University in College Station, Texas. Before returning to academia, Dawn worked for the State and Local Government Division of Holland & Knight LLPs Chicago offices. Dawn earned a Ph.D. in urban and regional planning from Florida State University in 2004, a joint degree in law and urban planning from the University of Kansas in 2000, and a B.S. in Urban Affairs and Theatre Arts from Bradley University in 1996.

Dawn conducts research which focuses on the impacts of relocation, resulting from natural disasters and policy changes, on families. For the last 5 years, she has studied the ways in which sea level rise in Florida may result in dislocation. She has been working on the ground with communities in northern Florida to help prepare resident to adapt to these changes in climate. Currently, she is working with tribal governments in the State of Oklahoma to help identify and plan for adaptations that may be necessary as a result of anticipated climate events.



DR. SAM FUHLENDORF

**PROFESSOR
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Dr. Sam Fuhlendorf received his B.S. in Agriculture at Angelo State University, M.S. at Texas A&M University in 1992. He completed his Ph.D. at Texas A&M in 1996 with research on the long-term effects of altered fire and grazing regimes on a semi-arid *Quercus-Juniperus* savanna. After a brief post-doctoral research associate position, Sam took a position at Oklahoma State University in 1997 as an Assistant Professor and was promoted to Associate Professor in 2002 and Professor in 2004. He has published over 100 peer-reviewed articles in international journals, such as *Bioscience*, *Ecosphere*, *Journal of Wildlife Management*, *Journal of Applied Ecology*, *Conservation Biology*, *Ecological Applications*, *Proceedings of the National Academy of Science*, and *Rangeland Ecology and Management*.

Sam's current research is generally focused on conservation of grassland landscapes and the wildlife that live on those lands. Specific areas focus on 1) understanding the role of disturbance-driven heterogeneity in the structure and function of grasslands, 2) integrating a landscape perspective into conservation of rangelands and wildlife, 3) fire ecology, 4) wildlife conservation, and 5) understanding how animals use landscapes.

He currently teaches Applied Ecology and Conservation, Landscape Ecology and Ecology of Fire Dependent Ecosystems. Sam actively participates in The Wildlife Society, Ecological Society of America, Society for Range Management, and International Association for Landscape Ecology.

Sam is the Regents Professor and holds the Groendyke Chair in Wildlife Conservation at Oklahoma State University. Sam has received the Outstanding Young Professional Award for the Society for Range Management in 2002, the James A. Whatley Award of Merit for Research from OSU in 2001, the Outstanding Achievement Award for Research from the Society for Range Management in 2010, the Regents Distinguished Research Award at OSU in 2012, and was named Fellow by the DaVinci Institute for Creativity in 2013. Sam's favorite role is being a dad to his daughter Catie and a grandfather to her children Jaden, Kai and Laney.

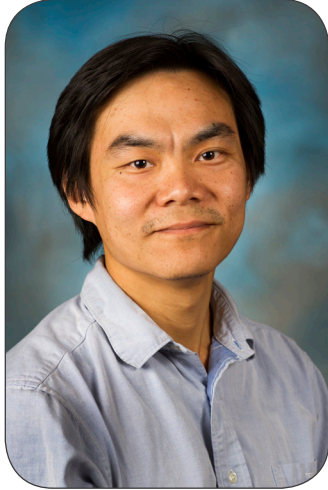


DR. MIKE SORICE

**ASSISTANT PROFESSOR
FOREST RESOURCES & ENVIRONMENTAL CONSERVATION
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Michael Sorice is an Assistant Professor in the Department of Forest Resources & Environmental Conservation at Virginia Tech. He focuses on environmental stewardship with an emphasis on the role of natural resource users and landowners in protecting biodiversity and imperiled ecosystems. His research in the Southern Great Plains focuses on understanding how heterogeneity across the social landscape influences landcover change via the choices, behaviors, and tradeoffs landowners make.



DR. RACHATA MUNEEPEERAKUL

**ASSOCIATE PROFESSOR
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Dr. Muneeppeerakul has worked on a wide variety of problems, ranging from life to social sciences, from biodiversity patterns in river networks to dynamics of coupled natural-human systems. His primary investigative tools are mathematical and computational models. He is interested in dynamical models, complex networks, game theory, and stochastic processes.

Dr. Muneeppeerakul's diverse research interests are reflected in the projects in which he is involved and his publication record. In one project (NSF-CNH), he has been investigating how robust or vulnerable irrigation systems are with respect to rapid changes in disturbance regimes, both social and biophysical; he is expanding this line of research to coupled natural-human systems more generally. Another ongoing project (DoD-SERDP) addresses the biodiversity patterns of aquatic ecosystems in dryland streams whose challenging characteristics include pronounced hydrological seasonality and spatial heterogeneity. In another line of research, he and his colleagues apply complex network approaches to study structure of urban economies. Several other projects are under development, all of which share a common theme of inventing and blending concepts and analytical/computational techniques from different disciplines to achieve meaningful insights.



DR. JEAN STEINER

**SUPERVISORY SOIL SCIENTIST
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Jean Steiner is the Director of the USDA-ARS Grazinglands Research Laboratory in El Reno, Oklahoma where she leads the Southern Plains site of the Long Term Agroecosystem Research network. She is Co-Project Director of the Grazing CAP project and Director of the USDA Southern Plains Climate Hub.



DR. RENEE McPHERSON

CO-LEAD RESEARCHER, OKLAHOMA NSF EPSCoR

ASSOCIATE PROFESSOR

GEOGRAPHY & ENVIRONMENTAL SUSTAINABILITY

CO-DIRECTOR, SOUTH CENTRAL CLIMATE SCIENCE CENTER

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Dr. Renee A. McPherson is Associate Professor of Geography and Environmental Sustainability at the University of Oklahoma (OU) and University Co-director of the South Central Climate Science Center. She also is an Adjunct Associate Professor of Meteorology at OU. Dr. McPherson holds a B.S. in Mathematics and B.S, M.S., and Ph.D. in Meteorology. Her research includes regional and applied climatology, mesoscale meteorology, severe local storms, land-air-vegetation interactions, surface observing systems, applied meteorology, and societal and ecological impacts of climate variability and change. She teaches classes in climatology and physical geography, advises graduate students in their research and education, and mentors undergraduate students who are interested in research opportunities. Formerly, she was State Climatologist of Oklahoma and Acting Director of the Oklahoma Climatological Survey.

Dr. McPherson oversees the Consortium-related activities of the South Central Climate Science Center, as a co-governing partner of the U.S. Geological Survey (USGS). Activities include coordination with USGS Headquarters, our USGS Director, our Consortium (Texas Tech University, Oklahoma State University, Chickasaw Nation, Choctaw Nation of Oklahoma, Louisiana State University, and NOAA's Geophysical Fluid Dynamics Laboratory), the six Landscape Conservation Cooperatives within our region, and the seven other Climate Science Centers. She has been principal or co-investigator on over \$40 million of grants and contracts from federal and state agencies, universities, private companies, or non-governmental organizations. Dr. McPherson is a member of Phi Beta Kappa, the American Meteorological Society, American Geophysical Union, Association of American Geographers, and the American Association of State Climatologists. She was co-recipient of the Innovations in American Government Award (Harvard University) and Environmental Achievement Award (U.S. Department of the Interior), and she received the Vice President for Research Norman Campus Outstanding Research Engagement Award.



DR. TIM VANREKEN

**PROGRAM DIRECTOR, EPSCoR
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Tim VanReken is a Program Director with EPSCoR at the National Science Foundation, where he's worked since June 2014. Within NSF EPSCoR he is the managing program officer responsible for Oklahoma, and currently is the lead on the Research Infrastructure Improvement (RII) Track-2 competition, which focuses on developing focused interjurisdictional research collaborations. Dr. Vanreken also holds an appointment as an Associate Professor with the Laboratory for Atmospheric Research in Washington State University's Department of Civil & Environmental Engineering. His research is focused on atmospheric particulate material and interactions between the biosphere and atmosphere. Dr. VanReken holds a B.S. from the University of Florida and a Ph.D. from Caltech, both in Chemical Engineering. He held a postdoctoral position at the National Center for Atmospheric Research before joining WSU in 2007.



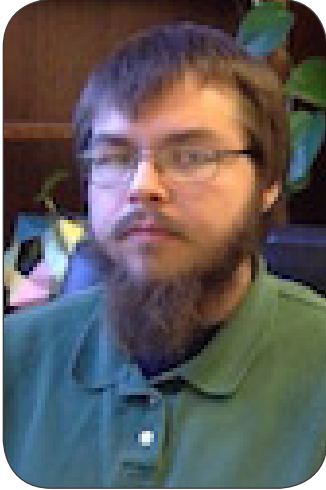
MS. GINA MILLER

**OUTREACH COORDINATOR
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Gina Miller joined the Oklahoma NSF EPSCoR program in 2009 after serving as Executive Director of Stillwater Public School's Education Foundation.

In her role as NSF EPSCoR outreach coordinator, Gina manages, supports, and promotes the education, outreach, and diversity programs of the RII award. She is also in charge of coordinating special events, managing the program's website and social media pages, and for developing communication materials to share the project's outreach and research success with outside audiences.



MR. EVAN LINDE

**RESEARCH CYBERINFRASTRUCTURE ANALYST
OKLAHOMA STATE UNIVERSITY
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Evan Linde is a Research Cyberinfrastructure Analyst in the High Performance Computing Center at Oklahoma State University. He has a BS in Mathematics and Computer Science from Northeastern State University.



MR. MARK STACY

**SENIOR ANALYST, EPSCoR INFORMATICS
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Mark Stacy is a Senior Analyst in the Informatics group at the University of Oklahoma. In his career, Mark has worked within the federal government, health care, and higher education arenas. His expertise in the data life cycle and information management system has empowered scientist, researchers, and management personnel with the ability to access pertinent information and drive data decision support capabilities. He has a MS in Computer Science from Oklahoma City University and a BS in Physical Therapy from the University of Oklahoma.



DR. HENRY NEEMAN

DIRECTOR, OSCER

ASST. VICE PRESIDENT, IT - RESEARCH STRATEGY ADVISOR

ASSOC. PROFESSOR, ENGINEERING

ADJUNCT ASSOC. PROFESSOR, COMPUTER SCIENCE

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Henry Neeman is the founding Director of the OU Supercomputing Center for Education & Research (OSCER), Assistant Vice President for Information Technology - Research Strategy Advisor, Associate Professor of Engineering, and Adjunct Associate Professor of Computer Science at the University of Oklahoma (OU).

He received his BS in Computer Science and his BA in Statistics with a minor in Mathematics in 1987 from the University at Buffalo, State University of New York, his MS in CS from the University of Illinois at Urbana-Champaign (UIUC) in 1990 and his PhD in CS from UIUC in 1996.

Prior to coming to OU, Dr. Neeman was a postdoctoral research associate at the National Center for Supercomputing Applications (NCSA) at UIUC, and before that served as a graduate research assistant both at NCSA and at the Center for Supercomputing Research and Development, also at UIUC.

Dr. Neeman and his counterpart at Oklahoma State University, Dr. Dana Brunson, have been appointed joint co-leads of the Campus Engagement program of the Extreme Science and Engineering Discovery Environment (XSEDE), the umbrella organization over the National Science Foundation's national supercomputing centers.

He also collaborates with the Advanced Cyberinfrastructure Research and Education Facilitators (ACI-REF) project led by Clemson University, and serves on the steering committee of the Linux Clusters Institute, as well as the National Science Foundation's Advisory Committee for Cyberinfrastructure.



DR. DANA BRUNSON

**ASST. VICE PRESIDENT FOR RESEARCH
CYBERINFRASTRUCTURE;
DIRECTOR, HIGH PERFORMANCE COMPUTING CENTER
ADJUNCT ASSOC. PROFESSOR, COMPUTER SCIENCE & MATH
OKLAHOMA STATE UNIVERSITY
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Dana Brunson is the Assistant Vice President for Research Cyberinfrastructure, the Director of the High Performance Computing Center and is an adjunct associate professor in the Computer Science Department and the Mathematics Department at Oklahoma State University (OSU). She earned her Ph.D. in Mathematics at the University of Texas at Austin in 2005 and her M.S. and B.S. in Mathematics from OSU. Dana is co-lead of the OneOklahoma Cyberinfrastructure Initiative (OneOCII) which provides CI resources to academic institutions statewide. She is also a member of the XSEDE Campus Champion leadership team and one of seven new Regional Champions. Dana is PI on OSU's NSF MRI award "Acquisition of a High Performance Compute Cluster for Multidisciplinary Research," 9/1/2011 – 8/31/2015, \$908,812 (Award #1126330), resulting in the deployment of the largest externally funded supercomputer in state history. She is also co-PI on Oklahoma's NSF CC-NIE grant, "OneOklahoma Friction Free Network," a collaboration among OSU, OU, Langston and the Tandy Supercomputing Center, 10/1/2013 – 9/31/2015, \$499,961 (Award #1341028).



DR. RON MILLER

**POSTDOCTORAL FELLOW
BIOSYSTEMS & AGRICULTURAL ENGINEERING
OKLAHOMA STATE UNIVERSITY
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Ph.D.: Environmental Science, 2012, Oklahoma State University, Hydrogeophysics of Gravel-dominated Floodplains in Eastern Oklahoma

M.S.: Geospatial Science 2006, Missouri State University, Nutrient loads in an urban Ozark watershed : Jordan, Fassnight and Upper Wilson's Creeks, Springfield, Missouri

Currently: Postdoctoral Research Fellow at Oklahoma State University

I am interested in researching changes to stream flow and groundwater as a result of climate variability in Oklahoma, especially how those changes affect the activities and livelihoods of Oklahomans.

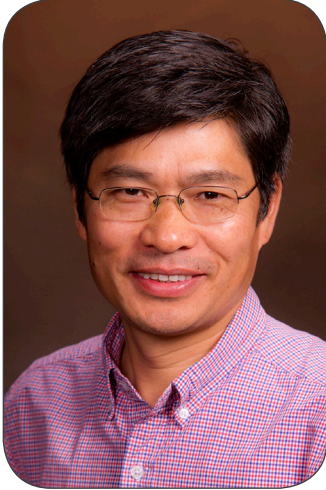


MRS. EMMA KUSTER

**PROGRAM COORDINATOR
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Mrs. Emma Kuster is the Program Coordinator for the current Oklahoma EPSCoR grant, *Adapting Socio-Ecological Systems to Increased Climate Variability*. Her job includes fostering an environment for collaborative work, aiding researchers in communicating with one another, and outreaching the current EPSCoR research at academic and professional conferences. Additionally, she puts out a newsletter twice a month to all participants on the EPSCoR project to help people keep up-to-date on events and deadlines. She has a Bachelor's degree in Meteorology and a Master's degree in Geography, both from the University of Oklahoma. Her primary research interests include the impacts of climate variability and climate extremes on both ecosystems and human societies. Her ultimate goal is to bridge the gap between academic researchers and real-world applications.



DR. CHRIS ZOU

**ASSISTANT PROFESSOR
NATURAL RESOURCE ECOLOGY & MANAGEMENT
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Dr. Chris Zou is an associate professor of ecohydrology and wildland hydrology in the Department of Natural Resource Ecology and Management at Oklahoma State University. He received his BA in Biology and M.S. in Ecology from Southwest University, China and Ph.D. in Forestry from University of Canterbury, New Zealand. Dr. Zou's Ecohydrology and Wildland Hydrology Lab focuses on spearheading research and applications at the nexus of climate change, ecology, and water resources. His current research theme is to understand the coupling of ecological and hydrological processes and alteration of ecosystem provisioning services such as water and carbon under land use and vegetation changes both at ecosystem and landscape scales. Dr. Zou's research incorporates both field-based observation and modeling approaches and spans a wide range of settings ranging from deserts, savannas, woodlands, and forests.

Dr. Zou is a co-investigator in the OK NSF EPSCoR Research Infrastructure Improvement Award No. IIA-1301789 (2013-2018), "Adapting Socio-Ecological Systems to Increased Climate Variability." His roles in the NSF EPSCoR project include advancing our understanding of vegetation-induced changes in hydrological mechanisms by expanding experimental approaches of micro-catchment studies, and calibrating hydrological models which can be used by all EPSCoR researchers and broad research communities to understand climate and land use impact on water quality at the regional scale. Dr. Zou will also participate in an integrated study focusing on understanding vulnerability and resiliency of wetlands under changing climate in the Cimarron River basin of Oklahoma using coupled social and ecological approaches.

3:45 SESSION PRESENTATION ABSTRACT

**CHRIS ZOU*, NATURAL RESOURCE ECOLOGY & MANAGEMENT
RICHARD T. MELSTROM, AGRICULTURAL ECONOMICS
OKLAHOMA STATE UNIVERSITY**

"VULNERABILITY AND RESILIENCY OF WETLANDS UNDER CHANGING CLIMATE IN THE CIMARRON RIVER BASIN OF OKLAHOMA"

Wetlands, among the most valuable ecosystems on the planet, provide important ecosystem services including wildlife habitat and biodiversity, carbon sinks, water regulation and purification, flood abatement and drought buffer, eco-tourism and recreation. Vulnerability of wetlands to changing climatic conditions—particularly protracted drought—and resource management can dramatically impair these services. In this project we will focus on improving our understanding of how physical (climate,-

-hydrology, land use) and socio-economic (management actions and costs, policies, incentives) systems interact in the lower Cimarron River basin (15,719 km²) of north-central Oklahoma to affect the vulnerability of wetlands and the resiliency of the region to climate change. This project employs ENVISION, a platform that integrates decision-makers, landscapes and policies, to assess alternative future scenarios (Figure 1). We anticipate this project will (1) reveal complex system behaviors and feedbacks associated with wetlands, (2) improve effectiveness of wetland conservation and restoration policies, (3) improve understanding of the role of economic forces in influencing how landowners and managers make decisions under risk and uncertainty, (4) improve understanding of how climate change could affect policy outcomes and ecosystem services, and finally (5) help to develop alternative management strategies, adaptive policies and actions.

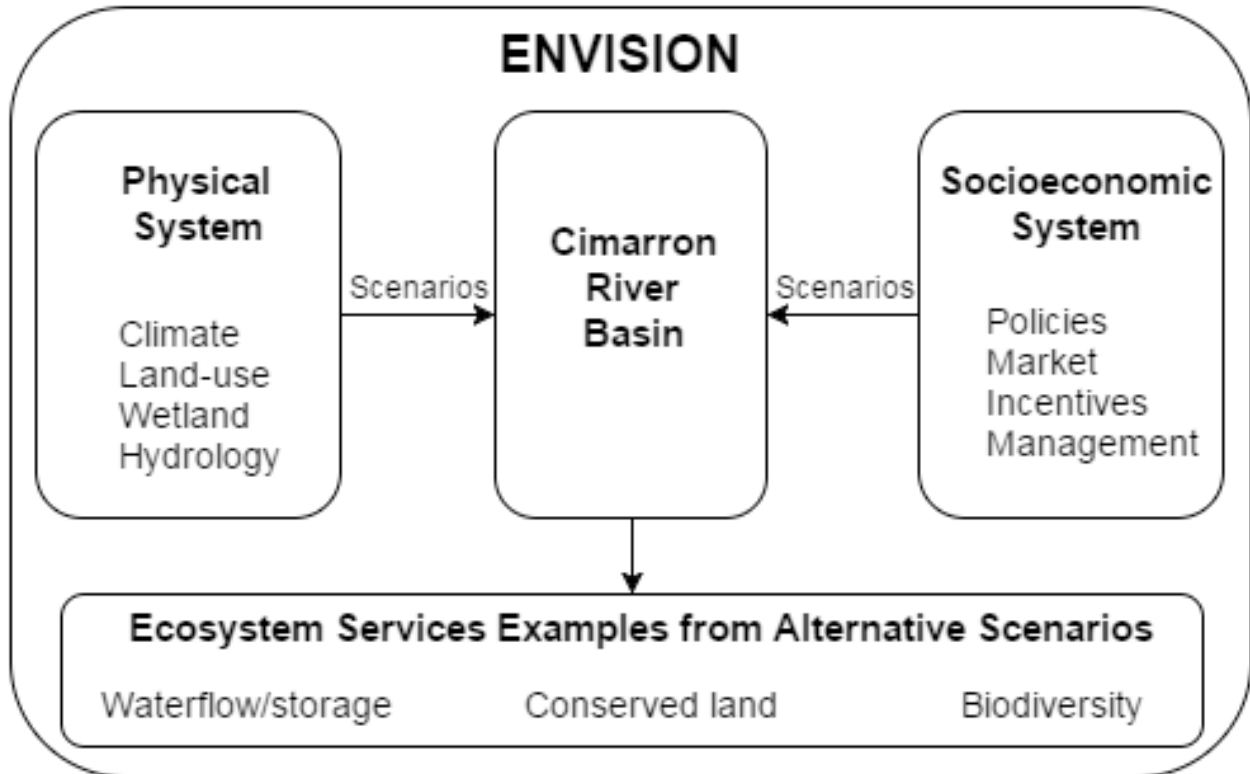
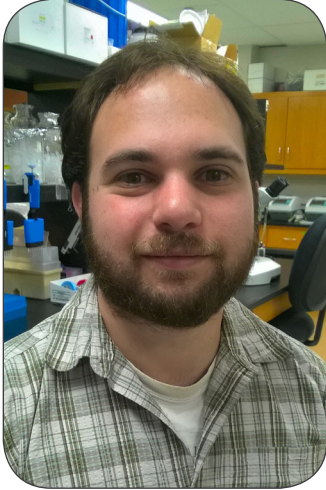


Figure 1. Coupled physical and socioeconomic modelling approach to assess wetland vulnerability and resiliency under changing climate in the Cimarron River Basin of Oklahoma



DR. MIKE TREGLIA

**RESEARCH ASSOCIATE
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THE UNIVERSITY OF TULSA
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Michael L. Treglia is an EPSCoR Postdoc in the Department of Biological Science at the University of Tulsa, advised by Dr. Ron Bonett. Mike's research involves using GIS and Remote Sensing tools in studies of conservation biology, ecology, and evolutionary biology, with an emphasis on reptiles and amphibians. He completed his Ph.D. at Texas A&M University in 2014 as part of the Applied Biodiversity Science NSF-IGERT Doctoral Program, and his dissertation focused on conservation of the endangered arroyo toad in southern California. He also holds a MS from Texas A&M, and a BS from Cornell University. As part of the Oklahoma EPSCoR program, Mike has been investigating how variability of local climate and fine-scale stream conditions may influence evolution of alternative life history strategies in salamanders, and he is working on development LiDAR-based spatial data products for the state of Oklahoma. In addition to his research, Mike teaches courses at the University of Tulsa, focused on GIS, landscape ecology, and spatial analysis.

3:45 SESSION PRESENTATION ABSTRACT

**MICHAEL TREGLIA*, BIOLOGICAL SCIENCE, THE UNIVERSITY OF TULSA
ADAM J. MATHEWS, GEOGRAPHY, OKLAHOMA STATE UNIVERSITY
DUNCAN WILSON, SOUTH-CENTRAL CLIMATE SCIENCE CENTER, UNIVERSITY OF OKLAHOMA**

"DEVELOPMENT OF LIDAR DERIVED PRODUCTS FOR OKLAHOMA RESEARCHERS"

Light Detection and Ranging (LiDAR) technologies allow for fine-scale, three-dimensional mapping of Earth's surface, and are increasingly being used in research and management of natural resources. LiDAR data collected following standardized protocols are presently available for approximately 40% of Oklahoma, including several EPSCoR focal watersheds, though only in raw form, as point clouds. Point clouds allow for intuitive visualization of the data, but are not immediately useful for further analysis. Thus, we are processing the available LiDAR data for Oklahoma to derive a variety of ecologically-relevant GIS datasets, including high-resolution elevation and canopy height models, wildfire fuel, and metrics of vegetation density. We will make the resulting products freely available for use by others, and anticipate them being employed in various types of research projects on hydrology, wildfire risk, wildlife habitat, and soil moisture monitoring. These data can contribute to coupled human and natural systems research by allowing human behavior to be characterized at fine spatial scale, such as household-level. We will also briefly outline other remote sensing products available that can resolve human behavior in land-use and land-cover dynamics at fine temporal and spatial scales.



DR. HEATHER MCCARTHY

**ASSISTANT PROFESSOR
MICROBIOLOGY AND PLANT BIOLOGY
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Dr. Heather McCarthy is an Assistant Professor of Plant Biology, in the Department of Microbiology and Plant Biology at the University of Oklahoma. Her research interests include: plant physiological ecology, global change ecology, urban ecology, ecohydrology and coupled human-natural systems. Her research largely explores how trees and forests respond to environmental changes, and, conversely how can they be managed to moderate environmental changes. This research draws on physiological and ecosystem ecology to explore how plant water and carbon cycle processes respond to global change factors, including changes in water availability, extreme weather events, elevated atmospheric CO₂, and urbanization. Dr. McCarthy received her B.S. in Environmental Science at Oregon State University and her Ph.D in Ecology at Duke University, after which she was a postdoctoral fellow in the Department of Earth System Science at the University of California, Irvine.

3:45 SESSION PRESENTATION ABSTRACT

**HEATHER MCCARTHY*, MICROBIOLOGY & PLANT BIOLOGY, UNIVERSITY OF OKLAHOMA
BETH CANIGLIA, SOCIOLOGY, OKLAHOMA STATE UNIVERSITY
TRACY BOYER, AGRICULTURAL ECONOMICS, OKLAHOMA STATE UNIVERSITY
GAREY FOX, BIOSYSTEMS & AG ENGINEERING, OWRC, OKLAHOMA STATE UNIVERSITY
JACK FRIEDMAN, CENTER FOR APPLIED SOCIAL RESEARCH, UNIVERSITY OF OKLAHOMA
XIANGMING XIAO, MICROBIOLOGY & PLANT BIOLOGY, UNVIERSITY OF OKLAHOMA
RENEE MCPHERSON, GEOGRAPHY & ENVIRONMENTAL SUSTAINABILITY, SCCSC,
UNIVERSITY OF OKLAHOMA**

“LINKING LAND USE AND MANAGEMENT, WATER RESOURCES AND HUMAN WELLBEING IN OKLAHOMA CITY”

In urban systems, ecosystem function is highly influenced by human decisions (regarding vegetation composition and management), and people benefit directly from many ecosystem services provided by urban ecosystems. Ultimately, the further an urban system is from the “natural” state, the more resources and management are required to maintain it in the altered state. Thus, these systems may be vulnerable to system changes, when climate variability or other events limit resource availability or funding to undertake management activities. We are in the process of using the system dynamics model ENVISION as a framework to bring together remotely sensed land cover and vegetation function (e.g. productivity and water loss), urban hydrology, social and economic understandings of household and municipal water use and decision making, an understanding of ecosystem services provided by urban landscapes, and metrics of-

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-human wellbeing, to answer several overarching questions. 1) how do changes in land use, land management and water resource use feed back to impact human wellbeing? 2) what ecological metrics or indicators do people perceive and respond to? This work will allow us to better understand relationships between urban land use and ecosystem function, how decision making responds to environmental cues, and integrated system dynamics in cities dealing with limited water supplies.



DR. DUNCAN WILSON

**RESEARCH SCIENTIST
SOUTH CENTRAL CLIMATE SCIENCE CENTER
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Duncan Wilson is currently a Research Scientist at the University of Oklahoma with the South-central Climate Science Center. He has been previously affiliated with a number of universities and research centers, including Oklahoma State University, the University of KwaZulu-Natal in South Africa, the University of Florida, and FPInnovations in Canada. His research is focused on natural resource management and how this intersects with human systems.

3:45 SESSION PRESENTATION ABSTRACT

DUNCAN WILSON, SOUTH CENTRAL CLIMATE SCIENCE CENTER, UNIVERSITY OF OKLAHOMA

“TOPOLOGY OF COUPLED HUMAN AND NATURAL SYSTEMS”

Coupled human and natural systems appear to have a fundamental topology (structure) that drives many of the dynamics, particularly those reflecting the degree of coupling between the human and natural components. We take the term topology from graph theory to represent the formal graphical structure of the relationship between human and natural systems that remains static despite considerable distortion of system components over time or space. This topology framework is briefly introduced, and ongoing work to examine the dynamics of coupled human and natural systems in the Kiamichi and OKC study areas is presented. New methods in development investigate fire risk perception (OKC peri-urban) and drought risk perception (Kiamichi) under this framework. Opportunities for engagement in this work are outlined.

OKLAHOMA NSF EPSCoR GUEST DINNER SPEAKER



DR. KENNETH SEWELL
VICE PRESIDENT FOR RESEARCH
OKLAHOMA STATE UNIVERSITY, STILLWATER, OK
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Kenneth Sewell is Vice President for Research at Oklahoma State University. In this role, he oversees the policies, offices, and service units that support and promote research, scholarship, and creative artistry at OSU. Dr. Sewell views university research as the engine that drives all persons engaged in and with it—whether they are faculty researchers, students, community partners, or societal consumers—to the vanguard of change, transformation, and progress. With this guiding philosophy, Dr. Sewell conceptualizes research as a vital catalyst: what faculty and students do today that was not yet conceived (let alone printed in a textbook) yesterday.

Dr. Sewell received his B.S. from Kansas State University, then his M.A. and Ph.D. from the University of Kansas. Following a clinical internship with the Department of Veterans Affairs, he joined the University of North Texas psychology faculty in 1991. Coming from the faculty ranks himself, Dr. Sewell had many years of academic research, teaching, professional training/mentoring, and administrative experience before his move into central university roles. His research as a clinical psychologist has focused on posttraumatic stress, bereavement, and a variety of forensic psychology topics such as competency to stand trial, malingering, and factors affecting comprehension of Miranda rights. Dr. Sewell has published more than 100 peer-reviewed articles and book chapters, in addition to several edited books, psychological tests, and test manuals. After directing a Ph.D. program for more than a decade, he entered central research leadership full time as UNT's associate vice president for research and briefly as interim vice president before moving to the University of New Orleans. At UNO, he served as Vice President for Research and Economic Development and led the Graduate School. Dr. Sewell joined the OSU team in 2015 and moved to Stillwater where he and his wife, Beth, now make their home.