**APPENDIX D**

# SAES-422

**Format for Multistate Research Activity Accomplishments Report**

***Note:*** *This report is submitted each year of an activity’s duration and is due 60 calendar days following the annual meeting. The SAES-422 is submitted electronically by AAs into NIMSS. Annual Reports for MRF projects are available to NIFA through NIMSS.*

# Project/Activity Number: W1188

**Project/Activity Title:** Maintaining Resilient Sagebrush & Rural Communities

**Period Covered: Jan 2021-Feb 2022**

**Date of This Report: 4 April 2022**

**Annual Meeting Date(s): 5 Feb 2022**

**Participants:** Hagen, Christian, [christian.hagen@oregonstate.edu](mailto:christian.hagen@oregonstate.edu), Oregon State University; Beck, Jeffery, [jlbeck@uwyo.edu](mailto:jlbeck@uwyo.edu), University of Wyoming; Maczko, Kristie, [kmaczko@uwyo.edu](mailto:kmaczko@uwyo.edu), University of Wyoming; Ritten, John, [jritten@uwyo.edu](mailto:jritten@uwyo.edu), University of Wyoming; Wilcox, Kevin, [kwilcox@uwyo.edu](mailto:kwilcox@uwyo.edu), University of Wyoming; Wulfhorst, JD, [jd@uidaho.edu](mailto:jd@uidaho.edu), University of Idaho; Moseley, Jeff, [jeff.moseley@montana.edu](mailto:jeff.moseley@montana.edu), Montana State University; McNew, Lance, [lance.mcnew@montana.edu](mailto:lance.mcnew@montana.edu), Montana State University; Dinkins, Jon, [jonathan.dinkins@oregonstate.edu](mailto:jonathan.dinkins@oregonstate.edu), Oregon State University; Williams, Perry, [perryw@unr.edu](mailto:perryw@unr.edu), University Nevada-Reno; Dahlgren, David, david.dahlgren@usu.edu, Utah State University; Berkeley, Lorelle, [berk0035@umn.edu](mailto:berk0035@umn.edu), Montana Department of Fish and Wildlife; Donkin, Shawn, [shawn.donkin@oregonstate.edu](mailto:shawn.donkin@oregonstate.edu), Oregon State University

**Brief summary of minutes of annual meeting**: We recapped the and summarized the NIFA proposal, identified tasks and milestones for the coming year. We identified potential individuals to serve on the oversight committee. Specifically, representation from BLM, USDA, NGOs and State Wildlife Agency(s). We identified the need for bi-weekly calls to discuss data needs for sage-grouse demographic model development. Perry indicated he had selected a Ph.D. student to develop the sage-grouse model.

**Accomplishments:** The W1188 successfully applied and received funding from USDA-AFRI NIFA for a proposal titled “*Sustaining rural livelihoods, livestock grazing, and sage-grouse habitat in western sagebrush systems*” ($650,000) and was awarded through University Nevada-Reno, with Perry Williams as Lead Investigator. Two proposals were submitted to the National Science Foundation 1) “*Socioeconomic Resilience and Transformation in the New Rural West-the Convergence of Energy Development, Exurban Development, and Climate Change*”.NSF-DISES for $1.6 mill submitted through Montana State Univeristy, with Lance McNew, as lead investigator, and 2) “*Developing Transferability and Fluency in a Transdisciplinarian Effort to Disentangle Socioeconomic-Ecological Resilience in the Sagebrush Biome*” NSF-MCA ($250,000) was submitted by Christian Hagen, Oregon State University, with JD Wulfhorst and Katherine Lee University of Idaho, as co-investigators and as host institution for Hagen’s activities.

**Impacts:**

The human and economic dimensions of sagebrush communities have an unprecedented scope, and there is a need for resilience-based management of the sagebrush biome. Our approach will provide a holistic view of agroecosystem sustainability as it pertains to quantifiable economics related to livestock production, energy development and qualitative sociological components such as sense of place, community security, and anxiety from contemporary threats of climate change.

In addition to improving our basic understanding of rural SESs, our project will address critical knowledge gaps in resource dependent rural communities for community corridors in our study area, which allows for testing specific hypotheses about the correlations and dynamics between socio-economic, ecological resilience, and ecosystem health. Policy initiatives such as President Biden’s 30×30 conservation plan and transition to renewable energy necessitates understanding how these changes may affect resource dependent rural communities. The structure of our models, from micro (livestock production) to macro (regional development model) scale, will inform a vector of socioeconomic resilience measures that will be linked directly to ecosystem health (sage-grouse populations). This approach will allow for variation in environmental socio-economic inputs and assumptions to represent key attributes of rural communities.

Our proposed work will assist in informing resource dependent communities in planning and negotiating with and between multiple institutions, private landowners and resource managers in the western United States.As mentioned above, the sagebrush biome is exposed to several stressors due to climate change, invasive species, and human development, all of which also affect human dimensions. It is our hope that this work will contribute significantly to improving delivery of conservation actions that will mutually benefit rural communities, the ecosystem, and wildlife therein.

The models developed in this project will be part of the tools and information needed for ranchers,agency personnel, and local policymakers to make better and more secure decisions about future economic growth. Students and faculty will work with agencies and local citizen representatives to use the decision support systems to create more economically and socially resilient communities. Scientists will have a better sense of how local residents think about the environment around them and the science that is produced. The framework proposed here will be transferable to other biomes that share natural resource based economies. The multi-attribute decision model will provide a framework to serve as a decision tool for planners and scientists alike to assess socio-ecological interactions and outcomes both in a planning sense but also as a management tool that can serve adaptive management in intervening years.

**Publications:** For SAES-422 reports list the publications for **current** year only (with the authors, title, journal series, etc.). If the list exceeds the maximum character limit below, an attachment file may be used. (Max characters = 50,000. Single line breaks are not preserved, use double line breaks instead or use a <p> tag to separate paragraphs.)

**Authorization**: Submission by an AES or CES director or administrative advisor through NIMSS constitutes signature authority for this information.

\*Limited to three pages or less exclusive of publications, details may be appended.