Supporting BLM Science and Research Needs from Rangeland to Climate Change

LANDFIRE Interviews Environmental Scientist & Fire Ecologist Louisa Evers

Louisa Evers, Ph.D., has 30 years' experience in fire and fuels management and fire ecology ranging from basic firefighter to fuels specialist and fire ecologist. She has worked across the western U.S. in both prescribed fire and wildfire response. In January 2012, Louisa became the science and climate change coordinator for the Bureau of Land Management (BLM) Oregon-Washington State Office, where most of her work has concentrated on large-scale planning efforts concerning sage-grouse habitat management in eastern Oregon and forest management in western Oregon.

Louisa's current focus centers on issues affecting greater sage-grouse habitat and sagebrush ecosystems, supporting the development of land use plans and their associated environmental impact statements, and providing a liaison with the research community in Oregon and Washington to support BLM's science and research needs.

Louisa earned a B.S. in forestry from the University of Tennessee, an M.S. in forestry from the University of Idaho with an emphasis in fire ecology, and a Ph.D. from Oregon State University in Environmental Sciences with an emphasis on rangeland ecology. She lives in Gresham, Oregon, works in Portland, and plays throughout Oregon and southwestern Washington.

When and how did you become involved with LF?

I started working with LANDFIRE in 2000 as part of my then-job of assistant regional fuels specialist for the Northwest. I worked with Jim Menakis at the Missoula Fire Sciences Lab to understand the initial concepts and goals and then later as part of the teams building the first state-and-transition models for the Northwest mapping regions. I mostly worked on sagebrush ecosystem models along with certain forest models, drawing on my background as a fire ecologist and experiences in forest and rangeland fires.

Your current position involves climate change science. What types of climate questions are being asked at the BLM and what sorts of data and analyses are used to answer them?

At present, few questions are being asked under this Administration, and BLM no longer has funding for researching climate change-related questions. However, climate change remains real and BLM is trying to deal with the questions. Most involve carbon sequestration and greenhouse gas emissions in connection with project and land use planning and in response to comments raised by the public during the scoping process. Additionally, I am working with several

different scientists on climate change impacts issues, primarily in sagebrush ecosystems. Most questions concern drought, fire, and invasive plant species and how climate change exacerbate these and affect ecosystem functions and rural communities.

You helped create several LF Biophysical Settings (BpS) models and developed similar state-and-transition simulations models for your PhD work. What do you see as the value of these types of models? How do you use them in your work with the BLM?

State-and-transition models are used mostly in rangeland ecosystems. More work needs to be done to develop "climate smart" models that allow us to use current climate and weather to evaluate the probable success or failure of different management actions and how changes in climate may affect the locations and productivity of different rangeland biophysical settings.

Your review of LF's major rangeland BpS models really helped improve the quality of those models – thanks! What prompted you to volunteer so much time to that effort?

I helped to develop the first generation of rangeland Oregon and Washington. At that time, my understanding of these systems was rudimentary. As I gained more understanding of these system, particularly when pursuing my PhD, and as the science advanced, I realized there were significant problems with the first-generation models.

I wanted to address those problems and bring in some of the recent concepts that have come out of all the study of sagebrush ecosystems in the context of greater sage-grouse habitat needs.

What enhancements might improve LF's usefulness? Where are the areas of opportunity?

Arid and semi-arid ecosystems are not self-correcting, so many of the alterations that have occurred in these systems are essentially permanent in the absence of massive interventions and a great deal of luck. The same seems to be proving true in drier forests as well. Climate change is also driving permanent shifts in plant species distributions, changes in ecosystem functions and processes such as fire, and leading towards the development of new ecosystems.

While understanding how these systems may have functioned in the past can inform our understanding of how various systems respond to different pressures and stresses, LANDFIRE may well benefit from constructing models of how the most-altered systems function now. The science is clear that we cannot go back to the past systems due to the combination of invasive plant species, changes in land uses, environmental regulations, and similar factors; the condition class concept may have outlived its usefulness. Models of how these systems function now could then better inform project plans and land use plans. However, the models needed are likely to be more complex than the current 3- to 5-box models.

For your information

Evers, Louisa B., Richard F. Miller, Paul S. Doescher, Miles Hemstrom, and Ronald P. Neilson. 2013. Simulating Current Successional Trajectories in Sagebrush Ecosystems with Multiple Disturbances Using a State-and-Transition Modeling Framework. Rangeland Ecology and Management 66(3): 313–329.
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Contact Louisa

levers@blm.gov
503-808-6377