



GREAT BASIN FIRE SCIENCE DELIVERY

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Webinar Brief for Resource Managers

Great Basin Fire Science Delivery | 1664 N. Virginia St./MS 0186, Reno, NV 89557 | 775-784-1107 | emb@cabnr.unr.edu

Using weather data and adaptive management to improve the probabilities of successful revegetation

To Be Presented on 10 April 2013 by Stuart Hardegree, Plant Physiologist, USDA-ARS Northwest Watershed Research Center

Project Summary:

Annual and seasonal weather variability are key drivers of rangeland restoration success. This webinar will discuss weather impacts on the restoration planning cycle, and describe a weather-centric approach for adaptive management planning on rangelands that have been disturbed by invasive annual weeds.

Abstract:

Arid and semi-arid rangelands are characterized by high variability in seasonal and annual precipitation. This variability significantly complicates rangeland restoration scenarios on millions of hectares of rangeland in the Great Basin that have been severely disturbed by frequent wildfire and introduced annual weeds. Site preparation and seeding treatments are usually designed to optimize seedbed microclimate for planted species, but macro-climate information is generally used only to make initial decisions about species suitability and after the fact to rationalize restoration failure. Weather data is increasingly available and should be utilized whenever possible both in the planning and evaluation stage of restoration projects. Inherent weather variability may require relatively long-term goal setting, contingency planning for partial success or failure in any given year, and weather-centric monitoring and evaluation for effective adaptive management. These considerations complicate restoration planning, particularly on federal rangelands that require specific predictions of management effects under the NEPA EA process, or that may receive funding for restoration in only a single year after wildfire. New technologies are on the horizon to directly use seasonal forecast information for real-time decision-making, but current data and weather tools can greatly assist in planning and management. This

Management Implications

- Weather is one of the major drivers of plant establishment.
- Currently available weather information and tools can greatly assist in rangeland restoration planning, assessment and adaptive management.
- Effective adaptive management in highly variable rangeland environments may require a longer-term planning horizon and a more weather-centric approach at all levels of planning, implementation and assessment.

webinar will outline weather-data information sources and describe a weather-centric approach for more effective adaptive management planning.

Most Relevant References:

Hardegree, S.P., T.A. Jones, B.A. Roundy, N.L. Shaw and T.A. Monaco. 2011. Assessment of range planting as a conservation practice. Chapter 4, In: D.D. Briske (ed.). Conservation Benefits of Rangeland Practices: Assessment, Recommendations, and Knowledge Gaps. Allen Press, Lawrence KS. pp 171-212. [Here](#).

Hardegree, S.P., J. Cho and J.M. Schneider. 2012. Weather variability, ecological processes, and optimization of soil micro-environment for rangeland restoration. In: T.A. Monaco and R.L. Sheley (Eds.). Invasive Plant Ecology and Management: Linking Processes to Practice. CAB International, Wallingford, Oxon. pp. 107-121. [Here](#).

Hardegree, S.P., J.M. Schneider and C.A. Moffet. 2012. Weather variability and adaptive management for rangeland restoration. Rangelands 34:53-56. [Here](#).

Hardegree, S.P., J.M. Schneider, C.A. Moffet and A.R. Boehm. 2012. Using weather data to improve decision making for rangeland restoration efforts. USDA-ARS. Ecologically Based Invasive Plant Management Program Guidebook. 18 pp. [Here](#).

Hardegree, S.P., C.A. Moffet, G.N. Flerchinger, J. Cho, B.A. Roundy, T.A. Jones, J.J. James, P.E. Clark and F.B. Pierson. 2013. Hydrothermal assessment of temporal variability in seedbed microclimate. Rangeland Ecology and Management: 66:127-135. [Here](#).