

Coping with Historic Drought in California Rangelands

Results of an Interagency Workshop

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Background

The current drought in California is of historic proportion, both in its intensity and its effect on agriculture. Although storms of the 2015-16 winter rainfall season have provided modest drought relief, their effects on alleviating the multi-year drought are unknown. Short- and mid-term forecasts are not favorable and generally project an increase in variability as well. Although an increase in seasonal rainfall can be expected to result in increased forage production, the ability of grazing operations to respond at that timescale may be limited by economic constraints.

The USDA Southwest Regional Climate Hub developed a Rangeland Vulnerability Assessment (VA) for California. In an effort to disseminate and implement the findings of the VA, we brought state-level technical and program specialists together with industry leaders to develop strategies for post drought actions that can assist producers in returning to sustainable grazing operations. The workshop objectives were to 1) Distribute and discuss the California Rangeland Vulnerability Assessment, and 2) Involve leaders from agencies that provide rangeland financial and technical assistance support to identify agency priorities for implementation of the VA . The participants identified three areas of major importance as a basis for improving the quality of technical and financial assistance.

Workshop Results

ENHANCING ADAPTIVE CAPACITY

Operational level

Improved accuracy and spatial precision of 3-6 month drought forecasts

Better interpretation and communication of the likelihood of reaching pre-defined seasonal rainfall and forage production levels

Tactical level

Drought support should include improving access to 2-5 year forecasts and the interpretations of impacts on forage supplies.

Put technical and financial support into a framework of explicit connections to decision-making relative to stocking rates, destocking contingencies and ranch level outcomes

Strategic level

Build logical drought contingency plans to provide support to land managers that include explicit trigger points, actions and expected responses for the agency

IMPROVED MONITORING FOR DECISION-MAKING

Data used as the basis for agency level decisions should be available in the public domain, such as the data.gov effort

Biophysical monitoring data needs to be placed within an economic context to allow ranch-level decisions to improve relevance

National Agricultural Statistics Service data are exceptionally valuable in developing drought responses, but NASS does not collect information specifically targeted toward drought impact or response. Given the likely importance of drought to both commodities and natural resources in the future, a special effort should be considered.

Integrating an Ecological Site framework into monitoring programs could provide much more spatially explicit information, regardless of monitoring metric.

MITIGATION THREATS AND OPPORTUNITIES

Rangeland carbon sequestration potential is low compared to other ecosystems ($<0.10 \text{ Mg C ha}^{-1} \text{ year}^{-1}$) in the absence of cultural inputs.

However, extensive land area and strong correlation between C sequestration and other ecosystem benefits strongly support the need to protect existing C pools.

Avoided loss of soil carbon via land conversion is a significant mitigation opportunity in California and there are protocols in place (Climate Action Reserve).

Payments for other ecosystem services – biodiversity protection, clean water storage, and pollination services – represent additional future opportunities, but no formal protocols are yet in place.

During the drought, vegetation cover and above-ground species richness have been severely reduced on some annual grassland sites.



March 2010

Sheri Spiegel



March 2014

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While the quantity of forage may remain steady on some sites, forage quality can be negatively affected.



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Supplemental feeding can be required during peak growing season, even on large ranches with extensive pastures, such as the Tejon Ranch.



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SUMMARY

The California Rangeland Climate Change Vulnerability Assessment is an important, and potentially, very helpful document supporting agency-level responses to both change and increasing variability in the climate. This workshop focused on the climatic factor with the greatest impact on both rangeland productivity and resource conditions- - drought. Several actions for immediate implementation were proposed by workshop participants, but the dominant theme of the workshop was that drought should be considered an integral part of rangeland policy and management and that explicit plans to provide technical and financial assistance to land managers should be developed.

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