Integrated scenarios to assess threats to rangeland ecosystem services

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What are your 3 successes over this last year?

How have you delivered science to managers?

How did the CA LCC funding make a difference?

Three Successes

1. Completion of a web-based map visualization tool

This is a Google maps-based web application that allows users to compare and contrast results at the watershed scale across three scenarios simultaneously for multiple time periods. The three scenarios are based on the IPCC-SRES emission scenarios A1B, A2, and B1. For hydrological results, users also can view two climate projections for each emission scenario - a warm, wet future and a hot, dry future. Users have the option to zoom and pan maps for the three scenarios simultaneously, and click on the watersheds to retrieve underlying map data. Six sets of maps are available for viewing and download. These include: Percent change in critical habitat, percent change in grassland soil carbon sequestration potential, percent change in climatic water deficit, ratio of recharge to runoff, water-wildlife hotspots, and average percent change in multiple ecosystem services.

1. Multiple presentations, including 1) Oral presentation at the California Association of Resource Conservation Districts Annual Conference, November 15, 2013, 2) Oral presentation at the American Geophysical Union Fall Meeting, December 12
2. A case study of the project has been selected and will be included in a paper to be submitted to Bioscience on ecosystem adaptation to climate change. This paper will feature 5 case studies that illustrate "Nine guiding principles" for ecosystem adaptation to climate change, recommended by an expert panel convened by Resources Legacy Fund.

Science Delivery

Mainly, we have delivered science through the development of our website and presentations at meetings where resource managers are present, such as the Resource Conservation District Conference and a CALFIRE meeting, for example.

How did CA LCC funding make a difference?

Funding allows us to develop and communicate results to managers and the scientific community. Two main points of our research include: 1) Privately-owned rangelands in the Central Valley are valuable as providers of ecosystem services, and these ecosystem services will be impacted by the interaction of climate and land use change, and 2) Given an uncertain and highly variable climate future, land use decisions will influence the potential to adapt to climate change, and minimize its impacts such as altered water supply and species distribution shifts.