WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2002WY7B

Title: Drought prediction model development and dissemination in Wyoming

Project Type: Research

Focus Categories: Agriculture, Drought, Management and Planning

Keywords: Agriculture, Bioindicators, Biomonitoring, Decision models, Range Management, Risk Analysis, Risk Management

Start Date: 03/01/2002

End Date: 02/28/2005

Federal Funds: $9,796

Non-Federal Matching Funds: $55,471

Congressional District: 1

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Abstract

Drought is a recurring, albeit unpredictable, climatic phenomena that is a prime source of annual variation of rangeland productivity in Wyoming and most other semi-arid regions of the world. Most drought indices focus on characterizing current conditions. Such information are not as useful to managers as would be predictive tools. Time series analyses of data from a site in southeast Wyoming (Saratoga) suggests that winter/spring climate can be used to predict annual forage production. Development and refinement of this type of predictive tool for representative locales within Wyoming would equip land managers with insights that would enable them to develop proactive management strategies regarding stocking levels, grazing season length, alternative forage sources, marketing or other accommodations to compensate for forage production shortfalls or take advantage of additional forage production.

We propose to continue existing data collection near Saratoga, initiate forage production-precipitation relationship studies in other areas of Wyoming, and compile agency data sets that will allow the development of a predictive tool for each major land resource area across Wyoming. Cooperatively developed and maintained forage production sites will be established with PI's of this project, county-based UW cooperative extension service (CES) personnel, and with personnel at federal land management or other agencies that are able to participate. Data analysis will consist of time series analysis and multi-variate regression of winter/spring precipitation, temperature/elevation and soil variables relative to how they can be used to predict non-irrigated herbage production.