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Database of Management Trials to Provide Site-specific Tools for Restoration

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- ☞ Why does one restoration project succeed, while a similar one does not?
- ☞ Which sites are most (or least) likely to achieve a management goal?
- ☞ What suites of goals are possible at a restoration site, and which management practices will be most effective in achieving the goals at a particular site?
- ☞ Given the variable weather each year, how do I alter my management practices to achieve my goals?
- ☞ How do I manage for long-term success of my projects?

These questions frustrate both managers and scientists; “it depends” often seems to be the one consistent generalization we can make. However, a new project at UC Davis seeks to answer these questions by compiling the results of thousands of on-the-ground management trials across California’s diverse climate, soil, and topographical conditions into a web-based searchable database. This will provide a powerful platform to tease apart the complex interactions among site conditions, management practices, and annual fluctuations in weather, which in turn, will improve our ability to make site-specific management recommendations. While the project will be able to explore the impacts of site conditions and management practices on a given goal (e.g., native species restoration, improving wildlife habitat), it will particularly focus on the relationships across multiple ecosystem services — the benefits that humans derive from ecosystems (e.g., clean water, flood control, erosion control, pest control).

The project will initially focus on California’s grasslands and oak woodlands, as well as the riparian areas found within these systems. It will work with a diverse group of land managers in these systems (e.g., ranchers, conservation groups, agencies, consultants) in order to consider how environmental conditions and management practices affect multiple goals, such as: forage quantity and quality, invasive species control, native species abundance, plant diversity, wildlife habitat, soil erosion control, soil fertility, soil water infiltration and storage, water quality, and soil carbon storage. In addition to assessing effectiveness/riskiness of given practices at specific sites, the project will also collect data on costs of implementing those projects.

The general project plan is presented in Figure 1, and the gray boxes are where you can help get this project started. Over the next year, the database will be designed, large data sets will be entered, and a

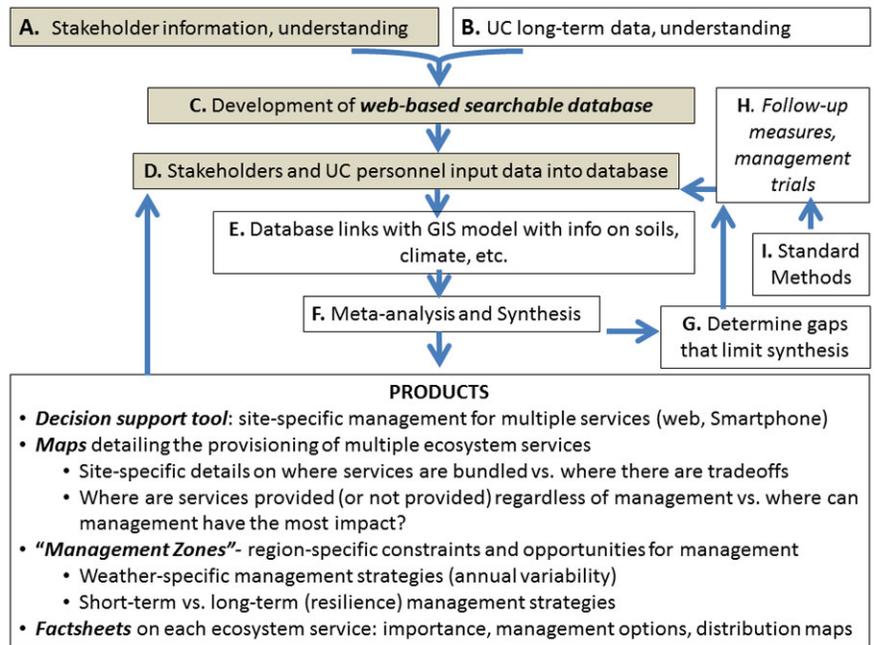


Figure 1

GIS tool will be developed to allow users to identify specific environmental conditions associated with each project entered into the database. Eventually, this study will result in a diversity of products that can facilitate management planning as demonstrated in Figure 1. For example, a web-searchable database will allow you to search for management projects based on environmental conditions, goals, and/or management practices. There will also be a decision support tool that allows you to enter your location and management goals and can synthesize the database for you — suggesting which goals are most feasible at your site and which management practices are most promising, based on your goals.

We are looking for your guidance to prioritize management practices, goals, and measurements, and we will seek these out through stakeholder workgroup meetings (also feel free to directly contact the project with your opinions). We are also looking for groups with records (formal or informal) of large numbers of management trials, and we can work with you to facilitate including them in the database. Once this database is established, it will be available on-line, and at that point, we will welcome individual projects to share their results through the database. In consultation with stakeholders, we will develop standardized measures of multiple ecosystem services, such as: native vs. invasive plant cover, soil fertility, erosion control, soil water storage, wildlife habitat, and soil carbon storage. A handbook will be developed to describe how to measure these multiple goals, and a lending library of measurement

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Site-specific Tools *continued*

tools will be available from your local Natural Resources/Rangeland Farm Adviser. In addition, the project team will be available to take these measurements at your project sites.

If you have information from a restoration project that you would like to submit for inclusion in the database or if you are interested in joining the project collaborators, please contact Valerie Eviner via veviner@ucdavis.edu or 530.752.8538.

Updated information on the project, as it develops, will be found at: www.plantsciences.ucdavis.edu/plantsciences_faculty/eviner/main/current_research.htm



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