

## **DEVELOPING HABITAT MANAGEMENT PLANS FOR STEWARDSHIP OF SOUTHWESTERN RIPARIAN ECOSYSTEMS**

*Argonne is working with the Bureau of Land Management (BLM) in New Mexico to analyze alternatives and produce final plans for managing riparian habitat. The plans will incorporate adaptive management approaches that allow measurable goals to be continually reassessed in response to the results of an active monitoring program.*

### **■ PROBLEM/OPPORTUNITY**

Riparian ecosystems in the Southwestern United States provide habitat for threatened and endangered species, protect soil and water, act as corridors for species migration, and promote the development of productive vegetative communities within the surrounding desert matrix. However, many of these riparian ecosystems have been severely degraded as a result of human activities. Developing operational strategies and management guidelines to repair and protect these ecosystems represents a new opportunity for land management organizations, since traditional, single-use, command-and-control strategies (e.g., grazing, forest harvest, mining, wildlife management) will probably not result in the desired outcome: a sustainable, functioning ecosystem.

The BLM in New Mexico has asked EAD to help conduct studies for four environmental impact statements (EISs) and develop riparian habitat management plans, which are to be produced when the EIS studies are complete. The EIS documents are being prepared to allow for the systematic analysis of several alternative management strategies and for extensive public participation in defining key issues affecting riparian habitats.

### **■ APPROACH**

Although the BLM in New Mexico has actively managed selected riparian habitats for more than a decade, it has not completed a systematic

analysis or presentation of management activities. In addition, it has not mapped or spatially analyzed individual riparian habitats within the context of the larger watershed. Argonne staff have begun a systematic effort to collect and compile all existing information on each riparian area. They are using geographic information system (GIS) databases, including remote sensing data, to determine important landscape and geographic descriptors for the baseline environment.

### **■ RESULTS**

As a result of these efforts, for the first time, land managers and the public can visualize spatial phenomena such as the spatial pattern of grazing allotments, current animal stocking rates, and riparian habitat conditions. The newly developed digital data will help researchers quantify the role of grazing impacts and develop grazing management alternatives. In addition to helping researchers analyze ongoing activities, the databases may help them develop habitat suitable for threatened and endangered species by providing a set of parameters that will guide the activities needed to restore degraded or enhance existing habitat.

### **■ HISTORY/STATUS/FUTURE**

As indicated by their comments on the scope of the EIS, the public generally favored less

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intensive use of riparian areas. In addition, the public as well as governmental and nongovernmental organizations requested that a detailed, explicit investigation of all grazing impacts be done. A preliminary analysis of the data indicates that the way in which surrounding lands that are not controlled by BLM are managed could have significant effects on riparian systems. The challenge in developing the final plans will be to incorporate these cumulative effects in analyses and to determine the best way to improve small, segmented riparian areas managed by BLM that are part of a larger watershed system.

It is expected that the results from this work for the EIS and habitat management plans will be

used in the Southwestern Initiative, a cooperative multiagency effort to restore watersheds in the southwestern United States.

## ■ COMMUNICATION OF RESULTS

An analysis of three alternative management approaches will be presented to the public in the fall of 1999. On the basis of public comments and regulatory considerations, final habitat management plans will be published in early 2000. In addition, the GIS data will be placed on a publicly accessible Web site for use by the state of New Mexico, private land owners, and other federal and nongovernmental organizations.



Riparian habitat areas in northern New Mexico, shown with land ownership and BLM range allotment boundaries

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