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Evapotranspiration, Water Table Fluctuations, and Riparian Restoration



Map showing location of Albuquerque, NM evapotranspiration (ET) tower. Insets show the 25-m tower with instruments and the bosque (riparian zone) fire in June 2006 south of the tower site.

Products

Databases and a final report with daily evapotranspiration (ET) and 30-min. water table measurements and a vegetation map showing areas of significant vegetation change between 2002 and 2006 in the Rio Grande Albuquerque reach that can be used to scale ET measurements.

Benefits

Research will provide defensible estimates of water use in a Rio Grande riparian ecosystem affected both by restoration and wildfire.

Issue

Restoration efforts that remove non-native understory vegetation or dense monotypic stands of non-native vegetation from riparian zones (bosque) are designed to reduce consumption of water. Quantification of the response of evapotranspiration (ET) and water table depths to non-native understory removal or to eradication of dense stands of non-native species like salt cedar or Russian olive is needed to provide defensible estimates of water savings from restoration activities. In addition to restoration assessment, it is also

important to monitor the effects the increasing role of fire and post-burn management have on ET and water tables.

Description	We will monitor the ET and water table responses of a site with understory removed (Albuquerque South Valley) and a site with dense non-native species (salt cedar) removed. In addition, we will investigate how a wildfire in June 2006 has affected evaporative rates and water table fluctuations, which is in close proximity to the river. Scaling the information on ET at the various sites will require the use of remote sensing methodology. Using 2006 multispectral SPOT imagery, we will update a 2002 vegetation classification that was developed for the middle Rio Grande to show where major changes in vegetation due to fire or mechanical removal have occurred in the last four years.
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