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THE IMPACTS OF LAND USE CHANGE ON WATER RESOURCES AND TRADITIONAL ACEQUIA CULTURE IN NORTH CENTRAL NEW MEXICO

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Rural areas throughout the western United States are undergoing rapid and far-reaching land use changes that impact water management, riparian ecosystems, and traditional cultures. Impacts to water resource use and management include: potential risks of groundwater contamination due to increased numbers of single household septic systems, potential overdraft of groundwater resources, surface water quality impacts, and changes in the distribution of water supplies from agricultural to municipal/industrial uses. In northern New Mexico, the acequia water use regime and attendant acequia-related cultural values are at particular risk due to increasing urbanization pressures and the potential impacts on actual water use, water quality, and riparian vegetation along irrigation ditches and streams. GIS, remote sensing, and aerial photography interpretation techniques are used to create a series of land use change maps to assess the impacts of critical water resources on local communities along the Black Mesa Reach of the Upper Rio Grande Basin. To examine cultural values associated with the acequia system and the traditional way of rural life, we conduct field interviews and research related archived documents. Land use maps we generate depict changes in water resource use and management, risks to groundwater, changes in acequia management and water use, and riparian ecosystem impacts. This project provides insight to local and state planning programs with constructive methods for further research, and is also applicable to other western states with similar challenges.

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