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Incorporating Non-Market Values into River Restoration Decisions

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River restoration efforts are commonly motivated by the need to provide clean water, uncontaminated food, aesthetics, protection for rare or important biota, or productive fisheries (Wohl et al 2004). Most studies make some attempt at measuring the effectiveness or success of the restoration on natural processes or traditional natural science endpoints, but of equal importance is knowing how the well-being of society is improved as public funds are spent on restoration projects. For example, we often implement restoration projects without knowing how well they will be received by the public, whether restoration efforts are “worth it” in the sense that the benefits as perceived by the public outweigh the costs of the projects, or whether some types of restoration are perceived to be more beneficial than others.

We examine restoration efforts on the Middle Rio Grande in New Mexico aimed at tamarisk/Russian olive eradication for water savings and habitat enhancement, cutting, chaining and herbicide use to reduce fire risk and increase recreational opportunities. We also consider changes in the economic value of ecosystem services due to restoration and economic development activities on the San Pedro River Basin, AZ, a system with well-connected surface and groundwater sources. We employ stated and revealed preference techniques in quantifying values.

We include the de novo values taken from these studies, benefit transfer estimates from other studies, and understanding of hydrological and ecological processes in a dynamic simulation model designed to provide decision support for restoration managers. The simulation model can be used to provide answers to the questions: Are people better off with a restored river riparian forest? If so, how? Of the many types of restoration that are being performed in the major river system of the US, which have the strongest public support? Given a restoration budget of \$XX, how can we target restoration projects to address efficacy in meeting physical restoration goals, while jointly considering the social value of each project?