

## **Effects of exotic plant removal and fuels reduction on vertebrates along the Middle Rio Grande, New Mexico**

Heather L. Bateman, Alice Chung-MacCoubrey, Deborah M. Finch, and David Hawksworth

Riparian cottonwood forests of the Middle Rio Grande have been severely invaded by exotic tree species, which, in combination with large accumulations of woody debris, make these forests prone to catastrophic, stand-reducing fires. Land managers need effective methods that eliminate fuel loads and invasive plants with minimal impacts on native vegetation and wildlife. As a component of a larger study, this project is evaluating the effects of fuels reduction and invasive plant removal on herpetofauna, avifauna, and bat communities. Here we present preliminary analyses of the first 6 years of this study. In 2000, we established 12 study sites and a randomized block design (4 treatments, 3 replicates). Pre-treatment data were collected from 2000-2003, and post-treatment data were collected from 2003-2006. We used pitfall and funnel traps to monitor reptile and amphibian populations, Anabat detection systems to monitor bat activity, and point count stations to estimate abundance and density of birds. The reptile and amphibian community was dominated by upland species rather than riparian obligates, and species composition did not change significantly after treatment. Based on principal components and regression analysis, 5 of 6 lizard species were less abundant in dense, cluttered, and invaded understories or more abundant in habitats with few exotics. Restoration treatments do not appear to have a negative impact on existing lizard populations. Using minutes of recorded bat activity as an index of relative site use, we determined that treatments increased summer bat activity (more minutes of activity) relative to untreated sites. Birds were placed into four nesting guilds. Overall bird species richness did not change in response to treatment; however there were species-specific responses to treatments. Three mid-story nesting species and one ground-shrub nesting species showed declining abundance from treatments, whereas cavity nesting and canopy nesting species were not affected by treatments.