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Preliminary Ecological Assessment of Stream Quality in the Sacramento Mountains, New Mexico.

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Pollution in freshwater ecosystems has reduced the ability of freshwater habitats to host a variety of organisms. Algal biomass and macroinvertebrate assemblages can reflect stream quality, due to their rapid response to nutrients and limited dispersal ability, respectively. In this study, we used algae and macroinvertebrates as bio-indicators of river quality in the Sacramento Mountains of New Mexico, which is largely forested with some low-level development and cattle grazing. All of our sites (n = 3) had a macroinvertebrate Ephemeroptera, Plecoptera, Trichoptera (EPT) index of 50% or greater, which suggest high quality conditions in the river. More specifically, all sites were dominated by the order Ephemeroptera (≥ 27%). Species richness (n = 22) was highest in a wetland site upstream and was lowest at the midstream rocky site. Nutrient analysis suggests that, overall, nutrient levels decreased in a downstream direction. There was a sharp increase in nitrates at the site with lowest species richness and the highest phytoplankton biomass; this may be due to an increase in low-level development and cattle grazing, and reduced habitat diversity. Our biological assessment of the streams in the Sacramento Mountains will provide a platform for future research and for developing guidelines for land management, conservation, and restoration efforts.