

Cascabel prescribed fire long-term watershed study: an opportunity to monitor climate change

GERALD GOTTFRIED¹, DANIEL NEARY², PETER FFOLLIOTT³ & KAREN KOESTNER²

¹ *USDA Forest Service, Rocky Mountain Research Station, 2324 East McDowell Road, Phoenix, Arizona 85006, USA*

ggottfried@fs.fed.us

² *USDA Forest Service, Rocky Mountain Research Station, 2500 South Pine Knoll Drive, Flagstaff, Arizona 86001, USA*

³ *School of Natural Resources and the Environment, University of Arizona, 325 Biological Sciences East, Tucson, Arizona 85721, USA*

Abstract Experimental watershed studies can provide answers to new challenges facing land managers and society including the impacts of fires and climate change on upstream and regional hydrology. The Cascabel Watersheds long-term prescribed fire study provides a unique opportunity to monitor climate change because of its location in an oak savanna situated between deserts or grasslands and the higher elevation oak-pine woodlands of the southwestern United States and northwestern Mexico. Continuing studies on the Cascabel Watersheds in southwestern New Mexico are evaluating the effects of cool-season prescribed fires (November–April), warm-season prescribed fires (May–October) and a wildfire on a range of physical and biological characteristics. The study is being conducted on 12 gauged watersheds ranging in size from 8 to 24 ha. Ecosystem data are collected at permanent locations. The large foundation of physical and biological records from the Cascabel Watersheds provides a basis for evaluating potential future climate change in the region.

Key words hydrology; experimental watersheds; oak savannas; fire effects; prescribed fire; climate change; ecosystem monitoring; southwestern United States; Southwestern Borderlands Region