

# **Water Yield from harvesting and thinning Southwestern Mountain Forests: Historical Experience from US Forest Service Research**

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## **ABSTRACT**

Subsequent to the extreme fire seasons of 2000 and 2002, extensive thinning of southwestern mountain forests has been designated as the preferred practice to minimize the likelihood of widespread and intense stand-replacing fires. Concurrently, historical hydrologic research has been incorrectly popularized to indicate that forest canopy removal can measurably augment water yields from forested watersheds, and only by clear-cutting. A popular misconception has therefore arisen that these two, usually incompatible goals can be achieved simultaneously on the same land. Responsible and appropriate silvicultural activities for other purposes, such as fire risk reduction, may increase water yield from upper elevation forests or improve water balance within lower elevation forests, depending on the intensity of canopy removal, tree species, latitude, elevation, and aspect. These same activities may also restore many other desirable characteristics to landscapes, as well, and should not be directed solely at water yield. In any event, increases in water yield will be difficult or impossible to quantify, especially at the scale of large basins like the Salt River. Increased water yield from canopy removal should therefore be considered a serendipitous benefit if and when it occurs in conjunction with other advantageous results.