

# Whetstone Wildfire

## *& Implications to Watershed Management*

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Wildfire, before it was brought under control last June, burned nearly 18,000 acres of the 45,000 acre National Forest unit in the Whetstone Mountains.

Day-after-day 110 degree temperatures, low humidity, high winds and updrafts, dense fuels and rough terrain made the fire suppression action very hazardous and difficult.

It was seriously suggested at the time that the fire be allowed to burn itself out, since much of the high elevation areas were inaccessible to cattle and since the lower elevation areas were typical southwestern brush infested range where forage has sometimes been improved by fire.

In August, the authors and Drs. Lehman and Zwolinski from the Watershed Management Department surveyed the burn. This is what they found: the highest elevations, where slopes are generally over 60 per cent and repose of the soils most delicate, were blackened and bare of any growing thing; a total absence of any humus or litter that might serve to protect the exposed mineral soil; two to four inches of top soil already removed by sheet erosion in many areas, and rills and gullies forming in others.

On some of the steeper slopes dry soil creep (soil moving downslope by its weight alone) was extensive. These were on former areas of dense live oak and mountain mahogany which

In the photo, left, a mud and rock slide is shown which cut a gully six to eight feet wide, three feet deep and a thousand feet long in less than 10 minutes during the rainstorm in which this photo was taken.

At right the picture which was taken during a rainstorm of only 0.8 inches shows water flow in stream bed at the rate of more than one thousand cubic feet per second.



burned hottest. It is also the primary range of the Whetstone deer herd.

One small creek in the area which flows most of the year with clear water and supplies several stock tanks was carrying a suspended sediment load greater than that of the traditionally muddy Mississippi. The stream bottom was coated with burned sediment in places to a depth of a foot or more. Roots were torn loose from the stream bank and it was calculated from high water marks that a storm of less than one inch discharged a torrent of water and sediment in excess of 750 cubic feet per second through the small stream channel.

The effects of the burn after reseeding as seen from the highway appear not to have been too harmful and fortunately the deer herd has been able to move into unburned areas of the mountain range and continue to thrive. However, soil losses from some of the high mountain watersheds are severe. These areas are not readily accessible, except to wildlife, and the steep slopes prevent effective reseedling.

Short term effects of the fire may not be felt because it was suppressed without loss of buildings or structures, except fences. Long term consequences, if the entire mountain had burned, could have been disastrous.

Total water yield, its timing and quality can be economically controlled on a watershed by proper management of the vegetation and soil. If the vegetation is destroyed and the soil is irrevocably lost, the

price of flood and sedimentation control, in the form of engineering structures becomes exceedingly expensive. For example, had the fire been allowed to burn and if it were followed by a 10 year storm event then over 50 million cubic feet of water carrying thousands of tons of rocks and debris could have been uncontrollably debouched from the mountain canyons.

Although the University of Arizona and the U. S. Forest Service have long recognized that the use of controlled fire or prescribed burning has merit in certain areas to enhance Forest values, reduce fuels and improve forage for livestock and wildlife, they are quick to point out that *uncontrolled* wildlife is entirely different and often disastrous to natural beauty, animal habitat, and soil.

The suggestion that an uncontrolled wildfire of the Whetstone nature be allowed to burn is somewhat similar to suggesting that the fire department allow a neighborhood in our city to burn because its commercial value is low.

One of the most interesting attractions of the southwest is its isolated mountain ranges which offer humid oasis in an otherwise desert environment. The term "mountain islands" has been applied to these unique features of our landscape. Southern Arizona does not have such an abundance of water nor such low prospects for future population growth that we can afford the extravagance of allowing our mountain watersheds to be destroyed simply because their value for present commercial interests may not be high.

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