

# FIELDNOTES

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## *Tucson Mountain Storms Cause Damage and Change*

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Natural occurrences, such as rainstorms, affect desert terrain in a variety of ways. Rainstorms may cause visible changes to the land surface or even damage to vegetation or man-made structures. In a twenty-four-hour period of September 10-11, 1982, the Tucson Mountain Unit of Saguaro National Monument experienced both change and damage. A series of five highly localized storms swept across Avra Valley, leaving almost half the expected annual rainfall. Nearly five inches of moisture were recorded at the Red Hills Information Center. However, this area was not in the direct path of most of the storms, which left a great deal more rain at other locations.

The first rain saturated the ground and caused some damage to roads. With the ground soaked to capacity, the stage was set for smaller storms to later change the desert terrain considerably. Although the subsequent rains tended to carry less moisture than the first, all the storms resulted in more runoff. The water could not be contained in existing washes, and new runoff routes were created.

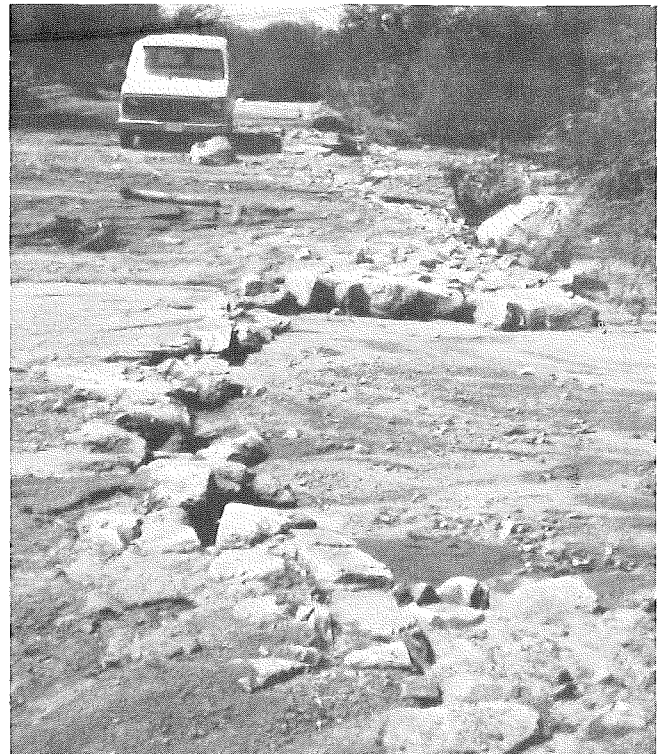
Large plants such as prickly pear and full-grown trees like the Palo Verde were uprooted and swept away. Rangers, patrolling the roads, observed a number of rattlesnakes that had been washed from their dens and were protesting angrily. Small rodents must have suffered quite heavily because their predators, coyotes and roadrunners, were especially active the next morning.

The runoff moved through the desert creating change. Only when the water encountered a road did structural damage occur. Most of the damage happened when culverts, unable to handle the sand-laden water, were soon buried, allowing the surface of paved roads to be undermined and washed away. Water flowed down dirt roads creating havoc and leaving a deep layer of loose sand. Some park visitors were surprised by the storm, which resulted in the near burial of several vehicles. Because the occupants had abandoned their cars, no one was injured.

Park Rangers estimate that the storm caused almost \$100,000 in damages to property in Saguaro National Monument. Fortunately, in this incident, the mass of water moved through one of the few sparsely populated areas of Avra Valley and caused more change than damage. ✕



Photo on right: Erosion that occurred where roads crossed washes. A rock foundation, probably built by W.P.A. crews during the depression of the 1930s, was exposed and partially removed by the runoff. Photo on left: Debris-laden water, flowing toward the foreground, plugged upstream end of corrugated pipes. Water then flowed across road, undermined the pavement, and washed away fill material at the downstream end.



Photos: P. Guraedy