Chapter 7

Effects of Rock Fragments on Erosion of Semiarid Rangeland Soils

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Semiarid rangelands exhibit extreme variability in their hydrologic processes affecting erosion and sedimentation. The surface of these rangeland areas is usually sparsely vegetated, low in litter cover, and moderately covered with rock fragments larger than 5 mm. Rock fragments of rangeland soils are usually found throughout the soil profile, and are most abundant at, or near, the soil surface, especially where excessive erosion has occurred to form an erosion pavement. This erosion pavement formation is the result of finer soil particles being moved or eroded away by water (Anderson, 1974). Desert pavement and erosion pavement are different; desert pavement is the erosion response to an arid climate supporting intermittent and sparse vegetative cover, whereas erosion pavement is the erosion response to the exposure rock fragment containing soils that were once protected by complete vegetative cover (Shaw, 1929). Erosion pavement is found in regions where erosion has been accelerated beyond geologic norms, and is extensive on overgrazed rangelands in the West and Southwest (Lowdermilk and Sundling, 1950). Because of the dominance of this erosion pavement, an understanding of its role in

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