



## **Dominant Erosion Processes Associated with a Grassland State and Transition Model in Southeastern Arizona**

Jeffry J. Stone<sup>1</sup>, Jared Buono<sup>2</sup> and Gingber Paige<sup>3</sup>; (1) USDA-ARS-SWRC, (2) University of Arizona, (3) University of Wyoming; Contact Author Email: [jeff.stone@ars.usda.gov](mailto:jeff.stone@ars.usda.gov)

The Ecological Site Description and associated State and Transition Model are classification schemes used by the Natural Resource Conservation Service and land use managers for resource planning, evaluation, and monitoring of rangelands. In southeastern Arizona, an important process associated with states which depart from the Historic Climax Plant Community (HCPC) is accelerated erosion which is defined as soil detachment by flowing water (sheet or concentrated flow erosion). This paper reports on rainfall simulator experiments conducted on the sites representing most of the STM of the Loamy Upland Ecological Site in southeastern Arizona. Dominant erosion processes active on each state are defined by a comparison of sediment discharge rates on small (0.75 m<sup>2</sup>) and large (12.1 m<sup>2</sup>) simulator plots. It is shown that the dominant erosion process is rain drop detachment and deposition for all states but that as a site transitions from the HCPC to an alternate state, the erosion process begins to approach net transport of detached sediment. The results are discussed in the context of modeling the erosion process using the newly developed Rangeland Hydrology and Erosion Model (RHEM).

2009. 62nd Society for Range Management Annual Meeting. Paper No. 07-7.