

# MANAGING WATERSHEDS FOR HUMAN AND NATURAL IMPACTS

*ENGINEERING, ECOLOGICAL, AND ECONOMIC  
CHALLENGES*

---

PROCEEDINGS OF THE 2005 WATERSHED MANAGEMENT  
CONFERENCE

---

July 19-22, 2005  
Williamsburg, VA

SPONSORED BY  
Environmental and Water Resources Institute (EWRI)  
of the American Society of Civil Engineers

EDITED BY  
Glenn E. Moglen

**ASCE**



Published by the American Society of Civil Engineers

# Impacts of All Terrain Vehicles (ATV) on National Forest Lands and Grasslands

Randy B. Foltz  
Kristina A. Yanosek

The US Forest Service has identified unmanaged all terrain vehicle (ATV) use as a threat to forested lands and grasslands. Some undesirable impacts include severely eroded soils, user-created unplanned roads, disrupted wetland ecosystems, as well as general habitat destruction and degraded water quality throughout forested lands. More insight on how ATV use affects trails is needed in order to make management decisions concerning ATV use on National Forest lands. Factors which may determine impacts of ATVs include site characteristics, such as soil moisture, soil types, existing terrain, and storm events, and ATV attributes such as vehicle type, tire tread, amount of trail use, and rider attitude.

A study (in progress) is being conducted by the Rocky Mountain Research Station and the San Dimas Technology Development Center to evaluate ATV impacts. Test loops were established in six locations in the United States and included existing trails and new trails (with no former ATV traffic). Test loops have varying terrain and soil characteristics and will each be driven with a single vehicle and tire type to isolate factor effects. Trail sections will be evaluated with soil and vegetation indices before and after the riding. Riders will make a fixed number of passes over the test loops. Trails will be classified into one of three disturbance classes of Low, Medium, and High, based on loss of litter/vegetation, and depth of wheel ruts. Following trail condition assessment, rainfall simulations will be conducted to measure erosion prediction parameters on each of the three disturbance classes.

Information acquired from this study will be used to develop an ATV impact assessment tool to assist in the managing of ATV use. In addition, analysis of runoff and sediment production will enable the calculation of erosion parameters for the Water Erosion Prediction Project (WEPP) model. This process-based model will allow users to make erosion estimates of ATV sites beyond those included in this study.