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Lead (Pb) Contamination Along a Hillslope in the Tonto National Forest, AZ: A Case Study of Recreational Shooting Using GIS Analysis

This study focuses on heavy metal contamination in soils due to recreational shooting within the Tonto National Forest, Arizona.

The main research questions are:

- (1) Have some soils within the Tonto National Forest (NF) been contaminated with lead (Pb) due to recreational shooting?
- (2) How far downslope have the soils been contaminated?

Soils in permitted shooting areas were tested for lead (Pb), which show statistically significant differences in mean concentration levels when compared to control sites. The dry weight of mean lead concentrations (5 125 mg/kg; p value < 0.005) were 152 times greater than that of the respective uncontaminated control site (33.4 mg/kg). Lead contamination ranged from 25 482 to 7 185 mg/kg approximately 9.3 m downslope and gradually decreased from there but was still contaminated over the entire length of the hillslope.