

Public Abstract

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Title:DEVELOPMENT OF SOLUTION TECHNIQUES AND DESIGN GUIDELINES FOR EQUESTRIAN TRAILS ON PUBLIC LANDS

Increasing equestrian use on recreational trails puts intense pressure on the environment. Horse traffic produces high stresses that can cause trail degradation such as erosion and muddiness. Trail erosion has been widely studied and found to be controlled by many factors: climate, vegetation, use, topography, and soil. Much is known about causes of erosion, but there are limited solutions and guidance available for equestrian trails. This study takes the knowledge from literature and current engineering solutions to evaluate their effectiveness in preventing trail degradation on horse trails. Guidance for the design and construction of horse trails is to be created from the observations and lessons learned.

Test segments were constructed to evaluate the effectiveness of trail layout and surface stabilization techniques. Trail surfaces tested include natural soil, gravel, gravel with geosynthetic reinforcement, and lime stabilization. Observations were taken over a one year period.

The research findings indicate that natural surface trails are not adequate in resisting intense disturbance caused by horse use. Gravel surfaces increase erosion resistance and surface strength, but are more effective when included with geotextile reinforcement. Lime stabilization was not effective as a trail surface due to exposure to freezing and thawing.