

**Assessing Recreation Impacts to Cliffs in Shenandoah National Park: Integrating Visitor Observation with Trail and Recreation Site Measurements**

by

Kerry Todd Wood

Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University  
in partial fulfillment of the requirements for the degree of

Master of Science  
in  
Forestry

---

Steven R. Lawson, Committee Chair

---

Jeffrey L. Marion, Committee Member

---

Nancy G. McGehee, Committee Member

April 26, 2006  
Blacksburg, Virginia

**Keywords:** rock climbing, visitor impacts, visitor use observation, Shenandoah National Park

© Copyright 2006, Kerry Todd Wood

**Assessing Recreation Impacts to Cliffs in Shenandoah National Park: Integrating Visitor Observation with Trail and Recreation Site Measurements**

**Kerry Todd Wood**

**(ABSTRACT)**

The rock outcrops and cliffs of Shenandoah National Park provide habitat for several rare and endangered plant and animal species. The location of the world-famous ridgeline parkway, Skyline Drive, makes many outcrops and cliffs within the park readily accessible to the park's 1.2 million annual visitors. Consequently, visitor use of cliff areas has led to natural resource impacts, including marked decreases in size and vigor of known rare plant populations.

Despite the clear ecological value and potential threats to the natural resources at cliff areas in the park, managers possess little information on visitor use of cliff sites and presently have no formal planning document to guide management. Thus, a park wide study of cliff sites was initiated during the 2005 visitor use season. As part of this research effort, the study presented in this thesis integrated data from resource impact measurements and visitor use observation to help assess the effects of recreational use on the natural resources of one heavily used cliff site in the park, Little Stony Man Cliffs.

Results of resource impact measurements indicate that several nodal areas of high disturbance (bare soil) are present on the cliff-top and cliff-bottom. Additionally, visitor observation data point to several possible visitor use factors that may contribute to cliff-top impacts, including concentrated levels of use during certain times of day and days of the week, and frequent trampling of soil and vegetation by visitors. The information from the study presented in this thesis will help assist Shenandoah National Park staff in developing a cliff

resource management plan that will protect park resources while providing opportunities for visitor enjoyment.