

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Sacred Landscapes of Rocky Mountain National Park: Model Validation Surveys

Type of Project: Research
Discipline: Cultural
Funding Agency: National Park Service
Other Partners/Cooperators: University of Northern Colorado
Effective Dates: September 30, 2009 - June 30, 2012
Funding Amount: \$9,590

Investigators and Agency Representative:

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Project Abstract: Rocky Mountain National Park is rich in Native American sites, many of which are believed to have once served religious functions. The University of Northern Colorado has been investigating the archeology and ethnography of Park sites believed associated with prehistoric and historic era Native American religious practices since 2001. That research integrates data from Native American cultural specialists (Ute and Arapaho tribes), historical records, archeological field studies, and utilizes the powerful spatial analysis capabilities of ArcGIS (Geographic Information System/GIS) software to model patterns of ritually-related landscape use in the Park over the past millennium. The most recent investigations generated a GIS sacred site location predictive model, using the *ArcSDM (Spatial Data Modeler)* extension and Weights-of-Evidence statistical analysis. That model incorporated physical landscape variables such as elevation, aspect, local relief, and slope of known archeologically and ethnographically documented sacred sites, associated geology and landform traits, local plant community inventories to identify the presence of species known associated with Native American ritual and economic practices, a cost distance from historic and pre-historic trails surface, and relative intervisibility of five sacred landmarks documented through Native American consultation and historical records. An Agterber and Cheng conditional independence test, an approximate t-test, and assessment of the model's strength on a randomly chosen subset of sacred features were used to evaluate the model's statistical validity. Statistical analysis of the model suggests it is, at a minimum, moderately predictive of sacred sites.

UNC will conduct limited archeological surveys in the summer of 2010 to assess the validity of, and refine, the current sacred landscape GIS predictive model. Enhanced field and analytical studies related to the model will provide important tools and knowledge for Park managers for locating and protecting additional sacred features and sites as well as providing knowledge for interpreting Native American use and cultural meaning of the Park to its visitors. Importantly, the project will continue efforts to inform native groups about and connect them with their traditional lands and cultural (including spiritual) practices of their ancestors.

Results from the project will assist park management in better identification and protection of spiritually-significant cultural resources in Rocky Mountain National Park and guide the park's interpretation program on Native American cultural practices during prehistoric and historic time. Its results will help inform U.S. Forest Service and State of Colorado Forest unit managers on in park-adjacent areas.

Outcomes with Completion Dates:

August 2010 to March 2011: data analysis, GIS project production, and report writing
March 31, 2011: draft report due to key official
October 31, 2011: final report due, DVD, and datasets due to key official

Keywords: Native American sites, archeological surveys, GIS models, Rocky Mountain National, University of Northern Colorado