Project Final Report
Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU)

Project Title: Mapping prairie dog habitat at the Little Bighorn Battlefield National Monument, Montana

Project Code: P11AT10567/ UWY-155

Type of Project (Research, Technical Assistance or Education): Technical Assistance

Funding Agency: National Park Service

Partner University: University of Wyoming

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Start Date: August 1, 2011
End Date: December 31, 2012

Funding Amount:
IMR-GRP 1242-GPRJ-SYC ($5011)
LIBI 1380-SZM ($4989)

Project Summary:

In 2011 the Wyoming Geographic Information Science Center (WYGISC) agreed to assist the National Park Service (NPS) investigate appropriate ways to map the distribution of Black Tailed Prairie Dog (BTPD) habitat at the Custer and Reno-Benteen Battlefield areas of the Little Bighorn Battlefield National Monument (LIBI) in Montana. The BTPD was once native to LIBI and is still found within five miles or less of monument (Appendix A of this report shows a map of local prairie dog counties). The NPS desired an efficient means of assessing prairie dog habitat within the monument. The products are expected to aid in planning processes for LIBI management and in assessing possible reintroduction of the prairie dog. The BTPD is a species that is vital, as prey, to the Black Footed Ferret one of the most endangered animals in the United States.

Previous examples of prairie dog mapping have been conducted with remotely sensed and Geographic Information System (GIS) data. By analyzing a combination of environmental and remotely sensed variables, the studies were able to develop models that can be used to map BTPD habitat. Interestingly two previous studies were conducted near the Little Bighorn. One study by Assal and Lockwood (2007) mapped existing BTPD habitat (colonies) on a 550 km2 site within the Thunder Basin National Grassland in northeastern Wyoming using Landsat7

satellite imagery, Wyoming GAP Analysis Land Cover for 1996, 1:24,000 scale SSURGO soils, and a 30m Digital Elevation Model (DEM) from the US Geological Survey. They found that using a GIS model with remotely sensed imagery provided an 'inexpensive coarse-filter approach' for finding possible BTPD colonies and should be complemented with a more detailed analysis of the possible colony areas. In our case at LIBI there currently are no BTPD colonies that could be distinguished on imagery.

Another study by Proctor, Beltz, and Haskins (1998) was conducted for the Charles M. Russell and UL Bend National Wildlife Refuges and Phillips County, Montana. In this study the investigators used the locations of known BTPD colonies to build a GIS model from environmental layers and then used the model to map potential BTPD for southern Phillips County to provide a test of the model and map results. Their study found terrain slope angle, vegetation type, and soil type were all significant variables in determining BPTD habitat location.

The deliverables for this project included the following:

1. Final report
2. Prairie dog habitat GIS ESRI File Geodatabase
3. Archival quality copies of final reports, publications, field notes, databases, maps, photos, and/or other materials for curation at the Park

Number of students participating in this project: undergraduates, graduate students, degrees conferred.

No students participated in this project, the PI did the work.