

## **Project Summary**

### **Rocky Mountains Cooperative Ecosystem Studies Unit**

**Project Title:** A Landscape Analysis and Monitoring Program for the Crown of the Continent Ecosystem

**Discipline:** Natural  
**Type of Project:** Technical Assistance  
**Funding Agency:** US Fish and Wildlife Service  
**Other Partners/Cooperators:** University of Calgary  
**Effective Dates:** 9/22/2010 - 3/31/2011  
**Funding Amount:** \$125,000 [FY11: \$75,000; FY10: \$50,000]

**Investigators and Agency Representative:**

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**Project Abstract:**

The Crown Managers Partnership (CMP) is a multi-agency and university collaboration, initiated in 2001, that seeks to demonstrate leadership in addressing environmental management issues across the Crown of the Continent Ecosystem (CCE). The (CMP's) Ecological Health Subcommittee is working in partnership with the National Parks Service's Rocky Mountain Monitoring Network (ROMN) and researchers at the University of Calgary (U of C) to develop a monitoring program designed to track changes in landscapes across the CCE. The program is intended to support the long-term health of the CCE and provide a scientifically credible foundation for managers within the CMP to engage in natural resource protection activities. The CMP has six indicators of ecological health (EH) and is strategically developing the landscape monitoring program to provide a baseline and trend monitoring protocol by which the remaining EH indicators can be measured. The CCE covers 72,000 square kilometers of complex and ecologically diverse landscapes in western Canada and the United States, including one state – Montana – and two provinces – Alberta and British Columbia. The region contains the headwaters of three major river systems draining each of North America's ocean basins – the Missouri (Atlantic), Columbia (Pacific), and Saskatchewan (Arctic) – and represents a key segment of North America's mountain ecosystem. The CCE is internationally recognized for its beauty and biological diversity, and contains landscapes ranging from alpine to grasslands.

The CCE landscape monitoring strategy will focus on the development and acquisition of geospatial datasets from remote sensing and other GIS sources designed to track changes in habitats and human footprint consistently and reliably across the CCE. While this work will certainly be informed by monitoring protocols elsewhere, the challenges posed by the CCE are unique. Most pressing among these is the presence of the US-Canada international border, which complicates a variety of issues surrounding data acquisition and integration. Our efforts will address many of the questions that confront resource conservation efforts across the entire Great Northern Landscape, and the project will set valuable precedents in this respect.

The objective of the Crown of the Continent Landscape Monitoring Program is to develop and implement a long-term monitoring program for the CCE. The program will be designed to characterize trends in resource conditions, with a focus on various elements of habitat (land cover, vegetation structure and dynamics) and land use (settlements, agriculture, and industrial footprints) using raster and vector data models, as appropriate. In addition to providing tools for tracking management efforts, our work also will support a variety of research and conservation initiatives through the production of spatially-explicit geospatial layers that are accurate and consistent at the scale of the CCE. These layers will lay the foundation for international conservation projects across multi-jurisdictional lands that are beyond the reach of current information resources. With respect to the objectives of the LCC, this project will provide a methodology to acquire landscape-level baseline and trend information that can be: 1) evaluated against the range of climate scenarios for the Crown, 2) used to monitor impacts and vulnerabilities in the face of land use and climate change, and 3) assist managers with determining and implementing strategies for increasing resiliency in the face of climate change.

**Outcomes with completions dates: March 31, 2013**

1. Habitat and connectivity maps for grizzly bears and other key species at the scale of the CCE (10/11)
2. Connectivity indices for grizzly bears and other key species (11/11)
3. Report on grizzly bear habitat and connectivity analysis at the scale of the CCE, submitted to an appropriate peer-reviewed journal (4/12)

4. Report on the results of sensitivity analysis and describing the effects of base data errors and uncertainty on landscape analysis, submitted to an appropriate peer-reviewed journal (6/12)
5. Integrated database cataloging and synthesizing freely available and derived data across the CCE; available to CMP partners and collaborators (8/12)
6. Interactive website linked to the existing CMP website with searchable web maps of natural habitat and habitat connectivity, as well as habitat and connectivity reports (8/12)
7. Presentations to and workshops with CMP managers, citizens and public stakeholders (9/12)
8. CMP Annual Forum in 2013 (5/13)

**Keywords:** Crown of the Continent ecosystem, Crown Managers Partnership, long-term monitoring, US-Canada border, Landscape Conservation Cooperative, US Fish and Wildlife Service, University of Calgary