Project Summary
Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Analyze Vegetation Monitoring Data Collected in Western National Parks Program

Discipline: Natural
Type of Project: Technical Assistance
Funding Agency: National Park Service
Other Partners/Cooperators: Colorado State University
Effective Dates: 3/6/2013 – 12/31/2014
Funding Amount: $30,094

Investigators and Agency Representative:
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Project Abstract: In order to prevent erosion and to blend the roadside into existing park roadside vegetation, the Federal Lands Highway Program (FLHP) has been funding the planting of native seed mixes along the Federal Highways in National Parks. These seed mixes are generated from individual park germplasm. Seeds of the desired species are picked and sent to Natural Resources Conservation Service Plant Materials Centers (PMCs) where the seed is cleaned and then increased in fields in order to produce the often needed hundreds of pounds of seed. This process preserves the genetic integrity of the National Parks. This process has been used for many NPS FLHP projects in the western parks over the last 24 years.

A monitoring program was put into place in 2010 to evaluate species performance during the first 1-3 years and in the 5th year following planting. Monitoring should also tell how quickly non-seeded native species move into these revegetation sites on their own, thereby reducing the need to include them in the seed mix and perhaps reducing the costs of these mixtures. The presence and abundance of invasive species will also be assessed. These data should indicate trends with respect to the following questions:

- Which seeded and resident native species establish and increase in abundance, providing erosion control?
- Which seeded and resident native species decrease with time and how quickly?
- Which seeded and resident native species drop out completely over 5 years?
- Which seeded and resident native species maintain a stable presence during the 5 years after being planted?
- What non-native species become established on the sites?
- Do the seeded and resident native species suppress and/or facilitate non-native species or each other?
- Are native seeded or resident species and/or non-native species favored or disfavored by particular cultural practices including site preparation, seeding methods, mulches, erosion control treatments, invasive species control treatments and other post-revegetation maintenance activities?

Data were collected in 2010, 2011, and 2012 in Badlands National Park, Carlsbad Canyons National Park, Mesa Verde National Park, Mount Rainier National Park, and Theodore Roosevelt National Park. The data collected at these parks now need to be analyzed, preferably before the 2013 field season begins in mid-May, 2013. NPS-DSC-T will collaborate with Colorado State University (CSU) College of Agricultural Sciences researchers during this project to summarize and analyze the existing three years of data in order to improve the on-going monitoring program that will measure the effectiveness of DSC's vegetation restoration activities.

Outcomes with Completion Dates: A report summarizing the monitoring results from the following parks: Badlands, Carlsbad Caverns, Mesa Verde, Mount Rainier, and Theodore Roosevelt. Data will be analyzed park by park using parametric and non-parametric (if appropriate) methods. If time permits, data will be analyzed over the entire set of parks. A final report will be due December 31, 2013.

Keywords: analyze effectiveness, monitoring, road side vegetation, restoration, Badlands, Carlsbad Caverns, Mesa Verde, Mount Rainier, and Theodore Roosevelt NPs, Colorado State University