

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

Project Title: Propagate Native Trees and Shrubs to Restore Visitor Use Areas Impacted by the Bark Beetle Infestation

Project Code : CSURM-192; J1526105205

Type of Project: Technical Assistance

Funding Agency: National Park Service

Partner University: Warner College of Natural Resources, Colorado State University

**NPS Agreement Technical Representative:
Mary Kay Watry, Rocky Mountain National Park
1000 Highway 36, Estes Park, Colorado 80517
(970) 586-1285, mary_kay_watry@nps.gov**

**Principal Investigator: [took over from Randy Moench]
Greg Sundstrom, Warner College of Natural Resources
Colorado State Forest Service Nursery
5060 Campus Delivery, Fort Collins, Co 80523-5060
(970) 217-2391, gsund@lamar.colostate.edu**

**Start Date of Project:
May 3, 2010**

**End Date of Project:
September 30, 2013**

**Funding Amount:
\$39,659.00**

Project Summary, including descriptions of products, work accomplished and/or major results. If the information is restricted (e.g. location of endangered species or cultural resources), indicate the title and location of the final report. Also add web sites where project-related information may be found.

In conjunction with the damage caused by the Mountain Pine Beetle CSFS Nursery has propagated seedlings from seed provided by the RMNP. Colorado State Forest Service Nursery has grown all seedlings in Stuewe and Sons product with D-16 cells, containing 262 ml. of soil. The potting soil, Forestry Mix, is a combination of coconut coir, vermiculite, and peat moss. All species were pretreated according to individual needs and sown in our greenhouse for a six month cycle before moving outside. All species remained separated into East and West side lots and broken down by tracking numbers provided by the RMNP. Each lot was inoculated with Mycorrhizae, fertilized and irrigated accordingly.

Species	Origin	Tracking Number	Amount
Ponderosa Pine	East	09-105	3450
Engelmann Spruce	West	09-160	275
Douglas Fir	East	09-103	280
Lodgepole Pine	West	09-002	9000
Antelope Bitterbrush	East	09-107	700
Lodgepole Pine	East	03-111, 02-010, 02-070	2600
Colorado Blue Spruce	West	10-161	1550
Limber Pine	East	09-111	600
Shrubby Cinquefoil	West	11-107	400
Antelope Bitterbrush	East	11-103	40
Sagebrush	East	09-174	1600
Engelmann Spruce	East	10-170	300
Ponderosa Pine	East	09-105	1800
Total Amount			22595

Seed was collected and provided by RMNP staff. Seed viability varied, which resulted in differences in numbers of each species. All seedlings were delivered July 11, 2013, to Estes Park.

Number of students participating in this project: 3 undergraduate students participated for the full duration of this project.

**Other RM-CESU agencies or research partners who participated in this project:
None**