

1999 REVEGETATION PROJECTS

INTRODUCTION

Four areas were designated for replanting and reseeding for the fall of 1999, one related to road construction and three related to removal of social trails established by visitors. During the summer of 1999, a road realignment project near park headquarters created a large disturbed area that needed to be revegetated to prevent erosion and create a more natural appearance. In addition, three park overlooks had secondary barriers installed to keep visitors on designated trails in the fall of 1998. Areas inside the secondary barriers were heavily impacted by visitors, therefore needing revegetation work to restore it to a more natural state.

METHODS AND PROCEDURE

Area Descriptions

Several areas were targeted for revegetation this year including an area near the Visitor Center where the new entrance station was built and three overlook sites. The overlook sites that were revegetated were Agua Canyon Overlook, Sunrise Point Overlook, and Inspiration Point Overlook.

Agua Canyon Overlook Area

Two areas at the Agua Canyon Overlook were revegetated. An area south of the overlook parking lot, now semi-enclosed in a barrier fence is the largest site (Site 1). It went from the fence and extended along the rim to a diminishing trail past a large ponderosa. This area is approximately 1,500ft² in the shape of a square. Also, the trail area, extended from the main area, south, for approximately 2,500ft² and ended where native shrubs began to conceal the trail. The north side of the overlook (Site 2), approximately 250ft², went up the hill to the rim.

The soil at these sites is rocky and compacted, and contained large pieces of asphalt. A thick layer of rock laid across the area about a foot beneath the surface. The hill sloped off to the west into a ditch containing many native grasses near a culvert. The east side of the site was extremely steep and care had to be taken when working close to the rim.

Entrance Station (VC) Area

The road cut on the east side of the new road project (Site 3), which extends from the Visitor Center sign to the north side where the hill slopes down to the road, is approximately 31,200 ft². The two islands in between the new booths and the exit road (Site 4) totaled approximately 11,000ft². The area north of the employee parking lot was

approximately 5,000ft² and the area on the west side of the road north of the employee parking lot entrance was approximately 2,500ft².

These areas were greatly disturbed by the heavy machinery and tools that were used to build three new entrance booths. The soil on the east side contained large woody debris, which was mixed in the soil. Some places were more compacted than others due to the heavy machinery. There were rows running parallel to the slope on the road cuts in many places.

Sunrise Overlook Area

There were many social trails meandering throughout the large area south of the main trail to the rim, enclosed by a secondary barrier. The main area revegetated measured approximately 5,920ft² (Site 5). Included in that measurement is an area north of the main trail sloping to the northeast up towards the rim.

The soil conditions in this area had a high organic content; however, there were a few rocky spots with gravel. There were many native grasses, shrubs, and trees in this area aside from the disturbed trail areas.

Inspiration Overlook Area

Site 6 includes the large exposed western aspect slope on the east side of the parking lot measured approximately 9,000ft². In addition, the area south of the parking lot measured approximately 800ft². Further, many social trails were interspersed throughout the area between the exposed slope and the rim trail, which was approximately 8,650ft². Lastly, a small area of the trail from the parking lot to the rim was revegetated.

The soil was rocky and hard in most areas at this site. Many areas were steep and exposed. In addition, in 1998 heavy mulch was applied to most of the area, which subsequently migrated downslope causing heavy buildup at the bottom of the hill.

Replanting and Reseeding

One thousand four hundred and seventy-eight trees were purchased from Lone Peak in Draper, UT. Two species of trees of two different age classes were utilized during this revegetation project (See Table below).

	Quantity	Age class	Cell Size in cubic inch
<i>Pinus ponderosa</i>	1128	7months	10
<i>Pinus ponderosa</i>	200	19months	Tall one
<i>Pseudotsuga menziesii</i>	50	7months	10
<i>Pseudotsuga menziesii</i>	100	19months	Tall one
Total	1478		

Agua Canyon Overlook

Eighty-three trees planted in this area. Twenty-three Ponderosa and 54 Douglas Fir trees were planted at site 1. A few trees were planted past the ponderosa. Three Ponderosa and three Douglas Fir were planted at site 2. All of the areas described were reseeded with the Bryce seed mix and fertilized.

Due to the condition of the soil, this area needed to be broken up with Pulaskis and Mcleods before reseeding. The area was then raked over and mulch was placed around the base of each tree.

Three reseeded signs were placed inside the barrier fence on the south side and orange flagging was placed between the signs. Also, a sign was mounted to a small and placed on the north side with some red flagging in front of it.

Entrance Station (VC)

Six hundred and seventy six trees were planted at this area. Four hundred and forty seven Ponderosa Pines were planted at site 3, mostly with the 7 month old age class however, approximately 15% were of the 19 month age class. Two hundred and twenty nine Ponderosa Pines were planted at site 4. Approximately 75 trees (mostly 19-month age class) were planted on the south island and 154 on the north island. All trees were mulched to prevent erosion and maintain soil moisture.

Along the road, no trees were planted ten feet upslope for the drainage ditch because this is where heavy accumulations of snow pile up due to snow plowing operations. Seedlings would probably not survive near the drainage ditch. As of 9/23/99 the entrance station area was not reseeded due to lack of seed.

Sunrise Overlook

Two hundred and seventy three Ponderosa Pine trees were planted at site 5. Mostly the 7-month age class were planted with approximately 30 of the 19-month age class. Most holes were dug with an auger however a few were dug by hand in and around the disturbed trail areas. Most trees were lightly mulched with natural debris (e.g. pine needles) around the base instead of using the mulch from the mixing circle. This area was reseeded except for a small site on the north side and a few places near fence on the east side.

Inspiration Overlook

One hundred and forty seven trees were planted at site 6. All holes were dug with the auger. Natural mulch was placed around the base of the tree. Trees were spaced further apart because the natural landscape is sparser in this area. No trees were planted in areas

with natural bare ground. This area was reseeded with Bryce seed mix. No trees were planted on the steep western aspect slope near the parking lot due to the slope and soil composition.

Summary of planting	
Agua	83
Entrance station	676
Sunrise	268
Inspiration	147
Total	1174

Total amount of seed used=64 lbs.

RECOMMENDATIONS

The revegetation projects went smoothly and a lot of work was accomplished in a short time. In the middle of the project, it was brought to our attention that there was an auger that may be borrowed from the maintenance division temporarily. We used the auger for digging the holes at Sunrise and Inspiration. Using the auger for digging was much more time efficient than hand digging with the trench shovels, pulaskis, and ho-daddy. It is recommended that an auger (25lb) be purchased for the resource management division for future planting.

Agua

When working at Agua Canyon, people were actually trying to get by us to get to the rim by climbing the fence and entering the revegetated site. We asked people to not enter the area several of times. A recommendation was submitted to the sign committee, requesting signs displaying fines for walking on these areas. Park management should decide if an established trail would be permitted at this site, if not this area should be blocked off and restored. The site is extremely close to the rim and if a trail were established safety factors need to be considered.

VC

This area should be watered, if there is no rain, until the snow flies due to the dryness and aspect of the slope. Also, care should be taken during winter snow plowing operations to prevent heavy snow loads on the slopes for at least five years to help with the survival rate of the trees.

Reminding visitors and explaining what was done in the area will help with their awareness of the revegetation efforts at the park. Signs may not be as beneficial along the east slope where it is primarily vehicle traffic, however it may be helpful to have a few signs near where the North Campground trail crosses the road. At one point while we were working, a man came out of the forest from the campground and asked where a trash can was. This shows that there is at least some human activity in that area.

Sunrise

The trail heading from the day-use horse corral to the Sunrise loop road has no exit. This trail veers to the right into the area that was revegetated. A small trail continues north to the road ending right where the fence starts. There are no signs in this area displaying any kind of directions. It is recommended to have the barrier at that point removed where the trail meets the fence to the northeast or the area to be blocked off where the trail goes into the area from the stables and reclaimed.

Inspiration

A bench is placed inside the barrier fence and it should be moved outside the fence so visitors can use it without climbing over the fence and entering the revegetation site.

CONCLUSION

Monitoring the revegetated areas will allow the park to establish some means of determining success rate of these projects. Taking into account the terrain and soil condition of the various sites may factor into the rate of success of certain areas. Watering the trees until they have established sustainable root systems will aid in the survival rate and a positive outcome of this project.