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September 2, 2013

Rim Village Cable Reroute Report

Introduction

The Rim Village cable re-route was implemented in 2006 by PacificCorp. For this project, PacificCorp routed approximately 1975 feet of cable from the Rim Café to the Rim Dorm road with potential for disturbance extending 6 ft. on either side of the actual cable. The reroute originated at the large, green utility box across the street from the Rim Café snow tunnel (south of the public restrooms near the Community House) and proceeded east across the north edge of the picnic area, ending at the large, green tie-in box near the Crater Lake Lodge (located at the beginning of the Rim Dorm road; see attached map). The cable path extended from the initial utility box near the Rim Café to the southeast corner of the Community House, continuing across the vegetated area directly north of the picnic area (between the picnic area road and the main lodge road) to end at the Rim Dorm road. There is one spur that runs north from the main cable, as it crosses the picnic area, to the large, green utility box across the street from the Rim Visitor Center. PacificCorp donated money to the park for revegetation, however, no revegetation plan was developed and all subsequent regrowth has occurred naturally.

The following is a status report of the revegetation progress along the cable re-route during the last seven years since the project was completed. The cable reroute was implemented in five sections from west to east with sections demarcated by paved pathways that run north-south connecting Rim Drive to the picnic area. Herein, vegetation cover (approximate total % cover for each section) and species occurrence are assessed for each section with recommendations for future monitoring and management of vegetation restoration along the cable reroute path. Please note that site photographs are numbered on the attached map and were taken from the same approximate locations used by S. Anderson in 2009 and C. Rolle in 2011 for comparison of regrowth between monitoring efforts.

Existing vegetation

Dominant vegetation along the route included the following:

Shrubs

Ericameria greenei

Grasses and Forbs

Acnatherum occidentale

Agoseris retrorsa

Anaphalis margaritacea

Antennaria media

Boechera howellii

Bromus carinatus

Carex sp.

Calyptridium umbellatum

Castilleja arachnoidea

Elymus elmoides

Elymus glaucus

Erigeron perigrinus var. *callianthemus*

Eriogonum merifolium

Eriogonum pyrofolium

Eucephalus ledophyllus (formerly genus *Aster*)

Festuca sp.

Gayophytum diffusum ssp. *Parviflorum*

Juncus perii

Lupinus andersonii

Lupinus lepidus

Machaeranthera canescens

Phlox diffusa

Poa sp.

Polygonum newberryi

Senecio triangularis

Trisetum spicatum

Veratrum viride

Non-native species included the following; found in small populations along sections 3, 4, and 5.

Trifolium repens

Additionally, dominant vegetation surrounding the route included:

Abies magnifica x *procera*

Pinus contorta var. *murrayana*

Pinus monticola

Tsuga mertensiana

Section 1: From large, green PacificCorp utility box across the street from the Rim Village Café to paved pathway #1 (near southeast corner of Community House).

Current conditions: This section is very well vegetated, with no noticeable barren path along the route. Total vegetation cover for the section is 70% on average, except for two large bare patches filled with gravel just east of the cable box. Dominant vegetation in this section includes *Carex sp.*, *Phlox diffusa*, *Ericameria greenii*, and *Boechnera howellii*.



Figure 1. View toward Community House to the NE from start of cable reroute.



Figure 2. View from SE corner of Community House toward Rim Café.



Figure 3. View from SE corner of Community House toward picnic area.



Figure 4. Sparse but increasing vegetation at end of Section 1 near paved walkway.

Section 2: From the gravel picnic site parking to paved picnic area road past large concrete vault. Reroute then continues northeast to paved pathway #2.

Current conditions: The start of Section 2 is unvegetated and still used as a footpath between the community house and the gravel picnic parking. There remains minimal vegetation near the large concrete vault, most likely due to the influence of *Tsuga mertensiana* trees. Overall, the majority of this section is almost completely revegetated (~85-90% cover) with the dominant species being *Carex sp.*, *Elymus elmoides*, *Elymus glaucus*, and *Veratrum viride*.



Figure 5. West facing view of Rim Café from start of Section 2 where the reroute path is now used as shortcut to the picnic area.



Figure 6. Reroute under picnic area road toward large concrete vault, continuing NE under roadway.



Figure 7. Abundant vegetation throughout middle of Section 2.



Figure 8. East facing view of paved pathway #2 where Section 2 ends and Section 3 begins.

Section 3: From paved pathway #2 to a second concrete vault at paved pathway #3.

Current conditions: The large disturbed area noted in 2009 at the beginning of Section 3 has substantially improved and is now largely revegetated. Vegetation along the spur route to the tie-in box on Rim Drive is also increasing but does show signs of erosion (see recommendations section for more). Natural vegetation near the middle and end of this section is abundant and dominant species include *Carex sp.*, *Ericameria greenii*, *Elymus elmoides*, and *Achnatherum occidentale*. One young *Pinus contorta* and one young *Tsuga mertensiana* are now growing within the reroute area as well and total vegetation cover in Section 3 is ~60%.



Figure 9. Regrowth of vegetation at beginning of Section 3.



Figure 10a. North facing view of spur to green utility box near visitor center.



Figure 10b. North facing view of erosion beginning near green utility box.



Figure 11. East facing view of vegetation at midpoint of Section 3.



Figure 12. East facing view of concrete vault and walkway at end of Section 3, some evidence of reroute is still visible.

Section 4: From paved pathway #3 to paved pathway #4.

Current conditions: Section 4 is ~90% revegetated and dominant species include *Anaphalis margaritacea*, *Carex sp.*, *Elymus elmoides*, *Poa sp.*, and *Veratrum viride*.



Figure 13. East facing view from paved pathway #3 at beginning of Section 4, area is almost completely revegetated.



Figure 14. Revegetated area near end of Section 4 at paved pathway #4.

Section 5: From paved pathway #4 to the tie-in box at the Rim Dorm access road.

Current conditions: Revegetation is progressing naturally throughout this section and total cover is ~80%. The area directly under the *Tsuga mertensiana* tree at the end of the section remains sparse and is likely because of the tree. The steep slope near the Rim Dorm access road continues to erode though revegetation has progressed around the eroded area with a few plants still growing within the gully itself. However, there is still not enough cover to mitigate further erosion. Dominant vegetation includes *Achnatherum occidentale*, *Carex sp.*, *Elymus elmoides*, and *Erigeron perigrinus* with one *Agoseris retrorsa* occurring near the tie-in box.



Figure 15. East facing view of *Tsuga mertensiana* near end of Section 5.



Figure 16. East facing view of end of Section 5 at tie-in box.



Figure 17. North facing view of erosion at end of cable reroute. Revegetation remains slow with no improvement in soil stabilization.

Revegetation Recommendations

Revegetation has progressed nicely throughout the majority of the cable reroute with only a few exceptions. Vegetative cover has increased substantially in Sections 2, 3, and 4, Sections 1 and 5 have experienced moderate increases. While no entire section has recovered 100%, there are many areas along the reroute path where vegetation cover is equal to that of the surrounding landscape, with no indication of prior disturbance. However, there remain several locations along the route (see attached map) that require attention to ensure revegetation of the entire work site and completion of project restoration objectives.

The primary revegetation challenge is erosion, occurring at two locations. Recent, minor erosion is evident above the tie-in box along the spur in Section 3 (Figure 10b). While the area does have vegetation naturally taking hold, and there is a visible increase in cover since 2011, I recommend reseeding the length of the spur in the near future. This would require minimal effort and speed along dispersal of soil retaining vegetation, preventing further erosion and eliminating the issue entirely. More concerning is the marked, persistent erosion at the end of Section 5 (Figure 17). Though plants are colonizing the erosion gully in Section 5, the soil is unconsolidated and remains highly susceptible to further erosion. I recommend, at the very least, reseeding the area but, the steep slope of the gully would likely benefit more from application of erosion mats or other more direct interventions.

Secondary challenges include bare areas persisting at the beginning of Section 1 and the beginning of Section 2. The bare patch in Section 1 (Figure 1) is currently filled with gravel and will likely not revegetate naturally without removal of the gravel. Recommendations for this site include removal of the gravel and reseeding. This area is more an eyesore than anything because it is located directly across from the Rim Café and is visible to visitors walking from the Café and parking area to the caldera rim. The other bare patch that warrants attention is the area in Section 2 (Figure 5). This area, as noted in both 2009 and 2011, continues to be a heavily used shortcut between the Community House. Natural revegetation of the impacted area is unlikely without direct intervention and would require extended use of barricades to provide adequate protection for any meaningful revegetation to occur. However, remediation efforts might be more efficient if initiated after the Rim Drive Rehabilitation project, expected to commence in 2015, is completed. During the Rim Drive Rehab, a temporary road is expected to be constructed in the direct vicinity of this area and will result in further disturbance to the area of interest.

The final issue requiring attention is the occurrence of invasive species along the reroute corridor. There are several persistent populations of *Trifolium repens* along the route, most notably in Sections 3 and 5 and, though the extent of invasive along the reroute is minimal, it does warrant close monitoring. These populations should be pulled and I recommend revisits in subsequent years to ensure eradication is attained.

These problems, while potentially concerning, are relatively small issues that can generally be mitigated with minimal effort. The most important of these issues being the erosion incidents in Sections 3 and 5. Considering progress across the entire site, revegetation of the cable reroute corridor is proceeding satisfactorily with little expectation of serious problems in the future.

Map of cable reroute site, Rim Village, Crater Lake NP, 2013

