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Crater Lake National Park

Replace Rim Village Barriers Revegetation Project

2019 Annual Report

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The new fencing design at Rim Village effectively protects the landscape from trampling.
Photo by Scott Heisler

ON THE COVER
Botany crew members treating the invasive plant red sandspurry that is encroaching on native plant habitat in landscape beds at Rim Village.
Photo by Scott Heisler

Replace Rim Village Barriers Revegetation Project

2019 Annual Report

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Abstract

The Replace Rim Village Barriers project corrects issues stemming from heavy visitor use in a restored area (former parking lot) at the western end of Rim Village in Crater Lake National Park. The goals of this project are to install a new fencing system; stabilize damaged portions of the landscape through revegetation; and create an interpretive wayside, sharing the story of this restoration site with the public. Work completed during the 2019 field season includes a full installation and troubleshooting of the new fencing design; collecting 1,719 g of native seed; care of 954 propagated containerized native plants; propagation of an additional 1,494 native plants for restoration outplantings; invasive vegetation management in the project area; and installation of a wayside panel. In 2020 revegetation work related to this project will be completed.

Acknowledgments

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Introduction

Rim Village is the most heavily visited area in Crater Lake National Park (CRLA). It serves as a focal point for visitor services and is often the first viewing opportunity of Crater Lake for visitors arriving from the south. Rim Village has been actively used by Park visitors since the Park's inception in 1902 and is rich in cultural and natural resources. The 32-acre Rim Village Historic District was listed on the National Register of Historic Places in 1997. Beginning in 2005, a large parking lot at the western end of Rim Village (Figure 1) was relocated away from the caldera edge to the south side of the 1928 building (old cafeteria building) and a new Rim Village Café and Gifts building was erected. The old parking lot was removed, new walkways delineated, and landscaping islands were created and planted/seeded with native plant materials. In 2009, the landscaping islands were planted with whitebark pine seedlings sourced from blister rust-resistant whitebark pine trees within the Park. This whitebark pine restoration planting has since become the most successful one in the Park and arguably the Pacific Northwest. The landscaping islands in the former parking lot area have been fenced since revegetation efforts began in 2006 to protect establishing vegetation from heavy visitor use and foot traffic (Figure 2). Fencing has been effective at protecting vegetation at this site, with nearby unfenced areas experiencing heavy trampling that has depleted vegetation cover.

Figure 1. The former parking lot in front of the cafeteria building (now called the 1928 building) at the western end of Rim Village. Photo courtesy of the Crater Lake National Park Museum & Archives Collection.

Figure 2. This image shows the effectiveness of fencing with vegetation growing abundantly on the fenced side of the path and vegetation completely denuded on the other side of the path where there is no barrier to foot traffic. Photo by Scott Heisler.

Prior to the inception of the Replace Rim Village Barriers project, fencing of the landscaping islands at the former parking lot site consisted of plastic posts slipped over rebar stakes that were installed each spring at snowmelt. When the former parking lot was removed, site preparation by the contractors was minimal prior to revegetating the site, resulting in heavy soil compaction in the landscaping islands (Hudson and Thomas 2010). Installing rebar stakes into hard, compacted ground each spring was difficult, and fencing posts tended to lean, become unstable, and fall over as a result (Figure 3). This poor fencing design projected an unkempt and neglected appearance at one of the Park's most heavily visited locales. A need existed for a more durable and attractive fencing option to protect the vegetation and whitebark pine seedlings within the landscaping islands. Additionally, inconsistent fencing over the years (e.g., some islands were not fenced in certain years or were never fenced) including fencing being removed once the vegetation was at peak flowering, contributed to many social trails and barren areas within the landscaping islands.

The goals of the Replace Rim Village Barriers project are three-fold:

1) Replace the current deteriorated fencing at Rim Village with a new fencing design that is sturdy, durable, and compatible with cultural resource values in the Rim Village Historic District.

2) Stabilize vegetation in areas that have been damaged by heavy visitor use through revegetation of social trails and barren or sparsely vegetated areas.

Figure 3. The old fencing design was prone to leaning and/or falling over, as it was lightweight and easily dislodged, and its rebar stake supports were difficult to install in the compacted ground. Photo by Carrie Wyler.

3) Share the story of this restoration project with Park visitors through the creation of an interpretive wayside display.

Methods

The Replace Rim Village Barriers project is comprised of three main efforts: 1) new fencing design, 2) revegetation, and 3) interpretation. Each component is discussed separately below.

New Fencing Design

There were several criteria that needed consideration when developing a new fencing scheme. First, the fencing had to integrate with the design of the Rim Village Historic District. An interdisciplinary group of CRLA employees and NPS staff with cultural landscape expertise assisted with developing a general fencing design. It was agreed that fence posts would consist of simple wrought iron balusters with decorative twists. Each post would be topped with an eyelet that would support a length of metal chain threaded through the eyelets to serve as a barrier. Secondly, the fencing needed to be removable to provide for Park visitor and employee safety. In the winter and spring, the area to be fenced is covered with a layer of deep, packed snow (Figure 4) where Park visitors freely wander and play. If a fence was left in place over the winter, it would likely become damaged by the weight and shifting nature of the snowpack and could also come into contact with visitors while partially buried, posing a safety hazard. To ensure the stability of fencing posts, it was determined that in-ground post receivers were necessary to support posts and facilitate installation each spring. During the 2018 field season, all fencing materials were procured, and the in-ground post receivers were

installed. Activities for the 2019 field season included complete assembly, disassembly, and storage of the fence, and troubleshooting the process.

Figure 4. The former parking lot area in summer/fall (left) with walking paths delineated; and in winter/spring (right) when visitors travel freely across the area. Photos by Carrie Wyler.

During initial testing it was discovered that certain post and post receiver combinations had an excessively tight fit resulting from a manufacturing artifact on the opening of the receivers and variation in powder coating thickness on the posts. To streamline the yearly fencing installation/removal process, this issue was addressed by lightly grinding down the square posts along the length affected by the poor fit. This task was completed using an angle grinder, utilizing a "ferrous metals - grinding" wheel. For the procedure, posts were placed on a measuring board delineating the affected 16.5 inches, and approximately 1.25mm was ground off each of two adjacent corners (Figure 5). The ground-down area was then immediately painted with a double coat of flat black Krylon "Supermaxx Paint+Primer" spray paint to prevent rust from undermining the powder coating.

Figure 5. Grinding down the posts to achieve a better fit. Photo by Carrie Wyler.

Installation of the fence in the spring was conducted as soon as the snow covering the post sleeves melted off, and snowpack adjacent to the posts

didn't pose a risk of causing visitors to fall into the posts. Uneven snowmelt resulted in some landscaping islands requiring partial fencing until the entire perimeter had melted. To limit visitor traffic into the partially fenced landscaping islands, bright pin-flags and Carsonite signs directing traffic were placed along the receding edge of the snowpack (Figure 6).

Figure 6. Redirecting foot traffic away from a partially fenced landscaping island. Photo by Carrie Wyler.

The chain used in the project proved to be more fragile than desired, with sections upwards of 6' disintegrating when subject to abnormally high weight stresses from visitor interaction with the chain. A commonly observed interaction of this type was visitors trying to sit on the chain. Rather than breaking at a single point, the non-welded links would uniformly bend open across an affected span of chain. When the weight stress was removed, the length of chain with bent links would disintegrate. Occasionally the links were not deformed to the point of failure. When this situation was observed, the gaps in the links were easily removed by pinching the link perpendicularly across the gap with a pair of tongue-and-groove pliers (Figure 7). To address the tendency of visitors to abuse the chain, additional slack was added to the chain in order to make it a less inviting sitting platform.

To facilitate winter storage and overall transport of the chain, six large wooden spools and a spool-holder were constructed. The spools were fabricated with 16" long 4"x4" lumber spindles, 20" diameter circles of ½" plywood as sides, and #2 gage nails acting as axles to spin on. The spool-holder was fabricated with a 20" square of 4"x6" lumber for the base, two 14" uprights of 4"x6" lumber, and four screws installed on the top of the uprights to hold the axles of the spools. The spool-holder was sized to fit in a utility cart for ease of use and transport (Figure 7).

To winterize the post receivers, a small amount of oil was used to coat the threads on the caps. Completely coating the threads was accomplished by pouring a small amount of oil in a cap, swirling it around to cover all the threads, and pouring the excess into the next cap to be coated (Figure 8). The caps were threaded hand-tight onto the post receivers. As the threads on the post receivers are a tapered diameter, the caps are only threaded on roughly 1/3" of the overall 1" length of threads on the receivers. Damage to threads on the post receivers was addressed by chasing the threads with a pipe thread die (Figure 8).

Figure 7. Left: using pliers to pinch closed stretched fence chain links. Photo by Scott Heisler. Right: detail of the spool used for chain storage and transport. Photo by Carrie Wyler.

Figure 8. Chasing damaged threads on a post receiver with a pipe thread die (left). Oiling the threads on the caps (right). Photos by Scott Heisler.

Revegetation

This project restores and revegetates landscaping islands within the project area that have been impacted by heavy visitor use (Figure 9). The focus of revegetation is limited to damaged areas with little or no vegetation cover, including social trails and trampled areas. During the initial revegetation of the former parking lot area in 2006—2007, a variety of plant species were planted and seeded across the landscape. Perhaps owing to the heavily compacted soil, there was high mortality of planted species and the area became dominated by the hardy grass California brome (*Bromus carinatus* var. *carinatus*). A plant species list was developed for this project that reflected a more diverse vegetation community more closely aligned with the intention of the original landscape design, which is summarized here:

"In looking at other areas of the park, Merel Sager found a landscape that matched his vision for the barren site at Rim Village in Sun Notch, a verdant swale of meadow grasses and wildflowers situated east of Garfield Peak. Transposing this verdant appearance to Rim Village would satisfy Sager's plan in two ways: first, the area would be "improved" by the addition of new plants and the diminishing of the "dust evil" that was prevalent at the site; second, and perhaps more importantly, the landscape at the rim would be "restored" to its original, lush appearance (NPS 2004, pg. 29)*."*

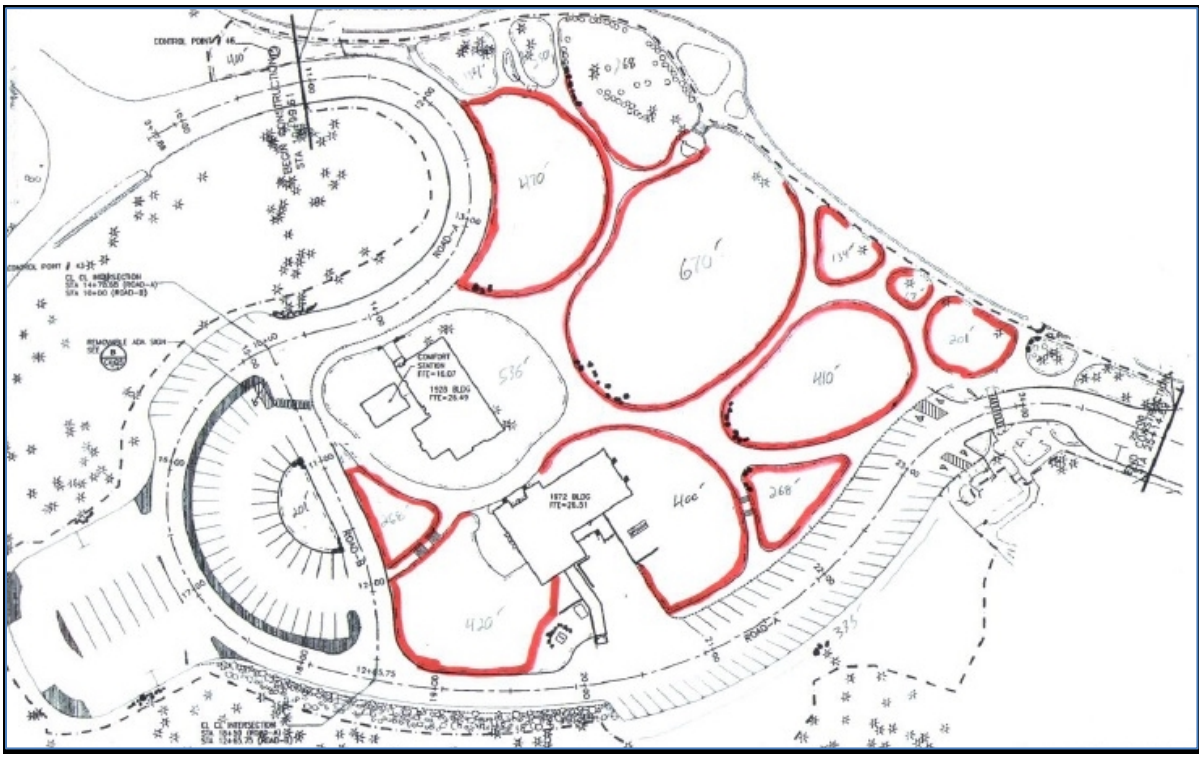

Figure 9. Landscaping islands outlined in red are addressed by this project.

A plant species list for revegetation efforts was started in the summer of 2018 and amended during the 2019 field season (Table 1). Plant species were included on this list based on 1) they were found growing abundantly in natural vegetation communities surrounding Rim Village, and 2) they were components of meadow vegetation observed elsewhere along the caldera as envisioned by the

original landscape designers. The seed collection area was set at one half mile from Rim Village. Plant phenology was monitored throughout the growing season to ensure ripe seed was not missed. Seed was collected according to the Botany program's established Seed Collection Protocols (Beck et al. 2017). This seed was then dried and cleaned according to the Botany program's Seed Cleaning and Short-Term Storage Protocol (on file on the Botany file server). Limited collections of individual species were set aside during collection and processing for use in plant propagation. The remaining seed was stored in the Botany seed freezer for use in fall 2020 broadcast seeding efforts.

Table 1. Plant species list for stabilizing the damaged landscape within the Replace Rim Village Barriers project area.

Scientific Name	Common Name
Achillea millefolium	Yarrow
Achnatherum occidentale	Needlegrass
Agoseris aurantiaca var. *aurantiaca*	Orange agoseris
Anaphalis margaritacea	Pearly everlasting
Antennaria species	Pussytoes
Aquilegia formosa	Red columbine
Boechera howellii	Howell's flatseed rockcress
Bromus carinatus var. *carinatus*	California brome
Calyptridium umbellatum	Pussypaws
Carex halliana	Hall's sedge
Carex inops ssp. *inops*	Long-rhizome sedge
Carex pachycarpa	Many-rib sedge
Castilleja applegatei var. *applegatei*	Applegate's paintbrush
Castilleja arachnoidea	Cobwebby paintbrush
Ceanothus prostrates var. *prostratus*	Mahala mat
Chamaenerion angustifolium var. *canescens*	Fireweed
Elymus elymoides ssp. *elymoides*	Common squirreltail
Elymus glacus ssp. *glaucus*	Blue wildrye
Ericameria greenei	Greene's goldenweed
Eriogonum marifolium var. *marifolium*	Sierra eriogonum
Eriogonum pyrolifolium	Alpine buckwheat
Eucephalus ledophyllus	Cascade aster
Hieracium albiflorum	White flowered hawkweed
Holodiscus microphyllus var. *glabrescens*	Bush ocean spray
Juncus parryii	Parry's rush
Lupinus andersonii	Anderson's lupine
Lupinus lepidus var. *lobbii*	Prostrate lupine
Nothocalais alpestris	Alpine lake agoseris
Penstemon rydbergii var. *oreocharis*	Rydberg's penstemon
Phacelia hastata var. *compacta*	Compact phacelia
Phlox diffusa	Spreading phlox
Polygonum shastense	Shasta knotweed
Senecio triangularis var. *triangularis*	Bog groundsel
Solidago elongata	West coast goldenrod
Symphyotrichum foliaceum var. *parryi*	Parry's aster
Spiraea splendens	Subalpine spirea

Scientific Name	Common Name
Trifolium longipes var. hansenii	Hansen's clover
Veratrum viride var. *eschscholtzii*	Indian poke
Viola adunca ssp. *adunca*	Hookedspur violet

All plant species used for propagation in fall 2018 produced satisfactory germination and survival rates, except for fireweed. It was decided to give the plants a second year of growth before outplanting, as they had not achieved satisfactory development by the end of the first field season. To mitigate the short growing season at CRLA, snow was shoveled off the plants in early June 2019 to lengthen the growing season (Figure 10). Whereas in 2018 the plants were temporarily transported to a warmer location in the Park (South Yard), in 2019 the plants remained at the Ball Diamond nursery for the duration of the growing season.

Figure 10. Removing snow from propagated plants to extend the growing season. Photo by Carrie Wyler.

An additional round of plant propagation was conducted in the fall 2019. The plant species selected for propagation were ones that the Botany program has experienced the most success with propagating and planting in prior restoration projects. The plant species propagated in fall 2019 are yarrow, needlegrass, many-rib sedge, Mahala mat, spreading phlox, and compact phacelia. In October 2019, Ray Leach "SC7 Cone-tainer" pots were placed in racks and then filled and settled to 0.5" below the top rim with Premier "PRO-MIX HP Mycorrhizae" soil. These pots were then seeded with native seeds collected from the restoration area during the 2018 and 2019 field seasons. A thin (~1/8") layer of soil was then placed over the seeds, and the pots were watered.

The seeded pots were then placed under rodent-excluding screens in the Botany program's space at the Ball Diamond at Park headquarters and left to overwinter under the snowpack to replicate natural germination conditions. Prior to overwintering, pots were placed in a tight group, and mulch was packed around the perimeter to protect roots from exposure to severe cold and desiccation (Figure 11).

Figure 11. Bunched plants packed with mulch for overwintering (left). Seeded pots under rodent-excluding screens, melting out from the snowpack (right). Photos by Carrie Wyler

Invasive Vegetation Management

A critical component of stabilizing the native vegetation in the project area is the management of invasive plant species. The high level of visitation in this area results in the introduction of new invasive plant species. Frequent surveys of the area and population mapping provide early detection of new and resurgent populations, allowing for effective management.

One population of a particularly resilient invasive plant species, red sandspurry (*Spergularia rubra)*, required an intensive management effort during the 2019 field season. This species had formed near-monoculture mats along the denuded edges of several landscaping beds in the project area and was rapidly spreading to adjacent disturbed areas (Figure 12). To address this issue, approximately 60,000 plants, many bearing mature seed heads, were removed by hand pulling. This disturbed area was then broadcast seeded in fall 2019 (Figure 12), and the residual red sandspurry population will be treated with herbicide in early summer 2020.

Figure 12. Mats of red sandspurry (light green) along edges of the landscaping beds (left). The Botany crew raking native seed into the areas post-red sandspurry removal (right). Photos by Carrie Wyler.

Interpretation

In order to share the story with Park visitors of how a parking lot was transformed into a meadow with clusters of rust-resistant whitebark pine, a new interpretive wayside was created for the landscaping island area. After consulting with the Park's cultural resource staff, a suitable location was selected for the interpretive wayside. This location, at the junction of pathways adjacent to the main entrance of the Rim Village Café and Gifts building, was selected as a fitting, highly visible introduction point for the restoration project (Figure 13).

Results

New Fencing Design

During the 2019 season, the new fencing design proved to be an effective, reliable barrier in protecting the vegetation and whitebark pine plantings (Figure 13). The new fence design was assembled stepwise over the course of four weeks (June 17—July 11, 2019) as the snowpack receded. Assembly proceeded smoothly, encountering only minor issues involving excessively tight fitment with several post/post receiver combinations and damage to four post receivers due to snow removal operations alongside the Rim Village Café and Gifts building (Figure 14). The fitment issue was addressed by grinding the edges of all the posts needed for the full span of fencing. Critically damaged post receivers were replaced. Several additional posts and post receivers were destroyed over the course of the summer due to being struck by vehicle traffic on the walkways (Figure 14). The affected posts/post receivers were replaced.

Figure 13. Interpretive sign in place (left). With fencing in place, the vegetation in the landscaping islands flourished (right). Photos by Scott Heisler.

Figure 14. Damage to fence post by vehicle (top). Damage to post receivers (bottom). Photos by Scott Heisler.

Revegetation

A total of 1,719.1 grams of rough-cleaned seed were collected during the 2019 field season from 14 plant species plus one mixed-species collection (Table 2). Over 1,490 pots were seeded for plant propagation efforts, with a target of 1,200 plants surviving for restoration outplanting efforts (Table 3). As of October 2019, 954 live plants were in inventory from the 2018 round of propagation (Table 3).

Table 2. 2019 seed collection quantities by plant species.

Scientific Name	Seed Collected 2019 (g)	Total Seed in Storage (g)
Achillea millefolium	27	27
Achnatherum occidentale	46	54
Agoseris aurantiaca var. *aurantiaca*	9	9
Boechera howellii	0.05	5.05
Bromus carinatus var. *carinatus*	61	256
Calyptridium umbellatum	8	8
Carex pachycarpa	117	397
Castilleja spp.	0	61
Ceanothus prostratus var. *prostratus*	0	0
Chamaenerion angustifolium var. *canescens*	0	74
Elymus elymoides ssp. *elymoides*	129	59
Ericameria greenei	9	23
Lupinus lepidus var. *lobbii*	0	18
Penstemon rydbergii var. *oreocharis*	23	142
Phacelia hastata ssp. *compacta*	0	2
Phlox diffusa	0.05	0.05
Trifolium longipes	0.5	0.5
Viola adunca var. *adunca*	0.5	0.5
Forb Mix • Rough-Cleaned	1,289	1,569
Total	**1,719.1**	**2,705.1**

Table 3. 2019 plant inventory and propagated plant quantities.

Scientific Name	Plants in Inventory 2019 (#)	Plants Propagated 2019 (#)
Achillea millefolium	126	200
Achnatherum occidentalis	77	98
Boechera howellii	83	0
Carex pachycarpa	51	298
Ceanothus prostratus	0	500
Chamerion angustifolium	69	0
Ericameria greenei	31	0
Penstemon rydbergii	364	300
Phacelia hastata ssp. *compacta*	149	49
Phlox diffusa	4	49
Total	**954**	**1,494**

Invasive Vegetation Management

During the 2019 field season, 31 populations of invasive plant species were identified and treated. This entailed chemical and manual removal of approximately 69,587 plants. Figure 15 shows the invasive plant species present at the Rim Village Barrier project area and their locations. The most commonly encountered species was red sandspurry, accounting for approximately 66,000 plants, which were manually removed. The main area that red sandspurry occupies is the landscape islands around the Rim Village Café and Gifts building. For revegetation efforts in the heavily disturbed areas where red sandspurry was removed, 114g of a rough-cleaned forb seed mix was broadcast seeded and raked in.

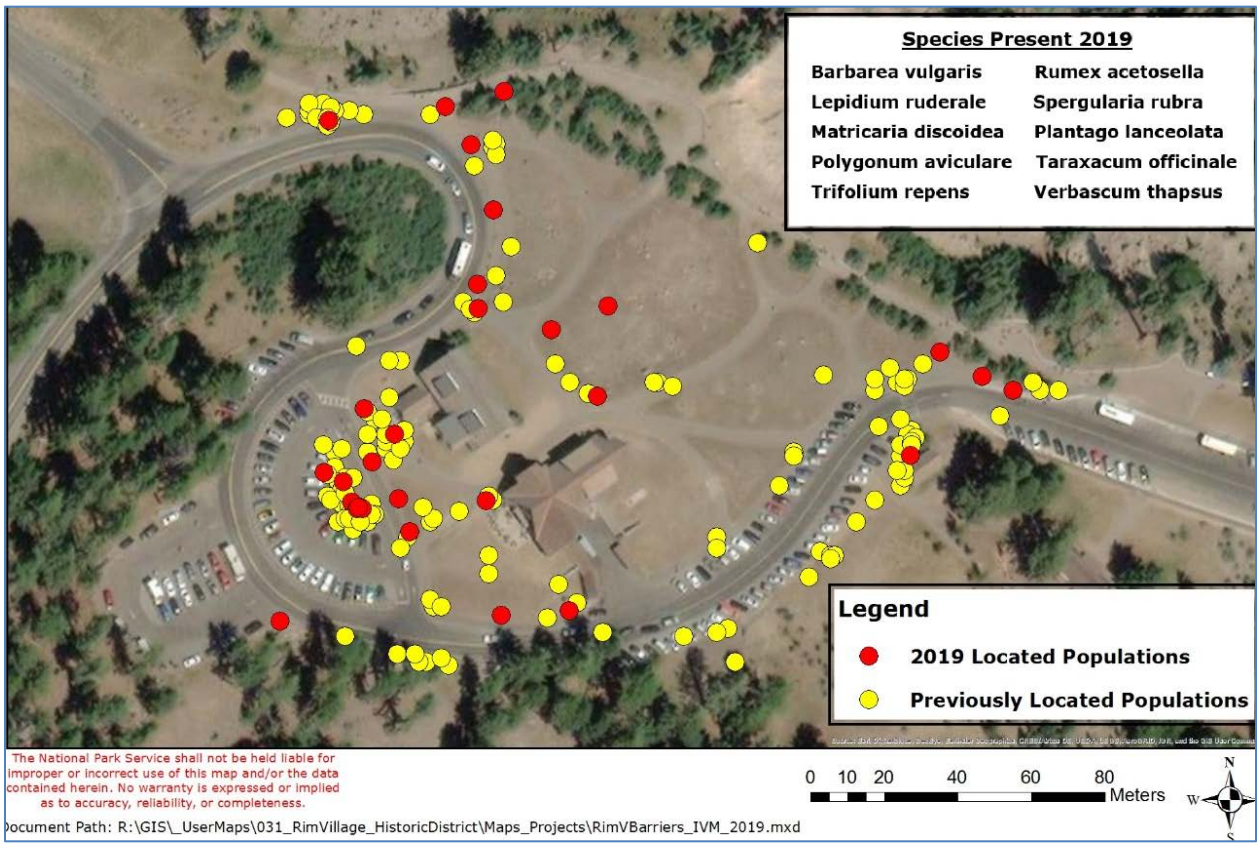

Figure 15. Invasive plant populations in the Rim Village Barrier Project area. Map by Scott Heisler.

Interpretation

The interpretive wayside was successfully installed in mid-July 2019. The sign was removed for winter storage in October and placed inside the 1928 Building.

Discussion

Considering the damage to the fencing infrastructure sustained during 2019, it is recommended to maintain a dialog with the concessionaire via the CRLA Concessions Management Specialist. Snow removal personnel working in this area should be informed of the post receivers, established

vegetation, and newly placed interpretive wayside post receivers. Additionally, it is recommended that snow should not be piled at the interpretive wayside location. The mound of snow created at this location is slow to melt and creates an obstacle that directs foot-traffic across the landscaping islands well into the summer season (Figure 16).

Figure 16. Snow piled at the wayside sign location that blocks foot paths. Photo by Carrie Wyler.

Fenced landscaping islands should be planted in fall 2020 with propagated forb species to add plant cover, color, and diversity to sparsely vegetated areas. Outplanting and broadcast seeding were postponed until fall 2020 in order to produce more mature containerized seedlings. The outplanting process is deleterious to newly established plants and seedlings, and best practices entail conducting a single round of outplanting which precedes any broadcast seeding. Additional seed collection and propagation during the 2020 field season may occur as time allows. Areas that have been extremely trampled (barren) and are now fenced should be planted with sedge and grass species to fill in areas and get plant cover established. These areas will receive a follow-up broadcast seeding and/or planting with a more diverse species mix. Invasive plant species should continue to be monitored and controlled in the area, with a focus on the fenced islands.

The landscaping islands immediately adjacent to the 1928 Building were not addressed by fencing or revegetation efforts in this project. This building is slated for conversion into the Park's new visitor center. Since the new visitor center design and construction is pending, no efforts were made to protect the vegetation within the proposed construction zone. Revegetation and restoration in this area will be wrapped into the new visitor center construction project.

Although the Replace Rim Village Barriers project repairs trampling damage and protects vegetation in the landscaping islands within the former cafeteria parking lot footprint, there is a strong need to rehabilitate the entire Rim Village Historic District. Many years of heavy visitor use and insufficient landscape maintenance have left the cultural landscape in poor condition. Preparation of a new Rim Village Cultural Landscape Report has been proposed and, if funded, would guide a holistic effort to rehabilitate the entire Rim Village Historic District. Funding to support additional landscape

stabilization within the Rim Village Historic District is being pursued through the Cultural Cyclic Maintenance and Recreation Fee programs. The fencing design and revegetation methods used in this project may be expanded to protect and restore other areas of Rim Village, Rim Drive, and Munson Valley as appropriate.

Literature Cited

Beck, J.S., A.H. Fraser, C.S. Wyler, M.C. Frederic, and K.M. Williams. 2017. Rim Drive Rehabilitation Revegetation Project 2016 Annual Report. Crater Lake National Park, Crater Lake, Oregon.

Hudson, L.E. and E.K. Thomas. 2010. Whitebark pine restoration under way at Crater Lake: Preemptive strike against blister rust based on disease-resistant seedlings. Park Science 27(2): 68-69.

National Park Service. 2004. Cultural Landscape Inventory: Rim Village Historic District, Crater Lake National Park. National Park Service, Crater Lake National Park, Crater Lake, Oregon.

The Department of the Interior protects and manages the nation’s natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

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