White River Partnership Initial Implementation Phase
POGG1, PDAA, 202100003141

Final Report

Prepared for:
Colorado Watershed Restoration Program
Attn: Andrea Harbin Monahan

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RiversEdge West
Grant Amount: $69,190.65
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RiversEdge West
RESTORE + CONNECT + INNOVATE

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Introduction

The overall goal of this project was to improve riparian health through the removal of woody invasive plants and the establishment of healthy native plant communities along the White River and Yellow Creek in Rio Blanco County, CO. In northwest Colorado, the White River provides crucial habitat for native fish species and its riparian corridor provides habitat for elk, deer, and other terrestrial wildlife. Socially and economically, the White River is the lifeblood of Rio Blanco County's agricultural communities and growing outdoor recreation tourism. TRO are invasive plants that are establishing throughout the White River corridor, increasing the threat of wildfire, inhibiting access for recreation and grazing, and diminishing habitat for native aquatic and terrestrial wildlife

This project provides multiple benefits to White River and Yellow Creek riverscapes, communities, and public land users including

- Wildlife and pollinator habitat
- Aquatic habitat
- Floodplain connectivity
- Wildfire fuel reductions
- Agricultural use
- Recreational use
- Community engagement

This project is part of a broader collaborative effort through the White River Partnership (WRP). The WRP is a multi-stakeholder group that is committed to restoring and maintaining

healthy riparian areas along the White River in northwest Colorado and northeast Utah through collaboration among public, private, and non-profit entities. RiversEdge West (REW) coordinates the WRP. Key partners in this project are REW, Bureau of Land Management (BLM) White River Field Office (WRFO), Western Colorado Conservation Corps (WCCC), and the White River and Douglas Creek Conservation Districts (Districts).

Background

This project was identified through the planning efforts that led to the development of the White River Partnership Riparian Restoration Plan. The project sites are BLM WRFO priorities and NEPA had already been completed. The Yellow Creek site was also prioritized through the Districts' Coordinated Resource Management Plan and is supported by a neighboring landowner and the grazing permittee for the area. The broader project and planning efforts are also informed by and aim to support the following plans and studies:

- Conservation and Management Plan for Three Fish Species in Utah (2006)
- A Consolidated Woody Invasives Species Management Plan for Colorado's Colorado, Gunnison, Uncompahgre, Dolores, White, and Yampa/Green Watersheds (2008) Colorado Headwaters Invasives Partnership.
- Framework for Strategic Conservation of Desert Fishes (2015) Desert Fish Habitat Partnership.
- Land and Natural Resources Plan and Policies-Rio Blanco County, Colorado (2016)
- Rio Blanco County Noxious Weed Management Plan (2014)
- State Wildlife Action Plan (2015) Colorado Parks and Wildlife
- Tamarisk and Russian Olive Mapping (2009) RiversEdge West (then Tamarisk Coalition)
- Tamarix: A Case Study of Ecological Change in the American West
- Yampa/White/Green Basin Implementation Plan (2015)

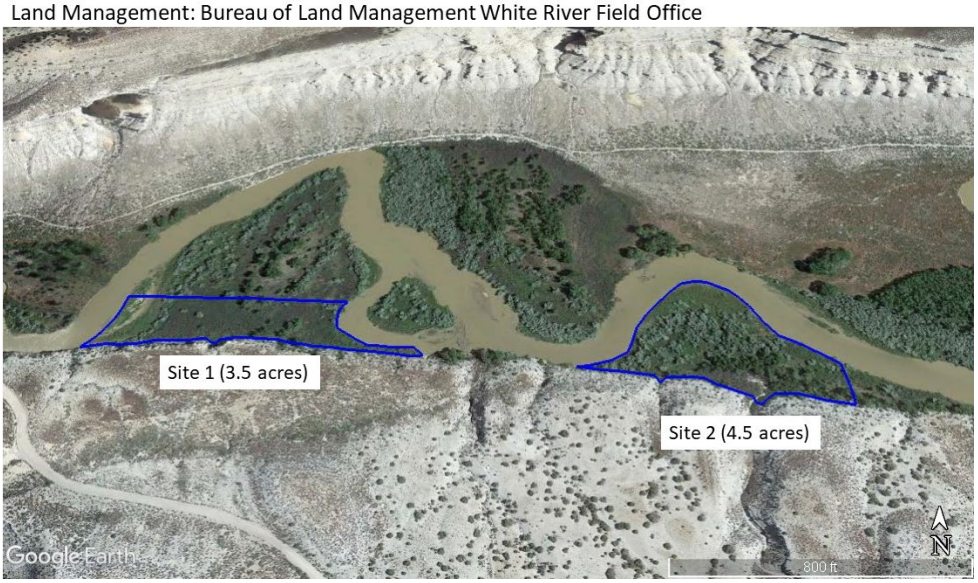
After the project started, project objectives were also informed by the Conservation, Restoration, and Monitoring Plan for the Lower White River (Pennock et al., 2022).

During this project the site names evolved from their original descriptions in the application to the site names described below.

Application Name: Sites 1 and 2

New Name: Stateline Sites

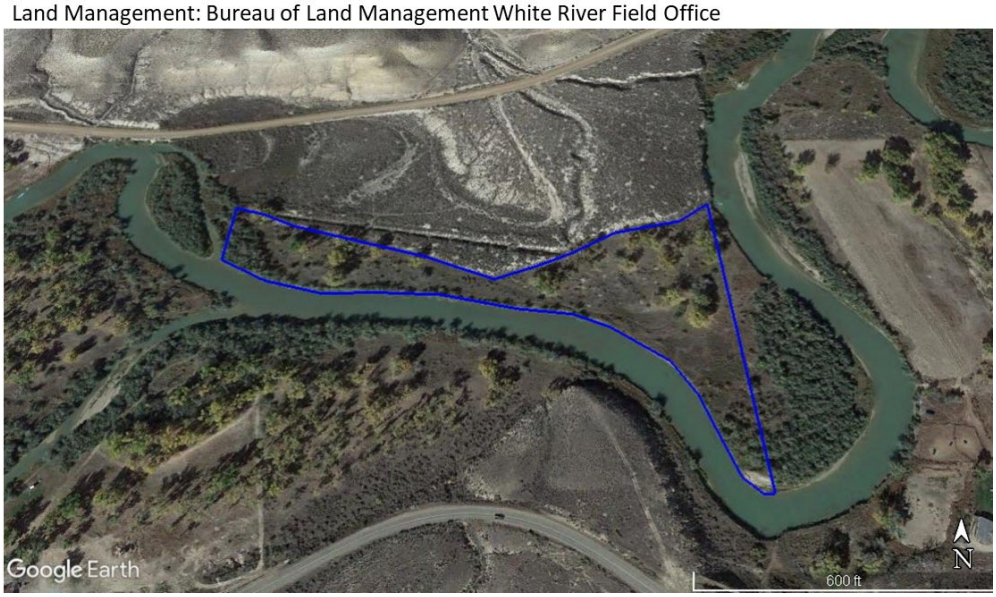
White River Sites 1 and 2: 8 acres total initial tamarisk and Russian olive treatment
Land Management: Bureau of Land Management White River Field Office



Application Name: Site 3

New Name: West of Rangely

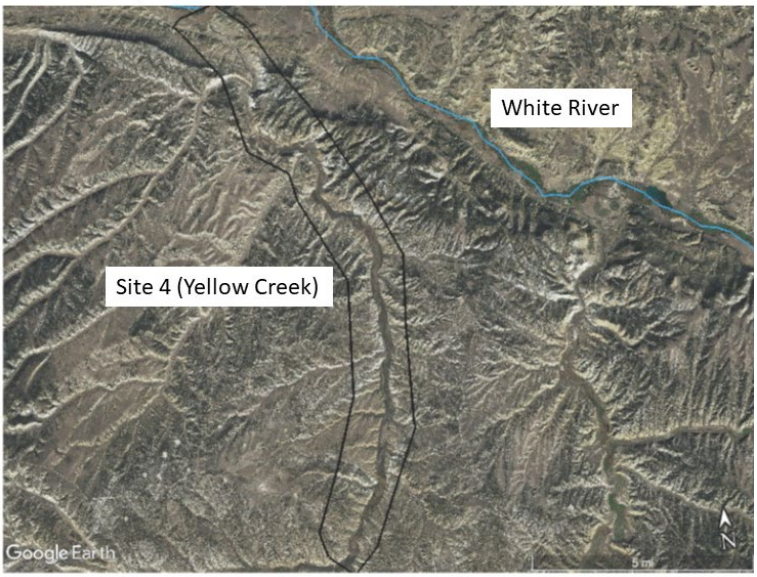
White River Site 3: 8 acres initial tamarisk and Russian olive treatment
Land Management: Bureau of Land Management White River Field Office



Application Name: Site 4 (Yellow Creek)

New Name: Yellow Creek

White River Site 4: (Yellow Creek) 25 acres initial tamarisk treatment
Land Management: Bureau of Land Management White River Field Office, Colorado Parks and Wildlife



Methods

This project was implemented in partnership between REW, BLM WRFO, WCCC, and the Districts. It came out of the White River Partnership riparian restoration planning process. Sites were identified as priorities for riparian restoration by BLM WRFO as well as the Districts Coordinated Resource Management Plan.

REW, BLM, and WRFO created site-specific plans. The restoration plans were implemented by partnering with WCCC, which provides crews and equipment for cutting and treating invasive plants. Crews cut tamarisk and Russian olive using the cut-stump method, which involves cutting the tree at ground level with a chainsaw and applying herbicide. The herbicide contains a dye to prevent accidental contamination and to track which stumps have had herbicide applied to them. Cut material is either piled or scattered depending on the site prescription. CWCB funding paid for REW staff time and travel, WCCC crews, and purchasing herbicide.

Revegetation was accomplished through planting container stock and seeding. Container stock of native plants were purchased by REW staff and planted along with BLM WRFO staff and WCCC crews. The plants were planted in islands of 4-5 which were then fenced to prevent predation, browsing, and trampling. Seeding was accomplished through a seedball event in coordination with Rio Blanco County 4H Club, Colorado Northwestern Community College, Yampatika, and BLM WRFO. CWCB paid for WCCC crews and REW staff time and travel.

Monitoring was accomplished by site visits with BLM WRFO, REW, and WCCC. Some monitoring of photopoints also was completed by Colorado Northwestern Community College. REW created a monitoring form for seedball monitoring as well. CWCB paid for REW staff time and travel.

Results

Deliverables

1) Site-level plans for each restoration site that include specific equipment and labor needs

REW led several site visits with partners (BLM, WCCC, Districts) throughout the grant timeline. During the first site visit, BLM range, fire, recreation, and wildlife biologists provided input on cutting and slash management strategies. Subsequent site visits included WCCC, Districts, and BLM WRFO staff. Each spring, partners created site-specific plans for each site for each treatment season (summer 2022, summer 2023, summer 2024).

2) Outreach event for private landowners to potentially include a site visit, webinar, or workshop

REW led a revegetation workshop on private lands in coordination with the private landowner and Colorado Northwestern Community College (CNCC) in October 2022. REW secured additional funding for this event through the Colorado Watershed Assembly's Healthy Rivers Fund.

Twenty native plants from container stock were planted on an acre of private land and 200 willow whips were planted along the riverbank by bundling them and burying them perpendicularly to the river. This workshop engaged two private landowners and two volunteers from CNCC.

The landowner has continued to maintain and monitor the site with occasional site visits from REW staff. Most of the container stock has survived, and approximately half of the riverbank pole plantings survived the first spring's high water. The other half were washed away with the rest of the bank during peak flows in spring 2022.

3) 16 acres of improved riparian land along the White River main stem

Two restoration sites are on the White River main stem, West of Rangely and Stateline sites. Between the two sites a total of 13 acres of initial invasives treatment, 10 acres of retreatment, and nine acres of revegetation were completed.

On the West of Rangely site 10 acres of initial treatment of tamarisk and Russian olive were completed by WCCC crews. These 10 acres were retreated for resprouts and regrowth in the Fall of 2023 and Spring 2024. The invasive trees were of pretty large diameter and particularly dense along the site edges that border private lands.

Nine acres were seeded with native plants at the West of Rangely site during a volunteer seedball event that REW organized in partnership with Rio Blanco County 4H, BLM WRFO,

CNCC, and Yampatika. REW secured funding for this event through the Colorado Watershed Assembly's Healthy Rivers Fund. The event is described in more detail below. The species list for the seed mix is in Appendix A.

Three acres of tamarisk and Russian olive were cut and treated at the Stateline sites. This site proved to be logistically challenging and partners decided it was more cost-effective and safer for the crews to not return to this site. The access road is privately owned and frequently washes out or requires very slow travel. Once crews arrive the site is only accessible via a very steep, loose, rocky hill that leads into very dense vegetation. Progress was very slow due to the dense vegetation and access issues. The difficult access also poses a safety risk for crews if an emergency were to arise. Possible solutions to working on this site in the future is to raft crews in or to utilize the access road on the other side of the river and ferry crewmembers across in small craft.

4) 25 acres of improved riparian land along Yellow Creek

REW, BLM WRFO, and WCCC crews planted 41 plants in groups of 4-5 which were then fenced to protect from browsing, trampling, and beaver predation. These planting clusters cover an area of 8 acres. The planting list is in Appendix A.

5) Hiring and training of conservation corps members

Approximately 45 conservation corps members were engaged in this project by partnering with WCCC. Corpsmembers are 18-25-year-old AmeriCorps members that receive money for post-secondary education in addition to a weekly stipend. Throughout their season, they learn chainsaw operation, herbicide application, wilderness first aid, and camping skills. While working on this project, they also gain knowledge on riparian and river function and ecological restoration.

6) Restoration treatment data that is available to White River partners and the public (and)

7) A record of treatment that supports adaptive management

The White River Partnership project map is available at this link (or here: https://arcg.is/1Sauvn1). The interactive map contains site, invasive plant treatment, revegetation, monitoring, photopoint, property, watershed information. It is shared with partners and linked on the WRP webpage. The revegetation, monitoring, and invasive plant treatment data provide a record of activities that support adaptive management and help reduce information loss over time and during staff turnover in partnering entities. Map updates are currently on hold since the map development and sharing software (ESRI Web App) used will no longer be supported by ESRI and will be replaced by a different app (ESRI Experience Builder).

8) A streamlined process for determining future and follow-up restoration needs

REW and partners have developed a streamlined process for determining future restoration needs. Through managing these restoration sites, REW and partners have developed a list of future projects based on

- site accessibility
- likelihood of native plant passive regrowth or likelihood of active revegetation success
- supporting community needs for recreation and agriculture
- permitting needs or permits already completed
- use of hand crews or heavy equipment based on invasive plant density and area of infestation

For determining follow-up treatment needs of current restoration sites, REW and partners conduct site visits before, during, and after treatments occur (typically early spring, mid-summer, and late fall). Site visits include REW, the land manager or landowner, and the contractor (either private contractor or conservation corps) that has been selected to complete the work. REW outreaches these site visits to invite additional interested parties to learn more about the project.

Additional Accomplishments

Funds from this award were leveraged to secure funding from the Colorado Watershed Assembly's Healthy Rivers Fund to plan and host a seedball making and throwing event in partnership with Rio Blanco County 4H, CNCC, Yampatika, and BLM WRFO. This proved to be a great community outreach event that seeded the entire West of Rangely site with native seed. It was held over two Fridays in October 2022, one day to make 1,000 seedballs and one day to disperse them on site. Over the two days approximately 40 4H and CNCC students participated in the project. 4H and CNCC staff provided the seedball making location and student transportation.

Conclusions and Discussion

Objectives and Lessons Learned

Project objectives were mostly met. Although a substantial amount of woody invasive removal and native plant revegetation occurred, total acreage of restored areas fell a little bit short of expectations. However, other objectives such as the workshop, coordination, and mapping were met successfully. Importantly, as the first project led by REW within the context of the White River Partnership this project acted as a catalyst for further partner and stakeholder engagement as well as the expansion of riparian restoration efforts in the White River watershed.

Restoration goals came up a little short due to unexpected logistical issues and the density of vegetation within the restoration sites. Roads in the area keep snow until later in the year. This was an issue at Yellow Creek. Other roads, such as the Stateline Sites access road, quickly becomes impassable due to precipitation or snowmelt. West of Rangely was the most easily accessible site, and therefore received the bulk of the restoration efforts when other sites could not be reached. The vegetation was also denser in some areas than expected. This slowed the

crews down a lot and was also demoralizing for newly trained chainsaw operators. There was also some early miscommunication between partners regarding the piling of slash material. Crews spent a lot of time making neat burn piles, but the burning of the piles is now unlikely to occur. It would be more time efficient to use lop-and-scatter methods or making multiple smaller and messier piles near cutting areas than dragging slash material further and making larger, neater piles. Another option for increasing flexibility and improving project results in the future is to identify larger and/or more potential treatment areas in grant applications and specifying that a certain area or number of areas within those larger sections will be treated. This would support adaptive management as restoration areas change over the years or seasons, access issues arise, and as partner preferences change (e.g. out of these 30 acres of riparian area identified, woody invasive removal will occur on 10 acres).

Slower productivity caused by the density of vegetation can be addressed by utilizing lop-and-scatter instead of piling for biomass management. Another option is to prioritize certain invasive species or locations within the restoration site. For example, at the Stateline Sites, tamarisk beetles were observed in large numbers so crews focused efforts on removing Russian olive with the hope that the tamarisk beetle will keep tamarisk numbers lower on that site. Once it became clear that restoration objectives would not be met at the Stateline Sites, crews prioritized removing invasive plants from native cottonwood stands to reduce fuel loads and protect native canopy cover in the event of a wildfire.

CWCB funding for the landowner workshop was helpful in gauging what is desired by landowners and partners in the White River watershed. It also planted the seed for future potential partnerships. Although only four people attended the workshop, it strengthened relationships with the landowners and provided a lot of help to a working ranch by stabilizing part of the riverbank with native plants and providing native tree cover to an additional acre of riparian land. It also taught them how to use willow bundles for future needs. It was also the first time REW partnered with CNCC staff and students which shows a lot of potential for student involvement in future planting, monitoring, and out of the classroom experience options. By leveraging the CWCB funds to host a seedball event, partnerships were developed between BLM, Yampatika, REW, 4H, and CNCC. This event was a huge success for community engagement and continued seedball monitoring shows that they are continuing to germinate and grow on the site. It also created a connection with a landowner that became a project partner on an additional restoration project.

Combined, the workshops and restoration increased the visibility of the White River Partnership and need for riparian restoration in the White River watershed, acting as a catalyst for additional restoration projects.

Monitoring and Project Maintenance

Overall project monitoring is completed by REW and BLM WRFO staff through site visits and photopoints. REW also developed a seedball monitoring protocol that is used at the West of Rangely sites. CNCC has also used the West of Rangely site for a class trip and took

photos of treatment areas. At Yellow Creek, REW is in discussions with The Nature Conservancy to develop monitoring protocols as they begin installing process-based restoration structures along the creek. At the workshop revegetation location the landowner has taken responsibility for monitoring the plantings as well as watering and maintaining them as needed. REW staff makes occasional site visits.

In 2024, in partnership with WCCC, REW adapted Dolores River Restoration Partnership (DRRP) Strike Team model to create a 3-person Strike Team conducting site maintenance across the three restoration partnerships that REW leads, the WRP, DRRP, and Desert Rivers Collaborative. This crew is employed from March through October and this year is spent 4 weeks on White River sites. They retreated the entire West of Rangely site and completed some initial treatments on Yellow Creek for two days when the road was passable. REW intends to continue this western slope Strike Team each year as it enables small amounts of project funding to be combined to create a specialized and efficient crew for site maintenance. For revegetation needs REW intends to continue to utilize volunteer and outreach events such as planting and seedball days that involve community members. Potential partners for these events include CNCC, 4H Club, and the White River Alliance.

Future Work

As mentioned above, this project was a catalyst for furthering riparian restoration in the White River watershed. Connections were established with private landowners which led to at least one current restoration project on private land. It also helped iron out methodologies for working in the area. It identified the need for heavy equipment in some areas and less dependence on hand crews, which is currently being tested on a project funded by CWCB, CRD, and BLM at the Big Trujillo boat ramp near Rangely.

This project brought the first funding and attention to riparian restoration in Yellow Creek. Since then a process-based restoration workshop was held there and there is interest from other partners in continuing vegetation management and building process-based restoration structures.

This project highlighted the importance of considering floodplain connectivity when selecting restoration sites. Projects that involve removing woody invasive species can support floodplain connectivity and reduce channelization of the river and side channels because of the root structure and density at which invasive woody plants grow.

Actual Expense Budget

	Total	CWCB Portion	Match	Match source
Task 1 Coordination				
Staff/partner time				
REW staff	$19,865.52	$9,932.76	$9,932.76	NRCS $1,750; CWA $2,000; BOR $6,182.76
expenses	$664.58	$322.89	$341.69	BOR
Task 2 Implementation				
staff/partner time				
REW	$8,172.92	$4,086.46	$4,086.46	CWA $3,600; BOR $486.46
BLM	$5,000.00	$0.00	$5,000.00	BLM
Districts	$2,970.00	$0.00	$2,970.00	Conservation Districts
expenses	$3,217.25	$1,494.70	$1,722.55	BOR
contractual expenses				
WCCC	$102,850.00	$48,025.00	$54,825.00	BOR
Task 3 Monitoring				
staff/partner time				
Rew staff	$11,200.82	$5,600.41	$5,600.41	BOR
expenses	$464.98	$464.98	$0.00	
total	$154,406.07	$69,927.20	$84,478.87	

Match Sources and Totals		In-kind	Cash - Secured	Cash - Pending	
Bureau of Reclamation (BOR)		$0.00	$69,158.87		$0.00
Bureau of Land Management (BLM)		$5,000.00	$0.00		$0.00
Colorado Watershed Assembly		$0.00	$5,600.00		$0.00
Natural Resource Conservation Service (NRC		$0.00	$1,750.00		$0.00
White River and Douglas Creek Conservatior		$2,970.00	$0.00		$0.00
Total	**$84,478.87**	$7,970.00	$76,508.87		

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Tamarisk and Russian Olive Mapping (2009) RiversEdge West (then Tamarisk Coalition)

Tamarix: A Case Study of Ecological Change in the American West (2013)

White River Partnership Riparian Restoration Plan (2021) https://riversedgewest.org/partnerships/white-river-partnership

Yampa/White/Green Basin Implementation Plan (2015) https://www.colorado.gov/pacific/sites/default/files/Yampa-WhiteBIP_Full.pdf

Appendix A: Plant and Seed Lists

Yellow Creek Plant List (41 plants total)

- 2 *Shepherdia argentea* silverleaf buffaloberry
- 8 *Ribes inerme* Whitestem gooseberry
- 15 *Rosa woodsii* Woods Rose
- 8 *Prunus virginiana* chokecherry
- 5 *Cornus sericea* Colorado red twig dogwood
- 3 *Quercus gambelii* Gambel oak

West of Rangely Seed Mix

- Baltic rush
- Nebraska sedge
- Alkali sacaton
- White sagebrush
- Western yarrow
- Lewis flax
- Scarlet globemallow
- Rocky Mountain bee plant
- Yellow bee plant
- White prairie clover
- Purple prairie clover
- Annual sunflower
- White evening primrose
- Palmer penstemon
- Skunkbush sumac
- Utah Serviceberry

Appendix B: Photos

Figure 1 Staff from Bureau of Land Management White River Field Office, RiversEdge West, White River and Douglas Creek Conservation Districts, and Western Colorado Conservation Corps discussing site plans at Yellow Creek

Figure 2 RiversEdge West staff, Colorado Northwestern Community College staff and volunteers, and landowner preparing willows for bundling and planting during the workshop

Before (above) and after (right) photos of the willow planting area. The photo on the right was taken in August 2023 and shows the growth of the willow bundles planted in October 2022, in red box.

Figure 3 Before-and-after photos of the willow bundle planting location

Figure 4 Before photo of the West of Rangely site

Figure 5 After photo of the West of Rangely site

Figure 6 Before photo of Yellow Creek with Western Colorado Conservation Corps member

Figure 7 After photo of Yellow Creek, highlights the density and size of some tamarisk trees in Yellow Creek

Figure 8 The first Western Colorado Conservation Corps crew funded by this grant on site

Figure 9 Participants at the seedball throwing day to start revegetating 10 acres at the West of Rangely site with native plants.

Figure 10 Rio Blanco County 4H students throwing seedballs at the West of Rangely site

Figure 11 The washed out road that leads to the southern Yellow Creek entrance

Figure 12 Late April snows at the Stateline Sites left the crews stranded. Roads become nearly impassable when wet

Figure 13 Crew waiting for a tow after the truck and trailer slid off the road at the northern Yellow Creek entrance

Figure 14 Dense vegetation at the Stateline Sites made progress slow

Figure 15 Focusing invasive removal on cottonwood stands at Stateline Sites

Figure 16 Cutting along the riverbank at West of Rangely

Figure 17 Low stumping a large Russian olive tree

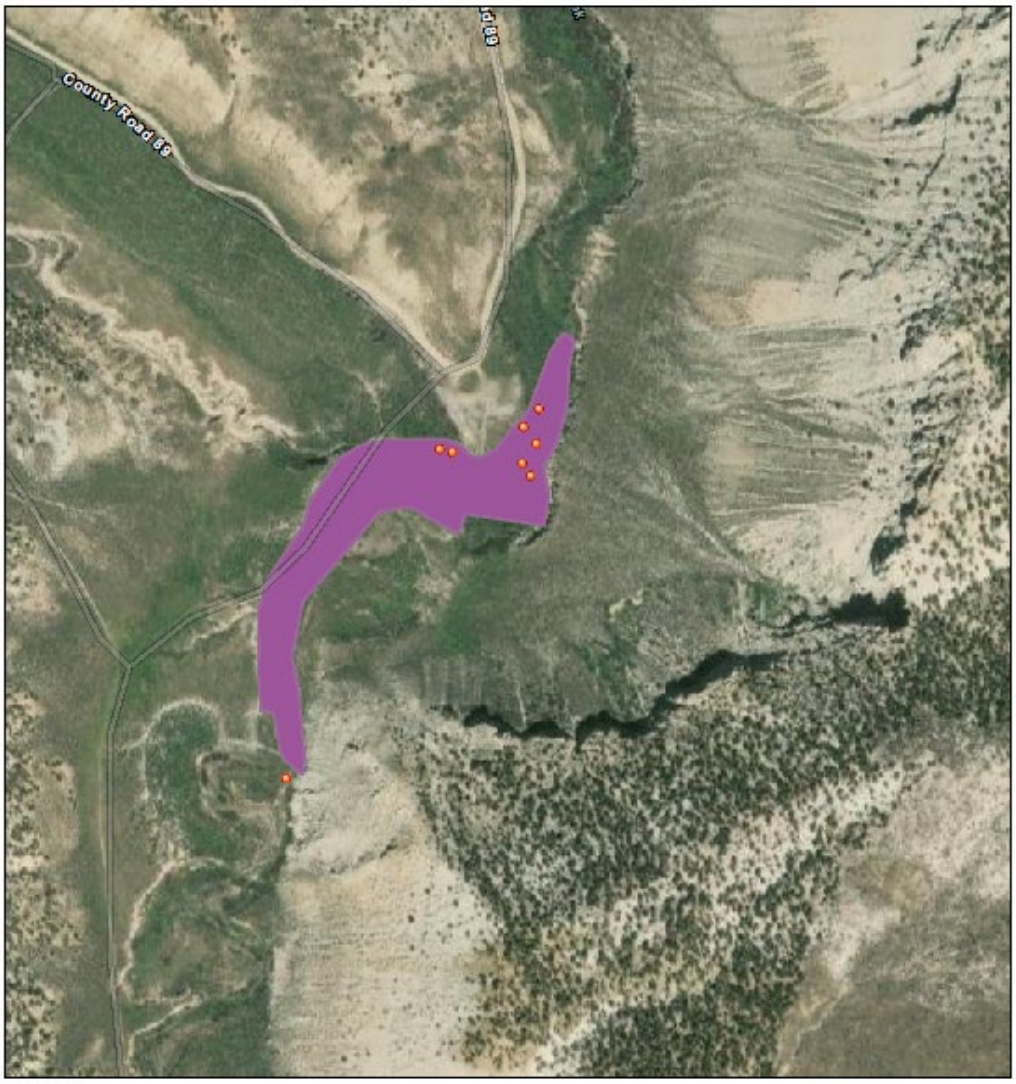
Figure 18 Yellow bee plant growing from a seedball at West of Rangely

Figure 19 Corpsmember in a rusty barrel

Figure 20 Seedballs continuing to germinate 1.5 years later

Appendix C: Maps

Yellow Creek Revegetation



6/14/2024

Yellow Creek Planting Clusters view - Planting Clusters

Revegetation

2023

World Imagery

Low Resolution 15m Imagery

High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

2.4m Resolution Metadata

1:7,091

0 0.04 0.09 0.18 mi

0 0.05 0.1 0.2 km

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Yellow Creek South Treatments

6/14/2024

Invasive Plant Treatment

2023

World Imagery

Low Resolution 15m Imagery

High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

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John Leary RiversEdge West

Stateline Sites Invasive Plant Treatment

6/14/2024

Invasive Plant Treatment

2022

World Imagery

Low Resolution 15m Imagery

High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

1.2m Resolution Metadata

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0 0.05 0.1 0.2 km

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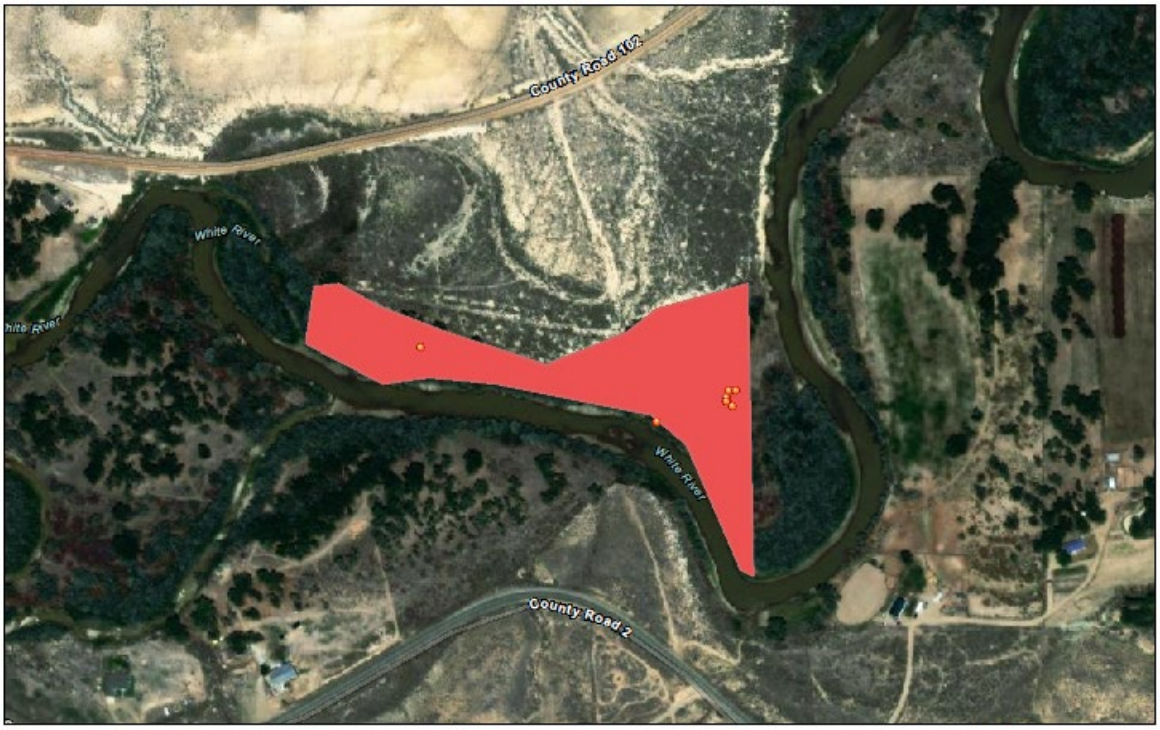
West of Rangely Revegetation



6/14/2024

Seedball monitoring view - Seedball monitoring Revegetation

2022

World Imagery

Low Resolution 15m Imagery

High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

1.2m Resolution Metadata

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0 0.05 0.1 0.2 km

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