Purgatoire River Watershed Riparian Rehabilitation Project, Phase V

Final Report

Representative Project Photos: TRO infested Purgatoire River riparian site in the Hoehne area (left) vs. same site after restoration (right-opposite direction)

Prepared for:
Colorado Watershed Restoration Program
Attn: Chris Sturm

Date: June 1st, 2025

Applicant: Spanish Peaks-Purgatoire River Conservation District (SPPRCD)
Grant Amount: $125,000
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Introduction

This project was part of a larger project that was initiated in 2004, and formalized in 2016 – The Purgatoire Watershed Weed Management Collaborative (PWWMC), focused within the Purgatoire River Watershed in Las Animas County. A major goal of PWWMC is to build ecosystem resiliency in the Purgatoire Watershed (PW) by improving riparian habitat and function through promotion of native vegetation. An imperative objective to this goal is controlling noxious plants. PWWMC thus filled the role of the noxious weed program of the Spanish Peaks-Purgatoire River Conservation District (SPPRCD), and is now housed within the District.

Background

This project was created and planned based on preliminary mapping and subsequent creation of the Purgatoire Watershed Woody Invasives Plan. The Purgatoire Watershed Plan was also utilized, as this project's goal and objectives are in tandem with the Watershed Plan. Additionally, due to the decades-long efforts of PWWMC/SPPRCD, much of the planning for this project was based upon previous project implementation throughout the watershed. This decades-long effort has put PWWMC/SPPRCD as the lead organization in noxious weed control and riparian restoration within the Purgatoire Watershed. Landowners trust and utilize PWWMC/SPPRCD as their go-to source for reclaiming their land from noxious weeds.

The goal of this project was to build ecosystem resiliency in the Purgatoire Watershed (PW) by improving riparian habitat and function.

Objectives to meet this goal were the following: 1) apply targeted IPM strategies to reduce non-native woody and secondary invasive plant species by 50%; and 2) apply BMP's to improve native vegetative cover by 20% within the project area during the project time frame.

The majority of project implementation occurred within the Hoehne and El Moro areas, northeast of Trinidad along the Purgatoire River. However, there were several treatment areas in the far-eastern part of Las Animas County within a major tributary of the Purgatoire River, Shell Canyon.

Methods

To achieve the above stated goal and objectives, the following methods were implemented in an overlapping fashion from 2020-2025. First, project managers recruited landowners and conducted site visits. During site visits, landowners were asked what their goals for their property were, what areas of their property they wanted to prioritize, and their desired outcomes for the project. Noxious weed mapping data was also collected. From this information, site specific plans were completed for every landowner. Project managers sought to recruit landowners in phases in which the properties either bordered one another, or were in close proximity to maximize ecological benefits within larger contiguous acreages.

Once plans were completed, initial mechanical biomass removal of tamarisk and Russian-olive was implemented. Jobs were advertised under a competitive bid process. When a contractor was awarded

the bid, initial mechanical tamarisk/Russian-olive removal was conducted outside of the migratory bird season, with the majority of the work taking place during the fall and winter seasons. Mechanical removal consisted of root extraction of noxious woody species and subsequent mulching of extracted trees, with residual wood chip spread to a depth of no more than three to four inches.

The following spring and summer, project managers conducted a second site visit, mapping TRO regrowth and secondary invasives. During the following fall season, another bid process for commercial applicators was undertaken and subsequent treatment of TRO regrowth and secondary invasives was implemented.

During the proceeding spring season, project partners conducted site visits to assess TRO re-growth and secondary invasives herbicide treatments. During this time, native plant recruitment was also assessed and any additional treatments were planned for.

Some project sites had extensive active revegetation completed, with over 1,645 yards of native willow plantings and 29 acres directly seeded with a native plant mix specific for those sites. On most project sites, however, passive revegetation worked well. Once the noxious woody species were removed, native riparian species naturally recruited themselves, filling in the gaps left by noxious plants. PWWC/SPPRCD also provided landowners with seed, backpack seed spreaders, and training on how to apply a native plant seed mix to their project areas.

Additionally, vegetative monitoring was conducted by a private contractor on several properties that closely represented the entirety of project sites. Monitoring data overwhelmingly showed that desired plant species were becoming more prevalent over time.

The project paid for and organized the first year's initial TRO re-growth and secondary invasive treatment by a commercial applicator. After that, landowners signed an agreement to maintain and manage re-growth and secondary invasives for 5 years beyond this. To assist landowners with this responsibility, SPPRCD provides herbicide and herbicide application technical assistance to ensure proper application for successful treatments. Additionally, landowners committed to intentionally managing their project sites for 10 years with technical assistance from PWWMC/SPPRCD.

CWCB funding was utilized in the following ways:

TRO Mechanical Removal – root extraction + mastication	$78,125.00
Commercial Applicator – TRO re-growth and secondary invasive treatments	$ 6,875.00
Herbicide for TRO re-growth and secondary invasives	$10,625.00
Vegetative Monitoring	$ 4,826.56
Revegetation - Plant Materials	$ 6,875.00
Education/Outreach: Landowner plant ID, planting, restoration guides	$ 1,857.00
Project management (wages)	$ 7,000.00

Ducks Unlimited was a major project partner. DU funded the following in the form of match for the CWCB grant

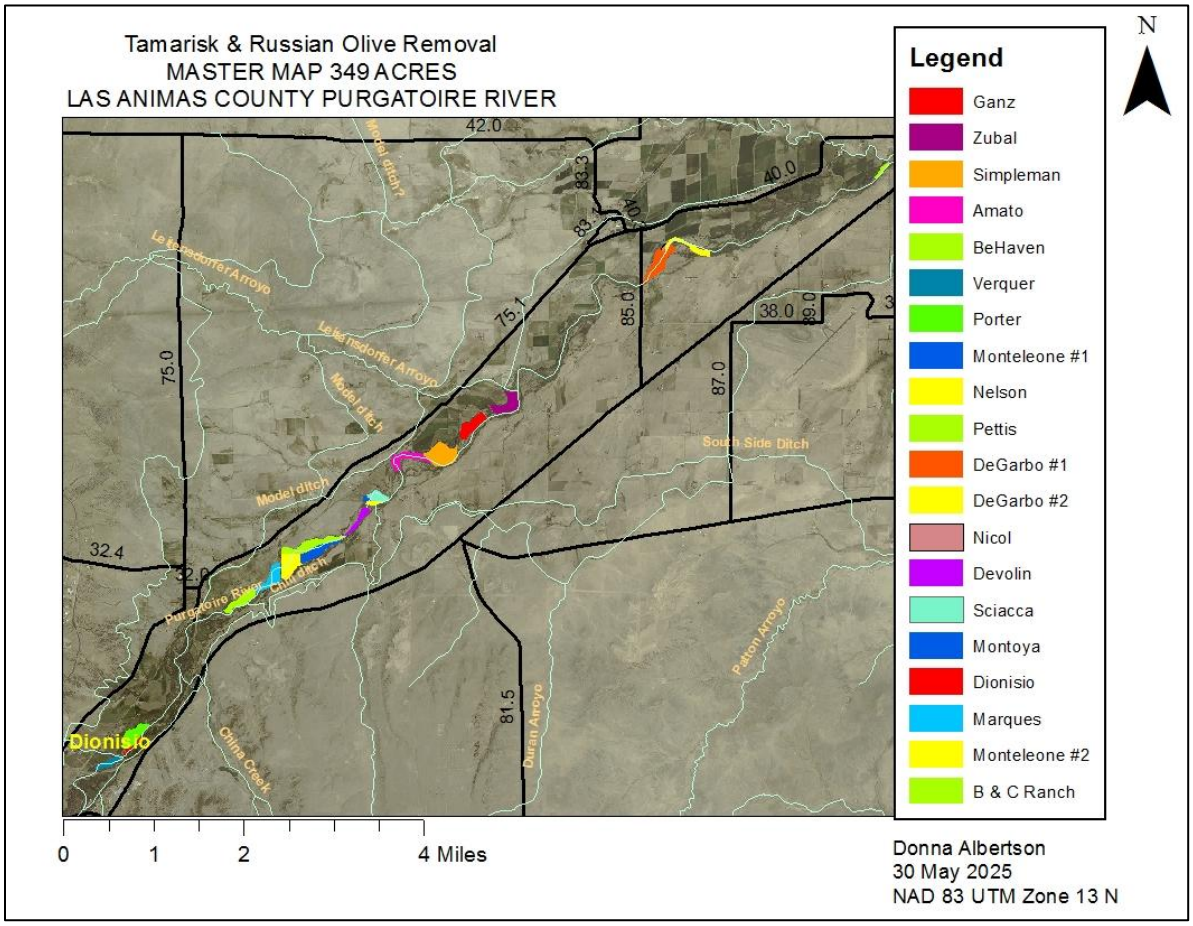
Mechanical TRO Removal – root extraction + mastication	$246,213.36
Commercial Applicator/Herbicide – TRO re-growth and secondary invasive treatments	$ 11,597.50
Revegetation – Contractors/Materials	$ 36,732.90
Project Management - Wages	$ 52,736.00
Project Management - Mileage	$ 2,720.24

Results

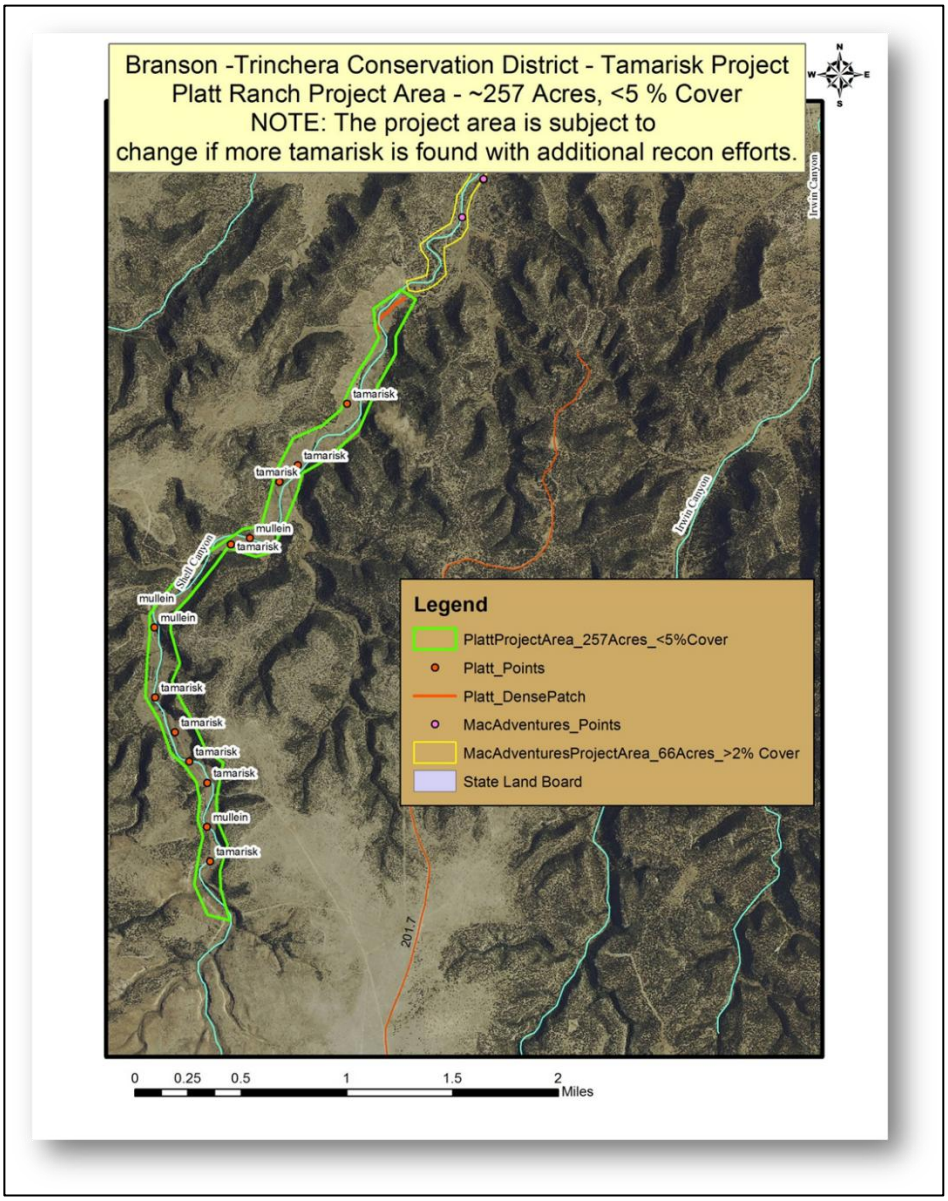
366 acres of riparian restoration was completed on 19 properties during the project period. Of this, 349 acres were treated on 17 properties in the El Moro and Hoehne areas. 17 acres were treated on two properties in Shell Canyon, a tributary in far-eastern Las Animas County. These acreages represent gross acres treated with varying amounts of infestation ranging from approximately 5% to 80%.

Of this treated acreage, vegetative monitoring was conducted on several representative sites in the Hoehne and El Moro area. Monitoring demonstrated an overall positive trend towards promotion and establishment of desirable plant species and a reduction in TRO and secondary invasives.

Project sites within the Hoehne and El Moro areas, totaling 349 acres



Project sites within the Shell Canyon, totaling 17 acres of actual treated plants



The following before and after pictures are representative of overall project areas

B&C Ranches

Conclusions and Discussion

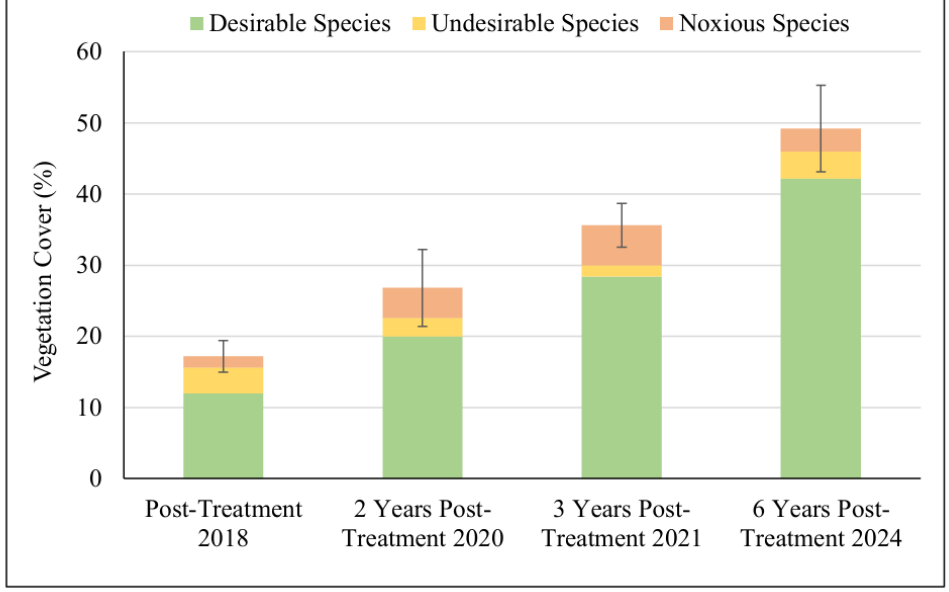
Actual project acres treated totaled 366 across 19 properties - This is 228.5 acres more than stated in the SOW (137.5).

The goal and objectives for this project were met. Our first objective for this project was to apply targeted IPM strategies to reduce non-native woody and secondary invasive plants

Our second objective was to apply BMP's to improve native vegetative cover by 20% within the project area.

Since 2018, as part of the larger project initiative, vegetative monitoring data collected by Habitat Management Inc., has demonstrated compliance with project objectives through utilization of stated IPMs and BMPs on six properties. The figure below (taken from the most recent vegetative monitoring report for the DeGarbo property in 2024) shows a dramatic increase not only in vegetative cover over the past six years, but also a positive trend in desirable species from just at 12% in 2018, to over 40% in 2024. This monitoring trend has repeated itself on all six properties over time. This property was the most challenging and degraded of all sites due to its dense infestation of initial TRO (80%+ cover) and secondary invasives, coupled with marginal native plant cover and areas of bare ground. The fact that this most challenging site has shown a substantial increase in desirable vegetation and a decrease in bare ground is telling about project implementation across all project sites.

Figure 4: Vegetation Cover 2018, 2020, 2021 & 2024



To ensure project areas are sustained over the long-term, landowners signed an agreement to maintain and manage TRO re-growth and secondary invasives for five years after initial treatments. To assist landowners with this responsibility, SPPRCD provides herbicide/herbicide application, and seed/seeding application technical assistance to ensure proper application.

Additionally, landowners committed to intentionally managing their project sites for 10 years with technical assistance from SPPRCD.

Even though our project outcomes were as expected, a key 'lesson learned' from this project is to not assume anything. People are busy; the more you can remind them and periodically check in with them about project progression or responsibilities (no matter the task), the better the outcome. Should this project continue, project managers will develop a standard protocol for project communication with partners and landowners.

Future work related to this project is the maintenance of project areas by landowners and continued technical assistance by SPPRCD. SPPRCD has a noxious weed cost share program in which landowners can sign up for on an annual basis. This will help them with ongoing costs of maintaining their project areas.

This project, and the larger project as a whole, has contributed substantially to the overall health of the Purgatoire Watershed. Since 2004 this project has enhanced over 2,300 acres of riparian area within the Watershed. This includes improving available water resources within the watershed system by removing non-native, non-beneficial water consuming plants; promotion and enhancement of native vegetation and thus native wildlife populations; protection of communities from risk of wildfire and flooding (posed by non-native invasive phreatophytes); and enhancement of agriculture by improving available water resources and promoting native vegetation.

Actual Expense Budget

The final total project cost was $246,294.95. This is $4,842.05 short of projected costs for CWCB funds. As shown below, this shortfall occurred in task 6 due to SPPRCD District Manager turnover over the past year; DM wages tied to this grant were not tracked, and thus could not be charged to the grant. Task 3 was also underspent by $174.44, as monitoring costs came in just under $5,000. Task 8 was also underspent by $17.04.

CWCB Award -	$125,000.00
Actual Invoiced -	$120,157.95
Actual Match -	$126,137.00
Total Actual Project Cost -	**$246,294.95**

Task	Description	CWCB Awarded Grant Funds	Required Matching Funds	Actual Matching Funds	Matching Partner	Previously Invoiced	FINAL Invoice	Remaining Total	Percent Complete
1	TRO Mechanical Removal	$78,125.00	$50,000.00	$81,213.60	Ducks Unlimited	$78,125.00	$0.00	$0.00	100%
2a	Commerical Applicator	$6,875.00	$3,125.00			$2,890.00	$0.00	$0.00	100%
2b	Herbicide	$10,625.00		$8,333.00	SPPRCD	$8,125.00	$6,485.00	$0.00	100%
3	Monitoring	$5,000.00				$0.00	$4,826.56	$173.44	97%
4	Revegetation - Plant Materials	$6,875.00	$3,125.00	$3,823.90	SPPRCD	$4,699.72	$2,175.28	$0.00	100%
5	Project Maintenance - LandO 5 yr TRO re-sprout tx obligation	NA	$6,250.00	$12,566.25	Land Owners				
6	Project Management/Implementation (Wages)	$15,625.00	$53,924.00	$20,200.25	Ducks Unlimited	$3,973.43	$7,000.00	$4,651.57	70%
7	Tech. Assistance	NA	$3,924.00	$0.00					
8	Education/Outreach	$1,875.00	$4,652.00	$0.00		$0.00	$1,857.96	$17.04	99%
	TOTALS	**$125,000.00**	**$125,000.00**	**$126,137.00**		**$97,813.15**	**$22,344.80**	**$4,842.05**	
Submitted by:	Shelly L. Simmons, SLS Land Management LLC						**Total Invoiced**	**$120,157.95**	

Appendix

Organizational History of Accomplishments

The creation of PWWMC (formerly Tackling Tamarisk on the Purgatoire, or TTP) was based on the realization that much of the Purgatoire River Watershed is an ecologically intact, biologically diverse system. However, the invasion of tamarisk and Russian-olive and secondary invasives have posed a great threat to this watershed system. PWWMC/SPPRCD has taken a pro-active approach for the past two decades, addressing these non-native invasive species. The partnership has been in existence since 2004 and has received over $700,000 in funding and restored over 2,300 acres of riparian corridor through the treatment of tamarisk and Russian-olive, secondary noxious weeds, and active/passive revegetation.

In the early stages of the partnership, over 800 acres of riparian corridor was restored in the Chacuaco drainage through the treatment of tamarisk. The Chacuaco is the largest tributary to the Purgatoire and arguably one of the most biologically diverse areas in Colorado. PWWMC/SPPRCD partners also completed 90% of initial control of tamarisk and Russian-olive in the upper tributaries of the Purgatoire above Trinidad Reservoir and on Trinidad State Park. Over 15 tributaries and areas around the reservoir were treated. Major funding for these project areas was provided by the CDA State Noxious Weed Fund, the SLB Noxious Weed Fund, and the PRWCD. Major partners included CSFS, TNC, SPPRCD, Trinidad State Park, and private landowners.

Between 2017-2020, over 400 acres of riparian restoration was implemented under PWWMC/SPPRCD leadership in the Hoehne and El Moro areas along the mainstem of the Purgatoire. Active revegetation was completed on four of these sites, as well as vegetative monitoring on four sites. The data showed positive vegetation trends on all sites, with higher percentages of native and desirable

plant species replacing the previously dominating tamarisk and Russian-olive. Major funding sources for these project areas included CWCB IPCP, CPW Wetlands Program, ARWC, and a CSFS State and Private Forestry grant. Major partners included PWP, CSFS, private landowners and RiversEdge West (REW). REW initially played a critical role with supporting PWWMC, most notably through their Restore Our Rivers funding campaign, which provided capacity dollars to get PWWMC up and running.

Between 2021-2025, an additional 366 acres of riparian corridor restoration has been added to this effort through CWCB's Watershed Restoration Program, coupled with major funding from Duck's Unlimited.

References

Woody Invasives Plan - A woody invasives management plan for the Purgatoire Watershed was completed in 2008, approved by the Colorado Department of Agriculture's State Weed Coordinator - http://www.tamariskcoalition.org/sites/default/files/images/TTP%20Plan%20final%208-08.pdf . The plan is based on a set of guiding principles that focus on ecological, social-cultural, economic, and research considerations.

Watershed Plan - The Purgatoire River Watershed Plan was completed in 2014 by the Purgatoire Watershed Partnership, http://www.usbr.gov/watersmart/cwmp/docs/plans/Spanish-Peaks-Purtgatoire-Conservation-District.pdf .

Las Animas County Weed Plan - Las Animas County is very active with noxious weed control, focusing mainly on County right-of-ways. They are also involved with a multi-organizational effort in conjunction with CSU Extension and the Colorado Department of Agriculture's Noxious Weed Program to eradicate African rue, a List A noxious weed. Las Animas County's weed plan and other relevant weed information can be found at http://www.lasanimascounty.net/departments/weed-control.html .

Resource Guides Utilized: Tamarisk - Best Management Practices in Colorado Watersheds by Scott Nissen; Best Management Practices for Revegetation after Tamarisk Removal by Anna Sher; A Guide for Planning Riparian Treatments in New Mexico, USDA publication.