Purgatoire River Watershed Riparian Rehabilitation Project, Phase IV
Final Report


Representative before and after treatment photos – Ganz property

Prepared for:
CWCB IPCP Grant Program
Attn: Chris Sturm and Steve Reeves

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Spanish Peaks-Purgatoire River Conservation District
Grant Amount: $100,000
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Purgatoire Watershed WEED MANAGEMENT COLLABORATIVE

Spanish Peaks-Purgatoire River Conservation District

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Introduction

Please note that all Phases of our projects are essentially the same project. Thus, much of the information contained within this final report will be similar to previous project reports. The major difference is simply that Phase IV included additional treatment areas.

The Purgatoire Phase IV project is part of a larger ongoing project to conduct riparian restoration in the Purgatoire Watershed (PW). One of the biggest threats to the PW is the encroachment of non-native invasive plants. These plants degrade the watershed by out-competing native vegetation, degrading wildlife habitat, diminishing quantity/quality of water resources, increasing flood risk, increasing wildfire risk, threatening agriculture, and threatening recreational opportunities. However, the greatest opportunity is that the PW is a relatively intact watershed and most non-native invasive plants are currently manageable within the watershed. Taking a pro-active approach and addressing non-native invasive plant species now rather than waiting until they become a much larger threat is facilitating ecosystem resiliency.

Project partners are stronger and more experienced than ever today, having secured over one million dollars in funding and working directly with over 130 private landowners through private landowner cost share/cost incentives programs managed by the Purgatoire Watershed Weed Management Collaborative (PWWMC). PWWMC is the noxious weed program of the Spanish Peaks-Purgatoire River Conservation District (SPPRCD). PWWMC programs have treated over 2,000 acres of tamarisk and Russian-olive, 350 acres of African Rue, 785 acres of Russian knapweed, over 500 acres of active land restoration, and 5,000 acres of other priority invasives.

The shared vision of the PWWMC is to maintain, protect, and improve the ecological integrity of the PW by controlling non-native invasive plant species, improving native vegetative cover and thus native wildlife habitat, increasing public awareness and support for watershed health, and ensuring long-term sustainability of watershed health through implementing landowner conservation programs focused on noxious weed mitigation and land restoration.

Background

The Purgatoire Phase IV project is simply a continuation of prior project Phases (I-III). Phase I included the complete initial treatment of tamarisk in the Chacuaco drainage (the largest tributary to the Purgatoire) and in the very upper tributaries above Trinidad Lake. Phases I did not include any active revegetation, as native vegetation in these areas was very intact in treatment areas.

Phase II included project areas from Trinidad Lake State Park to the Hwy 350/Purgatoire River intersection. Over 240 acres were treated under Phase II. Phase II also included 20 acres of active revegetation.

Phase III added additional landowners and treated approximately 245 acres.

For purposes of this report, which is Phase IV, a total of 220.7 acres were treated: 193 acres TRO biomass removal; 81 acres (within the 193 acres) initial re-sprout treatment on 2019 project sites; 27.7 acres of hand broadcast seeding and one mile of streambank willow stake plantings on three sites.

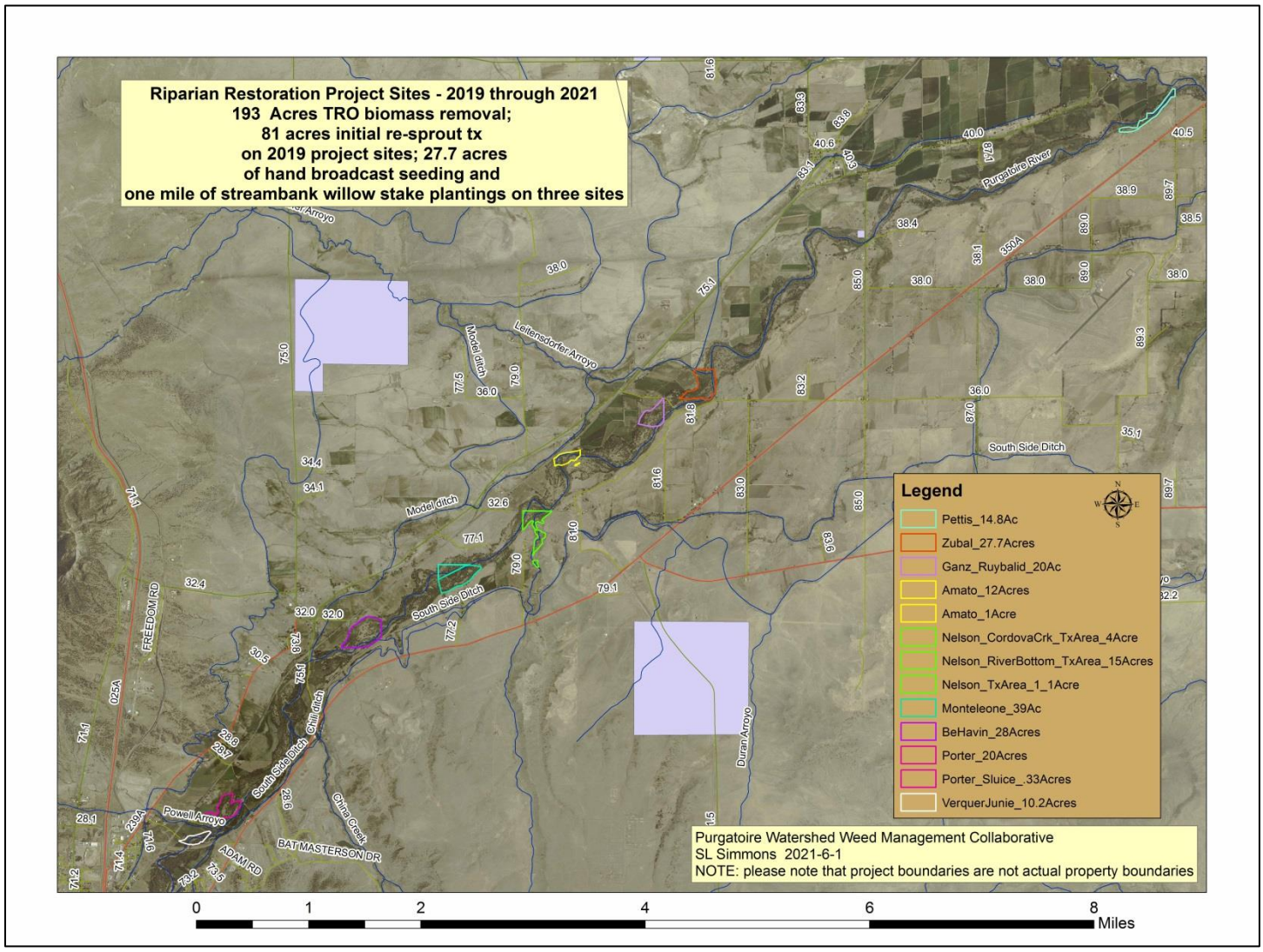
Landowner interest continues to remain strong for this program and we are continuing with this project with additional funding for Phase V.

Phase IV individual project plans relied on similar resources for development of all prior Phases. Resources utilized included: A Consolidated Woody Invasive Species Management Plan for Colorado's Purgatoire Watershed*;* Tamarisk Best Management Practices in Colorado Watersheds; Best Management Practices for Revegetation after Tamarisk Removal; and A Guide for Planning Riparian Treatments in New Mexico. Additionally, much of the biological information was derived from CPW regional employees and a Colorado Natural Heritage Program biodiversity study done in Southeastern Colorado.

Site Summary

Phase IV project sites were located on the mainstem of the Purgatoire River in the Hoehne and El Moro areas of Las Animas County. Work was primarily completed within the active and historic flood plains.

Phase IV - Overview of general project area and treatment sites (i.e. individual properties)



Long Term Project Goal Build ecosystem resiliency in the Purgatoire Watershed (PW) by improving riparian habitat and function.

Objectives to Meet Goal 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 (see vegetative monitoring reports).

Habitat Management Practices Utilizing integrated pest management and best management practices to control non-native invasive plant species and revegetate areas where native vegetation in riparian areas has been degraded by noxious weeds.

Outcomes Enhancement of available water resources within the 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); enhancement of agriculture by improving available water resources and promoting native vegetation.

Methods and Results

Project Results

A total of 220.7 acres were treated under Phase IV: 193 acres TRO biomass removal; 81 acres (within the 193 acres) initial re-sprout treatment on 2019 project sites; 27.7 acres of hand broadcast seeding and one mile of streambank willow stake plantings on three sites.

Implementation Methods (i.e. Tasks)

TASK 1 – Mechanical TRO Removal

Mechanical root extraction and mastication of TRO on project sites by private contractor.

Method/Procedure

TRO mechanical root extraction and mastication was completed on nine private properties by heavy equipment contractor.

Deliverable - Met

193 acres of TRO mechanical removal was completed (original target was 186 acres).

TASK 2 – Herbicide Treatment to TRO re-sprouts and Secondary Invasives

Initial herbicide application to TRO re-sprouts and secondary invasives by commercial applicators.

Method/Procedure

Initial TRO re-sprout and secondary invasive treatments were completed on 2019 sites by commercial applicator (four properties) in the fall of 2020 (2020 initial re-sprout/secondary treatments will be completed in the fall of 2021).

Deliverable - Met

81 acres of initial TRO re-sprout and secondary invasive herbicide application completed (within the same 193 acres of biomass removal).

TASK 3 – Vegetative Monitoring
Monitoring vegetation for a minimum of two years to assess desired project conditions are occurring (i.e. progression of desirable vegetation, decrease of woody/secondary invasives).

Method/Procedure
A contractor was hired to complete vegetative monitoring on four sites to continue to track project outcomes. Three of these sites are long-term monitoring sites (Montoya, Miller, DeGarbo), and one new site was added for 2020 (Zubal).

Additionally, photo point monitoring is ongoing on all Phase IV nine project sites by PWWMC/SPPRCD.

Deliverable – Met
See vegetative monitoring reports for Zubal, DeGarbo, Montoya, Miller; and see Appendix A for project site photo monitoring

1) Scientifically rigorous data collection, documenting vegetative progression was complete on three long-term monitoring sites and one new 2020 site (see attached reports). Data shows that all sites show positive progression towards more desirable riparian vegetation composition and decreasing invasive plant species.

2) Photo point monitoring (one year of pre and post treatments) has been completed on all nine project sites by PWWMC/SPPRCD (see attached photos)

TASK 4 – Revegetation

Description of Task
Active revegetation (if deemed necessary) at select project sites.

Method/Procedure
After TRO biomass removal and initial TRO re-sprout and secondary herbicide treatments are completed, active revegetation needs will be assessed per individual project site.

Only native plant materials will be utilized. Priority areas will focus on streambank stabilization, with planting of coyote willow in those areas. Additionally, planting of plains cottonwood in flood plain areas if sparse or even-aged stands exist, and hand broadcast seeding in areas with poor ground cover.

Timing of revegetation will vary by site. BMP's will be utilized to determine the best suited revegetation strategy for each site. Most revegetation activities will take place during the following growing season after initial herbicide treatment of TRO re-sprouts/secondary invasives, although exceptions may occur, depending upon the site.

Deliverable - Met
27.7 acres of hand broadcast seeding and 1 mile of streambank willow stake planting was completed by private contractors on three sites (Pettis, BeHavin and Monteleone).

TASK 5 – Maintenance (five years post-project)
Maintenance of individual project sites by landowners for five years after completion of initial treatments.

Method/Procedure
Landowners are required to conduct five years of project maintenance, which includes TRO and secondary invasive herbicide treatments and maintaining all areas of active revegetation.

PWWMC communicates with landowners on an annual basis regarding their responsibility for follow-up herbicide treatments and site maintenance. Landowners document their treatments and maintenance activities and provide that

documentation to PWWMC annually for five years. PWWMC also conducts site inspections during the five year period and confirms maintenance activities are implemented.

Deliverable – In Progress
Project sites are maintained by landowners for no less than five years after initial treatments are completed. In the Fall of 2020, four project sites will begin their first year maintenance activities on 81 acres, and in the Fall of 2021 the other nine landowners will begin their 5-year treatment obligation.

TASK 6 – Project Management and Implementation
PWWMC Coordinator oversaw all project management and implementation. SPPRCD District Manager oversaw fiscal grant management.

Method/Procedure
Project management/implementation included the following: Landowner recruitment, site visits (mapping and completion of individual management plans); TRO biomass removal (contractor bids, awarding of bids, contracts, contractor oversight); initial herbicide treatments to TRO re-sprouts and secondary invasives (contractor bids, awarding of bids, contracts, contractor oversight); active revegetation (plant materials procurement, contractor hiring/contract/oversight); intensive vegetative monitoring (hiring of contractor/coordination of site visits); five year landowner maintenance (annual communication, review of maintenance documentation, site visits to confirm maintenance activities).

Deliverable - Met
Completion of project management for Phase IV on nine sites: Site mapping, management plans, and all project implementation phases (i.e. biomass removal, herbicide treatments, revegetation, monitoring, and maintenance); and completion of all grant reporting and fiscal obligations.

TASK 7 – Technical Assistance – Purgatoire Watershed Partnership (PWP)
Purgatoire Watershed Partnership will provide technical assistance with restoration guidelines.

Method/Procedure
Consultation with Julie Knudson (PWP ED) regarding riparian BMP's for restoration.

Deliverable - Met
Restoration BMP's were reviewed and input provided by PWP ED for project sites.

TASK 8 – Education and Outreach
Conduct education/outreach events promoting the message of watershed health and land management.

Method/Procedure
Several educational events were conducted in coordination with this project to foster a sense of stewardship for watershed restoration, and educate land managers/landowners how to utilize maintenance/monitoring techniques. The PWWMC Coordinator help plan for and/or presented at the following: Mapping workshop – 20 land managers (AgTerra and CDA); Small acreage workshop – 30 landowners (PWP); CDOT regional noxious weed training – 35 CDOT employees (UACWMA); Trinidad Water Festival (60 students K-12); AmeriCorps riparian noxious weed training – 10 Corps members (PWP).

Deliverable - Met
70 youth and 85 adults attended educational events focused on watershed/riparian health and land management techniques. NOTE: Additional landowner workshops were planned for 2020, but did not come to fruition due to COVID lockdowns in 2020.

Conclusions and Discussion

The goals and objectives were met for this project.

Monitoring

Robust vegetative monitoring has been ongoing on the Miller, Montoya and DeGarbo properties. Phase IV added one additional property (Zubal). Monitoring will continue with Phase V on Zubal and will add at least two new sites. All robust monitoring shows positive site progression, with well over 50% reduction in noxious weed species over time, and an increase of 20%+ in desirable riparian plant species. These monitoring sites are representative of all individual project sites.

Long-Term Project Sustainability

Landowners' Responsibility - Once the initial project is completed, participants are expected to continue with annual maintenance of invasive species for five years (through signing of their project plan and agreement), and encouraged to monitor for and treat new weed infestations in perpetuity.

PWWMC/SPPRCD assists landowners during their 5-year maintenance requirement by guiding landowners through the process of weed identification and appropriate treatment options, and they also continue to conduct annual site visits during the 5-year landowner treatment period.

Lessons Learned

With every project, PWWMC/SPPRCD learns valuable lessons. During Phase IV applying the "no project is perfect" lesson from Phase III has been invaluable. As long as the goal(s) and objectives have been met and project sites are progressing in a positive direction, the project is successful.

We will be continuing to build on this project with Phase V from 2021 through 2025.

Actual Expense Budget

Total Project Cost = $264,965.21

CWCB = $100,000

Cash Match = $147,743.45

In-Kind Match = $17,221.76

MATCH TRACKING - Purgatoire River Watershed Riparian Rehabilitation Project, Phase IV

		CASH									
Task	**Description**	**Vendor/Activity**	**Date(s)**	**Invoice(s) Total**	**CWCB Allocated Funds**	**CWCB - Applied**	**Ducks Unlimited NAWCA - CASH**	**CSFS State & Private Forestry CASH**	**PWP In-Kind**	**Private LandO In-Kind**	**TOTAL Project Cost**
		Justin David Inc - TRO Mechanical Biomass Removal	3/4/2020	$ 79,785.00	$ 60,000.00	$ 60,000.00	$ 19,785.00				
1	**Mechanical TRO Removal**										$ 79,785.00
		Herbicide and Contractor - TRO re-sprout/secondary tx's	10/24/2019	$ 28,381.45	$ 10,000.00			$ 28,381.45			
		SC ES - Arant - $1,235									
		SCES - Simpleman - $845									
		Alligare - Herbicide - $16,299									
	Commercial Applicator/Herbicide -Contracted - commercial applicators @$150/hr x 80 hrs = $12,000 -Herbicide = $13,000	*Helena Agri - Herbicide ($5,148 + $4,687.45 + $167)*									
2		Herbicide - Helena Agri	11/24/2020	$ 12,609.30		$ 10,000.00	$ 2,609.30				$ 28,381.45
		Vegetative monitoring - Habitat Management	11/24/2020	$ 3,046.23	$ 6,000.00	$ 3,046.23					
	Monitoring Contracted for at least two representative properties @ $150hr x 40hrs	Vegetative monitoring - Habitat Management	6/30/2021	$ 2,953.77		$ 2,953.77					
3											$ -
		Amazon - Rice hulls for hand broadcast seeding	3/10/2020	$ 1,487.85	$ 10,000.00	$ 1,487.85					
		SPPRCD - May and October 2019 Invoices	4/30/2019 and 10/15/2019	$ 19,696.91				$ 19,696.91			
	Revegetation Contracted - 20 Acres @ $1,500/Acre	Granite Seed	3/1/2021	$ 12,629.91		$ 3,712.15	$ 12,629.91				
4		Habitat Management Inc	4/1/2021	$ 22,602.99			$ 22,602.99				$ 21,184.76
		Wildlife Habitat Nursery		$ 4,800.00		$ 4,800.00					
		Justin David Inc.	4/1/2021	$ 1,500.00			$ 1,500.00				
5	**Maintenance - Five years post project**									$ 14,721.76	$ 14,721.76
	TRO re-sprout Tx and secondary invasive Tx										
6											
	Project Management and Implementation - Salaries/Mileage				$ 14,000.00						
	PWMMC Coordinator Salary	SPPRCD - March 2020 invoice	3/10/2020	$ 1,128.00		$ 1,128.00					
		SPPRCD - July 2020 invoice	7/24/2020	$ 8,037.00		$ 8,037.00					
		SPPRCD - December, March and June 2020 invoices	12/15/2019; 3/10/20; 6/29/	$ 10,340.00			$ 10,340.00				
		SPPRCD - October 2019 Invoice	10/15/2019	$ 7,778.50				$ 7,778.50			
		SPPRCD - October 2019 Invoice	10/15/2019	$ 10,904.00			$ 10,904.00				
		SPPRCD - November 2020 Invoice	11/24/2020	$ 4,835.00		$ 4,835.00					
		SPPRCD - 2021-1-1 to 2021-3-3 Invoice	3/3/2021	$ 4,888.00			$ 4,888.00				$ 19,849.64
		SPPRCD - 2021-3-4 to 2021-4-2 Invoice	4/22/2021	$ 4,570.75			$ 4,570.75				
	PWWMC Coordinator Mileage	SPPRCD - March and June 2020 invoices	3/10/20; 6/29/20	$ 603.14			$ 603.14				
		SPPRCD - 2020-7-1 to 2020-12-31	12/30/2020	$ 1,140.69			$ 1,140.69				
		SPPRCD - 2021-1-1 to 2021-3-3	3/3/2021	$ 312.81			$ 312.81				
7	*Technical Assistance*										
8	**Education and Outreach/PR and Marketing of Project**	PWP ED - Public education volunteer events (Goathead Festival and River Clean-up events) 78.125 hrs @$32/hr							$ 2,500.00		$ -
				TOTALS	$ 100,000.00	**$ 100,000.00**	**$ 91,886.59**	**$ 55,856.86**	**$ 2,500.00**	**$ 14,721.76**	**$ 264,965.21**
							FINAL CASH MATCH	**$ 147,743.45**	**FINAL In-Kind Match**	**$ 17,221.76**	
							TOTAL MATCH (Cash + In-Kind)	**$164,965.21**			

Appendices

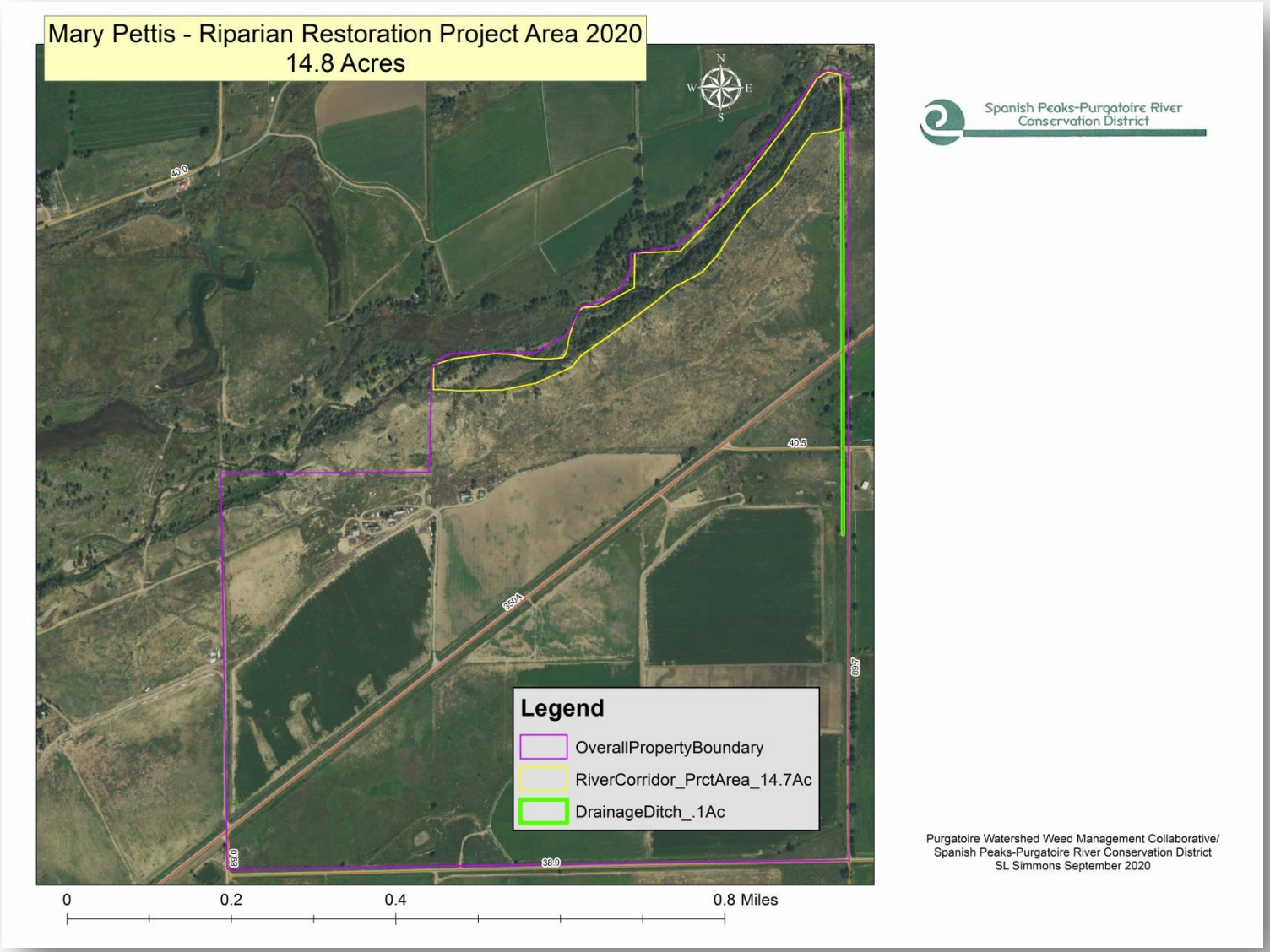
A – Project Maps
B – Project Photos

Appendix A

Project Maps

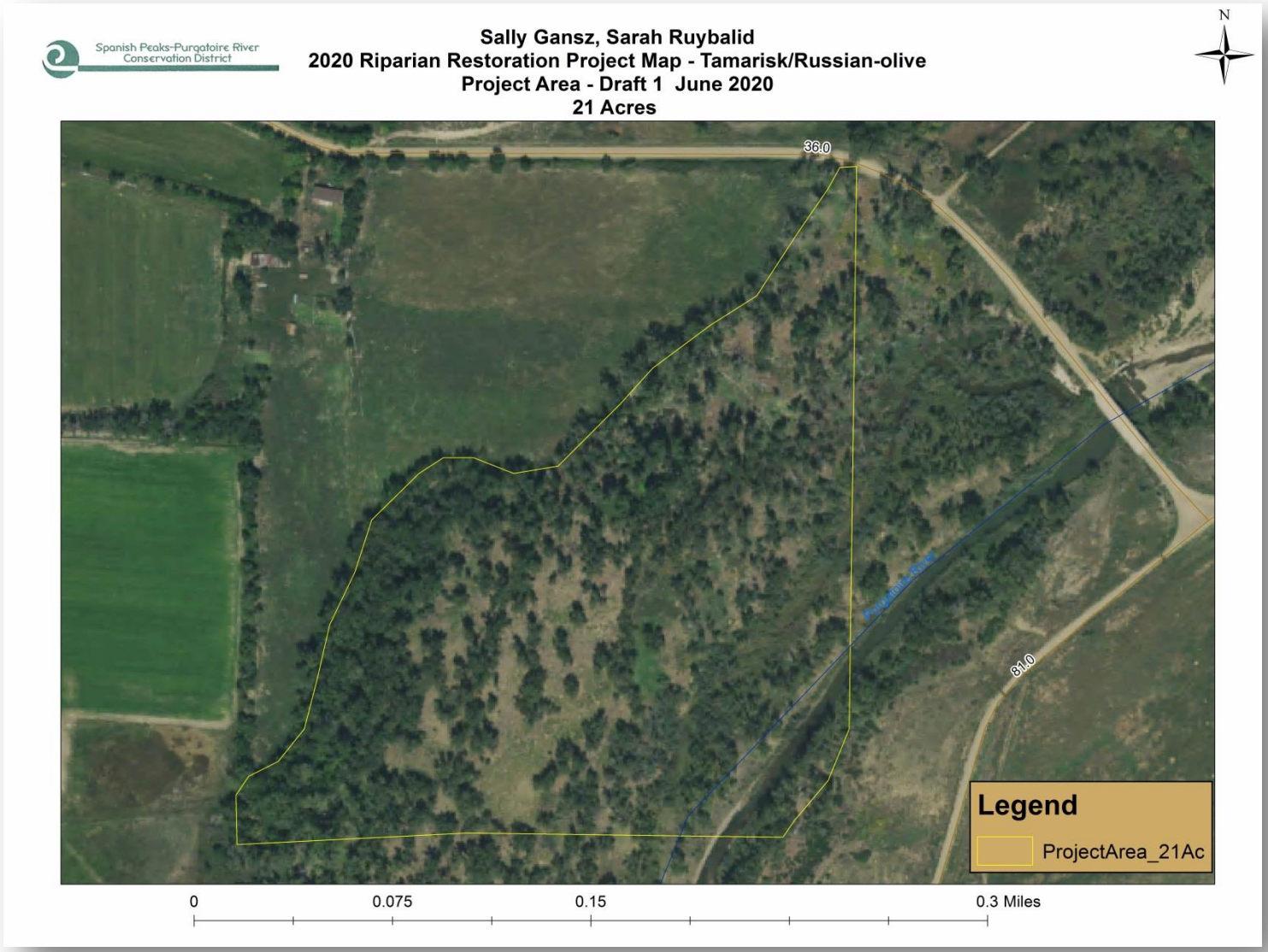
Completed TRO Biomass Removal

Pettis



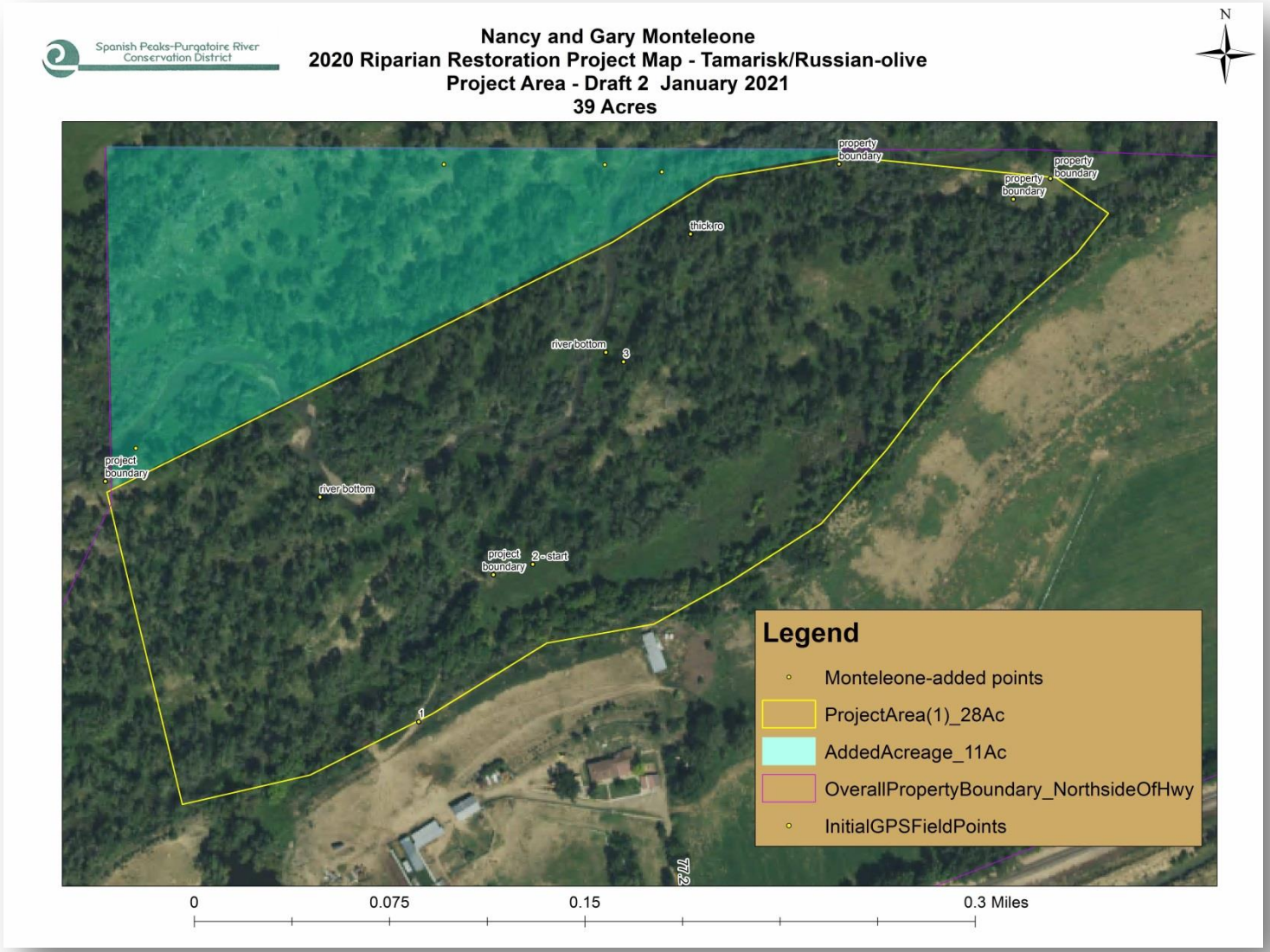
Completed TRO Biomass Removal

Gansz



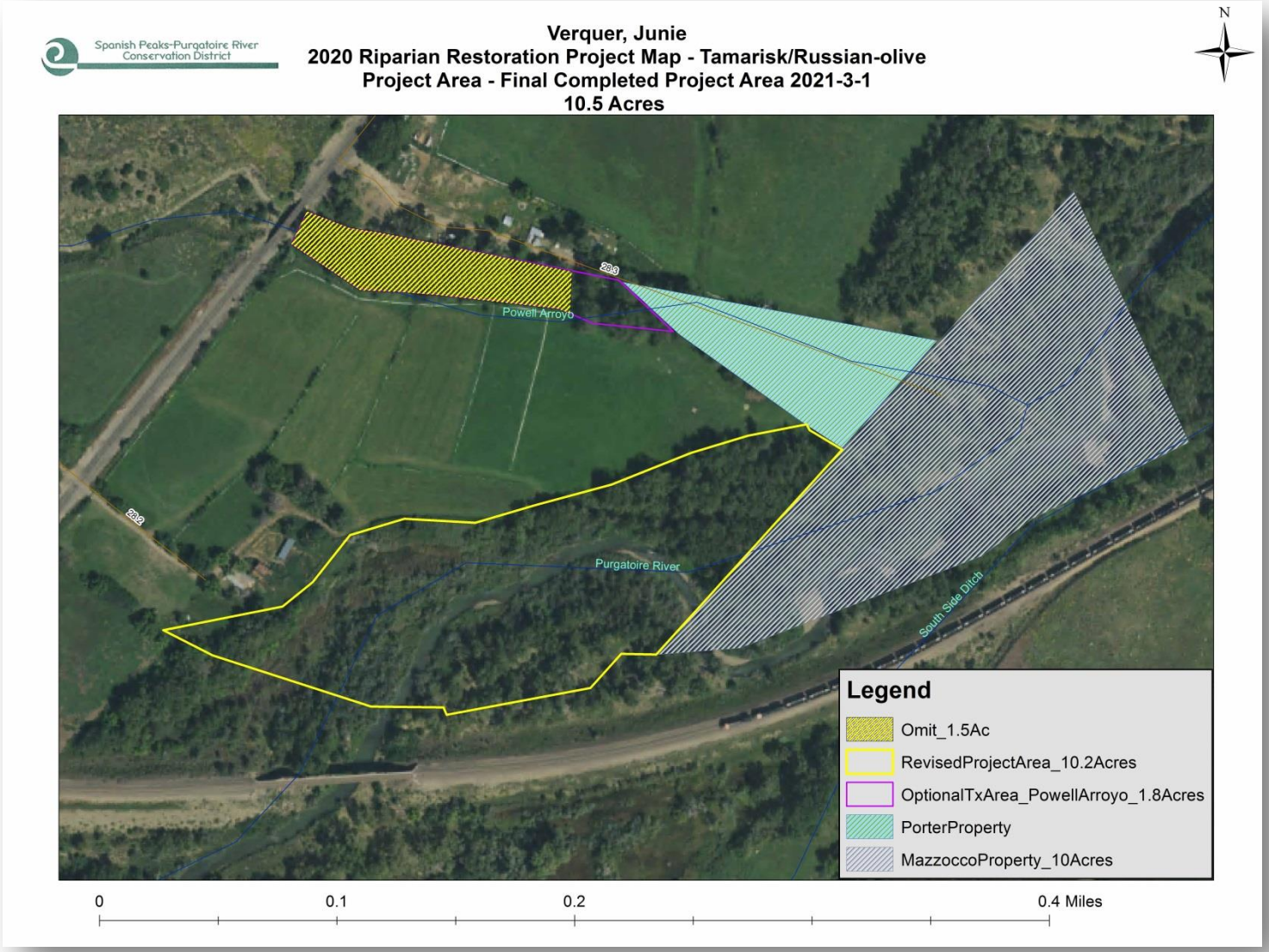
Completed TRO Biomass Removal

Monteleone



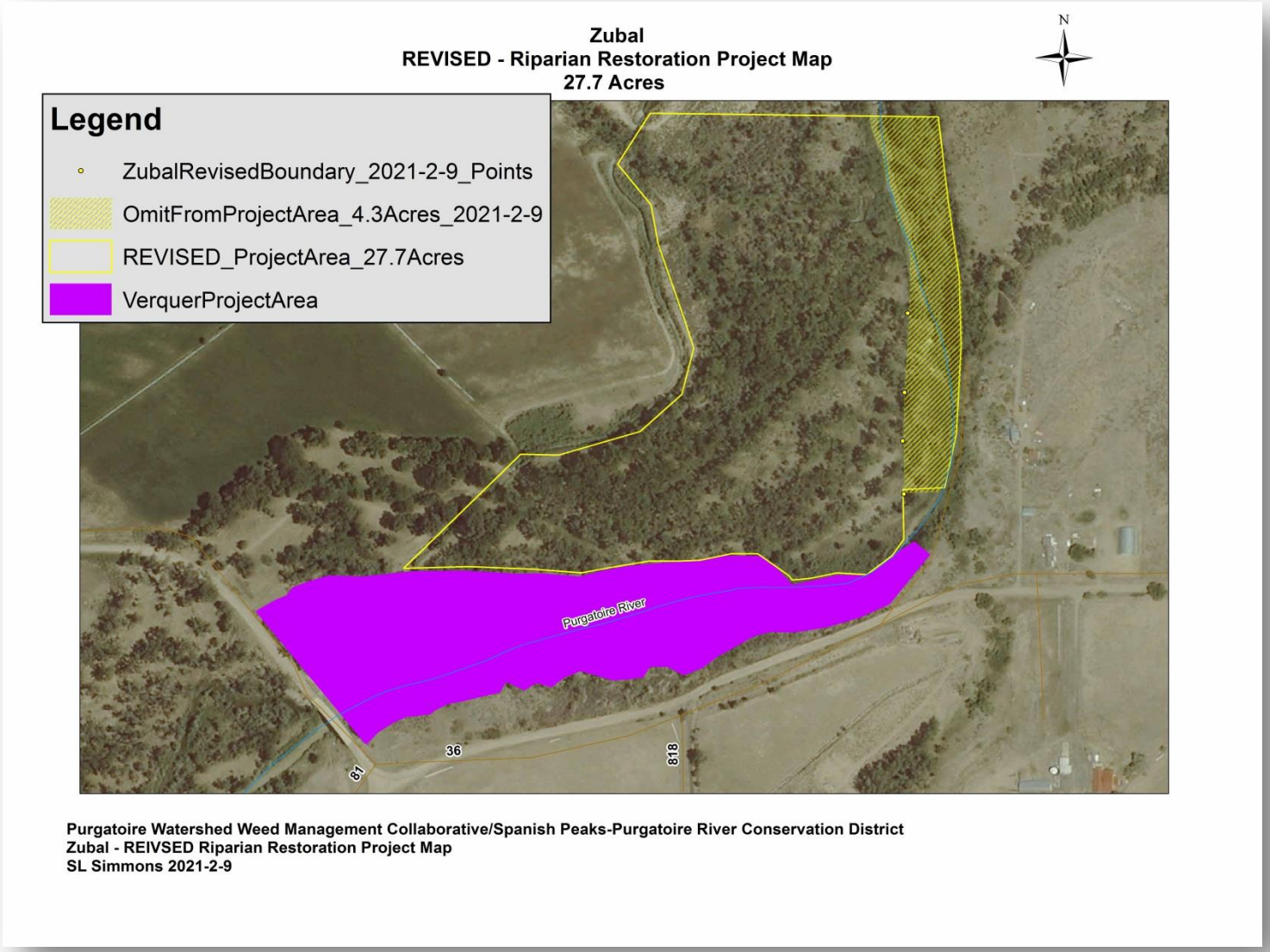
Completed TRO Biomass Removal

Verquer, Junie



Completed TRO Biomass Removal

Zubal



Appendix B

Project Photos

Pettis

Gansz

Monteleone

Verquer, Junie

Untreated – Neighboring Property ***Treated***

Zubal