Alfredo Baca Project 15.07

10-yr Post Treatment Monitoring Report – 2025

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New Mexico Forest and Watershed Restoration Institute

for the *Greater Rio Grande Watershed Alliance* and the *Coronado SWCD*

Contents

Acronyms and Abbreviations

Acronym, Abbreviation, or Term	Explanation or Definition as used by NMFWRI
BEMP	Bosque Ecosystem Monitoring Program, small rectangular plot types
CSE	Common Stand Exam
CSWCD	Coronado Soil and Conservation District
GIS	Geographic Information Systems
GRGWA	Greater Rio Grande Watershed Alliance
NMFWRI	New Mexico Forest and Watershed Restoration Institute
NMHU	New Mexico Highlands University
NMRAM	New Mexico Rapid Assessment Method, version 2.0
NRCS	Natural Resource Conservation Service
QMD	Quadratic Mean Diameter
PC	Plot center
SWCD	Soil and Water Conservation District
TPA	Trees Per Acre
USDA	United States Department of Agriculture

1 Purpose of Report

This report covers low- and high-intensity post-treatment vegetation monitoring assessments performed on a non-native phreatophyte removal project submitted on behalf of the landowner by the Coronado SWCD to the Greater Rio Grande Watershed Alliance in 2015. Following a discussion of the ecological context, and our monitoring methods, we present pertinent background, observations, and assessment results for the projects.

2 Ecological Context of Bosque Restoration

Neither the challenges nor the importance of working in the bosque and other riparian areas in New Mexico today should be underestimated. According to the New Mexico Department of Game and Fish Conservation Division, wetlands and riparian areas comprise approximately 0.6% of all land in New Mexico (2012).

Despite this small percentage, it is estimated that an average of 55% of New Mexican vertebrate species (can be higher for certain taxa) depend on wetland and riparian habitat for their survival (New Mexico Department of Game and Fish Conservation Services Division, 2012). For example, the relatively few miles of riparian habitat of the San Juan and Gila river valleys helped support up to 17% of the avian species of the entirety of North America in the past, due to their use as feeding grounds for migrating birds (Hubbard, 1971). 62% of 117 vertebrate species in the Middle Rio Grande sampled in a RMRS study were found to be vulnerable to changes in their habitat (Friggens, M. et al, 2013). These areas also provide flood mitigation, filtration of sediment and pollutants, and water for a variety of purposes including groundwater recharge (Patten, 1998). In addition, native vegetation, such as cottonwood forests, holds cultural significance to many communities. As much as these areas are disproportionately important to ecosystems and human communities, they are equally disproportionately impacted by disturbance. Anthropogenic impacts with major consequences for our riparian areas include dams, reservoirs, levees, channelization, acequias and ditches, jetty jacks, riprap and Gabion baskets, urbanization, removal of native phreatophytes, grazing by domestic livestock, excessive grazing pressure by native ungulate populations absent natural predation cycles, beaver removal, logging, mining, recreation, transportation, introduction and spread of invasive exotic species, groundwater extraction, altered fire and flood regimes drought and climate change. (Committee on Riparian Zone Functioning and Strategies for Management, et al., 2002). Approximately 39% of our remaining perennial stream miles are impaired (New Mexico Department of Game and Fish Conservation Services Division, 2012).

New Mexico is fortunate enough to have the Middle Rio Grande Bosque, the largest remaining bosque in the Southwest (USDA USFS, 1996). However, over the past two decades, the number of fires in the bosque has been increasing. Historically, the primary disturbance regime in the bosque has been flooding, not fire, which means the system is not fire-adapted. In fact, native species like cottonwood resprout from their roots after floods and need wet soils to germinate from seed. Flooding also promotes decomposition of organic material and keeps the soil moist, which reduces the likelihood of fire. Today, overbank flow is uncommon in many areas of the Rio Grande due to the heavy alteration of the channel and flow regimes (two obvious examples are the structures defining the upper and lower extent of the Middle Rio Grande: Cochiti Dam and Elephant Butte Reservoir). This has led to low fuel moisture content and high fuel loads, as well as increased human presence in the riparian area. As a result, bosque fires are more common and more severe: they kill cottonwoods and other native species, creating spaces which are filled by non-native species such as salt cedar, Russian olive, Siberian elm, and Tree-of-Heaven.

Efforts geared toward the removal of these nonnative species can help to reduce fire risk, preserve native vegetation, and be part of a larger effort to restore the bosque and the watershed to a more natural and functional ecosystem. The Greater Rio Grande Watershed Alliance (GRGWA) has been working on these issues with a variety of collaborating organizations and agencies within the Rio Grande basin for several years. Since 2013, the New Mexico Forest and Watershed Restoration Institute (NMFWRI) has been working with GRGWA and the Claunch-Pinto Soil and Water Conservation District (SWCD) to begin construction of a geodatabase for all of GRGWA's non-native phreatophyte removal projects as well as to perform the formal pre- and post-treatment monitoring, utilizing the field methods explained below as well as LIDAR analysis where appropriate and available.

3 Monitoring and Field Methods

3.1 Low intensity Field Methods – Adapted NMRAM

Low intensity pre-treatment vegetation monitoring was conducted using an adapted version of the biotic portion of the New Mexico Rapid Assessment Method (NMRAM), v 2.1, updating recommendations made in the Field Manual for Greater Rio Grande Watershed Alliance (GRGWA) Riparian Restoration Effectiveness Monitoring and the GRGWA Monitoring Plan, developed by Lightfoot & Stropki of SWCA Environmental Consultants in 2012.

NMRAM was developed by the New Mexico Environment Department Surface Water Quality Bureau Wetlands Program and Natural Heritage New Mexico as a "cost effective, yet consistent and meaningful tool" (Muldavin E. B., 2011) for wetland ecological condition assessment in terms of anthropogenic disturbance as negatively correlated with quality and functionality. The portions of NMRAM we utilized are Level 2 "semi-quantitative" field measurements taken at less detail than plot level (Muldavin E. B., 2011).

Measurements taken included relative native plant community composition, vegetation horizontal patch structure, vegetation vertical structure, native riparian tree regeneration, and invasive exotic plant species cover. The underlying method for these biotic assessments was a version of the 1984 Hink and Ohmart vertical structure classification system, modified for use in the NMRAM for Montane Riverine Wetlands version 2.0 (see Appendix I). First, vegetation communities were mapped out by patch (polygon) according to the Hink and Ohmart system. Next, the presence of invasives, wetland species, and the two dominant species in each vertical stratum ("tree" >15 ft, "shrub" 4.5-15 ft, and "herbaceous" <4.5 ft) were recorded for each plant community. The native/exotic ratio in each of the patches was scored and weighted based on the percent of the project area each patch comprised. These scores were then combined with the additional biotic metrics of vertical and horizontal diversity, native tree regeneration, and overall (listed) invasive presence. The NMRAM rating system is based, at all levels, on a scale of 1 to 4, where 4 is considered excellent condition, 3 good, 2 fair, and 1 poor.

We also assessed soil surface condition, which is a metric typically included in the abiotic section of the NMRAM, as well as the presence of surface fuels, which is not part of the NMRAM. Unlike the other 6 metrics we used, surface fuels were recorded on a rating scale from 0 to 1.0 where 1.0 is a continuous fuel matrix.

Prior to entering the field, we created maps with the project boundaries as provided by GRGWA. We combined these polygons with recent aerial imagery and identified relevant roads and other landscape features. Once on the ground, the vegetation community polygons (as determined by the modified Hink and Ohmart classification system) were hand-drawn onto this map and served as the basis for other biotic metric assessments. Upon returning to the office, this polygon map and the photo points were digitized by the monitoring technician and/or specialist. All of the adapted NMRAM methods were collected for both pre- and post-treatment.

3.2 Low intensity Field Methods – Photo Points

Photo points were established to capture images where vegetation shifts were observed and/or at representative locations throughout the site. Waypoints were marked with a GPS unit and named sequentially by site. Photos were taken facing north, east, south, and west at each point. Information about the photo points was collected according to the methods laid out in David Lightfoot's Forest Thinning Project Repeat Photo Points for Restoration Effectiveness Monitoring (David Lightfoot, 2014). Photo points were collected for both pre- and post-treatment.

3.3 High-intensity Field Methods – CSE Plots

For post-treatment monitoring, we added additional riparian-adapted Common Stand Exams (CSE). CSE plot locations are synonymous with pre-treatment photo point locations where possible; in some cases, additional plots are established to reach the target sampling density. Once the plot location was determined, a 1/100- and 1/10-acre radius plot was established by placing pin-flags at 11' 9" and 37' 3" from the plot center in each cardinal direction. Photos were taken from plot center in each cardinal direction and from 75' north of plot center toward plot center. Ocular estimates were made of understory aerial and ground cover within the 1/10-acre plot. Overstory canopy cover was estimated using a concave spherical densiometer, with measurements made in four cardinal directions, at the edge of the 1/100-acre plot. This method provides an estimate of canopy cover for a 1/10-acre area centered on the plot. A Hink & Ohmart and modified Hink & Ohmart structure class was determined for the 1/10th acre plot. Finally, all plant species observed within the 1/10th-acre area with over 1% cover were recorded, as were other comments regarding conditions at the plot.

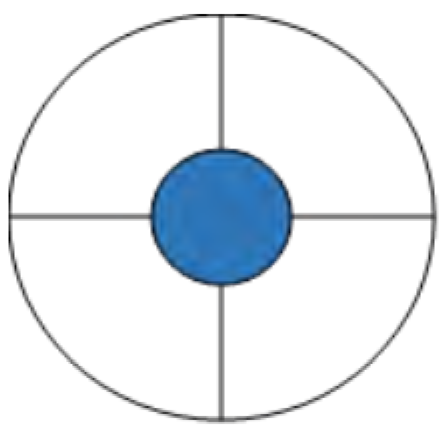

Figure 1: Example of CSE plot layout. The outer circle represents the 1/10-acre plot and the blue circle is the 1/100-acre plot.

3.4 Disclaimer

NMFWRI provides this report and the data collected with the disclaimer that the information contained in these data is dynamic and may change over time. The data are not better than the original sources from which they were derived. It is the responsibility of the data user to use the data appropriately and within the limitations of monitoring data in general, and these data in particular. NMFWRI gives no warranty, expressed or implied, as to the accuracy, reliability, or completeness of these data. These data and related graphics are not legal documents and are not intended to be used as such. This includes but is not limited to using these data as the primary basis for the development of thinning prescriptions or timber sales. NMFWRI shall not be held liable for improper or incorrect use of the data described and/or contained in this report.

Analysis was also done according to our standard protocols. Note that the values reported in the tables are expressed on a per acre basis but represent only areas sampled. We do not scale up these values to calculate volume of wood over the project area and warn readers of this report that they are not intended for that purpose. The accompanying tables show summaries of our data, and some differences are discussed below; however, differences that seem apparent here may not stand up to rigorous statistical tests. For some estimates, the standard deviation exceeds the mean (i.e., the coefficient of variation is greater than 100 percent), and sampling errors for some estimates exceed 100 percent. Therefore, data should be used and results interpreted with appropriate caution.

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3.6 Personnel Involved

2015 New Mexico Forest and Watershed Restoration Institute Monitoring Team:

- Kathryn R Mahan, Ecological Monitoring Specialist

2015 New Mexico Forest and Watershed Restoration Institute GIS Team:

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2021 New Mexico Forest and Watershed Restoration Institute GIS Team:

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- Emily Yannayon, Monitoring Specialist

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- Patrick Clay Goetsch, Crew Lead
- Abigail Han, Monitoring Specialist
- Vincent Vispo, Assistant Crew Lead

Other persons contacted:

- Lynn D. Montgomery, Coronado SWCD
- Fred Rossbach, Field Coordinator, Greater Rio Grande Watershed Alliance

4 Ecological Context: 15.07 Alfredo Baca

The project 15-07 is located on the property of Alfredo Baca near the community of Algodones, NM.

Algodones receives an average of 7.6 inches of rain annually. Temperatures range from an average high of 94 degrees Fahrenheit in July to an average low of 19 degrees in January (City Stats, 2016). According to the NRCS Web Soil Survey, the project area is 96% Peralta clay loam and 4% trail loamy sand. Similarly, the Web Soil Survey has categorized the project area as 96% R042XA055NM Salty Bottomland and 4% R042XA057NM Bottomland. (USDA NRCS, 2013)

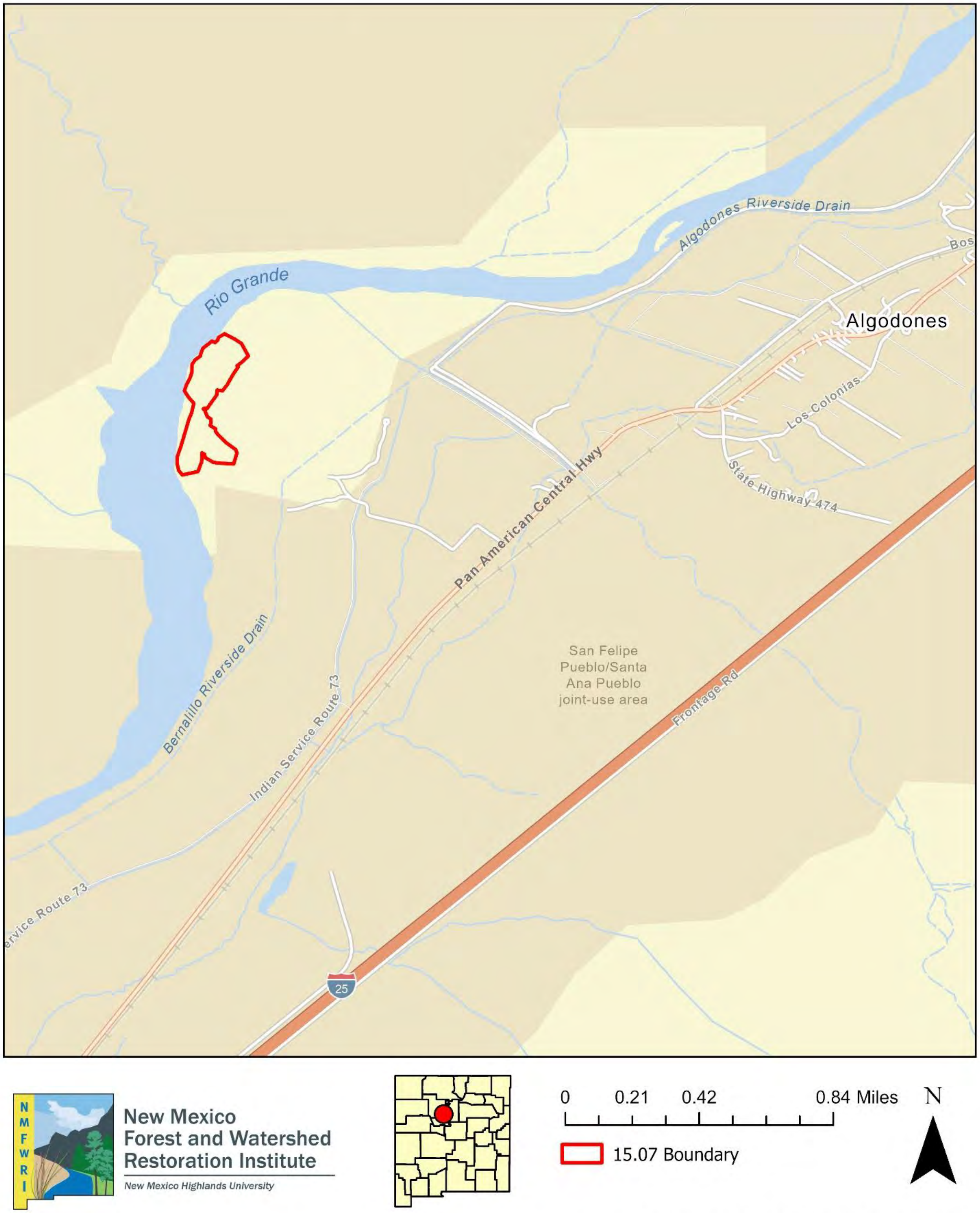
Salty Bottomland can support a range of plant communities which typically include cottonwood, tamarisk, mixed exotics (dominated by Russian olive/ Russian knapweed/ etc), saltgrass and saltgrass-sacaton, and bottomland grassland (possibly dominated by saltgrass, giant sacaton, dropseed, muhly, burrograss, alkali sacaton, galleta, vinemesquite, and/or tobosa) (USDA NRCS).

5 Project History: 15.07 Alfredo Baca

Monitoring was conducted at this 24.4 -acre project site on August 24, 2015 as part of a restoration project targeting non-native phreatophytes scheduled for 2015-2016. Post-treatment monitoring occurred remotely in April of 2022 due to time constraints keeping the crew from visiting the site. Remote monitoring included the use of LiDAR and NAIP imagery along with eCognition software to classify vegetation. The project is located east of the Rio Grande in the Angostura Grant near the community of Algodones in Sandoval County, NM (see Figure 1 below). 10-year post-treatment monitoring was conducted in December of 2026 and included both low-intensity NMRAM evaluation and, for the first time on the project site, intensive riparian-adjusted CSE plots. The project was sponsored by the Coronado SWCD. Planned treatment includes removal of Siberian elms, Russian olives and salt cedar of various sizes. Restoration goals are to reduce the fire hazard, continue landowner nonnative phreatophyte removal efforts, promote and preserving existing native vegetation and restore the riparian area to a more natural condition.

This site is part of Mr. Baca's family land. The predominant land use on the property is as pasture for both horses and cattle; there are some visible impacts of the grazing on the landscape, including sparse presence of pasture grass. The landowner's stewardship has resulted in over 100 acres of nonnative phreatophyte removal and control efforts, and he has worked with the NRCS to develop a Conservation Management Plan for his approximately 250 acres. The landowner's extensive work on the property has resulted in an open, park-like feel in some areas, but the area outlined for treatment as project 15-07 is relatively dense.

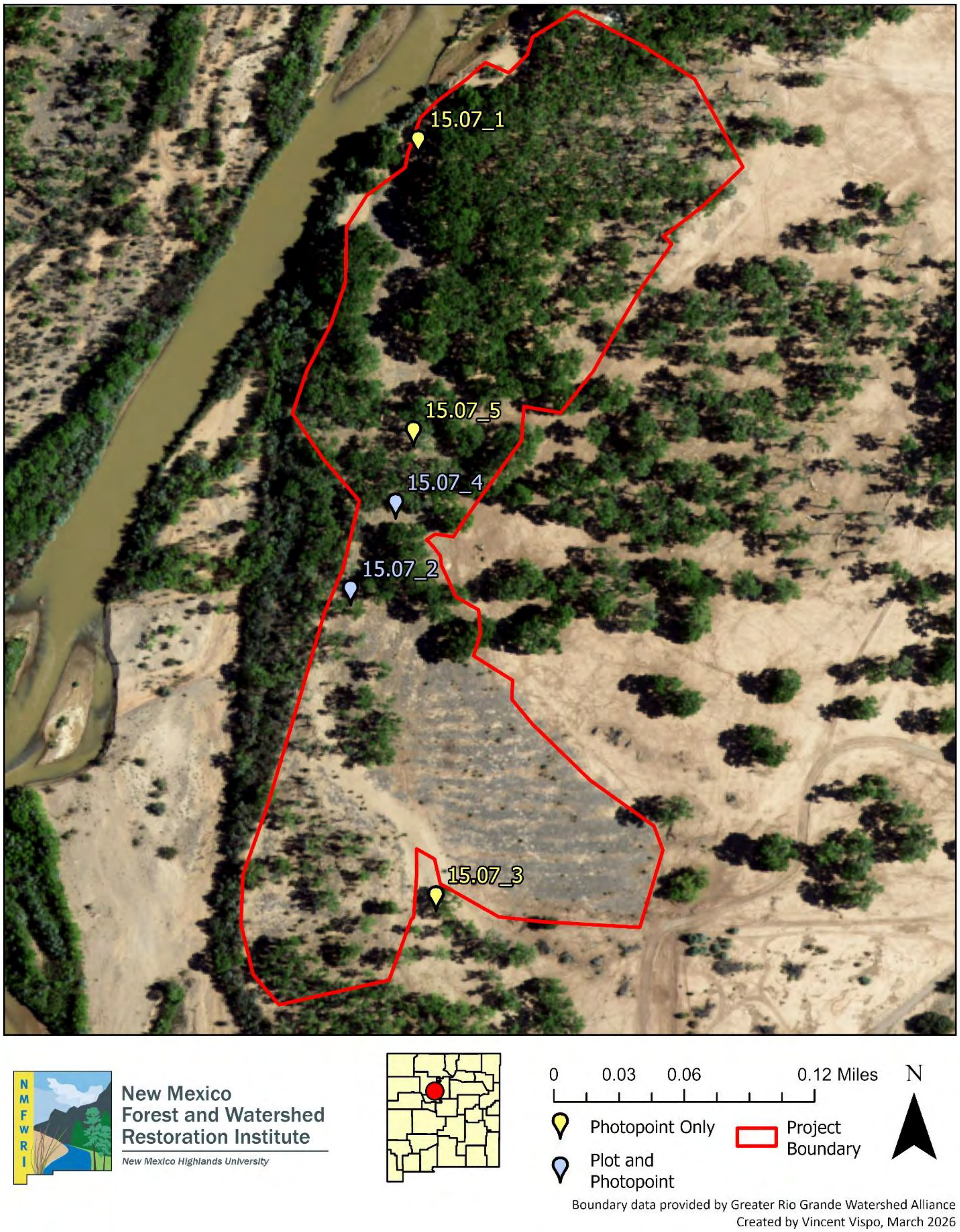
Project 15.07 Location



Boundary data provided by Greater Rio Grande Watershed Alliance
Created by Vincent Vispo, March 2026

Map 1: Project 15.07 location.

Project 15.07 Plots



Map 2: Project 15.07 plot and photopoint locations.

6 Monitoring Results

6.1 Low-intensity Adapted NMRAM

As described above, the NMRAM uses a series of assessments of assign a score between 1-4 (where 1= Poor and 4 = Excellent) for the following metrics:

Metrics 15.07	Pre-treatment 9-8-2015	5-year Post-treatment (remotely sensed 2020)	10-year Post-treatment 1-29-2026
Relative Native Plant Community Composition	1	NA	2
Vegetation Horizontal Patch Structure	3	2	2
Vegetation Vertical Structure	1	1	1
Native Riparian Tree Regeneration	2	NA	1
Exotic Invasive Plant Species Cover	1	NA	1
Project Biotic Score (based on above ratings)	1.5	NA	1.5
Project Biotic Rating	D/Poor	NA	D / Poor
Soil Surface Condition	3	NA	3
Surface Fuels	0.8	NA	0.7

Table 1. NMRAM Scores for 15.07.

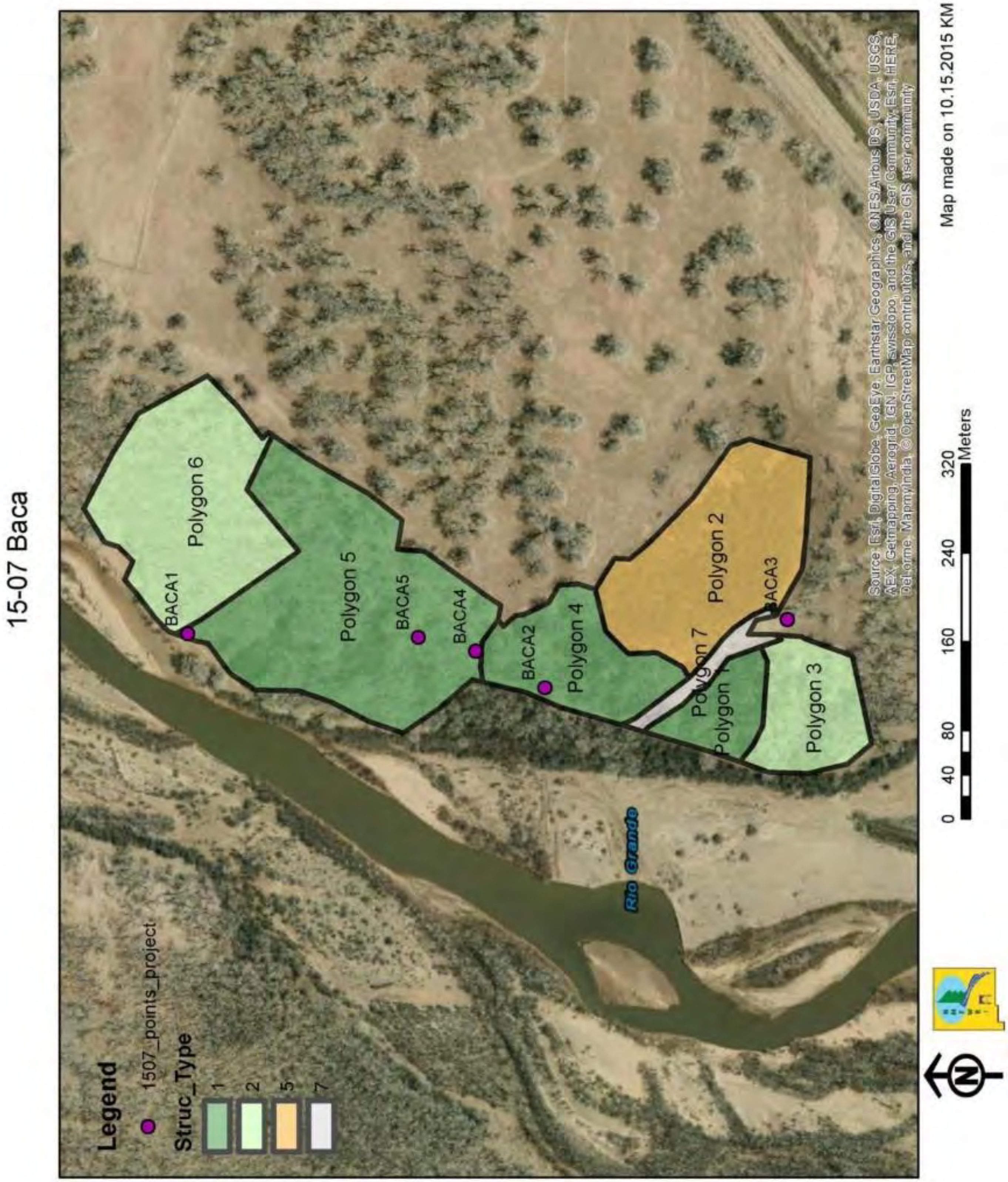
The overall condition of the 15.07 project site was assessed as “Poor” during both pre- and post-treatment monitoring, although the exact scores contributing to this rating changed slightly. Monitoring in 2020 was conducted using LIDAR, which allowed for those metrics dealing with structure to be estimated remotely, but not those related to plant species.

Between 2015 and 2026 the Relative Native Plant Community score improved from “Poor” to “Fair.” This metric reflects the prevalence of native species within the plant communities and is weighted to give greater importance to species in the highest stratum of the community. Trees are the most important where they exist; if there are no trees, the community score is determined by the shrubs present and if there are no trees or shrubs, the score is determined by the herbaceous layer. The main difference between monitoring was the removal of invasive species from the intermediate community layer. In both years the understory was composed of almost entirely non-native species (Russian thistle, *Salsola tragus*, in 2026 and Russian thistle and nightshade, *Solanum sp.*, in 2015), while the overstory was dominated by Rio Grande cottonwood (*Populus deltoides* ssp. *wislizeni*). However, while Russian olive (*Elaeagnus angustifolia*), salt cedar (*Tamarix ramosissima*), and Siberian elm (*Ulmus pumila*) were present in the intermediate strata of plant communities comprising 97% of the project area in 2015, only Russian olive was seen in 2026 and this in a community covering 13.4% of the project.

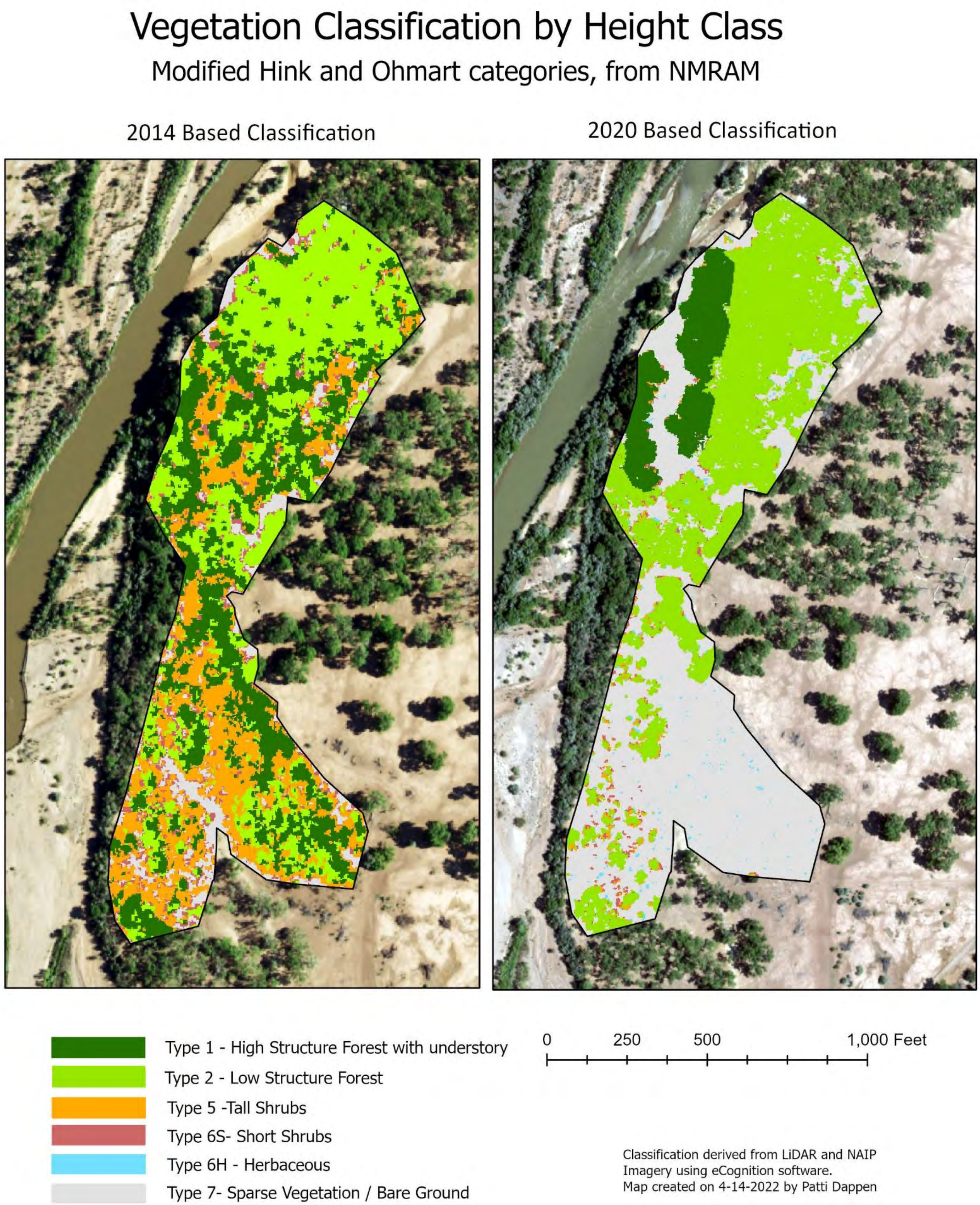
Vegetation Horizontal Patch Structure decreased from “Good” to “Fair” after treatment, while Vegetation Vertical Structure remained “Poor.” These metrics are based on the relative heterogeneity of habitat types in the project area – not the species within those communities – so the removal of a strata of woody species leads to lower scores because it decreases habitat complexity, even if those species were invasive. Native species plantings would be the only way to increase these measures of habitat structure without hurting the project’s scores for other criteria.

The project scores for Native Riparian Tree Regeneration underscore the importance of native plantings. This metric decreased from “Fair” to “Poor” between monitoring visits, perhaps because invasive species removal involved site disturbance that also damaged seedlings, the invasives had been sheltering the native regeneration, or because of unrelated changes in the site’s biotic condition. Regardless, it is important to highlight the lack of native species recruitment. Without intervention it is likely that non-natives will eventually edge there way back into the project area and re-occupy the niches that were left empty by their removal.

Exotic Invasive Plant Species Cover, a measure of the overall prevalence of exotic and invasive species on the site, ranked as “Poor” in both 2015 and 2026. Despite the removal of Russian olive and salt cedar the understory of all plant communities present remains composed almost entirely of Russian thistle.



Map 3: 15.07 2015 NMRAM plant community polygons.



Map 4: 15.07 2020 remotely-sensed plant community structures.

Map 5: 15.07 2025 NMRAM plant communities.

6.2 High-Intensity CSE Plot

This site has two riparian-adapted CSE plots. Data was collected on these plots for the first time in 2026. Plot 2 and 4 were previously photopoints which became full monitoring plots when those protocols were put in place.

Overstory Tree Species Component

		Poles			**Mature trees**							**Total**
	Diameter class (in)	*5-7*	*7-9*	*9-11*	*11-13*	*13-15*	*15-17*	*17-19*	*19-21*	*21-23*	*23-25*	
Rio Grande Cottonwood	**Count**	0	0	1	0	1	5	1	1	0	1	10
	TPA	0	0	2	0	2	10	2	2	0	2	20
	BA/AC	0.00	0.00	0.92	0.00	2.17	14.05	3.69	3.98	0.00	6.13	30.95
	Ave Ht	0.00	0.00	31.40	0.00	56.90	48.15	62.70	78.00	0.00	56.10	
Summary by Class	***TPA***	*2*			*18*							*20*
	TPA %	*10.00%*			*90.00%*							*100.00%*
	BA/AC	*0.92*			*30.02*							*30.95*
	BA/AC %	*2.98%*			*97.02%*							*100.00%*
	QMD	*9.20*			*17.49*							*16.84*
	Ave Ht	*31*			*56*							*55*

Table 2: 15.07 trees.

All trees recorded on monitoring plots in the 15.07 project area were Rio Grande cottonwood (*Populus deltoides* ssp. *wislizeni*). 90% of these were mature trees and 10% were just below the cut-off at 9 inches in diameter. There were no seedlings or saplings. While it is encouraging that all of the trees recorded were native cottonwoods, it is unfortunate that the results of the focused CSE plots echo the more general NMRAM finding that there is no tree regeneration in the project area. The existing tree stands are relatively sparse, with a low basal area per acre of only 30.95 sqft, although this sparseness is likely exaggerated because of the open areas in the project.

Aerial Cover

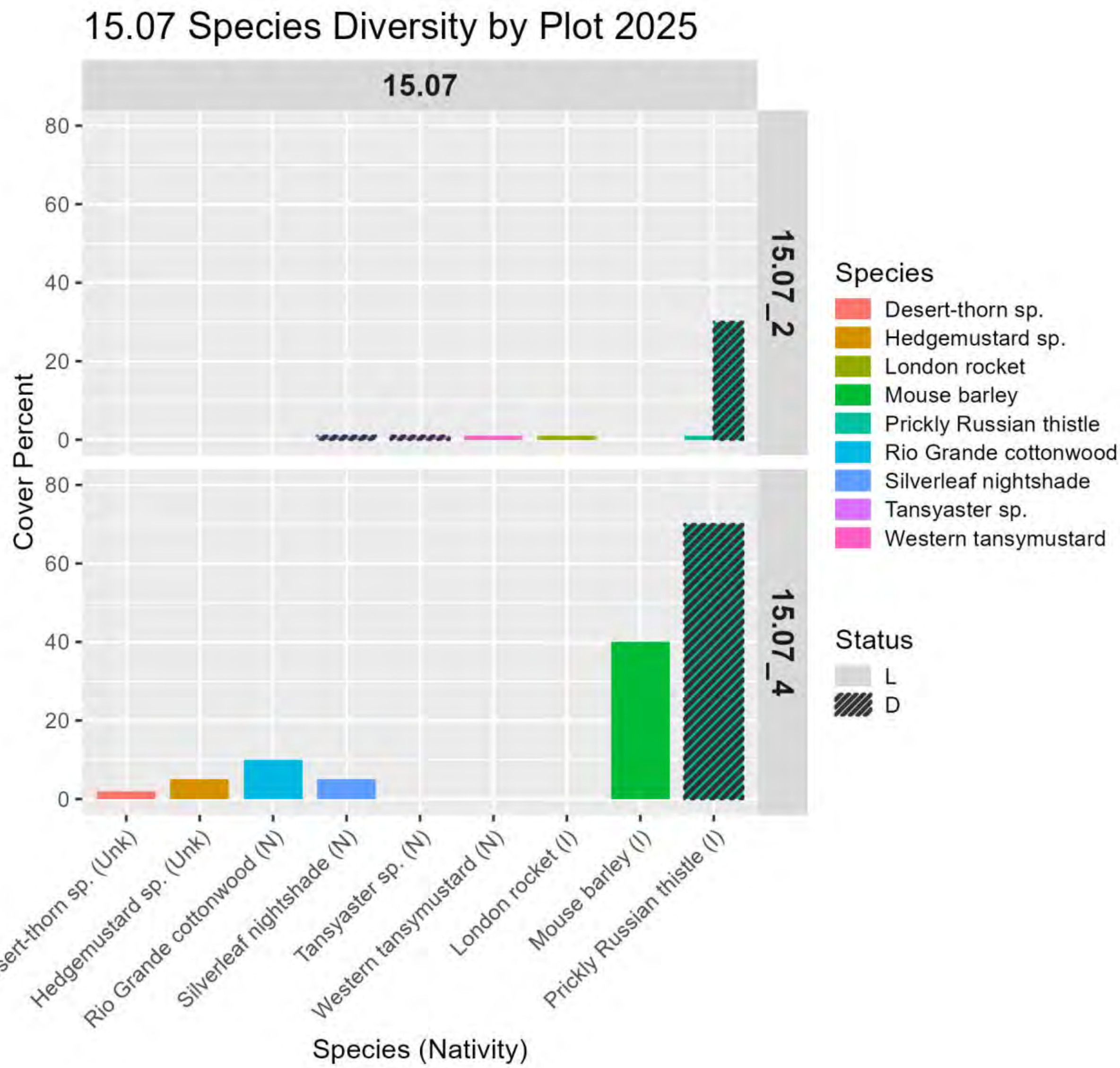
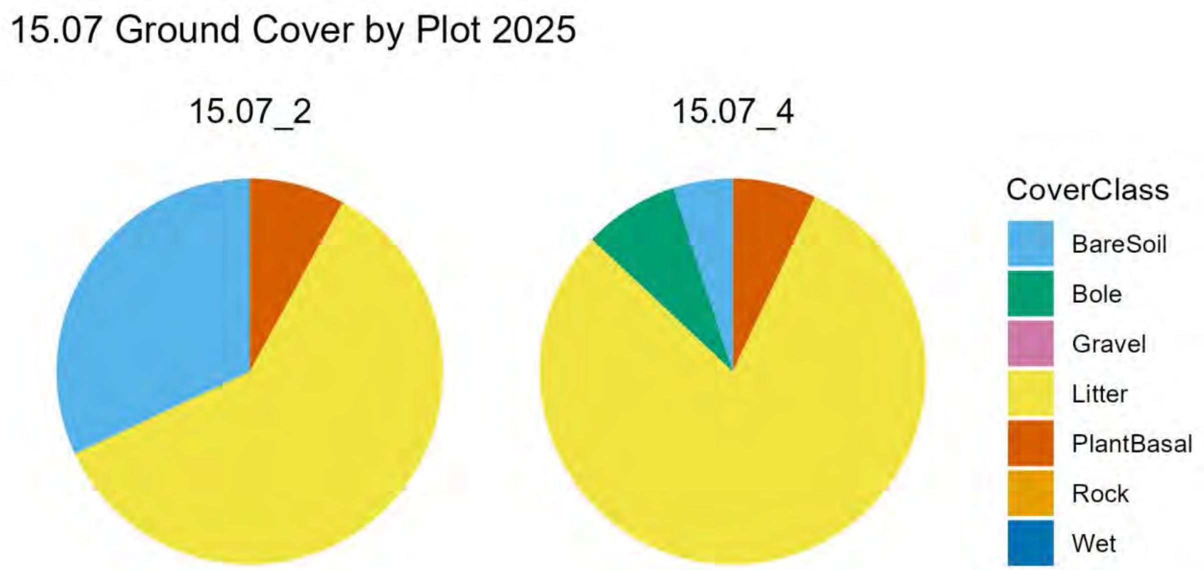


Figure 2: Aerial cover by species on plots in the 15.07 project area.

As mentioned in the discussion of the NMRAM results, the understory of the 15.07 project area consists almost entirely of non-native species. Russian thistle (*Salsola tragus*) was dominant, with mouse barley (*Hordeum murinum*) interspersed. Other species that made infrequent appearances were the introduced London rocket (*Sisymbrium irio*), and natives Rio Grande cottonwood (*Populus deltoides* spp. *wislizeni*), silverleaf nightshade (*Solanum elaeagnifolium*), tansyaster (*Machaeranthera sp.*), and western tansymustard (*Descurainia pinnata*). A couple of plants (desert-thorn, *Lycium sp.*, and hedgemustard, *Sisymbrium sp.*) were present that were not possible to identify to the species-level, and so it is unknown whether these were native or not.

Ground Cover



Project	Plot ID	Cover Class	% Cover
15.07	15.07_2	Wet	0
15.07	15.07_2	PlantBasal	8
15.07	15.07_2	Bole	0
15.07	15.07_2	Litter	60
15.07	15.07_2	BareSoil	32
15.07	15.07_2	Rock	0
15.07	15.07_2	Gravel	0

Project ID	Plot ID	Cover Class	% Cover
15.07	15.07_4	Wet	0
15.07	15.07_4	PlantBasal	7
15.07	15.07_4	Bole	8
15.07	15.07_4	Litter	80
15.07	15.07_4	BareSoil	5
15.07	15.07_4	Rock	0
15.07	15.07_4	Gravel	0

Figure 3: 15.07 ground cover by plot.

Aerial cover gives an impression of the species present in the project area, although it should be noted that these are only the species present on the monitoring plots, and thus the cross-section represented depends on the random placement of these locations.

Litter contributed the majority of ground cover on both CSE plots (60% on plot 2 and 80% on plot 4). There is some heterogeneity across the project area in the overstory canopy cover, which is reflected by the difference in the portion of bare ground between the two monitoring plots (32% on plot 2 compared to only 5% on plot 4). Both plots had nearly the same amount of plant basal area (8% and 7%), while plot 4 also had a small portion occupied by the boles of woody species (8%).

Soils

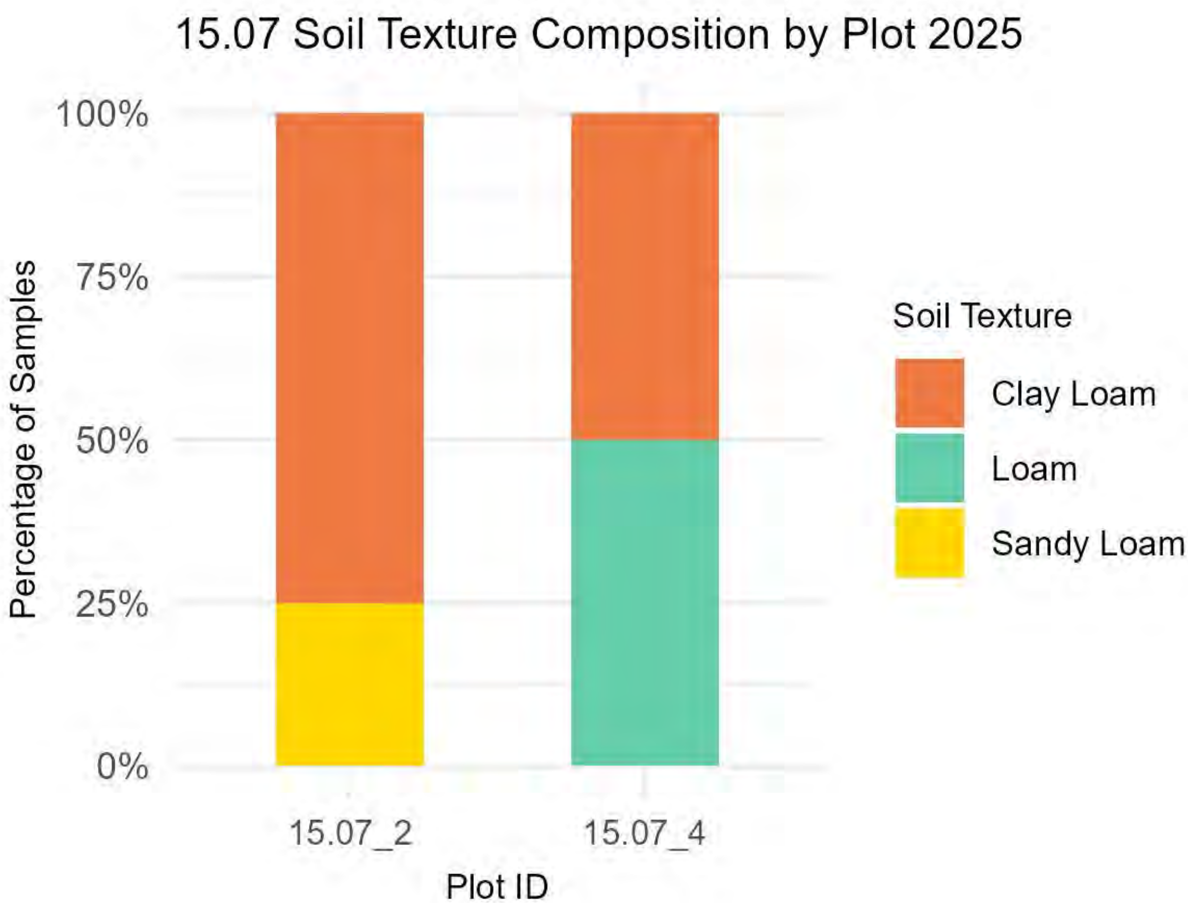


Figure 4: Soil texture on plots in the 15.07 project area.

Soil Texture Frequency:			
ProjectID	**Plot ID**	**Soil Texture**	**Frequency**
15.07	15.07_2	Clay Loam	3
15.07		Sandy Loam	1
15.07	15.07_4	Clay Loam	2
15.07		Loam	2

Table 3: Soil texture by plot in the 15.07 project area.

All soils sampled in the project area were some variation of loam, which is the most balanced soil type with generally equal proportions of the different particle classes: sand (0.05-2mm), silt (0.002-0.05mm), and clay (<0.002mm) and a corresponding good balance between water percolation, aeration, and nutrient retention (Berry et al., 2007). Most soils were Clay Loam, which had a higher portion of the finest soil particles. These soils are susceptible to compaction and may suffer from poor water percolation and surface erosion.

Fuels

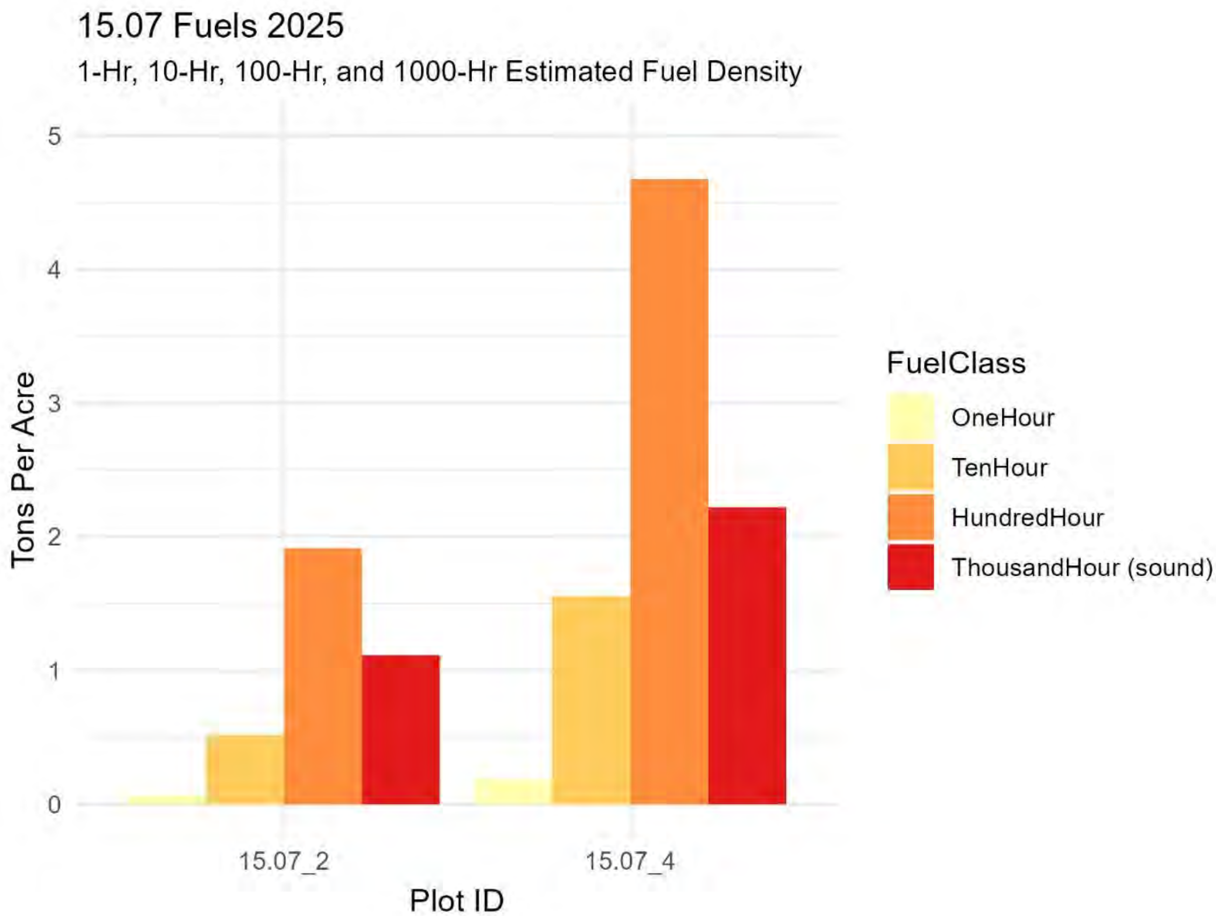


Figure 5: Fuels on plot in the 15.07 project area.

The majority of the sampled fuel load came from hundred-hour pieces, although all fuel types were represented. The rough average of 4.5 tons of fine fuels per acre is average to high for ecosystems with broadleaf litter (Scott & Burgan, 2005), and in fact the greatest fire threat in this project area is likely from fuels that are not accounted for in our monitoring protocols: namely piles of dead and dry Russian thistle.

7 Management Implications

After 10 years, Project 15.07 has successfully achieved its primary objective of invasive phreatophyte removal, effectively reducing the presence of Siberian elm (*Ulmus pumila*), salt cedar (*Tamarix ramosissima*), and limiting the presence of Russian olive *(Elaeagnus angustifolia).* Russian olive was not present on high-intensity monitoring plots but was identified during NMRAM monitoring covering 13.4% of the area. However, non-woody invasives are present as the understory remains almost entirely dominated by Russian thistle (*Salsola tragus*). Due to the high accumulation of fine fuels, averaging 4.5 tons/acre, and the piles of dead Russian thistle, the threat of fire remains present across the project area.

Rio Grande cottonwood (*Populus deltoides* ssp. *wislizeni*) is the sole overstory species on the project site, with 90% classified as mature trees. No regeneration of any tree species was found, including cottonwood, which poses a potential threat for future invasive encroachment if the aging stand is not replaced. Additionally, the cottonwood distribution is sparse as evidenced by a low basal area of 30.95 sqft/acre.

Native tree regeneration will be important for future longevity of the site and could be assisted by limiting grazing and active restoration measures. Further monitoring of the site would be necessary to guide future management decisions and inform if additional control is necessary.

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Appendix I - Modified Hink and Ohmart Categories

The following are examples of the modified Hink & Ohmart Vegetation Vertical Structure Type Definitions categories with text from (Muldavin E. , 2021). All photos credit NMFWRI.

Multiple-Story Communities (Woodlands/Forests)

Type 1- High Structure Forest with a well-developed understory. Trees (>6 m) with a canopy covering >25% of the area of the community polygon and woody understory layer of tall shrubs or short trees (1.5-6 m) covering >25% of the area of the community (polygon). Substantial foliage is in all height layers.

Type 2 -Low Structure Forest with little or no understory. Trees (>6 m) with canopy covering >25% of the area of the community polygon and minimal woody understory layer (1.5-6 m) covering <25% of the area of the community (polygon). Majority of foliage is over 7 m above the ground.

Single-story Communities (Shrublands, Herbaceous and Bare Ground)

Type 5 -Tall Shrubland. Young tree and shrub layer (1.5-6 m) covering >25% of the area of the community polygon. Stands dominated by tall shrubs and young trees, may include herbaceous vegetation underneath the woody vegetation.

Type 6S- Short Shrubland. Short stature shrubs or very young trees (>1.5 m) covering >25% of the area of the community (polygon). Stands dominated by short woody vegetation, may include herbaceous vegetation among the woody vegetation.

Type 6W- Herbaceous Wetland. Herbaceous wetland vegetation covering >10% of the area of the community polygon. Stands dominated by obligate wetland herbaceous species. Woody species absent, or <25% cover.

Type 6H- Herbaceous vegetation. Herbaceous vegetation covering >10% of the area of the community polygon. Stands dominated by herbaceous vegetation of any type except obligate wetland species. Woody species absent or <25% cover.


Type 7-Sparse Vegetation, Bare Ground. Bare ground, may include sparse woody or herbaceous vegetation, but total vegetation cover <10%. May be natural disturbance in origin (e.g., cobble bars) or anthropogenic (e.g., roads).

Appendix II: 15.07 Photo Comparison

15.07_1_184 2015

15.07_1_184 2026

15.07_2_176 2015

15.07_2_176 2026

15.07_3_45 2015

15.07_3_45

15.07_3_265 2015

15.07_3_265 2026

15.07_4_160 2015

15.07_4_160 2026

15.07_5_322 2015

15.07_5_322 2026