CWRP Final Report

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June 2013

GRANTEE and FISCAL AGENT (if different)

Grantee: Uncompahgre Watershed Partnership
Fiscal Agent: Shavano Conservation District, EIN: 84-6000225
Purchase Order: OE PDA 13000000011

PROJECT NAME – Uncompahgre River Riparian Health Improvement Project

GRANT AMOUNT – $6,000

ORIGINAL OBJECTIVES

Objective 1: Remove tamarisk in Ridgway State Park.

Remove tamarisk from 3 locations near and along the Uncompahgre River totaling approximately 1.5 ac.

Objective 2: Re-vegetate and stabilize stream banks and plant riparian hardwoods in approximately 5 ac of Rollans Park, Ridgway.

a) stabilization of approximately 1,000 ft of riparian stream bank with a native grass-seed mix,
b) re-vegetation of 0.5 ac of spit which borders a backchannel habitat with a native grass-seed mix,
c) re-vegetation of a 0.3 ac area adjacent to the river footbridge with native grass-seed mix and additional turf species resilient to high foot traffic,
d) planting of 20, 8-10 ft-tall cottonwoods, and
e) planting of approximately 100 willow stakes.

TASK 1 – Tamarisk Removal

Description of Accomplishments

Utilizing an 8-person Southwest Conservation Crew, the Ouray County Weed Manager, and the staff from the Uncompahgre Watershed Partnership, tamarisk was removed in the Ridgway State Park, Rollans Park, and Area 1 near Colona (Figure 1). Originally we planned on treating approximately 1.5 acres along the Uncompahgre River near Ridgway State Park, however we were able expand our efforts to Rollans Park and Area 1 near Colona. Tools used to complete the task were chainsaws, loppers and hand saws. Each stump was sprayed with Triclopyr (Garlon 3a or similar) herbicide to prevent regrowth.

Deliverable Status

Figure 1 shows locations of treated tamarisk populations. The following table shows % completion of tamarisk removal in each area, and the approximate date the rest of the tamarisk will be removed:

Area	Total Approximate Acreage of Tamarisk Population	Percent Complete	Targeted Completion Date
Area 1: Near Colona	3.5	75%	July 2013
Area 2: Ridgway State Park	1	100%	July 2012
Area 3: Rollans Park	1	90%	July 2013

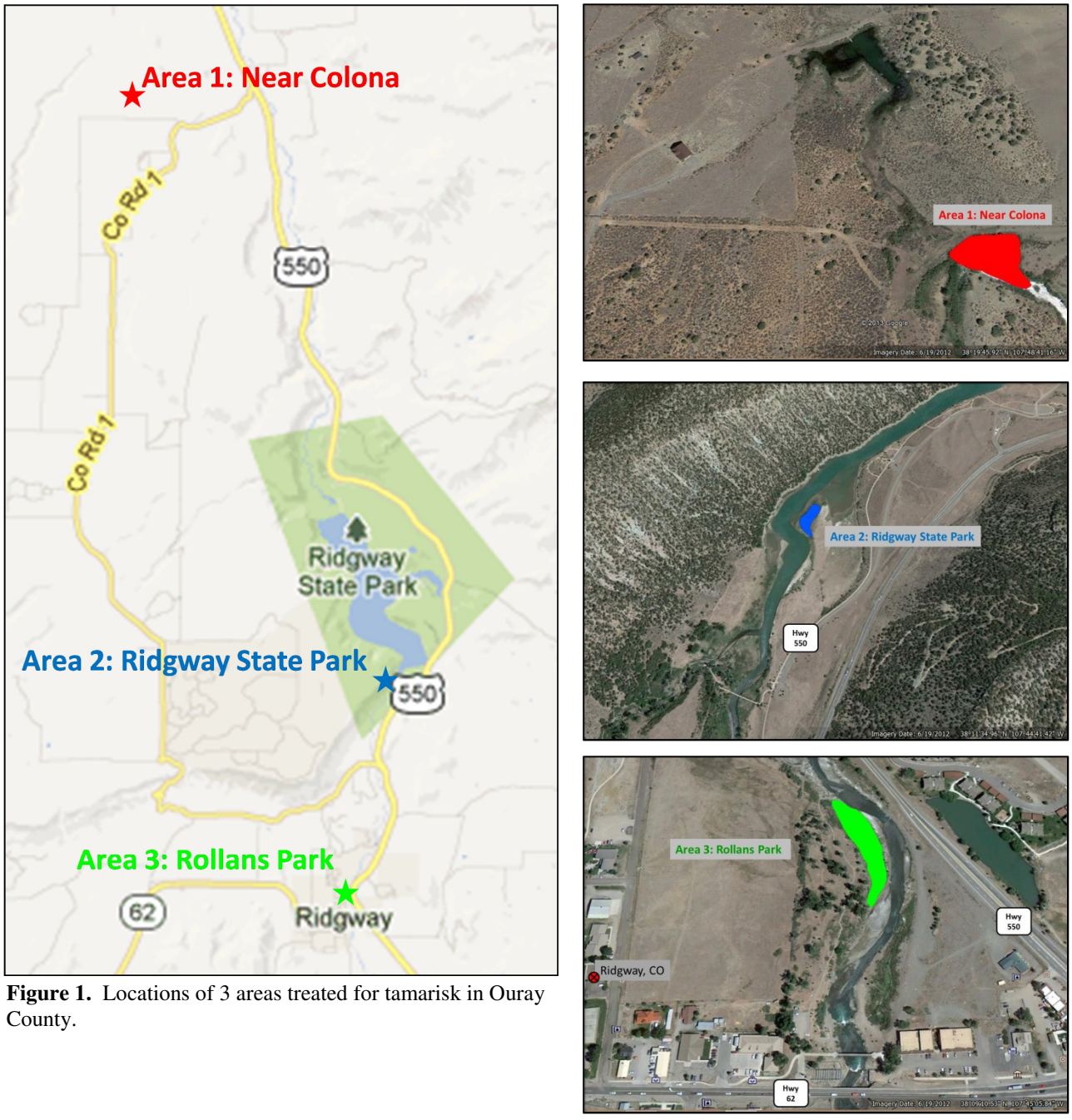

Figure 1. Locations of 3 areas treated for tamarisk in Ouray County.

TASK 2 – Riparian Re-vegetation: Bank Stabilization

Description of Accomplishments

Approximately 800 feet of the Uncompahgre River eastern stream bank was stabilized by broadcasting a grass seed-mix and securing the seeds with biodegradable aspen fiber in October 2012. Another 200 feet of stream bank was seeded and matted along the west bank of the river in October 2012. The native seed mix used on the streambanks was comprised of streambank wheatgrass, wheatgrass, blue flax, Rocky Mountain penstemon, and field mint. Additionally a 0.5 ac spit area on the east side of the river was seeded with the same native seed mix and additional thick spike (a turf) species to facilitate cover in the more foot-trafficked spit area. The seeded spit area was covered with straw matting. Initially we proposed also seeding the footbridge area on the west side of the river with native seed mix and turf species, however, this phase was delayed until fall 2013 or later. The delay was necessitated by adjacent CDOT bridge construction and area re-vegetation and to avoid simultaneous river access closures on both sides of the river.

The project involved the following step-by-step procedure:

1. 1 m^2 plots (Daubenmire frames) were positioned and flagged at approximately 80-ft intervals for a total of 10 plots along the eastern stream bank. Five additional 1 m^2 plots were located on the spit that forms a backchannel habitat of the river. Each plot was measured for ground cover and vegetation.
2. In October 2012, a total of 11 volunteers devoted 80 hours over the course of 3 days to the project. The first phase included removing excess litter, spreading Mesa Verde Humates to encourage microbial growth, and broadcasting the native grass seed mix. The second phase involved laying a biodegradable aspen fiber along the east stream bank, and a biodegradable straw fiber along the inner east spit. This will protect the seeds from wind, wildlife and weather. It will be left in place for 24-36 months.
3. Fencing was placed around the seeded areas to prevent foot traffic, which could increase the wear and tear on the fabric. Signs were placed in 3 strategic locations surrounding the fencing in January 2013.
4. The west side of the footbridge will be seeded in fall 2013 or later after the east side seeds are established. This rotation will allow for space for activities to take place in the park without damaging any seeded areas. All items for west side seeding have already been purchased and have been stored properly until seeding.
5. Re-measured the 1 m2 (Daubenmire frames) in June 2013 (8 mos. Later) to preliminarily determine improvement in ground cover. Results are shown below.

Deliverable Status

Deliverable 1: Figure 2 and 3 show average ground cover estimates collected before October 2012 seeding events. Figures 2a and 3a show the post-seeding percent cover data as of May 2013. These results are preliminary as the fiber has not degraded yet (normally takes between 12-24 months) and the native grass seeds have not fully grown in yet.

As of May 2013, there has been a 6.1% increase in grasses on the east bank, and an 11.2% increase on the east spit. All of the vegetation is still 100% native. Over time, the ground cover is expected to increase as the fiber degrades and the seeds have longer to germinate and establish. The UWP will continue to monitor these plots until 2014.

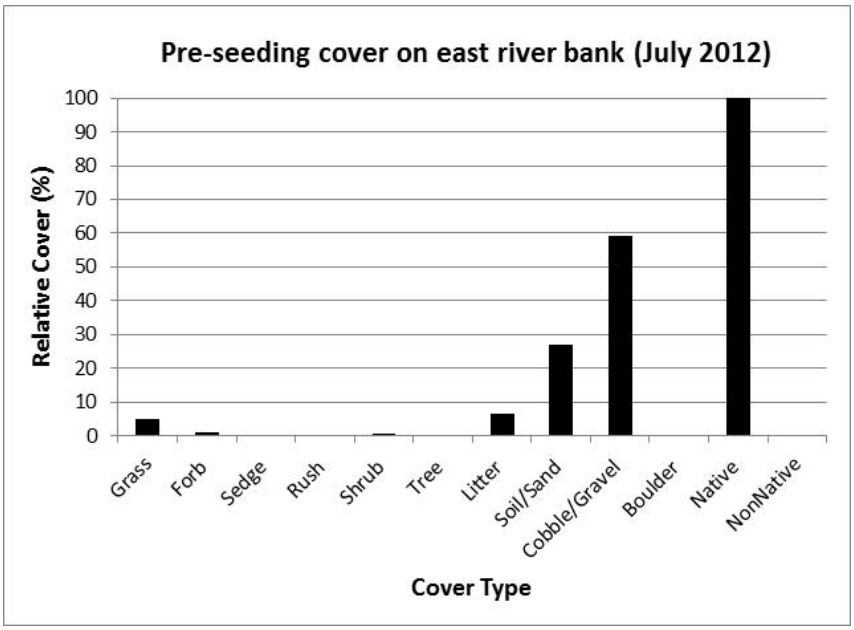

Figure 2. Average relative cover by cover type collected at 10 plots on the east river bank before seeding in October 2012.

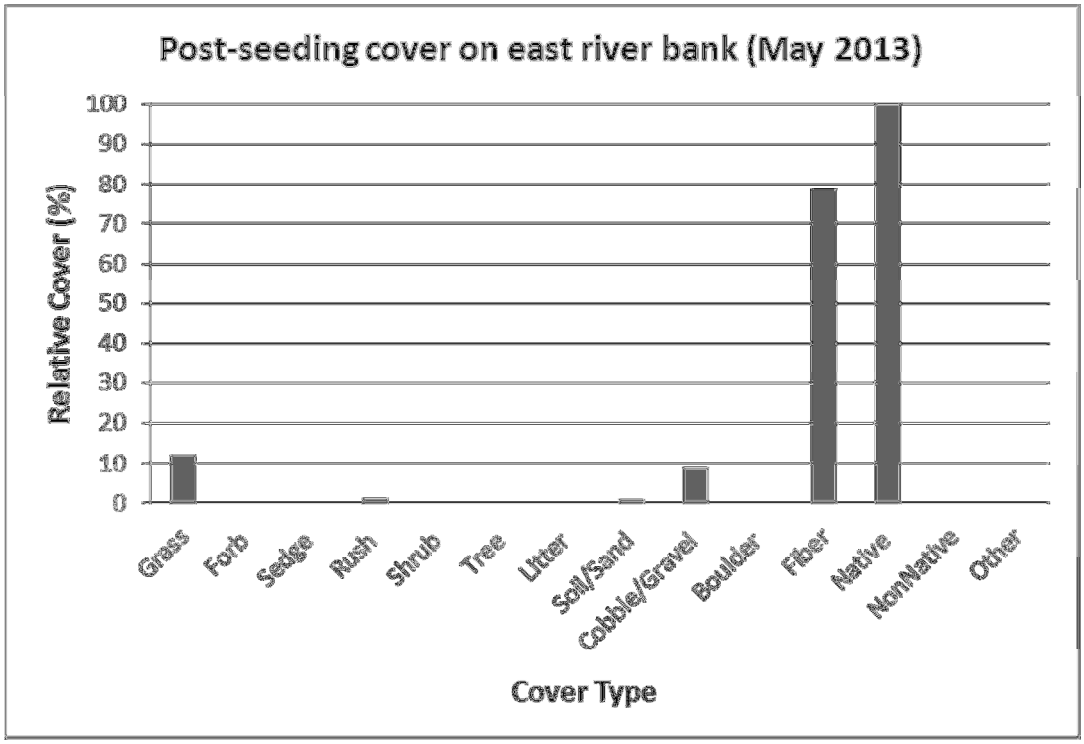

Figure 2a. Average relative cover by cover type collected at 11 plots on the east river bank after seeding. Data collected in May 2013.

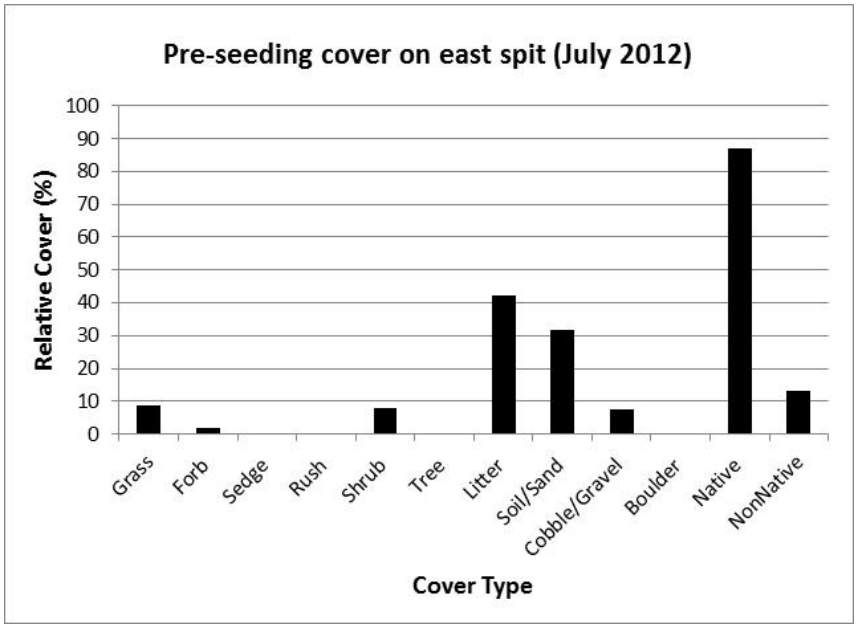

Figure 3. Average relative cover by cover type collected at 5 plots on the east spit before seeding in October 2012.

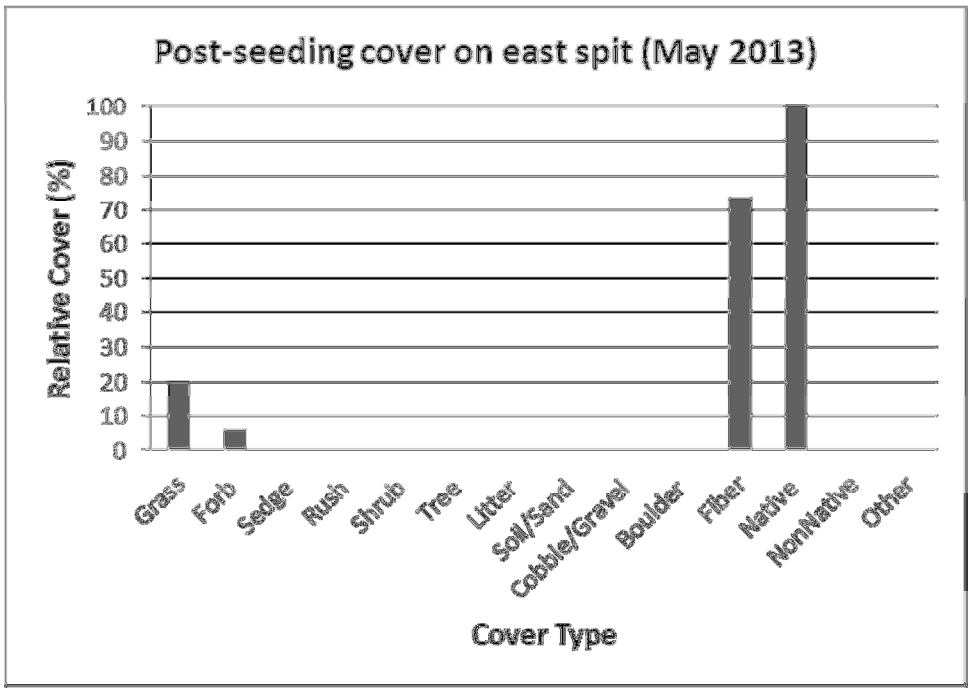

Figure 3a. Average relative cover by cover type collected at 5 plots on the east spit after seeding. Data was collected in May 2013.

Deliverable 2: Below are the photos points taken to show improvement in vegetation cover along the east stream bank and the east spit:

Pre-seeding: July 2012

Photo 1. Eastern streambank before seeding.

Post-seeding: May 2013

Photo 1. Eastern streambank after seeding in Fall 2012.

Photo 2. Barren eastern streambank from west side before seeding.

Photo 2. Eastern streambank from west side after seeding in Fall 2013.

Pre-seeding: July 2012

Photo 3. Eastern spit before seeding.

Post-seeding: May 2013

Photo 3. Eastern spit after seeding in Fall 2012.

Photo 4. 200 ft west side bank before seeding.

Pre-seeding: July 2012

Photo 5. Area on west side of footbridge before seeding.

Photo 4. 200 ft west side bank after seeding in Fall 2012.

Post-seeding: May 2013

Photo 5. This area will be re-seeded in Fall 2013.

TASK 3 – Riparian Re-vegetation: Cottonwood Planting

Description of Accomplishments

An eight-person Southwest Conservation Crew and 6 community volunteers transplanted 22 cottonwoods from the Ridgway State Park to Rollans Park in Ridgway. The State Park donated the machinery and help for supervision to uplift the trees from the park grounds. Ouray County Weed Control used their truck for loading and unloading the trees. A local nursery donated a cart to transfer the trees from the parking lot to the stream bank for planting. Mesa Verde Humates were broadcast inside pre-dug holes and cottonwoods were planted so that root crowns were placed just below the ground surface. All transplanted trees were watered immediately. Six cottonwoods were planted on the east side of the river and 16 trees were planted the west side.

The following day, 6 volunteers helped install T-posts and wire fencing, donated by Town of Ridgway, around the trees to protect them against deer rubbing and beaver damage. The trees were watered regularly using a water pump donated by the Town of Ridgway between early August and late September 2012. Initially watering was done daily, then twice per week in September. The trees were monitored for survival and four weeks after the trees were planted, they were mulched with a straw fiber to maintain a healthy temperature and moisture level in the surrounding soil. Locations of all transplanted cottonwoods were also GPS-ed, the trees were flagged for future mortality monitoring, and initial heights were measured.

Deliverable Status

The staff from the Uncompahgre Watershed Partnership monitored and watered the trees for a month and a half after the trees were planted in early August 2012. Initially all trees showed signs of stress (wilting and leaf drop) but by late Fall 2012, 20 out of 22 transplanted cottonwoods had put on new leaves.

Figure 3 shows initial tree heights and indicates which trees appeared not to survive transplantation by Fall 2012. Figure 4 shows the conditions of each tree, as well as other specifics, as of May 2013. Based on these data mortality was 9%, survival 59% and survival of 32% of the trees was uncertain: they had basal sprouting but no new growth on limbs which might or might not result in long term survival. We will re-assess the trees in Fall 2013 and consider pruning the surviving basal sprouters to single stem in the future to promote long-term survival.

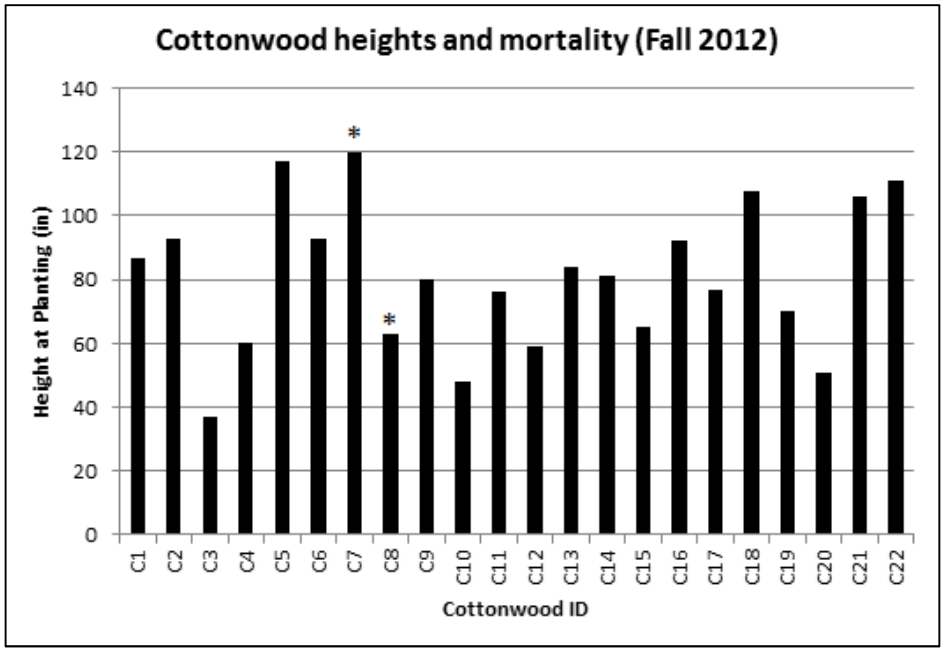

Figure 3. Heights and mortality of transplanted cottonwoods in Fall 2012.
* indicates trees which did not put on new leaves by end of growing season 2012 and possibly did not survive.

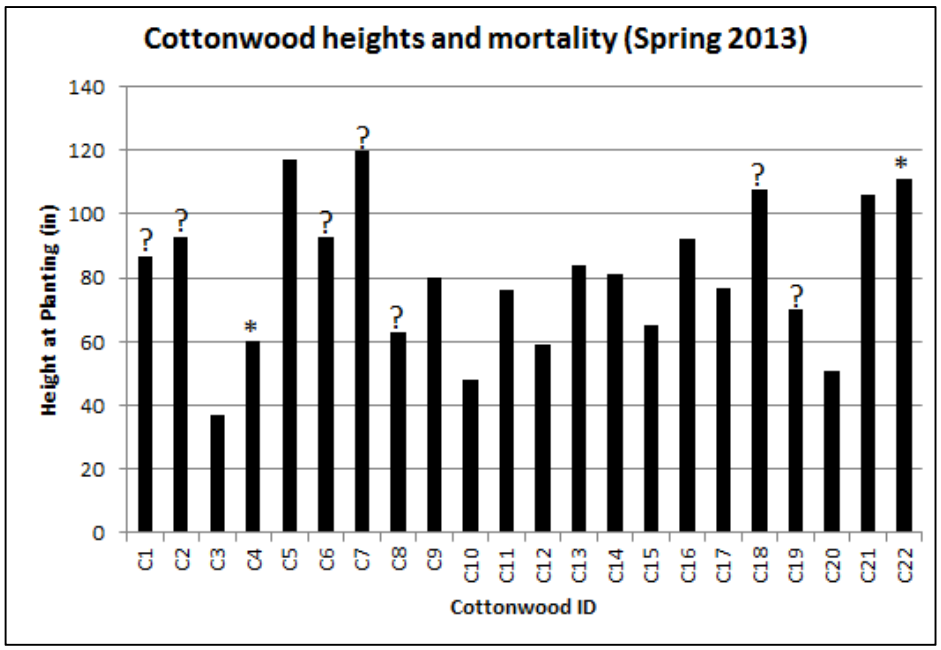

Figure 4. Survival and mortality of transplanted cottonwoods in May 2013.
* indicates mortality: 9%, ? indicates uncertainty of long-term survival based on basal sprouting only: 32%, all other trees survived translplantation: 59%

Tree	Planting date	Planting Height (in)*	Signs of Wilting	Yellowing	Dropping orig. leaves	Latest New Leaves	Condition 5/31/2013
C1	8/8/2012	87	8/10/2012	8/13/2012	8/13/2012	8/22/2012	**No new leaves, still with fleshy limbs
C2	8/8/2012	93	8/10/2012	8/13/2012	8/13/2012	8/22/2012	**No new leaves, still with fleshy limbs
C3	8/8/2012	37	8/10/2012	8/13/2012	8/13/2012	8/22/2012	**New leaves, fully bloomed
C4	8/8/2012	60	8/10/2012			8/22/2012	Likely did not survive, no leaves, easily-broken branches
C5	8/8/2012	117	8/10/2012	8/13/2012	8/13/2012	8/22/2012	**New leaves, almost fully bloomed
C6	8/8/2012	93	8/10/2012		8/13/2012	8/22/2012	Last-season leaves still present, still with fleshy limbs
C7	8/8/2012	120	8/10/2012		8/13/2012		Last-season leaves still present, still with fleshy limbs
C8	8/8/2012	63	8/10/2012				**Last-season leaves still present, still with fleshy limbs
C9	8/8/2012	80	8/10/2012			8/26/2012	New leaves, almost fully bloomed
C10	8/8/2012	48	8/10/2012	8/13/2012	8/13/2012	8/26/2012	**New leaves, fully bloomed
C11	8/8/2012	76	8/10/2012	8/13/2012	8/13/2012	8/26/2012	New leaves, fully bloomed
C12	8/8/2012	59	8/10/2012	8/13/2012	8/13/2012	8/26/2012	**New leaves, fully bloomed
C13	8/8/2012	84	8/10/2012	8/13/2012	8/13/2012	8/26/2012	**New leaves, fully bloomed
C14	8/8/2012	81	8/10/2012	8/13/2012	8/13/2012	8/26/2012	**New leaves, fully bloomed
C15	8/8/2012	65	8/10/2012	8/13/2012	8/13/2012	8/26/2012	**New leaves, fully bloomed
C16	8/8/2012	92	8/10/2012	8/13/2012	8/13/2012	8/26/2012	**New leaves, fully bloomed
C17	8/8/2012	77	8/10/2012	8/13/2012	8/13/2012	8/26/2012	New leaves, fully bloomed
C18	8/8/2012	108	8/10/2012	8/13/2012	8/13/2012	8/26/2012	**No new leaves, still with fleshy limbs
C19	8/8/2012	70	8/10/2012	8/13/2012	8/13/2012	8/26/2012	**No new leaves, still with fleshy limbs
C20	8/8/2012	51	8/10/2012	8/13/2012	8/13/2012	8/26/2012	**New leaves, almost fully bloomed
C21	8/8/2012	106	8/10/2012	8/13/2012	8/13/2012	8/26/2012	New leaves, almost fully bloomed
C22	8/8/2012	111	8/10/2012		8/13/2012	8/26/2012	Likely did not survive, no leaves, easily-broken branches

Figure 4. Data collected as of May 2013.
**indicates growth at the base of the tree. These trees may be able to be salvaged if the re-growth is left to flourish, and the growth is pruned around the prominent stem.

TASK 4 – Riparian Re-vegetation: Willow Planting

Description of Accomplishments

In early May 2013, UWP Staff, the County Weed Manager, and two volunteers assisted in harvesting and planting willows. Less willows were planted than initially planned after site assessment and determining that only a few areas needed more willow recruitment. We experimented with different methods (single pole, bundles, pruning and not of terminal buds) to guide future restoration in the area. The follow procedure was followed based on local consultants and expert knowledge:

1. Prior to budding, 6-8 foot willows were harvested from a willow population about 200 m downstream of the planting site. New, sharp loppers were used to make clean, straight cuts as close to the ground as possible.
2. The willows were then placed immediately into 5-gallon buckets to keep them moist for transport. While they were resting in the buckets, they were de-limbed with new, sharp pruners.
3. The willows were then transported and immediately planted. We used rebar, sledges, and post-pounders, donated by the Town of Ridgway, to make slim, 2-4 feet deep holes for the willows. The willows were inserted into 28 holes in a wetland area on the east side of the Uncompahgre River. 22 willows were planted with one pole, 3 were planted with the terminal buds snipped, and 3 were planted with 3-pole bundles. The removal of the terminal buds and the bundles were experimental sites. The photo below shows the site where the willows were planted:

Deliverable Status

The willows were monitored shortly after planting in late-May 2013. Table 1 shows these observations, and Figure 5 shows percent of willows in each post-planting condition. As of May 2013, the planted population of willows exhibited a 40% survival rate. The willows will continue to be monitored into 2014.

Table 1. Willow data and **o**bservations made in late May 2013 for each willow. Willow #: A= Single planting, B=Bundled, C=Terminal buds cut. Relative Soil Moisture: wet=in a pool of ground water, dry=no visible soil moisture and planted slightly above ground water level.

Willow #	**Relative** Soil Moisture	Health/Condition on Planting Day (5/2013)	Condition 6/2013
1A	Moderate	Dormant, pre-buds	Alive, sprouting new leaves
2A	Moderate	Dormant, pre-buds	Alive, sprouting new leaves
3A	Wet	Dormant, pre-buds	No new leaves
4A	Moderately Dry	Dormant, pre-buds	Alive, sprouting new leaves
5A	Wet	Dormant, pre-buds	Alive, sprouting new leaves
6A	Moderately Dry	Dormant, pre-buds	Alive, sprouting new leaves
7A	Dry	Dormant, pre-buds	Alive, sprouting new leaves
8A	Dry	Dormant, pre-buds	Alive, sprouting new leaves
9A	Wet	Dormant, pre-buds	No new leaves
10A	Moderately dry	Dormant, pre-buds	Not found, likely chewed by beaver
11A	Moderate	Dormant, pre-buds	Alive, sprouting new leaves
12A	Dry	Dormant, pre-buds	Not found, likely chewed by beaver
13A	Moderate	Dormant, pre-buds	Alive, sprouting new leaves
14A	Moderately Dry	Dormant, pre-buds	Visibly chewed by beaver
15A	Wet	Dormant, pre-buds	Not found, likely chewed by beaver
16A	Wet	Dormant, pre-buds	Not found, likely chewed by beaver
17A	Moderate	Dormant, pre-buds	Not found, likely chewed by beaver
18A	Moderately Dry	Dormant, pre-buds	Alive, sprouting new leaves
19A	Moderately Dry	Dormant, pre-buds	Visibly chewed by beaver
20A	Moderately Wet (island)	Dormant, pre-buds	Not found, likely chewed by beaver or washed out due to high flow
21A	Moderately Dry	Dormant, pre-buds	Not found, likely chewed by beaver
22A	Dry	Dormant, pre-buds	Alive, sprouting new leaves
1B	Dry	Dormant, pre-buds	2/3 whips chewed by beaver, no new leaves
2B	Dry	Dormant, pre-buds	1/3 whip chewed by beacher, others have new leaves
3B	Moderately Dry (Soil added)	Dormant, pre-buds	Visibly chewed by beaver
1C	Moderate	Dormant, pre-buds	No new leaves
2C	Moderately Wet	Dormant, pre-buds	Not found, likely chewed by beaver
3C	Moderately Dry	Dormant, pre-buds	Visibly chewed by beaver

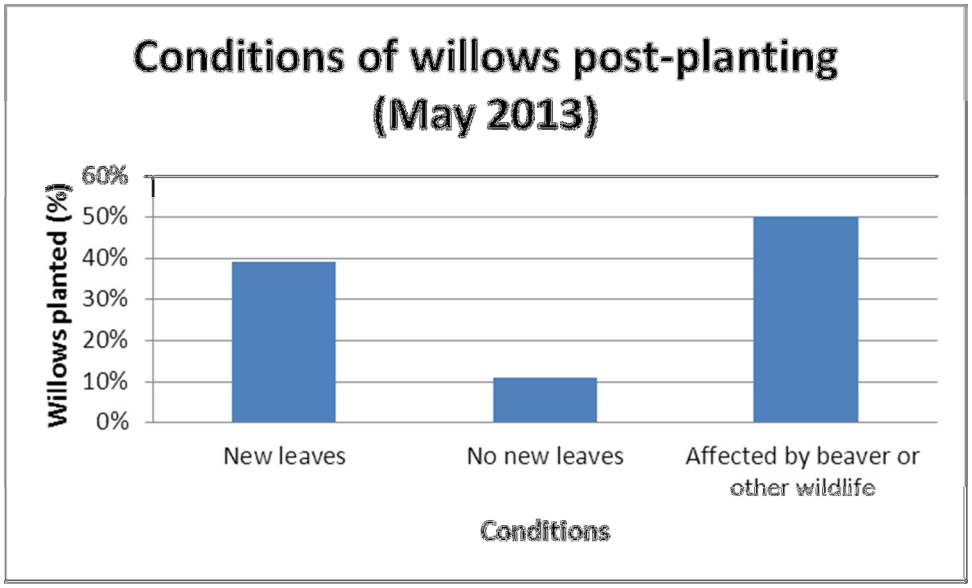

Figure 5. Percent of willows in each observed condition.

TASK 5 – Administrative

Description of Accomplishments

All administrative costs have been invoiced for project management and fiscal sponsor administration fees.

Deliverable Status

Semi-annual report was submitted in January 2013.
Final report was submitted in June 2013.