Chico Basin Riparian Restoration
2013 Final Report

Implemented by

Wildlands Restoration Volunteers

PROJECT SUMMARY

The Chico Basin Ranch Riparian Restoration Project was among many projects approved for implementation by a committee of 22 WRV volunteers in 2012. Committee members were asked to evaluate projects on many levels, including ecological importance, fit with WRV's mission, logistical requirements, available supporting and lead partnerships, leadership needs, financial resources needed and available, number of obstacles to project completion, number of volunteer-days necessary to complete the project, the ability of the project to satisfy volunteers, and how the project would complement others in the WRV project season.

The Chico Basin project ranked high in our selection process due to the existence of a dedicated and knowledgeable partnership, including the Colorado Parks and Wildlife, Chico Basin Ranch, The Rocky Mountain Bird Observatory, Natural Resources Conservation Service, and many others, and the fact that conservation is a central driving theme for the ranch.

Project team coordination, logistical planning, and technical design were carried out in the winter of 2012/13, followed by three volunteer projects in the early spring of 2013 (willow harvest and two plant installations). In total, over 79 volunteer days of work contributed over $33,000 worth of work for planning and implementation time towards this project, installing about 950 native shrubs and trees along Long Branch Draw.

Planning and Implementation Timeline

Project Planning and Project Team Coordinating --------- December, 2012 – March, 2013
Volunteer Leader Training ---------- March-June, 2013
Volunteer Recruitment ---------- December, 2012 – April, 2013
Technical Design ---------- February – March, 2013
Materials Acquisition ---------- February, 2013
Project Implementation ---------- March-April, 2013
Project debriefs/evaluation ---------- April, 2013
Monitoring---------- July, 2013

Project Summary

Chico Basin Ranch is located Approximately 40 miles SE of Colorado Springs in the Chico Creek watershed. Lat-Long: 38.5317^{o}N, -104.4494^{o}W (see location map below). The primary goal of this long-term project is to control Russian olive and tamarisk on heavily infected riparian area, reduce grazing pressure in key riparian area conservation hotspots on the ranch, and restore a diverse native tree-shrub community along treated and protected areas. In the Vega drainage, which feeds into Chico Creek, over 20 acres of Russian olive has already been treated, and five exclosures have been erected in treated areas by project partners. This project focused on installing site-appropriate native woody shrubs and trees in treated and fenced areas.

Project Planning

WRV's staff and volunteer project team coordinated closely with all partners to ensure project goals and objectives were clearly understood, and addressed with appropriate technical and logistical plans. Team members attended several site visits, undertaking planning work that resulted in the establishment of one long restoration site (Long Draw Branch; see maps below). Restoration treatments were prescribed for 100-foot work sections along 2600 feet of riparian area. Detailed technical specifications were prepared for land management agency partners and project crew

leaders. These technical notes reflected data collected and knowledge gained by WRV and partner staff who evaluated similar work implemented on Chico Basin ranch by project partners in 2011 and 2012.

Baseline photo points (below) were taken prior to project completion, and will be repeated this summer along with survivorship counts.

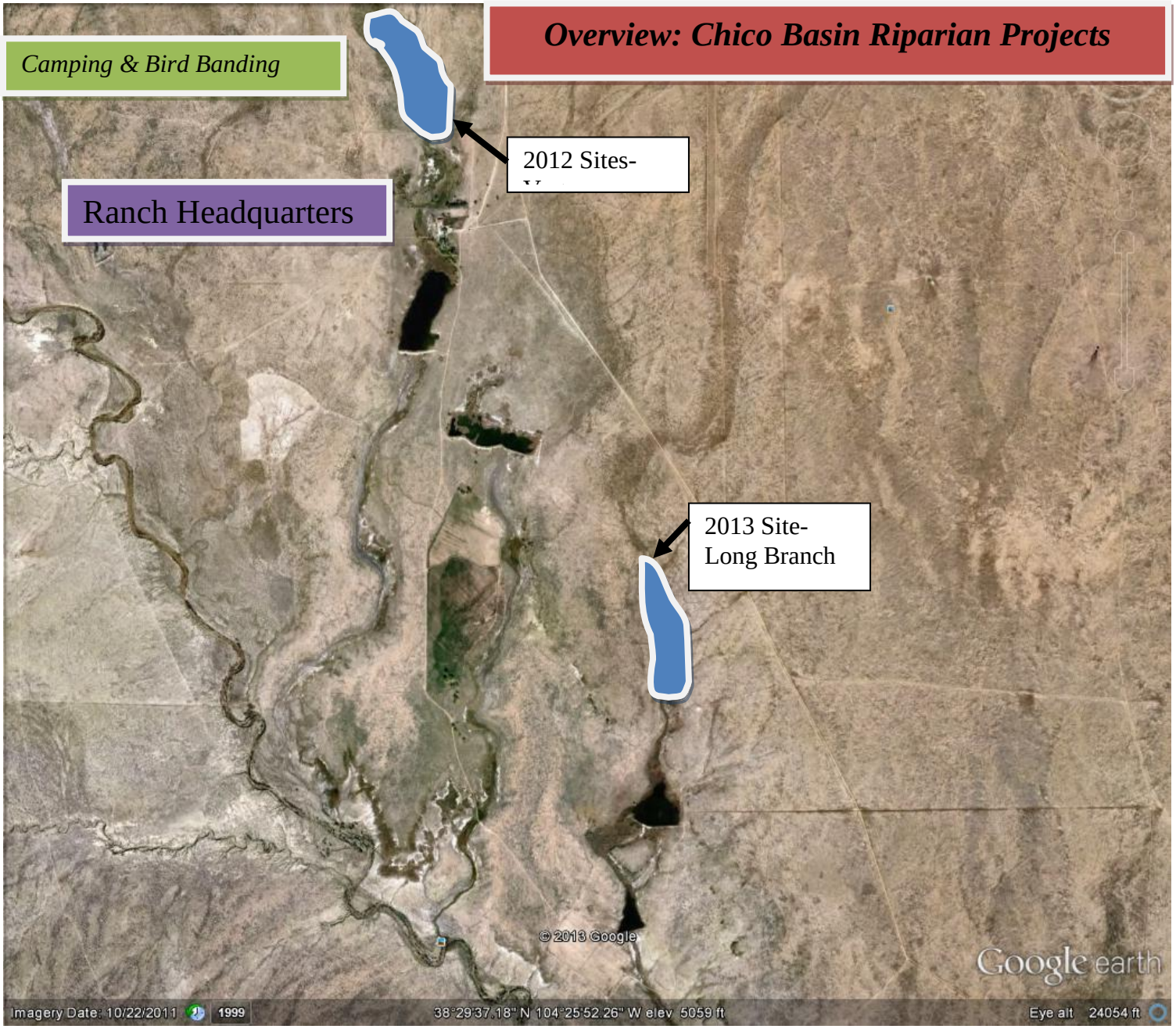
Goals and Results

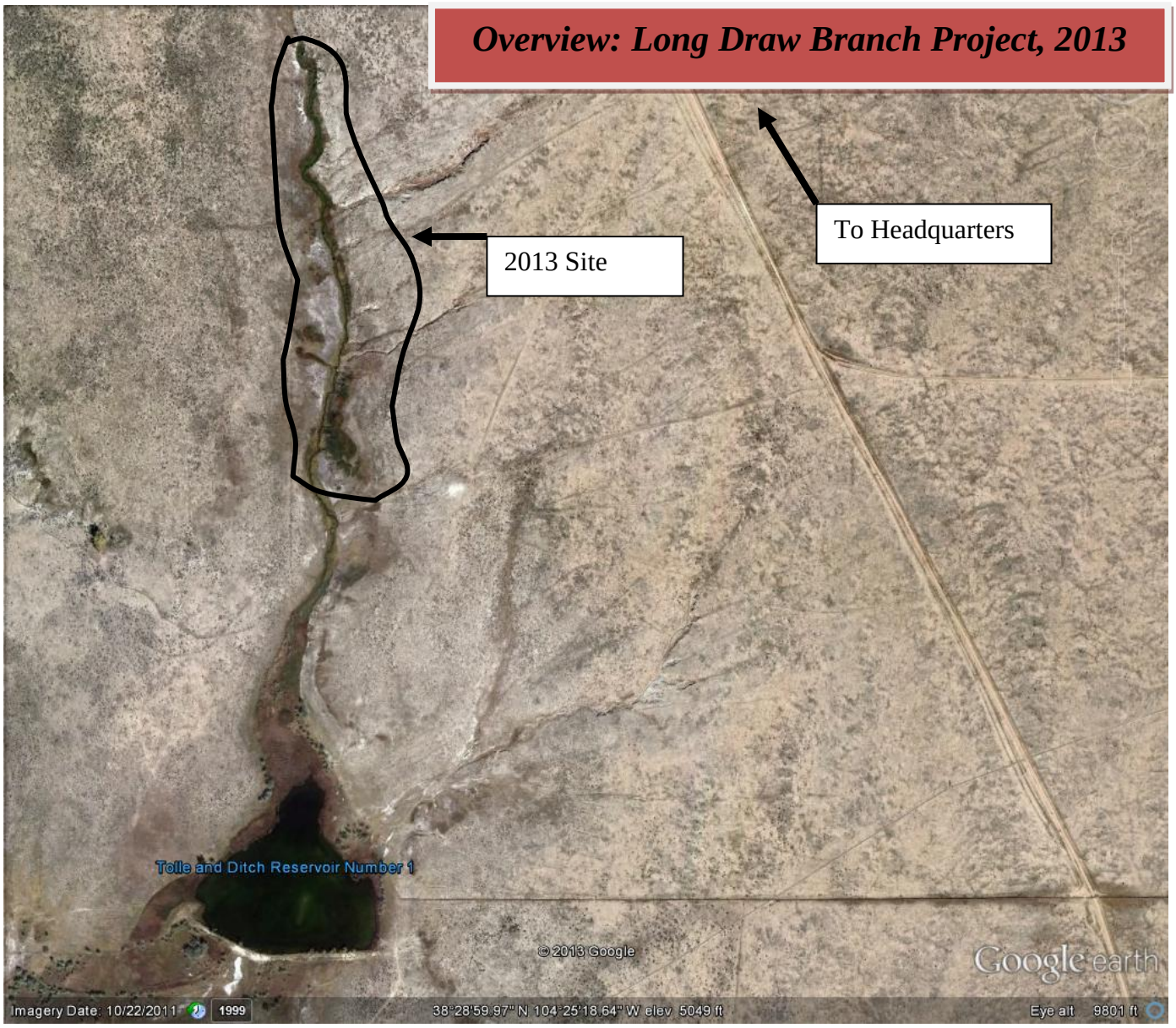
The goal of this project was to install a variety of native riparian shrubs and trees to: (a) replace the specific vertical structure lost by the cleared Russian olive forests in the short term, and (b) create a structurally diverse woody riparian community in the long term. In total, over 950 native shrubs and trees were installed in approximately 6 acres of grazing-excluded riparian areas along spring-fed Long Branch Draw. Additional technical details can be found in the methodologies section below. Time will tell if the project goals were met, as survivorship must be tracked over time to determine the recovery trajectory of this restored riparian plant community.

Overall the project was executed well, no volunteers or staff were injured in the process, and the level of quality of work was high. One exception was that, due to the snow storm an subsequent rescheduling of the spring project, willows cottonwoods and bare root stock that were staged for the project had to be kept on the ranch for an additional three weeks. Due to absence of adequate storage facilities on the ranch, a portion of the bare root container were degraded before installation. Any plants that were of visibly poor condition (mold or significant portions of dry roots) were not planted.

Three educational talks were provided to volunteers throughout the two volunteer weekends, providing volunteers with a conservation perspective on ranching (Michael Moon, Chico Basin Ranch), as well as the irrigation supply challenges for ranchers in the area (Kathryn Baker, Chico Basin Ranch), and a bird hike (Bill Maynard).

Partners were very happy with the results and highly support working with WRV on similar projects in the future. As a result, WRV is working with project partners to fund and plan similar projects in 2014.


Overview: Chico Basin Riparian Projects
Camping & Bird Banding
2012 Sites-
Ranch Headquarters
2013 Site-
Long Branch
© 2013 Google
Google earth
Imagery Date: 10/22/2011
1999
38°29'37.18" N 104°25'52.26" W elev 5059 ft
Eye alt 24054 ft


Overview: Long Draw Branch Project, 2013
To Headquarters
2013 Site
Tolle and Ditch Reservoir Number 1
© 2013 Google
Google earth
Imagery Date: 10/22/2011
1999
38°28'59.97" N 104°25'18.64" W elev 5049 ft
Eye alt 9801 ft

Chico Basin Riparian Restoration Project

2013 Site (Long Branch Draw)

Long Branch Draw – 0+00 up (spring)
Chico Basin 2013

Long Branch Draw –1 0+00 down
Chico Basin 2013

Long Branch Draw – 10+00 up
Chico Basin 2013

Long Branch Draw – 12+00 down
Chico Basin 2013

Long Branch Draw – 10+00
(Installing photo points)
Chico Basin 2013

Long Branch Draw – Implementation
Chico Basin 2013

Additional Project Implementation Photos are available at:

https://wlrv.net/index.php?section=photos&action=eventPhotoList&fwID=1183

Methodology

Fencing: Before the grazing season begins, exclosures will be installed to keep cattle from entering the restoration sites. This involves six-foot electrical fencing, which allows rodents and other small animals to enter, but effectively blocks entry to hooved animals.

Russian olive removal: On long-branch draw, WRV removed Russian Olives by hand, excavating the entire root system from all specimens encountered in the riparian planting area, with the exception of three trees that will require cut-stump treatment in the fall of 2013.

Plant species selection: The specific listed below were narrowed down from a broader list of potential plains native trees and shrubs appropriate for riparian areas. Shorter stature shrubs such as western snowberry and Wood's rose were intentionally removed from the list in favor of shrubs that would provide a higher canopy elevation. The higher elevation shrubs and trees were selected by the partnership team in an attempt to meet an important site-specific goal, which was to provide the tallest average shrub cover, in order to mimic the habitat provided by Russian olive trees that migratory birds have been using at this site for decades. Also, the long-standing bird-banding station had been set up in Russian olive trees, now gone from the site, which are much taller than many native riparian shrubs.

Golden currant was on the list of plants to install, and was ordered, but did not wind up being planted due to a communication error with the nursery. To compensate for this, we planted a higher number of chokecherry and peachleaf willow than originally planned.

Planting methods and lesson's learned: WRV's analysis of previous riparian restoration efforts on the Vega property indicated that, while many of the plants appeared to be installed in hydrologically-appropriate zones, several challenges caused high plant mortality over the course of the first growing season. While it is certainly not our intent to highlight the results of the previous project, we would like to take the opportunity to shed light on some of the restoration treatments we implemented in the 2012 project with the hopes of improving the chances for success.

- Cottonwood Poles: Cottonwood poles were harvested from a young (2" and less diameter) stand near the project site, and hauled directly to Chico Basin Ranch, where they were stored in a stock pond for seven days before installation. The bottoms of the poles were cut fresh at a diagonal prior to installation into augered holes, so that the final height of the pole stood no more than 6' above the ground. The space around the poles was backfilled with a dirt-water slurry in order to ensure solid soil/stem contact throughout the length of the cottonwood pole in the augered hold.
    - Previously-installed cottonwood poles stood between 10 and 16 feet above the ground, making them much more vulnerable to high winds, and requiring a much greater distance for sap to travel from root to leaf. In addition, it appears that, without a slurry, backfilling with dried clay soil made it near impossible to create solid soil-stem contact in the aguered holes.
- Peachleaf and coyote/sandbar willow cuttings: these cuttings were treated in a similar fashion to the cottonwood poles, with the most vigorous material being no greater than 3/4 inch in diameter. Cuttings were installed in 1 inch diameter by 3-foot long pilot holes and native soil was wedged back against the installed cuttings. The tops of installed cuttings
- were trimmed about 18" above the ground, accounting for the height of competing herbaceous vegetation. All cottonwoods and willows were installed on the fringe of the

wetland green-line, high enough to avoid anoxic soil conditions, yet not so high that the bottom of the cutting could not be installed with at least 4 inches into the water table.

- Bare root shrubs were installed, upon research findings, without any artificial fertilizers or hydration pellets. However, they were installed in the upland fringes just above the greenline areas, so that their roots had a good chance of being irrigated naturally via the capillary fringe above the water table. In addition, a circle of sod extending beyond the dripline of each installed shrub was removed before plant installation. After plant installation, the sod was used to anchor a dense weed fabric over the top of the planting hole. One to two staples were used in addition to the anchoring sod in order to keep the weed fabric firmly anchored to the ground. All installed plants were watered thoroughly (both in the planting hole, and above the installed plant).
    - Previously-installed shrubs appeared to be located in appropriate locations, but weed fabric appeared to be inadequate to suppress weeds. Beyond this, we are not certain what variables may have contributed to the mortality rate, estimated at 50% survival in the first growing season.

Expectations for survivorship: It is our hope that, by evaluating the previous work on this site, and utilizing the practices listed above, that the installed shrubs will have a higher chance of success as compared to the Vega site, which has a higher occurrence of wetland soils in the riparian planting zone than the Long Branch Draw site, which contains more sandy soils. In addition, the groundwater conditions of Long Branch Draw are more consistent, and are expected to remain high throughout the growing season, as compared to the Vega site planted in 2012.

Refer to the tables below for numbers of each species planted, by section. A breakdown of total species planted in 2012 is as follows:

Total Plants Installed, by species:

Bare Root Stock				Cuttings			
golden currant (yellow)	choke cherry (pink)	peach leaf willow (orange)	**Total**	Coyote Willow Whip (crossed blue)	Peach Leaf Cutting (orange)	Cotton-wood Whip (blue)	Cotton-wood Pole (blue)
114	114	174	402	355	50	80	65

Monitoring

Chico Basin Ranch has been monitoring transects since 2002 to make better management decisions and to analyze grazing management programs and their outcomes. These transects can be viewed on line at: www.landekg.com; User name: duke, Password: ranchdata. Areas on Vega creek have been fenced completely to create control areas to better analyze the effects of prescription management strategies. To further understand the impacts of grazing in riparian areas, and the affects of riparian restoration treatments, as well as the interactions of grazing on these treatments, Chico Basin has and will continue to install a complex of exclosures in the riparian areas along Vega Creek that allow for no grazing of wildlife or livestock. These areas will aid in understanding the impact of management decisions in riparian corridors. The exclosures were designed and built in consultation with CDOW and NRCS personnel, at a variety of distances from pools of water and areas where young woody plants are beginning to respond to the rest and grazing management.

In addition to ranch monitoring efforts, WRV has tracked areas of plant installation, and has established baseline photos of each site that received restoration treatments. Follow-up monitoring will be conducted in 2013 and 2014 to determine survivorship of plants installed in 2012 and 2013, and to assess the condition of restored sites relative to the baseline condition.

Continued monitoring (5-10 years) is necessary to evaluate long-term success, and determine if the desired shrub cover and architecture is being achieved. Such long-term monitoring will require a collaborative effort by all project partners involved to make sure that project goals were met. If monitoring results indicate that goals were not met, project partners will need to understand why and develop appropriate restoration treatments to address the shortcomings.

CONTACT INFORMATION

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