

Comanche and Cordova Creeks Watershed  
Restoration Action Strategy, Education, and Restoration  
**Project FY01-Q NUMBER C9-996101-009-01**  
**Contract Control # 02 667 5000 0007**



**FINAL REPORT**

**SUBMITTED BY**

The Quivira Coalition

October 31, 2005

## **EXECUTIVE SUMMARY**

*“For the duration of our time on the planet...restoration will be the great task.”*

– Kenneth Brower, in an Introduction to Leopold’s ‘A Sand County Almanac’

Taped to my computer is a postcard that I found in a local coffee store. It depicts an ill-looking planet Earth, with its tongue hanging out, imprinted with the message: “The world could be in better shape.” Surrounding this image are words: renew, heal, reaffirm, nurture, rekindle, revitalize, repair, revive, mend, soothe, rebuild, fix, regenerate, reinvigorate.

They are words of action – positive, progressive, healing action. They are words of advancement, not defense or keeping safe, and as such give people direction and hope. It involves us in a ‘giving’ rather than merely a ‘taking’ – a giving back to nature, an honoring, while we necessarily continue to take nature’s bounty.

They are also words of redemption.

We have taken much from the natural world, often with tragic consequences, and we continue to take at an accelerating rate. Restoration, by contrast, is a way to redeem our behavior – a kind of moral exercise, if you will.

**On the Valle Vidal, we have a tremendous opportunity to rekindle our solidarity with the natural world – by giving the gift of restoration, not by continuing to commit more theft.**

In fact, serious redemption has already begun.

Four summers ago, I received a phone call from Dick Neuman, then presiden, of a fly-fishing organization called New Mexico Trout. For years his group had been contributing money and labor toward an effort to restore Comanche Creek, a tributary of the Rio Costilla, located in the western half of the Valle Vidal unit of the Carson National Forest.

The reason for their substantial investment of time and money was simple: they wanted to restore Comanche Creek to its former status as a prime cold-water stream for the native Rio Grande Cutthroat Trout – one of only two native trout in New Mexico. As Dick explained, while there were plenty of ‘Cuts’ in Comanche, the watershed population as a whole was still struggling for survival.

Accepting his invitation for a tour, I quickly learned why. The Valle Vidal had been hard used. Much of the West’s recent history, in fact, could be read into the condition of the property at the time of its transfer to the Forest Service in 1982: massive overgrazing by cattle, widespread scars from logging and road-building, and the ‘bleeding’ effects of a historic gold mining district.

After the transfer, I learned, an innovative effort was made on the part of the Forest Service, the grazing permittees, and various wildlife organizations to reverse this ‘Old West’ legacy. A herder was hired by the grazing association, willows and cottonwoods were planted along the creek, and a mile-long elk enclosure was constructed.

While these efforts were helpful, the creek and its fish population continued to struggle. All the pole planting, for instance, had failed. Dick called us because he was worried.

## Pulling Together

Fortunately, the Surface Water Quality Bureau of the New Mexico Environment Department – and by extension the EPA – was also worried about Comanche Creek. Excessive sediment movement, the presence of aluminum, and high water temperatures had landed the stream on the state’s 303d list – requiring action.

So a dialogue began that resulted in an award from the EPA, under its 319 program (Clean Water Act), for a substantial, multi-year grant to restore a portion of Comanche Creek to health. Partners included the US Forest Service, the NM Environment Department, NM Game & Fish, Trout Unlimited – Truchas Chapter, NM Trout, the Valle Vidal Grazing Association, The Quivira Coalition, Amigos Bravos, Rocky Mountain Youth Corps, the Taos Soil and Water Conservation District, and consultants Bill Zeedyk, Steve Carson, and Kirk Gadzia.

As part of the 319 application, the partners, now called the Comanche Creek Working Group, agreed to the following process:

- 1) Conduct an assessment in order to identify specific impairments
- 2) Conduct baseline monitoring and mapping
- 3) Identify and implement Best Management Practices
- 4) Conduct an educational program

“The ultimate goal of this project is to improve the condition of the Rio Costilla watershed to meet current water quality standards and to restore normal hydrologic function to the Rio Costilla and its tributaries,” they wrote in the grant.

“Completely achieving this goal will likely take decades. Over the next three years, however, we hope to establish the technical and organizational foundation for achieving this goal and to begin some on-the-ground restoration at Comanche Creek to maximize habitat for the Rio Grande Cutthroat Trout.”

That was the official goal. The unofficial goal was to give a gift back to nature. We wanted to be engaged in an act of redemption – if much of the Old West could be read in the Valle Vidal’s pages, then we wanted to write a new, hopeful chapter.

## What Was Done

In the summer of 2002, members of the Working Group conducted an assessment of the watershed. Their findings confirmed what long-time observers had suspected. The watershed suffered from three broad ills:

- The legacy of historical misuse was evident in raw streambanks and overall poor hydrological function, which contributed to high sediment loads;
- Poorly designed and maintained roads, including the main road, also contributed significantly to sediment transport; and
- Overgrazing by cattle and elk were prohibiting the growth of shade-creating woody plants, such as willows and cottonwoods.

After baseline monitoring and mapping were completed, the Working Group embarked on a three-pronged strategy to address these impairments:

Problem Roads. Bill Zeedyk and Steve Carson, with assistance from George Long, conducted an inventory of the roads and prioritized which needed attention first. They paid particular attention to the placement of culverts – a poorly placed culvert can quickly create a headcut uphill and cause erosion downslope.

To date, twelve miles of road have been rehabilitated to reduce sediment sources in the upper watershed; some were restored to natural contours, some had rolling dips and waterbars installed. Two culverts were removed and one stream crossing was rehabilitated to restore natural floodplain banks and decrease sediment movement.

Raw Streambanks. Under the guidance and tutelage of Bill and Steve, a total of 102 erosion control structures were constructed within the watershed, including two rock divits, one head cut control structure, 53 one-rock dams, one plunge baffle, one plunge pool, nine rock baffles, two worm ditches, 26 rock bowls, and six vanes.

The purpose of these structures is to speed up natural recovery processes. Scouring by erosion caused by historic overgrazing and logging resulted in the creek cutting down below its traditional flood plain. Over time, the creek had begun to heal itself by creating a new floodplain – “re-meandering” itself to dissipate energy and drop sediment – but there were plenty of old “wounds” that had not healed.

Hungry Animals. In the mid-1990s, the Forest Service experimented with a novel idea: create house-sized “mini-exclosures” around existing native willow clumps to protect them from grazing animals. This was in contrast to a mile-square elk exclosure built in the 1980s on the creek which proved difficult to maintain.

The mini-exclosures were deemed a success. So the Working Group decided to build more. With the energetic assistance of NM Trout, Truchas Chapter of Trout Unlimited and Rocky Mountain Youth Corps, which employs “at-risk” youth from the Santa Fe area, over 50 mini-elk exclosures have been constructed on the lower stretch of Comanche.

These are just a few steps down a long road. But we know that they are the right steps to take – that’s because the Valle Vidal is healing. It could be in better shape, as my postcard suggests, and it will be – thanks to the hard work of a great many people.

- Courtney White

**FINAL FINANCIAL ACCOUNTING:**

**In the final analysis, this project expended \$401,645.93**, of which **\$217,553.62** was Fed 319 funding and **\$184,092.31** was non-Fed match.

Final Invoice				
Federal	Expenditures	Cash		
	Budget	Current	Cumulative	Remaining
Personnel/Labor	\$119,295.82	\$16,532.85	\$119,290.83	\$4.99
Contractual	\$39,595.15	\$0.00	\$39,595.15	\$0.00
Travel	\$8,475.08	\$256.07	\$7,033.89	\$1,441.19
Equipment	\$18,425.00	\$0.00	\$18,425.00	\$0.00
Supplies	\$21,512.00	\$2,370.30	\$21,511.80	\$0.20
Other	\$11,696.95	\$242.00	\$11,696.95	\$0.00
<b>Sub Totals</b>	<b>\$219,000.00</b>	<b>\$19,401.22</b>	<b>\$217,553.62</b>	<b>\$1,446.38</b>
Match	Expenditures	Cash & In-kind		
	Budget	Current	Cumulative	Remaining
Personnel	\$129,248.00	\$0.00	\$129,760.24	-\$512.24
Contractual	\$10,750.00	\$0.00	\$10,281.62	\$468.38
Travel	\$14,803.00	\$0.00	\$29,365.77	-\$14,562.77
Equipment	\$6,400.00	\$0.00	\$441.62	\$5,958.38
Supplies	\$17,680.00	\$0.00	\$10,124.47	\$7,555.53
Other	\$0.00	\$0.00	\$4,118.59	-\$4,118.59
<b>Sub Totals</b>	<b>\$178,881.00</b>	<b>\$0.00</b>	<b>\$184,092.31</b>	<b>-\$5,211.31</b>
<b>Total Expenditures</b>	<b>\$397,881.00</b>	<b>\$19,401.22</b>	<b>\$401,645.93</b>	<b>-\$3,764.93</b>
<b>12-01-01 to 9-30-05</b>				

## ACCOMPLISHMENTS

### **Outreach:**

As part of this grant, 15 educational events were held either on Comanche Creek or around New Mexico and 10 volunteer work weekends on Comanche Creek. Over 780 people participated in these events.

- (10) NM Trout and Trout Unlimited – Truchas Chapter volunteer work weekends: ~120 people
- (6) Riparian Restoration and Erosion Control workshops: 165 attendees
- (8) Outdoor Classrooms on Rangeland Health, Drought and Herding: 202 attendees
- (1) 2 day **Conference “The New Ranch at Work”** held in Albuquerque, NM, **January 18-19, 2002.**  
300 attendees

During this Grant, two Quivira Coalition Newsletters were written and printed:

- ***Holy Cow! Biodiversity on Ranches, Developments, and Protected Areas in the “New West”***, January 31, 2002, and
- ***Balancing Weeds and Ranching***, June 2002.

Each newsletter was distributed to over 2,000 people from our database and given out (free of charge) on request and distributed and educational events. During the time period of this grant other Newsletters (not funded by Grant) with related issues were produced and distributed and include:

- Is Long-term Rest the Answer to the Grazing Debate?* May 2002
- A Sense of Place: Fishing for Solutions*, Sept. 2002
- Restoring Natural Systems Through Natural Processes*, October 2003
- Watershed Management in Nature’s Image: About Commitment to and Kinship with a Place*, June 2004
- Collaboration in Our Backyard: Lessons from Community-Based Collaboration in the West*, April 2005 (Restoring Comanche Creek article)**
- Collaborative Science: Making Research a Participatory Endeavor for Solving Environmental Challenges*, August 2005

The Quivira has also produced other outreach venues through this grant that include:

***A Good Road Lies Easy on the Land: Water Harvesting from Low Standard Rural Roads*** with 5000 copies to be printed for free distribution, 3 Interpretive Signs along the lower reach of Comanche Creek, and a website at [www.comanchecreek.org](http://www.comanchecreek.org). This website will be a repository for all information related to the Rio Grande cutthroat trout Habitat Restoration project along Comanche Creek.

**Comanche Creek Watershed**  
**Native Rio Grande Cutthroat Trout**  
**Habitat Restoration Project**  
(Established 1993)



The goal of this project is to restore habitat for the Rio Grande cutthroat trout and other native fish species.

The objectives of this project are to:

- Increase streamside vegetation to lower water temperature and stabilize streambanks
- Reduce fine sediment in the stream to improve trout spawning and feeding habitat
- Increase number and depth of pools to improve over-wintering fish habitat

This project on National Forest Lands has been possible through partnership with:

• Albuquerque Wildlife Federation	• New Mexico Trout
• Amigos Bravos	• New Mexico Wilderness Alliance
• Boy Scouts of America	• Taos Soil & Water Conservation District
• Environmental Protection Agency	• The Quivira Coalition
• New Mexico Department of Game & Fish -Habitat Stamp Program	• Trout Unlimited -Truchas Chapter
• New Mexico Environment Department -Surface Water Quality Bureau	• Valle Vidal Grazing Association
	• Rocky Mountain Youth Corps

Please visit Interpretive signs at Chuckwagon Creek parking area.

### ***Survey, Assessment and Monitoring***

All surveys, assessments and monitoring reports will be available as a PDF files on the Comanche Creek website.

A Watershed Restoration Action Strategy (Watershed Implementation Plan) was completed and submitted in 2003 and was updated in September 2005 and will be used to help in the implementation of a second Clean Water Act 319 (h) grant, ***Comanche Creek Watershed Restoration Project—Restoring Habitat for the Rio Grande Cutthroat Trout, Part 2*** that was secured by The Quivira Coalition to continue restoration work in the Comanche Creek Watershed. A Project Quality Assurance Plan (PQAP) was completed and approved in 2002. It was also updated in 2005 to be used as part of the second 319 grant.

In 2001 a comprehensive Comanche Creek watershed qualitative assessment (***Comanche Creek Preliminary Assessment Report***) was completed and led to the location of eleven sites for upland baseline quantitative monitoring as reported in the ***Comanche Creek Baseline Quantitative Uplands Monitoring Report (2001)***. In 2004 upland transects were re-read and compared to 2001 data in the report, ***Quantitative Monitoring Report of Upland Range Conditions within the Comanche Creek Watershed*** (data comparison 2001 & 2004). Other watershed observations were noted in this report. Photo points of transects were retaken every year through 2005.

An assessment of Cordova Creek up-lands was completed in 2001 by Bionomics SW for the New Mexico Department of Transportation. This report led to the selection of 7 monitoring sites on the slopes of Ski Rio. The baseline data is part of the ***Cordova Creek Baseline Uplands Monitoring Report, Ski Rio Basin*** written in 2004.

Zeedyk Ecological Consulting began the first of 2 Comanche Creek Watershed Roads Inventories. In 2003, 50 miles of old logging roads and administrative roadways in the watersheds of Fernandez, Chuckwagon, Gold, Labelle, Little Costilla, Springwagon, Holman, Grassy and several intermingled, unnamed watersheds was inventoried. A Road Inventory Report by Bill Zeedyk “determined that about 9 miles of roadways need erosion control treatment using heavy equipment and about 2 miles can be maintained using hand tools. The remaining 40 miles need no follow-up treatment for erosion control purposes, or indicated sites are so scattered or marginal that cost of further treatment is not warranted.

In 2001, Blue Earth Ecological Consultants, Inc produced a ***Trout Habitat Monitoring Plan for Comanche Creek***, and in 2002 provided a Rosgen Level II morphological assessment report, ***Comanche Creek Trout Habitat Monitoring Results***, with survey locations on the middle reach of Comanche where no current restoration work is in progress. In 2004, Art Vollmer, Truchas Chapter – Trout Unlimited – 2004 re-implemented the survey and produced a report, ***Comanche Creek Trout Habitat Monitoring Summary Report*** comparing 2001 and 2004 data.

In the original PQAP it was stated that Rosgen Level II would be implemented on the lower reach but this was not stated as part of the workplan. Therefore as part of the second grant, Rosgen II and Vegetation monitoring is being extended to the lower reach of Comanche to quantify local effects of restoration treatments. In June and August, 2005 Cuchilla Blanca Ecology performed baseline monitoring at two sites on Comanche Creek in the Valle Vidal. Both sites were located in areas where Elk exclosures had been built. Rosgen Level II monitoring (cross sections, longitudinal survey) was implemented at both sites. Several “hubs” were set up to accurately monitor the changes in bank

location and shape due to the installation of Vanes for bank protections. A hub is several cross-sections arising from the same central point (the hub), unlike typical monitoring cross-sections, they may or may not be located at the “riffle” of the stream.

Vegetation monitoring was performed at both sites using “Monitoring the Vegetation Resources in Riparian Areas” by Alma H. Woodward, also known as “Greenline Monitoring”. Vegetation Cross-Section Composition, Greenline Composition, and Woody Species Regeneration monitoring was implemented at both sites.

Site 1 (Large Exclosure Site) was placed in the large Elk Exclosure on Comanche Creek off of where Forest road 1950 leaves the Comanche Creek valley. This site is upstream of a tributary called Springwagon Creek, which enters from the right. Site 2 is about 1.2 miles upstream from the confluence of Comanche Creek with the Rio Costilla, and runs through three small Elk exclosures, numbers 43-45 (exclosure numbers may be different after completion of installation of exclosures in 2006).

### ***Mapping:***

Geographical Information System (GIS) mapping has been very helpful in watershed assessment and treatment implementation. In 2001 location of the 11 monitoring transects were mapped and in 2005 location of Rosgen II sites were located and given a Geographical Positioning System (GPS) location or UTM. In 2002 the lower reach (Little Costilla down to Costilla Creek) left and right banks were mapped for streamline and location of proposed instream restoration treatments were also mapped. From 2002-2005 the location and area of completed exclosures along with upland erosion control structures location and type were mapped.

### ***Permitting:***

Permitting (404/401) and archeological clearance for the lower reach of Comanche creek was submitted in 2004 and approved in 2005.

### ***Restoration:***

#### **Instream Structures**

**Vanes** are wood post or rock structures installed at strategic locations in Comanche Creek to direct stream flow left or right, away from eroding banks to reduce sediment production and promote streambank vegetative growth. ***Fifty-six vanes are designated to be installed along the lower reach.***

- 3 were installed as a demonstration project in 2003
- 3 were installed as a demonstration project in 2004
- 8 were installed by RMYC 2005
- 3 were installed by Albuquerque Wildlife Federation 2005
- 39 will be installed July-Sept. 2006



**Mini-Exclosures** are small fenced areas installed in strategic places and designed to increase woody streamside vegetation and protect overhanging banks from elk and livestock grazing and trampling. Desirable woody vegetation includes willows, cottonwoods, and alders. ***Fifty-two mini-exclosures are designated to be constructed along the lower reach.*** Due to a flood event in May of 2005 most of the mini-exclosures were damaged or all the way down. New specifications for building these exclosures were developed and various volunteer groups came out in record numbers to help rebuild about 42 structures.

- 5 were installed around 1993 and survived the high water very well; some repair is needed
- 42 structures were either fixed, added on to, re-built or newly built July-September 2005
- 5 exclosures will need to be finished in 2006
- 1 exclosure is to be removed
- There is one very large exclosure in the middle reach just west of Gold Creek and (some repair work was done where the fence crosses Comanche, but there is a downed section on the SE corner), 4 mini-exclsoures, and one downed cattle exclosure. None of the exclosures in the middle reach were worked on.



**Upland Erosion Control Treatments** such as Rock or log structures are installed along side drainages of Comanche Creek. These are designed to slow the movement of water, collect soil, nourish vegetation and prevent sediment from entering the creek. Examples include One Rock Dams, Rock Bowls, and other structures.



**Comanche Point Gully** – treatments installed 2003-2004 during outdoor educational workshops with Bill Zeedyk

- 50 rock structures including one rock dams, rock baffles and rock bowls to Induce a Meander in the drainage
- 1 drifter fence to limit livestock and wildlife access to a forming gully on the east side of Comanche Point Gully.

**North Drainage below Chuckwagon Creek** – treatments installed 2003-2004 during outdoor educational workshops with Bill Zeedyk

- 27 rock structures including one rock dams and rock baffles

**North Drainage above Chuckwagon Creek** – treatments installed 2003 during an outdoor educational workshop with Bill Zeedyk

- 2 rock divits and 1 one rock dam

**Culvert Drainage into Holman Creek off of FSR 1950** – treatments installed 2004 during outdoor educational workshop with

Bill Zeedyk

- 7 rock structures including one rock dams and rock bowls to heal headcuts

**Holman Creek wet meadow** - treatments installed 2003-2004 during outdoor educational workshops with Bill Zeedyk

- 1 log & fabric headcut control structure
- 1 worm ditch above headcut
- 16 rock structures including one rock dams and rock bowls

One hundred and seventy-one restoration treatments were installed within the Comanche Creek Watershed as of September 2005



**Road Sediment Control Treatments** direct runoff from the road surface onto the landscape which will filter sediment and reduce stream turbidity. Different kinds of treatments have been installed throughout the watershed to improve drainage. Examples of treatments called Rolling Dips spill water onto vegetative buffer zones instead of directly into the creek. Examples are located on

closed roads along Chuckwagon creek, Holman creek, and Gold creek. Road drainage treatments completed in 2004 include:

- 0.2 mi. road completely restored to natural contours.
- 1 stream crossing rehabilitated to restore natural floodplain banks and decrease sediment from FS Administrative use road.
- 5.2 miles (approx.) stabilized with rolling grade dips & waterbars.
- 2 culverts removed that were affecting the stream channel.
- 1 culvert plugged - not needed for road drainage and better handled surface flows with a grade dip.
- 2 culverts functionality improved with install of associated grade dips.
- Holman Creek (old timber sale access road) 1.3 miles (approx.) stabilized with rolling grade dips & waterbars.
- Gold Creek 1.8 miles (approx.) stabilized with rolling grade dips & waterbars.
- Chuckwagon Canyon 3.4 miles (approx.) stabilized with rolling grade dips & waterbars.
- 1.0 miles road completely restored to natural contours.



## **PROJECT CHRONOLOGY**

### **October 2001:**

Assessment and monitoring of Comanche Creek Drainages (Task 9)

### **October 2001:**

Assessment and monitoring of Cordova Creek sub-watershed (Task 10)



### **Oct. 20-21, 2001**

**Outdoor Classroom on Rangeland Health** at the Gray Ranch, near Animas, NM (Task 6)

### **November 5, 2001**

Invoice #1 Submitted

### **December 6, 2001**

Invoice #1 submitted

### **January 18-19, 2002.**

2 day **Conference “The New Ranch at Work”** held in Albuquerque, NM, (Task 6)

### **January 28, 2002**

Invoice #3 submitted

### **January 31, 2002**

***Holy Cow! Biodiversity on Ranches, Developments, and Protected Areas in the “New West”*** Newsletter (Task 7)

### **March 18, 2002**

Invoice #4 submitted

### **March 2002**

Quarterly Report Submitted (Task 14)

### **April 23-24, 2002**

A Comanche Creek on-site tour was held by members of the Comanche Creek



Working group. Specific locations for implementing BMP’s (mini-exlosures and vanes) were identified. (Task 3)

**April 26-27, 2002.** 2-day workshop on ***Managing Rangelands through a NM Drought*** held at the Bosque del Apache National Wildlife Refuge and at Keith Banks’ Lightning Bolt Cattle Co. Ranch just northeast of Socorro. (Task 6)

### **April 29, 30 and May 1<sup>st</sup>, 2002**

A 3-day Herding Clinic was held at Ghost Ranch Presbyterian Conference Center near Abiquiu, NM. (Task 6)

### **May 11, 2002**

***Is Long-term Rest the Answer to the Grazing Debate?***” was held at the Sevilleta National Wildlife Refuge. (Task 6)

### **May 15, 2002**

Invoice # 5 submitted

### **May 21-22, 2002**

Both sides of lower Comanche Creek (below where Little Costilla drainage) were mapped and locations were marked for map points that included: vanes, willows, cottonwoods, mini-elk enclosures etc. (Task 13)



### **June 2002**

**“Balancing Weeds and Ranching”**

Vol.5, No.2

Newsletter published. (Task 7)

### **June 28, 2002**

The Comanche Creek Working Group Meeting (Task 3)

**July 12-13, 2002**

Riparian Restoration Workshop, Simons Ranch, La Cienega, NM (Task 6)



**July 13-14, 2002**

Outdoor Classroom on Rangeland Health on the CS Ranch, Cimarron, NM; (Task 6)

**July 27, 2002.**

Ranching 101 for non-ranchers, Lake Valley Ranch, NM (Task 6)

**July 31, 2002**

Invoice #6 submitted

**July 2002**

Quarterly Report Submitted (Task 14)

**August 3-4, 2002**

*Riparian Restoration Workshop along Comanche Creek (Task 6)*



**August 3-4, 2002**

GPS mapping and photo documentation of side channel erosion structures (Task 13)

**August 9-10, 2002**

Las Huertas Creek – Riparian Restoration Workshop, Albuquerque Open Space, Placitas, NM (Task 6)



**August 16-18, 2002**

NM Trout and Trout Unlimited restoration work weekend on Comanche Creek (Task 15 & 17)

**August 24-25, 2002**

Outdoor Classroom on Rangeland Health on the Carrizo Valley Ranch, Capitan, NM (Task 6)



**September 5, 2002**

Invoice #7 submitted

**September 6, 2002**

A Proposed Quality Assurance Plan (PQAP) submitted (Task 2)

**September 2002**

Comanche Creek Assessment Report Finalized and sent to Jornada Experimental Range for Review (Task 9)

**September 7, 2002**

Tour of Sam Montoya's irrigated pasture cattle operation, Sandia Pueblo, NM (Task 6)

**September 13-15, 2002**

NM Trout and Trout Unlimited restoration work weekend on Comanche Creek (Task 15 & 17)

**September 14-15, 2002**

Outdoor Classroom on Rangeland Health on the Williams' Ranch, Quemado, NM (Task 6)



**September 24-26 2002**

Re-take of photo points for upland transects (Task 12)

**September 27-29, 2002**

NM Trout and Trout Unlimited restoration work weekend on Comanche Creek (Task 15 & 17)

**October 1, 2002**

Invoice #8 submitted

**October 2, 2002**

The Comanche Creek Working Group met on at the BLM Offices in Santa Fe, NM (Task 3)

**October 2002**

Quarterly Report Submitted (Task 14)

**December 12, 2002**

The Proposed Quality Assurance Plan Approved (PQAP) (Task 2)

**January 2003**

Quarterly Report Submitted (Task 14)

**March 10, 2003**

Comanche Creek Working Group Meeting (Task 3)

**April 16, 2003**

Invoice # 9 submitted

**April 2003**

Quarterly Report Submitted (Task 14)

**June 2003**

Watershed Implementation plan for the Comanche Creek Watershed (WIP) submitted (Task 3)

**June 2-6, 2003**

Comanche Creek Roads Survey Completed (Task 11)

**June 24, 2003**

Invoice #10 submitted

**June 25, 2003**

Comanche Creek Roads Survey Report submitted by Bill Zeedyk (Task 11)

**June 28-29, 2003**

NM Trout and Trout Unlimited restoration work weekend on Comanche Creek (Task 15)

**July 25-26, 2003**

NM Trout and Trout Unlimited restoration work weekend on Comanche Creek (Task 15)

**July 25, 2003**

A Comanche Creek Working Group meeting was held at Shuree Lodge (Task 3)

**July 21-August 2, 2003**

Rocky Mountain Youth Corp builds mini-elk Exclosures along Comanche Creek (Task 15 & 17)

**July 2003**

Quarterly Report Submitted (Task 14)



**August 23-24, 2003**

NM Trout and Trout Unlimited restoration work weekend on Comanche Creek (Task 15)

**August 28, 2003**

Invoice #11 submitted

**September 12-13, 2003**

***Riparian Restoration and Induced Meandering*** Workshop along Comanche Creek Watershed (Task 6)



**September 12-13, 2003**

Photo-points and up-land transect photos retaken (Task 12)

**September 27-28, 2003**

NM Trout and Trout Unlimited restoration work weekend on Comanche Creek (Task 15 & 17)

**September 30, 2003**

Invoice #12 submitted

**October 2003**

Quarterly Report Submitted (Task 14)



**December 12, 2003**

The Comanche Creek Working Group met at The Quivira Coalition office in Santa Fe, NM (Task 3)

**December 31, 2003**

Invoice #13 submitted

**January 2004**

Quarterly Report Submitted (Task 14)

**March 16, 2004**

The Comanche Creek Working group met at The Quivira Coalition office in Santa Fe, NM (Task 3)

**April 5, 2004**

A final Amendment Letter (#3) was submitted (Task 3)

**April 2004**

Quarterly Report Submitted (Task 14)

**June 14-24, 2004**

Rocky Mountain Youth Corps worked on exclosures (Task 15 & 17)

**June 26-27, 2004**

NM Trout and Trout Unlimited restoration work weekend on Comanche Creek (Task 15 & 17)

**July 26 through end of September 2004**

Implementation of Road BMP's (Task 16)

**June 28-July 1, 2004**

Rocky Mountain Youth Corps worked on elk exclosures (Task 15 & 17)

**July 29, 2004**

Comanche Creek Working Group Meeting at Shuree Lodge, Valle Vidal (Task 3)

**July 30-31, 2004**

NM Trout and Trout Unlimited restoration work weekend on Comanche Creek (Task 15 & 17)

**July 30-31 2004**

Riparian Restoration, Erosion Control and Induced Meandering Along Comanche Creek Workshop (Task 6)



**July 2004**

Quarterly Report Submitted (Task 14)

**August 5, 2004**

Invoice #14 submitted

**August 11, 2004**

Cordova Creek Baseline Uplands Monitoring Report Submitted (Task 10)

**August 28-29, 2004**

NM Trout and Trout Unlimited restoration work weekend on Comanche Creek (Task 15 & 17)

**September 6-12, 2004**

Re-reading of upland monitoring transects and BMP Documentation (Task 12)

**September 15, 2004**

Invoice #15 submitted

**October 27, 2004**

Quarterly Report Submitted (Task 14)

**October 29, 2004**

Invoice #16 submitted

**November 4, 2004**

Invoice #17 submitted

**November 18, 2004**

Comanche Creek Working Group Meeting at the Quivira Coalition Office, Santa Fe, NM (Task 3)



**February 15, 2005**

Comanche Creek Meeting to discuss and begin the text and design of an interpretive sign for the project (Task3)

**March 4, 2005**

January 2005 Quarterly Report Submitted (Task 14)

**March 10, 2005**

Comanche Creek Working Group Meeting at the Quivira Coalition Office, Santa Fe, NM (Task 3)

**April 1, 2005**

Invoice #18 Submitted

**June 11, 2005**

Comanche Creek Working Group Meeting at Shuree Lodge, Valle Vidal, NM (Task 3)

**September 1, 2005**

Completion of Introduction and Trout Interpretive signs; delivered to QC office. (Task 6)

**September 12, 2005**

Invoice #19 Submitted

**September 14-15, 2005**

Re-take up-land monitoring transect photos (Task 12)

**September 30, 2005**

Costilla WRAS submitted (Task 5)

**September 30, 2005**

Updated Comanche WRAS submitted (Task 3)

**September 30, 2005**

Comanche Creek Website (Task 7)

**September 30, 2005**

Completion of Uplands Quantitative Monitoring Report and Submission (Task 12)

**September 30, 2005**

Water Harvesting from Low-standard Rural Roads Draft copy submitted (Task 7)

**September 30, 2005**

Completion of Interpretive Treatment Sign; delivered to QC office (Task 6)

**September 30, 2005**

Final Invoice #20 Submitted

## **LESSONS LEARNED**

This project was successful because:

It had a strong “sparkplug” that kept the project on course and “got things done”

It had the backing and support of the Carson National Forest Questa Ranger District Staff.

It had professional and knowledgeable contractors and educators who believe in doing “the job right the first time”.

It had a core group of volunteers from New Mexico Trout, Trout Unlimited – Truchas Chapter, other environmental organizations, and the general public who believe being a good steward of the land is getting out on the land and being part of a restoration effort.

It got the word out that collaborative restoration can be successful.

It held regular working group meetings to discuss the progress of the grant, resolve implementation issues, and plan work for each season.

It learned that:

- communication,
- pre-planning,
- good coordination,
- on-site supervision,
- documentation,
- quality assurance,
- written specification, and
- consideration of geomorphologic and hydrological conditions are needed to ensure successful implementation of a riparian restoration project.

## **OBSTACLES**

A few unavoidable situations prevented full implementation of the original workplan to the extent that 4 amendments were required and the end date for the grant was extended to September 2005. Due to the starting date of this grant, baseline upland monitoring took place in early October of 2001. For data comparison to be relevant re-reading of transects would need to take place in September of 2004 at the earliest. This extension would allow time for finalization of 3 years of monitoring data, complete the construction and maintenance of mini-elk exclosures, produce a working Rio Costilla WRAS, update the Comanche WRAS, re-work Task 7 to publish “*A Good Road Lies Easy on the Land...Water Harvesting from Low Standard Rural Roads*” book, produce 3 interpretive signs, and a Comanche Creek website.

Task 4 Cordova Creek WRAS: Since the NM Department of Transportation has received an EPA-319 grant to evaluate and install BMP’s on the lower section of Cordova Creek, and to study the possible re-location of NM 196, we requested that further work on the Cordova Creek WRAS be undertaken by this group. Should the new owners of Ski Rio decide to apply for 319 funding in the future, this document can be updated at that time by Ski Rio.

A few workshops as part of Task 6 had to be cancelled due to low attendance. Re-scheduling and developing different methods of publicity helped and no other workshops had to be re-scheduled due to lack of attendance.

Working in the Valle Vidal and along Comanche Creek is a seasonal event and must be realized when planning assessment and restoration work. The area is officially closed to off road traffic until July 1 due to Elk Calving in the area. September-October is hunting season so off road access to the back country is limited and by permission only. The only three months available for on-the-ground work is July through September. The best month for road survey on assessments if 4 wheelers or other vehicles are needed is early July.

One of the largest challenges was the 10 year flood in that occurred in May of 2005. Up to 80% of the exclosures were torn down or damaged. As part of the second Comanche Grant, each exclosure was surveyed and re-designed in accordance with hydrological patterns. A new specification sheet was created so that all the different groups that help build exclosures would be on the “same page”. A record number of volunteers came out in July, August and September to re-build. There are only 5 remaining to finish in 2006.

Another large challenge was with the two local grazing associations the RCCLA and the Valle Vidal Grazing Association. All efforts to organize a workshop, or meeting failed. Work on the current “grazing plan” never materialized. Missing this opportunity probably led to the continued degradation of the upper left fork of Springwagon Creek. This must be a priority for the 2<sup>nd</sup> Comanche Grant.

## **TECHNICAL TRANSFERS**

During the course of this project, the QC has gained an invaluable amount of information that it is ready, willing, and able to pass on to other non-profits and watershed groups:

- How to publicize and conduct successful outreach events. As part of this grant, the QC conducted 14 outdoor events and one Conference. We have developed a step-by-step organizational plan and often provide this document to other non-profits wishing to implement their own outdoor educational or conference events.
- How to build and maintain best management practices for riparian, wetland and road systems that include one rock dams, rock bowls, headcut control structures, vanes, baffles, wicker weirs, culvert catchments, worm ditch, exclosures and rolling dips. These treatments can be found in documents produced by The Quivira Coalition, Bill Zeedyk, and Kirk Gadzia with other collaborators:
  - ☐ *An Introduction to Induced Meandering: A Method for Restoring Stability to Incised Stream Channels,*
  - ☐ *An Introduction to Erosion Control,*
  - ☐ *Rangeland Health and Planned Grazing Field Guide, and*
  - ☐ *Specifications for Building Ungulate Grazing Exclosures.*
  - ☐ *A Good Road Lies Easy on the Land: Water Harvesting from Low-Standard Rural Roads.*

## **ACKNOWLEDGEMENTS**

As mentioned above, we commend the EPA and the NMED for the way this project was handled, with special thanks to Tim Herfel at EPA-Region 6, and to Maryann McGraw at the New Mexico Environment Department-Surface Water Quality Bureau. Thanks to Bill Zeedyk – Zeedyk Ecological Consulting, Kirk Gadzia – Resource Management Services, Steve Carson – Rangeland Hands, Art Vollmer – Truchas Chapter of Trout Unlimited, Norm Segal New Mexico Trout; Ron Thibedeau and George Long of the Questa Ranger District of the Carson National Forest. All the volunteers and workshop participants who helped and continue to help make this Rio Grande cutthroat trout habitat restoration project a success.

**We thank the following co-operating agencies and entities for their help and co-operation with the Rio Grande cutthroat trout habitat restoration project along Comanche creek. Their time and hard work is very much appreciated!**

*Albuquerque Wildlife Federation,  
Amigos Bravos,  
Boy Scouts of America,  
New Mexico Environment Department – Surface Water Quality Bureau,  
New Mexico Trout,  
New Mexico Wilderness Alliance,  
Rocky Mountain Youth Corps,  
Taos Soil and Water Conservation District,  
Quivira Coalition Volunteers,  
Trout Unlimited – Truchas Chapter,  
Valle Vidal Coalition,  
Great Old Broads for Wilderness,  
NM Hotshots,  
Forest Service Personnel from the Questa Ranger District,  
New Mexico Department of Game & Fish and many other people from the public sector!*