

U.S. Department of the Interior
Bureau of Land Management
San Luis Valley Field Office
46525 Highway 114
Saguache, CO 81149
Phone: 719-655-2547
Fax: TTY 719-655-2547

DRAFT
Environmental Assessment

**Environmental Analysis of the Summitville/Alamosa River Natural
Resource Damage Assessment and Restoration (NRDAR) Project:
Alamosa River Water Rights Acquisition for In-stream Flow Project**

DOI-BLM-CO-140-2010-007-EA

May, 2012



TABLE OF CONTENTS

CHAPTER 1 - INTRODUCTION.....	4
1.1 IDENTIFYING INFORMATION	4
1.2 ISSUES AND CONCERNS	4
1.3 INTRODUCTION AND BACKGROUND.....	5
1.4 PURPOSE AND NEED.....	6
1.5 DECISION TO BE MADE.....	6
1.6 PLAN CONFORMANCE REVIEW	7
1.7 PUBLIC PARTICIPATION.....	7
CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES.....	8
2.1 INTRODUCTION	8
2.2 ALTERNATIVES ANALYZED IN DETAIL	8
2.2.1 Proposed Action.....	8
2.2.2 No Action Alternative.....	9
2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL.....	9
CHAPTER 3 - AFFECTED ENVIRONMENT AND EFFECTS	10
3.1 INTRODUCTION.....	10
3.1.1 Interdisciplinary Team Review	11
3.2 PHYSICAL RESOURCES	13
3.2.1 AIR QUALITY AND CLIMATE	13
3.2.3 SOILS (includes a finding on standard 1).....	13
3.2.4 WATER (SURFACE AND GROUNDWATER, FLOODPLAINS) (includes a finding on standard 5).....	15
3.3 BIOLOGICAL RESOURCES	18
3.3.1 INVASIVE PLANTS.....	18
3.3.2 THREATENED, ENDANGERED AND SENSITIVE SPECIES	19
3.3.3 VEGETATION (includes a finding on standard 3)	19
3.3.4 WETLANDS & RIPARIAN ZONES (includes a finding on standard 2).....	21
3.3.5 WILDLIFE AQUATIC (includes a finding on standard 3).....	23
3.3.6 WILDLIFE TERRESTRIAL (includes a finding on standard 3).....	23
3.3.7 MIGRATORY BIRDS	24
3.4 HERITAGE RESOURCES AND HUMAN ENVIRONMENT.....	25
3.4.1 CULTURAL RESOURCES.....	25
3.4.2 NATIVE AMERICAN RELIGIOUS CONCERNS.....	25
3.4.4 VISUAL RESOURCES.....	25
3.5 LAND RESOURCES.....	26
3.5.1 PRIME OR UNIQUE FARM LANDS.....	26
3.5.2 RECREATION	26
3.5.8 LANDS AND REALTY.....	27
3.6 Cumulative Impacts Summary.....	27
CHAPTER 4 - CONSULTATION AND COORDINATION.....	28
4.1 LIST OF PREPARERS AND PARTICIPANTS.....	28
4.2 TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED.....	28
ATTACHMENTS:.....	Error! Bookmark not defined.

LIST of FIGURES and TABLES

Figure 3-1 Photo Below Irrigation Diversion.....14
Figure 3-2 Photo Above Irrigation Diversion.....14
Table 3-1 Mean Monthly Flow (cfs), Alamosa River.....16
Table 3-2 Priority Numbers Expected to be Fulfilled in a Given Month.....16
Table 3-3 BLM Sensitive Species.....19

DRAFT

CHAPTER 1 - INTRODUCTION

1.1 IDENTIFYING INFORMATION

NUMBER: DOI-BLM-CO-140-2010-007-EA

PROJECT TITLE: Alamosa River Water Rights Acquisition for In-stream Flow Project

PLANNING UNIT: San Luis Valley Field Office

LEGAL DESCRIPTION:

Water Rights for Instream Flow: The legal location has not been identified for the water rights acquisitions portion of the project since so many variables including interested landowners with water rights that are available for purchase are as of now unidentified in the Alamosa watershed (See project location map Fig. A-1). Table C-6 shows ownerships within the project boundary.

Initial Acquisition: *Gabino Gallegos Ditch* The irrigated lands encompass approximately 180 acres located in Section 8, Township 35 N, Range 8 E, New Mexico Principal Meridian and are depicted (Fig. A-7).

Dam Enhancements: The Project area is located approximately 22 miles south-southwest of Monte Vista, Colorado, and approximately three miles southwest of the Forest Road (FR) 271 and Forest Development Road (FDR) 250 Road intersection (Fig. A-8). The Project can be found in Section 23, Township 36 North, and Range 6 East of the Terrace Reservoir, Colorado (2001 United States Geological Survey (USGS) 7.5-minute quadrangle map at approximate Latitude 37.359 and Longitude -106.283.

APPLICANT: BLM

1.2 ISSUES AND CONCERNS

According to the Alamosa River Watershed Restoration Master Plan EA (Master Plan) (available at (<http://www.fws.gov/mountain-prairie/nrda/SummitvilleColo/Summitville.htm>), the key surface water quantity issues for the Alamosa River Watershed are:

- Highly altered water flows impair natural resource functions and values
- Historical streamflow has been significantly altered by water use for agriculture and other purposes, particularly by operation of Terrace Reservoir. The river is dry downstream of Terrace Reservoir during late fall, winter, and early spring.
- The Alamosa River is a highly over-appropriated stream.
- There is no surface water available for fish, wildlife, aquatic insects or plants.
- There may be limitations on future new storage, due to the Rio Grande Compact.

This project is intended to begin remedying these issues through water rights acquisition to maintain instream flows in the Alamosa River and to provide flows for environmental purposes.

1.3 INTRODUCTION AND BACKGROUND

The purpose of this document is to inform and solicit comments from members of the public on the proposed actions and also serves as an Environmental Assessment (EA) pursuant to the National Environmental Policy Act (NEPA) [42 USC §§ 4321 et seq.] This plan describes the purpose and need for the proposed actions, the alternatives considered, including a no action alternative, and the potential individual and cumulative impacts of these actions on the quality of the physical, biological, and cultural environment.

Figs. A-1 and A-8 Location Maps

BACKGROUND:

Overview of the Alamosa River Watershed

The Alamosa River watershed comprises 148 square miles in the San Luis Valley of south-central Colorado. Over half the watershed is in public land managed by the U.S. Forest Service (Rio Grande National Forest) and the U.S. Bureau of Land Management. There are roughly 67,000 acres USFS in upper watershed & 3,000 acres BLM in lower watershed.

The mainstem of the Alamosa River is 51 miles long, extending from near the Continental Divide to east of the City of La Jara. Elevations vary from over 13,000 feet to about 7,600 feet.

Key features in the watershed include:

- Summitville Mine, a gold mine that operated from 1986 to 1992 using open pit and cyanide leach methods which is now a Superfund site;
- Terrace Reservoir, a storage impoundment for irrigation water;
- Close to 50,000 acres of irrigated agriculture in the lower watershed
- Extensive forested areas in the upper watershed
- Mineral rich soils and ore deposits created by hydrothermal alteration in the upper watershed (Master Plan Figure ES-1: overview map of the watershed).

The Alamosa River watershed has been significantly impacted by human activity. In addition, several natural conditions also impact watershed resources.

Project Background

Alamosa River Watershed Restoration Master Plan

The State of Colorado and the United States recovered \$5,000,000 for natural resource damages caused by releases of hazardous substances from the Summitville Mine site. The natural resource Trustees for the Summitville Restoration Case prepared the Alamosa River Watershed Restoration Master Plan and Environmental Assessment in July 2005 (<http://www.fws.gov/mountain-prairie/nrda/SummitvilleColo/Summitville.htm>).

The Trustees are:

- U.S. DOI, represented by:
 - Fish and Wildlife Service
 - Bureau of Land Management
- U.S. Department of Agriculture, represented by:
 - Forest Service
- The State of Colorado represented by :
 - Attorney General's Office

- Executive Director of the Colorado Department of Public Health and the Environment
- Director of the Colorado Department of Natural Resources.

The Master Plan addresses environmental concerns in the Alamosa River Watershed, including natural resource injuries and losses of resource uses. It summarizes current environmental conditions, including the natural resources potentially injured or lost in the Alamosa River Watershed as a result of releases of hazardous substances from the Summitville Mine Superfund Site. The Master Plan presents restoration goals and options for the identified resource injuries and service losses for the Alamosa River basin.

1.4 PURPOSE AND NEED

Proposed Action

Alamosa River Water Rights Acquisition for In-stream Flow Project (ISF) The ISF Project implements several recommendations from the Master Plan and is part of the larger effort to restore and replace injured resources in the Alamosa River watershed. It was one of the highest ranking projects identified by the Master Plan, and was included in the Preferred Restoration Alternative as one of the Tier One projects.

Project Proponents: Alamosa Riverkeeper (ARK) and Terrace Irrigation Company (TIC)
The objective of the ISF Project is to improve the reliability and duration of stream flows below Terrace Reservoir (Fig. A-1). If this objective is met, it will provide a foundation for improvement of various water-dependent natural values and human values.

The benefits of the ISF Project in the Alamosa River, in terms of watershed and riparian restoration, are projected in the Master Plan and the ISF Project Plan which include:

- recharge of alluvial aquifers that support riparian communities
- recharge of unconfined aquifer which benefits well owners/water users
- enhance habitat for aquatic macroinvertebrates (prey base for fish)
- provide indirect benefits to terrestrial wildlife that utilize the riparian zone
- possible water quality benefits, (e.g. dilution of heavy metals)

1.5 DECISION TO BE MADE

The BLM will decide whether to implement the proposed Alamosa River Water Rights Acquisition for In-stream Flow project based on the analysis contained in this Environmental Assessment (EA). This EA will analyze potential effects of the IFS project on the physical, biological, and heritage resources as well as the human environment. The BLM may choose to: a) implement the project as proposed, b) implement the project with modifications and/or mitigation, or c) not implement the project.

(Table C-10, Environmental Laws and Implications)

1.6 PLAN CONFORMANCE REVIEW

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3): RMP pg 3-4 Wildlife and Fish Habitat Management

Name of Plan: The San Luis Resource Area Management Plan

The San Luis Resource Area Management Plan does not discuss the acquisition of water rights associated with private lands and benefits to the Alamosa River system. The elements of this project are discussed in the Master Plan.

Date Approved: December 18, 1991

In January 1997, the Colorado State Office of the BLM approved the Standards for Public Land Health and amended all RMPs in the State. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands.

Standard 1: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes.

Standard 2: Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods.

Standard 3: Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential.

Standard 4: Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Standard 5: The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado.

Because standards exist for each of these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in Chapter 3 of this document.

1.7 PUBLIC PARTICIPATION

Scoping: NEPA regulations (40 CFR §1500-1508) require that the BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to allow public participation to identify issues, concerns, and potential impacts that require detailed analysis.

Persons/Public/Agencies Consulted: (see 4.2)

Scoping was conducted primarily through the Master Plan process in 2004 and 2005. In addition, the Master Plan was posted at <http://www.fws.gov/mountain> -

prairie/nrda/SummitvilleColo/Summitville.htm. Further, the Project has been publicly discussed throughout the Colorado Water Conservation Board process for accepting donated water rights for in-stream flows. The public was given opportunity to comment through that process as well. Several mechanisms were used by the BLM to initially identify issues. Twenty nine public comments including oral comments received at public meetings are recorded with responses in Appendix I of the Master Plan.

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The purpose of this chapter is to provide information on the Proposed Action and Alternatives. Alternatives considered but not analyzed in detail are also discussed.

2.2 ALTERNATIVES ANALYZED IN DETAIL

The alternatives were developed in response to public input and internal issues and concerns.

2.2.1 Proposed Action (Master Plan Preferred Alternative)

The proposed action is to purchase privately owned water rights that are associated with privately owned properties in the Alamosa River drainage. These waters will be stored and released from Terrace Reservoir during low-flow periods to augment instream flow.

Alamosa River In-stream Flow Project

The proposed project involves the following steps

- Acquiring senior irrigation water rights on the Alamosa River
- Transferring the acquired rights to the Colorado Water Conservation Board (CWCB)
- Providing water storage capacity to accommodate the acquired water. The storage would be in Terrace Reservoir. To arrange for the storage, there are several steps:
 - Improve the current reservoir spillway to remove a state-imposed storage restriction and raise the levee
 - Alter reservoir operations to accommodate the acquired water for desired release
 - Storing the acquired water for release during low flow times in late fall, winter, and early spring

Water rights totaling up to 10 cfs will be purchased for in-stream flow. The long-term objective is to provide 2,000 acre feet of additional water annually that will be delivered during low-flow periods. Alamosa River water rights will be acquired within a 5-mile reach beginning at the Terrace Main Canal, located near the mouth of the Alamosa River Canyon, to the Gabino Gallegos Ditch, located approximately two miles upstream from Capulin. The irrigated lands associated with the water rights typically lie either north or south of the river along this five mile reach (Figure A-1).

Acquisition of senior water rights on the Alamosa River will increase/prolong late season in-stream flows. These acquisitions will result in the cessation of irrigation and drying up of certain existing croplands. Construction of dam enhancements, partially located on BLM lands, at

Terrace Reservoir will allow the additional water rights to be stored for release later in the season.

Terrace Reservoir operates under an 1891 Act right-of-way granted by the U.S. Department of the Interior. Portions of the dam and portions of the inundated lands lie upon lands managed by the BLM. 1891 Act rights-of-way allow the holder to implement operation and maintenance activities within the historic footprint of the reservoir, plus a 50-foot margin around the edges, without explicit authorization from the United States. The holder is also allowed to use historic access routes for maintenance and operation activities. Dam enhancements will be within the existing footprint of the dam and are considered maintenance. Therefore, dam enhancements will not need further environmental analyses.

Initial Acquisition - The first acquisition of water rights will be 2.5 cfs (approximately 427 acre feet of annual diversions) from the Gabino Gallegos Ditch. The headgate for this ditch is approximately 2.5 miles upstream from Capulin. The irrigated acreage lies north of the Alamosa River and west of Capulin (Fig. A-7).

The acquired water rights historically irrigated 180 acres. Most of this acreage was sprinkler irrigated, while the section corners were flood irrigated. The historic crop was typical for the area, with irrigation of alfalfa in 80% of the years, with occasional rotation to small grains in 20% of the years. One hundred percent of the return flows from this irrigation accrued to the unconfined aquifer. The ditch is decreed for a total of 16 cfs, so other water rights will continue to be diverted through the ditch.

Once operational, the ISF Project is expected to improve the magnitude and duration of surface flows in the river, thereby improving environmental, water resource and recreation values while restoring and replacing resources injured by releases from at the Summitville Mine.

2.2.2 No Action Alternative

A no-action alternative is required to be considered under NEPA [40 CFR § 1502.14(d)]. The no action alternative for the Alamosa River Water Rights Acquisition EA is the status quo for private land use and practices, where no action is taken to purchase water rights and no augmentation water for additional dry season instream flow will occur in the River in partnership with BLM.

This project cannot be implemented without the proposed action.

2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Alternative 4 - Trustee Preferences Alternative from the Master Plan considered construction of a mainstem lake for water quality. This alternative was eliminated from further analysis because it is clearly unreasonable due to expense. It requires assumptions that are remote or speculative; and it cannot be implemented.

CHAPTER 3 - AFFECTED ENVIRONMENT AND EFFECTS

3.1 INTRODUCTION

This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action and presents comparative analyses of the direct, indirect and cumulative effects on the affected environment stemming from the implementation of the actions under the Proposed Action and other alternatives analyzed.

Cumulative impacts include those actions that affect private and public lands across the Alamosa River Corridor, including upland and riparian habitat. These actions include agricultural use/practices, habitat/land conversion, timber harvest, wildfire, housing development, proliferation of roads affecting connectivity, recreational use, irrigation infrastructure and activities, and improvement of resources through projects described in the Alamosa River Restoration Master Plan and Environmental Assessment (July 2005).

Physical Environment

The existing watershed condition is described in the Master Plan ch. 2 according to the following resource categories:

- Channel of the Alamosa River and major tributaries
- Surface water quantity
- Surface water quality
- Groundwater
- Terrace Reservoir
- Sediments
- Riparian habitat (vegetative communities)
- Biological resources (wildlife resources)
- Agricultural uses
- Recreational uses

The description of the existing conditions in the watershed by resource categories is followed by a categorization of the Alamosa River into segments, a GIS mapping summary, and bibliography of previous studies.

The Alamosa Water Rights Acquisition lands are located in a moderate-elevation riparian and agricultural environment typical of the San Luis Valley, Colorado. The project area description includes ditches and canals connecting the Alamosa River and associated agricultural lands. These sites are dominated by agricultural lands, native grasses and shrubs, limited willows, and cottonwoods (Fig. A-4). The legal location is not identified for the project since so many variables including interested landowners with water rights that are available for purchase are as of now unidentified in the Alamosa watershed.

3.1.1 Interdisciplinary Team Review

The following table is provided as a mechanism for resource staff review, to identify those resource values with issues or potential impacts from the proposed action and/or alternatives. Those resources identified in the table as potentially impacted will be brought forward for analysis.

Impact Types: NP = Not Present; NI = Present but Not Impacted; PI = Present and Potentially Impacted*

*All PIs are brought forward for analysis in the EA. NIs needing longer comment or discussion use Affected Environment in EA – Review Comment should read “see affected Environment

<u>Resource</u>	<u>Impact Type</u>	<u>Review Comment</u>
<u>Air Quality</u>	NI	The use of heavy equipment to implement dam enhancements may generate local air pollution.....wildlife likely will be able to avoid the noise and air pollution impacts (see 3.2.1).
<u>Geology/Minerals</u>	NI	The proposed alternative would not have a negative impact on geology or mineral resources. The proposed restoration projects would not result in any change in mining activity in the area or in any change in the use of mineral resources.
<u>Soils</u>	PI	The proposed alternative would have a positive impact on soils because the IFS project would result in decreased erosion and increased soil stability.
<u>Water Quality</u> <u>Surface and Ground</u>	PI	...more sustainable stream flows in the Alamosa River, replenish the alluvial aquifer and extend surface flows further downstream..
<u>Invasive Plants</u>	PI	...thousands out of tens of thousands of acres ...may be converted to native grasslands and shrublands...
<u>T&E and Sensitive Species</u>	NP	There are no federally listed species known or likely to occur within the project area. <ul style="list-style-type: none"> • Table 2. Federally listed species... • Table 3. Colorado Bureau of Land Management Sensitive Fish and Wildlife Species... • Table 4. FWS Birds of Conservation Concern...
<u>Vegetation</u>	PI	Return to more natural flow regime will benefit native plant communities
<u>Wetlands and Riparian</u>	PI	the proposed action will be beneficial to wetland and riparian areas
<u>Wildlife Aquatic</u>	PI	...the proposed action will be beneficial to terrestrial and aquatic wildlife species
<u>Wildlife Terrestrial</u>	PI	...the proposed action will be beneficial to terrestrial and aquatic wildlife species...

<u>Resource</u>	<u>Impact Type</u>	<u>Review Comment</u>
<u>Migratory Birds</u>	PI	...The proposed action should pose no risk for take of adult birds or young.....
<u>Cultural Resources</u>	NI	Water Rights Acquisition: There are no known Native American religious concerns or places of significance within the project area. (Krall, 2010) Dam enhancements at Terrace Reservoir: The Alamosa Riverkeeper have applied for a Categorical Exclusion under Nationwide Permit (NWP) 3.
<u>Native American Religious Concerns</u>	NI	See Cultural Resources (above)
<u>Socioeconomics</u>	PI	Increase in local economy due to improved public image of watershed, recreational opportunities, and additional jobs for Master Plan implementation (Master Plan Table ES-5)
<u>Paleontology</u>	NI	There are no known Paleontological resources know in the Project area
<u>Visual Resources</u>	NI	...overall impact visual resources would be limited and temporary (see section 3.4.4)
<u>Environmental Justice</u>	PI	Increase in recreational opportunities (Master Plan Table ES-5).
<u>Wastes Hazardous or Solid</u>	NI	There are no known Hazardous or solid wastes in the project area
<u>Recreation</u>	PI	Increase in recreational opportunities (Master Plan Table ES-5).
<u>Farmlands Prime and Unique</u>	PI	There are minimal Prime and Unique Farmlands affected by the Proposed Action (Fig. A-6)
<u>Lands and Realty</u>	PI	Decreased land area in production due to transferred water right.
<u>Wilderness, WSAs, ACECs, Wild & Scenic Rivers</u>	NP	<ul style="list-style-type: none"> • There is no designated Wilderness within the project area • There are no Wild and Scenic Rivers within the project area.
<u>Wilderness Characteristics</u>	NP	N/A
<u>Range Management</u>	NI	Potential for use of the private lands for livestock grazing after associated water rights are removed...
<u>Forest Management</u>	NI	The proposed Action will not affect Forest Management practices

<u>Resource</u>	<u>Impact Type</u>	<u>Review Comment</u>
<u>Cadastral Survey</u>	NP	N/A
<u>Noise</u>	NI	The use of heavy equipment to implement dam enhancements may generate local noise pollution.....wildlife likely will be able to avoid the noise pollution impacts
<u>Fire</u>	NI	N/A
<u>Law Enforcement</u>	NI	The Proposed Action should have no affect on Law Enforcement

The affected resources brought forward for analysis include:
Soils, Water Quality, Invasive Plants, Vegetation, Wetlands and Riparian, Wildlife Aquatic, Wildlife Terrestrial, Migratory Birds, Socioeconomic, Recreation, Lands and Realty

3.2 PHYSICAL RESOURCES

3.2.1 AIR QUALITY AND CLIMATE

The use of heavy equipment to implement dam enhancements may generate local air pollution, especially from diesel engines and noise pollution that could disturb wildlife on a temporary basis. Because the work will be temporary and will only occur during daylight hours and in limited locations, wildlife likely will be able to avoid the noise and air pollution impacts.

Greenhouse Gas (GHG) Considerations: The use of heavy equipment to implement dam enhancements may generate local air pollution, especially from diesel engines. Because the work will be temporary and will only occur in limited locations, contributions to GHG emissions will be minimal.

3.2.3 SOILS

Affected Environment: The Alamosa River was divided into segments and subwatersheds based on physical homogeneity (Master Plan Figure 2-3). Segments 3 and 4 are included in the ISF project. Figure 3-2 in the Master Plan shows watershed areas with observed erosion problems.

Terrace Reservoir to Terrace Main Canal (Reach 4)

This reach marks the beginning of irrigation diversions. There are two ditches within this reach, which have an appropriation to divert a total of 147.02 cfs, or 19 percent of the two-year event, which is 761 cfs.

Irrigation diversions have a significant impact on the amount of water in the Alamosa River channel, which in turn impacts river channel characteristics and the ability of the channel to convey its sediment load. As discussed in Section 2.3 of the Master Plan, 36 ditches divert water from the Alamosa River. During the irrigation season, there is typically not enough water to fill all irrigation water rights. As flows are reduced downstream of each irrigation headgate, sediment typically drops out, resulting in bed aggradation. Less flow translates to reduced stream power and decreased ability to convey sediment.

Many photos, such as the following two photos from the Master Plan show unstable channels with eroded banks, and bed aggradation at the diversion structures. Adjustment in the Alamosa River channel geometry becomes more pronounced as more water is diverted from the river in the downstream reaches (Master Plan, 2005).



Fig.3- 1 Photo Below Irrigation Diversion



Fig.3- 2 Photo Above Irrigation Diversion

Terrace Main Canal to Gunbarrel (Reach 3)

Below the Terrace Main Canal, the floodplain widens into the alluvial fan physiographic landform (Figure 2-5, Master Plan). Channel aggradation and avulsion would typically occur here under natural conditions. However, channel confinement and river straightening (channelization) to accommodate the irrigation diversions have impacted the river in this reach. There are four ditches in this reach that have the appropriations to divert 167.73 cfs, or 22 percent of the two-year event. The channel sinuosity and slope, 1.3 and 0.8%, respectively, are the same as in the reach immediately upstream.

This reach experiences significant bank erosion as the channel attempts to adjust to the reduced flows downstream of Terrace Main Canal and Valdez irrigation diversions. A pilot stabilization project was built in January 2000 to determine the effectiveness of rock vanes, j-hooks, and riffles to minimize bank erosion, improve channel conveyance, and decrease the downstream sediment loading. There is not enough information available yet to determine the effectiveness of the stabilization measures.

Dam Enhancements

The Project area is dominated by the Almaditas-Posant soil association (Map Unit Symbol 102). This soil complex consists of well drained soils occurring within mountain landforms. According to the United States Department of Agriculture, this soil does not have a hydric soil rating (USDA No Date-A).

The Project will require the utilization of borrow material for constructing the spillway and raising the saddle dike. The borrow material will come from the excavations required to construct the new spillway and an off-site borrow source chosen by the contractor prior to construction and will be staged/stockpiled on BLM land (Fig. A-9). Map figures and Plan of Modifications are included in Attachment A. of URS letter: Nationwide Permit 3 (Maintenance) Pre-Construction Notification for the Terrace Reservoir Spillway Rehabilitation Project, February 2011

The portion of the project is categorically excluded from further analyses based on the following from the BLM's NEPA Policy Handbook (2008):

F. Solid Minerals

10. Disposal of mineral materials, such as sand, stone, gravel, pumice, pumicite, cinders, and clay, in amounts not exceeding 50,000 cubic yards or disturbing more than 5 acres, except in riparian areas.

Proposed Action

Direct and Indirect Impacts: Decreased erosion and increased soil stability

Cumulative Impacts: Decreased erosion and increased soil stability

Protective/Mitigation Measures: Revegetation of temporary staging/stockpile and disposal areas. Monitor at established photopoints to track changes

No Action Alternative

Direct and Indirect Impacts: Continued erosion, no increase in soil stability

Cumulative Impacts: Continued erosion

3.2.4 WATER (SURFACE AND GROUNDWATER, FLOODPLAINS)

Affected Environment: Watershed characteristics and hydrology of the Alamosa River are detailed in the 2005 Alamosa River Restoration Master Plan and Environmental Assessment. The Alamosa drainage in the San Luis Valley covers about 148 square miles and the river extends approximately 51 miles from the Continental Divide to ditch headgates east of HW 285.

Stream flow in the Alamosa River is derived primarily from snow melt and local precipitation, with peak flows occurring in June. Surface water in the Alamosa River rarely reaches the Rio Grande, located approximately 10 miles to the east. Terrace Reservoir is the only mainstem storage facility on the River.

Extensive hydrothermally altered geology in the upper watershed result in naturally high sediment loading in the Alamosa River. Both water quality and quantity have been significantly impacted by man-caused activities, many associated with mining and agriculture. In the watershed above Terrace Reservoir, most of the area is within the Rio Grande National Forest and there is little development. Below the reservoir, numerous structures related to agriculture are present including canal headgates and diversion structures (Reinholtz, 2010 Fig. A-2)

In the segment of the Alamosa River downstream from Terrace Reservoir, the river is confined by steep valley walls. Peak flow typically occurs in June, and drops off quickly in July and August of most years. Table 3-1 reflects mean monthly streamflow recorded at the State gage located 1/2 mile downstream from Terrace Reservoir.

Table 3-1- Mean Monthly Flow (cfs), Alamosa River
downstream from Terrace Reservoir,
State Gage ALABELCO, 1980 - 2008

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MAX	141	29	22	29	12	49	195	583	872	415	17	96
AVG	49	12	5	6	5	8	88	381	418	174	92	57
MIN	14	1	1	1	2	2	36	108	53	36	7	9

Approximately 2-3 miles downstream from the reservoir, the valley widens, and irrigation diversions pull water from the River. Senior decreed water rights in the reach of the River between Terrace Reservoir and the Town of Capulin total nearly 90 cfs, and significantly reduce stream flows. Table 2 (Master Plan) describes the last water right priority expected to be filled in a given month based upon average stream flow at the gage downstream from Terrace Reservoir. The Gabino Gallegos right, the initial water rights purchase, is priority number 11.

Table 3-2 – Priority Numbers Expected to be Fulfilled in a Given Month

Month	Average Flow at Below Terrace Reservoir Gage (cfs)	Last Priority Number Fulfilled by Average Flow
April	97	14
May	363	45
June	418	58
July	185	27
Aug.	103	15
Sept.	51	9
		Source: CWRD, 2004

Environmental Effects: This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action and presents comparative analyses of the direct, indirect and cumulative effects on the affected environment stemming from the implementation of the actions under the Proposed Action and other alternatives analyzed.

Proposed Action:**Direct and Indirect Impacts:**

The water-right acquisition project involves drying up agricultural land irrigated by Alamosa River water and using that water to provide greater and more sustained flows in “Segment 2” as defined in the Master Plan. This reach lies between Gunbarrel Road and County Road 10 and is also referred to as the “restoration reach”.

Although the proposed acquisitions will not put the stream back to a truly “natural” flow regime on the restoration reach, the acquisition of up to 10 cfs of flow and allowing it to remain in the main channel for a longer period of time will greatly benefit the river and associated ecosystem.

Potential on-the ground benefits associated with providing flows of up to 10 cfs include:

- Longer perennial reaches and flow periods.
- Increased storage in aquifers.
- Improved riparian community.
- Improved water quality.
- Improved fish habitat.
- Water for existing habitat improvements.

Cumulative Impacts:

Improved channel stability and water quality would benefit irrigators. There would be a decrease in the amount of irrigated land due to a transfer of water rights to instream flow. There could be an increase in traffic on roads providing access to the river (Master Plan 2005).

Protective/Mitigation Measures:

The success of the instream flow project can be monitored through the following activities:

- CDWR diversion records
- Stream gage records for the "Alamosa River Below Terrace Reservoir" gage
- Periodic analysis of stream stage at selected locations such as Gunbarrel Road and County Road 10 in the lower Alamosa River to estimate streamflow.

These activities can be completed at minimal cost. Trained volunteers may be capable of doing some of the monitoring tasks such as summarizing diversion and stream gage records, surveying the stream stage, and estimating streamflow (Master Plan 2005).

No Action Alternative**Direct and Indirect Impacts:** (Master Plan Table 4-3)

- Continued lack of flow from late fall to early spring
- Groundwater levels continue to decline

Cumulative Impacts: No change.

Protective/Mitigation Measures: No Action

3.3 BIOLOGICAL RESOURCES

3.3.1 INVASIVE PLANTS

Affected Environment: Weeds identified in the water rights acquisition landscape were Canada thistle (*Cirsium arvense*), Russian knapweed (*Acroptilon repens*), Hoary cress (*Cardaria draba*), Field bindweed (*Convolvulus arvensis*), and Perennial pepperweed (*Cardaria latifolia* (L.) (Figure A-5, Table C-9)

Historic and current management practices in riparian pastures have increased weed species and non-native vegetation. There are existing groups currently attempting to control weeds in the lower watershed.

Environmental Effects

Proposed Action

Direct, Indirect, and Cumulative Impacts:

Under the proposed action, thousands out of tens of thousands of acres of upland habitat may be converted to native grasslands and shrublands and hundreds of acres of riparian habitat will be improved allowing for more wetland habitat to be created through natural processes and man-made improvements.

Protective/Mitigation Measures:

The status of revegetation areas and the riparian zone can be monitored by comparing conditions prior to the project, during implementation, and after project completion. A combination of the following methods can be used: (Master Plan 5.5.3)

- Photograph documentation of the present condition of the existing environment. Photographs will be taken from established locations on a yearly basis for monitoring purposes. Fixed-point photograph stations would be established in restoration/ enhancement areas as well as in reference, or baseline, locations for comparison.
- Monitoring of randomly placed transects established within or across the river corridor, as appropriate to provide an accurate representation of riparian zones. Transects would be permanently established in revegetation/ enhancement areas as well as in reference, or baseline, locations for comparison. The start and end points of the transects would be staked in the field and mapped using a global positioning system (GPS) unit so that they can be repeated. Along each transect, quadrats would be placed at suitable intervals. Vegetation analysis, including species composition and percent areal cover by species and stratum, would be surveyed within each quadrat. Species composition is calculated by identifying all species within a quadrat, then categorizing them as desirable versus undesirable. Percent areal cover is calculated by individual species within each vegetative stratum (i.e., tree layer, shrub layer, herbaceous/grass layer). This data would provide information on nuisance/ noxious weeds as well.

No Action Alternative

Direct and Indirect Impacts: No change

Cumulative Impacts: No change

Protective/Mitigation Measures: No Action

3.3.2 THREATENED, ENDANGERED AND SENSITIVE SPECIES

Direct and Indirect Effects: With the exception of Yellow-billed cuckoo and Gunnison prairie dog, no other federally listed threatened, endangered, proposed, or candidate species are known to occur in the project area or have potential habitat present. Therefore, the proposed action will have no direct or indirect effect on any federally listed species. Candidate species for listing may be affected by the proposed action but the direction and magnitude of effects is currently unknown (Appendix C, Tables 1-4).

BLM Sensitive Species

BLM sensitive species are listed in the following table and discussed briefly.

Table 3-3

X	<p>The proposed action will have no impact on the following BLM designated sensitive species:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Gunnison sage-grouse</td> <td style="width: 50%;">Long-billed curlew</td> </tr> <tr> <td>Big Free-tailed bat</td> <td>White-faced ibis</td> </tr> <tr> <td>Fringed myotis</td> <td>American white pelican</td> </tr> <tr> <td>Townsend’s big-eared bat</td> <td>Western snowy plover</td> </tr> <tr> <td>Barrow’s goldeneye</td> <td>Milk snake</td> </tr> <tr> <td>Back tern</td> <td>Black swift</td> </tr> <tr> <td>Northern goshawk</td> <td>Texas horned lizard</td> </tr> <tr> <td>River otter</td> <td></td> </tr> </table>	Gunnison sage-grouse	Long-billed curlew	Big Free-tailed bat	White-faced ibis	Fringed myotis	American white pelican	Townsend’s big-eared bat	Western snowy plover	Barrow’s goldeneye	Milk snake	Back tern	Black swift	Northern goshawk	Texas horned lizard	River otter	
Gunnison sage-grouse	Long-billed curlew																
Big Free-tailed bat	White-faced ibis																
Fringed myotis	American white pelican																
Townsend’s big-eared bat	Western snowy plover																
Barrow’s goldeneye	Milk snake																
Back tern	Black swift																
Northern goshawk	Texas horned lizard																
River otter																	
X	<p>The proposed action will have a beneficial impact on the following BLM designated sensitive species: Yellow-billed cuckoo, bald eagle, burrowing owl, ferruginous hawk, mountain plover, peregrine falcon, Rio Grande chub, Rio Grande sucker, flathead chub, Brewer’s sparrow, Northern leopard frog, Brewer’s sparrow</p>																
	<p>The proposed action may adversely impact individuals but is not likely to result in a loss of viability on the planning area, nor cause a trend to federal listing or a loss of species viability rangewide for the following BLM designated sensitive species: None</p>																
	<p>The proposed action may adversely impact individuals and is likely to result in a loss of viability on the planning area, in a trend to federal listing, or in a loss of species viability rangewide for the following BLM designated sensitive species: None</p>																

Cumulative Impacts:

No cumulative effects to any federally listed species are associated with this project since there is no potential habitat or species present within or around the project area.

3.3.3 VEGETATION

Affected Environment:

(Appendix A: Figure 4, Appendix C: Table 8)

The Alamosa River was divided into segments and subwatersheds based on physical homogeneity. Segments 3 and 4 are included in the ISF project.

Segment 3 - Terrace Main Canal to Gunbarrel Rd. Subwatershed

The dominant riparian tree species in this segment is cottonwood. Reduced groundwater levels and a dropping channel bed have damaged the existing riparian vegetation, including cottonwoods. Damage to riparian vegetation also has been caused by lack of winter flows. Continuous grazing of riparian pastures has increased weed species and non-native vegetation, and has reduced available downed woody debris. In some areas, cropland also encroaches on the riparian area.

Segment 4 - Terrace Reservoir Outlet to Terrace Main Canal Subwatershed

Small areas of this segment are shown to consist of riparian bluegrass vegetation. The dominant communities overall in this subwatershed consist of Douglas fir/white fir, rabbitbrush-dominated shrublands, and pinon pine (*Pinus edulis*) - juniper (*Juniperus sp.*) forest. Excessive sediment deposition associated with draining Terrace Reservoir is occurring in this segment, and is of concern to aquatic and riparian habitats.

Environmental Effects

Proposed Action

Direct and Indirect Impacts:

Under the proposed action, thousands out of tens of thousands of acres of upland habitat may be converted to native grasslands and shrublands and hundreds of acres of riparian habitat will be improved allowing for more wetland habitat to be created through natural processes and man-made improvements.

Reduction or Elimination of Flows in Ditches – Acquisition of water rights may result in a reduction of flow or dry-up of certain ditches. A potential indirect effect would be a reduction in vegetation, such as willows, associated with such ditches. Whether the ditch is dried up depends on whether there are other water rights carried by the same ditch that are not being purchased as part of this project.

Loss of ditch vegetation cannot be directly attributed to the proposed project because ditch owners have the latitude and authority to remove vegetation at any time from the ditch route. Owners may remove vegetation at any time to address problems associated with weeds, ditch bank stability, water losses, and flow obstructions.

Cumulative Impacts:

Under the proposed action, thousands out of tens of thousands of acres of upland habitat may be converted to native grasslands and shrublands and hundreds of acres of riparian habitat will be improved allowing for more wetland habitat to be created through natural processes and man-made improvements.

Protective/Mitigation Measures:

The status of revegetation areas and the riparian zone can be monitored by comparing conditions prior to the project, during implementation, and after project completion. A combination of the following methods can be used: (Master Plan 5.5.3)

- Photograph documentation of the present condition of the existing environment. Photographs will be taken from established locations on a yearly basis for monitoring purposes. Fixed-point photograph stations would be established in restoration/ enhancement areas as well as in reference, or baseline, locations for comparison.
- Monitoring of randomly placed transects established within or across the river corridor, as appropriate to provide an accurate representation of riparian zones. Transects would be permanently established in revegetation/ enhancement areas as well as in reference, or baseline, locations for comparison. The start and end points of the transects would be staked in the field and mapped using a global positioning system (GPS) unit so that they can be repeated. Along each transect, quadrats would be placed at suitable intervals. Vegetation analysis, including species composition and percent areal cover by species and stratum, would be surveyed within each quadrat. Species composition is calculated by identifying all species within a quadrat, then categorizing them as desirable versus undesirable. Percent areal cover is calculated by individual species within each vegetative stratum (i.e., tree layer, shrub layer, herbaceous/grass layer). This data would provide information on nuisance/ noxious weeds as well.
- Surveying plantings for survivability. Plantings will be inventoried, and then surveyed after an established period of time to track survival. The inventory would determine individual species survival, and overall survival of plantings.

No Action Alternative

Direct and Indirect Impacts: No Change

Cumulative Impacts: No Change

Protective/Mitigation Measures: No Action

3.3.4 WETLANDS & RIPARIAN ZONES

Affected Environment: See vegetation section 3.3.3 and Table C-5

Dam Enhancements: One Palustrine Scrub-Shrub (PSS) wetland was delineated within the Project survey boundary. This wetland is located within the originally engineered Ordinary High Water Mark (OHWM) of the reservoir and along the OHWM bank slope of the reservoir that has formed over the last 20 years. The majority of this vegetation type would be indirectly impacted by the water level raise of the reservoir to the originally engineered OHWM; with approximately 0.04 acre being temporarily impacted by construction activities and less than 0.01 acre being permanently impacted by the spillway.

- Dominant species: sandbar willow (*Salix exigua*).
- Other species: narrowleaf cottonwood.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: Under the proposed action, hundreds of acres of riparian habitat will be improved allowing for more wetland habitat to be created through natural processes and man-made improvements.

Dam Enhancements: The majority of wetland WL-1 would not be directly impacted by construction activities. During construction approximately 0.04 acre of WL-1 would be temporarily impacted, with less than 0.01 acre being permanently impacted by the spillway. Following construction, the remainder of WL-1 (0.66 acres) would be indirectly impacted by the water level of the reservoir rising to its originally engineered full pool capacity. The dominant plant species growing within WL-1, sandbar willow, has an extensive root system (USDA No Date-B) which allows this plant species to establish itself in environments with fluctuating water regimes similar to that of WL-1 and Terrace Reservoir. As a result, following construction, when the water level of the reservoir is raised to the originally engineered OHWM, WL-1 will become re-established along the new OHWM. Other Water OW-1 will be directly impacted (0.22 acre) by the placement of rip-rap along the banks of the stream associated with the spillway outfall. However, the hydrologic function of OW-1 would not be impacted by the Project. [Note: OW-1 does not have a consistent OHWM for the entire length of the drainage.] (URS letter, 2011)

Cumulative Impacts: The instream flow and stream restoration projects would improve riparian and aquatic habitat and increase populations of dependent species (Master Plan 2005).

Protective/Mitigation Measures:

Water Rights Acquisition: Same as 3.3.3

Dam Enhancement: WL-1 does not appear to provide the basic functional criteria to support wetland conditions because the wetland falls within the non-functioning FACWet category and is an atypical, PSS wetland that would not likely be present without the seasonal water fluctuations of Terrace Reservoir. In addition, as previously stated, the wetland will most likely re-establish along the newly established OHWM following construction (URS letter, 2011). The Alamosa Riverkeeper have requested that compensatory mitigation not be required for WL-1

No Action Alternative

Direct and Indirect Impacts: Continued loss of habitat due to lack of surface and groundwater and water quality (Master Plan 2005).

Cumulative Impacts: No change

Protective/Mitigation Measures: No Action

3.3.5 WILDLIFE AQUATIC

Affected Environment: Due to past irrigation and flood control practices, the Alamosa River is a highly altered riverine system that lacks water during the low-flow seasons due to reduced water releases from Terrace Dam. Channelization, which occurred in the past, creates unfavorable stream habitat; the resulting uniform channels lack the pools, riffles, and boulders or log jams that are essential for sustaining fish abundance.

Environmental Effects

Proposed Action

Direct and Indirect Impacts:

Direct effects to aquatic wildlife with implementation of the proposed action are not anticipated. Indirect effect to aquatic wildlife with implementation of the proposed action include improved aquatic and riparian habitat to support aquatic species. The proposed action of increases to instream flow during the low-flow season would begin to change the river dynamics and provide improved habitat for breeding and wintering aquatic species. Through implementation of the proposed action with up to 10 cfs additional water available during the low-flow periods, the river will likely support these species year-round.

Cumulative Impacts: The instream flow and stream restoration projects would improve riparian and aquatic habitat and increase populations of dependent species (Master Plan 2005).

Protective/Mitigation Measures: Habitat Monitoring (see 3.3.3)

No Action Alternative

Direct and Indirect Impacts:

The Alamosa River has habitat for aquatic species but since it is frequently de-watered during the winter season, the habitat is only seasonally available. No additional water flow, under the no action alternative, will not affect these fish since they are currently not present based on lack of available water.

Cumulative Impacts: No additional water flow, under the no action alternative, will not affect these fish since they are currently not present based on lack of available water.

Protective/Mitigation Measures: No Action

3.3.6 WILDLIFE TERRESTRIAL

Affected Environment: The Alamosa River system downstream of Terrace Dam provides habitat for terrestrial wildlife species including small mammals, raptors, carnivores, reptiles/amphibians, native ungulates, and songbirds that are adapted to dry, upland conditions, riparian areas, and forested areas.

Environmental Effects

Proposed Action

Possible habitat improvements with the addition of water to the system provides more habitat diversity and can benefit multitudes of wildlife species. Direct impacts from the implementation

of the proposed action are not anticipated because additional water during low flow periods is expected to be beneficial and is not directly affecting wildlife species. Indirect impacts from implementation of the proposed action include drying up of croplands with eventual conversion to shrublands or rangelands, additional water available to shape river physiology and morphology, improved riparian habitat, and more diversity in cover and foraging habitat. Activities under the proposed action are beneficial for most wildlife species.

Cumulative Impacts: Possible habitat improvements with the addition of water to the system provides more habitat diversity and can benefit multitudes of wildlife species.

Protective/Mitigation Measures: Habitat Monitoring (see 3.3.3)

No Action Alternative

Direct and Indirect Impacts: The no action alternative will have no new anticipated effects on terrestrial wildlife species. There are possible impacts from the no action alternative from the continual degradation of habitat quality through agricultural uses and activities. Terrestrial wildlife species will continue to use the private lands under both alternatives but the most beneficial impacts occur under the proposed action.

Cumulative Impacts: There are possible impacts from the no action alternative from the continual degradation of habitat quality through agricultural uses and activities.

Protective/Mitigation Measures: No Action

3.3.7 MIGRATORY BIRDS

Affected Environment: The Alamosa River system downstream of Terrace Dam provides habitat for terrestrial wildlife species including small mammals, raptors, carnivores, reptiles/amphibians, native ungulates, and songbirds that are adapted to dry, upland conditions, riparian areas, and forested areas.

Environmental Effects

Proposed Action

Direct and Indirect Impacts:

Direct effects are those effects that impact individual birds such as disturbance, direct contact/interaction, flushing, destruction of nests, displacement, harvest, and interruption of foraging/breeding/nesting/fledging/roosting activities.

Cumulative Impacts:

Cumulative effects occur across the landscape regardless of action and can be positive or negative for migratory birds depending on scale, timing, and degree of the activities. These impacts will continue to occur under either action. However, the magnitude of effects will be slightly reduced under the proposed action due to the future positive actions to preserve or improve wildlife and aquatic habitat in the River corridor and surrounding uplands.

The proposed action should pose no risk for take of adult birds or young due to the benign addition of water during low flow periods. Therefore, the proposed action is consistent with the MBTA and the conservation measures set forth in Section 3 of the Executive Order.

Protective/Mitigation Measures: Habitat Monitoring (see 3.3.3)

No Action Alternative

Direct and Indirect Impacts: No change in current conditions

Cumulative Impacts:

Cumulative effects occur across the landscape regardless of action and can be positive or negative for migratory birds depending on scale, timing, and degree of the activities. These impacts will continue to occur under either action.

Protective/Mitigation Measures: No Action

3.4 HERITAGE RESOURCES AND HUMAN ENVIRONMENT

3.4.1 CULTURAL RESOURCES

Water Rights Acquisition [[ADB1](#)]

Data collected during the analysis of existing circumstances indicate that there are no previous heritage resource surveys or documented heritage resources within the project area. The construction of Terrace Reservoir was initiated in 1904, but is not documented as an historic structure. Refer to (Krall, 2010).

A class III cultural resources inventory (BLM Report Number 12-CN-LJFO-001) was completed in September 2010 by Ken Bedingfield of URS Corporation. The report documented one cultural resource (5CN1531) that was determined to be not eligible to the National Register for Historic Places. This proposed undertaking will have no effect on cultural resources.

The Alamosa Riverkeeper have applied for a Categorical Exclusion for Cultural Resources under a Nationwide Permit 3.

3.4.2 NATIVE AMERICAN RELIGIOUS CONCERNS

Refer to 3.4.1

3.4.3 VISUAL RESOURCES

Because the dam enhancement work is planned for locations away from residential areas, visual impacts to human populations would be minimal. During the implementation of the project, however, some temporary negative impacts would occur. The use of heavy equipment to implement the dam enhancement project would generate local air and noise pollution and could disrupt the scenic “viewshed” of the area. Because the work would be temporary and would only occur during daylight hours and in limited locations, the overall impact visual resources would be limited and temporary.

3.5 LAND RESOURCES

3.5.1 PRIME OR UNIQUE FARM LANDS

The Farmland Protection and Policy Act (FPPA), 7 U.S.C. 4201, was enacted in 1981 in order to minimize the loss of prime farmland and unique farmlands as a result of Federal actions by converting these lands to nonagricultural uses. It assures that federal programs are compatible with state and local governments, and private programs and policies to protect farmland.

As defined by FPPA, prime farmland is farmland that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops, and is also available for these uses.

There are minimal prime farmlands (about 330 acres) in the project area (Fig. A-6). A portion of this land may be affected depending on which water rights are acquisitioned. Areas now in hay production will most likely revert to native vegetation.

A unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops; it has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops. There are no unique farmlands within the project area.

3.5.2 RECREATION

Affected Environment:

Refer to Master Plan 2.12.2

The Key recreation issues are:

- Impaired fisheries and lack of water in the river downstream of Terrace Reservoir limit recreational use of the Alamosa River and tributaries.
- Water quality and availability in Terrace Reservoir may limit fishery productivity and recreational opportunities.
- Public perception of the Alamosa River watershed health deters recreational utilization.

Other recreational opportunities in this portion of the watershed may include hunting and wildlife viewing.

Environmental Effects

Proposed Action

Direct and Indirect Impacts: The Alamosa River is classified as a large river (between 60-90 feet wide) and habitat surveys indicate the stream environment of the Alamosa River could support a self-sustaining fishery in the future, if current water quality and wintertime water quantity continue to improve. In the past, the Alamosa River in this area did support a healthy fishery. Local residents have reported that prior to 1990; the river near Capulin was a popular

place for weekend picnics and recreational fishing. Refer to FINALsignedARKBoardMemoJAN2010

Cumulative Impacts: There would be an increase in recreational opportunities in the watershed.

Protective/Mitigation Measures: None

No Action Alternative

Direct and Indirect Impacts: No change

Cumulative Impacts: No change

Protective/Mitigation Measures: None

3.5.8 LANDS AND REALTY

Affected Environment: Fig A-1 Vicinity Map

Environmental Effects

Proposed Action

Direct and Indirect Impacts:

Access to the lands that may be affected within a five mile radius (Fig. A-1) of the initial water rights acquisition (1.8 cfs) is along county roads and private land access and easements in the area near Capulin, Colorado.

Cumulative Impacts: There would be a decrease in the amount of irrigated land due to a transfer of water rights to instream flow. There could be an increase in traffic on roads providing access to the river.

No Action Alternative

Direct and Indirect Impacts: No change.

Cumulative Impacts: No change

Protective/Mitigation Measures: No change

3.6 CUMULATIVE IMPACTS SUMMARY

The instream flow and stream restoration projects would

- Decrease erosion and increase soil stability
- Improve riparian and aquatic habitat and increase populations of dependent species.
- Increase recreational opportunities in the watershed.
- Visitors to the watershed and job opportunities for implementing the Master Plan would improve the local economy.

- Improve channel stability and water quality which would benefit irrigators.
- Decrease in the amount of irrigated land due to a transfer of water rights to instream flow.
- Possibly increase in traffic on roads providing access to the river (Master Plan 2005).

Threatened and Endangered Species

No cumulative effects to any federally listed species are associated with this project since there is no potential habitat or species present within or around the project area.

BLM Sensitive Species

“This review of the Alamosa River Water Rights Acquisition Project and similar projects within the San Luis Valley indicates that measurable cumulative effects on the candidate species and sensitive species or their primary habitats are not expected to occur.

Migratory Birds

Cumulative effects occur across the landscape regardless of action and can be positive or negative for migratory birds depending on scale, timing, and degree of the activities. These impacts will continue to occur under either action. However, the magnitude of effects will be slightly reduced under the proposed action due to the future positive actions to preserve or improve wildlife and aquatic habitat in the River corridor and surrounding uplands.

The proposed action should pose no risk for take of adult birds or young due to the benign addition of water during low flow periods. Therefore, the proposed action is consistent with the MBTA and the conservation measures set forth in Section 3 of the Executive Order

CHAPTER 4 - CONSULTATION AND COORDINATION

4.1 LIST OF AGENCY PREPARERS

<u>Laura Archuleta</u>	<u>Project Management/NRDAR</u>
<u>Melissa Garcia</u>	<u>Wildlife</u>
<u>Phil Reinholtz (retired)</u>	<u>Hydrology</u>
<u>Doug Simon</u>	<u>GIS</u>
<u>Angie Krall</u>	<u>Archaeology</u>
<u>Alicia Beat</u>	<u>Archaeology</u>

4.2 TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED

Colorado Water Conservation Board

Federal Natural Resource Trustees, Management Officials, and Representatives

Department of the Interior: Bureau of Land Management, US Fish and Wildlife Service

Department of Agriculture: US Forest Service

Paul Meyer - Bureau of Land Management

Laura Archuleta - US Fish and Wildlife Service
Diann Gese (retired) - US Forest Service/Bureau of Land Management
Polly Hays - US Forest Service
Suzanne Buntrock - US Forest Service

State of Colorado Natural Resource Trustees and Representatives

Colorado Attorney General, Colorado Department of Public Health and the Environment, and Office of Colorado Attorney General

Alamosa River Foundation Board

State of Colorado Division of Water Resources

Other Involved Citizens and Organizations

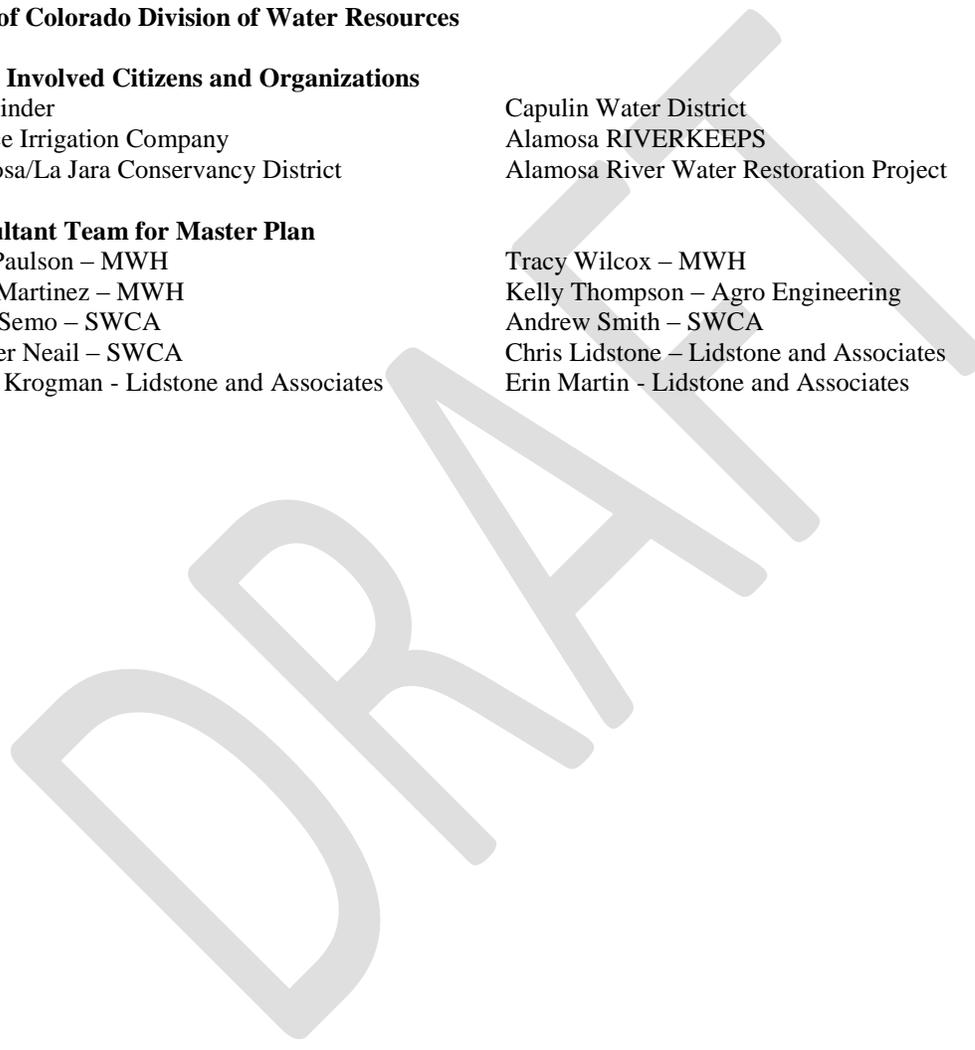
Paul Sinder
Terrace Irrigation Company
Alamosa/La Jara Conservancy District

Capulin Water District
Alamosa RIVERKEEPS
Alamosa River Water Restoration Project

Consultant Team for Master Plan

Chip Paulson – MWH
Kazu Martinez – MWH
Larry Semo – SWCA
Heather Neail – SWCA
Glenn Krogman - Lidstone and Associates

Tracy Wilcox – MWH
Kelly Thompson – Agro Engineering
Andrew Smith – SWCA
Chris Lidstone – Lidstone and Associates
Erin Martin - Lidstone and Associates



CHAPTER 5 - REFERENCES

Bureau of Land Management (BLM). 1991. San Luis Resource Area Proposed Resource Management Plan and Environmental Impact Statement. Canon City District Office, San Luis Resource Area Office. Colorado.

Bureau of Land Management. 1991. San Luis Resource Area Resource Management Plan and Record of Decision. Canon City District. Colorado.

Bureau of Land Management. 2008. H-1790-1 National Environmental Policy Handbook. Washington, D.C.

Colorado Conservation Board (CWCB). 2005. Alamosa River Watershed Restoration Master Plan and Environmental Assessment Final Report (<http://www.fws.gov/mountain-prairie/nrda/SummitvilleColo/Summitville.htm>):.

URS Corporation on behalf of the Alamosa RIVERKEEPER. 2011. Letter to Hildreth Cooper, United States Army Corps of Engineers Subject: Nationwide Permit 3 (Maintenance) Pre-Construction Notification for the Terrace Reservoir Spillway Rehabilitation Project. Durango, Colorado.

CWCB Files. 2010. FINAL signed ARK Board Memo JAN 2010. Accessed March 2012. <http://cwcb.state.co.us/environment/instream-flow-program/Documents/WaterAcquisitions/GabinoGallegosDitch/EXH%20A%20-%20ARK%20TIC%20Offer%20Letter.pdf>

**Finding Of No Significant Impact
(FONSI)
Summitville/Alamosa River Natural Resource Damage Assessment
and Restoration (NRDAR) Project: Alamosa River Water Rights
Acquisition for In-stream Flow Project**

DOI-BLM-CO-140-2010-007-EA

Based on review of the EA and the supporting documents, I have determined that the project is not a major federal action and will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects from any alternative assessed or evaluated meet the definition of significance in context or intensity, as defined by 43 CFR 1508.27. Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below:

RATIONALE:

The natural resource trustee agencies, the U.S. Department of the Interior (DOI), U.S. Department of Agriculture (USDA), and the State of Colorado, specifically represented by the Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service, on behalf of DOI, U.S. Forest Service on behalf of USDA, and the Colorado Department of Natural Resources, Colorado Department of Public Health and Environment, and Colorado Department of Law, on behalf of the State of Colorado (collectively ‘Trustees’), are proposing to implement a project (acquisition of water rights for instream flow) included in the Alamosa River Watershed Restoration Master Plan and Environmental Assessment (RP/EA). The proposed action is to purchase privately owned water rights that are associated with privately owned properties in the Alamosa River drainage. These waters will be stored and released from Terrace Reservoir during low-flow periods to augment instream flow. The proposed action was not fully analyzed in the RP/EA because there was not sufficient information at that time. Consequently, this EA presents a preferred alternative for the proposed action to address public losses caused by releases of hazardous substances from the Summitville Mine Site (Site) near Capulin, Colorado.

Each Trustee is authorized to act on behalf of the public to evaluate potential injuries to natural resources and associated losses of ecological services resulting from releases of hazardous substances at the Site. Authority to act on behalf of the public is given to trustees in CERCLA [42 USC §§ 9601 *et seq.*] and the CWA [33 USC §§ 1251 *et seq.*]. Actions to restore, replace, or acquire the equivalent of lost resources are the primary means of compensating the public for injuries to natural resources under these authorities. Any funds used by Federal Trustees to implement restoration activities are subject to the requirements of the National Environmental Policy Act (NEPA) [42 USC § 4321]. Accordingly, the Trustees developed the RP/EA to

identify restoration alternatives that partially address the resources injured and ecosystem services lost due to the release of mining-related hazardous substances, and to analyze the effects of those alternatives on the human environment. The RP/EA was not intended to quantify or to analyze the full extent of actions necessary to accomplish restoration of injured natural resources associated with the Site.

A legal location has not been identified for the water rights acquisitions since so many variables, including interested landowners with water rights that are available for purchase, are currently unidentified in the Alamosa watershed. However, the initial acquisition (Gabino Gallegos Ditch) includes approximately 180 acres of irrigated land in Section 8, Township 35 N, Range 8 E, New Mexico Principal Meridian. Based on this acquisition and other senior water rights locations, a project area was identified using GIS. The project area is within a 5-mile reach beginning at the Terrace Main Canal, located near the mouth of the Alamosa River Canyon, to the Gabino Gallegos Ditch, located approximately two miles upstream from Capulin. The irrigated lands associated with the water rights typically lie either north or south of the river along this five mile reach. All future acquisitions will be within the project area.

Terrace Reservoir will allow the acquired water rights to be stored for release later in the season and to be able to accommodate these additional waters, construction of certain dam enhancements is required. Terrace Reservoir operates under an 1891 Act right-of-way granted by the U.S. Department of the Interior. Portions of the dam and portions of the inundated lands lie upon lands managed by the BLM. 1891 Act rights-of-way allow the holder to implement operation and maintenance activities within the historic footprint of the reservoir, plus a 50-foot margin around the edges, without explicit authorization from the United States. The holder is also allowed to use historic access routes for maintenance and operation activities. Dam enhancements will be within the existing footprint of the dam and are considered maintenance.

In addition, the dam enhancement will require the utilization of borrow material for constructing the spillway and raising the saddle dike. The borrow material will come from the excavations required to construct the new spillway and an off-site borrow source chosen by the contractor prior to construction and will be staged/stockpiled on BLM land. This portion of the project is categorically excluded from further analyses based on the following from the BLM's NEPA Policy Handbook (2008): F. Solid Minerals 10. Disposal of mineral materials, such as sand, stone, gravel, pumice, pumicite, cinders, and clay, in amounts not exceeding 50,000 cubic yards or disturbing more than 5 acres, except in riparian areas.

Therefore, dam enhancements did not need further environmental analyses and are not considered as part of this EA.

This proposed action will not change BLM's management in the area.

Intensity:

I have considered the potential intensity/severity of the impacts anticipated from the Alamosa River Water Rights Acquisition for In-stream Flow Project Project decision relative to each of the ten areas suggested for consideration by the CEQ. With regard to each:

Impacts that may be beneficial and adverse:

The objective of the ISF Project is to improve the reliability and duration of stream flows below Terrace Reservoir and if this objective is met, it will provide a foundation for improvement of various water-dependent natural values and human values. The ISF Project involves drying up some agricultural land irrigated by Alamosa River water and using that water (up to 10 cfs) to provide greater and more sustained flows in “Segment 2” as defined in the Master Plan. This reach lies between Gunbarrel Road and County Road 10 and is also referred to as the “restoration reach”.

The benefits of the ISF Project in the Alamosa River, in terms of watershed and riparian restoration, are projected in the Master Plan and the ISF Project Plan which include:

- recharge of alluvial aquifers that support riparian communities
- recharge of unconfined aquifer which benefits well owners/water users
- enhance habitat for aquatic macroinvertebrates (prey base for fish)
- provide indirect benefits to terrestrial wildlife that utilize the riparian zone
- possible water quality benefits, (e.g. dilution of heavy metals).

During the implementation of the project some temporary negative impacts would occur. The use of heavy equipment to implement the dam enhancement project would generate local air and noise pollution and could disrupt the scenic “viewshed” of the area. Because the work would be temporary and would only occur during daylight hours and in limited locations, the overall impact visual resources would be limited and temporary. The construction may also temporarily displace wildlife.

Public health and safety:

There will be no hazard public health and safety from the proposed project.

Unique characteristics of the geographic area:

There are minimal prime farmlands (about 330 acres) in the project area (Fig. A-6). A portion of this land may be affected depending on which water rights are acquisitioned. Areas now in hay production will most likely revert to native vegetation.

Degree to which effects are likely to be highly controversial:

No controversy has been identified nor is it anticipated with the proposed action. There is no disagreement or controversy among ID team members or reviewers over the nature of the effects on resource values in the proposed action.

Degree to which effects are highly uncertain or involve unique or unknown risks:

There are no uncertain, unique or unknown risks involved with the proposed action.

Consideration of whether the action may establish a precedent for future actions with significant impacts:

This decision is like one of many that have previously been made and will continue to be made by BLM responsible officials regarding in-stream flows. The decision is within the scope of the Resource Management Plan and is not expected to establish a precedent for future actions. The decision does not represent a decision in principle about a future consideration.

Consideration of whether the action is related to other actions with cumulatively significant impacts:

BLM lands in the project area are meeting land health standards and would not change as part of the proposed action.

Scientific, cultural or historical resources, including those listed in or eligible for listing in the National Register of Historic Places:

A class III cultural resources inventory (BLM Report Number 12-CN-LJFO-001) was completed in September 2010 by Ken Bedingfield of URS Corporation. The report documented one cultural resource (5CN1531) that was determined to be not eligible to the National Register for Historic Places. The proposed action will have no effect on cultural resources.

Threatened and endangered species and their critical habitat:

The proposed action will have no direct or indirect effect on any federally listed species because they are not known to occur in the project area. No cumulative effects to any federally listed species are associated with this project since there is no potential habitat or species present within or around the project area.

Any effects that threaten a violation of Federal, State or local law or requirements imposed for the protection of the environment: The proposed action conforms with the provisions of NEPA (U.S.C. 4321-4346) and FLPMA (43 U.S.C. 1701 et seq.) and is compliant with the Clean Water Act and The Clean Air Act, the National Historic Preservation Act, Migratory Bird Treaty Act (MBTA) and the Endangered Species Act.

NAME OF PREPARER: Laura Archuleta

SUPERVISORY REVIEW: Nancy Keohane

NAME OF ENVIRONMENTAL COORDINATOR: Martin Weimer

DATE: May 14, 2012

SIGNATURE OF AUTHORIZED OFFICIAL: _____
Andrew Archuleta, Field Manager

DATE SIGNED: _____

APPENDICES: Appendix A: Maps
Appendix B: Photos
Appendix C: Tables