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SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

REPUBLICAN RIVER CONSERVATION RESERVE ENHANCEMENT PROGRAM

Farm Service Agency
United States Department of Agriculture
October 2010

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Cover Sheet

Proposed Action: The United States Department of Agriculture (USDA), Commodity Credit Corporation and the State of Colorado have agreed to implement an Amendment to Colorado's Republican River Conservation Reserve Enhancement Program (CREP), a component of the Conservation Reserve Program. USDA is provided the statutory authority by the provisions of the Food Security Act of 1985, as amended (16 United States Code 3830 et seq.), and the Regulations at 7 Code of Federal Regulations (CFR) 1410. The Farm Service Agency (FSA) proposes to amend the CREP Agreement with the State of Colorado. CREP is a voluntary land conservation program for agricultural landowners.

Type of Document: Supplemental Environmental Assessment

Lead Agency: USDA, FSA

Sponsoring Agency: Colorado Division of Water Resources

Cooperating Agency: None

Further Information:

State of Colorado
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Comments: This Supplemental Environmental Assessment was prepared in accordance with USDA FSA National Environmental Policy Act (NEPA) implementation procedures found in 7 CFR 799, as well as the NEPA of 1969, Public Law 91-190, 42 United States Code 4321-4347, 1 January 1970, as amended. A Notice of Availability will be printed in newspapers in the CREP area. FSA will host a public meeting during the public comment period prior to any FSA decision.

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EXECUTIVE SUMMARY

This Supplemental Environmental Assessment (EA) has been prepared to analyze the potential environmental consequences associated with implementation of an Amendment to the Republican River Conservation Reserve Enhancement Program (CREP) in the State of Colorado. The environmental analysis process is designed to ensure the public is involved in the process and informed about the potential environmental effects of a Federal action and to help decision makers take environmental factors into consideration when making decisions related to an action.

This Supplemental EA has been prepared by the United States Department of Agriculture Farm Service Agency (FSA) to satisfy the requirements of the National Environmental Policy Act (NEPA) (Public Law 91-190, 42 United States Code 4321 et seq.); implementing regulations adopted by the Council on Environmental Quality (40 Code of Federal Regulations [CFR] 1500-1508); and FSA implementing regulations, Environmental Quality and Related Environmental Concerns – Compliance with NEPA (7 CFR 799).

Purpose and Need for the Proposed Action

The purpose of the Proposed Action is to implement an Amendment to the Republican River CREP for the State of Colorado. The proposed Amendment is needed to meet the goals and objectives of the Republican River CREP, including the improvement of water quality, restoration of native vegetation, and improvement of wildlife habitat. Further, the proposed Amendment would have positive long term impacts on protected species and their habitats, as well as reducing agricultural use of the Ogallala Aquifer, restoring and enhancing wetlands, and increasing streamflows in the Republican River Basin. The proposed Amendment would also help the State of Colorado to comply with the provisions of the Republican River Compact.

Proposed Action and No Action Alternative

The proposed Republican River CREP Amendment would increase the program enrollment goal by 20,000 acres for a total enrollment of 55,000 acres and open enrollment in Washington and Lincoln counties (which were enrolled to the maximum extent in the Conservation Reserve Program [CRP] at the time of the current Republican River CREP Agreement). The Amendment also proposes to increase total program funding by approximately $36 million; increase the duration of temporary irrigation for cover establishment from 12 to 24 months; and add additional incentive areas for the purpose of increasing streamflows in the Basin.

The Supplemental EA also includes analysis of the No Action Alternative. Under the No Action Alternative the proposed Amendment would not be implemented, however, the original Republican River CREP Agreement would continue as it is currently administered. The additional benefits of expanding enrollment in CREP and opening enrollment to Washington and Lincoln counties would not be realized.

Summary of Environmental Consequences

It is expected that there would be long term positive impacts associated with implementation of the Proposed Action. A summary of the potential impacts is provided in Table ES-1.

Table ES-1. Summary of Potential Environmental Consequences

Resource	*Proposed Action*	*No Action Alternative*
Threatened and Endangered Species	Long term, positive impacts for threatened and endangered species are expected under the Proposed Action. The primary goals of CREP are to improve water quality and to restore native vegetation and wildlife habitat. The Proposed Action would benefit the Black-footed ferret and Interior Least Tern. There is the potential for short term negative impacts to these species during activities associated with the establishment and management of the conservation practices.	The additional benefits of increasing enrollment in CREP would not be realized under the No Action Alternative. While the original CREP would continue as it does currently, enrollment within Washington and Lincoln counties would not occur. Expiring CRP acres in these counties may be converted back to active agricultural land thereby degrading water quality and quantity and impacting wildlife habitat.
Water Resources	The retirement of well rights and removal of agricultural lands from farming would have a long term, positive impact on water resources. There would be less groundwater depletion which would increase streamflow over time. Surface water quality would also improve from decreased application of agricultural chemicals, and wetlands would benefit from the newly installed conservation practices. Activities for the establishment and maintenance of practices (such as grading, leveling, etc.) could result in minor, short term impacts to nearby surface waters or wetlands from increased sedimentation in runoff.	The original Republican River CREP would continue, however the additional benefits of increasing enrollment and extending CREP in Washington and Lincoln counties would not be realized. Groundwater withdrawal for agriculture would continue, thus decreasing surface water and groundwater flow. Agricultural chemical inputs would continue to degrade water quality.
Cultural Resources	No direct impacts to architectural properties would occur under the proposed Amendment. Archaeological resources and traditional cultural properties could be affected by the installation and maintenance of conservation practices if ground disturbance is beyond what is normally disturbed by agricultural activities. Site specific environmental evaluation would identify and protect cultural resources prior to implementation of conservation practices.	No change in impacts to cultural resources would occur under the No Action Alterative if agricultural practices remain unchanged.

Table ES-1. Summary of Potential Environmental Consequences

Resource	***Proposed Action***	***No Action Alternative***
Socioeconomics	Implementation of the Proposed Action would produce a slight beneficial impact in the local economy. The proposed Amendment would result in an additional $36 million in CREP funding (for a total of $102 million). There would be a direct negative impact to the economy from the loss of agricultural production, estimated to be approximately $13.5 million within the entire Republican River Basin. However, this loss is more than off-set by the additional CREP funding.	The original Republican River CREP Agreement would remain in place and impacts would be the same as those described in the original CREP EA. Socioeconomic impacts from the original CREP were expected to produce a slight beneficial impact to the economy from the expenditure of $66 million in the CREP area. There would be an economic loss from decreased agricultural production, but this would be offset by the CREP funding.
Environmental Justice	The counties associated with the proposed Amendment are neither areas of concentrated minority populations nor impoverished areas. Therefore no disproportionate impacts to such groups would occur should the Amendment be implemented.	There would be no change to Environmental Justice under the No Action Alternative.

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ACRONYMS AND ABBREVIATIONS

BEA	Bureau of Economic Analysis
CDLE	Colorado Department of Labor and Employment
CDWR	Colorado Division of Water Resources
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CPs	Conservation Practices
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
FSA	Farm Service Agency
IMPLAN	Impact Analysis for Planning
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
OAHP	Office of Archaeology and Historic Preservation
RRWCD	Republican River Water Conservation District
SDWR	Safe Drinking Water Regulations
SEIS	Supplemental Environmental Impact Statement
SHPO	State Historic Preservation Office
TCPs	Traditional Cultural Properties
USACE	United States Army Corps of Engineers
USCB	United States Census Bureau
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United State Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

The United States Department of Agriculture (USDA) Farm Service Agency (FSA) proposes to implement an Amendment to the Republican River Conservation Reserve Enhancement Program (CREP) in the State of Colorado. This Supplemental Environmental Assessment (EA) has been prepared to analyze the potential environmental consequences associated with implementation of the Proposed Action or No Action Alternative.

1.1 BACKGROUND

1.1.1 Conservation Reserve Program

The FSA administers the Conservation Reserve Program (CRP), the Federal government's largest private land environmental improvement program. CRP is a voluntary program that supports the implementation of long term conservation measures designed to improve the quality of ground and surface waters, control soil erosion, and enhance wildlife habitat on environmentally sensitive agricultural land. The environmental impact of CRP was studied in the 2010 Supplemental Environmental Impact Statement (SEIS) (USDA 2010). The Final SEIS was published on June 18, 2010 and provides FSA decision makers with programmatic level analyses that provide a context for state specific Programmatic EAs.

1.1.2 Conservation Reserve Enhancement Program

The CREP was established in 1997 under the authority of CRP to address agriculture related environmental issues by establishing conservation practices (CPs) on agricultural lands using funding from State, Tribal, and Federal governments as well as non-government sources. CREP addresses high priority conservation issues in defined geographic areas such as watersheds. Producers who enroll their eligible lands in CREP receive financial and technical assistance for establishing CPs on their land as well as annual rental payments. Once eligible lands are identified, site-specific environmental reviews and consultation with and permitting from other Federal agencies are completed as appropriate. Eligible land criteria are set forth by the Farm Security and Rural Investment Act of 2008 (Farm Bill) and detailed in the FSA Handbook: *Agricultural Resource Conservation Program for State and County Offices*. Participants are also required to prepare a conservation plan that details the establishment and maintenance of CPs to ensure the goals of CREP are met throughout the life of the contract.

1.1.3 Current Republican River CREP Agreement

The Republican River CREP was proposed in 2005 (USDA 2005) and a Programmatic EA, which evaluated the impacts of the program, *Final Programmatic Environmental Assessment for the Republican River Basin and High Plains Region Conservation Reserve Enhancement Program Agreements for Colorado*, was completed in May 2006 (USDA 2006).

The Republican River Basin spans parts of eastern Colorado, western Kansas, and western Nebraska (Figure 1.1-1). The Colorado portion of the basin lies in Colorado's northern high plains, a semi-arid region that receives on average fewer than 20 inches of rainfall annually.

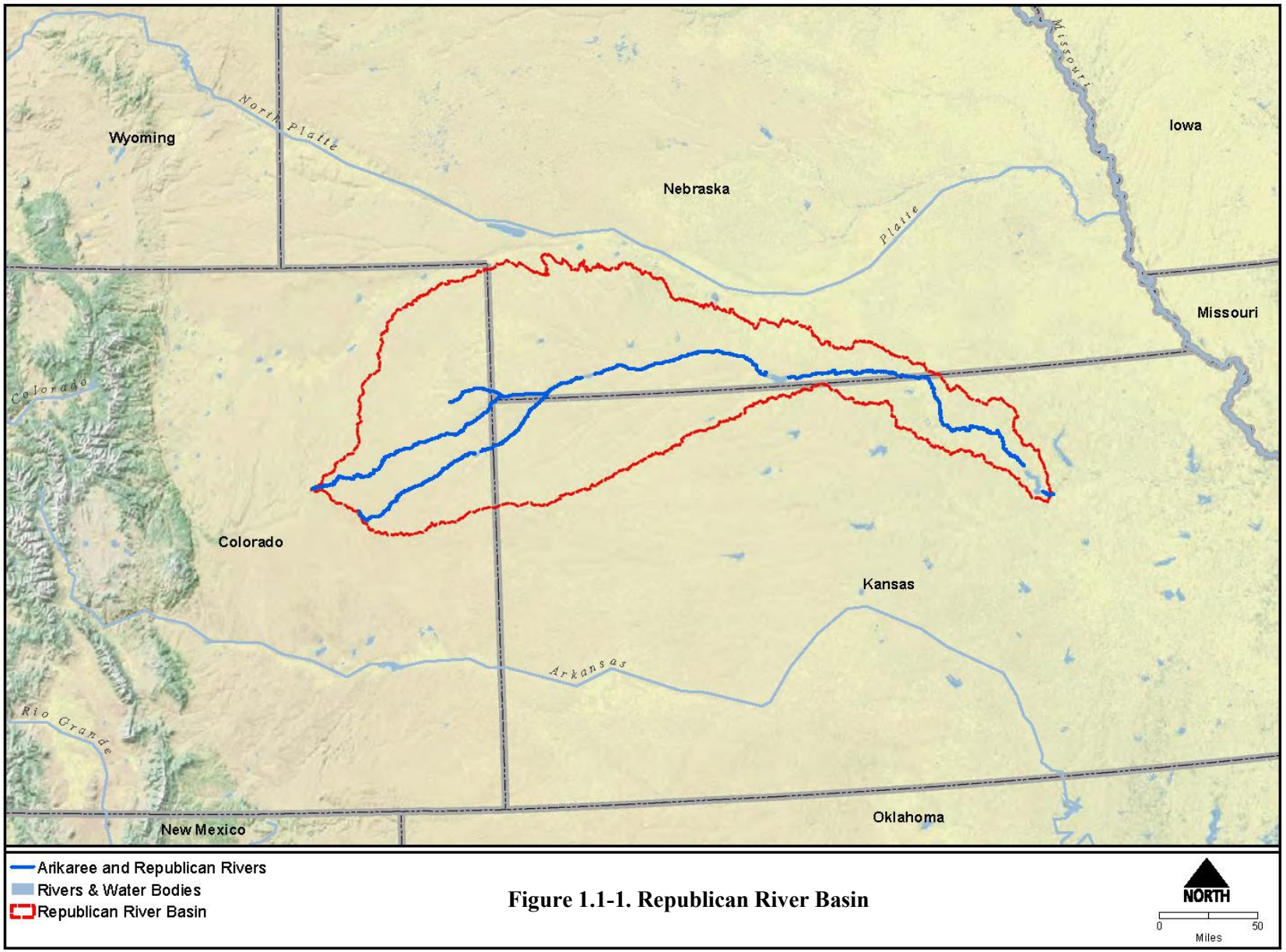

Figure 1.1-1. Republican River Basin

The Republican River Basin is a major contributor to the Ogallala Aquifer, which has been identified as a national concern regarding water quantity and quality. Over 4,000 wells within the Republican River Basin in Colorado tap into the Ogallala Aquifer supplying the basin's cropland, livestock, municipal, domestic, and commercial entities. Cattle feedlots and ranching, crops (corn and winter wheat), and hogs are the dominant agricultural trends in the Republican River Basin and are a source of nutrients and sediments within the basin. Republican River Basin native habitat can be broadly categorized into three complex types, plains forest riparian and wetlands, sandsage prairie, and loess prairie. The basin has 560,000 irrigated acres of cropland in Colorado.

The original Republican River CREP had an enrollment goal of 35,000 acres and included all of Phillips and Yuma counties and those portions of Kit Carson, Logan, and Sedgwick counties that overlie the Ogallala Aquifer within the Republican River Basin (Figure 1.1-2). All participants enrolling eligible irrigated cropland within the Republican River CREP must agree to permanently retire the water associated with the land being enrolled. The primary objectives of the original Republican River CREP were to:

- Reduce soil erosion;
- Reduce fertilizer and pesticide application;
- Establish native grassland;
- Restore and enhance degraded wetlands;
- Restore and enhance riparian habitat;
- Reduce agricultural use of the Ogallala Aquifer;
- Increase streamflow in all streams associated with the Basin;
- Reduce energy consumption; and
- Reduce percentage of groundwater test wells containing nitrogen levels above United States Environmental Protection Agency (USEPA) standards.

As of 2009, there were 19,555 acres enrolled in CREP within the Republican River Basin (Table 1.1-1).

Table 1.1-1. Current Enrollment Irrigated Acreage in CRP and CREP by County

County	Total Cropland Acres	Cumulative CRP Acres	CREP Acres
Kit Carson	849,670	239,235	10,427
Logan	570,050	132,899	0
Phillips	387,974	48,174	982
Sedgwick	184,784	20,471	0
Yuma	703,827	120,888	8,146
Total	**4,042,808**	**939,772**	**19,555**

Source: USDA 2007 and 2009

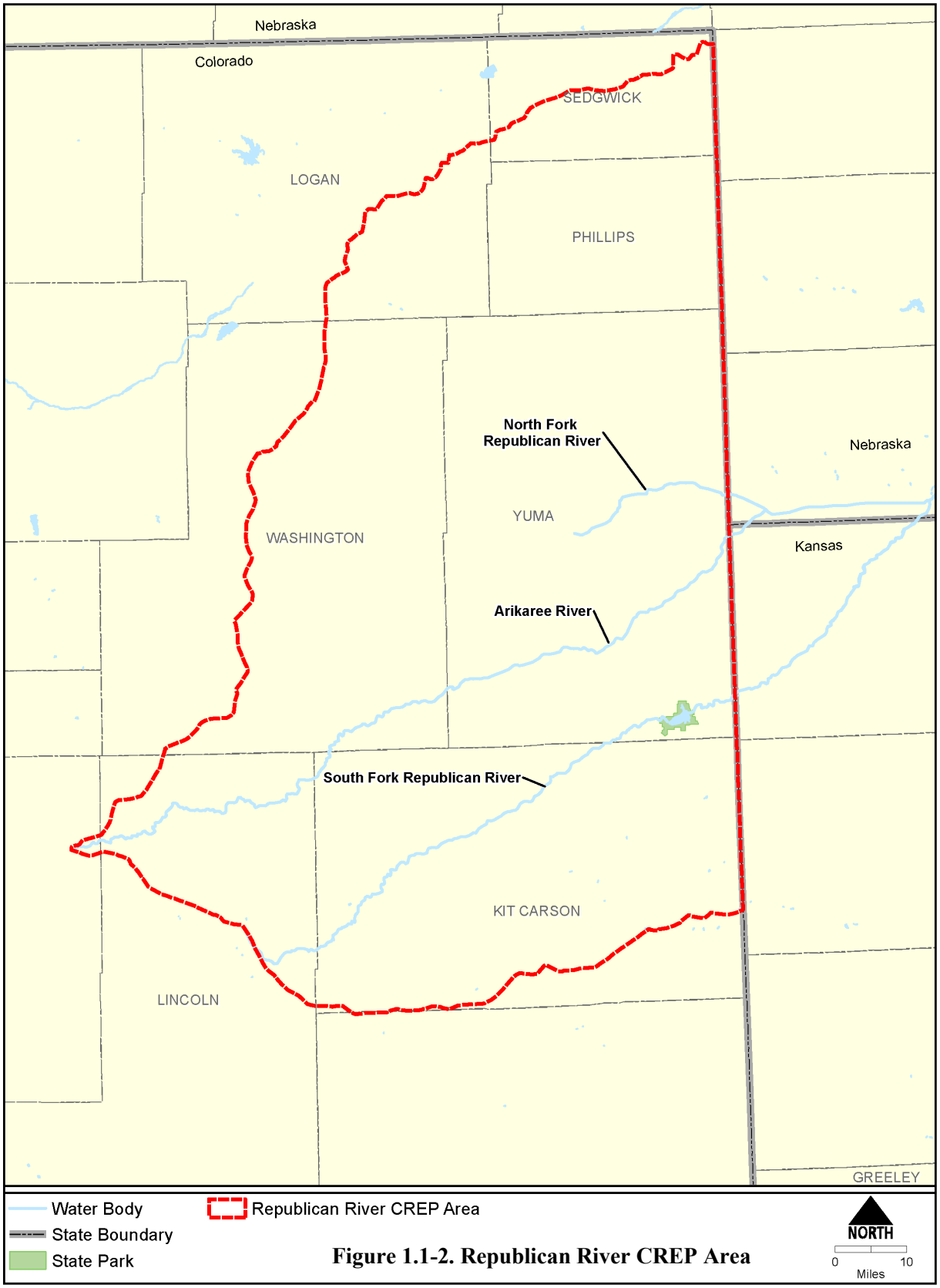

Figure 1.1-2. Republican River CREP Area

1.1.4 Republican River Compact

In 1942, Colorado, Nebraska, and Kansas entered into a compact to allocate the waters of the Republican River Basin above the junction of the Republican and Smoky Hill Rivers in Kansas. There are six major purposes of the Compact: (1) to provide for the most efficient use of the waters of the Republican River Basin for multiple purposes; (2) to provide for an equitable division of such waters; (3) to remove all causes, present, and future, which might lead to controversies; (4) to promote interstate comity; (5) to recognize that the most efficient utilization of the waters within the Basin is for beneficial consumptive use; and (6) to promote joint actions by the States and the United States in the efficient use of water and the control of destructive floods.

In 2002, the States of Kansas, Nebraska, and Colorado entered into a Final Settlement Stipulation to resolve pending litigation regarding claims that Colorado and Nebraska had violated the Republican River Compact. In 2004, the Republican River Water Conservation District (RRWCD) was established, and includes the area in Colorado in Phillips and Yuma counties, and those portions of Kit Carson, Lincoln, Logan, Sedgwick, and Washington counties within the Republican River Basin. The RRWCD was established for the purpose of cooperating with and assisting the State of Colorado to carry out the State's duty to comply with the Compact and was given powers to carry out this purpose.

The RRWCD Water Activity Enterprise is in the process of planning the construction of a 12.7 mile pipeline to deliver water from wells located 8 to 15 miles north of the North Fork of the Republican River to that same stream at the Colorado/Nebraska State line. The pipeline will offset stream depletions in order to comply with Colorado's Compact Allocations. The RRWCD Water Activity Enterprise has acquired the permanent water rights of 62 well permits to change the use of the wells from irrigation to allow them to be used for augmentation of the stream in the North Fork of the Republican River. In making that change, the future pumping of the wells will be limited to 14,798 acre-feet annually (RRWCD 2009). The planning and construction of the Compact Compliance Pipeline is not a part of CREP, but is considered a cumulative action since it occurs within the same geographic area as CREP and some wells within the CREP area could be used to supply water to the pipeline. The pipeline will be further addressed in Chapter 5.0 of this EA.

1.2 THE PROPOSED ACTION

The proposed Republican River CREP Amendment (herein referred to as the Amendment) would increase the program enrollment goal by 20,000 acres for a total enrollment of 55,000 acres and open enrollment in parts of Washington and Lincoln counties (which were enrolled to the maximum extent in CRP at the time of the original Republican River CREP Agreement). The Amendment also proposes to increase total program funding by approximately $36 million; increase the duration of temporary irrigation for cover establishment from 12 to 24 months; and add additional incentive areas for the purpose of increasing streamflows in the Basin.

1.3 PURPOSE AND NEED

The purpose of the Proposed Action is to implement an Amendment to the Republican River CREP for the State of Colorado. The proposed Amendment is needed to meet the goals and objectives of the Republican River CREP, including the improvement of water quality, restoration of native vegetation, and improvement of wildlife habitat. Further, the proposed Amendment would have positive long term impacts on protected species and their habitats, as well as reducing agricultural use of the Ogallala Aquifer, restoring and enhancing wetlands, and increasing streamflows in the Republican River Basin. The proposed Amendment would also help the State of Colorado to comply with the provisions of the Republican River Compact.

1.4 REGULATORY COMPLIANCE

This Supplemental EA has been prepared to satisfy the requirements of the National Environmental Policy Act (NEPA) (Public Law 91-190, 42 United States Code 4321 et seq.); implementing regulations adopted by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1500-1508); and FSA implementing regulations, Environmental Quality and Related Environmental Concerns – Compliance with NEPA (7 CFR 799). The intent of NEPA is to protect, restore, and enhance the human environment through well-informed Federal decisions. A variety of laws, regulations, and Executive Orders (EOs) apply to actions undertaken by Federal agencies and form the basis of the analysis presented in this Supplemental EA.

1.5 PUBLIC INVOLVEMENT

In accordance with NEPA, a Federal agency must coordinate with other Federal and state agencies with an interest in the Proposed Action or resources potentially affected by that action as well as concerned public. The proposed Amendment to the Republican River CREP was developed in coordination with several Federal and state agencies and stakeholders (see Chapter 8.0 and Appendix B). In addition, given the high public interest in CREP and other conservation programs in the Republican River Basin, a public meeting will be held during the public comment period for this Supplemental EA. A public meeting is not required for this level of NEPA analysis; however, FSA and the State of Colorado feel it is appropriate for this particular project. The Supplemental EA will be made available to the public and interested agencies via the internet. In addition, paper copies will be available for review in the FSA county offices.

1.6 ORGANIZATION OF EA

This Supplemental EA assesses the potential impacts of the Proposed Action and the No Action Alternative on potentially affected environmental and economic resources.

- Chapter 1.0 provides background information relevant to the Proposed Action, and discusses its purpose and need.
- Chapter 2.0 describes the Proposed Action and alternatives.

- Chapter 3.0 describes the baseline conditions (i.e., the conditions against which potential impacts of the Proposed Action and alternatives are measured) for each of the potentially affected resources.
- Chapter 4.0 describes potential environmental consequences on these resources.
- Chapter 5.0 describes potential cumulative impacts and irreversible and irretrievable resource commitments.
- Chapter 6.0 discusses mitigation measures utilized to reduce or eliminate impacts to protected resources.
- Chapter 7.0 lists the preparers of this document.
- Chapter 8.0 contains a list of the persons and agencies contacted during the preparation of this document; and
- Chapter 9.0 contains references.

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2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

FSA proposes to implement an Amendment to Colorado's Republican River CREP by increasing the enrollment goal, increasing program funding, increasing the allowance of temporary irrigation, and add additional incentive areas. No changes in the CPs available to participants, land eligibility requirements or land preparation techniques are proposed. Only those activities proposed in the CREP Amendment, the impacts of which have not been analyzed in the original Republican River CREP EA (USDA 2006) or the CRP SEIS (USDA 2010), are addressed in this Supplemental EA. Table 2.1-1 provides a summary of the original Republican River CREP and the proposed Amendment. The main components of the proposed Amendment are described further in Sections 2.1.1 through 2.1.4.

Table 2.1-1. Summary of Components of the Republican River CREP Agreement and its Proposed Amendment

	Republican River CREP Agreement	***Proposed Amendment***
Acreage	35,000	Increase 20,000 (55,000 total)
Geographic Area	Phillips, Yuma, Kit Carson, Logan, Sedgwick counties	Addition of Washington and Lincoln counties
Conservation Practices	• CP2, Native Grasses • CP4D, Vegetation Planting (short • grass) • CP4D, Vegetation Planting (tall grass) • CP4D, Vegetation Planting (pivot • corners) • CP22, Riparian Buffers • CP23, Wetland Restoration • CP 23A, Playa Lakes Restoration	No Change
Funding	$66,295,000 14 or 15 year contracts	Increase $36,205,000 (total $102,500,00) 14 or 15 year contracts
Temporary Irrigation	Allowed for 12 months for cover establishment	Increase duration to 24 months for cover establishment
Incentive Areas	North Fork and South Fork of Republican River	Addition of Arikaree River, and an area north of Wray (Target Zone)

Similar to the original CREP Agreement, the primary goals and objectives of the proposed Amendment are to:

- Obtain 60,000 to 75,000 acre-feet of annual water savings through the purchase of permanent water rights or cancellation of well permits through the RRWCD Water Activity Enterprise;
- Reduce soil erosion from 751,633 tons to 165,000 tons per year;
- Reduce annual fertilizer and pesticide application from all enrolled acres by 4,606 tons per year from 2004 levels;

- Enroll up to 500 acres of riparian buffer and wetland practices to permit natural restoration of stream and wetland hydraulic and geomorphic characteristics which meet habitat requirements of the targeted fish species;
- Reduce, by approximately 10 percent from 2004 levels, the number of groundwater wells containing nitrogen levels above USEPA standards; and
- Reduce the total use of electricity by 3.29 million kilowatt hours through reductions in groundwater pumping on all acres enrolled.

2.1.1 Acreage and Geographic Area

The proposed Amendment would increase the enrollment goal by 20,000 acres for a total of 55,000 acres. This enrollment would significantly reduce the amount of irrigation water consumptive use and reduce agricultural chemicals and sediment from entering waters of the State from agricultural lands and transportation corridors. Like with the original CREP Agreement, the establishment of permanent vegetative covers would reduce ground and surface water use and reduce non-point sources of contaminants (i.e., the application of fertilizers and pesticides) thereby enhancing associated wildlife habitat, both terrestrial and aquatic, and conserving energy. Enrollment goals have been determined as follows:

- CP22, CP23, CP23A – up to 500 acres.
- CP2 and CP4D – up to 54,500 acres.

Like with the original CREP Agreement, irrigated cropland would only be eligible for enrollment in the Republican River CREP when producers submit a completed and signed State certification agreement which certifies that the producer will cease applying irrigation water on all irrigated cropland acres accepted for enrollment. Center-pivot corners (non-irrigated dryland cropland) may be enrolled with adjacent enrolled irrigated cropland (no more than 5,000 acres total in CREP area).

County limitations prohibit a county from enrolling more than 25 percent of its cropland in CRP or CREP without county approval (see CRP SEIS for additional information on county limitations and exceptions, USDA 2010). At the time of the original CREP Agreement, Washington and Lincoln counties were enrolled to the maximum extent in CRP and were not eligible for enrollment in CREP. Since implementation of the original CREP Agreement, CRP acres in Washington and Lincoln counties have expired or will be expiring in the near future making them eligible for enrollment in CREP under the proposed Amendment.

2.1.2 Funding

Under the proposed Amendment, Republican River CREP funding would increase by approximately $36,205,000 for a total of $102,500,000 (Federal and non-Federal sources), assuming all 55,000 acres are enrolled. Producers would enter into 14 or 15 year contracts to receive financial assistance in the form of

one-time cost-share payment for the installation of CPs, annual per acre rental payments, and bonus or incentive payments where applicable.

2.1.3 Temporary Irrigation

Under the Amendment, participants would be allowed to apply not more than ½ acre foot of irrigation water per acre to enrolled land during the first 24 months of the contract. Temporary irrigation would only be allowed when necessary to establish the vegetative conservation cover as outlined in an approved conservation plan.

2.1.4 Incentive Areas

All producers enrolling land in the Republican River CREP are eligible for annual non-federal payments per acre enrolled (Direct State Partner Payment, herein referred to as an incentive or bonus payment). Producers enrolling land within designated incentive areas are eligible for *higher* annual incentive payments than those outside the incentive areas. Incentive payments for the North and South Fork of the Republican River were available in the original CREP. The proposed Amendment adds the following incentive areas: three-mile corridor of the Arikaree River, and an area north of Wray, referred to in the proposed Amendment as a "Target Zone" (Figure 2.1-1).

The incentive areas in the proposed Amendment have been added for the specific purpose of increasing streamflows in the Basin. Retirement of lands from irrigation within the incentive areas along the three rivers would increase streamflows by leaving water in the river systems. Within the area north of Wray, water may be pumped directly through a pipeline to the North Fork of the Republican River to increase streamflows. The amount of water to be pumped should not exceed a maximum of 14,798 acre-feet/year (historical consumption) and most years would be less. The planning, construction, and future operation of the pipeline is not part of the CREP (see Chapter 5.0, Cumulative Impacts).

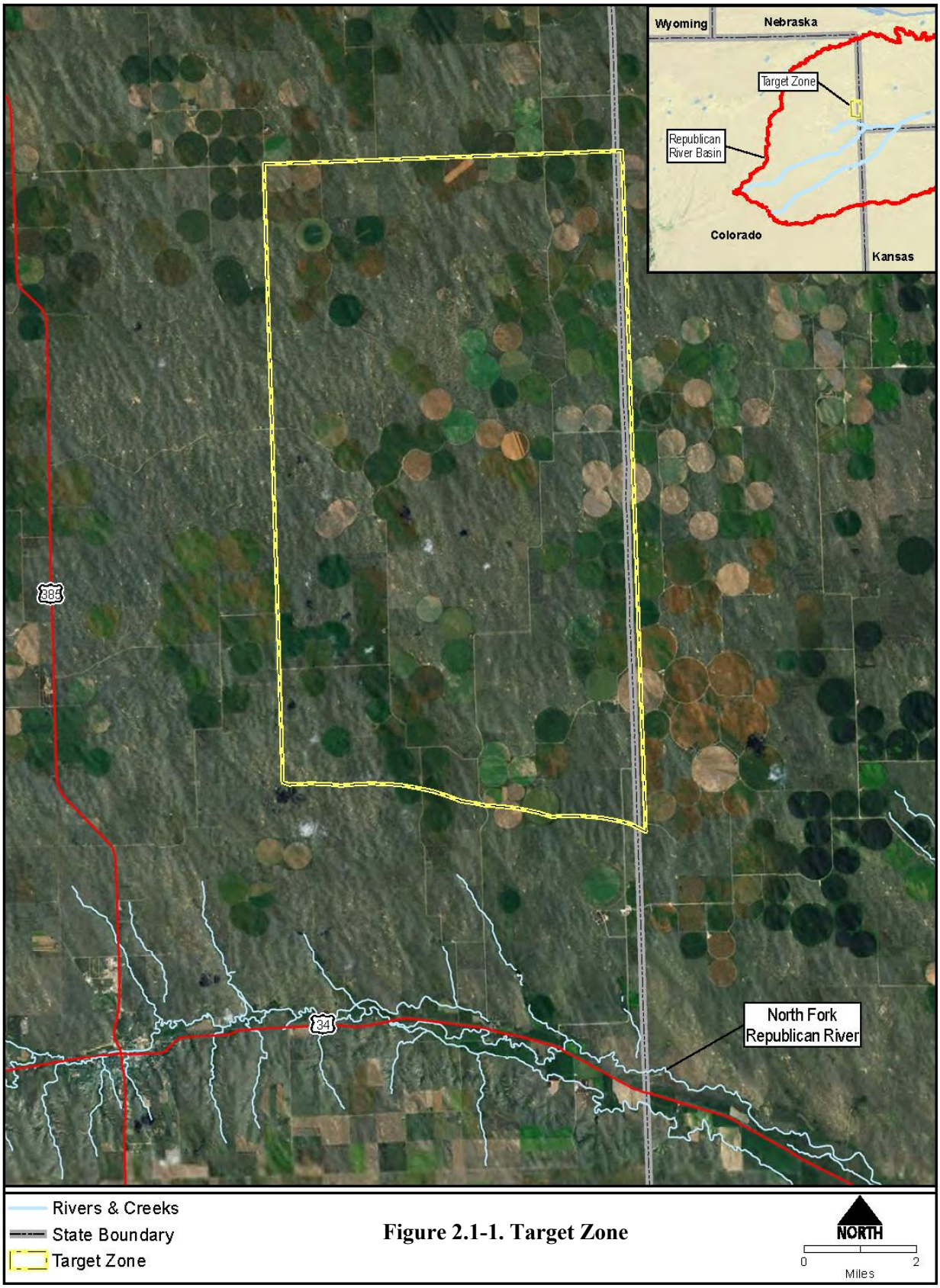

Figure 2.1-1. Target Zone

2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, the original Republican River CREP would remain in place and the increase in acres eligible for enrollment proposed by its Amendment would not be made available to producers. The impacts of the Republican River CREP were assessed in the *Final Programmatic Environmental Assessment for the Republican River Basin and High Plains Region Conservation Reserve Enhancement Program Agreements for Colorado* (USDA 2006).

2.3 RESOURCES ELIMINATED FROM ANALYSIS

CEQ regulations (40 CFR §1501.7) state that the lead agency shall identify and eliminate from detailed study the issues which are not important or which have been covered by prior environmental review, narrowing the discussion of these issues in the document to a brief presentation of why they would not have a dramatic effect on the human or natural environment. Because the Proposed Action is an Amendment to an existing CREP Agreement, the environmental impacts of which have been analyzed previously, the scope of this analysis will be limited to those resources that are potentially impacted by the changes proposed in the Amendment. Resources that have been eliminated from further analysis include: biological resources (with the exception of threatened and endangered species); soils; recreation; traffic and transportation; noise; air quality; human health and safety; coastal zones; and other formally classified lands.

The analysis of impacts to biological resources in this document will be limited to Federally threatened and endangered species and their designated critical habitats. Both vegetation and wildlife were described on a regional level that included Washington and Lincoln counties, in the original Republican River CREP EA (USDA 2006). The potential impacts to those resources were found to be positive in the long term. Making more acres available for enrollment is not expected to change that conclusion.

Soils were also assessed on a regional level in the original Republican River CREP EA (USDA 2006). Positive impacts are expected to result from establishing CPs, which would stabilize soils and reduce soil erosion. Making more acres available for enrollment is not expected to change that conclusion.

The analysis of potential impacts to recreation was, like biological resources and soils, considered on a regional level, which included Washington and Lincoln counties. Also like these resources, the proposed Amendment is expected to have long term positive effects on recreation by improving habitat for both terrestrial and aquatic species, thus improving opportunities for hunting, fishing, and wildlife observation.

Other resource areas eliminated from analysis in the original Republican River CREP EA are also eliminated in this Supplemental EA because the Proposed Action has limited to no potential to impact those resources. Those resource areas include: traffic and transportation; noise; air quality; human health and safety; coastal zones; and other formally classified lands.

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3.0 AFFECTED ENVIRONMENT

This chapter provides a description of the existing environmental conditions that have the potential to be affected from implementation of the Proposed Action. The existing environment will serve as the baseline against which impacts of the Proposed Action will be measured (Chapter 4). Resource areas potentially impacted by the Proposed Action and covered in this EA include:

- Threatened and Endangered Species
- Water Resources
- Cultural Resources
- Socioeconomics
- Environmental Justice

Many resource areas were described on a regional level in the original Republican River CREP EA (USDA 2006). Washington and Lincoln counties are located within the same geographic region and the affected environment would not significantly change with the addition of these two counties. Therefore, discussions of those resources in this document are kept brief and refer to the original analysis.

3.1 THREATENED AND ENDANGERED SPECIES

Threatened and endangered species are those that are protected by the Endangered Species Act (ESA). Critical habitat is designated as that habitat necessary for the recovery of threatened and endangered species, and like these species, is protected by the ESA. The United States Fish and Wildlife Service (USFWS) is the lead agency for enforcing the policies of the ESA and for designating threatened and endangered species and their critical habitat.

Table 3.1-1 lists those Federally threatened and endangered animal species with the potential to occur within all of Lincoln and Washington counties and their potential to occur within the CREP area. No Critical Habitat for these species has been designated by the USFWS in Washington or Lincoln counties.

Black footed ferret, photo courtesy of USFWS

Table 3.1-1. Threatened and Endangered Species in Lincoln and Washington Counties

Species	*Status*	*Lincoln County*	*Washington County*	*Potential Occurrence in CREP Area*
Black footed ferret *Mustela nigripes*	E	X	X	Yes
Piping Plover *Charadrius melodus*	T	X	X	No
Least Tern[1] *Sterna antillarum*	E	X	X	Yes
Whooping Crane[2] *Grus americana*	E	X	X	No
Pallid sturgeon *Scaphirhynchus albus*	E	X	X	No
Western prairie fringed orchid *Platanthera praeclara*	E	X	X	No

Notes:
E = endangered T= threatened
[1] Only the interior population (including Colorado) of the Least Tern is considered Endangered.
[2] Not seen in Colorado since 2002
Source: Colorado Division of Wildlife 2010, USFWS 2010

Black footed ferrets (*Mustela nigripes*) are associated with mixed and short grass prairies consisting of short and tall grasses, forbs, sedges, and an open canopy of oak species. Ferrets depend almost exclusively on prairie dogs as a food source and use its burrows for shelter and denning (USFWS 2010). Any actions that kill prairie dogs or alter their habitat could prove detrimental to black footed ferrets occupying prairie dog towns.

Piping Plovers (*Charadrius melodus*) in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands, and on beaches, sand bars, and dredged material islands of major river systems. The piping plover occurs most commonly in the Arkansas and South Platte River drainages (USFWS 2010), which are outside the limits of the Republican River CREP in Washington and Lincoln counties.

Interior Least Terns (*Sterna antillarum*) nest on barren beaches of sand, gravel or shells, on dry mudflats and salt-encrusted soils (salt flats) and at sand and gravel pits along rivers. A shallow, constant supply of water that serves as a source of fishes and crustaceans is an essential component of tern nesting habitat (USFWS 2009). When suitable nest habitat is not available on the open river channel, least terns will nest on the sandy beach zone of sandpits immediately adjacent to the river (USGS 2006).

Whooping Cranes (*Grus Americana*) stop on wetlands, river bottoms, and agricultural lands along their migration route. The only remaining wild flock of endangered Whooping Cranes depends on the Platte River as a rest stop during its multi-week migration between Texas and Canada (National Wildlife Federation 2007), however, whooping cranes have not been documented in Colorado since 2002 (Colorado Division Wildlife 2010). The Platte River is outside of the limits of the Republican River CREP in Washington and Lincoln counties.

Pallid sturgeons (*Scaphirhynchus albus*) require large, turbid, free-flowing rivers with rocky or sandy substrates. Pallid sturgeons occur in the Missouri and Mississippi Rivers outside Colorado, but water

reductions in the North Platte, South Platte and Laramie River Basins may affect the species. These areas are outside the Republican River CREP area in Washington and Lincoln counties (USFWS 1993).

Western prairie fringed orchid (*Platanthera praeclara)* occur most often in mesic to wet unplowed tallgrass prairies and meadows but have been found in old fields and roadside ditches. This orchid does not occur in Colorado, but reduced flows in the North Platte, South Platte, and Laramie River Basins may affect the species. These areas are outside the Republican River CREP area in Washington and Lincoln counties (USFWS 2010).

3.2 WATER RESOURCES

For this analysis, water resources include groundwater, surface water, water quality, and wetlands. The Clean Water Act, the Safe Drinking Water Act, and the Water Quality Act are the primary Federal laws that protect the nation's waters including lakes, rivers, aquifers, and wetlands. In addition, the states of Colorado, Kansas, and Nebraska are party to the Republican River Compact, which governs the use of waters of the Republican River and its tributaries.

3.2.1 Groundwater

The predominant source of groundwater supply within the Republican River Basin is the Ogallala Aquifer. The Ogallala Aquifer is the most intensively used aquifer in the United States for irrigation, public supply, and self-supplied industry, producing almost two-times more water than any other United States aquifer. Groundwater withdrawals from the aquifer in the year 2000 accounted for about 20 percent of total groundwater withdrawn in the United States. Most (97 percent) of the water withdrawn is used for irrigation (USGS 2009). Table 3.2-1 provides the irrigated cropland acres within the counties contained in the Republican River CREP area and the most current data on the amount of water applied for irrigation. The data shown in the table is for the entire county, not just the CREP area. These data were compiled from the *Estimated Use of Water in the United States*, a series of reports that are compiled by United States Geological Survey (USGS) every five years (2005 is the most current data available). Over 1.4 million acre-feet of water (surface water and groundwater) was used for irrigation in all of the CREP counties in 2005.

Table 3.2-1 Annual Irrigation in Republican River CREP Counties (2005)

County	Irrigated Cropland Acres	Annual Irrigation (acre-feet)		
		Groundwater	Surface Water	Total
Kit Carson	162,850	314,525	470	314,995
Lincoln	4,650	3,730	1,759	5,489
Logan	103,750	3,394	315,410	318,804
Phillips	66,860	113,829	123	113,952
Sedgwick	48,130	63,299	47,068	110,368
Washington	48,470	125,781	6,866	132,647
Yuma	268,640	427,110	10,048	437,158
Total	**703,350**	**1,051,668**	**381,745**	**1,433,413**

Source: USGS 2005

The Ogallala Aquifer has been identified as a national concern regarding water quantity. Wells within Colorado not only irrigate over 2 million acres of cropland, but also provide municipal, domestic, commercial, and livestock water supply (CDWR 2009). Large capacity wells drilled during the 1950s through the 1970s have decreased the amount of storage in the Ogallala Aquifer in Colorado. The aquifer is over-allocated, and groundwater withdrawals have exceeded recharge since the early 1960s (State of Colorado 2005). Table 3.2-2 provides the number of completed wells through 2009 in each CREP county as well as the number of those wells with irrigation designated as the major use.

Table 3.2-2 Completed Wells in CREP Counties (2009)

County	Total Number of Completed Wells	Irrigation Designated as Major Use
Kit Carson	3,050	959
Lincoln	2,024	132
Logan	4,355	644
Phillips	1,107	438
Sedgwick	966	384
Washington	2,558	396
Yuma	5,832	1,767
Total	**19,892**	**4,720**

Source: CDWR 2009

After litigation between the States of Colorado, Kansas, and Nebraska, the States entered into a settlement agreement in 2002, which was approved by the United States Supreme Court that impacts to surface water from groundwater consumption would be counted against a States' allocation under the Compact. From 2004 to 2008, Colorado beneficially consumed an average of approximately 9,300 acre-feet per year more than allocated to the State under the Republican River Compact. However, the over-use has been decreasing each year since 2004 and was just under 6,000 acre-feet in 2008 (CDWR 2008). A major concern regarding the over-use of groundwater is the subsequent impact on surface streamflows.

3.2.2 Surface Water

Colorado's northern high plains lie in a semi-arid region east of the Rocky Mountains and receive on average fewer than 20 annual inches of precipitation (NRCS 2008). The Republican River Basin drains approximately seven percent of the state's area in northeastern Colorado. Water supplies in the basin come from the Republican River and its tributaries. Intensive groundwater pumping for agriculture and

prolonged drought have contributed to a reduction in surface water streamflow in all of the streams and tributaries within the Basin. Studies indicate that Colorado groundwater depletions reduce Republican River streamflow to neighboring states by approximately 150 additional acre-feet every year (State of Colorado 2005). Over 380,000 acre-feet of surface water was used for irrigation purposes within the CREP counties in 2005 (see Table 3.2-1).

3.2.3 Water Quality

The Ogallala Aquifer has been identified as a national concern regarding water quality. Well drilling, an increase in irrigated crop production, and a prolonged drought have all contributed to localized reduced groundwater quality. In general, groundwater in the Ogallala Aquifer currently meets Federal and State guidelines for drinking-water quality, however, irrigation contributes to recharge in this semiarid area. The quality of water recharging the aquifer has been altered or degraded from the increased input of agricultural chemicals and natural salt deposits to the water table. Concentrations of dissolved solids, nitrate, pesticides, and other constituents are elevated at the water table, reflecting cropland application of agricultural chemicals (USGS 2009).

Nearly ten percent of monitoring wells sampled throughout the Republican River Basin from 1992-2001 under the Colorado Agricultural Chemicals and Groundwater Protection Act failed to meet USEPA drinking water standards for nitrogen content (State of Colorado 2005). A survey completed by the USGS of groundwater quality found that of the Ogallala survey wells tested, eight percent had at least one pesticide compound detected, six percent had at least one volatile organic compound detected, four percent exceeded the dissolved-solids Safe Drinking Water Regulations (SDWR), and one percent exceeded the sulfate SDWR (USGS 2007). Furthermore, naturally occurring heavy metals exceed guidelines in localized areas of the aquifer. The maximum contaminant levels for arsenic, iron, uranium, and radon were also exceeded (USGS 2007).

3.2.4 Wetlands

Wetlands are broadly considered "waters of the United States" and are defined by the United States Army Corps of Engineers (USACE) as areas that are inundated and saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE 1987).

Generally, wetlands in northeastern Colorado typically consist of riparian wetlands and playa lakes. Riparian wetlands are associated with moving water and are seasonally flooded. They generally occur as complexes of forested, scrub shrub and emergent wetlands that are interspersed with uplands.

Playa lakes are shallow, depressional wetlands that hold water following rainstorms but eventually dry up, resulting in temporary or seasonal wetlands. They are generally round and average about 17 acres in size. Open water or wet meadow communities can occur in and around playa lakes. Because of their isolated nature, playa lakes are not currently regulated by the USACE.

3.3 CULTURAL RESOURCES

Cultural resources consist of prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activities considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Cultural resources can be divided into three major categories: archaeological resources (prehistoric and historic), architectural resources, and traditional cultural properties (TCPs). Archaeological resources are locations and objects from past human activities. Architectural resources are those standing structures that are usually over 50 years of age and are of significant historic or aesthetic importance to be considered for inclusion in the National Register of Historic Places (National Register). TCPs hold importance or significance to American Indians or other ethnic groups in the persistence of traditional culture.

Archaeological and architectural resources were described for Kit Carson, Logan, Phillips, Sedgewick, and Yuma counties in the original CREP EA. Therefore, only architectural resources within the CREP area in Washington and Lincoln counties are described in this document (there are no known archaeological resources). TCPs were described in the original CREP EA for the entire state and will not be discussed further in this Supplemental EA (USDA 2006). Table 3.3-1 lists the properties on the National Register within the CREP area in Washington and Lincoln counties (OAHP 2010).

Table 3.3-1. Properties and Distinctive Features of Lincoln and Washington Counties

Name	*Location*	*Distinctive Features*
Lincoln County		
Martin Homestead	Genoa	1899, original sod house and large frame barn, both typical in design, materials and workmanship for their place and period of construction. The fourth generation of the Martin family continues to work the farm.
World's Wonder View Tower	Genoa	1926, began as a commercial and recreation center designed to profit from the needs of rail and highway travelers. This type of tourist facility, once found on every major highway, is now a rare resource.
Washington County		
Akron Gymnasium	Akron	1938, large multi-use auditorium/gymnasium is an important record of the federal relief programs administered during the Great Depression. The gymnasium with its striking domed concrete roof and skylights remains a notable modern landmark in Akron.
Akron Public Library	Akron	1931, one-story brick library features an interesting oblique entry. The building was constructed solely with local funding during the years of the Great Depression and continues to serve the community.
Washington County Courthouse	Akron	1910, courthouse constructed by prominent Denver architect John J. Huddart.
Hoopes Drug Store	Otis	1892, wood frame commercial building which contributed to the commercial success of this high plains agricultural community.
Otis Commercial District	Otis	Located in the 100 block of S. Washington and 102 N. Washington. The historic economic base of the Colorado High Plains is agricultural, and this commercial district served the surrounding farm and ranch families.
Otis Municipal Waterworks System	Otis	1919, first water system independent of the railroad in the town. The Water Tower, 110 feet, is the tallest structure in town and serves as a local landmark. Built by Chicago Bridge and Iron Works.
Schliesfsky's Dime Store	Otis	Date unknown. The second floor of this simple frame building functioned as the first meeting hall in Otis.

Source: OAHP 2010

3.4 SOCIOECONOMICS

For this analysis, socioeconomics includes investigations of farm and non-farm employment and income, and farm production expenses. The region of influence is limited to the Colorado counties within the Republican River Basin. Five of these counties (Kit Carson, Logan, Phillips, Sedgewick, and Yuma) were addressed in the original CREP EA (USDA 2006); however, the increase in acreage enrollment and funding would apply to the entire CREP area. Sources for data reported in this section include an *Economic Impact Analysis for Reduced Irrigated Acreage in Four River Basins in Colorado* (used data from the 2002 Agricultural Census) (Thorvaldson and Pritchett 2006); the 2007 Agricultural Census data provided by the National Agricultural Statistics Service (USDA 2007); the Colorado Department of Labor and Employment (CDLE 2010); and Bureau of Economic Analysis (BEA 2008). The most current available data was used from each source.

3.4.1 Non-Farm Employment and Income

In 2008, there were 35,582 jobs within the CREP counties (BEA 2008). Table 3.4-1 provides a breakdown of farm and non-farm employment by county. The total aggregate non-farm employment income for the basin was over $1 billion and farm employment income was over $326 million in 2008 (BEA 2008). The unemployment rate within the basin in 2009 ranged from 3.5 to 5.4 percent (CDLE 2010).

Table 3.4-1. Employment in CREP counties

County	*Total Employment (number of jobs)*	*Farm Employment (number of jobs)*	*Non-Farm Employment (number of jobs)*
Kit Carson	5,038	916	4,122
Lincoln	3,410	573	2,837
Logan	13,210	1,295	11,915
Phillips	2,606	417	2,189
Sedgwick	1,545	297	1,248
Washington	2,898	1,048	1,850
Yuma	6,875	1,560	5,315
Total	**35,582**	**6,106**	**29,476**

Source: BEA 2008

3.4.2 Farm Employment, Income, and Production Expenses

Agriculture has been a major influence on both past trends and present conditions in almost every socioeconomic aspect in the Republican River Basin. The total land area of the basin is over 8 million acres, with approximately 90 percent of the land area in farms and ranches (Thorvaldson and Pritchett 2006). Within the basin in 2007, there were 5,301 hired farm workers on 4,870 farms accounting for a payroll of $58.5 million (USDA 2007). Average annual wage for the agricultural industry in Colorado was $28,600 in 2009 (based on an average weekly wage of $550 [CDLE 2010]).

The value of irrigated crop sales within the basin totaled over $360 million in 2002. Corn grain represented the highest percentage of sales ($206 million, 56%) followed by hay ($75 million, 20%) (Thorvaldson and Pritchett 2006). In 2007, total farm production expenses exceeded $1.6 billion within

the CREP counties. The purchase of fertilizer, lime, soil conditioners, and chemicals accounted for approximately $123 million (USDA 2007).

3.5 ENVIRONMENTAL JUSTICE

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires a Federal agency to "make achieving environmental justice part of its mission by identifying and addressing as appropriate, disproportionately high human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." A minority population can be defined by race, by ethnicity, or by a combination of the two classifications.

According to CEQ, a minority population can be described as being composed of the following groups: American Indian or Alaska Native, Asian or Pacific Islander, Black, not of Hispanic origin, or Hispanic and exceeding 50 percent of the population in an area or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population (CEQ 1997). The United States Census Bureau (USCB) defines ethnicity as either being of Hispanic origin or not being of Hispanic origin. Hispanic origin is further defined as "a person of Cuban, Mexican, Puerto Rican, South or Central America, or other Spanish culture or origin regardless of race" (USCB 2001).

Each year the USCB defines the national poverty thresholds, which are measured in terms of household income and are dependent upon the number of persons within the household. Individuals falling below the poverty threshold are considered low-income individuals. USCB census tracts where at least 20 percent of the residents are considered poor are known as poverty areas (USCB 1995). When the percentage of residents considered poor is greater than 40 percent, the census tract is considered an extreme poverty area.

The region of influence is limited to Washington and Lincoln counties. The remaining counties within the Republican River CREP area were analyzed in the original CREP Programmatic EA (USDA 2006). At the time this document was developed, the 2010 United States Census was underway. This section describes information, as available, from the 2010 Census. Where 2010 data was not available, the discussion focuses on 2000 Census data.

3.5.1 Demographic Profile

The total population within Washington and Lincoln counties in 2009 was 9,589 persons, which was an approximately 14.8 percent decrease from the population in 2000 (USCB 2010). The total population in 2000 for the two counties was 11,013 (USCB 2010). These two counties experienced a larger decrease in population compared to the other counties within the Republican River CREP area (the other counties as a whole experienced only a 2.5 percent decrease in population) (USCB 2010).

There are no identified urban areas within Lincoln or Washington counties; all residents reside in what is considered a rural area. Within Lincoln County, 780 persons resided on farms (12.8 percent of the

population) while 1,137 persons resided on farms in Washington County (23 percent of the population) (USCB 2000).

Demographically the population of Washington and Lincoln counties is approximately 94 percent White; 3.2 percent Black or African American; 1.05 percent American Indian or Alaska Native; 0.5 percent Asian; 0.05 percent Native Hawaiian or Pacific Islander; 1.15 percent reporting two or more races; and 9.75 percent Hispanic (USCB 2010). The region of influence is not a location of a concentrated minority population.

In 2008, there were 60,684 farm operators running 36,500 farms in Colorado. In Lincoln and Washington counties there were 2,446 farm operators of which: 29 were Hispanic; 1 was Black or African American; and 17 were American Indian or Alaska Native (USDA 2007). Minority operators accounted for 1.9 percent of all the farm operators in Washington and Lincoln counties.

3.5.2 Income and Poverty

In 2008, median household income ranged between $35,350 in Sedgwick County at the lower end to $43,560 in Yuma County at the higher end within the Republic River CREP area (USCB 2010). Lincoln County and Washington County were in the middle of this range, with a median household income of $40,384 and $38,982, respectively (USCB 2010).

The household poverty rate in Washington County was 12.4 percent while Lincoln County had a slightly higher poverty rate of 16.8 percent in 2008 (USCB 2010). Neither county within the region of influence would be considered an impoverished area.

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4.0 ENVIRONMENTAL CONSEQUENCES

This chapter presents an analysis of the potential impacts on various components of the environment that could result from the Proposed Action of implementing an Amendment to the Republican River CREP Agreement. This chapter discusses the potential impacts associated with the Proposed Action (Preferred Alternative) and the No Action Alternative.

- **Proposed Action (Preferred Alternative):** implement the proposed Amendment to the Republican River CREP Agreement increasing total enrollment acres, increasing funding, increasing temporary irrigation, and adding new incentive areas.
- **No Action Alternative:** continuation of current Republican River CREP Agreement as analyzed in the original EA (USDA 2006).

The proposed Amendment does not change approved CPs or eligibility requirements. Areas approved for enrollment must be determined as a State Conservation Priority Area by the CRP Program Manager, and located in a county whose enrollment is not limited by the total county cropland limit (refer to CRP SEIS for additional information on county limitations or eligibility requirements, USDA 2010). The potential impacts associated with installation and maintenance of CPs have been addressed in the CRP SEIS (USDA 2010) and specifically in the Republican River Basin in the original CREP EA (USDA 2006). The proposed Amendment would not change these impacts. Short term, localized, negative impacts can occur during installation and maintenance of the CPs from activities such as grading, leveling, shaping, etc., however, these impacts and associated ground disturbance would be similar to disturbance already occurring from active agricultural production.

4.1 THREATENED AND ENDANGERED SPECIES

Impacts to threatened and endangered species would be considered significant if implementation of the proposed Amendment resulted in incidental take, which includes disturbance, of a protected species.

4.1.1 Proposed Action (Preferred Alternative)

The proposed Amendment would have positive long term impacts on protected species and their habitats. The primary goals of CREP are to improve water quality and to restore native vegetation and wildlife habitat. Restoring native grasses and prairie habitat in Washington and Lincoln counties would promote and improve Black-footed ferret habitat in the CREP area. Restoring riparian buffers and wetlands, and improving water quality would result in beneficial impacts to the Interior Least Tern which uses wetlands and beach areas for nesting and foraging.

As described in the CRP SEIS and the original Republican River CREP (USDA 2010 and 2006), there is potential for short term negative impacts to protected species during activities related to establishment and maintenance of the CPs including grading, leveling, filling, and construction of support features such as bridges and fences. Ground disturbing activities could impact habitat or create a disturbance if a species is nearby. Site specific environmental evaluations would continue to be performed prior to enrollment in

CREP. These evaluations would determine the presence or potential presence of a protected species and identify if informal consultation with Colorado's Ecological Services Office of the USFWS would be required. Informal consultation would provide necessary mitigation measures to eliminate or reduce potential impacts. If informal consultation determines an impact to protected species is likely, CREP would not be implemented at that location.

4.1.2 No Action Alternative

Under this alternative the Republican River CREP would continue as it is currently administered. The additional benefits to threatened and endangered species resulting from the increased acreage and making lands in Washington and Lincoln counties eligible for enrollment would not be realized. Lands that would have been eligible would remain in agricultural production or could be enrolled in another conservation program. Expiring CRP acres in Washington and Lincoln counties could be converted back to active agricultural land. The continued use of land for agriculture or the conversion of land to another type of agricultural production would increase susceptibility for additional loss of habitat for protected species. Runoff of agricultural chemicals and sediment would continue to degrade water quality thereby affecting marine species habitat.

4.2 WATER RESOURCES

Impacts to water resources would be considered significant if implementation of the Proposed Amendment resulted in violating laws or regulations established to protect water resources.

4.2.1 Proposed Action (Preferred Alternative)

Implementing the Proposed Action (the Amendment) would result in ceasing active agricultural production on up to 55,000 acres of mostly irrigated land within the CREP area (an increase of 20,000 acres with the proposed Amendment). Enrolling land in CREP and installing CPs (vegetation planting, native grasses, and restoring wetlands and riparian habitat) would decrease groundwater withdrawal, reduce the application of agricultural chemicals in the CREP area, and reduce erosion and sedimentation, ultimately increasing groundwater storage and streamflows, improving surface water quality, and improving wetland habitat. The Amendment would have long term beneficial impacts to water resources within the Republican River Basin and areas downstream. The Amendment would not result in violating laws or regulations established to protect water resources.

Groundwater

For enrollment in CREP, a well-right holder volunteers to permanently retire his irrigation right in exchange for compensation in the form of cost share, annual rental payments, and other incentive payments where applicable (domestic use of the water by the holder is preserved). Retirement of lands under CREP that use groundwater for irrigation would augment streamflows by naturally allowing groundwater to resume flowing to streams or by directly putting water in the river through a pipeline (for lands within the "Target Zone").

The proposed Amendment seeks 60,000 to 75,000 acre-feet of annual water savings through the retirement of irrigation water throughout the CREP area. The savings would represent approximately six times the current storage in Bonny Reservoir (11,273 acre-feet as of September 2010, United States Bureau of Reclamation 2010). In 2005, over 1.4 million acre-feet of water was used for irrigation in the CREP counties, of which over 1 million acre-feet were from groundwater wells. Up to 75,000 acre-feet of savings as planned in the CREP Amendment goals would represent a five percent reduction of the total irrigation applied in 2005 and seven percent of the groundwater irrigation (see Table 3.2-1). Enrolling land into CREP and ceasing groundwater irrigation would allow for natural groundwater flow to resume to the rivers of the Basin rather than consuming the groundwater for irrigation.

The RRWCD retired 19,965 acres of irrigated cropland through 2009 with an estimated average water savings of approximately 23,260 acre-feet per year (RRWCD and CDWR 2009), approximately 1.2 acre-feet of water savings per acre retired. The amount of groundwater used for irrigation varies depending on the type of crop, soil condition, season, and hydrological and climatic conditions. However, using the estimated average noted above as a conservative assumption, retiring an additional 20,000 acres of irrigated cropland with the proposed Amendment could result in approximately 24,000 acre-feet per year of additional water savings. Potential water savings for full enrollment of CREP (55,000 acres) could result in 66,000 acre-feet per year of water savings. Depending on the actual cropland retired, the water savings could be more than this estimate. The proposed Amendment would allow for ½ acre-foot of water to be applied during the first 24 months to support cover establishment. The temporary irrigation would slightly reduce the overall water savings during this timeframe.

Within the "Target Zone" north of Wray, some of the groundwater withdrawal historically consumed by irrigation would be used to directly increase streamflows through a pipeline. The amount of groundwater that would be directly placed in the stream would be determined on an annual basis dependent on the amount of water needed for compliance with the Republican River Compact. Groundwater diversion would not exceed 14,798 acre-feet per year as determined by the historical use in this area and most times would be less. Diverting the maximum amount of groundwater would reduce the overall estimated water savings to approximately 51,000 acre-feet per year. It is anticipated that the actual amount of groundwater diverted would typically be less than 14,798 acre-feet per year. Colorado's over-use has been decreasing each year since 2004 and was approximately 6,000 acre-feet in 2008 (CDWR 2008).

Surface Water

The surface waters of the Republican River Basin suffer from low water levels from surface water diversions for irrigation, extensive groundwater pumping for irrigation, and prolonged drought. Retirement of lands irrigated directly by surface water would allow the water to remain in the river, directly improving streamflows. The retirement of well rights under CREP would allow for the surface waters to replenish over time from reduced groundwater pumping. There would be a lagged effect between reduced groundwater pumping, subsequent replenishment of the Ogallala Aquifer, and increased streamflows in waters of the Republican River Basin. Due to the large area of the basin, groundwater use occurs far from streams and reversal of the groundwater depletion may take many years to improve

streamflows. Even ceasing all groundwater consumption in the Colorado portion of the Basin would not result in increasing streamflows for a significant period of time.

The addition of a "Target Zone" north of Wray and three river systems with higher incentive payments would promote enrollment in CREP in those areas determined most advantageous for increasing streamflows in the Republican River due to their more reliable water supplies. Within the "Target Zone" north of Wray, some of the groundwater withdrawal historically used for irrigation would be used to directly increase streamflows in the North Fork of the Republican River. While some of this water would be lost to evaporation, the diversion would ultimately increase surface water quantity thereby improving local and downstream habitats for aquatic species.

Water Quality

The proposed Amendment would improve overall water quality. The decrease in irrigation would increase water storage in the aquifer thereby decreasing the concentration of naturally occurring heavy metals. Increased streamflows would dilute existing contamination and improve overall surface water quality. The decrease in active agricultural production would result in a decreased input of agricultural chemicals to nearby surface waters and groundwater sources. In addition, establishing long term grasslands and native vegetation would stabilize soils, decreasing erosion and sedimentation which improves local and downstream water quality.

Wetlands

Implementation of CPs such as wetland restoration, playa lakes restoration, and increasing riparian buffers is expected to restore or enhance wetlands and riparian habitat. The positive impacts of restoring wetlands and riparian areas would have corresponding positive impacts on biological resources including increasing vegetation diversity and habitat for protected species, which use and live in these areas. Activities associated with installing CPs such as vegetation clearing and soil disturbance could result in temporary and minor localized negative impacts to water quality and increased sedimentation from runoff (see CRP SEIS and original Republican River CREP for further details, USDA 2010 and 2006). As with the current CREP procedures, a site specific environmental evaluation would be performed prior to enrollment in the program. The evaluation would identify jurisdictional wetlands and establish any necessary mitigation measures to ensure their protection.

4.2.2 No Action Alternative

Under the No Action Alternative, the current Republican River CREP would continue. The additional benefits of increasing enrollment acreage and opening CREP to eligible irrigated cropland in Washington and Lincoln counties would not be realized. Expiring CRP acres in those counties may be converted back to active agricultural production thereby further degrading water quality from the application of agricultural chemicals and increased erosion and sedimentation from exposed soils. Irrigation would continue to negatively deplete groundwater sources and reduce streamflow in the Republican River and its tributaries.

4.3 CULTURAL RESOURCES

An impact to cultural resources would be significant if the proposed activity resulted in any of the following:

- The destruction or alteration of all or a contributing part of any National Register-eligible cultural or historic property without prior consultation with the State Historic Preservation Office (SHPO);
- The isolation of an eligible cultural resource from its surrounding environment;
- The introduction of visual, audible, or atmospheric elements that are out of character with a Nation Register-eligible site or would alter its setting; or
- The neglect and subsequent deterioration of a National Register-eligible site.

4.3.1 Proposed Action (Preferred Alternative)

The Proposed Action would not result in adverse impacts to cultural resources. The installation of approved CPs and reduction of agricultural production within Lincoln and Washington counties would not directly alter or affect any architectural resources on the National Register since these practices do not include the removal or modification of structures. However, if a listed or eligible property is within the immediate vicinity of a site proposed for CREP enrollment, consultation with the SHPO should occur during the site-specific evaluation prior to installation of the CPs to ensure the property is protected.

Though there are no known archaeological resources within Washington and Lincoln counties, the state is rich in archeological history. Any actions that are ground disturbing beyond what is normal for agricultural production would have the potential to impact archeological resources. This would include such practices as excavation and earth moving for installation of filter strips, firebreaks, associated fencing, and roads, as well as the construction of levees, dikes, or dams in wetland restoration areas. If an archaeological resource is discovered during installation of a practice, installation would cease and the SHPO would be contacted.

4.3.2 No Action Alternative

Under the No Action Alternative the Republican River CREP would continue to be administered as is current practice. The installation of CPs is not expected to impact architectural properties. Any archeological resources discovered during CP installation would require SHPO consultation.

4.4 SOCIOECONOMICS

Significance of an impact to socioeconomics varies depending on the setting of the Proposed Action, but 40 CFR 1508.8 states that effects may include those that induce changes in the pattern of land use, population density, or growth rate. Under CEQ regulations, a socioeconomic impact, in and of itself, does not indicate that preparation of an Environmental Impact Statement is warranted.

4.4.1 Proposed Action (Preferred Alternative)

Implementation of the Proposed Action would produce a slight beneficial impact in the local economy. The proposed Amendment would result in an additional $36 million in CREP funding (for a total of $102 million). While there would be a direct negative impact to the economy from the loss of agricultural production (estimated to be approximately $13.5 million within the entire Republican River Basin), the proposed funding would more than account for this loss.

An *Economic Impact Analysis for Reduced Irrigated Acreage in Four River Basins in Colorado* was completed in 2006 (Thorvaldson and Pritchett 2006). That analysis employed IMPLAN (IMpact Analysis for PLANning) input-output modeling software to determine the direct, indirect, and induced effects from reducing irrigated agricultural production within four river basins in Colorado, including the Republican River Basin. Direct, indirect, and induced effects are defined as:

- *Direct effects* represent the change in final demand for the industry impacted.
- *Indirect effects* are the changes to inter-industry purchases as they respond to the new demands of the directly-affected industries.
- *Induced effects* reflect changes in household spending as household income increases or decreases due to the change in production.

The *total effect* is the sum of direct, indirect, and induced effects. Based on an assessment completed under the Statewide Water Supply Initiative, the economic analysis assumed the loss of 20,000 acres of irrigated cropland within the Republican River Basin, identical to that proposed under the Amendment. The results of the model predicted that the loss of these acres would result in a total negative economic impact of over $13.5 million, of which $10.7 million would be direct effects, $2.1 million would be indirect effects, and $687,539 would be induced effects. The population density plays a role in how severely the total economic impacts would be felt, for example, in a more rural, less populated environment, and the loss of economic activity would have a greater effect on individuals. Table 4.4-1 provides the breakdown of the predicted economic impact from the loss of 20,000 acres of irrigated agricultural production within the Republican River Basin. Table 4.4-2 provides a further analysis of the total economic impact relative to the economic output of the basin. As shown, the impact would represent 2.08 percent of irrigated crop sales (based on 2002 data). The last column shows the impact per acre lost, which can also be interpreted as the economic activity generated by one acre of irrigated crops in the basin. A higher economic activity per acre would indicate an area where a high value crop is mostly exported out of the region.

Table 4.4-1. Predicted Economic Impacts from IMPLAN

Area	*Total Impact*	*Direct Impact*	*Indirect Impact*	*Induced Impact*	*Per Capita Impact*[1]
Republican River Basin	-$13,550,801	-$10,748,980	-$2,114,282	-$687,539	-$239

Note:
[1] Based on a 2002 population estimate of 56,768. The Economic Impact Analysis utilized data from the 2002 Agricultural Census.
Source: Thorvaldson and Pritchett 2006

Table 4.4-2. Output Impacts Relative to Total Output and Agricultural Output

Area	*Total Output (million $)*	*Total Economic Impact (million $)*	*Impact as % of Total Output*	*Impact as % of Irrigated Crop Sales*	*Economic Activity per Acre*
Republican River Basin	$3,116.60	-$13.55	0.43	2.08	$678

Source: Thorvaldson and Pritchett 2006

The direct impact (-$10,748,980) would include impacts to hired farm labor from reduced agricultural production. While reduced labor would represent some portion of this impact, it is not known the exact portion. Using the entire direct impact amount as a conservative calculation, this would represent approximately 375 jobs at the prevailing annual wage of $28,600 (CDLE 2010). This would represent approximately 7 percent of the farm workers identified during the 2007 census. This is expected to be an over estimate since the total direct impact would not completely be attributed to a reduction in hired labor and some workers may remain employed, at least in the short term, to establish the conservation cover.

It should be noted that the IMPLAN model results are instantaneous rather than dynamic, meaning that substitution effects are not taken into account, thus the impacts are a snapshot of economic activity and likely represent a short term, worst case scenario. New lines of business could potentially be generated or migrate into the area over time in response to the reduced irrigated agriculture that would reduce these potential impacts. Along these same lines, the model does not take into consideration sources of income that could result from removing these acres from agricultural production, such as CREP or other conservation programs in which producers can receive payments for eligible acres taken out of agricultural production.

While removing 20,000 acres from agricultural production would have a negative impact on the local economy (up to $13.5 million for the entire basin), the addition of $36 million in the form of cost-share, annual rental payments, and incentive payments would more than account for this loss. There would likely be a shift in economic activity as less activity would occur within the agricultural support industry while more activity would occur in other economic sectors. If the loss of these acres is concentrated in certain areas, such as the "Target Zone", the negative economic impact would have more detrimental effects on the local economy. However, the Amendment includes additional incentive payments in this area that would help to offset these impacts.

4.4.2 No Action Alternative

Under the No Action Alternative, the proposed Amendment to the Republican River CREP would not be implemented. The current Republican River CREP Agreement would remain in place and impacts would be the same as those described in the original CREP EA (USDA 2006). Socioeconomic impacts from the CREP were expected to produce a slight beneficial impact to the economy from the expenditure of $66 million in the CREP area. Although the loss of active agricultural land would reduce agricultural employment and sales of chemical inputs, this loss would be overcome by indirect impacts as producers spent these payments within the local economy for goods and services.

4.5 ENVIRONMENTAL JUSTICE

Environmental justice is achieved when everyone, regardless of race, culture, or income, enjoys the same degree of protection from environmental and health hazards and has equal access to the decision-making process. Significant environmental justice impacts would result if access to decision-making documents was denied or if any adverse environmental effects occurred that would disproportionately affect minority or low-income populations.

4.5.1 Proposed Action (Preferred Alternative)

The counties associated with the proposed Amendment are neither areas of concentrated minority populations nor impoverished areas. Therefore no disproportionate impacts to such groups would occur should the Amendment be implemented.

4.5.2 No Action Alternative

Under the No Action Alternative, the proposed Amendment to the Republican River CREP would not be implemented. The current Republican River CREP Agreement would remain in place and impacts would be the same as those described in the original CREP EA (USDA 2006).

5.0 CUMULATIVE IMPACTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

5.1 CUMULATIVE IMPACTS

CEQ regulations stipulate that the cumulative impacts analysis within an EA should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). Recent CEQ guidance in considering cumulative impacts involves defining the scope of the other actions and their interrelationship with the Proposed Action. The scope must consider geographical and temporal overlaps among the Proposed Action and other actions. It must also evaluate the nature of interactions among these actions.

Cumulative impacts are most likely to arise when a relationship or synergism exists between the Proposed Action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in proximity to the Proposed Action would be expected to have more potential for a relationship than those more geographically separated.

The affected environment for cumulative impacts in this Supplemental EA includes those counties where lands are eligible for enrollment in CREP. The potential cumulative impacts from implementing CREP in Kit Carson, Logan, Phillips, Sedgwick, and Yuma counties in conjunction with other USDA programs, namely CRP, Wildlife Habitat Incentives Program, Environmental Quality Incentives Program, and Wetlands Reserve Program, and state conservation programs and initiatives were analyzed in the original EA (USDA 2006). The incremental contribution of impacts from CREP in combination with the impacts of these other programs was determined to result in overall positive impacts to water, earth, biological resources, and recreational resources. Lincoln and Washington counties are located in the same geographical region as the other five counties and cumulative impacts from CREP when combined with the other conservation programs are expected to be the same.

Since the original CREP EA was prepared, the planned construction of the Compact Compliance Pipeline has occurred. This pipeline has the potential for cumulative impacts when combined with the proposed Amendment. Potential cumulative impacts could occur in water resources, natural resources, and socioeconomics as described below.

The environmental impacts from the Compact Compliance Pipeline are addressed in a Feasibility Study (GEI Consultants 2008) and a Natural Resources Assessment (ERO Resources Corp 2008). Natural resource impacts associated with construction of the pipeline were determined to be minor and temporary in nature (ERO Resources Corp 2008). Adherence to environmental regulations and permit requirements during the construction activities would protect natural resources from significant impacts. The goal of the pipeline project is to increase streamflow within the Republican River by diverting irrigation water. The cumulative impact of the pipeline in conjunction with CREP, specifically the permanent retirement of groundwater withdrawal for irrigation, would have a greater increase in streamflows while improving

surface water quality as well as reducing agricultural chemical migration into the aquifer. Retiring irrigated acreage and delivering some of the water previously consumed by crops directly to the stream would assist the state in achieving and maintaining long term Compact compliance while protecting the socioeconomic status of the Basin. The RRWCD Water Activity Enterprise plans to purchase existing groundwater rights (and in some cases has already begun to do so) to supply water to the pipeline. Estimated cost for the water rights is approximately $40-50 million. The proposed CREP Amendment would increase total program funds to approximately $102 million within the seven-county area. Provisions for additional incentive payments within certain high priority areas and the "Target Zone" would help to alleviate the negative economic impact of removing agricultural production within a concentrated area.

5.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible and irretrievable commitments are related to the use of nonrenewable resources and the effect that the use of these resources has on future generations. Irreversible effects primarily result from the use or destruction of a specific resource that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action. The overall impacts from implementing the CREP Amendment are anticipated to be positive and no irreversible or irretrievable commitments are expected.

6.0 MITIGATION MEASURES

The purpose of mitigation is to avoid, minimize, or eliminate negative impacts on affected resources to some degree. CEQ regulations (40 CFR 1508.20) state that mitigation includes:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

CEQ regulations state that all relevant reasonable mitigation measures that could improve a project should be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies. This serves to alert agencies or officials who can implement these extra measures, and will encourage them to do so. The lead agency for this Proposed Action is FSA.

There are no expected long term negative impacts associated with implementation of the Proposed Amendment. Prior to installation of CPs, producers must complete site specific environmental evaluations which would reveal any protected resources on the property. In those site specific instances where a wetland, threatened or endangered species, or a cultural resource may be present, consultation with the appropriate lead agency would identify specific mitigation measures required to eliminate or reduce the negative impacts to an acceptable level. In addition, each producer must prepare an approved site specific conservation plan to ensure protection of all valuable resources for the duration of the contract (14 or 15 years).

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8.0 PERSONS AND AGENCIES CONTACTED

USDA Farm Service Agency

Colorado Division of Water Resources

Other Federal Agencies, State Agencies, and Interested Parties

Arikaree Ground Water Management District

Burlington Conservation District

Centennial Conservation District

Central Yuma Ground Water Management District

Colorado Department of Natural Resources

Colorado Division of Wildlife

Colorado Farm Bureau

Colorado Historical Society

Colorado NRCS State Office

Colorado Rocky Mountain Bird Observatory

Cope Conservation District

Flagler Conservation District

Frenchman Ground Water Management District

Haxtun Conservation District

High Plains Conservation District

Kit Carson County Commissioner

Lincoln County Commissioner

Logan County Commissioner

Marks Butte Ground Water Management District

Phillips County Commissioner

Plains Ground Water Management District

Sandhills Ground Water Management District

Sedgwick County Commissioner

Sedgwick County Conservation District

The Nature Conservancy

USFWS, Region 6

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USDA Colorado Farm Service Agency

1 Washington Conservation District
2 Washington County Commissioner
3 Washington-Yuma Ground Water Management District
4 Yuma Conservation District
5 Yuma County Commissioner
6 Yuma County Conservation District

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APPENDIX A – REPUBLICAN RIVER CREP AGREEMENT AND PROPOSED AMENDMENT

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Republican River
Conservation Reserve Enhancement Program

Colorado

Prepared by the State of Colorado

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Phillips, Yuma, and portions of
Kit Carson, Logan, and Sedgwick Counties
(addition of Lincoln and Washington Counties subject to amendment and CRP acre availability)

edited August 18, 2005

Section 1: Abstract

The State of Colorado seeks to obtain federal funds through the United States Department of Agriculture (USDA) for the purpose of encouraging some farmers in the Republican River Basin to enroll in a voluntary Conservation Reserve Enhancement Program (CREP). This program would provide incentives and cost-sharing to participants who enter their land into eligible conservation practices such as native vegetation establishment or wildlife conservation for a period of 14 or 15 years. Of the more than 560,000 acres irrigated by surface water or ground water in Colorado's region of the basin, the state will seek to enroll approximately 5% of those acres into the program over the next several years.

Project Area and CREP Practices

Northeast Colorado's Republican River Basin includes all of Phillips and Yuma Counties and those portions of Kit Carson, Lincoln, Logan, Sedgwick, and Washington Counties that overlie the Ogallala Aquifer. Colorado's semi-arid "high plains" have proven fertile for agricultural production, with greater crop yields, given adequate irrigation. However, declining water levels within the Ogallala have reduced both well productivity and crop yield.

The project area lies within the Republican River Basin, which encompasses about 7,761 square miles (7.5% of Colorado's 104,247 square miles). Conservation practices would include:

- CP-2 – Native grass
- CP-4D (tall grass) – Vegetative planting tall grass
- CP-4D (short grass) – Vegetative planting short grass
- CP-22 – Riparian buffer
- CP-23 – Wetland restoration
- CP-23a – Playa lakes restoration

A Conservation Priority Area has been established in all five of the Republican River Basin's counties (Kit Carson, Logan, Phillips, Sedgwick, and Yuma as noted in Exhibit A) included in this proposal. The remaining two basin counties – Lincoln and Washington – are currently enrolled to the maximum extent allowed by the Conservation Reserve Program (CRP). As contracts expire in 2007 and 2008, and acres become available (counties fall below the 25% CRP cap), an addendum to this proposal would be written and the state's Conservation Priority Area would be amended to include these counties. Throughout this proposal, analysis of agriculture in Lincoln and Washington counties is included to better represent the entire watershed and to demonstrate potential future impact with inclusion of those counties.

Estimated Project Specifications

The project would accept a total of approximately 35,000 acres. Thirty thousand (approximately 5%) of the area's approximate 560,000 irrigated acres and approximately 5,000 acres of dryland pivot corners associated with the eligible and enrolled irrigated acres are proposed to be dispersed among the five affected counties. Exhibit B provides historical irrigated acres by county through 2003. Landowners participating in the CREP would receive the irrigated rental rates for any qualified irrigated acreage they enroll. Pivot corners adjacent to enrolled irrigated pivot circles will be eligible under county-approved dryland rental rates. The 15-year cost of enrolling 30,000 irrigated acres and approximately 5,000 dryland acres is estimated at $66,295,000, to be born 79% by federal and 21% by non-federal sources.

Agriculture in the Republican River Basin

Agricultural producers in Colorado face a number of complicated environmental issues such as water quantity, water quality, soil conservation, and declining wildlife species' habitat protection. In the past several decades, growing awareness and rising costs of managing agricultural production in perspective of these environmental concerns have untimely coincided with declining real agricultural prices. And in many areas of Colorado, a diminishing supply of water – a vital resource for much of the state's crop production – has only compounded difficulties for the state's agricultural producers.

The Republican River Basin lies within the Ogallala Aquifer, which has been identified as a national concern regarding water quantity and water quality. Well drilling, an increase in irrigated crop production, and a prolonged drought have all contributed to declining aquifer levels and, in some instances, reduced ground water quality.

The Republican River Conservation Reserve Enhancement Program

While development of new ground water wells within Colorado's portion of the basin slowed during the 1970s and essentially ceased by 1990, the area's producers have indeed experienced a slow, but steady decline in both streamflow and well production. As a result of the Republican River Compact settlement stipulation, no further groundwater development is permitted in the Republican River Basin. Mitigating the downturn inevitably requires additional action by these producers. Incentives and cost-share programs, such as CREP will provide vital assistance in helping the basin sustain its water resource without disastrously impacting its local economy and social fabric. CREP implementation within the Republican River Basin will provide a valuable tool to allow producers to use voluntary, incentive-based actions to address the various resource issues.

The Republican River CREP, under 14- or 15-year terms, would enable producers enrolled in the program to permanently forego irrigation, convert those acres to permanent habitat, and receive financial and technical assistance.

Section 2: Existing Conditions

The Republican River Basin (Figure 1) is of statewide, regional, and national significance. Colorado's Yuma County (shown within Figure 2) produces more corn than any county in the state, and in some years more corn than any county in the nation. Regionally, the basin currently serves as the centerpiece for negotiations between Colorado, Kansas, and Nebraska concerning the three-state Republican River Compact, signed in 1942. Producers in eight western states rely on irrigation from the Ogallala Aquifer to meet the nation's agricultural demands. The aquifer also supplies drinking water to numerous small municipalities in the region, including Burlington (population 3,640), Holyoke (2,266), Wray (2,165), and Yuma (3,269).

Figure 1 – Republican River Basin

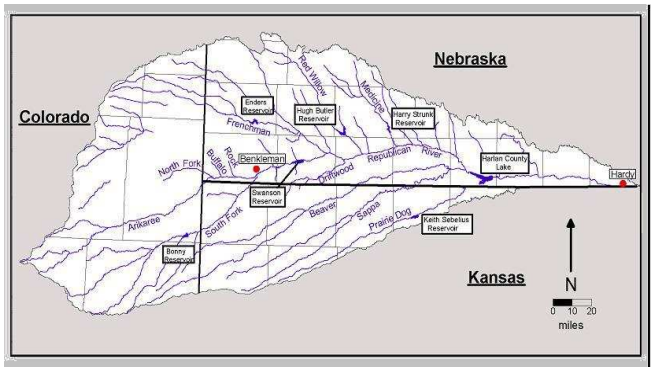
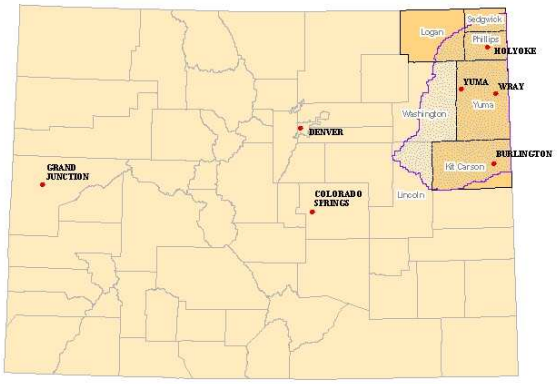


Figure 2 – Republican River Basin in Colorado



Current Land Uses within Basin

Land use patterns in the Republican River Basin counties in Colorado have remained fairly constant over recent years. Data for this analysis was taken from Census of Agriculture surveys conducted from 1987 through 2002. The data covers Kit Carson, Lincoln, Logan, Phillips, Sedgwick, Washington and Yuma Counties. Phillips and Yuma counties are totally inclusive in the basin while varying percentages of the remaining counties are actually inclusive to the Republican River Basin. In Sedgwick and Logan counties, the areas not in the Republican Rivers Basin are mostly in the South Platte Valley Basin. The areas of Washington and Lincoln counties not inclusive to the Republican River Basin are dominated by pasture or rangeland and cropland managed using dryland cropping practices. Only a small percentage of Kit Carson County (along the southern county border) is not included in the basin.

Table 1 describes irrigated lands in the Republican River Basin counties in Colorado. An increasing trend for additional irrigated acreage can be seen from 1987 through 1997. From 1997 through 2002, the amount of acreage remains fairly stable. In 2002, irrigated land within the basin accounted for 22 percent of the irrigated acres in Colorado.

Table 1 – Irrigated Land in the Republican River Basin

	1987	1992	1997	2002
		Acres		
Kit Carson	152,010	155,705	155,651	165,753
Lincoln	1,304	1,482	1,482	1,482
Logan	4,680	4,954	4,771	5,104
Phillips	61,308	65,525	67,942	67,489
Sedgwick	21,019	22,505	22,869	22,921
Washington	33,600	35,517	36,052	36,641
Yuma	245,300	257,360	265,246	261,881
Total *(including CRP-capped counties Lincoln and Washington)*	519,221	543,048	554,013	561,271
Colorado	3,013,773	3,169,839	3,374,233	2,590,654

Exhibit C graphically displays the information contained in Tables 1 through 5.

Table 2 shows the land in farms for the seven basin counties, including land outside the basin and outside the conservation priority area. The trend indicates its total average has been declining over the time period analyzed. For comparison, the land in farms for all of Colorado is shown and exhibits a similar trend. The Republican River Basin counties account for 23 percent of all farmed land in Colorado.

Table 2 – Land in Farms in the Republican River Basin Counties

	1987	1992	1997	2002
		Acres		
Kit Carson	1,415,879	1,341,738	1,360,192	1,247,181
Lincoln	1,615,140	1,660,146	1,626,026	1,428,404
Logan	1,081,703	1,066,453	1,107,050	1,111,135
Phillips	450,277	459,659	484,034	470,837
Sedgwick	324,286	310,394	317,080	274,243
Washington	1,391,208	1,333,577	1,426,912	1,408,583
Yuma	1,478,313	1,433,111	1,352,928	1,354,010
Total *(including CRP-capped counties Lincoln and Washington)*	7,756,806	7,605,078	7,674,222	7,294,393
Colorado	34,048,433	33,983,029	32,349,832	31,093,336

Table 3 describes total cropland in the basin counties and Colorado. Cropland acres have remained constant over the time period. One exception can be noted in 1997, but this is due to disclosure concerns in the Lincoln County data. Data reported in 1992 and 2002 would suggest the acreage would not change drastically.

Table 3 – Total Cropland in the Republican River Basin Counties

	1987	1992	1997	2002
		Acres		
Kit Carson	859,732	832,154	870,106	849,670
Lincoln	473,084	475,638	D	488,304
Logan	556,706	538,943	526,113	570,050
Phillips	366,028	399,883	408,196	387,974
Sedgwick	223,391	204,914	218,573	184,784
Washington	841,362	826,205	899,848	858,199
Yuma	709,868	696,322	642,020	703,827
Total *(including CRP-capped counties Lincoln and Washington)*	4,030,171	3,974,059	3,564,856	4,042,808
Colorado	10,988,853	10,933,484	10,787,080	11,530,700

(D) Data withheld to avoid disclosing individual farm data.

Comparing data within Tables 1 and 3, Graph 1 depicts the low ratio of irrigated acres to dryland acres within the basin. While CRP offers a viable alternative for dryland producers in Colorado, the rental rates offered through CRP have not sufficiently encouraged irrigated agriculture producers to enroll. This CREP proposal, with irrigated rental rate payments, would target the irrigated agricultural group.

Graph 1 – Irrigated vs. Dryland Acres in Republican River Basin

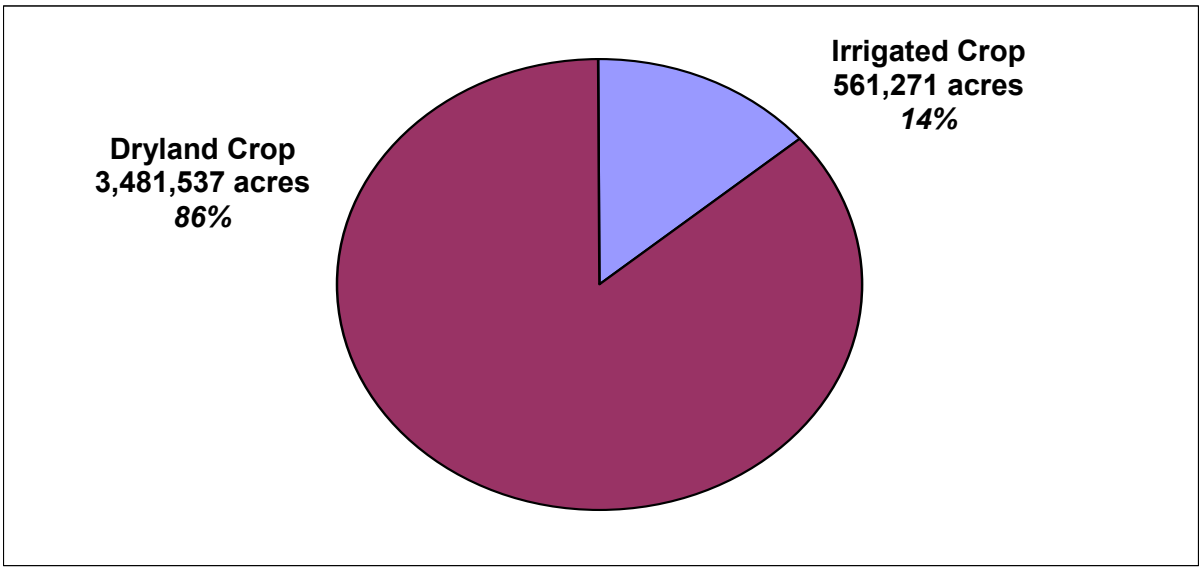


Table 4 describes pastureland and rangeland acreage in the Republican River Basin counties. Disclosure problems in this data tend to obscure a downward trend in acres in this category of land. The downward trend is also evident in the total amounts of pastureland and rangeland in Colorado, declining approximately four million acres over the time period.

Table 4 – Pastureland and Rangeland in the Republican River Basin Counties

	1987	1992	1997	2002
		Acres		
Kit Carson	D	492,549	458,285	383,073
Lincoln	1,086,314	1,168,977	1,090,956	911,745
Logan	500,852	510,873	556,264	518,980
Phillips	76,274	52,495	68,553	70,784
Sedgwick	96,423	D	95,028	83,389
Washington	528,526	489,354	508,129	524,472
Yuma	D	721,171	687,727	620,952
Total *(including CRP-capped counties Lincoln and Washington)*	2,288,389	3,435,419	3,464,942	3,113,395
Colorado	21,173,673	21,314,825	19,417,709	17,341,749

(D) Data withheld to avoid disclosing individual farm data.

Table 5 describes land in Conservation Reserve and Wetland Reserve Programs in the basin counties and all of Colorado. Acreage in these programs has increased 100 percent over the time period analyzed.

Table 5 – Land in Conservation Reserve (dryland acres only) and Wetland Reserve Programs in the Republican River Basin Counties

	1987	1992	1997	2002
Kit Carson	35,354	107,906	141,143	145,197
Lincoln	54,179	97,694	112,944	142,459
Logan	11,976	52,746	63,819	76,849
Phillips	7,111	15,791	21,853	18,073
Sedgwick	3,353	4,980	5,460	5,053
Washington	32,271	97,797	122,784	166,719
Yuma	14,233	41,260	51,562	58,561
Total *(including CRP-capped counties Lincoln and Washington)*	158,477	418,174	519,565	612,911
Colorado	811,790	1,325,574	1,569,916	1,735,353

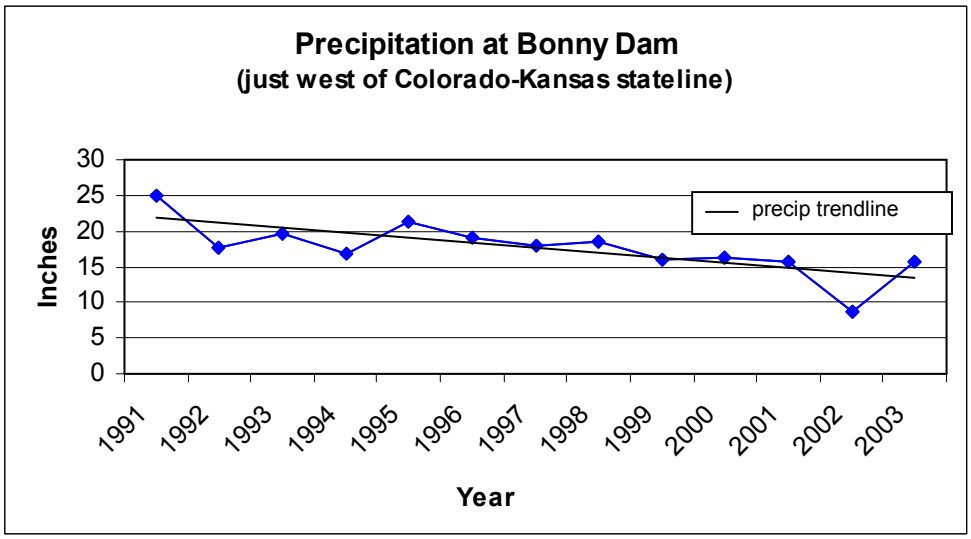
Farm Demographics

Throughout the seven counties that comprise Colorado's Republican River Basin, 4,310 farms average 1,693 acres in size. More than half (3,359 farms) contain harvested cropland. Among the more than 560,000 irrigated cropland acres in the basin, nearly 400,000 acres produce corn grain or corn silage. Wheat, beans, hay, and sugarbeets are each harvested on more than 10,000 acres. Farm demographics by county are detailed in Exhibit D.

Relevant Environmental Factors

Precipitation: Colorado's northern high plains lie in a semi-arid region east of the Rocky Mountains and receive on average fewer than 20 annual inches of precipitation. The second half of the last century witnessed precipitation levels fluctuating between approximately five and 25 inches of annual precipitation, with the past decade trending downward (see Graph 2).

Graph 2



Soil & Geology: The predominant source of ground water supply within the Republican River Basin is the shallow alluvium and deeper bedrock formations that collectively form the High Plains aquifer. The High Plains aquifer underlies portions of eight western states, including Colorado, Kansas, and Nebraska, and the topography is characterized by flat to gently rolling terrain that is bisected by mostly eastward-flowing rivers and streams, such as the Republican River. The predominant geologic unit of the High Plains aquifer is the Miocene-aged Ogallala formation of the Tertiary period. The Ogallala formation principally consists of unconsolidated to semi-consolidated sands, gravels, clays, and silts. The High Plains aquifer is also composed of the shallower river alluvium and eolian deposits of the later Quaternary period. Water table or unconfined conditions are predominant throughout the aquifer. However, in some areas the hydraulic interconnection between the stream systems and aquifers have been broken and in other localized areas cemented "mortar" (caliche) beds are common and create artesian or confined aquifer conditions.

The depositional history of the High Plains aquifer is complex because it contains both fluvial (stream-deposited) and eolian (wind-deposited) sediments. Braided stream systems that flowed eastward across the alluvial fans adjacent to the Rocky Mountains served as the primary source of deposition of coarse-grained and fine-grained sediments to the Ogallala formation during the Tertiary time period. However, in the Quaternary period, as the climate in the area turned drier and colder due to mountain uplift, the major form of sediment deposition changed to eolian. The winds transported the fine materials caused by stream erosion in dust storms that carried very fine to medium sands to the east before settling into dune deposits, the largest and most prominent being located in west-central Nebraska. The Quaternary age alluvial, valley-fill, dune sand, and loess deposits are also considered to be part of the High Plains aquifer where they are hydraulically connected to the underlying Ogallala formation.

The saturated thickness of the High Plains aquifer ranges from zero in the western edge of the aquifer in Colorado where the aquifer outcrops, to approximately 1,000 feet in west-central Nebraska. Ground water flow in the High Plains aquifer is generally from west to east in response to the predominant slope of the water table.

Vegetation Patterns: Rangeland vegetation can be categorized into three broad habitat types:

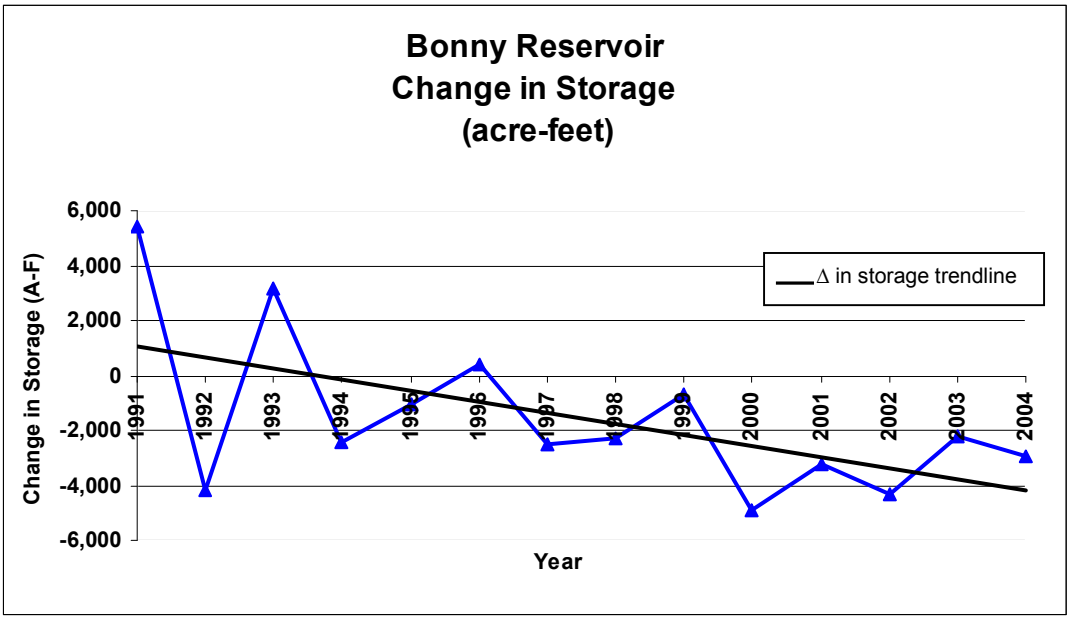
The Plains Forest Riparian and Wetlands Complex is located along the perennial stretches of the river systems and tributaries within the High Plains. Fluvial processes created a mosaic of diverse riparian systems dominated by plains cottonwood and peachleaf willow with an under story of switch grass and Indian grass.

The sandsage prairie or sandsage/bluestem system is a matrix community occurring on the eolian sand deposits. This system is characterized by sandsage, prairie sandreed, and sand bluestem with switch grass, needle-and thread, and western wheat grass occurring in varying amounts. Sandsage is the dominant shrub, but yucca, fringed sagebrush, and prickly pear can be found in localized areas.

The loess prairie complex is a high quality, loess (wind-deposited) mixed and short grass prairie mosaic. This prairie complex, comprised of blue grama, sideoats grama, little bluestem, buffalo grass, and western wheat grass, is characterized by heavier soils. Playa lakes occur in the short grass portion of this complex.

Water Resources: Given the lack of precipitation throughout the basin, many agricultural producers must rely on efficient irrigation systems and effective soil and water conservation practices. The basin lies entirely over the Ogallala Aquifer and nearly 4,000 wells within Colorado not only irrigate over a half million acres, but also provide the basin's municipal, domestic, commercial, and livestock water supply. Surface water – through approximately 20,000 acre-feet of annual diversions – irrigates about 4,800 acres, fills Bonny Dam at Bonny Lake State Park, and provides other critical uses. The effects on Bonny Reservoir – which has lost storage water every year since 1996 – are demonstrated in Graph 3.

Graph 3



Wildlife and Species of Concern: The Republican River Basin encompasses a wide array of habitat types that support rich and extremely diverse wildlife populations. Grasslands that dominated this region prior to settlement included a mixed mid to tall-grass sandsage community on most of the rolling upland sandy sites. The sites with less relief and heavier soils support the typical short-grass prairie plant species such as buffalograss and blue grama. Lowland tall-grass prairie was associated with the streams and rivers throughout much of the CREP region. Trees and other woody vegetation are currently evident throughout many of the stream and river reaches within the CREP area. The rich and diverse wildlife community includes 32 reptiles and amphibians, 33 fish, 45 mammals, and 269 bird species. A partial list of significantly important wildlife species by habitat type that occur in the Republican River Basin is included in Table 6. This list includes species that are federally listed, state listed, of state concern and/or of significant economic importance to the State of Colorado and the region. Beneficial practices for species within the watershed are listed in Exhibit E.

Table 6 – Partial Species List for Republican River Basin

(for complete list, see Natural Diversity Information System Website at http://ndis.nrel.colostate.edu)

Riparian or Wetland

Common Name	Scientific Name	Taxa	Status
Bald Eagle	Haliaeetus leucocephalus	Bird	F/S
Rio Grand Turkey	Meleagris gallopavo intermedia	Bird	economic
Baltimore Oriole	Icterus galbula	Bird	stable
Song Sparrow	Melospiza melodia	Bird	stable
Marsh Wren	Cistothorus palustris	Bird	stable
Western Yellow-billed Cuckoo	Coccyzus americanus	Bird	F/S
Bell's Vireo	Vireo bellii	Bird	stable
Bobwhite	Colinus virginianus	Bird	declining
Yellowthroat	Geothlypis trichas	Bird	stable
Yellow Warbler	Dendroica petechia	Bird	stable
American Beaver	Castor canadensis	Mammal	stable
Mule Deer	Odecoileus hemionus	Mammal	economic
White-tailed Deer	Odecoileus virginianus	Mammal	economic
Northern Leopard Frog	Rana pipiens	Amphibian	S
Stoneroller	Campostoma anomalum	Fish	S
Suckermouth minnow	Phenacobius mirabilis	Fish	S
Fathead Minnow	Pimephales promelas	Fish	stable
Brassy Minnow	Hybognathus hankinsoni	Fish	S
Plains Minnow	Hybognathus placitus	Fish	S
Stonecat	Noturus flavus	Fish	S
Sand Shiner	Notropis stramineus	Fish	unk.
Red Shiner	Notropis lutrensis	Fish	unk.
River Shiner	Notropis blenniuis	Fish	S
Orangethroat Darter	Etheostoma spectabile	Fish	S

Shortgrass

Common Name	Scientific Name	Taxa	Status
Long-billed Curlew	Numenius americanus	Bird	S
Western Burrowing Owl	Athene cunicularia hypugaea	Bird	S
Mountain Plover	Charadrius montanus	Bird	F/S
Ferruginous Hawk	Buteo regalis	Bird	S
Prairie Falcon	Falco mexicanus	Bird	unk.
Brewer's Sparrow	Spizella breweri	Bird	declining
Swift Fox	Vulpes velox	Mammal	F/S
Mule Deer	Odecoileus hemionus	Mammal	economic

Mid-grass/Tall-grass

Common Name	Scientific Name	Taxa	Status
Cassin's Sparrow	Aimophila cassinii	Bird	declining
Lark Sparrow	Chondestes grammacus	Bird	declining
Loggerhead Shrike	Lanius ludovicianus	Bird	declining
Long-eared Owl	Asio otus	Bird	stable
Short-eared Owl	Asio flammeus	Bird	stable
Greater Prairie Chicken	Tympanuchus cupido	Bird	economic
Upland Sandpiper	Bartramia longicauda	Bird	declining
Northern Harrier	Circus cyaneus	Bird	stable
Mule Deer	Odecoileus hemionus	Mammal	economic

Cropland

Common Name	Scientific Name	Taxa	Status
Bobwhite	Colinus virginianus	Bird	declining
Ring-neck Pheasant	Phasianus colchicus	Bird	economic
Mule Deer	Odecoileus hemionus	Mammal	economic
White-tailed Deer	Odecoileus virginianus	Mammal	economic

F= Federally listed S= State Listed

Section 3: Agriculture Related Environmental Impacts

Magnitude of Agriculture Related Environmental Impacts

Water Quantity: Large capacity wells drilled during the 1950s, '60s, and '70s almost exclusively for agricultural irrigation have decreased the amount of storage in the Ogallala Aquifer in Colorado (see Table 7). With levels falling on average one foot annually, irrigators have suffered rising pumping costs and diminished well productivity. Well re-drilling activity to deepen wells has been increased to sustain ground water production for irrigation, livestock, and domestic users, with drillers drilling an average of nearly 90 feet below the previous well level (see Exhibits F and G).

Table 7 – Ogallala Aquifer Levels

The Northern High Plains

Water Level Changes 1997 to 2004 (in feet)

Ground Water Management District	# of Wells Measured	Change 1997/1998	Change 1998/1999	Change 1999/2000	Change 2000/2001	Change 2001/2002	Change 2002/2003	Change 2003/2004	7-year change	Avg/year 7 years
Marks Butte	**14**	**-1.12**	**1.12**	**-0.12**	**1.48**	**-0.94**	**-0.35**	**-0.15**	**-0.08**	**-0.01**
Frenchman	**91**	**-1.26**	**0.2**	**-0.42**	**-1.81**	**-1.21**	**-1.48**	**0.92**	**-5.06**	**-0.72**
Sand Hills	**51**	**-1.65**	**-1.65**	**-1.1**	**-2.29**	**-1.8**	**-4.06**	**-0.92**	**-13.47**	**-1.92**
Central Yuma	**58**	**-0.68**	**-1.21**	**-0.8**	**-1.91**	**-0.91**	**-3.34**	**0.13**	**-8.72**	**-1.25**
W-Y	**72**	**-0.96**	**0.96**	**-1.33**	**-2.80**	**-1.78**	**-6.33**	**-1.38**	**-13.62**	**-1.95**
Arikaree	**115**	**-0.58**	**-0.38**	**0.12**	**-0.61**	**-0.38**	**-1.30**	**-0.62**	**-3.75**	**-0.54**
Plains	**183**	**-0.62**	**-0.51**	**-0.47**	**-1.48**	**-1.53**	**-1.95**	**-1.06**	**-7.62**	**-1.09**
Totals & Averages	**655**	**-0.98**	**-0.21**	**-0.59**	**-1.35**	**-1.22**	**-2.69**	**-0.44**	**-7.47**	**-1.07**

Water Quality: Trials conducted by Colorado State University Cooperative Extension in 1997 and 1998 demonstrated that in those areas of Colorado most reliant on ground water irrigation, ground water contained enough levels of nitrogen as nitrate to permit agricultural producers to reduce nitrogen fertilizer application by as much as 30%. Nearly 10% of monitoring wells sampled throughout the Republican River Basin from 1992-2001 under the Colorado Agricultural Chemicals and Groundwater Protection Act failed to meet EPA drinking water standards for NO_3 content.

Soil Erosion: Soil erosion in the Republican River Basin occurs primarily due to wind erosion. Water erosion is also a factor in soil erosion in the basin, but to a lesser extent. In comparison, wind erosion can reach 4 ton/acre whereas water erosion would total 0.3 ton/acre on the same soil types with the same cropping patterns and management practices.

Factors that affect wind erosion include residue cover, field width, crop rotation intensity, and tillage operations. Residue cover is the most important factor. The amount of residue on the field and whether the residue is standing or lying down are important characteristics in protecting the soil from wind erosion. Field width is a factor in disturbing or breaking up wind patterns. Crop rotation intensity contributes to the

amount and characteristics of residue cover. A wheat-fallow crop rotation would have a crop every other year. Cropping intensity has increased over the last 15 years with wheat-corn-fallow or wheat-corn-sunflower-fallow becoming typical crop rotations. The number and type of tillage operations also contribute to wind erosion. An increase in cropping intensity has created a decrease in the number of tillage operations. Use of herbicides has replaced tillage operations, helping to improve residue conditions in the basin.

Water erosion is affected by the degree of slope and length of the slope of the land. Installation of land terraces throughout the basin has reduced the amount of water erosion in the basin. Residue cover also contributes to reducing water erosion by providing ground cover and increasing water infiltration rates of the soil.

Wildlife: Many of the wildlife species associated with the Republican River Basin have responded to the changes brought on by settlement and agriculture. Much of the initial change from predominantly grassland communities to a mix of grassland and small patches of agriculture resulted in positive wildlife responses. Greater prairie chickens and bobwhite populations increased dramatically as agriculture was introduced into the region. The ring-necked pheasant was introduced into the area and also responded very positively to the grassland-small patch agriculture mix that settlement brought to the area. Other species that are closely associated with grassland or riparian systems did not show a marked change as agriculture was initially introduced to the area. Agriculture intensified through the 1950s and 1960s and the grassland habitat became more and more fragmented. With the introduction of irrigation to the area in the mid to late 1950s and through the 1970s, the fragmentation of grasslands was more evident and many wildlife species began to decline. This was especially evident in species that are highly dependant on riparian and upland grassland ecosystems in the area.

The Republican River Basin is the core range for greater prairie chickens in Colorado. Populations in Colorado peaked into the 1930s and 1940s, but as agriculture intensified, populations began to decline. Populations continued to decline through the 1960s and 1970s as irrigation was introduced to the region. Areas that had been too sandy to farm using conventional dryland cropping rotations were cultivated and farmed effectively by applying ground water irrigation. Although agriculture appeared to contribute to the population increases through the 1940s and 1950s, grassland fragmentation, the advent of irrigation, and other land use changes contributed to their decline through the early 1970s. The greater prairie chicken population was estimated to be below seven hundred (700) birds in 1973 and the birds were listed by the Colorado Division of Wildlife Commission as Endangered Species in Colorado at that time. Grazing management changes in the core range and transplanting efforts into other suitable habitat by the Colorado Division of Wildlife (DOW) have lead to an increase in the population to the point where they are no longer listed as endangered in Colorado. Although the birds have responded positively to these management practices, they remain a priority species for the DOW and the local community. Several other grassland birds indigenous to this area have shown a marked decline and are of concern to the DOW as well.

Bobwhite followed a similar trend in this part of eastern Colorado. Bobwhite are closely associated with the riparian areas within the Republican River Basin. Bobwhite showed some positive responses to the initial introduction of agriculture, but the intensification of irrigation, changes in grazing practices, and vegetative changes within the riparian system have created a less than desirable situation for these birds. Successional plant species that traditionally provided food and cover for bobwhite are being replaced by species that are more typical of a dryer climax community and are less desirable for bobwhite and other wildlife species that depend on early successional stages within the riparian ecosystem.

Increased irrigated agriculture activities and the use of fertilizer in the basin have increased the probability of nitrogen and phosphorous reaching streams, resulting in nutrient enrichment. Aquatic wildlife species intolerant of such enrichment declined from many of the affected streams. In some areas, the riparian vegetation has been removed to increase the amount of tillable land. Soil erosion increases with the practice of continued tillage.

Several native fish species have shown significant declines since their populations have been monitored. It is thought that habitat degradation, reduced streamflows, erosion, and nutrient enrichment due to fertilizers are contributing to the declines in these fish species.

The stonecat is a small, slender catfish found in only two river basins in Colorado: the St Vrain near Longmont, Colorado and the North Fork of the Republican River. The eastern plains streams, with low flows, silt, and frequent dewatering do not provide an ideal habitat for this species. Colorado is thought to be on the western edge of the historic range and the species was probably never abundant within the state.

The suckermouth minnow is limited to the eastern plains predominantly in the lower reaches of the mainstem of the South Platte and Arkansas River. In addition, the suckermouth minnow is a rare inhabitant of the Arikaree River, a tributary of the Republican River. Suckermouth minnows prefer moderate and year-round streamflows and riffle areas with a gravel and sandy gravel substrate.

The brassy minnow is a small, slender minnow that occurs in the South Platte and the Republican River Basin, although brassy minnows were also collected in a backwater area of the Colorado River. This species prefers areas of cool, clear water with abundant aquatic vegetation and a gravel substrate. The brassy minnow was found locally abundant on the Arikaree River in the Republican River Basin in the 1980s. This species is listed in Colorado and is currently being intensively censused by the DOW. Continued elimination of preferred habitat of this species through dewatering, increased siltation, and increased water temperatures can be expected to cause further reductions in distribution and abundance.

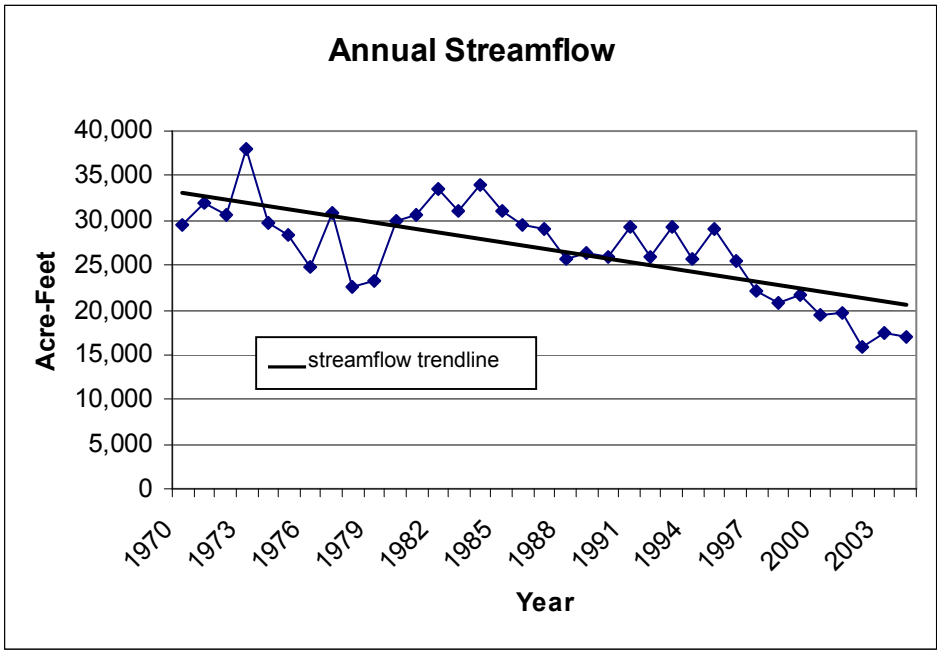
The plains minnow occurs in the Missouri River and western portions of the Mississippi system from Montana south to Texas. In Colorado, the species is only found in the Republican and Arkansas River Basins. The plains minnow is native to Colorado, but appears to be extremely rare. Plains minnows prefer main channel streams with sandy bottoms and some current. DOW is currently collecting more information regarding the distribution, abundance, and habitat requirements of this species in Colorado.

The orangethroat darter is a moderate sized shiner found only in the Republican River Basin in Colorado. The species appears to be rather widespread in the central part of the United States. The orangethroat is found in the small streams in the basin where shallow riffles pass over a sand-gravel substrate. This species appears to tolerate warmer water temperatures and can withstand short periods of intermittent flows, seeking refuge in shallow pools.

Past and Projected Future Trends in Agricultural Impacts

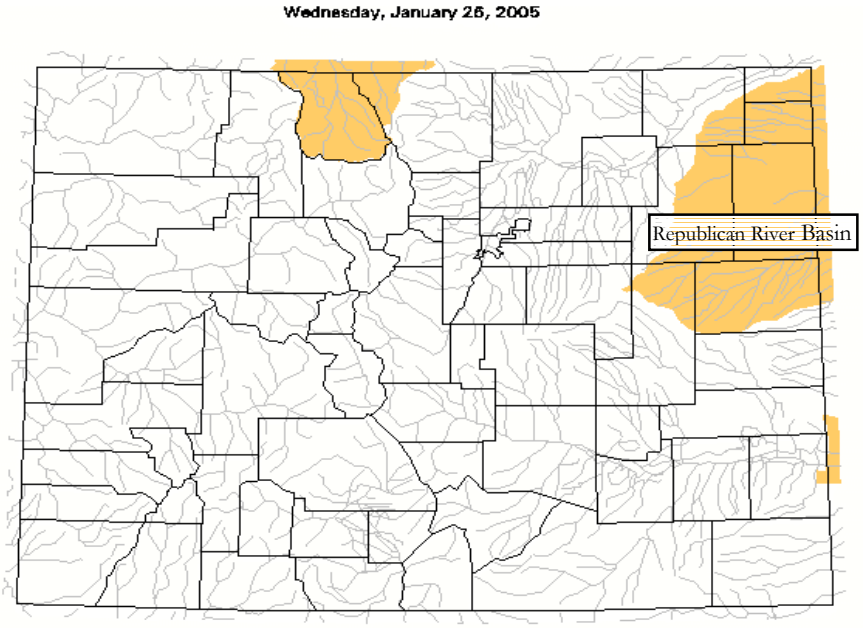
Water Trends: Ground water pumping has not only impacted Ogallala Aquifer levels. Intensive ground water pumping for agriculture and prolonged drought have also contributed to a reduction in surface water streamflows in all of the streams and tributaries within the basin. The combined effects of reduced streamflow and reduced return flows are evidenced in Graph 4, depicting the annual total amount of streamflow for the North Fork of the Republican River at the Colorado-Nebraska State Line.

Graph 4 – North Fork of Republican River Streamflow at Colorado-Nebraska State Line



Though drilling of new wells in Colorado's Republican River Basin began to subside during the 1970s, the delayed impacts on depletions from wells furthest from the streams are impacting streamflows on the river. Studies indicate that the lagged effect of Colorado ground water depletions reduces Republican streamflow to neighboring states by approximately 150 additional acre-feet every year. Figure 3, in fact, demonstrates how recent above-normal statewide precipitation can fail to produce positive streamflow effects in the basin.

Figure 3 – Below Normal Seven Day Average Streamflow in Colorado



Source: USGS

Agriculture Trends: Prior to the signing of the Republican River Compact in 1942, agriculture in the basin was dominated by rangeland grazing of livestock and dryland crop production. This mix of agricultural production did not change drastically through the remainder of the '40s and through the '50s. Rangeland was the basis for significant cow/calf beef production, followed distantly in terms of numbers by range sheep operations. Winter wheat dominated cereal crop production during this time period. Alfalfa hay production was the dominant forage type crop in the northern areas of the region while rye and sorghum forages were dominant in the southern areas of the region. The value of the winter wheat crop in 1960 was $51,126,000 compared to $3,814,0900 for the corn crop produced. The value of livestock and livestock products sold other than dairy and poultry totaled $48,892,000.

With the development of ground water irrigation during the '60s, '70s and into the '80s, agriculture changed drastically in the region. Irrigated corn for grain became the dominant irrigated crop in the region and supported a growing fed-livestock industry. The value of the corn crop raised in the region in 1980 equaled $165,917,000, based on 54,399,000 bushels produced. The value of the winter wheat crop totaled $193,347,000 based on 53,558,000 bushels produced in the region.

Colorado Agricultural Statistics Service (CASS) changed reporting methods for livestock over time and stopped reporting numbers on a county basis, resorting to statewide numbers. Beef numbers continued to rise along with national beef cattle inventory numbers until their peak in 1986. CASS reported 980,000 cattle on feed in 1991 and 1,230,000 cattle on feed in 2001. During the '90s, hog furrowing, feeding and finishing operations increased dramatically in the state and in particular, in the eastern plains of Colorado. CASS reported 30,000 hogs in Colorado in 1991 and 840,000 hogs in 2001.

Economic Trends: Today, agriculture undeniably remains the dominant economic engine of the region. Feedlots, crops, hogs/pigs/swine, and ranching account for nearly 40% of the seven-county economy (see Table 8), with secondary (indirect) and tertiary (induced) effects also contributing substantially.

Table 8 – Republican River Basin Economics

Seven County Economic Demographics *

Industry	Annual Sales (million $)	Percent of Total
Total	$3,552.00	100.00%
Notable Contributors		
Cattle Feedlots	$629.95	17.74%
Crops	$493.00	13.88%
Natural Gas & Crude	$165.47	4.66%
Banking	$130.54	3.68%
Hogs, Pigs, Swine	$124.04	3.49%
State and Local Government - Education	$122.46	3.45%
Wholesale Trade	$117.81	3.32%
Transportation (Trucking, Warehouse, Rail)	$109.21	3.07%
Ranch Fed Cattle	$97.61	2.75%

* From Year 2000 data except Crops Industry, which is the average value of dryland and irrigated crop sales for 1996 - 2000.

Despite the area's reliance on agriculture, a 30,000 irrigated acre reserve program is projected to only marginally impact the region's overall economy, as evidenced in Table 9.

Table 9 – Anticipated Economic Impacts of Retiring 30,000 Irrigated Acres through CREP
in $thousands

Impact	Direct	Indirect	Induced	Total
Total Effect on Outflows	**$ 12,000**	**$ 3,173**	**$ 1,029**	**$ 16,202**
Notable Impacts				
Crops	$ 12,000	$ 140	$ 4	$ 12,144
Wholesale Trade		$ 670	$ 40	$ 711
Real Estate		$ 440	$ 36	$ 476
Transportation & Warehousing		$ 321	$ 17	$ 338
Ag Services		$ 225	$ 0	$ 226
Maintenance & Repair		$ 212	$ 8	$ 220
Natural Gas & Crude Petroleum		$ 172	$ 13	$ 185
Farm Machinery		$ 123	$ 0	$ 123
Banking		$ 107	$ 68	$ 175
Electric Services		$ 67	$ 40	$ 106
Gas Production & Distribution		$ 81	$ 18	$ 99
Other		$ 615	$ 784	$ 1,400
Inflows from CREP Rent at $100/acre	**$ (3,000)**	**$ (793)**	**$ (257)**	**$ (4,050)**
Net Economic Impact	**$ 9,000**	**$ 2,379**	**$ 772**	**$ 12,151**

Reduction Relative to Irrigated Crop Sales	5.4%
Reduction in Overall Economic Activity	0.3%

Source: Based on a study of economic impacts of a 20,000 acre irrigation reserve program conducted by Dr. James Pritchett of Colorado State University Agriculture and Resource Economics, August, 2004. Extrapolated to 30,000 acres.

Local governments would be impacted primarily through reduced property tax revenue, beginning upon expiration of CREP contracts (approximately year 2022). But they would not realize a reduction in property tax revenues during the first fifteen years or through the duration of the initial CREP contracts. Acres would remain assessed as irrigated during this time period, but assessments would revert to the actual use thereafter.

Assumptions: (1) acres are enrolled in approximate proportion to actual irrigated acres by county, (2) those acres revert to dryland practice upon contract completion in 2022, (3) all enrolled acres would otherwise remain irrigated in absence of CREP, and (4) lost revenue per acre would range from $9.87 in Phillips County (sandy soils) to $4.94 in Yuma County and $2.43 in Kit Carson County (heavy soils), based on current county assessments and mill levies. *Under these assumptions*, lost county revenue would total about $150,000 yearly, beginning in 2022, with Yuma County bearing $75,000 of that annual total. However, without addressing the issue of the declining aquifer through programs such as CREP, continued irrigation on all acres will likely become decreasingly cost effective for each producer. Conversion from irrigated cropland to dryland or grassland in the absence of CREP due to the declining aquifer or the effect of compact decisions would likely hasten the impact on local property tax revenues.

Sales tax impacts would not approach property tax impacts. Even if all sales described in Table 9 were to proportionately reduce county sales tax revenues (two of the five counties have no sales tax), lost county revenue would total about $25,000 yearly, with Phillips County bearing $15,000 of that annual total.

Nature of Health-Related Agricultural Impacts

As previously noted, nearly 10% of basin monitoring wells contained more than the EPA standard of 10mg/l of nitrate (NO_3). Fewer than five percent of sampled monitoring wells contained any pesticide detection (commonly Atrazine, Desethyl Atrazine, Desisopropyl Atrazine, or Prometone). Still, reduced irrigation can be expected to further improve ground water quality by (1) reducing agricultural chemical application and (2) increasing the relative amount of natural aquifer recharge, thereby decreasing contaminant levels.

Exhibit H – developed from a joint study by Colorado Department of Agriculture, Colorado State University Cooperative Extension, and Colorado Department of Public Health and Environment – demonstrates the high index of soil infiltration capacity within the Republican River Basin, particularly in Yuma County. Further studies by this group revealed that agricultural application accounts for 62% of all pesticides applied in Colorado, with corn contributing to nearly one third of that amount. With corn produced on 70% of the basin's irrigated acres, retiring acreage offers an opportunity to reduce pesticide application and help meet pesticide management goals.

In Exhibit I, Cooperative Extension calculates fertilizer and pesticide applications on potential CREP acres. Using 2004 Colorado Ag Statistics and assuming a proportionate retirement of acres by crop type, Cooperative Extension estimates the following reductions with CREP implementation:

- Nitrogen – 4,987,000 pounds
- Phosphorus – 876,000 pounds
- Atrazine – 4,000 pounds
- Roundup ™ – 51,000 pounds
- Lorsban ™ – 5,000 pounds
- Ally ® – 64 pounds
- Banvel ® – 866 pounds

Other Efforts to Address Agricultural Impacts through State and Federal Programs

Federal Programs (USDA)

Environmental Quality Incentive Program – Ground and Surface Water Conservation Program (GSWCP): The Republican River Water Conservation District and Water Activity Enterprise (RRWCD) reports that enough irrigators had applied with the NRCS by the December 17, 2004 deadline to fully utilize the approximate $1,000,000 NRCS allocation for the Republican watershed. The RRWCD forecasts matching with nearly $1,000,000 in annual incentives. It is anticipated that the application of GSWCP practices within the Republican River Basin will reduce ground and surface water use by approximately 2,500 acre-feet annually. This represents only a small fraction of what must be accomplished to begin stabilizing aquifer levels. Program funding is restricted to paying landowners over three years only but offers 3-year, 5-year, and permanent retirement. The level of temporary retirement (currently unknown) will limit the long-term benefits of the program. The landowner interest in this voluntary approach to water retirement has been significant enough to indicate a willingness to voluntarily and permanently retire water through CREP.

Conservation Reserve Program: Table 10 below reflects the acres enrolled in CRP. It is important to note here that virtually all of the acres currently enrolled in CRP in the Republican River Basin are dryland cropped acres. There are fewer than 1,000 irrigated acres currently enrolled in CRP in the Republican River Basin, consistent with Colorado's low (less than one percent) proportion of CRP irrigated acreage.

Table 10 – Projected Colorado Acres in CRP after September 2005 Expiration

County	Acres Enrolled as of October, 2005	Acres Available
Kit Carson	233,388	20,241
Lincoln	156,733	0
Logan	132,179	11,422
Phillips	85,648	7,394
Sedgwick	10,504	50,343
Washington	222,113	0
Yuma	96,355	87,782
Total	**879,860**	**177,182**

Wetland Reserve Program (WRP): The Wetlands Reserve Program is a popular program within the South Platte River Basin, but is only marginally used in the Republican River Basin. Those acres enrolled within the South Platte Basin and the few parcels that are enrolled within the Republican River Basin are, for the most part, on non-agricultural lands and therefore do not contribute significantly to the water conservation efforts that this CREP proposes.

Wildlife Habitat Incentive Program (WHIP): WHIP is extremely popular in the area and has been used to enhance wildlife habitat for a number of declining and economic wildlife species within the area.

U.S. Fish and Wildlife Service – Partners for Fish and Wildlife: The Partners for Fish and Wildlife Service is active within the Republican River Basin. The Partners Program has been involved in one of the WRP projects within the basin and is an active participant in the Playa Lakes Joint Venture effort to restore Playa wetlands.

State Programs

The DOW administers several programs that are active within the Republican River Basin. **The Pheasant Habitat Improvement Program (PHIP)** encompasses several of the counties that are included in this proposal. PHIP is a DOW partnership with local Pheasants Forever Chapters that seeks to enhance pheasant habitat within the core pheasant range. To date, PHIP has been an active participant and has partnered with USDA in this region through CRP, WHIP, and EQIP. Again, due to economics, PHIP efforts have been focused on dryland acres. The Division provides additional cost-share and incentives to producers that develop pheasant habitat on their land. The Walk-In Access program was established in 2001 in eastern Colorado and offers additional incentives to landowners that voluntarily permit small game hunting access on their land.

The DOW administers a statewide wetlands program **(The Wetlands Initiative)** that is locally driven through ten local Focus Committees geographically distributed throughout the state. One Focus Committee covers the Republican River Basin and has been actively enhancing and protecting critical wetlands and riparian areas in the basin. Again, this effort has been focused on non-agricultural land and has not significantly contributed to the conservation of ground or surface water.

The Habitat Partnership Program (HPP), also administered by the DOW, was initiated in 1990 to provide pro-active habitat management on private land for the purpose of minimizing wildlife conflicts with agriculture production activities. HPP is administered through nineteen geographically distributed and locally led committees. The Republican River HPP Committee was recently formed and has a purpose of enhancing riparian and upland habitat within the Republican River Basin through grazing management and native vegetation restoration. Research is currently underway within this committee to determine grazing impacts on surface water flows in the streams and tributaries and to develop grazing prescriptions that will ultimately enhance streamflows and the riparian habitat.

Preserving Colorado Landscapes (PCL): Preserving Colorado Landscapes is a partnership between the Great Outdoors Colorado Board (Lottery funds), The Nature Conservancy, and the DOW. PCL seeks to protect, through long-term or perpetual easements, significant or unique landscapes that are critical to perpetuating a species or an ecosystem. PCL has been somewhat active within the Republican River Basin.

Colorado Ground Water Commission and the **Colorado Division of Water Resources:** The Colorado Ground Water Management Act of 1965 provided for the formation of management districts which were empowered to regulate the spacing of wells in designated basins (located within the Ogallala Aquifer) and set limits on production rates to minimize the lowering of water tables. Together with the Division of Water Resources (DWR), the Ground Water Commission works to enforce permit conditions and priorities and to issue summary orders prohibiting or limiting withdrawal of ground water. The Commission substantially limited development of new large capacity wells during the 1970s and essentially ceased new development by 1990.

Republican River Water Conservation District and Water Activity Enterprise (RRWCD): Established by Colorado legislation's Senate Bill 04-235 in 2004, the RRWCD is comprised of representatives of each of the basin's seven counties, each of the basin's seven ground water management districts, and the Colorado Ground Water Commission. Currently, the RRWCD Board membership consists almost entirely of agricultural irrigators and has worked diligently to educate and cooperate with other irrigators in the basin. Through fee assessments, the RRWCD has raised funds needed to share in the costs of various federal programs, including CREP, and to enter into its own water right lease and purchase agreements.

Section 4: Project Objectives

Objectives Overview

The primary objectives of the Republican River CREP are:

1) Reduce soil erosion from approximately 478,512 tons to approximately 105,000 tons per year on all acres enrolled in CREP, a savings of approximately 373,512 tons per year.

2) Reduce fertilizer and pesticide application by 5% over the total project area and eliminate the need for herbicides and fertilizer on all enrolled acres (see Exhibit I for specific amounts).

3) Establish a minimum of 35,000 acres of native grassland
(30,000 acres from irrigated cropland and 5,000 from dryland pivot corners – see Exhibit J).

4) Restore and enhance a minimum of 500 acres of degraded wetlands.

5) Restore and enhance over 30 miles of riparian habitat along the North Fork and South Fork of the Republican River and the mainstem of the Arikaree River.

6) Reduce agricultural use of the Ogallala Aquifer by approximately 35,000 acre-feet of ground water per year equaling a 5% water savings within the Republican River Basin in Colorado.

7) Increase streamflow in all streams associated with the Republican River Basin by up to 5%.

8) Reduced energy consumption from an average of 144,704 kW-hr to less than 5,000 kW-hr per pivot for the first on pivots enrolled in the CREP. Subsequent years energy consumption will be reduced to zero, as the pivots will be removed from the enrolled parcel. Total energy savings for the term of the CREP contracts will approach 2.1 million kW-hr. Additional fossil fuel savings from wells powered by fossil fuel, however since few wells are powered using this energy source, the fossil fuel savings will likely be insignificant. It should be noted that the electricity savings will be realized well beyond (and theoretically in perpetuity) the CREP commitment, as all irrigated acres retired under this proposal will no longer be permitted to pump groundwater.

9) Reduce percentage of ground water test wells containing nitrogen levels above EPA standards.

Targeting surface and ground water conservation will enhance riparian and upland habitat, improve streamflows, and contribute to the improvement of the Ogallala Aquifer. (Water-specific benefits are discussed below). The benefits of this program will not only be realized in Colorado, but will influence downstream habitat in Kansas and Nebraska. Voluntary, incentive-based conservation programs have proven to be a cost-effective method in addressing resource concerns. As the most effective, geographically focused program in the nation, CREP will certainly provide the most efficient return for dollar invested.

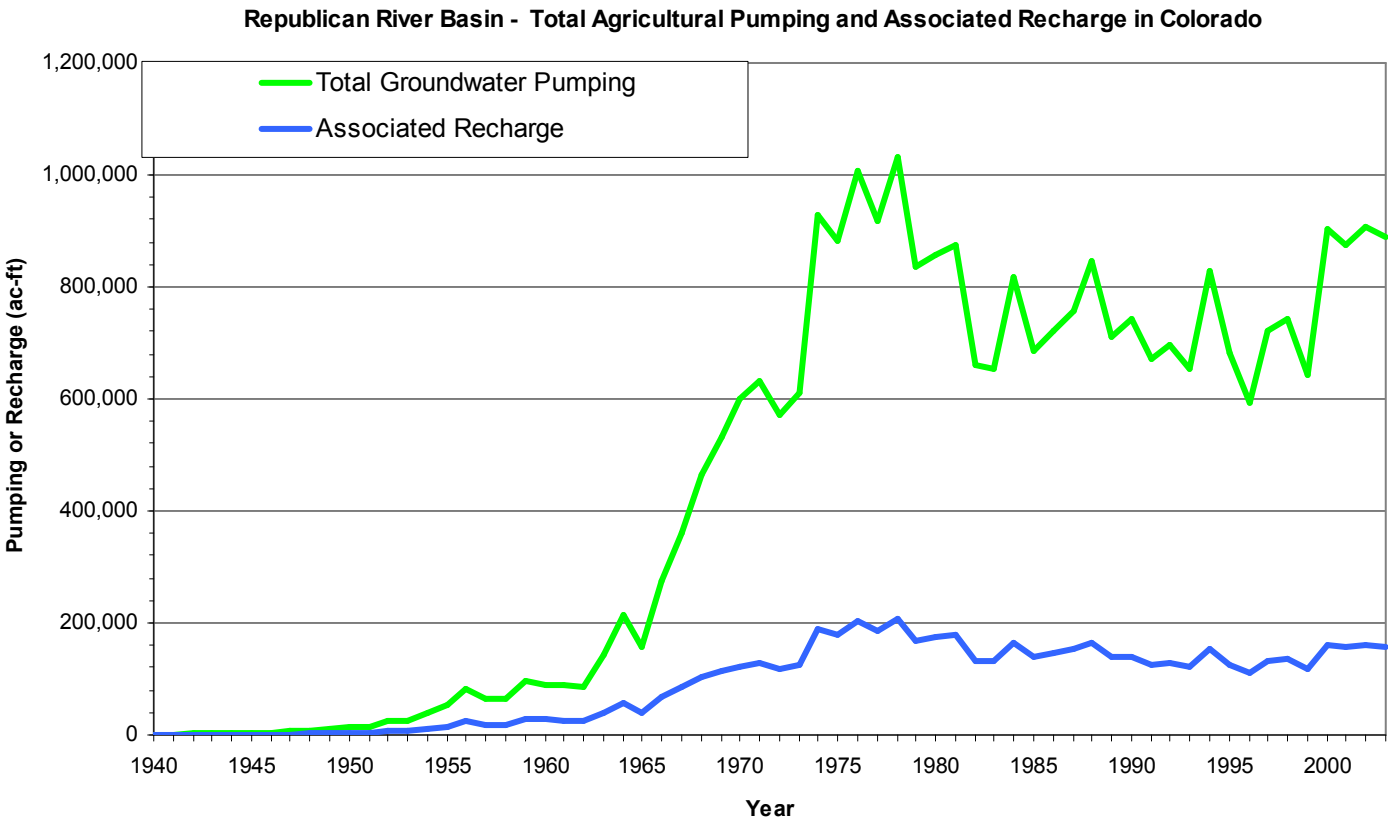
Conserve Ground and Surface Water

Terrestrial and aquatic wildlife habitat will be improved, not only through voluntary land retirement and the retirement of associated irrigation, but through increased streamflows, enhanced riparian areas, and the creation of a more diverse and rich habitat.

Implementation of the project will reduce depletions to the Ogallala Aquifer by as much as five percent. Basin-wide, irrigators consume about 15 acre-inches of water per acre irrigated. Assuming that 95% of accepted CREP acres are irrigated by ground water, this results in a total reduction of 35,625 acre-feet of annual ground water pumping. For comparison purposes, this represents more than double the current

storage in Bonny Reservoir (14,098 acre-feet as of February 2005). Average annual ground water pumping within the basin from 1994-2003 is 778,745 acre-feet (see Exhibit K). While this reduced irrigation alone will not reverse the aquifer's decline, it will help reduce the agricultural overdraft depicted in Graph 5. And though a portion of the groundwater that is returned to the stream may be diverted by surface water users, most of this water will be recovered by the river due to year-round (including non-irrigation season) returns to streamflow, irrigation return flows, and diverters receiving full entitlement during normal to wet years.

Graph 5 – Effect of Agricultural Pumping on the Aquifer



Assuming that 5% of accepted CREP acres are irrigated by surface water, streamflows would increase by approximately 2,250 acre-feet annually. While reduction of ground water pumping will provide long-lasting beneficial impacts to the Ogallala and future incremental benefits to streamflow, reducing surface water diversions in Colorado will provide many immediate benefits:

- Improved riparian habitat in Colorado, Kansas, and Nebraska
- Added water availability – and thus improved wildlife habitat and recreational activity – in eight downstream federal reservoirs
- Reduced fertilizer- and pesticide-contaminated return flows

In December 2002, the United States Supreme Court affirmed the three states' Final Settlement Stipulation concerning the Republican River Compact of 1942. This settlement demonstrated the ability of Colorado, Kansas, and Nebraska to work cooperatively to help reduce Ogallala Aquifer depletions and improve Republican River streamflows. Each state is entitled to pursue its own actions in meeting its obligations under the agreement. The Republican River CREP represents one significant component of Colorado's efforts. Republican River Compact administrators from Colorado, Kansas, and Nebraska meet annually to discuss progress and each state's future plans to address the Final Settlement Stipulation. Kansas and Nebraska support this proposal and Colorado has received written support of the Colorado Republican River CREP proposal from Kansas and Nebraska.

Improve Water Quality

The relatively high conductivity of primary aquifers – including the Ogallala – in Colorado leads to the potential for transport of contaminants from source areas to points of use. This conductivity, paired with low natural recharge availability in the northeastern plains, makes the area one of Colorado's most sensitive to herbicide contamination. The higher relative recharge availability of nitrate-laden surface water irrigation may further impact ground water quality in the basin. Improved ground water quality, therefore, has been included as a program objective.

Section 5: Project Description

The Republican River CREP proposal aims to coordinate federal, state, and local efforts that address varying natural resource issues throughout the basin. Retirement of irrigated land is vital to the long-term sustainability of water resources in the Republican River Basin, and mitigating economic impacts to these agriculture-reliant communities will require cooperative planning and funding. All irrigated acres enrolled in the Republican River CREP will require permanent water retirement and producers will relinquish water rights in perpetuity. Technical staff will work with landowners to determine the conservation practice most suitable for each subject acre.

Proposed CRP Conservation Practices

The Republican River CREP is proposed to include, but not be limited to:

- CP-2 – Native grass
- CP-4D (tall grass) – Vegetative planting tall grass
- CP-4D (short grass) – Vegetative planting short grass
- CP-22 – Riparian buffer
- CP-23 – Wetland restoration
- CP-23a – Playa lakes restoration

Not more than six inches of water may be applied to ensure grass establishment in the first year following grass planting. Mid-contract management practices would be applied as recommended by technical staff. Emergency and managed haying and grazing would be permitted, but may not be widely implemented due to the 25% reduction in the CRP rental rate.

Proposed Acres

Thirty-five thousand acres (30,000 irrigated acres and 5,000 dryland) would lie entirely within the Republican River Basin. For reference, a proportionate allocation among counties is depicted in Exhibit L. To help avoid clustering acres in certain counties, counties would be prevented from exceeding their proportioned acres until the first anniversary of the Republican River CREP implementation.

The RRWCD would provide greater incentives to those acres closest to the stream, including the acquisition of water rights. The proposal also recommends greater federal incentives for approved riparian, wetland, and Playa lakes conservation practices, regardless of location.

Project Implementation Period and Success Probability

This proposed project would be implemented through continuous signup. The success of the project will be measured by the level of producer participation, geographic distribution of acres that maximizes streamflow while mitigating economic impacts, and the progress toward program objectives, particularly the retirement of ground and surface water. RRWCD will work with NRCS to provide technical assistance to producers on implementation and management practices. RRWCD will work with FSA to ensure that non-federal funding sources are providing at least 20% of the program costs. Under this proposal, minimum levels of participation based on stream proximity must be maintained to ensure appropriate non-federal funding. RRWCD will work with DWR staff to provide adequate contract compliance documentation to USDA staff.

Application Flow Chart

1. Producer makes application with FSA (CRP-2C). App. includes FSA-578, aerial photos, and well permit or water decree.

2. FSA determines producer and land eligibility, explains program policy & practice requirements. FSA forwards CRP-2C to NRCS and RRWCD.

3. FSA, NRCS, or TSP conduct site visit to determine practice viability, need/feasibility, soil type, and other technical requirements.

4. RRWCD and DWR review diversion records, permit, and/or water decree. Render opinion to FSA on eligible acres and stream proximity.

5. FSA determines acreage & calculates payment incentives. RRWCD determines acreage & calculates payment incentives.

6. FSA completes CRP-1 and obtains producer signatures.

   FSA notifies producer of acceptance & completes paid-for measure service.

7. NRCS and State complete conservation plan and NEPA evaluation. RRWCD obtains plan approval from soil conservation district.

8. FSA approves conservation plan & NEPA evaluation. FSA provides signed CRP-1 to producer.

9. FSA & RRWCD disburse Signing Incentive Payment, when applicable.

10. Producer completes practice installation per conservation plan.

11. NRCS conducts on-site review of installation. Certifies AD-862, approving installation.

12. Producer submits to FSA signed AD-245, invoices and receipts for cost-share verification.

13. FSA & RRWCD disperse eligible cost-share & Practice Incentive Payment to producer. Producer conveys water right to RRWCD & seals well or head gate.

14. FSA & RRWCD disburse annual rental payments beginning in October of next fiscal year.

15. RRWCD, DWR, & DOW annually provide monitoring & compliance reviews to NRCS & FSA.

FSA – Farm Service Agency; NRCS – National Resource Conservation Service;
RRWCD – Republican River Water Conservation District & Water Activity Enterprise;
DWR – Colorado Division of Water Resources; DOW – Colorado Division of Wildlife

Section 6: Cost Analysis

Total Estimated Project Costs

Table 11 – Total Estimated Project Costs

Source	Costs	Percent of Total
Federal funds	$52,772,500	79%
Non-federal incentives and cost-share	$ 11,662,500	18%
Non-federal in-kind services	$ 1,860,000	3%
Total Project Costs	**$ 66,295,000**	**100%**

Federally Funded Costs

USDA costs are calculated in Table 12. These are only estimates. Actual acres by conservation practice shall be determined by technical staff's assessment of best eligible practice on subject acres.

Table 12 – United States Department of Agriculture Estimated Costs

Practice	Acres	Annual Rental Costs	Annual Maintenance	15 yr Rental Costs	15 year maintenance	Installation Costs	SIP	PIP	25% bonus	Total USDA-FSA Payments
CP-2 (irrigated)	3,000	$ 300,000	$ 15,000	$ 4,500,000	$ 2,250,000	$ 150,000				$ 4,875,000
CP-4D(TG)(irrigated)	22,000	$ 2,200,000	$ 110,000	$ 33,000,000	$ 1,650,000	$ 1,100,000				$ 35,750,000
CP-4d(SG)9irrigated)	3,000	$ 300,000	$ 15,000	$ 4,500,000	$ 225,000	$ 150,000				$ 4,875,000
CP-21 (irrigated)	500	$ 60,000	$ 2,500	$ 900,000	$ 37,500	$ 25,000	$ 75,000	$ 20,000		$ 1,057,500
CP-22 (irrigated)	1,000	$ 120,000	$ 5,000	$ 1,800,000	$ 75,000	$ 50,000	$ 150,000	$ 40,000		$ 2,115,000
CP-23 (irrigated)	250	$ 25,000	$ 1,250	$ 375,000	$ 18,750	$ 25,000			$ 6,250	$ 425,000
CP-23a (irrigated)	250	$ 25,000	$ 1,250	$ 375,000	$ 18,750	$ 25,000			$ 6,250	$ 425,000
CP-4D(dry)(pivot corners)	5,000	$ 175,000	$ 25,000	$ 2,625,000	$ 375,000	$ 250,000				$ 3,250,000
Totals	**35,000**	**$ 3,205,000**	**$ 175,000**	**$ 48,075,000**	**$ 4,650,000**	**$ 1,775,000**	**$ 225,000**	**$ 60,000**	**$ 12,500**	**$ 52,772,500**

Non-Federally Funded Costs

Cost-Sharing and Incentives: The funding for incentives and cost-sharing will be provided by the RRWCD, which has fee assessment authority within the Republican River Basin. In 2005, the RRWCD Water Activity Enterprise projects to raise nearly $3,000,000 from its fee assessments, and plans to earmark annual funds for CREP incentives, cost-sharing, and annual rental incentive payments (see resolution in Exhibit M). Using the RRWCD's proposed incentive structure and estimating the location of all acres in the second column, the RRWCD's costs are calculated in Table 13.

Table 13 – Republican River Water Conservation District Estimated Costs

Miles from N Fork / S Fork	Estimated Acres	RRWCD Installation % Cost-Share	RRWCD Installation $ Cost-Share	RRWCD Signup Payment $ / Acre	RRWCD Total Sign-up Incentives**	RRWCD Annual Rental Payments $ / Acre	RRWCD 15 year Rental Costs	RR Water Retirement $ / Acre	RRWCD Total Water Retirement $**	Total RRWCD Payments
Surface*	1,500	$ -	$ 15,000	$ 120	$ 180,000	$ 50	$ 1,125,000	$ 600	$ 900,000	$ 2,220,000
<1 mile	4,500	$ -	$ 135,000	$ 35	$ 157,500	$ 25	$ 1,687,500	$ 400	$ 1,800,000	$ 3,780,000
<2 miles	4,500	$ -	$ 90,000	$ 25	$ 112,500	$ 15	$ 1,012,500	$ 250	$ 1,125,000	$ 2,340,000
<4 miles	4,500	$ -	$ 67,500	$ 15	$ 67,500	$ 10	$ 675,000	$ 175	$ 787,500	$ 1,597,500
4+ miles	15,000	$ -	$ 75,000	$ 10	$ 150,000	$ -	$ -	$ 100	$ 1,500,000	$ 1,725,000
dry pivot corners	5,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Totals	**35,000**		**$ 382,500**		**$ 667,500**		**$ 4,500,000**		**$ 6,112,500**	**$ 11,662,500**

* Surface irrigation will be associated with practices CP21 and/or CP22 and therefore RRWCD Cost-Share % cannot exceed 10%.

** RRWCD Sign-up incentive dollars will be paid at sign-up or upon practice installation. Water retirement payments will be made equally in years 5, 10, and 15.

To ensure that local funds comprise 20% of total program costs, this proposal requires that (1) contracts for ground water acres at a given distance from the stream not exceed those allocations listed in Table 13 until all nearer allocations have been filled; and (2) permanent retirement of water rights be required for all irrigated acres enrolled.

In-Kind: The **Department of Natural Resources**, through the **Division of Wildlife**, created in 2005 a position devoted exclusively to CREP administration, with responsibility to oversee potential CREPs in the High Plains, and the South Platte, Republican, and Rio Grande basins. An estimated one half of this position's time will be consumed with Republican River projects in the Republican River CREP's first year, and approximately one third in ensuing years.

Monitoring of aquifer levels and streamflows, administration of retired acres, and portions of well administration and public outreach will be provided by the **Division of Water Resources**. The DWR has appointed a full-time water commissioner in addition to the existing .6 part-time water commissioner to the Republican Basin. Duties will include monitoring and reporting streamflows, administering surface water rights, and administering ground water pumping. An estimated 20% of the combined time of these positions will be allocated to CREP administration and compliance. Working with the Colorado Ground Water Commission and the RRWCD, DWR staff will review CREP applications for validity and assist with permitting. The DWR, with state staff and contracted consultants, will continue to study ground and surface water connectivity and impacts, maintain streamflow gaging stations, and monitor ground water pumping. Finally, the DWR has conducted or attended over thirty informational public meetings in an effort to outline the steps needed to reduce water consumption in the basin. All of these efforts will continue extensively through CREP's first year, and will be maintained through the duration of the program. DWR staff will also work with the Colorado Department of Health's **Division of Water Quality Control** to monitor ground and surface water quality.

The **Republican River Water Conservation District and Water Activity Enterprise** will assist with well administration and public outreach, and will work with the Colorado CREP Administrator to provide USDA with annual CREP progress reports. Due to the water retirement component of this CREP, the RRWCD will work to enforce the terms of its producer contracts (similar to the terms of its Supplemental EQIP Contract and the Ground Water Commission's voluntary well retirement request in Exhibit N). The RRWCD has budgeted sufficient funds to retain one full-time general manager and one full-time administrative assistant. Estimated allocation to CREP for these positions is 30% in the first year and 20% in ensuing years.

The Colorado **Division of Wildlife** will provide wildlife population monitoring and administration. The DOW will annually conduct greater prairie chicken lek surveys on upland sites within the Basin to assess impacts that the conversion of cropland to native vegetation has on these populations. Greater prairie chicken populations are dependant upon secure nesting and brood rearing cover that much of the upland CREP plantings will provide. The DOW will also conduct pheasant crow count surveys to determine population trends for this economically important species. It is important to note that the information derived from these efforts can be applied to other species that utilize this habitat type, as the pheasant, in particular is considered an indicator species and changes in population trends for pheasants can generally demonstrate how the habitat changes may be affecting other species such as long-billed curlew. The DOW will also conduct bobwhite whistle call counts on the river courses where bobwhite occurs. The bobwhite whistle call counts will serve as a barometer to monitor the health of the riparian areas. The Aquatic Section of the DOW will conduct periodic monitoring of the selected native fish that inhabit the streams within the Republican River Basin. Changes in population levels should give some indication of the effects increased streamflows, reduced siltation, and improved water quality are having on the aquatic system as a whole.

Colorado State University Cooperative Extension will provide public outreach support to the cooperating state and local agencies involved with this CREP submission and implementation. Extension agents with expertise in programmatic areas important to the program will be available to answer questions posed by users of the program. Cooperative Extension has established outreach networks to transfer important information and results to clientele and end users of program information.

Cooperative Extension also has the capacity to analyze and interpret economic impacts as the CREP program is implemented. These impacts include both positive and negative impacts in the basin communities. Positive impacts will result from changes in the environment as less water is diverted for irrigation and remains in the stream flow. Negative impacts result from decreased economic activity as land is removed from irrigated agricultural production, whether temporary or permanent.

Seven **Ground Water Management Districts** that comprise the Republican River Basin will perform field inspections to verify that wells have been properly decommissioned and remain decommissioned, and will perform water level measurements on monitoring wells. **The Rocky Mountain Bird Observatory** has offered to provide expertise and resources to monitor passerine bird responses to habitat improvements.

The Nature Conservancy, Rocky Mountain Bird Observatory, and **Playa Lakes Joint Venture** have all preliminarily offered to provide in-kind services. Their contributions will be quantified as the CREP application progresses.

Table 14 – Non-Federal Estimated In-Kind Costs

	First Year In-Kind Cost	Years 2-15 ongoing in-kind costs		Total In-Kind Costs
		Annual	Total	
Department of Natural Resources	$ 40,000	$ 25,000	$ 350,000	$ 390,000
Division of Water Resources	$ 75,000	$ 35,000	$ 490,000	$ 565,000
Republican River Water Cons. Dist.	$ 35,000	$ 25,000	$ 350,000	$ 385,000
Division of Wildlife	$ 10,000	$ 5,000	$ 70,000	$ 80,000
Rocky Mountain Bird Observatory	$ 9,000	$ 9,000	$ 126,000	$ 135,000
Water Quality Control	$ 5,000	$ 5,000	$ 70,000	$ 75,000
Colorado State University	$ 10,000	$ 5,000	$ 70,000	$ 80,000
Ground Water Management Districts	$ 10,000	$ 10,000	$ 140,000	$ 150,000
Total Non-Federal Costs	**$ 194,000**	**$ 119,000**	**$ 1,666,000**	**$ 1,860,000**

Rationale for Incentive Payments

Voluntary cessation of ground water pumping is at the crux of this CREP proposal; therefore, the proposed rental rate structure should be sufficiently large to encourage producers with targeted acres to participate in the program but not so large as to be a fiscal burden on the conservation district or Federal funds. Acres closest to the Republican River not only command higher rental rates due to their more reliable water supplies and proven agricultural yields, but also deliver the greatest impacts to streamflows. The structure must therefore provide additional incentives above the baseline rental rate for stream proximity, without concentrating acres in one community or economic subregion.

Recognizing the possible need to establish rental rates based on eight-digit hydrologic unit codes (see Exhibit O), Colorado State University's Cooperative Extension Service (Dennis Kaan and Dr. James Pritchett) used two methods to determine the minimum baseline rental rate necessary to encourage program participation. The results of the analysis are presented in the Tables 15 and 16, respectively. Both methods assume that competitive land and commodity markets dictate prices.

The first method (budgeting) examines imputed rental rates based on the net returns to owner/operators for various crops in the Republican River Basin. Net returns are the difference between gross revenues and total expense; that is, net returns are the remainder paid to the owner/operator for his contribution of land, management and risk. In addition, direct payments and loan deficiency payments from the 2002 Farm Security and Rural Investment Act are added to the net returns to mimic the contribution commodity programs add to crop profitability.

Because net returns depend heavily on harvest yields and market prices, a historical bootstrapping procedure is used to simulate net return distributions for various crops.[1] The mean of these net return distributions is reported in Table 15.

[1] The full bootstrapping process is described in Elder, K.L. Optimal Crop Mix for Northeastern Colorado Under Consideration of the 2002 Farms Security and Rural Investment Act. MS Thesis. Department of Agricultural and Resource Economics, Colorado State University. 2004.

Table 15 – Annualized Net Returns based on Budgeting

Crop	Mean Net Return With Government Payments ($/ac)	Mean Net Return Without Government Payments ($/ac)
Alfalfa	$145.88	$145.88
Corn	$126.09	$83.86
Pinto Beans	$125.37	$125.37
Wheat	$46.65	$38.56

A second method to determine representative rental rates is based on recent real estate transactions. In this case, it is assumed that recent transaction prices represent the discounted present value of future income from irrigated cropping. This present value may be multiplied by an appropriate discount rate to determine the annualized, expected net return of the land asset. As an example, if one acre of irrigated cropland is sold for $2,000 and the discount rate is assumed to be 7%, the annualized net return is equal to $140 per acre.

Irrigated cropland transaction prices were collected from county assessor records for Kit Carson, Phillips, Yuma and Washington counties for the 2003 and 2004 calendar years. The transaction prices were weighted by the size of the transaction and averaged. Results are presented in the second column of Table 16. Annualized net returns are calculated from these transaction prices when multiplied by a 7% discount rate.

Table 16 – Annualized Net Returns based on Land Sales

County	Weighted Average of Irrigated Cropland Transaction Prices ($/ac)	Imputed Annualized Net Returns ($/ac)
Kit Carson	$1,100.41	$77.03
Phillips	$1,502.48	$105.17
Yuma	$1,349.68	$94.48

Tables 15 and 16 present two methods for determining land rental rates in the Republican River Basin. The budgeting exercise suggests that average annual irrigated cropping returns cluster near $125 per acre for corn, which is grown on more than 75% of the irrigated cropland of the basin. Imputed land rental rates in Table 16 suggest slightly lower rates, perhaps because of the addition of less profitable rotation crops with corn or the expectation that annual cropping revenues may diminish in the future as the Ogallala Aquifer is depleted or federal commodity program payments cease.

Comparison to Other Conservation Programs

EQIP: In 2005, the Republican River Basin is expected to participate in the Ground and Surface Water Conservation Program through EQIP to the full extent of federally available funds. With GSWCP funds limited to approximately $1,000,000, the RRWCD projects that only 4,000 acres could be retired annually. The GSWCP would therefore retire approximately 5,000 acre-feet annually. The application of GSWCP provides an opportunity for those producers that wish to retire irrigation, but convert to either dryland cropping or livestock grazing. While this will assist the basin in reaching a portion of its objectives, EQIP can only serve as a function of the natural resource conservation solution. And while costs per acre under EQIP are less than costs per acre under CREP, EQIP's downsides include: shorter temporary contract terms, continued fertilizer and pesticide application, and reduced benefit to wildlife habitat under dryland practices.

Projected 2005 EQIP Costs

Term	USDA Cost	RRWCD Cost	Total Cost	Acres
Permanent Retirement	$ 681,780	$691,633	$1,373,413	2,066
5-Year	204,732	177,687	382,419	1,034
3-Year	113,740	119,319	233,059	1,034
Totals	**$1,000,252**	**$988,639**	**$1,988,891**	**4,134**

CRP: CRP participation within the basin has thus far been limited to dryland acres due to the rental rates available. Fewer than 1,000 irrigated acres have opted into the program, and the water conservation practices therefore have been minimal. Rental rates throughout the basin average approximately $30 per acre, less than sufficient to attract irrigated agriculture.

Section 7: Monitoring Program

How Success of Program will be Measured

The success of the project will be measured by the level of producer participation, geographic distribution of acres that maximizes streamflow while mitigating economic impacts, and the progress toward program objectives, particularly the retirement of ground and surface water. Measuring the progress toward objectives is detailed in this section.

Description of Data to be Collected and Methods

Water quantity: Participants in the Republican River CREP will be required to provide documentation that includes a legal description and map of the formerly irrigated lands and the relevant surface water right decree or ground water well permit that supplied water to the subject lands. The acreage description and quantity will be verified through a cooperative effort between staff employed by the DWR and the RRWCD on an annual basis. Said verification will entail on-site inspection and confirmation with appropriate topographic maps and irrigated parcel information provided by the local County Assessors Office. Monitoring and verification that the participating lands that are not physically being irrigated will consist of two parts for the term of the CREP contract: (1) an annual field inspection of the diversion structures (headgates and/or ground water wells) to assure they are either locked or rendered inoperable; and (2) periodic field inspections throughout the irrigation season to verify the subject lands are not being irrigated.

The annual amount of water saved from participation in the program will be calculated as the net difference in depletions to streamflows as calculated by the Republican River Compact Administration Ground Water Model. The net savings will be provided in an annual report to the RRWCD, to the Republican River CREP Administrator, and to other interested parties upon request.

Water quality: The Northern High Plains Aquifer Studies of 2002-2004 being conducted by USGS will serve as a baseline for source-water quality assessments of basin ground water. Continued efforts of the Agricultural Chemicals and Groundwater Protection studies can be utilized in conjunction with ongoing municipal and agricultural well sampling to measure progress on nitrate and pesticide levels.

Wildlife responses: Several species of terrestrial wildlife will be inventoried annually or semi-annually within the basin. Greater Prairie Chickens will be monitored by DOW field staff in the spring of each year through lek surveys. Lek or breeding ground attendance by male Greater Prairie Chickens is a proven technique to indicate population trends in Greater Prairie Chickens. Spring crow counts document the trend of breeding male ring-necked pheasants and will be conducted where pheasant populations occur within the basin. These trends will provide an indication of species response to changes from irrigated cropland to native vegetation. Additionally, the response of Greater Prairie Chickens and ring-necked pheasants within their respective ranges will provide a general health of the respective habitat types and can be extrapolated to other species that use the same habitat, such as the long-billed curlew. Bobwhite whistle call counts are an accepted population-monitoring tool for bobwhite quail. Whistle call counts are conducted along riparian corridors where quail are known to occur. The increase or decrease of whistling males provides a trend for establishing how the population is responding to habitat enhancement. Again, these surveys can provide an indication of how other species depending on the same habitat may be reacting to the changes.

Stream surveys for several native fish species will be conducted periodically on previously surveyed segments of the various streams within the basin. The stream surveys will provide information regarding native fish population changes, changes in productivity, and species richness by documenting the number of different species using that particular stream segment. The responses of the selected fish species will provide an indication of improvements in streamflows, improvement in water quality, and overall enhancement of the aquatic habitat.

Provision of Annual Reports to Describe Monitoring Results

Annual reports will be coordinated, collected, and submitted by the CREP Administrator at a time specified by the Farm Service Agency (FSA). Annual reports will include the number of contracts that were completed in the reporting year, number of acres enrolled during reporting year, FSA rental costs, and FSA installation costs. Separate reports will articulate cash and in-kind funding that was provided through the various non-federal partners and will equal or exceed twenty percent (20%) as required by FSA. Annual reports will also be provided through the CREP coordinator that will demonstrate ground and surface water savings, provide water quality data, and wildlife population responses. Specific reporting format will be developed upon acceptance of this proposal and consultation with federal, state, and local partners.

Provision for project modifications if objectives are not met

The program will be evaluated annually by all partners to ensure the project objectives are being achieved. If the consensus of the partners is that the project objectives are not being met or that specific practices cannot meet the initial stated objectives, the practices and program will be amended, with FSA concurrence, to ensure all objectives are being met to the fullest extent possible.

Section 8: Public Outreach and Support

Phase I – Information Gathering and Assessment of Public Support

CREP has been generally regarded as a favorable alternative by the public. Since the legislative creation of the RRWCD in June 2004, RRWCD representatives and state staff have conducted public meetings throughout the basin to discuss water resource issues, including CREP.

- July 12, 2004, Eckley, CO
- July 20, Idalia, CO
- July 26, Phillips County Fair
- July 30, Sedgwick County Fair
- August 5, Kit Carson County Fair
- August 6, Washington County Fair
- August 10, Yuma County Fair
- August 10, Inaugural Meeting of the RRWCD, Wray
- August 12, Lincoln County Fair
- August 13, Logan County Fair
- August 17, Special Meeting of the RRWCD, Yuma
- August 20, Progressive 15, Akron
- September 24, Special Meeting of the RRWCD, Yuma
- September 25, Ogallala Commons, Wray
- September 27, Colorado Farm Bureau, Yuma
- October 8, Kit Carson County Farm Bureau, Burlington
- October 12, Special Meeting of the RRWCD, Yuma
- October 14, Special Meeting of the RRWCD, Wray
- October 22, Progressive 15, Akron
- November 8, Yuma County Farm Bureau, Yuma
- December 1, Special Meeting of the RRWCD, Yuma
- December 7, Ground Water Management Districts, Wray
- January 11, 2005, Special Meeting of the RRWCD, Yuma
- January 13, Quarterly Meeting of the RRWCD, Yuma
- February 22, Special Meeting of the RRWCD, Yuma
- March 3, Special Meeting of the RRWCD, Yuma – review of CREP draft
- March 15, State Technical Committee Meeting, Lakewood
- March 23, Republican River Watershed Association & Yuma County Conservation District, Wray
- March and April, eight informational meetings in basin to solicit feedback and support of CREP draft
- April 14, Quarterly Meeting of the RRWCD, Yuma
- May 19, Eastern District Elected Officials, Akron

Information has also been disseminated by mail (see Exhibit P) and the Internet at www.republicanriver.com and http://www.water.state.co.us/wateradmin/RepublicanRiver.asp. Support letters from various groups are provided as a supplement to this proposal (referenced in Exhibit Q).

Phase II – CREP Rollout

The Republican River CREP will be announced and promoted through five county newspapers. CSU Cooperative Extension will provide information at each of its local offices. State staff and RRWCD representatives plan to schedule one meeting in each county with area producers. The RRWCD office in Yuma will be available during business hours to assist producers and will work with NRCS and FSA field offices.

Phase III – Ongoing Support

- CREP will continue to be a topic for quarterly and special RRWCD meetings;
- Newspaper and radio press releases will be offered throughout the basin to inform producers of continuous signup opportunities and of upcoming public meetings;
- DWR and CSU Cooperative Extension will maintain websites providing updated CREP information;
- The RRWCD office will provide a 40-hour weekly central location for producers seeking technical assistance on CREP;
- As evidenced during 2004, state and RRWCD will be available to speak at community functions, when invited.

Section 9: Compliance with Other Laws

This proposal is designed to improve and protect the natural environment through incentive-based programs. This proposal is in compliance with the National Environmental Policy Act, the Endangered Species Act, and all other applicable local, state, and federal regulations.

Exhibit A

Conservation Priority Areas in Colorado

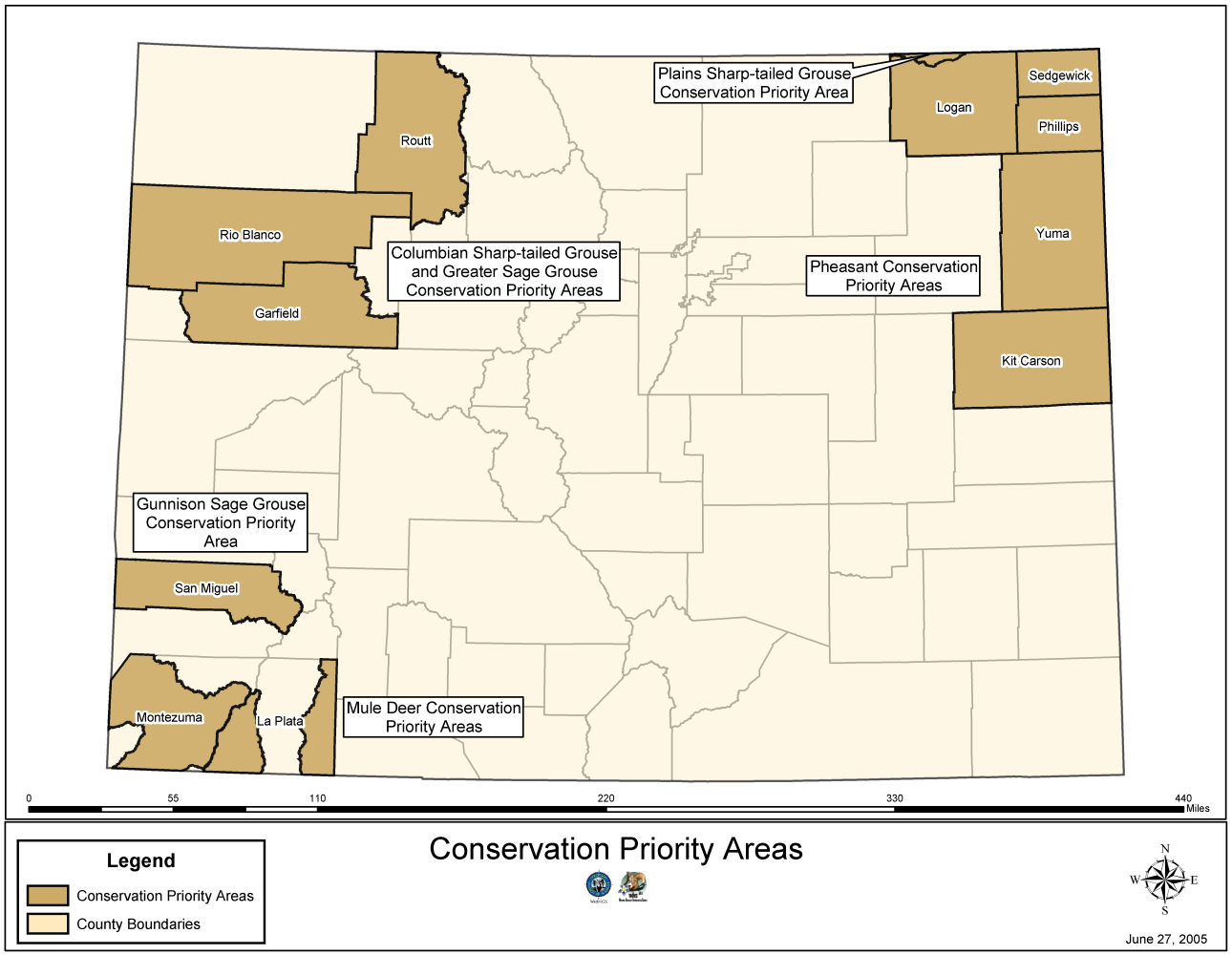


Exhibit B

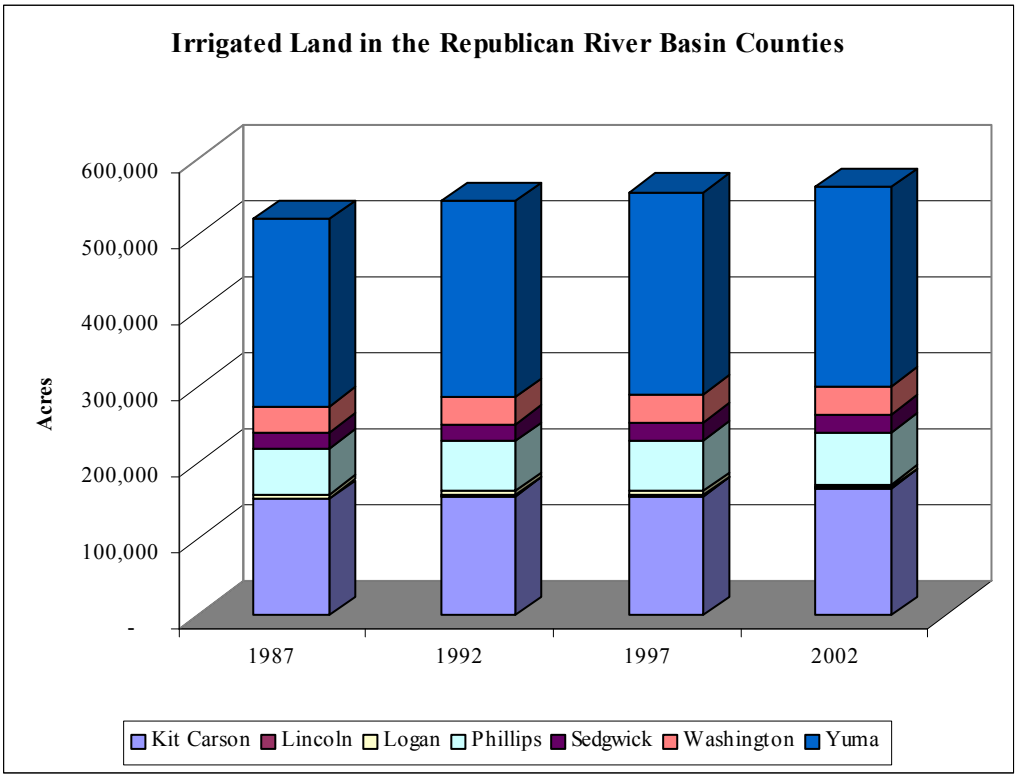
Total Acres Irrigated in the Republican River Basin

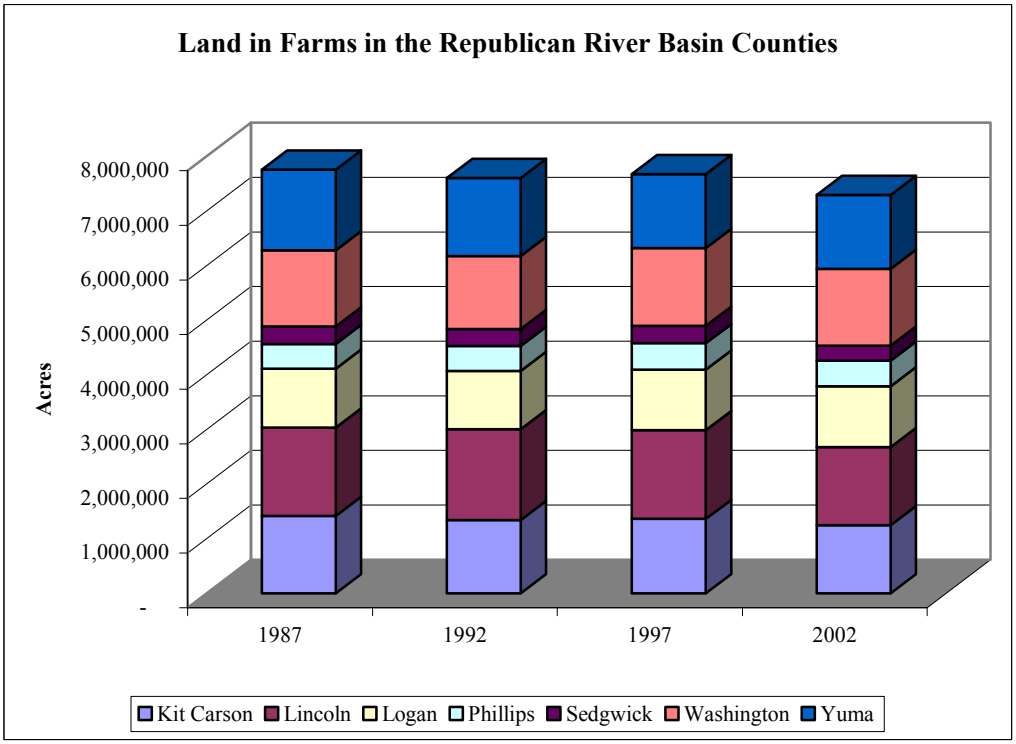
Data for 1956-2003 (acres)

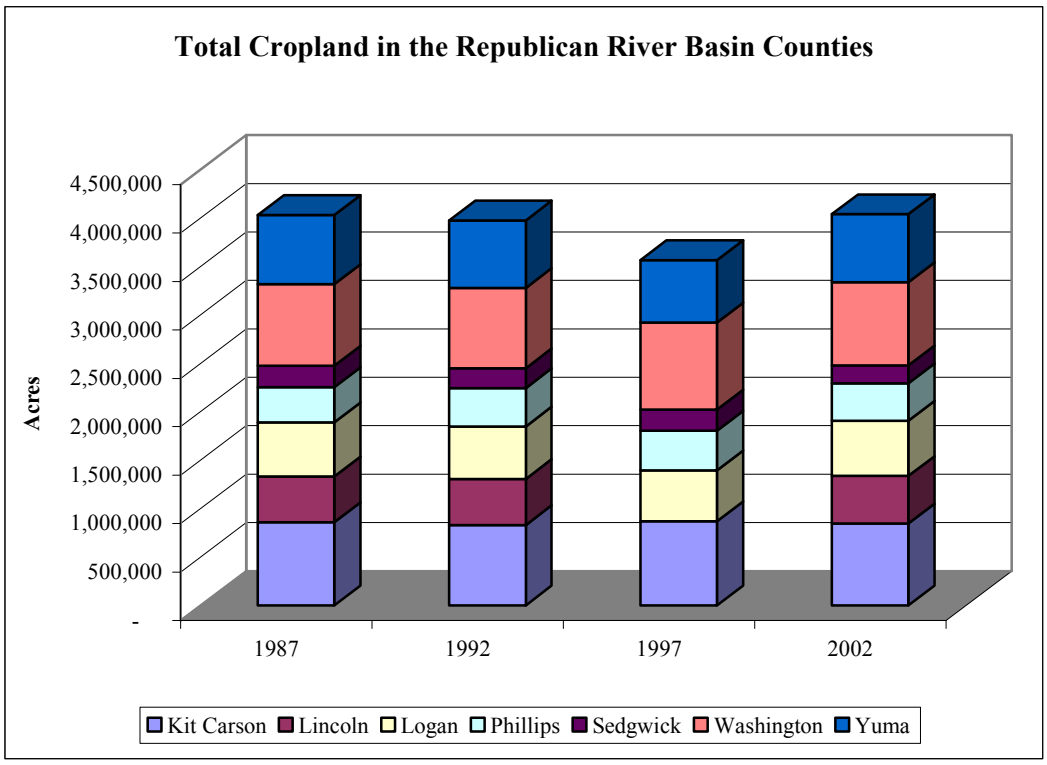
Year	Kit Carson	Lincoln	Logan	Phillips	Sedgwick	Wash-ington	Yuma	Total Acres all Sources
1956	20,151	313	104	2,524	475	3,090	15,055	41,712
1957	22,736	313	223	2,709	656	3,454	16,627	46,718
1958	23,643	353	223	2,821	656	3,514	17,355	48,565
1959	25,833	353	223	2,925	656	3,642	17,519	51,151
1960	27,591	353	223	3,214	656	3,722	18,146	53,905
1961	31,017	353	223	3,567	656	3,977	19,196	58,989
1962	37,038	353	223	3,708	656	4,101	21,000	67,079
1963	51,617	353	341	4,454	863	4,653	22,925	85,206
1964	70,135	447	341	8,448	863	5,240	31,921	117,395
1965	91,263	511	341	12,289	863	7,252	48,464	160,983
1966	102,129	511	341	16,145	863	8,918	68,734	197,641
1967	113,455	511	341	26,026	1,252	12,931	104,437	258,953
1968	119,956	513	846	29,344	2,379	15,740	123,733	292,511
1969	127,507	579	965	36,705	3,760	17,694	154,619	341,829
1970	133,045	632	965	41,077	3,968	18,397	161,834	359,918
1971	137,162	702	965	43,566	4,538	20,637	167,133	374,703
1972	140,563	755	1,187	45,174	5,116	21,733	179,451	393,979
1973	150,588	808	1,679	48,769	7,560	25,386	197,857	432,647
1974	160,311	954	3,506	58,635	16,010	28,441	220,025	487,882
1975	163,583	1,279	4,270	61,746	20,332	33,190	239,173	523,573
1976	164,745	1,279	4,496	65,070	22,368	35,174	257,263	550,395
1977	165,005	1,422	4,733	65,917	22,645	35,637	260,610	555,969
1978	165,582	1,422	4,733	66,284	22,783	36,485	263,457	560,746
1979	165,769	1,422	4,733	67,352	22,921	36,537	265,945	564,679
1980	165,769	1,422	4,733	67,467	22,921	36,641	266,554	565,507
1981	165,769	1,422	4,733	67,608	22,921	36,641	266,554	565,648
1982	156,817	1,345	4,477	63,957	21,683	34,662	252,439	535,380
1983	128,139	1,099	3,659	53,002	17,718	28,323	206,274	438,214
1984	139,080	1,193	4,071	56,374	19,231	30,742	224,397	475,088
1985	140,738	1,207	4,283	57,060	19,460	31,108	227,110	480,966
1986	135,931	1,166	4,185	55,138	18,795	30,046	219,352	464,613
1987	152,010	1,304	4,680	61,308	21,019	33,600	245,300	519,221
1988	153,005	1,313	4,711	61,350	21,156	33,820	246,905	522,260
1989	165,769	1,482	5,104	66,597	22,921	36,641	267,609	566,123
1990	146,527	1,245	5,002	65,534	22,670	34,341	261,386	536,705
1991	155,751	1,482	4,900	65,037	22,459	35,716	254,402	539,747
1992	155,705	1,482	4,954	65,525	22,505	35,517	257,360	543,048
1993	161,287	1,482	4,950	62,884	22,421	35,948	252,914	541,886
1994	159,745	1,482	5,052	68,110	22,732	36,410	261,084	554,615
1995	158,287	1,482	4,998	67,944	22,562	36,166	261,274	552,713
1996	160,650	1,476	5,063	67,880	22,775	36,553	263,358	557,755
1997	155,651	1,482	4,771	67,942	22,869	36,052	265,246	554,013
1998	159,599	1,482	4,998	67,671	22,894	36,259	266,860	559,763
1999	160,831	1,482	5,004	68,187	22,921	36,492	267,148	562,065
2000	163,465	1,482	5,034	67,648	22,921	36,414	264,141	561,105
2001	165,765	1,482	5,104	67,652	22,921	36,641	263,157	562,722
2002	165,880	1,482	5,104	67,100	22,921	36,641	263,706	574,212
2003	165,753	1,482	5,104	67,489	22,921	36,641	261,881	561,271
Avg	128,091	1,041	3,144	47,186	14,371	25,574	187,060	406,704

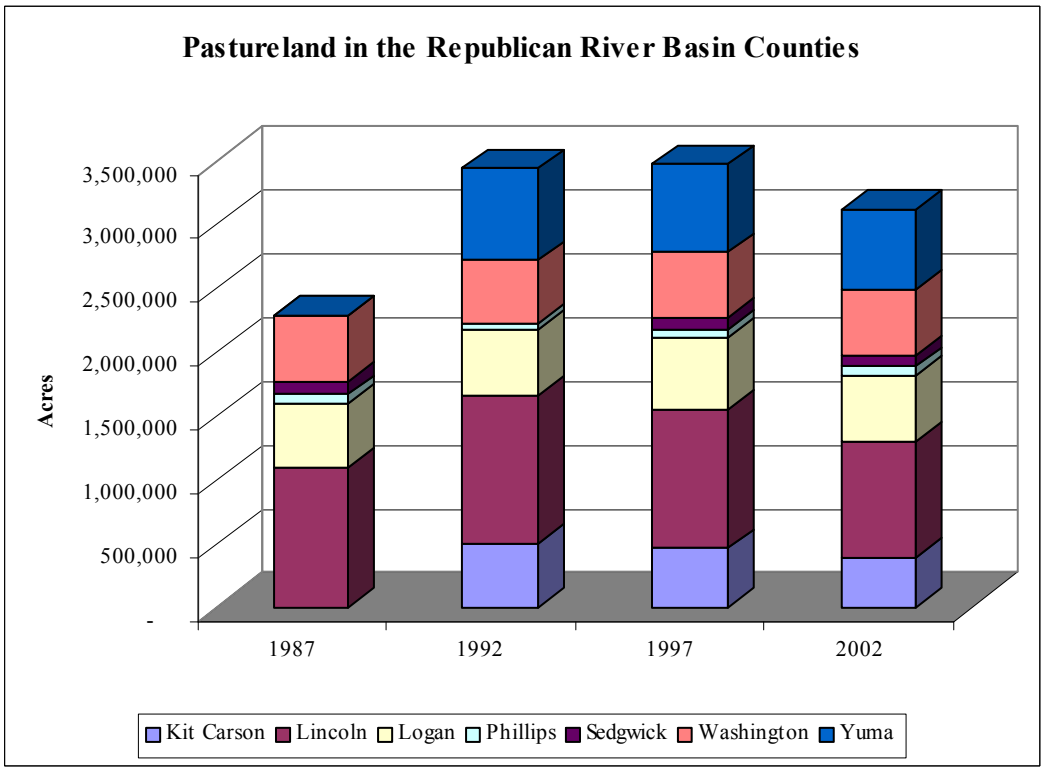
Exhibit C

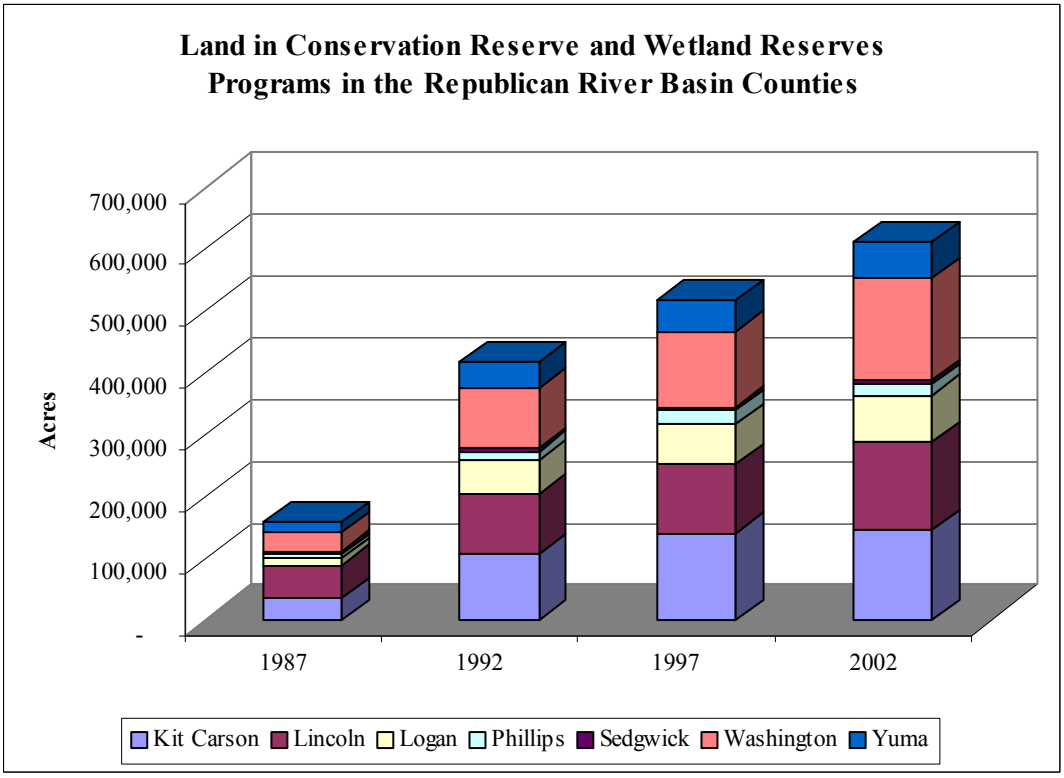
All graphs depict Republican River Basin agriculture, and thus include the CRP-capped counties of Lincoln and Washington.






Total Cropland in the Republican River Basin Counties
Acres
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
1987
1992
1997
2002
Kit Carson
Lincoln
Logan
Phillips
Sedgwick
Washington
Yuma


Pastureland in the Republican River Basin Counties
Acres
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
-
1987
1992
1997
2002
Kit Carson
Lincoln
Logan
Phillips
Sedgwick
Washington
Yuma


Land in Conservation Reserve and Wetland Reserves Programs in the Republican River Basin Counties
Acres
700,000
600,000
500,000
400,000
300,000
200,000
100,000
-
1987
1992
1997
2002
Kit Carson
Lincoln
Logan
Phillips
Sedgwick
Washington
Yuma

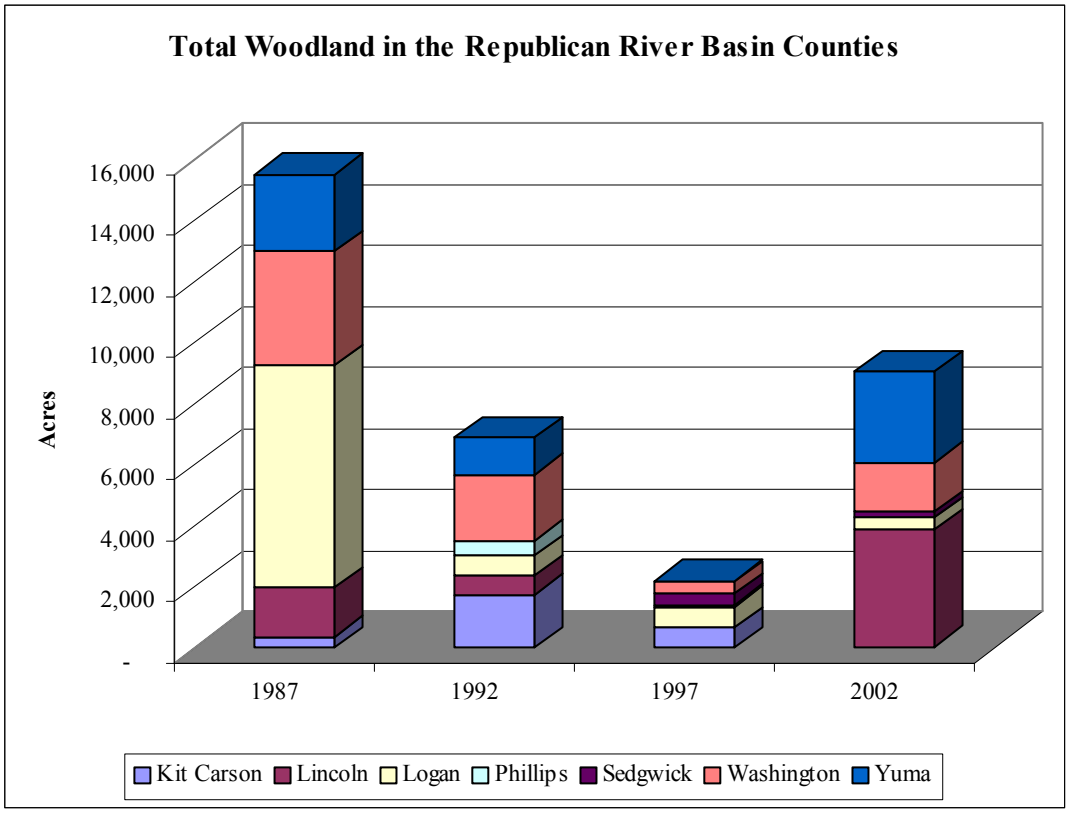

Total Woodland in the Republican River Basin Counties
Acres
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
1987
1992
1997
2002
Kit Carson
Lincoln
Logan
Phillips
Sedgwick
Washington
Yuma

Exhibit D

Farm Demographics for All Farms in Seven Counties

			Farms in:							
	Farms	Average Size (Acres)	Total Cropland	Harvested Cropland	Pasture/ Grazing	Other Cropland	Idle Cropland	Failed Crops	Summer Fallow	Rangeland
Kit Carson	678	1,840	544	356	83	484	253	230	303	376
Lincoln	455	3,139	316	176	72	272	154	130	130	308
Logan	930	1,195	728	542	172	529	248	239	276	542
Phillips	334	1,410	292	249	48	242	89	111	175	125
Sedgwick	188	1,459	162	143	37	122	37	48	97	85
Washington	861	1,636	687	455	109	599	346	232	346	464
Yuma	864	1,567	630	463	141	462	213	166	281	519
Total	4,310	1,693	3,359	2,384	662	2,710	1,340	1,156	1,608	2,419

Source: 2002 Census of Agriculture - County Data; USDA National Agricultural Statistics Service

Planted Irrigated Crop Mix within Republican River Basin, by County

	Total Acres	Barley	Beans	Corn Grain	Corn Silage	Hay-All	Oats	Sorghum	Sugarbeets	All Wheat
Kit Carson	165,753	442	12,885	102,896	5,379	8,068	1,405	783	361	33,536
Lincoln	1,482	0	51	405	68	518	51	167	0	221
Logan	5,104	0	138	2,518	199	1,527	64	6	316	336
Phillips	67,489	120	6,543	50,651	764	1,976	499	225	3,568	3,144
Sedgwick	22,921	122	1,906	14,963	489	2,622	299	85	792	1,643
Washington	36,641	121	2,158	17,314	2,146	6,378	1,881	362	1,157	5,124
Yuma	261,881	95	24,300	197,087	2,687	17,610	1,406	262	4,482	13,951
Total	561,271	900	47,981	385,834	11,732	38,699	5,605	1,890	10,676	57,955

Source: 2002 Census of Agriculture - County Data; USDA National Agricultural Statistics Service

Exhibit E

Beneficial Practices for Republican River Species Watershed for WHIP/ EQIP

Compiled by Casey Veatch, Private Land Wildlife Biologist, NRCS/CDOW

January-04

Species	Habitat	Status	Taxa	Suggested Practices
Long-billed Curlew	Midgrass / Riparian / Wetland	SC	Bird	338, 342, 356, 390, 393, 472, 528, 550, 587, 643, 644, 646, 647, 657, 658, 659
Mountain Plover	Prairie / Cropland	SC	Bird	338, 382, 472, 528, 550, 595, 643, 645
Bald Eagle	Riparian	FE	Bird	390, 391, 393, 395, 472, 528, 580, 612, 643, 644, 645
Plains Minnow	Riparian	SE	Fish	382, 390, 391, 393, 395, 472, 528, 580, 584, 612, 643
Sucker Mouth Minnow	Riparian	SE	Fish	382, 390, 391, 393, 395, 472, 528, 580, 584, 612, 643
Brassy Minnow	Riparian	ST	Fish	382, 390, 391, 393, 395, 472, 528, 580, 584, 612, 643
Plains Orangethroat Darter	Riparian	SC	Fish	382, 390, 391, 393, 395, 472, 528, 580, 584, 612, 643
Stonecat	Riparian	SC	Fish	382, 390, 391, 393, 395, 472, 528, 580, 584, 612, 643
White Faced Ibis	Riparian / Wetland	SC?	Bird	338, 342, 356, 390, 393, 472, 528, 550, 587, 643, 644, 646, 647, 657, 658, 659
Least Tern	Riparian / Wetland	FT	Bird	338, 342, 356, 390, 393, 472, 528, 550, 587, 643, 644, 646, 647, 657, 658, 659
American White Pelican	Riparian / Wetland	SC?	Bird	390, 391, 393, 395, 472, 528, 580, 612, 643, 644, 645
Osprey	Riparian / Wetland	SC?	Bird	390, 391, 393, 395, 472, 528, 580, 612, 643, 644, 645
Yellow Mud Turtle	Riparian / Wetland	SC	Reptile	356, 382, 390, 393, 472, 528, 580, 584, 587, 643, 644, 657, 658, 659
Common Garter Snake	Riparian / Wetland	SC	Reptile	356, 382, 390, 393, 472, 528, 580, 584, 587, 643, 644, 657, 658, 659
Plains Leopard Frog	Riparian / Wetland	SC	Amphibian	356, 382, 390, 393, 472, 528, 580, 584, 587, 643, 644, 657, 658, 659
Northern Leopard Frog	Riparian / Wetland	SC	Amphibian	356, 382, 390, 393, 472, 528, 580, 584, 587, 643, 644, 657, 658, 659
Northern Cricket Frog	Riparian / Wetland	SC	Amphibian	356, 382, 390, 393, 472, 528, 580, 584, 587, 643, 644, 657, 658, 659
Lesser Prairie Chicken	Short / Midgrass Prairie	ST	Bird	314, 340, 342, 382, 472, 528, 550, 612, 643, 645
Swift Fox	Short Grass Prairie	SC	Mammal	314, 382, 472, 528, 550, 643, 645
Burrowing Owl	Short Grass Prairie	ST	Bird	382, 472, 528, 595, 643, 645
Ferruginous Hawk	Short Grass Prairie	SC	Bird	314, 382, 472, 528, 550, 643, 645
Massassauga Rattle Snake	Short Grass Prairie	SC	Reptile	382, 472, 528, 595, 643, 645
Piping Plover	Wetland	FT	Bird	338, 382, 472, 528, 550, 595, 643, 645

KEY

FE = Federally Endangered

FT = Federally Threatened

SC = State Concern

ST = State Threatened

SE = State Endangered

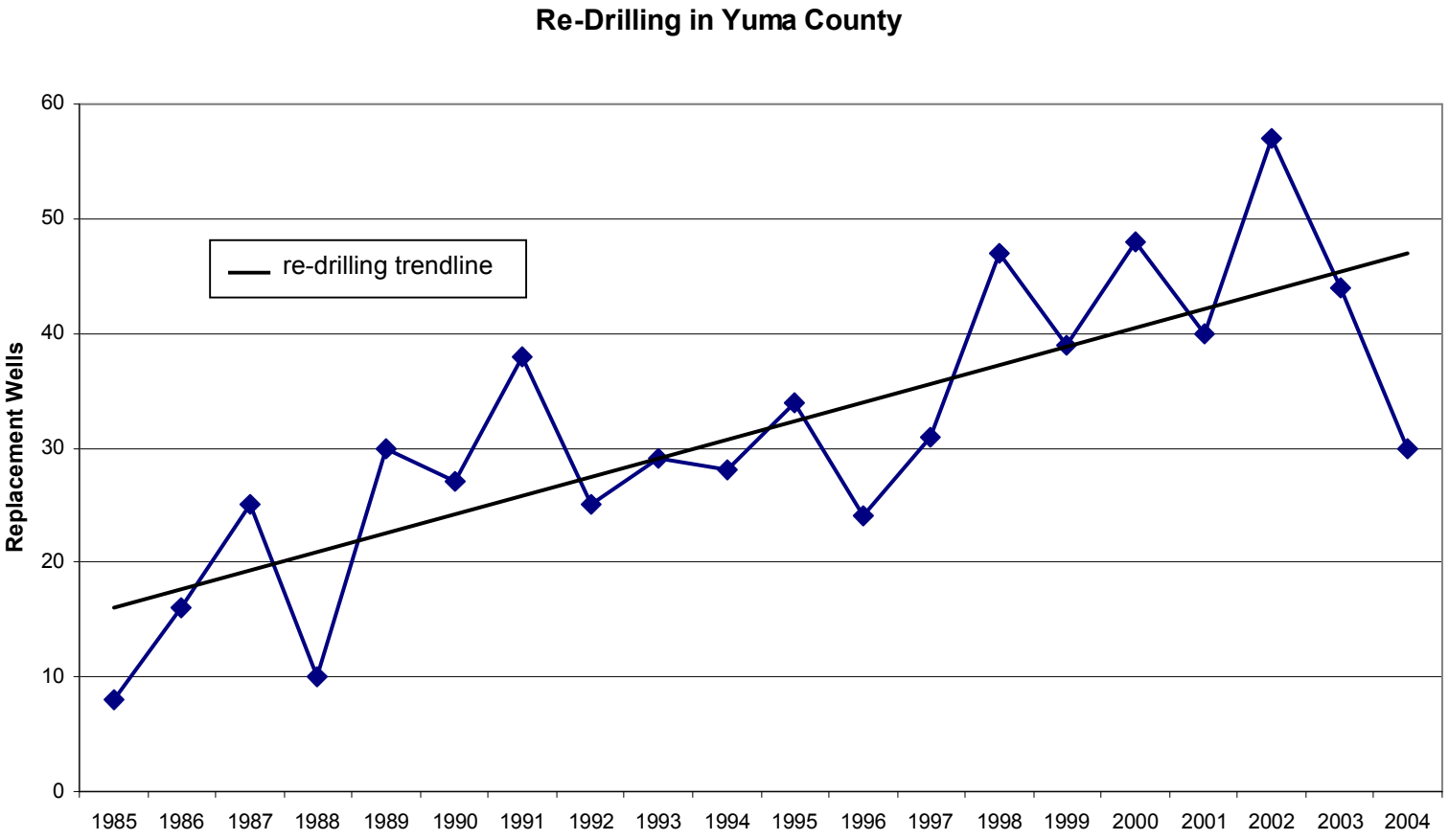
Exhibit F

Recent Re-Drilling throughout Republican River Basin

Permit Date	Original Depth'	Redrilled Depth'	Added Depth'	County
8/1/2002	100	230	130	Yuma
8/6/2002	40	70	30	Kit Carson
9/4/2002	190	335	145	Kit Carson
9/6/2002	178	300	122	Phillips
9/10/2002	220	212	-8	Kit Carson
9/17/2002	33	85	52	Yuma
9/17/2002	76	360	284	Yuma
9/19/2002	300	330	30	Logan
9/23/2002	270	330	60	Sedgwick
9/25/2002	80	100	20	Yuma
10/1/2002	140	115	-25	Logan
10/2/2002	260	390	130	Sedgwick
10/4/2002	134	300	166	Yuma
10/8/2002	300	310	10	Yuma
10/12/2002	300	300	0	Kit Carson
10/16/2002	88	300	212	Yuma
10/21/2002	68	260	192	Yuma
10/21/2002	200	197	-3	Kit Carson
10/31/2002	175	200	25	Yuma
11/20/2002	100	140	40	Yuma
11/20/2002	60	120	60	Yuma
11/20/2002	60	220	160	Yuma
11/21/2002	64	320	256	Yuma
11/25/2002	140	170	30	Lincoln
12/10/2002	133	360	227	Yuma
12/16/2002	300	332	32	Kit Carson
4/25/2003	115	240	125	Yuma
10/14/2003	166	170	4	Kit Carson
2/12/2004	130	300	170	Yuma
5/12/2004	180	210	30	Kit Carson
5/21/2004	130	140	10	Yuma
Averages	**152.6**	**240.2**	**87.6**	

All replacement wells for which DWR was provided depth information.

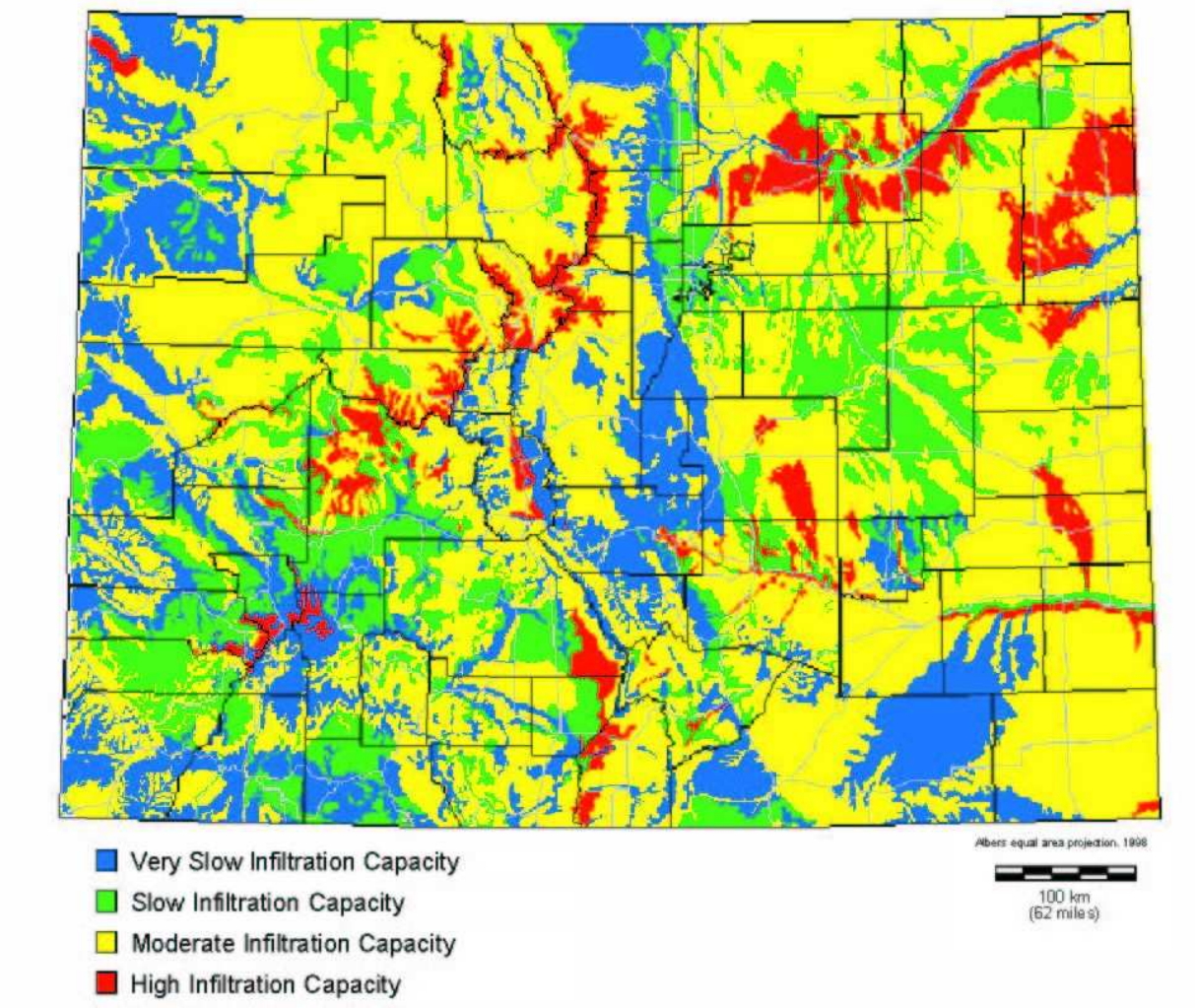
Exhibit G



(2004 decline due in part to application fee increase from $60 to $440)

Exhibit H

Aquifer Sensitivity in Colorado



Source: Status of Implementation of Senate Bill 90-126
The Agricultural Chemicals and Groundwater Protection Act
Annual Report for 2003

Exhibit I

Reduced Chemical Application

Reduced irrigated acreage is estimated in Table I-1 by examining the composition of major irrigated crop acres in the seven counties making up the Republican River Water Conservation District (RRWCD). Irrigated crop acreage values were gathered from the 2004 Colorado Agricultural Statistics bulletin. By applying each crop's percentage to the estimated 30,000 reduced irrigated acres in the proposal, we arrive at an estimate of reduced acres for each major crop in the basin. For simplicity, the 5,000 reduced dryland acres in this example are assumed to currently be in dryland wheat production.

Table I-1. Irrigated Acres by Commodity in Republican River Basin Counties (All Inclusive) *

	Beans	Corn	Hay	Sugarbeets	Wheat	Total
Total Acres, RRWCD Counties	34,500	482,700	95,300	17,930	49,500	679,930
% of Total	5.07%	70.99%	14.02%	2.64%	7.28%	4.41%
Estimated Reduced Acres	1,522	21,298	4,205	791	2,184	30,000

* Acreage numbers are from Colorado Ag Statistics 2004 and are whole county values. Counties not entirely encompassed by the RRWCD may somewhat skew the actual percentage breakdown of irrigated acreage in the Republican River basin.

Table I-2 represents typical nitrogen and phosphorus fertilizer application rates in pounds per acre for each of the five major crops represented in the basin. Multiplying these values times the estimated reduced acres in Table I-1 for each crop estimates reduced fertilizer usage over the 35,000 acres in the proposal, shown in Table I-3.

Table I-2. Typical Fertilizer Application by Crop (Pounds/Acre)

	Beans	Corn	Hay	Sugarbeets	Irrigated Wheat	Dryland Wheat
Nitrogen	75	200	20	140	100	40
Phosphorus	15	30	5	35	30	20

Table I-3. Estimated Reduced Fertilizer Use in Republican River Water Conservation District

Nitrogen by Crop (Pounds)

	Beans	Corn	Hay	Sugarbeets	Irrigated Wheat	Dryland Wheat	Total
N Applied	114,166	4,259,556	84,097	110,756	218,405	200,000	4,986,980

Phosphorus by Crop (Pounds)

	Beans	Corn	Hay	Sugarbeets	Irrigated Wheat	Dryland Wheat	Total
P Applied	22,833	638,933	21,024	27,689	65,521	100,000	876,001

Estimating reduced chemical usage in the basin is more difficult because of the broad spectrum of available agricultural chemicals and land management practices. By focusing on one typical production practice for Corn and Wheat systems in the basin, totaling approximately 78 percent of the irrigated land area in this example, we can make a reasonable representation of expected reductions in agricultural chemical usage within the basin.

Assuming the use of Roundup Ready™ corn, a typical irrigated cornfield would receive an application of 1/2 lb/acre of Atrazine and two applications of Roundup™ at a rate of 26 ounces per acre. An application of Lorsban™ insecticide to control Western Bean cutworm would also be typical at a rate of 24 ounces per acre. By multiplying these application rates times the 21,298 acres projected corn acres, estimated reductions in agricultural chemical usage for irrigated corn are represented in Table I-4. Active ingredient concentrations used for these calculations are 40.8%, 48.8%, and 15% for Atrazine, Roundup™, and Lorsban™ respectively.

Table I-4. Estimated Reduced Agricultural Chemical Usage in Irrigated Corn

	Irrigated Acres	Rate (Pounds per Acre)	Total (Pounds Active Ingredient)
Atrazine	21,298	0.50	4,345
Roundup ™	21,298	3.25	33,779
Lorsban ™	21,298	1.50	4,792

A typical herbicide program in a winter wheat production system would include the use of 3 applications of Roundup™ herbicide at a rate of 26 ounces per acre, 0.2 ounces of Ally®, and 4 ounces of Banvel®. Table I-5 below estimates the reduced levels of these agricultural chemicals on both irrigated and dryland winter wheat acres within the basin. Active ingredient concentrations used for these calculations are 48.8 %, 71.75 %, and 48.2 % for Roundup™, Ally®, and Banvel® respectively.

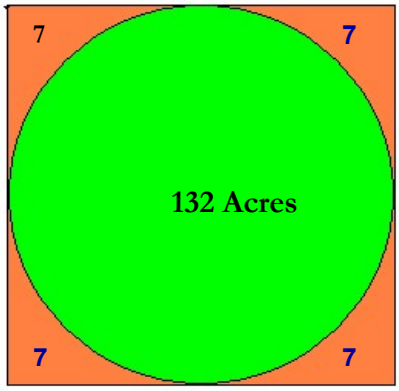
Table I-5. Estimated Reduced Agricultural Chemical Usage in Winter Wheat

	Irrigated Acres	Dryland Acres	Rate (Pounds per Acre)	Total (Pounds Active Ingredient)
Roundup ™	2,184	5,000	4.88	17,091
Ally®	2,184	5,000	0.01	64
Banvel®	2,184	5,000	0.25	866

Exhibit J

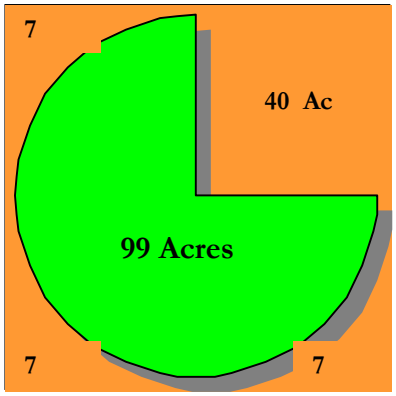
Examples of Groundwater Pivot Irrigated and Associated Dryland Acre Allocation

Example 1



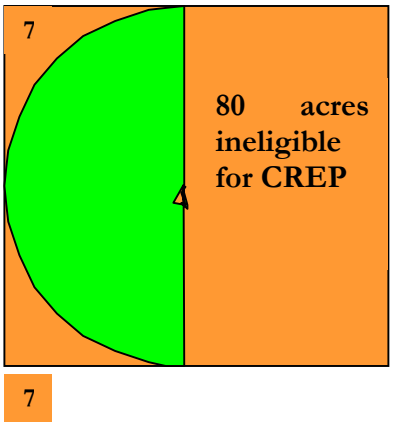
132 acres (circle) enrolled under CREP @ irrigated rental rate
28 acres (corners) enrolled under CREP @ dryland rental rate
All 160 acres retired for 14- or 15-year period.
Water retired permanently on entire circle (132 acres).

Example 2



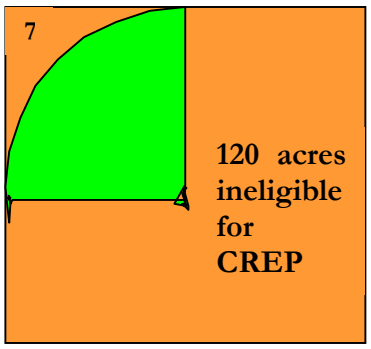
99 acres (3/4 circle) enrolled under CREP@ irrigated R.R.
21 acres (3 corners) eligible dryland corners @ dryland R.R.
All 120 acres retired for 14- or 15-year period.
Water retired permanently on ¾ of circle (99 acres).

Example 3



66 acres (circle) enrolled under CREP @ irrigated rental rate
14 acres (corners) enrolled under CREP @ dryland rental rate
All 80 acres retired for 14- or 15-year period.
Water retired permanently on entire circle (66 acres).

Example 4



33 acres (3/4 circle) enrolled under CREP@ irrigated R.R.
7 acres (3 corners) eligible dryland corners @ dryland R.R.
All 40 acres retired for 14- or 15-year period.
Water retired permanently on ¼ of circle (33 acres).

Exhibit K

Irrigation Ground Water Pumping

Data for 1951-2003
(acre-feet)

	County (or portion of County in the Republican River Basin study area)								
Year	Cheyenne	Kit Carson	Lincoln	Logan	Phillips	Sedgwick	Wash'ton	Yuma	Total
1951	657	3,530	413	119	1,499	393	3,084	3,687	13,381
1952	812	6,085	671	246	4,011	786	4,701	8,346	25,657
1953	1,011	6,214	611	195	3,447	601	4,810	9,454	26,344
1954	1,051	13,042	784	202	4,059	634	6,162	12,774	38,708
1955	1,333	26,518	658	192	4,150	626	4,772	14,949	53,198
1956	1,666	43,509	780	229	5,465	1,033	6,468	22,658	81,810
1957	995	28,703	458	448	5,428	1,314	5,536	20,957	63,840
1958	710	30,830	462	348	4,549	900	6,143	20,359	64,301
1959	971	54,029	818	453	5,822	1,306	7,144	27,112	97,655
1960	1,128	49,258	645	463	6,379	1,315	7,451	23,643	90,280
1961	915	51,235	607	385	5,887	1,063	6,200	21,379	87,670
1962	1,238	53,119	590	350	5,553	1,018	7,087	17,802	86,757
1963	1,739	90,195	760	669	8,531	1,516	8,142	31,402	142,955
1964	2,327	128,057	918	756	17,763	1,840	9,952	52,460	214,072
1965	2,629	79,177	465	445	15,726	1,084	10,071	45,796	155,392
1966	3,377	160,578	883	506	22,720	1,156	14,361	71,514	275,096
1967	3,432	162,145	714	450	34,478	1,633	18,453	140,832	362,136
1968	4,673	200,789	879	1,618	55,275	4,144	25,419	171,566	464,364
1969	3,855	217,235	987	1,650	60,586	6,036	26,951	214,388	531,687
1970	5,414	238,044	1,153	1,958	77,409	7,327	29,001	241,444	601,750
1971	7,498	251,994	1,218	1,496	64,756	6,585	34,291	262,906	630,744
1972	7,771	215,985	1,090	1,712	66,478	6,928	31,036	241,578	572,578
1973	9,375	249,910	1,179	2,719	76,559	11,381	35,733	222,736	609,592
1974	16,136	318,142	1,741	7,209	121,353	30,994	53,660	379,603	928,841
1975	16,406	279,214	2,149	7,653	111,690	34,399	49,321	379,806	880,637
1976	17,982	327,184	2,447	9,008	134,332	42,275	59,376	413,761	1,006,366
1977	19,077	276,786	2,086	7,944	114,881	37,176	69,820	391,287	919,057
1978	19,111	268,665	2,335	10,002	145,711	47,230	58,075	481,592	1,032,720
1979	17,537	220,335	1,645	7,197	108,541	35,062	47,878	395,880	834,075
1980	17,366	242,341	2,098	8,771	124,971	42,170	58,604	359,226	855,547
1981	16,327	267,430	2,121	7,307	107,720	35,311	54,387	384,493	875,095
1982	15,173	197,303	1,577	5,482	81,667	26,879	44,180	289,879	662,140
1983	15,981	166,619	1,662	6,365	92,464	29,739	43,586	297,601	654,018
1984	15,921	223,180	2,133	7,762	105,648	34,980	42,459	385,955	818,038
1985	15,222	183,243	1,573	7,597	104,107	31,752	43,098	297,449	684,041
1986	14,411	215,422	1,981	7,336	97,916	31,091	48,978	303,932	721,068
1987	14,958	199,056	1,817	7,063	98,273	31,861	43,633	359,610	756,272
1988	14,238	229,656	2,078	7,714	105,790	34,816	53,799	399,674	847,765
1989	12,171	221,493	2,087	6,328	84,302	28,674	49,655	306,492	711,200
1990	13,265	220,199	1,955	7,480	101,756	34,332	42,771	321,674	743,429
1991	14,083	200,534	1,925	6,880	101,154	32,998	56,641	256,216	670,431
1992	15,149	209,467	2,104	6,517	88,943	29,762	50,440	293,819	696,201
1993	17,676	207,359	1,955	5,198	68,726	23,721	48,873	280,873	654,381
1994	16,634	223,428	2,099	9,029	127,363	40,643	71,956	336,040	827,191
1995	15,428	191,773	1,773	6,759	95,852	31,219	44,551	293,091	680,446
1996	15,117	210,012	1,913	3,588	48,935	17,285	42,723	254,962	594,535
1997	14,854	209,768	1,988	7,107	102,442	33,905	51,579	300,205	721,848
1998	15,656	195,891	1,782	6,806	87,616	30,780	59,847	346,211	744,589
1999	15,592	185,316	1,779	5,789	77,893	25,923	38,466	292,790	643,547
2000	19,481	265,951	2,548	10,000	126,036	42,869	65,020	369,883	901,788
2001	16,398	290,447	2,718	7,471	98,493	32,712	56,367	371,791	876,396
2002	19,186	302,795	3,019	8,031	108,084	36,307	68,473	360,736	906,631
2003	19,000	260,357	2,289	8,339	118,187	37,820	55,424	389,063	890,479
Avg	10,379	176,784	1,493	4,478	68,818	20,100	35,596	230,063	547,712
94-03 Avg	16,734	233,574	2,191	7,292	99,090	32,946	55,440	331,477	778,745

Exhibit L

Proportionate Allocation of Irrigated Acres

County	Irrigated Acres in Basin	% Irr. Acres in Basin	Proportioned Acres
Kit Carson	165,753	31.7%	9,505
Logan	5,104	1.0%	293
Phillips	67,489	12.9%	3,870
Sedgwick	22,921	4.4%	1,314
Yuma	261,881	50.1%	15,018
Total	**523,148**	**100.0%**	**30,000**

Proposal recommends that no county exceed its proportioned acres in first year. Lincoln and Washington counties could obtain acres only upon expiration of existing CRP contracts and with amendment to conservation priority areas.

Exhibit M

RESOLUTION OF THE GOVERNING
BODY OF THE REPUBLICAN RIVER
WATER CONSERVATION DISTRICT WATER ACTIVITY ENTERPRISE
(To Provide Local Funding for the Conservation Reserve Enhancement Program)

RESOLUTION NO. 05-06

WHEREAS, the Republican River Water Conservation District ("District") was created pursuant to § 37-50-103(1), C.R.S., among other purposes, to cooperate with and assist the State of Colorado to carry out the State's duty to comply with the limitations and duties imposed upon the State by the Republican River Compact; and

WHEREAS, pursuant to § 37-50-107(1)(k), C.R.S., the District has established a water enterprise pursuant to Article 45.1 of Title 37 of the Colorado Statutes ("Enterprise"); and

WHEREAS, the Board of Directors of the District ("Board") is the governing body of the Water Activity Enterprise ("Governing Body"); and

WHEREAS, the Board, acting as the Governing Body of the Enterprise, adopted Resolution No. 04-01 to establish an annual use fee on the diversion of water within the District, which, as amended, provides revenues to the Enterprise that can be used to assist the State of Colorado in complying with the limitation and duties imposed upon the State by the Republican River Compact; and

WHEREAS, the State of Colorado seeks to obtain federal funds through the United States Department of Agriculture (USDA) for the purpose of encouraging some farmers in the Republican River Basin to enroll in a voluntary Conservation Reserve Enhancement Program (CREP); and

WHEREAS, CREP would provide incentives, cost sharing, and annual rental payments to participants who enter irrigated land into eligible conservation practices such as native vegetation establishment or wildlife preservation for a period of 14 or 15 years; and

WHEREAS, the proposed Republican River Basin CREP would enable producers enrolled in the program to forego irrigation for the term of the contract, convert those acres to grass or other native vegetation, and receive financial and technical assistance; and

WHEREAS, a reduction of irrigated acreage in the Republican River Basin would assist the State of Colorado in complying with the limitations and duties imposed upon the State by the Republican River Compact; and

WHEREAS, providing incentives, cost sharing, and annual rental payments through programs such as CREP will provide vital assistance in helping sustain water resources in the Republican River Basin without disastrously impacting the local economy and social fabric in the basin; and

WHEREAS, the Governing Body is willing to commit to provide necessary non-federal funding for the proposed Republican River Basin CREP under certain conditions.

RESOLUTION

NOW, THEREFORE, be it resolved by the Board, acting as the Governing Body of the Enterprise, as follows:

1. The Enterprise hereby commits to provide an amount up to but not to exceed 20% percent of the necessary non-federal funding for the proposed Republican River Basin CREP under the following conditions:

A. The program would be limited to 30,000 acres in the Republican River Basin;

B. The program contracts would be for 14 or 15 years;

C. The program would provide incentives, cost sharing, and annual rental payments to participants to convert irrigated acres in the Republican River Basin to grass or native vegetation that would not be irrigated during the term of the contracts, except as permitted to establish grass or native vegetation;

D. The funding provided by the Enterprise can be structured in a manner to provide incentives, as approved by the Board, acting as the Governing Body of the Enterprise, for farmers to enroll certain irrigated lands nearest to streams in the Republican River Basin in the program that would be of greater benefit in assisting the State of Colorado in complying with the limitations and duties imposed upon the State by the Republican River Compact;

E. The Enterprise's funding would be provided over the period of the CREP contracts;

F. The Enterprise's commitment to provide up to 20% of the necessary non-federal funding would be subject to the availability of revenues derived from use fees imposed by the Enterprise and to the extent permitted by law;

G. Any contribution of non-federal funds or non-federal in-kind services would be included in the 20% of the necessary non-federal funding, and could thereby reduce the Enterprise's funding obligation, subject to the approved CREP incentive structure;

H. The Enterprise shall be entitled to hold or control any water right or permit to use ground water that has been used to irrigate land enrolled in the program to ensure that the land is not irrigated during the term of the contract, except as permitted to establish grass or native vegetation, and that a condition of the Enterprise's funding can be that the water right or permit not be used in perpetuity, and that Enterprise can use a surface right to assist the State of Colorado in carrying out the State's duty to comply with the Republican River Compact consistent with the goals of CREP.

2. The Board, acting as the Governing Body of the Enterprise, further commits to make its best efforts to establish annual use fees in an amount sufficient to provide up to 20% cost sharing for Republican River Basin CREP contracts, subject to the conditions set forth in paragraph 1 above.

RESOLUTION

ADOPTED this 3rd day of March, 2005.

ATTEST:

Tim Pautler
Secretary

BOARD OF DIRECTORS
REPUBLICAN RIVER WATER
CONSERVATION DISTRICT
Acting as the Governing Body of the
Water Activity Enterprise

Dennis Coryell
President

Exhibit N

DRAFT CONTRACT FOR PAYMENTS TO SUPPLEMENT A CREP CONTRACT

THIS CONTRACT is made and entered into this _____ day of _____, 2005, between the Republican River Water Conservation District Water Activity Enterprise ("Enterprise"), whose address is 410 Main Street, Suite 8, Wray, Colorado 80758, and the undersigned, referred to herein as the "Participant." The Enterprise and the Participant are collectively referred to herein as the "Parties."

RECITALS

WHEREAS, the U.S. Department of Agriculture (USDA) provides payments as an incentive to convert irrigated acreage to non-irrigated use under the Conservation Reserve Enhancement Program (CREP); and

WHEREAS, the Participant has entered into a contract with the USDA to convert irrigated acreage in the Republican River Basin to non-irrigated use under CREP; and

WHEREAS, the Republican River Water Conservation District ("District") was formed for the purpose of cooperating with and assisting the State of Colorado to carry out the State's duty to comply with the limitations and duties imposed upon the State by the Republican River Compact; and

WHEREAS, the District established the Enterprise pursuant to Article 45.1 of Title 37 of the Colorado Revised Statutes; and

WHEREAS, converting irrigated acreage in the Republican River Basin in Colorado to non-irrigated use will assist the State of Colorado in carrying out the State's duty to comply with the limitations and duties imposed upon the State by the Republican River Compact; and

WHEREAS, the Board of Directors of the District, acting as the Governing Board of the Enterprise, has authorized the Enterprise to make payments to supplement payments received from the USDA under CREP as an additional incentive to convert irrigated acreage in the Republican River Basin to the specified land management practice.

NOW THEREFORE, for and in consideration of the mutual covenants and agreement set forth herein, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. The Participant has signed a contract with the USDA to participate in CREP on the following farm:

a. Contract Number(s): _____

b. Type of land conversion (check applicable type):

____ Surface

____ Ground

c. Irrigated land to be converted:

Number of acres: _____

Legal description: _____

d. Mortgage(s) or lien(s) on the property:

1. Name of mortgage or lien holder: _____

2. Address: _____

3. Phone number: _____

4. Contact person: _____

A copy of the contract between the USDA and the Participant is attached hereto as Exhibit A (the "CREP contract"). If there is a mortgage or lien on the property, the holder of the mortgage or lien must also sign this Contract.

2. The Participant owns or has the right to use the following final permit to use designated ground water in the Northern High Plains Designated Ground Water Basin or a decreed right to use ground or surface water located within the Republican River Basin, and that has been used to irrigate the land to be converted to non-irrigated use on the farm identified in Paragraph 1:

a. Final Permit No. or Water Court Decree Case No.:

_____

b. Well location or Point of Diversion:

_____

c. Maximum annual volume appropriated or decreed cubic feet/second:

_____

d. Name and address of the owner final permit or decreed ground or surface water right if other than the Participant:

_____

_____

The Participant agrees that the final permit or the decreed ground or surface water right listed above will not be used to irrigate the land to be converted to non-irrigated use under CREP contract or for any other purpose during the term of the CREP contract, except as permitted in the CREP contract.

3. The Participant agrees to participate in CREP on the farm listed in Paragraph 1 from the date the CREP contract is executed by the USDA to the contract expiration date specified in the CREP contract and to comply with the terms and conditions of the CREP contract.

4. The Participant agrees to implement the plan of operations developed by the Participant and the USDA to convert irrigated acreage on the farm listed in Paragraph 1 to the specified management practice in accordance with the CREP contract. The starting date of the practice to convert the irrigated acreage to non-irrigated use is: _____.

5. The Participant agrees to comply with the terms and conditions contained in this Contract and the appendix to this Contract entitled "Appendix to Contract for Payments to Supplemental An CREP Contract (referred to as "Appendix").

6. The Participant agrees to pay any applicable liquidated damages in an amount specified in the Appendix if the Participant cancels the CREP contract before the contract expires or the Enterprise terminates this Contract in accordance with the terms and conditions in the Appendix.

7. The Enterprise agrees to pay the Participant the following amount(s):

Date	Cost-Share	Signup	Annual Rent	Water Retire	Total Pmt

8. The period of this Contract shall be perpetual without end.

9. The Participant(s) is (are):

a. The name, address, and phone number of the Participant:

1. Name: _____

   Company Name (if applicable): _____

   Address: _____

   City/State/Zip Code: _____

   Phone Number: _____

2. Indicate whether the Participant is an owner, operator, or tenant:

   ____ Owner

   ____ Operator

   ____ Tenant

3. Percentage of payments the Participant will receive (%): _____

b. If there is more than one Participant, provide the same information for each Participant.

IN WITNESS WHEREOF, the Parties to this Agreement have each caused this Agreement to be duly executed on the date set forth following their signature.

ATTEST:

By: _____
Secretary

REPUBLICAN RIVER WATER CONSERVATION DISTRICT – WATER ACTIVITY ENTERPRISE

By: _____
President

Date: _____

PARTICIPANT

: _____

If Participant is a Corporation, Corporate Name: _____

By: _____

Title: _____

Date: _____

PARTICIPANT

: _____

If Participant is a Corporation, Corporate Name: _____

By: _____

Title: _____

Date: _____

If the property to be converted is subject to a mortgage or lien, signature of the mortgage or lienholder:

By: _____

Title: _____

Date: _____

Exhibit N - continued

WELL OWNER'S STATEMENT AND REQUEST TO
CANCEL A WELL PERMIT

REPUBLICAN RIVER WATER CONSERVATION DISTRICT (RRWCD)
WATER ACTIVITY ENTERPRISE SUPPLEMENTAL
CONSERVATION RESERVE ENHANCEMENT PROGRAM (CREP) FUNDING

COLORADO GROUND WATER COMMISSION
Room 818 Centennial Building, 1313 Sherman Street, Denver, CO 80203

NOTE: This form should only be used for wells located within the Republican River Basin and the Northern High Plains Designated Ground Water Basin that are enrolling in the RRWCD Water Activity Enterprise Supplemental CREP Funding Program.

I, _____, am the owner of the well with Permit No._____, located in the _____1/4 of the _____1/4 of Section_____, Township_____, Range_____West of the 6th P.M., and the owner of the land on which this well is located.

As owner of this well, I hereby request, conditional on the final acceptance of this permit in the RRWCD Water Activity Enterprise Supplemental CREP Funding Program, that the permit for the well be cancelled and any water rights associated with this permit and well be abandoned. I understand that this well must be plugged according to the Water Well Construction Rules upon cancellation of the permit and a Well Abandonment Report for the plugged well must be submitted to the Commission.

I hereby affirm that I have read and understand the above statement and the information I have provided is true and correct.

Signed and dated this _____ day of _____, 20_____.

Signature of Applicant: _____

Applicant's Name: _____
(Please Print)

Address: _____

City, State & Zip: _____

Telephone No.:_____

For RRWCD Water Activity Enterprise Use Only:

I, _____, as the program administrator, acknowledge that the subject water right has been accepted into the RRWCD Water Activity Enterprise Supplemental CREP Funding Program. I hereby affirm that I have read and understand the above statement and the information I have provided is true and correct.

Signed and dated this _____ day of _____, 20_____.

Signature of Program Administrator_____

Upon completion by RRWCD Water Activity Enterprise, send form to Colorado Ground Water Commission

Exhibit O

NRCS 8-Digit Hydrologic Unit Codes

Subregion 1025 -- Republican: The Republican River Basin. Colorado, Kansas, Nebraska.
Area = 24700 sq.mi.

Accounting Unit 102500 -- Republican. Colorado, Kansas, Nebraska.
Area = 24700 sq.mi.

Cataloging Units 10250001 -- Arikaree. Colorado, Kansas, Nebraska.
Area = 1710 sq.mi.

10250002 -- North Fork Republican. Colorado, Kansas, Nebraska.
Area = 3290 sq.mi.

10250003 -- South Fork Republican. Colorado, Kansas, Nebraska.
Area = 2720 sq.mi.

10250004 -- Upper Republican. Colorado, Kansas, Nebraska.
Area = 2160 sq.mi.

10250005 -- Frenchman. Colorado, Nebraska.
Area = 1350 sq.mi.

10250006 -- Stinking Water. Colorado, Nebraska.
Area = 1470 sq.mi.

10250012 -- South Fork Beaver. Colorado, Kansas.
Area = 771 sq.mi.

10250013 -- Little Beaver. Colorado, Kansas.
Area = 604 sq.mi.

Exhibit P

Water Use	Jan. 1, 2005 Fee
Ground Water for Irrigation	$5.50 / acre
Ground Water for Commercial or Municipal	$4.40 / acre-foot
Post-Compact Surface Water	$5.10 / acre-foot

Irrigated acres are based on assessed acres per current county records. The annual use fee for diversion of ground water for irrigation use has been based on the average estimated diversion of ground water per acre for the previous ten years within the District and has been set so that the average estimated diversion of ground water per acre results in a fee of $5.50 per assessed irrigated acre within the District.

COLORADO DIVISION OF WATER RESOURCES
DEPARTMENT OF NATURAL RESOURCES

Republican River Water Conservation District
505 E. 8th Ave., Building A
PO Box 304
Yuma, CO 80759
in cooperation with…

COLORADO DIVISION OF WATER RESOURCES
DEPARTMENT OF NATURAL RESOURCES

Division of Water Resources
1313 Sherman St., Room 818
Denver, CO 80203
(303) 866-3581
www.water.state.co.us/wateradmin/RepublicanRiver.asp
Ken Knox
Chief Deputy State Engineer
Scott Richrath
Program Coordinator

Colorado State University Cooperative Extension
Putting Knowledge to Work

Colorado State University
Cooperative Extension

Kit Carson County
719-346-5571
Phillips County
970-854-3616
Washington County
970-345-2287
Sedgwick County
970-474-3479
Logan County
970-522-3200
Lincoln County
719-743-2542
Yuma County
970-332-4151
www.republicanriver.com

Republican River Water Conservation District

Inside...

- Republican River Water Conservation District updates
- 2005 Fee Schedule
- 2004 EQIP
- Planned 2005 CREP
- Conservation Easements
- Leasing your water to the RRWCD

February 14, 2005

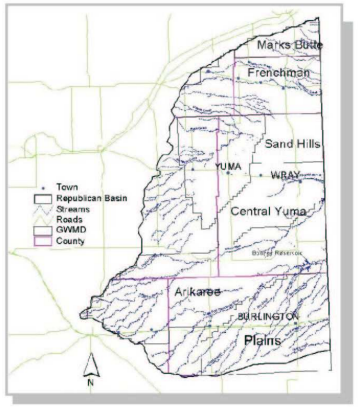
COLORADO DIVISION OF WATER RESOURCES
DEPARTMENT OF NATURAL RESOURCES

Republican River Water Conservation District

Governor Bill Owens signed into law Senate Bill 04-235, establishing a Republican River Water Conservation District in Phillips and Yuma counties, and those portions of Kit Carson, Lincoln, Logan, Sedwick, and Washington counties within the Republican River Basin.

The District is empowered to take such actions as are necessary to cooperate with and assist the state of Colorado to carry out the state's duty to comply with the Republican River Compact. The county commissioners of each county, the ground water management districts, and the Colorado Ground Water Commission have appointed the 15 members to the District's board. The new law authorized the District to form a water activity enterprise ("Enterprise") and authorizes several funding mechanisms to enable the District and the Enterprise to help comply with the Compact.

- *Water use fees*
- *Revenue bonds*
- *Special assessments*
- *Sales and use tax*
- *Ad valorem property taxes*



During 2003, Colorado exceeded its allocation by several thousand acre-feet of water due to ongoing drought reducing streamflows, improved tillage practices reducing runoff, and continued well pumping from 3,967 wells in Colorado.

COLORADO DIVISION OF WATER RESOURCES
DEPARTMENT OF NATURAL RESOURCES

EQIP

The Environmental Quality Incentives Program was reauthorized in the Farm Security and Rural Investment Act of 2002 (Farm Bill) to provide a voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible national goals. EQIP offers finanical and technical assistance to eligible participants who install or implement structural and management practices on eligible agricultural land.

EQIP offers contracts with terms of three and five years as well as permanent contracts. These contracts provide incentive payments and cost-sharing to implement conservation practices. Farmers and ranchers may elect to use a certified third-party provider for technical assistance.

Producers may sign up by December 17, 2004, at their local Natural Resources Conservation Service (NRCS) offices or online at www.nrcs.usda.gov.

Additionally, the Republican River Water Conservation District Water Activity Enterprise intends to further supplement NRCS payments with incentives based on District objectives. The Enterprise plans to provide a schedule of those incentives at www.water.state.co.us/wateradmin/RepublicanRiver.asp.

CREP

The State of Colorado seeks to obtain federal funds through the United State Department of Agriculture (USDA) for the purpose of encouraging some farmers in the Republican River Basin to enroll in a voluntary Conservation Reserve Enhancement Program.

This program would provide incentives and cost sharing to participants who enter their land into eligible conservation practices such as native vegetation establishment or wildlife preservation for a period of 15 years. Of the more than 570,000 acres irrigated by surface or ground water in Colorado's region of the basin, the state will seek to enroll approximately 5% of those acres into the program over the next several years.

The USDA Colorado offices, the Colorado Divisions of Water Resources and Wildlife, Colorado State University Extension, the Republican River Water Conservation District and other agencies will work to prepare a proposal for 2005.

Conservation Easements

Some landowners may choose to permanently donate the water rights associated with their agricultural land in order to receive tax savings. A conservation easement is a real property interest that grants the owner of the easement the right to prohibit certain acts (irrigation) with respect to the property in a manner that will preserve its value for conservation purposes.

Additional information regarding donating water rights and conservation easements can be obtained by contacting the Republican River Water Conservation District.

Short-Term Leases

To achieve its objective of helping the State of Colorado meet its compact obligations, the Republican River Water Conservation District and its Water Activity Enterprise must begin helping agricultural producers voluntarily retire irrigated land, on both temporary and permanent bases.

This will require the Enterprise to begin leasing the water rights of some acres beginning in 2005. Based on the model governing the Republican River Compact Agreement, those acres closest to the North Fork and South Fork of the Republican River will provide the greatest benefit to Colorado compact compliance.

Surface and ground water irrigators interested in entering a lease agreement with the Enterprise should contact the Enterprise after January 1, 2005.

Important Dates

- 1/01/2005 First fee assessment
- 2/22/2005 Special Board meeting
- July, 2005 Republican Compact meeting
- Oct., 2005 Projected CREP signup
- 12/31/2007 Final day of 5-year average

Republican River Water Conservation District Compact Compliance Plans

November, 2004

Assessment Fees

Fees assessed in the Republican River Basin by statutory authority granted in the enabling legislation (S.B. 235) for land management programs.

Groundwater Irrigated Lands	$5.50/ac
Surface Water Irrigated Lands	$5.10/ac-ft
Municipal Groundwater Wells	$4.40/ac-ft
Commercial Groundwater Wells	$4.40/ac-ft

Land Management Programs

CREP

The **Conservation Reserve Enhancement Program** is a federal-state land retirement conservation program targeted to address state and nationally significant agriculture-related environmental problems. The RRWCD is in the process of forming a multi-agency workgroup and applying to USDA for this program in the Republican River Basin of Colorado.

EQIP

Environmental Quality Improvement Program

Using this program, the RRWCD and landowners would enter into a lease agreement. With this lease, the RRWCD would hold the water right associated with a particular parcel of land and the landowner would be able to produce crops or forage under dryland cultural practices. The RRWCD would pay 20% of the cost of the lease and USDA would pay the remaining 80%. The RRWCD is in the process of forming a multi-agency workgroup and applying to USDA for this program in the Republican River Basin of Colorado.

Internet Resources

www.republicanriver.com

www.water.state.co.us/wateradmin/RepublicanRiver.asp

Colorado State University Cooperative Extension

Putting Knowledge to Work

Colorado State University
Cooperative Extension
Sedgwick, Phillips, Yuma, Kit Carson,
Logan, Washington and Lincoln counties
(970) 345-2287

November, 2004

In cooperation with...

Colorado Division of Water Resources
Scott Richrath, Program Coordinator
Ken Knox, Chief Deputy State Engineer
(303) 866-3581

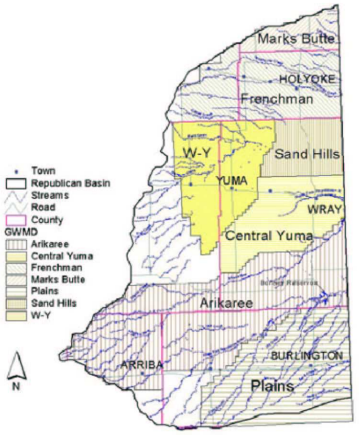
COLORADO DIVISION OF WATER RESOURCES

DEPARTMENT OF NATURAL RESOURCES

The Republican River and You

An Issue Affecting Northeastern Colorado Counties. How Will It Affect You, Your Family and Your Community?

Republican River Basin in Colorado



A Little History

In 1942, the Republican River Compact was signed by Kansas, Nebraska and Colorado. The agreement (Compact) was developed for two reasons:

- The three states recognized the need to develop a mechanism to share Republican River water through an equitable and enforceable format. The federal government would not help with water projects unless an agreement was signed regarding the division of surface water.
- The federal government would not provide financial assistance to construct dams for water supply and flood protection without a formal mechanism to divide Republican River water among the three states. There was a demand for flood protection after the devastating 1935 flood.

Today the three states have 14 sub-basins that make up the Republican River Basin.

The Lawsuit

In1998, Kansas filed a lawsuit with the Supreme Court alleging Nebraska was using more than its fair share of water. Colorado was eventually brought into the suit as a third party and the United States entered the case as *amicus curiae* (friend of the court) to protect their interest in eight large reservoirs in the Republican River Basin.

The Supreme Court appointed a 'special master' who is a former Maine Supreme Court Justice to hear the case. The special master ruled that not only surface water, but water in the Ogallala Aquifer must be included in the calculation of water used by each state in the basin.

The State of the Republican

Based on 1942 flow, there are approximately 478,900 acre- feet of water to be distributed. Colorado is allowed 11% or 54,100; Kansas gets 40% or 190,300; and Nebraska portion is 49% or 234,500 acre-feet.

Significant groundwater irrigation development has occurred since then. Dryland and irrigated agricultural practices have also changed drastically since the compact was signed.

Colorado and Kansas discontinued permits for new wells in the 1990's. Nebraska, however, has continued to develop new irrigation.

The Settlement

To avoid an expensive lawsuit, the three states chose to negotiate. Talks were initiated in October 2001. By April 2002, the guiding principles were in place. In 2003, the United States Supreme Court dismissed the case with the condition that the states follow a groundwater model on which all have agreed.

The settlement uses a five-year average of water flow to determine how much water each state will have to work with. During water-short years, each state will have to lower their use. In years with average or above average precipitation, the five year average will increase, providing more water for users in each state. Flood events will not be calculated into the average.

The settlement also says that if Colorado is not in compliance, it must pay back Kansas with water and/or money. The State of Colorado has said there is no money; so Kansas must be paid back in water. Currently, Colorado is in a water deficit situation due to the extended drought.

The Options

Colorado has several options available to meet its compliance obligations with the compact. Those options include:

- Conservation Reserve Enhancement Program (CREP). This voluntary program uses financial incentives to encourage farmers an ranchers to enroll in CRP contracts of 15 years to remove land from agricultural production.
- Providing reimbursement to farmers living close to streams who take irrigated farmland out of production.
- Providing reimbursement to farmers living farther away from streams where stream flow depletions take longer to occur.
- Create a system of voluntary or market driven water supplies for Colorado producers.

The Bill

Senate Bill 235, which passed the legislature and was signed by the governor in 2004, allows for the formation of a conservation district covering the area of the Republican River Basin. It will be governed by a board whose members are appointed by county commissioners and ground water management districts within the basin, as well as one member appointed by the Colorado Ground Water Commission.

With this legislation, the board was given the power to assess fees within the basin that will help the board meet compliance obligations. In addition to these fees, the board can ask voters within the district to approve taxing measures for the same purpose.

The Balance

Hal Simpson, Colorado State Water Engineer has stated, "**Our goal is to protect the local economy and also comply with the compact.** We have to comply with the compact because if we don't the **Supreme Court can order all wells in Colorado to be shut down** in order to compensate downstream states for damages and dollars. **We aren't playing around with something insignificant here."**

Exhibit Q

Letters of Support

Several letters expressing support for the Republican River CREP proposal, the High Plains CREP proposal, and both proposals are included in the original hard copy version of this proposal. Specifically, letters of support have been received from the following individuals, agencies and organizations:

United States Fish and Wildlife Service

Representative Diane Hoppe – Colorado Legislature

State of Kansas
State of Nebraska

Logan County Board of Commissioners
Phillips County Board of Commissioners
Yuma County Board of Commissioners
Kit Carson County Board of Commissioners

Playa Lakes Joint Venture
Rocky Mountain Bird Observatory
Pheasants Forever – National Office
Pheasants Forever – State Council
The Nature Conservancy
Environmental Defense Fund
Colorado Association of Conservation Districts
High Plains Land Conservancy
Colorado Farm Bureau
Colorado Department of Agriculture
Y-W Electric Association
Northeast Colorado RC and D
Donald C. and Peggy E. Brown

Additionally, verbal support has been expressed by the following individuals, agencies, and organizations. Support letters have been verbally committed, but have yet to be received as of this mailing.

Senator Wayne Allard – United States Congress
Senator Ken Salazar - United States Congress
Representative Marilyn Musgrave – United States Congress

Senator Greg Brophy – Colorado Legislature

Sedgwick County Board of Commissioners

Republican River Association of Conservation Districts

AMENDMENT 2

TO THE REPUBLICAN RIVER

CREP AGREEMENT

BETWEEN

THE U.S. DEPARTMENT OF AGRICULTURE,

THE COMMODITY CREDIT CORPORATION,

AND

THE STATE OF COLORADO

The Conservation Reserve Enhancement Program (CREP) Agreement between the U.S. Department of Agriculture (USDA), Commodity Credit Corporation (CCC), and the State of Colorado (State) originally executed on April 21, 2006, is hereby modified pursuant to Section VII, paragraph 6 of the Republican River CREP Agreement (Agreement). This amendment (1) increases eligibility to a total of 55,000 acres upon approval of this amendment, (2) adds parts of Washington and Lincoln counties, subject to conditions, to the project area, (3) increases the duration for temporary irrigation for cover establishment from 12 to 24 months, (4) changes State payment provisions for land near the Arikaree River, (5) consolidates and retargets State payments, and (6) adds a Target Zone. All current Agreement provisions not added, amended or deleted as indicated below shall remain in effect as currently outlined in the original Agreement.

Section II, GENERAL PROVISIONS – First paragraph is amended to read:

The goals of the Colorado Republican River CREP amendment are to enroll a total of 55,000 eligible cropland acres to significantly reduce the amount of irrigation water consumptive use and reduce agricultural chemicals and sediment from entering waters of the State from agricultural lands and transportation corridors. The reduction of ground and surface water use and of non-point source contaminants, through establishment of permanent vegetative covers, will also enhance associated wildlife habitat, both terrestrial and aquatic, and help conserve energy.

Section II, GENERAL PROVISIONS Subparagraphs 2, 3, 4, 9, 10, and 11, are amended to read:

2. Seek, by purchase of landowner's permanent water rights or cancellation of the well permit through the Republican River Water Conservation District Water Activity Enterprise (CRRWCD-WAE), 60,000 to 75,000 acre-feet of annual water savings.

3. Reduce soil erosion from approximately 751,633 tons to 165,000 tons per year, a total reduction for all acres enrolled of 586,633 tons per year.

4. Reduce annual fertilizer and pesticide application from all enrolled acres by 4,606 tons per year from 2004 levels.

9. In addition to the goal listed in Item 5, enroll up to 500 acres of riparian buffer and wetland practices to permit natural restoration of stream and wetland hydraulic and geomorphic characteristics which meet habitat requirement of the targeted fish species.

10. Reduce, by approximately ten percent from 2004 levels, the number of ground water wells containing nitrogen levels above EPA standards.

11. Through reductions in groundwater pumping on all acres enrolled, reduce the total use of electricity by 3.29 million kilowatt hours.

Section IV, PROGRAM ELEMENTS Subparagraphs 3, 9, and 10 are amended to read:

3. For the Colorado Republican River CREP (Amendment 2), cropland and practice enrollment goals are as follows:

- CP22, CP23, and CP23A – up to 500 acres.
- CP2 and CP4D – up to 54,500 acres.

9. For non-irrigated (dryland) cropland to be eligible for enrollment under this program, the land must be a center-pivot corner enrolled with the adjacent irrigated center-pivot cropland area, as determined by the Deputy Administrator. No more than 5,000 acres of eligible non-irrigated (dryland) cropland corners may be enrolled under this program.

10. Participants may be allowed to apply not more than ½ acre foot of irrigation water per acre to enrolled irrigated land during the first 24 months of a CRP contract under this program, but only if/when necessary to establish the vegetative conservation cover as outlined in an approved conservation plan, as determined by CCC. Otherwise, no irrigation water may be applied to the land at any time during the term of the CRP contract except as further agreed to by CCC.

Section IV, PROGRAM ELEMENTS New Subparagraph 11 is added and Subparagraphs 7, 8, 17 are amended to read:

7. **No lands may be enrolled under this program until the USDA's CREP Program Manager approves a detailed Colorado State FSA supplement to the Farm Service Agency Handbook 2-CRP, which will provide a thorough description of this program and applicable practices,** and until completion of the appropriate level of documentation required by the National Environmental Policy Act of 1969, as amended and 7 CFR 799.

8. (The fourth bullet is amended to read)

- Irrigated cropland shall only be eligible for this CREP when producers submit a completed and signed State certification agreement "Colorado Republican River Water Conservation District Water Activity Enterprise Agreement (CRRWCD-WAE Agreement)" which certifies that the producer will cease applying irrigation water on all irrigated cropland acres accepted for enrollment into this CREP upon the beginning of the CRP contract period unless otherwise allowed by CCC. In addition, after CRP contracts are entered into, participants who irrigate enrolled irrigated cropland located outside the target zone with ground water must submit to the Colorado Ground Water Commission either a "Request to Cancel a Well Permit" for the well permit for all irrigated cropland enrolled, or an "Application to Reduce Permitted Acres and Authorized Annual Appropriation" if a portion, but not all, of a well permit will be retired to ensure that the producer's total irrigated acreage and cropped acres are reduced by no fewer that the number of enrolled irrigated cropland acres. Participants who irrigate enrolled irrigated cropland within the target zone with ground water must submit to the Colorado Ground Water Commission a "Change in Ownership" Form GWS 11 and shall agree to convey and dedicate such rights to the Republican River Water Conservation District Water Activity Enterprise for compliance with the Republican River Compact by using such ground water right to increase stream-flow in the Republican River Basin. Further, all participants who irrigate enrolled irrigated cropland with surface water must submit an application for a change of water right with the District Court for Water Division No. 1 to change the use from agricultural irrigation to in-stream use for the water right that has been used to irrigate the enrolled irrigated cropland and shall agree to convey and dedicate the use of such rights to the State of Colorado, Colorado Water Conservation Board, for in-stream flow purposes and/or to the Republican River Water Conservation District Water Activity Enterprise for compliance with the Republican River Compact by using

such surface water to increase stream-flow in the Republican River Basin. The execution of the legal well retirement, transfer of ground or surface water rights, or legal reduction in permitted acres will become effective upon State approval of the application.

11. All land in the project area; as shown in Figure 1. shall only be eligible for enrollment if approved as a State Conservation Priority Area by the CRP Program Manager, and located in a county whose enrollment is not limited by the total county cropland limit or a waiver of the total county cropland limitation is granted to exclude acreage under CREP provided that the respective county governments concur.

17. In any case in which the CCC secures a CRP contract with an agricultural producer at an irrigated rental rate, ensure:

    - The permanent retirement or transfer of the quantity of water that has been applied to that land for agricultural irrigation purposes;
    - No change
    - Non-use, except as provided under this Agreement, of any surface or well water which, prior to enrollment in the CRP under this Agreement, had been used to irrigate the enrolled land. Among other assurances as may be necessary or appropriate, the Colorado Agreement will require that the participant and/or State does not use, affect, transfer, sell, exchange, or otherwise apply the surface or well water during the CRP contract period for the purpose of irrigating crops, except as agreed to by USDA.

Section VI, STATE COMMITMENTS

In determining State Direct Payments made through the RRWCD-WAE, the location of the well for ground water irrigated cropland or the point of diversion for surface water irrigated cropland will be the point that is used to calculate the operative distance from the South Fork and the North Fork of the Republican River and the Arikaree River in the schedule set out in this paragraph.

Colorado, through the RRWCD-WAE, agrees to contribute not less than 20 percent of the overall costs of the CREP, through payments to program participants, new funding for the CREP project, or in-kind contributions. No portion of the State of Colorado, the RRWCD-WAE or their employee's or contractor's time or expenses related to the planning or construction of the Compact Compliance Pipeline, or the time or expenses related to acquiring property rights necessary for the implementation of the Compact Compliance Pipeline shall be credited towards the 20% of the cost of the CREP.

Section VI, STATE COMMITMENTS Subparagraph 1 is amended to read:

1. Direct State Partner payments to participants will be provided annually for permanent water rights retirement to be paid within 30 days of participants receiving CRP annual rental payments from CCC.: The three rivers for this payment schedule are: (1) the North Fork of the Republican River, (2) the South Fork of the Republican River, and (3) the Arikaree River. See Figure 2 for the Target Area wells. Direct State Partner Payments will be provided according to the following schedule:

    - Any cropland irrigated only with surface water located anywhere in the CREP Project Area as shown in Figure 1: $600/acre ($40.00/acre/year)

    - Any cropland irrigated with groundwater for which the well is located within 1 mile of any of the 3 rivers: $400/acre ($26.67/acre/year)

    - Any cropland irrigated with groundwater for which the well is located between 1 mile and 2 miles of any of the 3 rivers: $250/acre ($16.67/acre/year)

    - Any cropland irrigated with groundwater for which the well is located between 2 mile and 3 miles of any of the 3 rivers: $175/acre ($11.67/acre/year)

    - Any cropland irrigated with groundwater for which the well is located beyond 3 miles of any of the 3 rivers, and predominately served by Target Area wells: $189/acre ($12.60/acre/year)

    - Any cropland irrigated with groundwater for which the well is located beyond 3 miles of any of the 3 rivers, and not predominately served by Target Area wells: $100/acre ($6.67/acre/year)

Section VI, STATE COMMITMENTS Subparagraphs 2, 3, and 4 are deleted

Section VII, MISCELLANEOUS PROVISIONS Subparagraph 8 is amended to read:

8. USDA may enter into CREP contracts for fully eligible persons and land provided that the CREP project enrollment limit has not been reached, and that such actions are otherwise authorized by law.

Section VII, MISCELLANEOUS PROVISIONS New Subparagraph 9 is added to read:

9. The U.S. Department of Agriculture prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA, Office of Communications at 202-720-5881 (voice) or 202-720-7808 (TDD.) To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, DC, 20250, or call 202-720-7327 (voice) or 202-720-1127 (TDD). USDA is an equal employment opportunity employer.

10. As necessary, Colorado, the RRWCD-WAE, and USDA agree to share appropriate data with each other, and with State of Colorado RR CREP Cooperators, in accordance with procedures, restrictions and exemptions established under the Freedom of Information Act, federal privacy laws, including Section 1619 of the Food, Conservation, and Energy Act of 2008 (Public Law 107-1619), Section 2004 of the Farm Security and Rural Investment Act of 2002 (Public Law 107-171, section 2004), and other applicable laws, in furtherance of the requirements and goals of this Agreement.

IT IS SO AGREED:

FOR THE U.S. DEPARTMENT OF AGRICULTURE AND THE COMMODITY CREDIT CORPORATION

_____ **Date _____**

Jonathan Coppess
Administrator, Farm Service Agency
U.S. Department of Agriculture

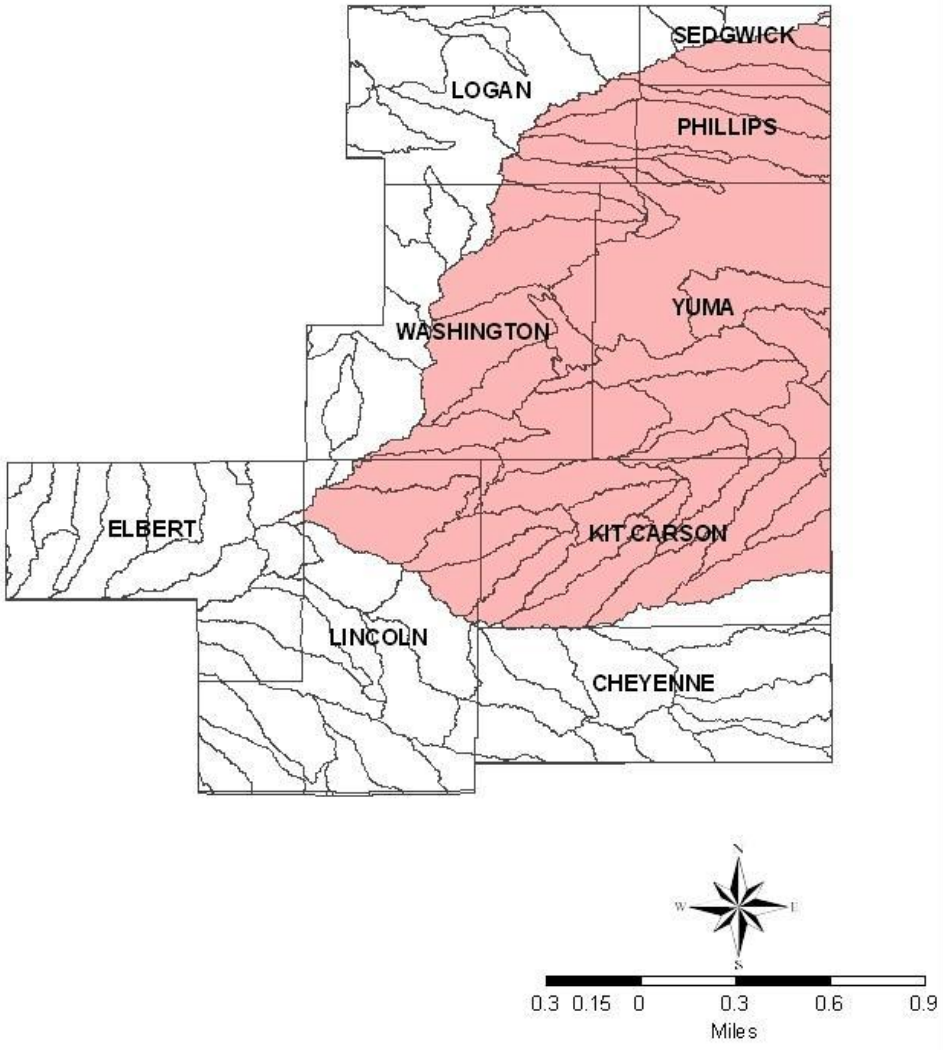
FOR THE STATE OF COLORADO

_____ **Date _____**

James Martin
Executive Director, Department of Natural Resources

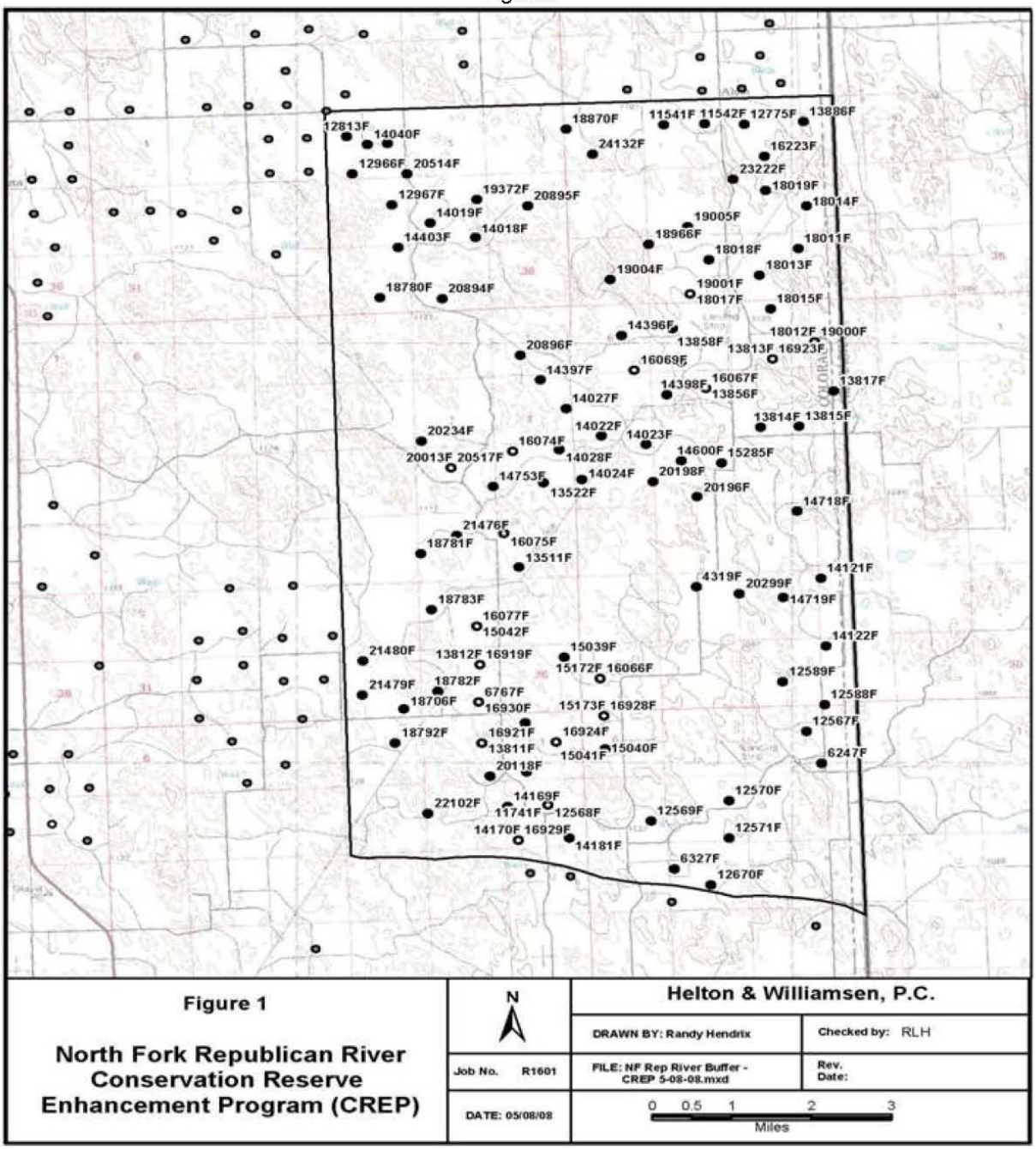
Expanded CREP Project Area

Figure 1



Target Area
(Target Area only includes numbered wells shown below)

Figure2



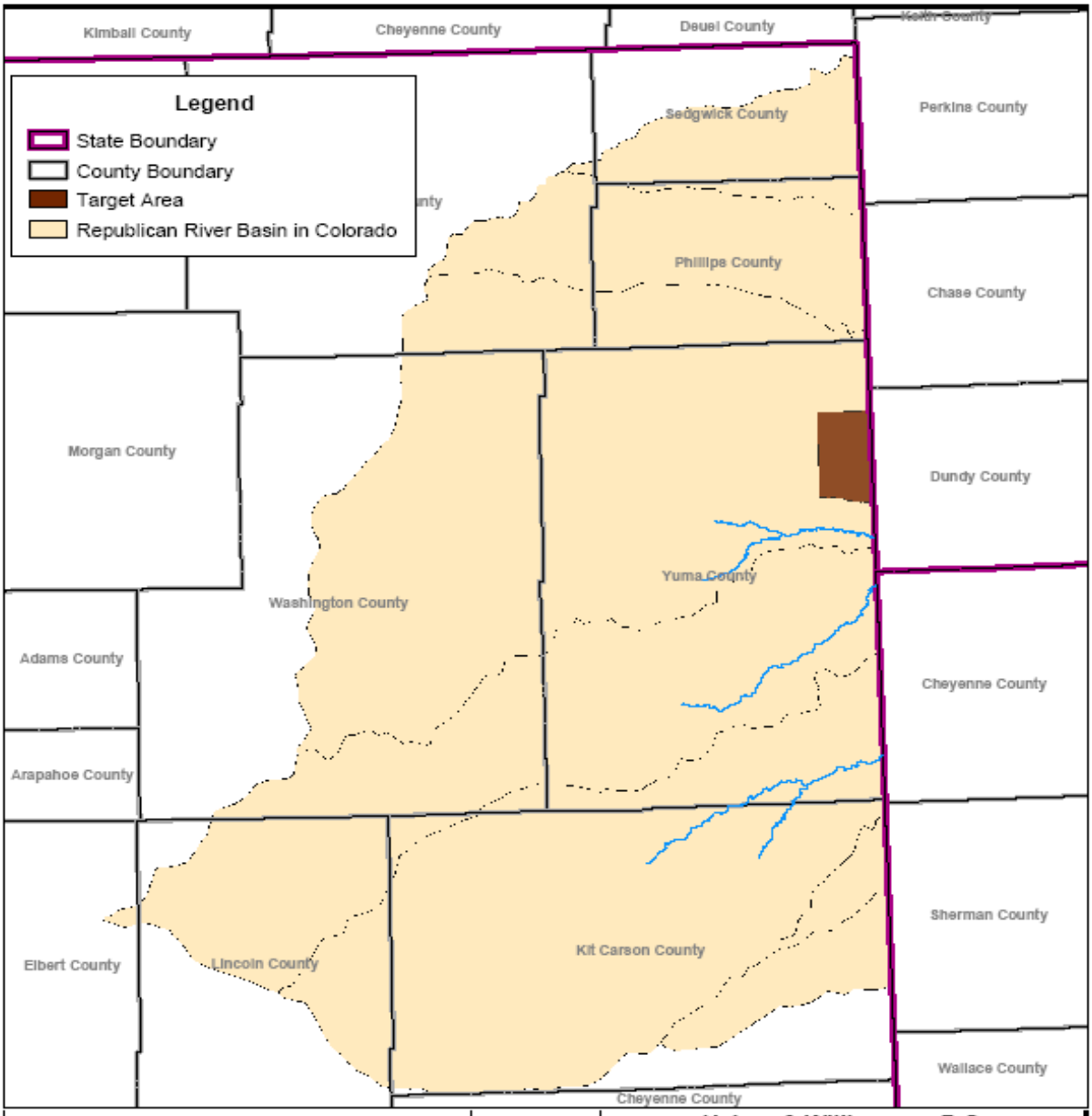


Figure 1

Targeted CREP Area

Republican River Water Conservation District

Helton & Williamsen, P.C.

	DRAWN BY: Randy Hendrix	Checked by:
Job No. R1601	FILE: Target Area.mxd	Rev. Date:
DATE: 09/08/2008		

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APPENDIX B – AGENCY CORRESPONDENCE

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United States Department of Agriculture

Farm and Foreign Agricultural Services

Farm Service Agency

1400 Independence Ave, SW
Stop 0513
Washington, DC
20250-0513

October 6, 2010

TO: [Distribution List]

FROM: Matthew T. Ponish
United States Department of Agriculture, Farm Service Agency
National Environmental Compliance Manager

SUBJECT: Draft Supplemental Environmental Assessment for Amendment to Republican River Conservation Reserve Enhancement Program (CREP) in Colorado

Dear [Attached Distribution List],

The United States Department of Agriculture, Farm Services Agency (FSA) on behalf of the Commodity Credit Corporation (CCC) has prepared a Draft Supplemental Environmental Assessment (EA) to examine the potential environmental consequences associated with implementing an Amendment to the Republican River CREP in Colorado.

In 2006, an EA was completed to evaluate the environmental consequences of implementing the Republican River Basin and High Plains Region CREP Agreements for Colorado. This Supplemental EA tiers from the 2006 EA and evaluates changes to the program from the proposed Amendment. The FSA is examining the Proposed Action (the Amendment) and the no action alternative environmental baseline on natural and socioeconomic resources.

The Draft EA is available at the following websites for review and download: http://www.fsa.usda.gov/FSA/webapp?area=home&subject=ecrc&topic=nep-cd and www.water.state.co.us. All comments must be received by **November 5, 2010**. A public meeting has been scheduled for:

October 20, 2010, 6:00pm to 8:00pm
Wray City Hall (Roundhouse)
245 W. 4th St.
Wray, Colorado 80758

Written comments may be submitted at the meeting or by mailing to:
State of Colorado
Attn: Kathryn Radke
Division of Water Resources
1313 Sherman Street, Room 818
Denver, CO 80203

We appreciate your review and look forward to receiving your comments.

Matthew T. Ponish

Distribution List

Arikaree GWMD
5462 County Road TT
Cope, CO 80812

Burlington Conservation District
138 South 14th St
Burlington, CO 80807

Centennial Conservation District
PO Box 351
Sterling, CO 80751

Central Yuma GWMD
342 Main St
Wray, CO 80758

Colorado Department of Natural Resources
Attn: Rebecca Mitchell, Water Policy and Issues Coordinator
1313 Sherman Street, Room 718
Denver, CO 80203

Colorado Division of Wildlife
Attn: Ken Morgan
6060 Broadway
Denver, Colorado 80216

Colorado Farm Bureau
Attn: Alan Foutz, President
9177 East Mineral Circle
Centennial, Colorado 80112

Colorado Historical Society
Office of Archaeology and Historic Preservation
Attn: Edward Nichols
Civic Center Plaza
1560 Broadway, Suite 400
Denver, CO 80202
303-866-3395

Colorado NRCS State Office
Denver Federal Center
Attn: Tim Carney
Building 56, Room 2604
PO Box 25426
Denver, CO 80225-0426

Colorado Rocky Mountain Bird Observatory
Attn: Tammy Ver Cauteren, Executive Director
230 Cherry Street, Suite 150
Fort Collins, Colorado 80521

Cope Conservation District
2862 CR LL
Flagler, CO 80815

Flagler Conservation District
PO Box 447
Flagler, CO 80815

Frenchman GWMD
103 East Emerson
Holyoke, CO 80734

Haxtun Conservation District
1280 SW Interocean Dr.
Holyoke, CO 80734

High Plains Conservation District
PO Box 127
Hugo, CO 80821

Kit Carson County Commissioner
PO Box 160
Burlington, CO 80807

Lincoln County Commissioner
PO Box 39
Hugo, CO 80821

Logan County Commissioner
315 Main St
Sterling, CO 80751

Marks Butte GWMD
103 East Emerson
Holyoke, CO 80734

Phillips County Commissioner
221 S. Interocean
Holyoke, CO 80734

Plains GWMD
PO Box 188
Burlington, CO 80807

Sandhills GWMD
342 Main St
Wray, CO 80758

Sedgwick County Commissioner
315 Cedar Street
Julesburg, CO 80737

Sedgwick County Conservation District
30699 CR 8
Julesburg, CO 80737

The Nature Conservancy
Attn: William Burnidge, Northeast Colorado Project Director
1430 Larimer St., Suite 304
Denver, CO 80202

U.S. Fish and Wildlife Service
Region 6
Attn: Steve Guertin
134 Union Boulevard
Lakewood, CO 80228
303 236-7905

U.S. Fish and Wildlife Service
Colorado Field Office
Attn: Susan Linner
P.O. Box 25486 – Denver Federal Center
Denver, CO 80225
303-236-4005

USDA Colorado Farm Service Agency
Denver Federal Center
Attn: Billy Merrit
Building 56, Room 2760
P O Box 25426
Denver CO 80225-0426

Washington Conservation District
PO Box U
Akron, CO 80720

Washington County Commissioner
150 Ash Ave
Akron, CO 80720

W-Y GWMD
PO Box 121
Yuma, CO 80759

Yuma Conservation District
PO Box 116
Yuma, CO 80759

Yuma County Commissioner
310 Ash Street
Wray, CO 80758

Yuma County Conservation District
247 N Clay St Ste 1
Wray, CO 80758

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United States Department of Agriculture

Farm and Foreign Agricultural Services

Farm Service Agency

1400 Independence Ave, SW
Stop 0513
Washington, DC
20250-0513

October 6, 2010

TO: USDA Colorado Farm Service Agency
Attn: Rick Cervenka
628 West 5th St.
Cortez, CO 81321

FROM: Matthew T. Ponish
United States Department of Agriculture, Farm Service Agency
National Environmental Compliance Manager

SUBJECT: Draft Supplemental Environmental Assessment for Amendment to Republican River Conservation Reserve Enhancement Program (CREP) in Colorado

Dear Mr. Merrit,

Please find enclosed copies of the above referenced Draft Supplemental EA to be distributed to the affected CREP county offices and made available for public review: Kit Carson, Lincoln, Logan, Phillips, Sedgewick, Washington, and Yuma. The public comment period is October 7, 2010 through November 5, 2010. Please make the Draft Supplemental EA available during this time period.

In addition, the Draft EA is available at the following websites for review and download: http://www.fsa.usda.gov/FSA/webapp?area=home&subject=ecrc&topic=nep-cd and www.water.state.co.us. All comments must be received by **November 5, 2010**. A public meeting has been scheduled for:

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Written comments may be submitted at the meeting or by mailing to:

State of Colorado
Attn: Kathryn Radke
Division of Water Resources
1313 Sherman Street, Room 818
Denver, CO 80203

We appreciate your assistance in public involvement for this project.

Matthew T. Ponish

Enclosures: 8 paper copies, 1 CD

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